

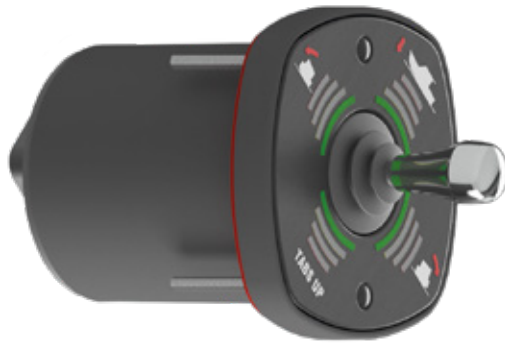
# UF LEX 20

**A WORLD OF  
MARINE  
EQUIPMENT**



**UFLEX**

# NEW20



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**FAAM® - Batteries**

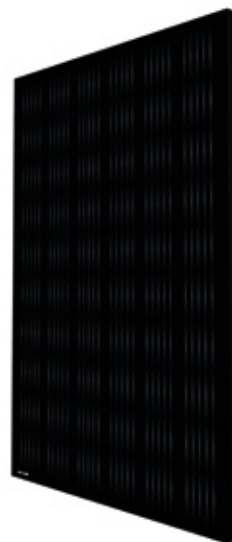
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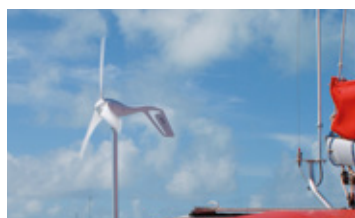


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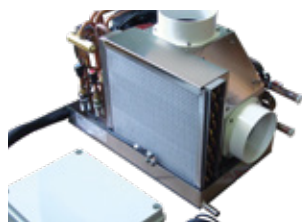




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**ULTRAFLEX GROUP**  
**85 years**  
 1935-2020



**1935 - 2020**

Ultraflex Group has 85 years of experience in manufacturing and distributing the highest quality and most innovative products.

The Ultraflex Group affiliate Companies that design and produce widely known equipments in the marine, industrial, architectural and alternative energy fields.

## Management System

The Ultraflex and Uflex Management Systems are certified in conformity with the UNI EN ISO 9001:2015 and UNI EN ISO 14001:2015 rules and involve all the company resources and processes starting from the design, in order to:

- Define and comply with the customer requirements
- Set up the actions to maintain and improve the quality standards constantly
- Pursue a continuous process improvement to meet the market needs, through research, innovation and developing products and processes.
- Maintain and verify conformity with ABYC requirements.
- Pursuing environmental protection, including pollution and continuous improvement aimed at environmental performance

Constantly test the products to verify their conformity with the 2013/53 EU and ABYC (American Boat and Yacht Council) requirements.



Steering and control systems for pleasure boats



Manufacturing of steering wheels and distribution of technical marine accessories



**UFLEX - Renewable Energy**

Systems and accessories for alternative energy applications



**ULTRAFLEX CONTROL SYSTEMS**

Window and skylight remote controls. Building automation



**INDUSTRIA di LEIVI**

Mechanical remote controls in the industrial field

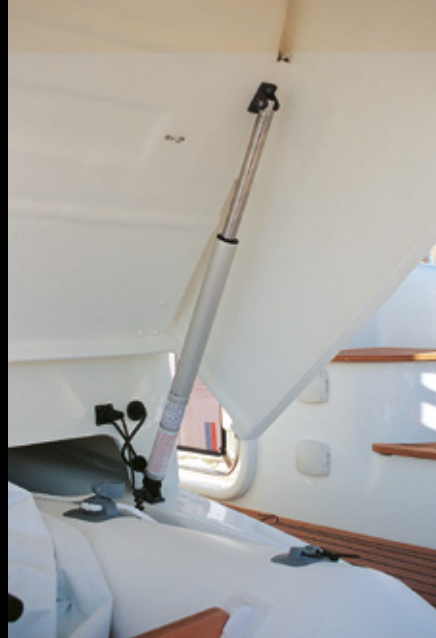


**UFLEX USA**

Steering and control systems for pleasure boats







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**WES<sup>®</sup>**

**ULTRAFLEX CONTROL SYSTEMS Srl**



Thanks to Gobbi S.p.A. and Sessa Marine S.p.A. for their kind cooperation

**HATCH LIFTERS**

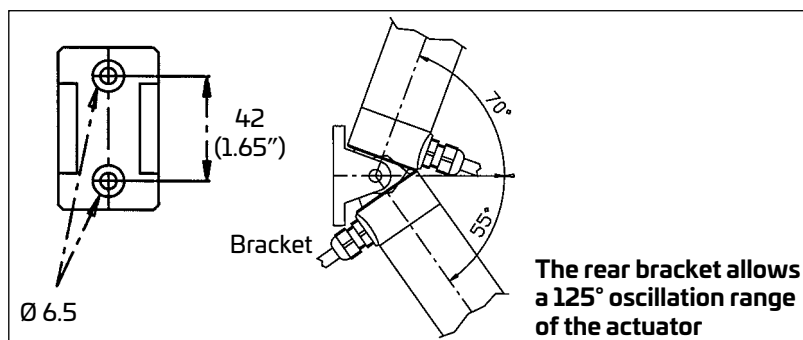
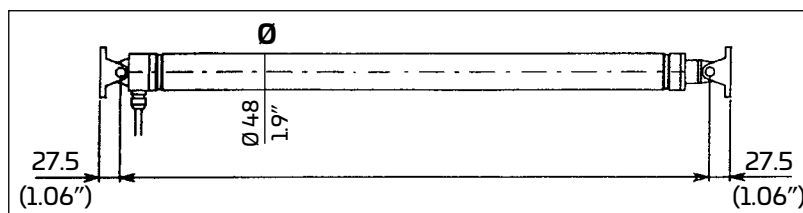
## AV SERIES ELECTRICAL HATCH LIFTERS

The AV hatch lifters are electromechanical products, especially designed for marine use on pleasure boats. They allow full or partial opening and closing of heavy engine hatches, peak tanks, hatch beams etc. By activating a switch, it is possible to lift the hatch to any desired position from closed to full open; an internal self-locking mechanism will maintain the position preventing any accidental hatch closing. In case of a power failure an emergency device allows for manual opening.

### TECHNICAL FEATURES

- According to the load required, the AV hatch lifter can be mounted individually, or in twin cylinder installation for heavier loads.
- **Maximum load for single installations: 1200N (120 kg - 265 lbs)**
- **Maximum load for dual installations: 2400N (240 kg - 529 lbs)**
- Maximum load is recommended not to be exceeded.
- Supplied with all mounting hardware.
- Stainless steel telescopic ram for manual operation in case of emergency.
- Circuit breaker to stop accidental overloading of the system and electronic stop at closed or full open position.
- IP 65 protection rated
- Speed: 25mm/sec no load applied, 17 mm/sec maximum load
- Current absorption in single installations: 10A at 12V, 5A at 24V
- Current absorption in dual installations: 20A at 12V, 10A at 24V
- AV 12VDC models are Ignition Protected. UL1500 - ISO8846 approved.

**NOTE:** Available, on request, the push/pull actuator version. This option is not compatible with the manual emergency opening device.



MODEL	PART No.	VOLTS	STROKE	LENGTH A (FULL CLOSED ACTUATOR)	EXTERNAL DIA.
AV 3012	40671 C	12V DC	300 mm (12")	677 mm (26.6")	48 mm (1.9")
AV 3024	40672 E	24V DC	300 mm (12")	677 mm (26.6")	48 mm (1.9")
AV 4512	40582 D	12V DC	450 mm (18")	827 mm (32.5")	48 mm (1.9")
AV 4524	40583 F	24V DC	450 mm (18")	827 mm (32.5")	48 mm (1.9")
AV 6012	40584 H	12V DC	600 mm (24")	977 mm (38.4")	48 mm (1.9")
AV 6024	40585 K	24V DC	600 mm (24")	977 mm (38.4")	48 mm (1.9")

### OPTIONAL COMPONENTS:

**RB12** - 40738 Y Relay box 12V

**RB24** - 40742 C Relay box 24V

It contains the relays needed for cycle reversion. One box works with 1 or 2 lifters

**SW20** - 69116 J

1 x 3 way single pole momentary switch

**BR/AV** - 80382 I Spare fixing bracket



**SW20**

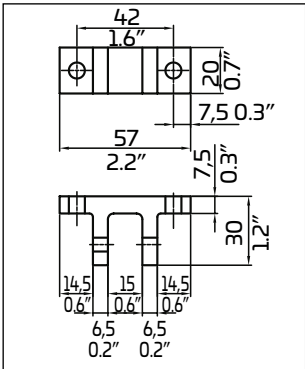
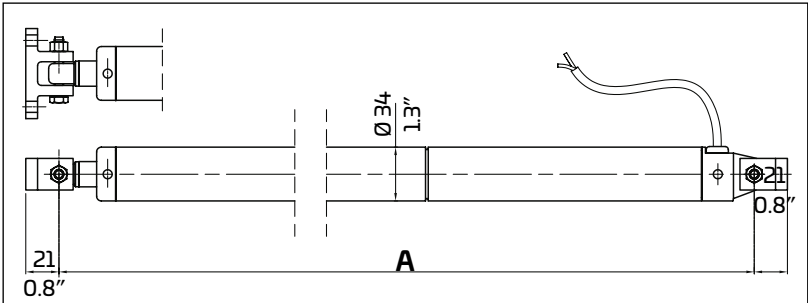


**RB12**

**ULYSSES SERIES ELECTRICAL LINEAR ACTUATORS**

**TECHNICAL FEATURES**

- Single installation only
- Pull and push maximum load: 650N (65 kg - 144 lbs)
- Pull and push maximum load is recommended not to be exceeded.
- Supplied with all mounting hardware.
- Aluminium ram.
- Circuit breaker to stop accidental overloading of the system and electronic stop at closed or full open position.
- IP 65 protection rated
- Speed:
  - 12V model:
    - 5 mm/sec no load applied
    - 4 mm/sec maximum load
  - 24V model:
    - 8 mm/sec no load applied
    - 6 mm/sec maximum load
- Current absorption: 2A at 12V, 1A at 24V



Highest installation flexibility: 180° oscillation range

MODEL	PART No.	VOLTS	STROKE	LENGTH A (FULL CLOSED ACTUATOR)	EXTERNAL DIA.
ULYSSES 1812	40924 Q	12V DC	180 mm (7")	515 mm (20.3")	34 mm (1.3")
ULYSSES 1824	40926 S	24V DC	180 mm (7")	515 mm (20.3")	34 mm (1.3")
ULYSSES 3012	40925 R	12V DC	300 mm (12")	635 mm (25.0")	34 mm (1.3")
ULYSSES 3024	40927 T	24V DC	300 mm (12")	635 mm (25.0")	34 mm (1.3")

**OPTIONAL COMPONENTS:**

**SW20** - 69116 J  
 1 x 3 way single pole momentary switch

**BR/UL** - 35697 P  
 Spare fixing bracket

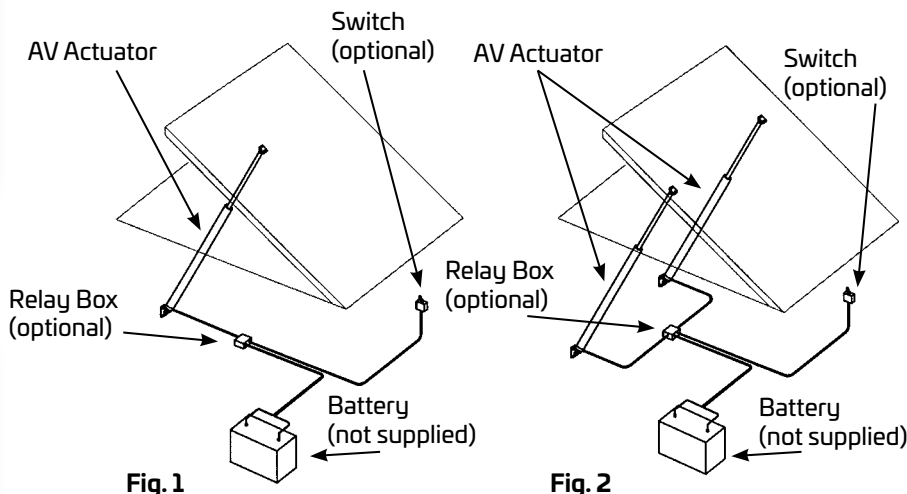


SW20





# AV AND ULYSSES SERIES ELECTRICAL HATCH LIFTERS



## INSTALLATION

- The following equation will help you to calculate the maximum strength ( $F_{max}$ ) required from the hatch lifter to open your hatch, knowing the dimensions and weight of the hatch and the position of the mounting brackets.

$$F_{max} = \frac{P}{2} \times \frac{L}{b} \times \frac{X}{a} \times K^*$$

### Maximum load ( $F_{max}$ ):

- AV Series actuators:**  
1200 N (120 kg - 265 lbs) single installation, pushing only 2400 N (240 kg - 530 lbs) dual installation pushing only

**Note:** when the load exceeds 2400 N (240 kg - 530 lbs), it is possible to install more than two AV actuators. Please, contact our Technical Service for the proper electrical configuration

- ULYSSES actuators:**  
650 N (65 kg - 144 lbs) single installation only, both pull and push

## COMPONENTS DESCRIPTION

### AV Series Hatch Lifter

- n° 1 AV actuator for single installation (Fig.1)
- n° 2 AV actuators for dual installation (Fig.2)
- External diameter: 48 mm (1.9")
- Length at closed position: 377 mm (14.8") + stroke
- Maximum oscillation range: 125°

### ULYSSES Series actuators

- n° 1 Ulysses actuator (Fig.1)
- **no dual installatio**
- External diameter: 34 mm (1.3")
- Length at closed position: 308 mm (12.1") + corsa
- Maximum oscillation range: 180°

### Power supply cable:

- **AV** and **ULYSSES** actuators are supplied with 5 ft (1,5 m) of electrical cable
- Warning: in case of longer cable length required, do not substitute the existing harness, but make a junction following the instructions supplied with the product.

**Relay Box:** 12-24V (on demand)

**Two way push-button** with central off position (optional)

**Fuse** (not supplied)

**Battery** (not supplied)

\*Values of K with ratio included between approx. 0 and 0.5 (if ratio > 0.5 use K=1)

		b/d															
		0.1	0.15	0.2	0.3	0.4	0.5	1.0	2.0	3.0	4.0	5.0	6.0	7.0	8.0	9.0	10.0
c/a	0.0	1.09	1.14	1.17	1.24	1.30	1.34	1.41	1.34	1.26	1.21	1.17	1.15	1.13	1.11	1.10	1.09
	0.1	1.00	1.01	1.04	1.09	1.13	1.16	1.23	1.16	1.10	1.06	1.04	1.02	1.01	1.00	1.00	1.00
	0.2	1.00	1.00	1.00	1.03	1.06	1.10	1.16	1.10	1.04	1.01	1.00	1.00	1.00	1.00	1.00	1.00
	0.3	1.00	1.00	1.00	1.00	1.03	1.06	1.12	1.06	1.26	1.01	1.00	1.00	1.00	1.00	1.00	1.00
	0.4	1.00	1.00	1.00	1.00	1.00	1.03	1.10	1.03	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
	0.5	1.00	1.00	1.00	1.00	1.00	1.01	1.08	1.01	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

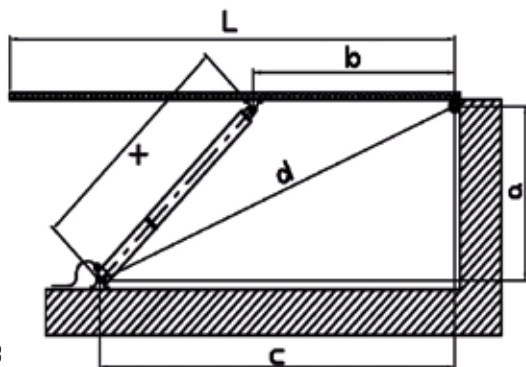


Fig. 3

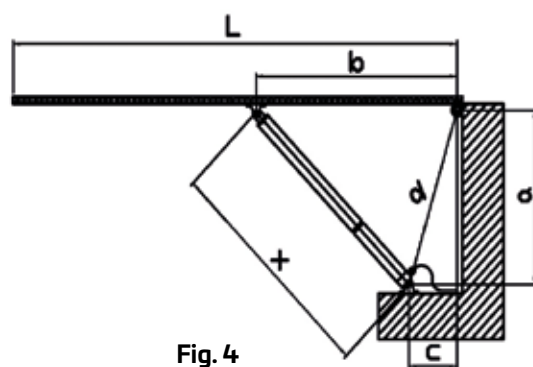


Fig. 4





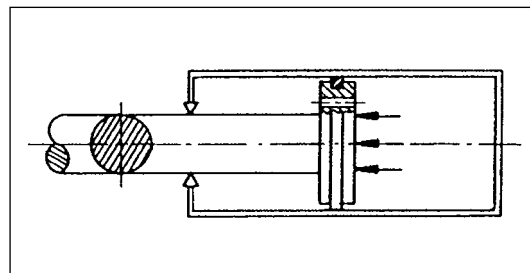
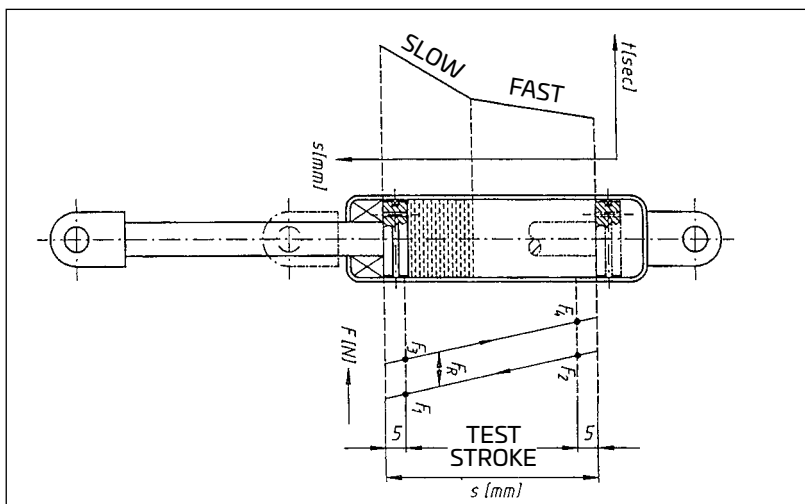
**GAS SPRINGS**

**13**

## UFLEX® GAS SPRINGS

Gas springs are pneumatic force accumulators mainly used to lift, hold open and smoothly lower hatches, covers, lids and doors. A gas spring, not equipped with a lock device, functions as follows: the pressure of the compressed nitrogen gas contained in a tube provides the extension force of the spring as the result of the difference between the internal tube pressure and the atmospheric pressure. The gas flows from the highest to the lowest pressure compartment of the tube through a self-cleaning orifice in the piston rod causing the spring rod to telescope out of the pressure tube. Each tube incorporates a small quantity of oil that provides lubrication of the seals and of the piston rod and, at the same time, a damping medium to control the opening speed of the cover or hatch.

14

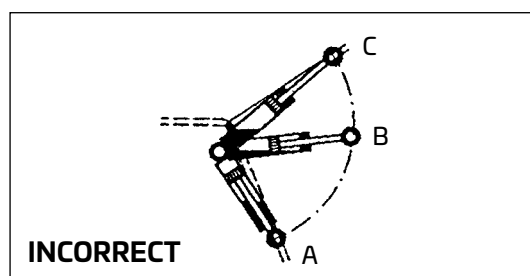
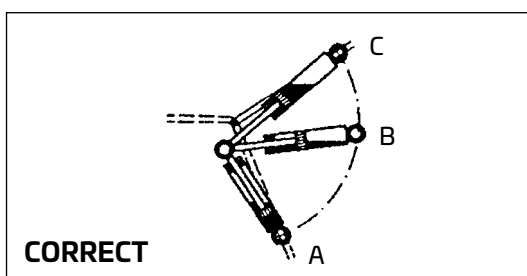


### INSTALLATION

Ideal damping conditions are obtained when the spring gas is mounted with an angle of 30° from the vertical axis with the piston rod turned towards the hinge point: this proper installation provides optimal performance and appropriate oil damping operation.

If your application allows for quite large opening angles, a pointing up piston rod mounting may be more appropriate, especially if the opening operation includes the passage of the rod from the horizontal position. When the spring rotates from B to C, the oil leaks into the gas through the orifice in the piston rod; the residual quantity of oil that remains between rod and conductors provides appropriate spent travel damping.

With the piston rod pointing down and the spring in closed position, the oil is almost all leaked into the gas through the holes and the residual quantity of oil remained between internal surface and piston head is not sufficient to provide a good spent travel damping.

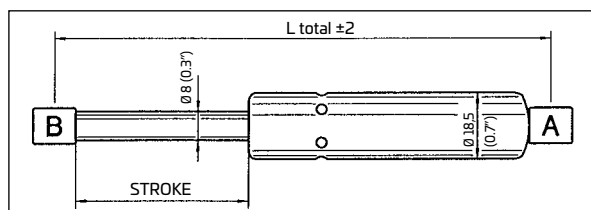


### WARNINGS

- The rod surface should be protected against physical or chemical damages.
- Lateral loads should be carefully avoided.
- Attachment pivots should be well aligned.
- Springs should be mounted according to previous installation instructions ensuring correct orientation.
- Tensile forces exceeding the output force as indicated for each single spring should be avoided.
- Working temperature – 30 °C and + 80 °C.



## BLACK PAINTED GAS SPRINGS

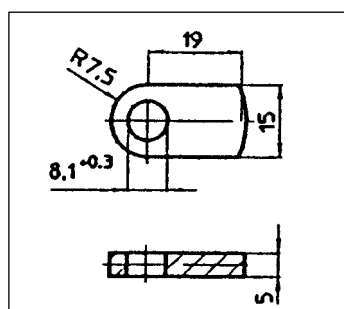


Nitro-protected steel rod and marine corrosion resistant black painted cylinder

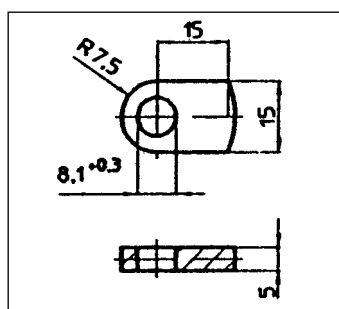
MODEL	TOTAL LENGTH mm (")	STROKE mm (")	OUTPUT FORCE kg (lbs)	ROD DIA. mm (")	END FITTING		OEM PACKAGING PART No.	AFTER-MARKET PACKAGING PART No.
					SIDE A TYPE	SIDE B TYPE		
<b>U95-5</b>	257 (10.1)	95 (3.7)	5 (11.0)	8 (0.3)	1	2	64312 G	64412 L
<b>U95-10</b>	257 (10.1)	95 (3.7)	10 (22.0)	8 (0.3)	1	2	64313 J	64413 N
<b>U95-20</b>	257 (10.1)	95 (3.7)	20 (44.0)	8 (0.3)	1	2	64314 L	64414 R
<b>U140-10</b>	365 (14.4)	142 (5.6)	10 (22.0)	8 (0.3)	1	1	64315 N	64415 T
<b>U140-20</b>	365 (14.4)	142 (5.6)	20 (44.0)	8 (0.3)	1	1	64316 R	64416 V
<b>U140-30</b>	365 (14.4)	142 (5.6)	30 (66.1)	8 (0.3)	1	1	64317 T	64417 X
<b>U235-10</b>	550 (21.6)	234 (9.2)	10 (22.0)	8 (0.3)	1	1	64318 V	64418 Z
<b>U235-20</b>	550 (21.6)	234 (9.2)	20 (44.0)	8 (0.3)	1	1	64319 X	64419 B
<b>U235-30</b>	550 (21.6)	234 (9.2)	30 (66.1)	8 (0.3)	1	1	64320 F	64420 K
<b>U235-40</b>	550 (21.6)	234 (9.2)	40 (88.1)	8 (0.3)	1	1	64321 H	64421 M
<b>U260-20</b>	600 (23.6)	262 (10.3)	20 (44.0)	8 (0.3)	2	3	64322 K	64422 P
<b>U260-30</b>	600 (23.6)	262 (10.3)	30 (66.1)	8 (0.3)	2	3	64323 M	64423 S
<b>U260-40</b>	600 (23.6)	262 (10.3)	40 (88.1)	8 (0.3)	2	3	64324 P	64424 U
<b>U300-30</b>	683 (26.8)	300 (11.8)	30 (66.1)	10 (0.4)	2	2	65297 V	65300 E
<b>U300-40</b>	683 (26.8)	300 (11.8)	40 (88.1)	10 (0.4)	2	2	65298 X	65301 G
<b>U300-50</b>	683 (26.8)	300 (11.8)	50 (110.2)	10 (0.4)	2	2	65299 Z	65302 J

**NOTE:** The total length is measured from center pivot line to end fitting at fully extended spring.

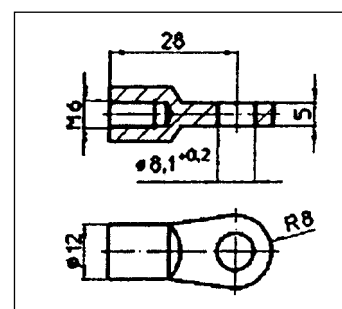
### ATTACCHI



**TYPE 1**  
Welded Eyelet



**TYPE 2**  
Welded Eyelet



**TYPE 3**  
Threaded Eyelet

### APPLICATIONS

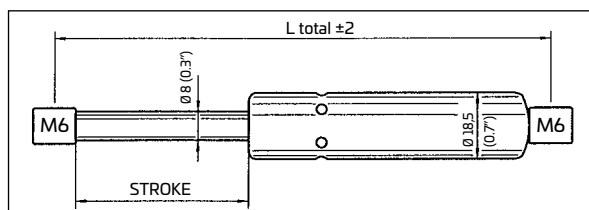
Uflex provides gas springs in a variety of pressures to suit various installation needs, nevertheless it is the customer who decides which is the most convenient selection for a specific application. For more detailed information, please contact our Technical Service.

### PACKAGING

UFLEX gas springs are supplied in **OEM** or in **Aftermarket packaging**. Please specify when ordering.



# **BLACK PAINTED GAS SPRINGS UB SERIES**



Nitro-protected steel rod and marine corrosion resistant black painted cylinder. Thermoplastic ball bearing end fittings to be threaded on.

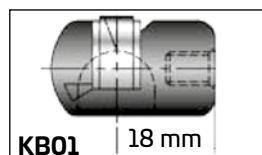
**NOTE:**  
End fittings to be  
ordered separately  
Kit XB01 - 66510 K

MODEL	TOTAL LENGTH mm (")	STROKE mm (")	OUTPUT FORCE kg (lbs)	ROD DIA. mm (")	OEM PACKAGING Part No.	AFTERMARKET PACKAGING Part No.
<b>UB120-30</b>	315 (12.4)	120 (4.7)	30 (66.1)	6 (0.2)	66425 GA	66448 VA
<b>UB150-20</b>	375 (14.7)	150 (5.9)	20 (44.0)	6 (0.2)	66427 LA	66450 FA
<b>UB150-30</b>	375 (14.7)	150 (5.9)	30 (66.1)	6 (0.2)	66428 NA	66451 HA
<b>UB180-30</b>	445 (17.5)	180 (7.0)	30 (66.1)	8 (0.3)	66431 BA	66454 PA

**NOTE:** The total length is measured from center pivot line to end fitting at fully extended spring.

## **END FITTINGS**

Kit **KB01** - 66510 X: 2 ball bearing end fittings to be threaded on the gas spring



## **APPLICATIONS**

Uflex provides gas springs in a variety of pressures to suit various installation needs, nevertheless it is the customer who decides which is the most convenient selection for a specific application. For more detailed information, please contact our Technical Service.

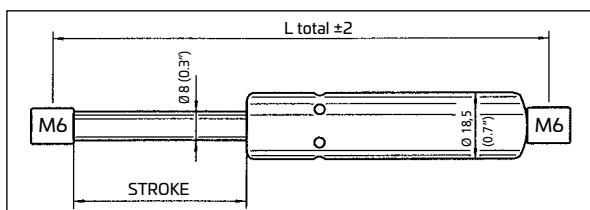
## **PACKAGING**

UFLEX gas springs are supplied in **OEM** or in **Aftermarket packaging**. Please specify when ordering.





# **AISI 316L** **STAINLESS** **STEEL** **GAS SPRINGS** **USS SERIES**



AISI 316 stainless steel rod and cylinder

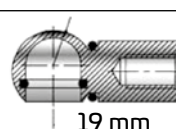
**NOTE:**  
End fittings to be ordered separately:  
Kit KSS01 - 66514 F (ball joint)  
or  
Kit KSS02 - 66512 B (clevis)

MODEL	TOTAL LENGTH mm (")	STROKE mm (")	OUTPUT FORCE kg (lbs)	ROD DIA. mm (")	OEM PACKAGING Part No.	AFTERMARKET PACKAGING Part No.
USS100-5	275 (10.8)	100 (3.9)	5 (11.0)	6 (0.2)	66465 VA	66487 FA
USS100-10	275 (10.8)	100 (3.9)	10 (22.0)	6 (0.2)	66466 XA	66488 HA
USS100-20	275 (10.8)	100 (3.9)	20 (44.0)	6 (0.2)	66467 ZA	66489 KA
USS120-10	315 (12.4)	120 (4.7)	10 (22.0)	6 (0.2)	66468 BA	66490 UA
USS120-20	315 (12.4)	120 (4.7)	20 (44.0)	6 (0.2)	66469 DA	66491 WA
USS120-30	315 (12.4)	120 (4.7)	30 (66.1)	6 (0.2)	66470 MA	66492 YA
USS150-10	375 (14.7)	150 (5.9)	10 (22.0)	6 (0.2)	66471 PA	66493 AA
USS150-20	375 (14.7)	150 (5.9)	20 (44.0)	6 (0.2)	66472 SA	66494 CA
USS150-30	375 (14.7)	150 (5.9)	30 (66.1)	6 (0.2)	66473 UA	66495 EA
USS180-10	445 (17.5)	180 (7.0)	10 (22.0)	8 (0.3)	66474 WA	66496 GA
USS180-20	445 (17.5)	180 (7.0)	20 (44.0)	8 (0.3)	66475 YA	66497 JA
USS180-30	445 (17.5)	180 (7.0)	30 (66.1)	8 (0.3)	66476 AA	66498 LA
USS220-5	525 (20.6)	220 (8.6)	5 (11.0)	8 (0.3)	22122 PA	22589 SA
USS220-10	525 (20.6)	220 (8.6)	10 (22.0)	8 (0.3)	66477 CA	66499 NA
USS220-20	525 (20.6)	220 (8.6)	20 (44.0)	8 (0.3)	66478 EA	66500 UA
USS220-30	525 (20.6)	220 (8.6)	30 (66.1)	8 (0.3)	66479 GA	66501 WA
USS220-40	525 (20.6)	220 (8.6)	40 (88.1)	8 (0.3)	66480 RA	66502 YA
USS250-20	585 (23.0)	250 (9.8)	20 (44.0)	8 (0.3)	66481 TA	66503 AA
USS250-30	585 (23.0)	250 (9.8)	30 (66.1)	8 (0.3)	66482 VA	66504 CA
USS250-40	585 (23.0)	250 (9.8)	40 (88.1)	8 (0.3)	66483 XA	66505 EA
USS300-20	700 (27.5)	300 (11.8)	20 (44.0)	10 (0.4)	68061 EA	22529 XA
USS300-30	700 (27.5)	300 (11.8)	30 (66.1)	10 (0.4)	66484 ZA	66506 GA
USS300-40	700 (27.5)	300 (11.8)	40 (88.1)	10 (0.4)	66485 BA	66507 JA
USS300-50	700 (27.5)	300 (11.8)	50 (110.2)	10 (0.4)	66486 DA	66508 LA
USS300-60	700 (27.5)	300 (11.8)	60 (132.3)	10 (0.4)	22517 PA	22530 TA

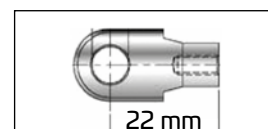
**NOTE:** The total length is measured from center pivot line to end fitting at fully extended spring. Further lengths, strokes and output forces available on request (50 pieces each size minimum order)

## **END FITTINGS**

Kit KSS01 - 66514 F: 2 stainless steel ball bearing end fittings to be threaded on the gas spring



Kit KSS02 - 69530 V: 2 stainless steel eyelet end fittings to be threaded on the gas spring



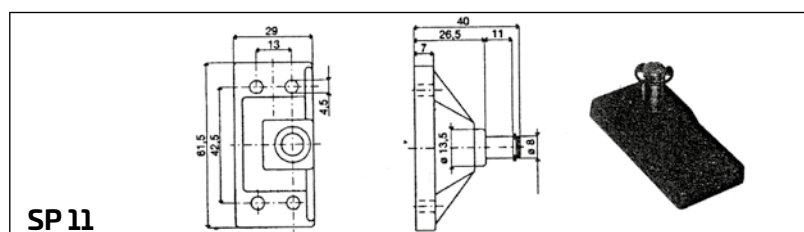
## **APPLICATIONS**

Uflex provides gas springs in a variety of pressures to suit various installation needs, nevertheless it is the customer who decides which is the most convenient selection for a specific application. For more detailed information, please contact our Technical Service.

## **PACKAGING**

UFLEX gas springs are supplied in **OEM** or in **Aftermarket packaging**. Please specify when ordering.









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**UIFLEX®**



**ELECTROMECHANICAL TRIM TABS**

## TRIM TABS - INNOVATIVE FINGERTIP JOYSTICK CONTROL

Boats often become unbalanced to port or starboard due to wind, sea conditions, and weight transfer within the boat.

The innovative joystick by Uflex takes all the guesswork out of realigning the boat. A simple push of the joystick lever in the opposite direction of the "lean" of the boat is all you need to do.

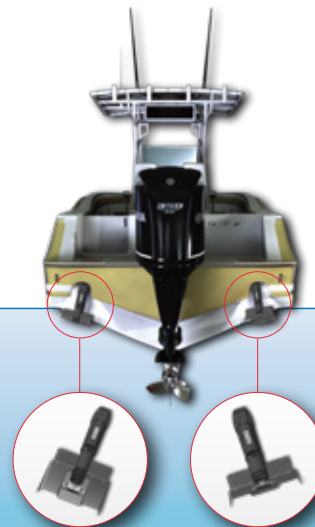
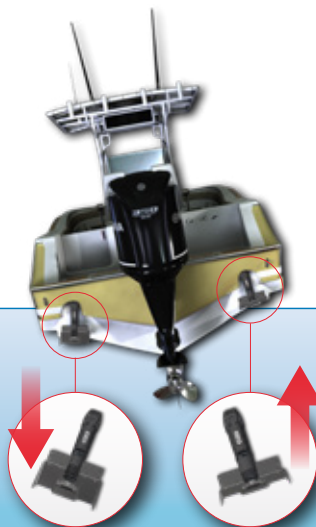
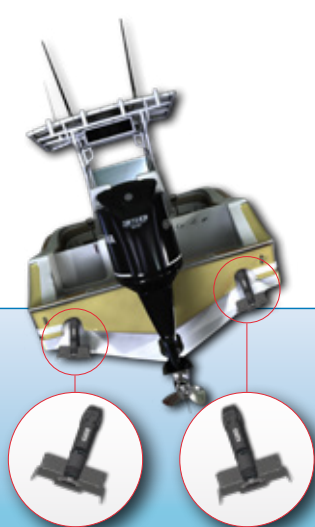
Gone are the days of having to think about the current positions of the tabs and then push two rocker switches, hoping that you have the correct sequence, i.e. port up and starboard down or vice versa.

The Uflex joystick let's you drive like a pro!

- Makes adjusting the position of the boat more intuitive than traditional rocker switches
- Both trim actuators move simultaneously in opposite directions when pushing the joystick to port or to starboard

### REALIGNING LEAN TO PORT OR STARBOARD

Because the joystick simultaneously activates both tabs in opposite directions when adjusting for a lean to port or starboard, the realignment of the boat occurs very quickly, and with optimal tab positioning in terms of efficiency.





The unique profile of the Uflex planes offers greater efficiency and stern lift than traditional flat planes, often providing the opportunity to use a smaller size tab with the same performance of a larger flat plane.

- Keep the boat on plane with lower engine RPM

IP68-rated, triple sealed 12VDC electrical mechanical actuators provide:

- One-piece actuator housing reduces the possibility of water intrusion
- Exclusive rubber boot protects internal primary seals from sea growth and high-pressure water

- Planetary gear actuator gearbox provides high efficiency and low amp consumption
- Tempered stainless-steel ball screw gives peak resistance to impact and high-torque loads
- Patented snap-in actuator provides for a clean rigging job
- Abrasion-resistant routing of electrical wires minimizes the transom holes

### ***REALIGNING BOW LIFT***

Pushing the joystick up or down moves the tabs in the same direction. This changes the attitude of the boat bow up or down.



## UFLEX® ELECTROMECHANICAL TRIM TAB SYSTEMS

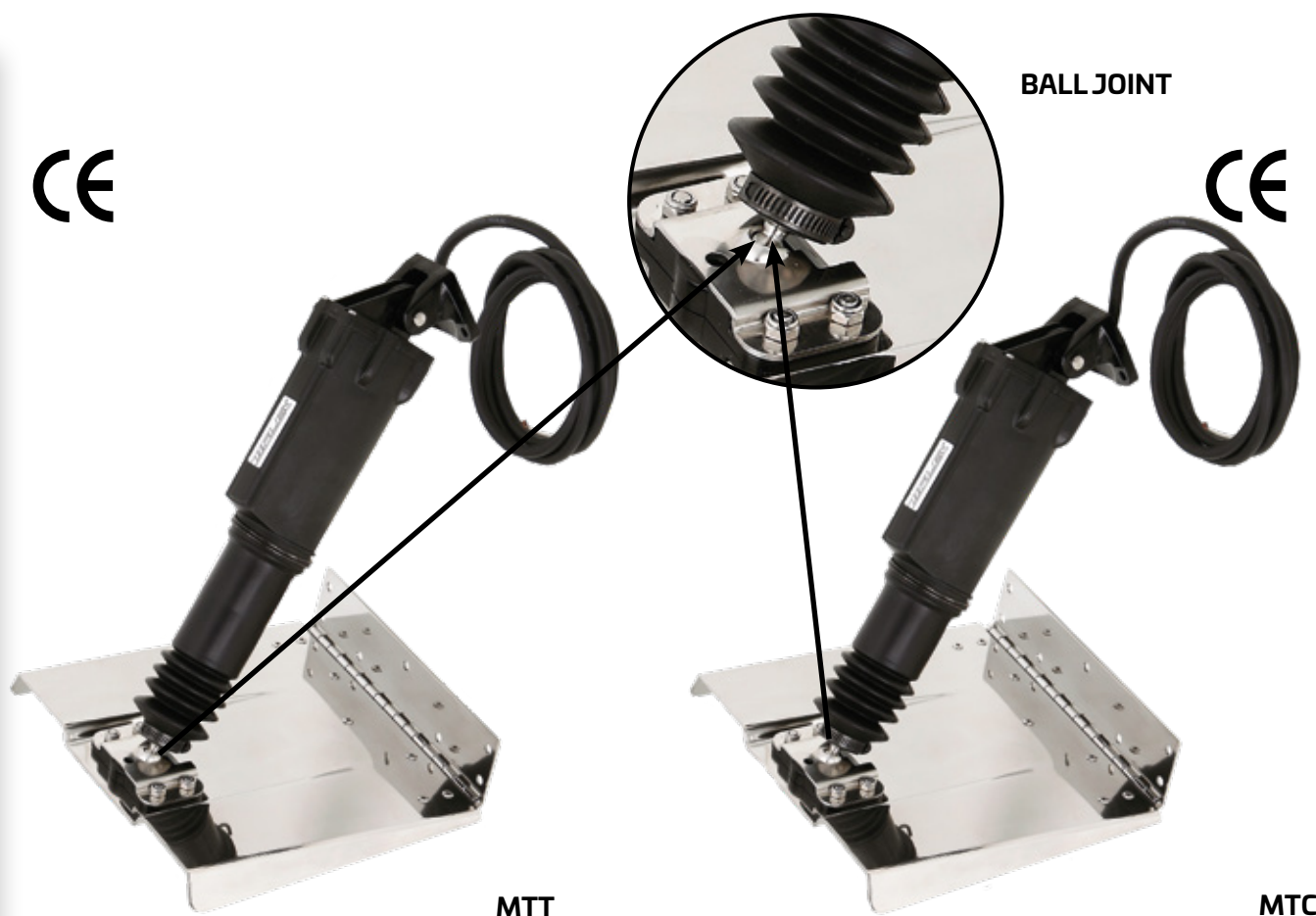
Improve fuel economy and passenger comfort with Uflex electromechanical trim tabs. Featuring electropolished stainless steel planes and low consumption, high speed, composite actuators, these tabs are built to last in the most demanding sea conditions.

Uflex trim tabs have been specifically designed for easy installation using a quick connect bracket-actuator, requiring only one small hole per tab through the transom. The patented transom mounting bracket encapsulates the wiring to ensure protection against any wiring damage.

Uflex trim tab systems are available in 2 versions:

**MTT systems for standard installations**

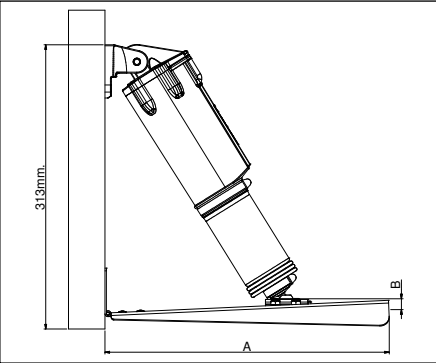
**MTC systems for compact installations**



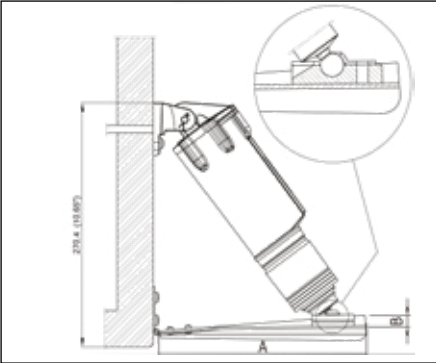
### MTT AND MTC SYSTEMS - FEATURES:

- Tab bracket with **BALL JOINT** (PATENTED)
- Operating system with hardened steel ballscrew, suitable to withstand high push loads.
- Prompt and easy control with the innovative use of a Joystick (PATENTED)
- **AUTO-LINE UP**: automatic flap re-alignment function
- Completely sealed thermoplastic resin tab actuators: maximum protection guaranteed by dual seals and a rubber bellow (PATENTED)
- Stainless steel rod and tabs
- The innovative profile of the tabs increases the efficiency of the system
- Non polished stainless steel tabs also available.
- The stainless steel top surface of the tabs is mirror polished to give higher resistance to marine environment.
- Hole hinge design (PATENTED) allows for precise retrofit replacement with Lenco® and Bennett® same size tabs
- Fully maintenance free
- Voltage: 12V DC
- Waterproof: IP68 protection
- CE Certification
- Meets with the EN 60945 standards

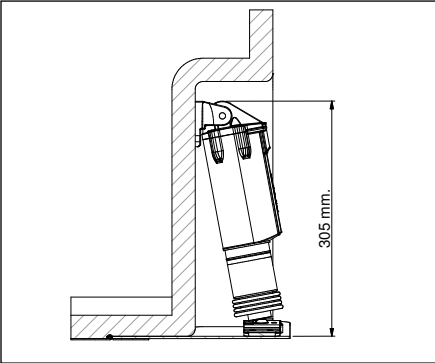
APPLICATIONS:



MTT INSTALLATION



MTC TILTED INSTALLATION



MTC VERTICAL INSTALLATION

NOTE: dimensions could change in case of raked transom

A: 228.6 mm - 9"  
B: 19.5 mm - 0.77"

MTT SYSTEMS - APPLICATIONS:

BOAT LENGTH	BOAT LENGTH (m)	TAB SIZE L x W	TAB SIZE L x W (cm)	TRANSOM MINIMUM HEIGHT
14' - 18'	4,5 - 5,5	9" x 9"	22,8 x 22,8	31.03 cm (12.22")
16' - 25'	5,0 - 8,0	12"x 9"	30,5 x 22,8	31.03 cm (12.22")
18' - 30'	5,5 - 9,0	12" x 12"	30,5 x 30,5	31.03 cm (12.22")
26' - 36'	8,0 - 11,0	12" x 18"	30,5 x 45,7	31.03 cm (12.22")

MTC SYSTEMS - APPLICATIONS:

BOAT LENGTH	BOAT LENGTH (m)	TAB SIZE L x W	DTAB SIZE L x W (cm)	TRANSOM MINIMUM HEIGHT	
				TILTED INSTALLATION	VERTICAL INSTALLATION
14' - 18'	4,5 - 5,5	9" x 9"	22,8 x 22,8	27.04 cm (10.65")	30.5 cm (12")
16' - 25'	5,0 - 8,0	12"x 9"	30,5 x 22,8	27.04 cm (10.65")	30.5 cm (12")
18' - 30'	5,5 - 9,0	12" x 12"	30,5 x 30,5	27.04 cm (10.65")	30.5 cm (12")
26' - 36'	8,0 - 11,0	12" x 18"	30,5 x 45,7	27.04 cm (10.65")	30.5 cm (12")

NOTE: These recommendations should be used as a general reference only. Final selection should be made with the assistance of a qualified installation technician.  
For any further information please contact our Thecnical Service

WARNING: The systems are not intended for use in racing applications

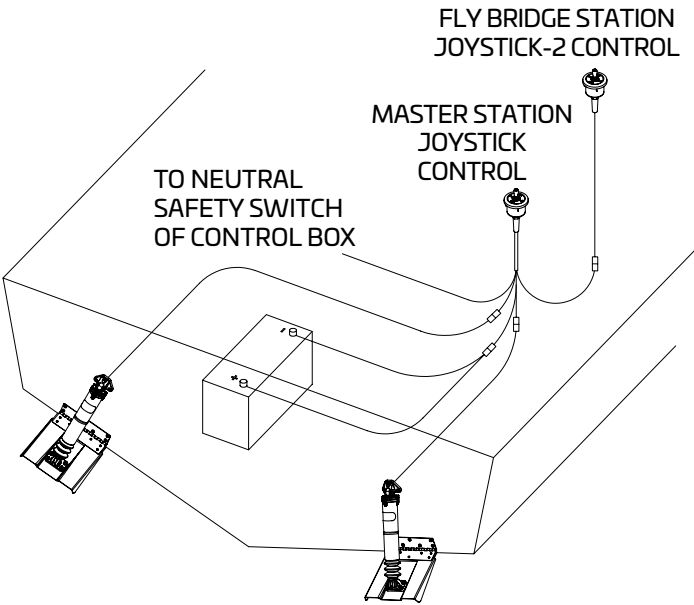
STANDARD COMPONENTS

(SINGLE ACTUATOR PER TAB)

- 1 pair of electromechanical actuator complete with connection brackets and 2 m (6.56') wiring harness.
- 1 joystick control unit with 0.50 m (1.64') wiring harness
- 1 pair of stainless steel tabs. Tabs are sold separately: specify selected size when ordering

OPTIONAL COMPONENTS:

- 1 extension wiring harness kit for the power cable and the actuator cables. Deutsch plugs included
- 1 second station joystick-2 control unit with 0.50 m (1.64') wiring harness
- 1 extension wiring harness (6 m and 9 m for second station). Deutsch plugs included.
- 1 extension wiring harness (2 m for auto-line up). Deutsch plugs included.
- 1 zinc alloy sacrificial anode kit to neutralize the galvanic currents on tabs ( 2 anode kits for every 1 pair tab installation)



## ACTUATORS



AT12 - 43160 S

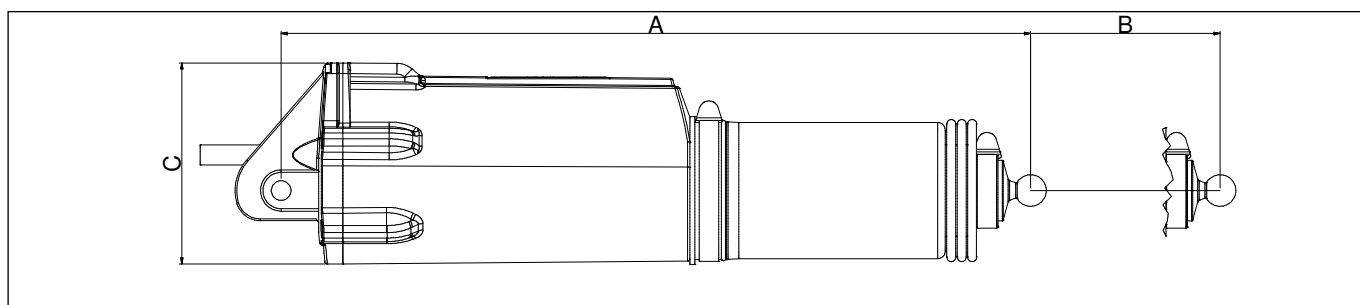


AC12 - 43001 V



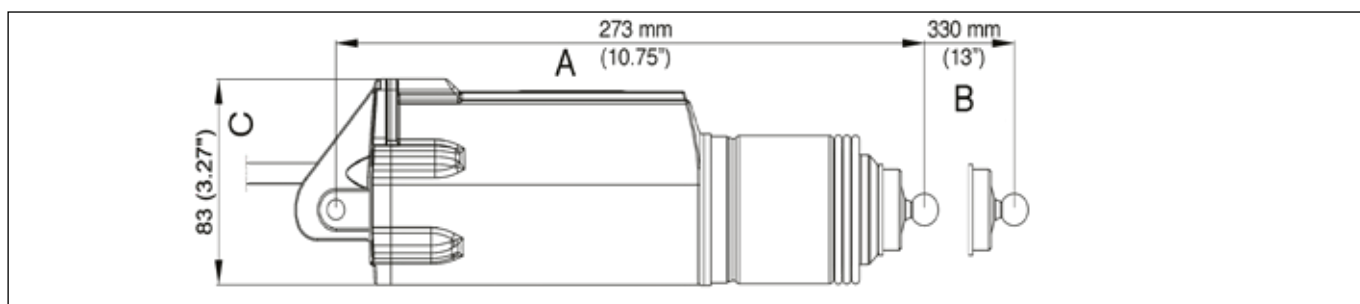
### FEATURES:

- 12 VDC Black actuator and brackets
- 1 m (3.28') wiring harness with Deutsch crimped pins included
- Stroke: 57 mm (2.25")



AT actuator full closed/open

AT: A = 309 mm (12.17")  
 B = 366 mm (14.41")  
 C = 83 mm (3.27")



AC actuator full closed/open

AC: A = 273 mm (10.75")  
 B = 330 mm (13")  
 C = 83 mm (3.27")



## JOYSTICK CONTROL UNITS FOR SINGLE AND DUAL STATION

**new**



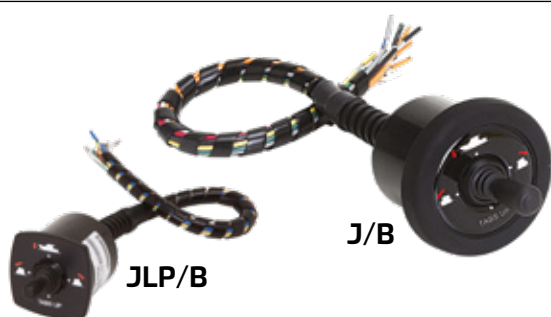
**J/CH**



**JLP/CH**

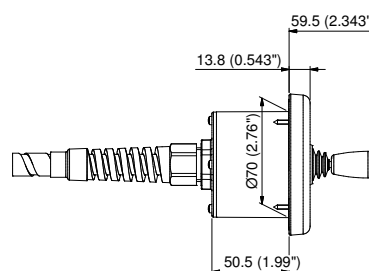


**J/B-LED**



**JLP/B**

**Black finish (optional)**



**J/CH and J/B dimensions**

### JOYSTICK CONTROL UNITS FOR SINGLE STATION:

**J/CH** - 41849 Z chrome

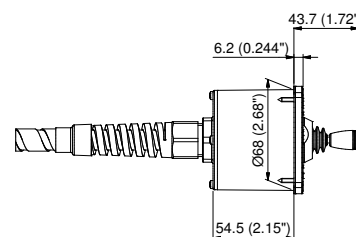
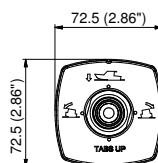
**J/B** - 42855 Z black (optional)

**JLP/CH** - 43004 B chrome, low profile

**JLP/B** - 43005 D black, low profile (optional)

**J/B-LED** - 43416 B joystick control with led indicators

- Main station compact control unit with joystick (PATENTED), **auto-line-up** function included (automatic fla re-alignment)
- 0.50 m (1.64") wiring harness included
- 70 mm (2.76") hole size



**JLP/CH and JLP/B dimensions**

### JOYSTICK CONTROL UNITS FOR DUAL STATION:

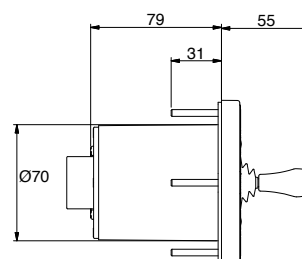
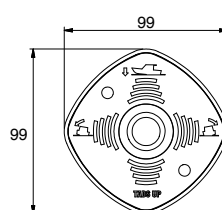
**J/CH-2** - 42306 N chrome

**J/B-2** - 42856 B black (optional)

**JLP/CH-2** - 43080 U chrome, low profile

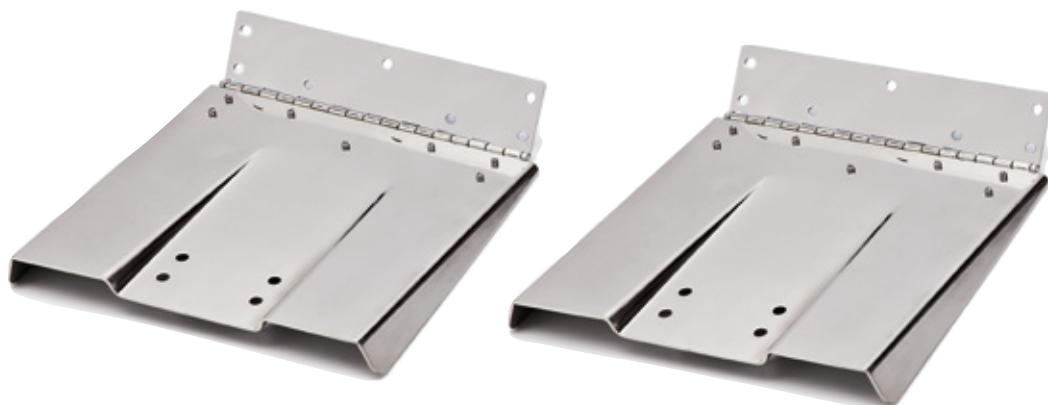
**JLP/B-2** - 43081 W black, low profile (optional)

- 70 mm (2.76") hole size
- 6 m and 9 m (19.7' and 29.6') extension wiring harness available with deutsch plugs included (optional)



**J/B-LED dimensions**

## HIGH PERFORMANCE POLISHED TABS



**Mirror polished stainless steel tabs**

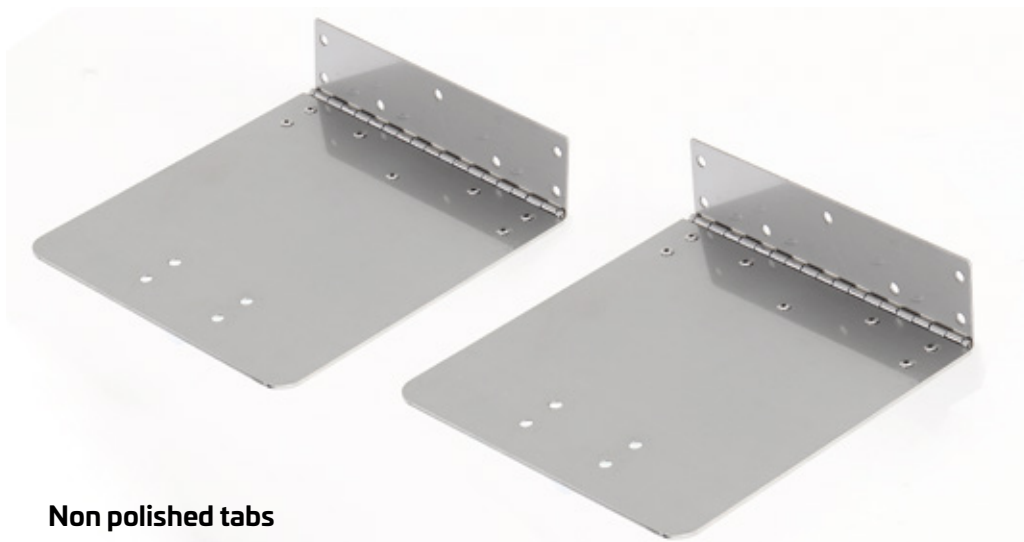
Stainless steel, mirror electro-polished trim tab blades.

No need for new holes in case of Lenco® or Bennett® same size replacements.

They are not designed for use in racing applications.

MODEL	PART No.	DESCRIPTION	WEIGHT PER PAIR
P99	41844 N	Stainless steel tab pair 228,6 x 228,6 mm (9"x9")	2,8 kg (6.2 lbs)
P129	41845 R	Stainless steel tab pair 304,8 x 228,6 mm (12"x9")	3,6 kg (7.9 lbs)
P1212	41846 T	Stainless steel tab pair 304,8 x 304,8 mm (12"x12")	4,6 kg (10.1 lbs)
P1218	41847 V	Stainless steel tab pair 304,8 x 457,2 mm (12"x18")	6,7 kg (14.8 lbs)

## STANDARD NON POLISHED TABS



**Non polished tabs**

No need for new holes in case of Lenco® or Bennett® same size replacements.

They are not designed for use in racing applications.

MODEL	PART No.	DESCRIPTION	WEIGHT PER PAIR
NP99	42650 E	Stainless steel tab pair 228,6 x 228,6 mm (9"x9")	3,3 kg (7.3 lbs)
NP129	42653 L	Stainless steel tab pair 304,8 x 228,6 mm (12"x9")	4,0 kg (8.8 lbs)
NP1212	42651 G	Stainless steel tab pair 304,8 x 304,8 mm (12"x12")	5,0 kg (11.0 lbs)
NP1218	42652 J	Stainless steel tab pair 304,8 x 457,2 mm (12"x18")	7,4 kg (16.3 lbs)

## OPTIONAL COMPONENTS

### EXTENSION WIRING HARNESS KITS

#### KE20 - 42378 R

##### Extension Wiring Harness

Kit includes one 16.4' (5,0 m) length wiring harness extension for the power cable and two 19.7' (6,0 m) length wiring harness extensions for the actuator cables. Deutsch plugs included.

#### KE30 - 42379 T

##### Extension Wiring Harness

Kit includes one 16.4' (5,0 m) length wiring harness extension for the power cable and two 29.5' (9,0 m) length wiring harness extensions for the actuator cables. Deutsch plugs included.

#### KEJ2-20 - 41853 P

19.7' (6,0 m) extension wiring harness for a second station. Deutsch connectors included.

#### KEJ2-30 - 42375 J

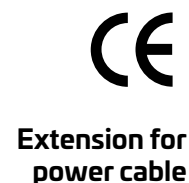
29.5' (9,0 m) extension wiring harness for a second station. Deutsch connectors included.

#### KEK-7 - 42376 L

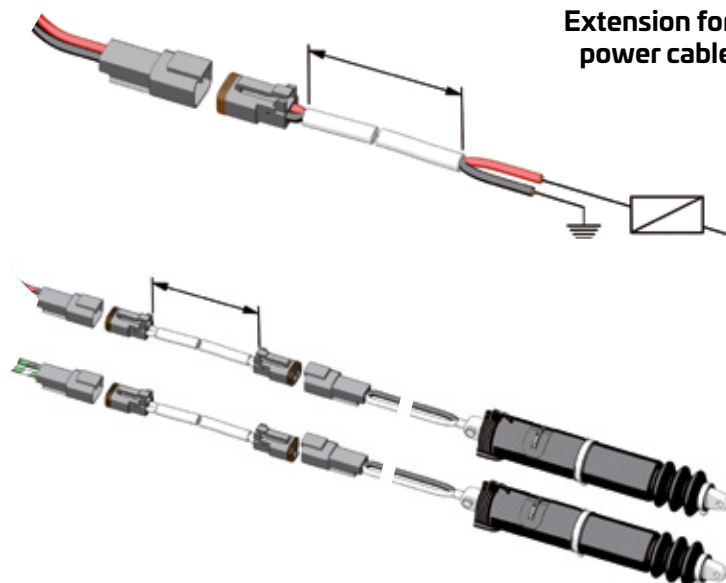
6.6' (2,0 m) auto-line up extension wiring harness key frame. Deutsch connectors included.

#### KENS-7 - 42377 N

6.6' (2,0 m) auto-line up extension wiring harness neutral safety. Deutsch connectors included.



Extension for power cable



Extension for actuator cables

### RETROFIT BRACKET

BRS-T bracket will adapt AT12 actuator to pre-existing mounting holes on transom, in case of AS12 or of Lenco® replacement.

**BRS-T** - 43220 H - black bracket



BRS-T

### ANODE KIT

Zinc alloy anode kit neutralizes the galvanic currents endangering the trim tabs. 2 anode kits are necessary for every 1 pair tab installation.

#### KA70 - 42441 V

Ø 2.8" (70 mm) sacrificial anode kit for tab up to 12" x 12" size

#### KA90 - 42442 X

Ø 3.5" (90 mm) sacrificial anode kit for tab 12" x 18" size



KA70



KA90

## PACKAGED UFLEX TRIM TAB SET



The prepackaged UFLEX set includes 1 pair of actuators complete with brackets and 1 joystick. The tabs are not included and sold separately; selected model has to be specified when ordering.

CE Certification  
Waterproof: IP68  
EN60945 Certification

Not intended for use in racing applications.

MODEL	PART No.	VOLT	DESCRIPTION
MTT 12-CH	43250 T	12V DC	2 AT12 actuators, 12V DC + 1 chrome joystick
MTT 12-CH-LP	43251 V	12V DC	2 AT12 actuators, 12V DC + 1 chrome low profile joystick
MTC 12-CH	43043 M	12V DC	2 AC12 actuators, 12V DC + 1 chrome joystick
MTC 12-CH-LP	43044 P	12V DC	2 AC12 actuators, 12V DC + 1 chrome low profile joystick

## SPARE PARTS

MODELLO	PART No.	DESCRIPTION
BRS-C	43039 X	Bracket kit - Connection between AT or AC actuators and boat
BRT-C	43040 F	Bracket kit - Connection between AT or AC actuators and tab
EP 5	42440 T	Wiring harness extension for power cable 5,0 m (16.4')
EP 6	42302 E	Wiring harness extension for actuator cable 6,0 m (19.7')
EP 9	42439 J	Wiring harness extension for actuator cable 9,0 m (29.5')





**AQUATIC AV<sup>®</sup>**  
products with a watertight reputation

**WATERPROOF MARINE SYSTEMS**



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WATERPROOF MARINE SYSTEMS

## GP1 - WATERPROOF GAUGE SIZE STEREO

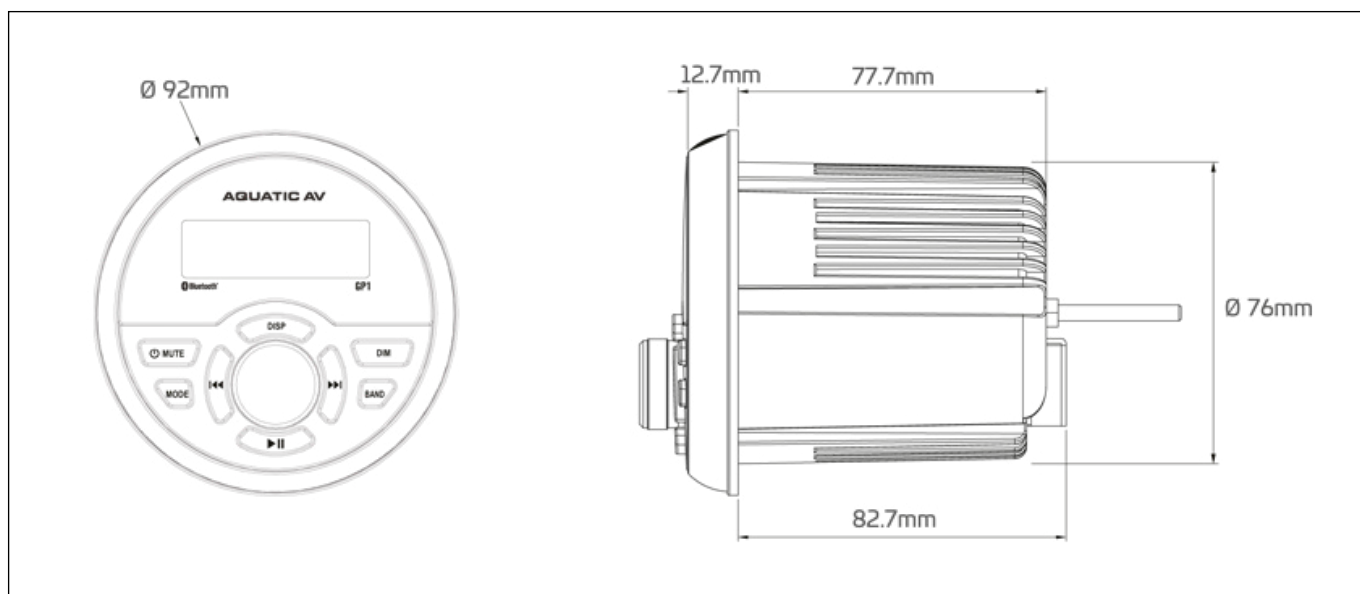
**new**

- **Bluetooth Audio:** Easily stream your favorite tunes from your smartphone with Bluetooth Audio support. View track info including a song's name, artist, and album information right on the display.
- **288W Amplifier:** Keep your system going with a 288W amplifier that powers up to 8 speakers or a combination of speakers and subwoofers.
- **Multi-Environment Protection:** Install anywhere with waterproof (rated IP65), UV, and salt/fog resistant protection enabling reliable performance in the toughest environmental conditions.
- **DSP EQ:** Allows common EQ settings to be applied to enhance music content, such as Pop, Classical and Rock or manually adjust bass and treble for a tailored sonic experience.
- **Variable Brightness:** Adjust the display brightness from 100% for normal operation to 30% brightness to reduce screen glare during night time operation.
- **Standard Gauge Size:** Our smallest stereo yet, designed to sit alongside standard dash gauges, but still packing a serious Aquatic AV feature set.
- **USB:** Play USB thumb drives with supported audio media and charge USB devices such as smartphones with USB charging.
- **AM/FM Radio:** Listen to your favorite AM and FM radio stations. Save your favorite stations with 18 FM and 12 AM presets available. Compatible with both US and European frequencies.
- **AUX:** Connect devices via stereo RCA cable with input gain of 2V for high performance with all devices.
- **2 Year Warranty:** the GP1 stereo comes with a two year warranty.



GP1 - 23889 K

MODEL	GP1
Supported media	Bluetooth audio, USB, MP3, AM/FM, AUX
Device control	via rear USB cable (2.1A)
Display	Monochrome TFT with blue backlight
Inputs	Bluetooth, 1x USB, 1x stereo pair RCA
Outputs	1x stereo pair RCA Pre-out (2V)
AM/FM tuner	18x FM pre-set & 12x AM pre-set memory. US/Euro frequencies
Power (max)	4x 45W (4 Ohms), 4x 72W (2 Ohms)
Amplifier type	Class A/B (2 Ohm stable)
Output voltage	10.5V - 14.4V DC
Current draw	7A (max) / <3mA (standby)
Waterproof	Yes - IP65
UV protection	500hrs stable, ASTM D4329 compliant
Salt/fog protection	500hrs stable, ASTM B117 compliant
Certifications	CE, RoHS, WEE, FCC
Additional features	Clock display, Stainless Steel mounting hardware



## KIT GP1

GP1 stereo is also available in kit with a pair of AQ-SPK6.5-4EW speakers:

**KIT STEREO GP1 - 22985 A**

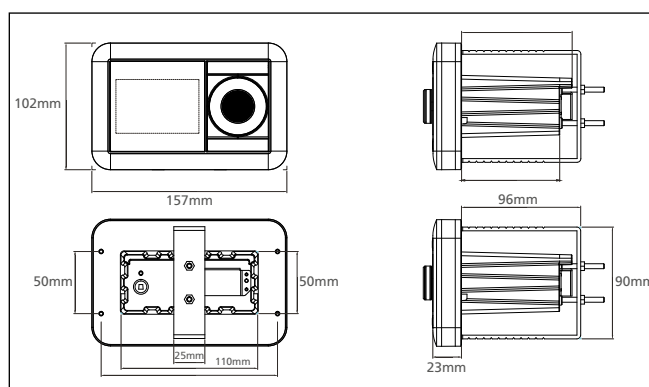




## CP6 WATERPROOF MARINE STEREO

- Supported media: Bluetooth, USB, DAB+, MP3, AM, FM, Aux
- Display: Monochrome TFT with blue backlight
- Inputs: Bluetooth, 1x USB, 1x stereo pair RCA
- Outputs: 1x stereo pair RCA Pre-out (2V)
- Power (max): 4x 45W (4 ohms), 4x 72W (2 ohms)
- Amplifier type: Class A/B (2 ohms stable)
- Output voltage: 10.5V - 14-4V
- Current draw: 10A (max) / <3A (standby)
- Waterproof: Yes - IP65
- UV protection: 500 hrs stable
- Salt/fog protection: 500 hrs stable
- Dimensions HxWxD mm ("): 102x157x119 (4x6.2x4.7)
- Additional features: Clock display, 2x external triggers (12V DC, 3A), DSP EQ, bass/treble, balance/fader, loudness, stainless steel mounting hardware

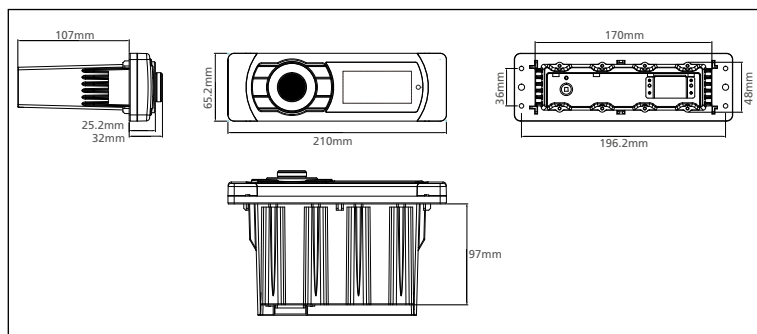
CP6 - 22572 Y



## MP6 WATERPROOF MARINE STEREO

- Supported media: Bluetooth, USB, DAB+, MP3, AM, FM, Aux
- Display: Monochrome TFT with blue backlight
- Inputs: Bluetooth, 1x USB, 1x stereo pair RCA
- Outputs: 1x stereo pair RCA Pre-out (2V)
- Power (max): 4x 45W (4 ohms), 4x 72W (2 ohms)
- Amplifier type: Class A/B (2 ohms stable)
- Output voltage: 10.5V - 14-4V
- Current draw: 10A (max) / <3A (standby)
- Waterproof: Yes - IP65
- UV protection: 500 hrs stable
- Salt/fog protection: 500 hrs stable
- Dimensions HxWxD mm ("): 65.2x210x139 (2.6x8.3x5.1)
- Additional features: Clock display, 2x external triggers (12V DC, 3A), DSP EQ, bass/treble, balance/fader, loudness, stainless steel mounting hardware

MP6 - 22573 A





## BLUECUBE “HIDE-AWAY” STEREO

The BlueCube is a high quality, robust and durable waterproof marine grade stereo designed to be installed hidden away out-of-sight. Plays music wirelessly via a Bluetooth enabled smartphone or MP3 device. Control music directly from the Bluetooth enabled device.

Features an onboard 288W amplifier capable of powering up to 8x speakers, or a combination of speakers and subwoofers, 2x high-quality RCA (phono) pre-outs for connecting an external amplifier (AQ-AD600.4) or powered subwoofer.

- Support Bluetooth. MP3 devices
- IP65 Rated, for use in any environment (dry, wet, muddy, damp etc)
- Built-in 288W amplifier allows for quick and easy installation

BC-6BT - 22181 G



BC-6BT

MODEL	BC-6BT
Supported media	Bluetooth, MP3
Device control	via Bluetooth device or optional remote control
Inputs	Bluetooth, 1 x stereo pair RCA
Outputs	1 x stereo pair RCA (2 V)
Power (max)	4 x 54 W (4 Ohm) / 4 x 72 W (2 Ohm)
Amplifier type	Class A/B (2 Ohm stable)
Operation voltage	9.6 V - 14,4 V DC
Current draw	6 mA (standby), 7 A (max)
Waterproof	Yes - IP65
UV protection	ASTM D4329 compliant, 500 hrs stable
Salt/Fog protection	ASTM B117 compliant, 500 hrs stable
Dimensions HxWxD mm (“)	59,5x202,51x137,51 (2.34x7.97x5.41)
Additional features	Stainless steel mounting hardware

## SWA6 COMBINED BLUETOOTH STEREO SUBWOOFER

The SWA6 Combined Bluetooth Stereo Subwoofer is a high quality, robust and durable marine stereo and subwoofer with built-in Bluetooth connectivity and a 288W amplifier with electronic crossover for connection of up to four full-range speakers.

- Combined Stereo Subwoofer
- Connect up to four marine speakers
- 8” Cone
- Tuned Subwoofer Port
- 288W max
- 4 Ohm & 2 Ohm stable

SWA6 - 22551 P



SWA6

## AQ-MP-5BT BLUETOOTH MARINE STEREO - WATERPROOF MARINE STEREO SYSTEM



The **AQ-MP-5BT** is a high quality, robust and durable waterproof marine grade stereo with Bluetooth and plays music wirelessly via a Bluetooth enabled smartphone or MP3 device. Wired connections can also be made with stereo 3.5mm Jack or RCA inputs.

Control music directly from the Bluetooth enabled device or with wired remote control AQ-WR-5F (sold separately).

Features an on board 288W amplifier capable of powering up to 8x speakers, or a combination of speakers and subwoofers, high-quality RCA (phono) pre-outs for connecting an external amplifier (AQ-AD600.4) or powered subwoofer and FM/AM radio with 30x pre-set memory.

As with all Aquatic AV waterproof or marine stereos the AQ-MP-5BT is designed and built to withstand the harsh conditions associated with use in marine and boat applications.

- Supports Bluetooth and MP3 devices
- Internal device shelf
- Fits most smartphones and media devices including Samsung Galaxy and iPhone 6Plus
- FM/AM radio with 30 presets (US & Euro)
- IP55 Rated, for use in any environment (dry, wet, muddy, damp etc)
- Rotary Knob Control
- Removable faceplate
- Built-in 288W amplifier
- Connect up to 8x speakers

Patent: 7,831,756 & 8,578,081

**AQ-MP-5BT** - 69753 S



**AQ-MP-5BT**

## AQ-MP-5UBT-S BLUETOOTH, USB, SiriusXM WATERPROOF MARINE STEREO



Play music wirelessly via a Bluetooth enabled smartphone or MP3 device or via USB connection. Wired connections can also be made with stereo 3.5 mm Jack or RCA inputs.

- SiriusXM satellite radio ready
- Supports Bluetooth, USB, iPod, iPhone, MP3 and AM/FM radio
- Clock display mode
- Dummy faceplate / Dust cover included
- Surface mount USB socket included
- Internal device compartment
- Fits most smartphones and media devices
- USB device charging
- FM/AM radio with 30 presets (US & Euro)
- Waterproof IP55
- Rotary knob control
- Removable faceplate
- Built-in 288W amplifier
- Connect up to 8 x speakers

**AQ-MP-5UBT-S** - 21564 U



**AQ-MP-5UBT-S**

MODEL	AQ-MP-5BT	AQ-MP-5UBT-S
Part No.	69753 S	21564 U
Supported media	Bluetooth, MP3, FM/AM radio	SiriusXM, Bluetooth (IAP), USB, iPhone, iPod, MP3, FM/AM radio, AUX
Detachable faceplate	Yes	Yes
Color	Black	Black
Inputs	1 x 3.5 mm jack, 1 x stereo pair RCA aux, Bluetooth	1 x USB, 1 x 3.5 mm jack, 1 x stereo pair RCA aux, Bluetooth
Outputs	1 x stereo pair RCA (2V)	2 x stereo pair RCA (4V), 1 x RCA Sub-out 1 x rear USB (charging only)
FM/AM tuner	18 x FM & 12 x AM pre-set memory switchable US/Euro frequencies	18 x FM & 12 x AM pre-set memory switchable US/Euro frequencies
Amplifier type	Class A/B (2 Ohm stable)	Class A/B (2 Ohm stable)
Power (max)	4 x 45W (4 Ohm) / 4 x 72W (2 Ohm)	4 x 45W (4 Ohm) / 4 x 72W (2 Ohm)
Frequency response	20Hz - 20kHz	20Hz - 20kHz
Operation voltage	9.6V - 14.4V DC	9.6V - 14.4V DC
Current draw	6mA (standby), 7A (max)	6mA (standby), 7A (max)
Waterproof	IP55	IP55
Conformal PCB coating	Yes	Yes
Fascia material	ABS	ABS
Chassis material	ZAM coated	ZAM coated
Certifications	CE, RoHS, WEE, FCC	CE, RoHS, WEE, FCC
UV protection	500hrs stable	500hrs stable
Salt/Fog protection	500hrs stable	500hrs stable
Additional features	Removable faceplate bass/treble, balancer/ fader stainless steel mounting hardware	Clock display mode, removable faceplate, 2 x external triggers (12V DC, 350mA), DSP EQ, bass/fader loudness stainless steel mountin hardware

#### WR6 WIRED WATERPROOF MARINE REMOTE CONTROL

The **WR6** waterproof marine remote control is a high quality, robust and durable waterproof remote control, designed and built to withstand the harsh conditions associated with use in marine and boat applications.

- Fixed, Wired Remote Control
- Waterproof/Dustproof (IP65)
- 2-Way communication
- Requires extension cable (sold separately) for use with Aquatic AV 6-series marine stereos

**WR6** - 23100 J

#### AQ-RF-6UBT HANDHELD MARINE REMOTE CONTROL

The **AQ-RF-6UBT** handheld marine remote control is for use with all Aquatic AV '6-series' marine stereos.

- Handheld Remote Control
- Charges via USB
- Waterproof/Dustproof (IP66)
- 2-Way RF (Radio Frequency) communication
- 40ft range

**AQ-RF-6UBT** - 23101 L



**WR6**



**AQ-RF-6UBT**

## AQ-DM-5BT, AQ-DM-5UBT & AQ-DML-5 WATERPROOF DIGITAL MEDIA LOCKER

- The Digital Media Lockers™ are high quality, robust and durable waterproof marine grade stereos.
- Fit most smartphones, including larger models such as the Samsung Galaxy Note. Simply insert your digital media device (iPhone, iPod, smartphone, MP3) into the locker, close the door and turn it on!

### AQ-DM-5BT

- IP65 Rated, for use in any environment (dry, wet, muddy, damp etc)
- External Door Controls
- 2-Way Radio Frequency remote with 40ft range included
- Built-in 288W amplifier
- Connect up to 8 speakers
- Stereo pair RCA Pre-Outs (4V)
- Patent: 7,831,756 & 8,578,081
- iPhone and iPod are trademarks of Apple Inc, registered in the US and other countries.
- Control your device via the external door controls or remotely using the fully waterproof, floating 2-way RF (Radio Frequency) remote control. The remote has a range of 40ft and displays song and track information on the LCD screen.
- It features an onboard 288W amplifier capable of powering up to 8x speakers, or a combination of speakers and subwoofers, high-quality RCA (phono) pre-outs for connecting an external amplifier or powered subwoofer.

AQ-DM-5BT - 69394 P

Bluetooth® mp3



AQ-DM-5BT

### AQ-DM-5UBT

- Supports IAP Bluetooth, USB, iPod, iPhone & MP3 devices
- FM radio (US & Euro)
- IP65 Rated, for use in any environment (dry, wet, muddy, damp etc)
- External Door Controls
- 2-Way Radio Frequency remote with 40ft range included
- DSP EQ Presets, Bass/Treble, Balance/Fader
- Built-in 288W amplifier
- Connect up to 8 speakers
- 2x stereo pair RCA Pre-Outs (4V)
- Patent: 7,831,756 & 8,578,081
- iPhone and iPod are trademarks of Apple Inc, registered in the US and other countries.
- Control your device via the external door controls or remotely using the fully waterproof, floating 2-way RF (Radio Frequency) remote control. The remote has a range of 40ft and displays song and track information on the LCD screen.
- It features an onboard 288W amplifier capable of powering up to 8x speakers, or a combination of speakers and subwoofers, high-quality RCA (phono) pre-outs for connecting an external amplifier or powered subwoofer.

AQ-DM-5UBT - 68875 B

Bluetooth® Made for iPod iPhone



AQ-DM-5UBT

### AQ-DML-5

- Supports MP3 devices
- IP65 Rated, for use in any environment (dry, wet, muddy, damp etc)

AQ-DML-5 - 69174 Z



AQ-DML-5



## **AQ-SPK6.5-4L PRO-SERIES & AQ-SPK6.5-4E ECONOMY SERIES SPEAKERS 6.5"**

### **AQ-SPK10-4LW PRO-SERIES SUBWOOFER 10"**

The **AQ-SPK6.5** waterproof marine speakers are high quality, robust and durable marine speakers.

These 6.5" cone marine speakers are capable delivering great audio quality at all levels and with all music types, even in high background noise installations.

They feature a fully waterproof design, UV and salt/fog protection and are supplied with Stainless Steel mounting hardware.

**AQ-SPK6.5-4LW** - 69312 J

**AQ-SPK6.5-4EW** - 21537 R

**AQ-SPK6.5-4EB** - 22182 J



**AQ-SPK6.5-4LW**



**AQ-SPK6.5-4EW**



**AQ-SPK6.5-4EB**

The Pro-Series **AQ-SPK10-4LW** waterproof marine subwoofer is a high quality, robust and durable 10" marine subwoofer, designed and built to withstand the harsh conditions associated with use in marine, and boat applications.

White grill colour with blue LED cone illumination.

Rated at 400W max power output (200W RMS) and frequency response of 40Hz-4,000Hz the AQ-SPK10-4L marine subwoofer delivers powerful, warm bass to your existing marine speaker setup, adding musicality and depth to your audio content.

The AQ-SPK10-4L waterproof marine subwoofer includes removable grill and will mount directly into an aperture of 229 mm and requires a depth of 112.5 mm.

**AQ-SPK10-4LW** - 69621 Y - white grill



**AQ-SPK10-4LW**

MODEL	AQ-SPK6.5-4L	AQ-SPK6.5-4E	AQ-SPK10-4L
Type	Full range, co-axial speaker	Full range, co-axial speaker	Subwoofer, 1 way
Color	Chrome or white	Matt white or black	White
Waterproof	Yes	Yes	Yes
Cone size mm (")	165 (6.5)	165 (6.5)	254 (10)
Outside diameter mm (")	175 (7)	163 (6.4)	270 (10.6)
Mounting hole diameter mm (")	130 (5.12)	129 (5.08)	229 (9)
Mounting depth mm (")	70 (2.8)	52 (2.05)	112,5 (4.5)
Impedance	4 ohm	4 ohm	4 ohm
Frequency response	52 Hz - 20 kHz	83 Hz - 20 kHz	40 Hz - 4 kHz
Grill and basket material	UV plastic, 500 hrs stable	UV plastic, 500 hrs stable	UV plastic, 550 hrs stable
Cone material	Polypropylene	Polypropylene	Polypropylene
Rubber surround	Yes	Yes	Yes
Certifications	RoHS, ASTM B 117, ASTM D4329	RoHS, ASTM B 117, ASTM D4329	RoHS, ASTM B 117, ASTM D4329
Additional features	Removable grill, blue LED cone illumination, stainless steel mounting hardware	Removable grill, stainless steel mounting hardware	Removable grill, blue LED cone illumination, stainless steel mounting hardware

## AQ-SPK3.0-4C WATERPROOF SPEAKER 3"

The **AQ-SPK3.0-4C** 3" waterproof speakers are high quality, robust and durable waterproof speakers, designed and built to withstand the harsh conditions associated with use in marine environment.

**AQ-SPK3.0-4C** - 22552 S (sold separately)

**AQ-SPG3.0-DB** - 22553 U - Removable grill (sold separately)

- 3" full range, compact speaker
- Black color
- Waterproof
- 45 W max
- 4 ohm
- Speaker outside diameter: 94,3 mm (3.7")
- Mount hole diameter: 76 mm (3")
- Mounting depth: 55 mm (2.17")
- Weight (single speaker): 0,32 kg (0.7 lbs)
- Certifications: RoHs, ASTM B 117, ASTM D4329



**AQ-SPG3.0-DB**



**AQ-SPK3.0-4C**

## AQ-SPKTD-1 TRANSDUCER SPEAKER

The **AQ-SPKTD-1** hide-away waterproof transducer speaker is high quality, robust and durable waterproof speaker, designed and built to withstand the harsh conditions.

Ideal for applications where space is at a premium or when using traditional speakers would compromise the design aesthetics of your installation.

Rated at 30W max power output (15W RMS) this transducer speaker is capable of delivering full range output, ideal for installations with space constraints or to compliment larger speakers already installed in your stereo system.

**AQ-SPKTD-1** - 69609 J (sold separately)

- Hide-away, full range transducer speaker
- Black color
- Waterproof
- 30 W max
- 4 ohm
- Speaker outside diameter: 77,5 mm (3")
- Mount hole diameter: 80 mm (3.15")
- Mounting depth: 39,5 mm (1.56")
- Weight (single speaker): 0,43 kg (0.95 lbs)
- Certifications: RoHs, ASTM B 117, ASTM D4329



**AQ-SPKTD-1**

## AQ-CABLES

High quality, robust and durable waterproof USB and 3,5mm input socket for waterproof marine stereos, boat stereos and marine stereo systems. Designed and built to withstand the harsh conditions associated with use in marine, boat, pool and spa applications.

### AQ-UNH-2 WIRING HARNESS



- Wiring harness for waterproof marine stereos and marine stereo systems.

**AQ-UNH-2** - 69335 X

### AQ-AUX-4 USB & 3.5 mm INPUT PLATE



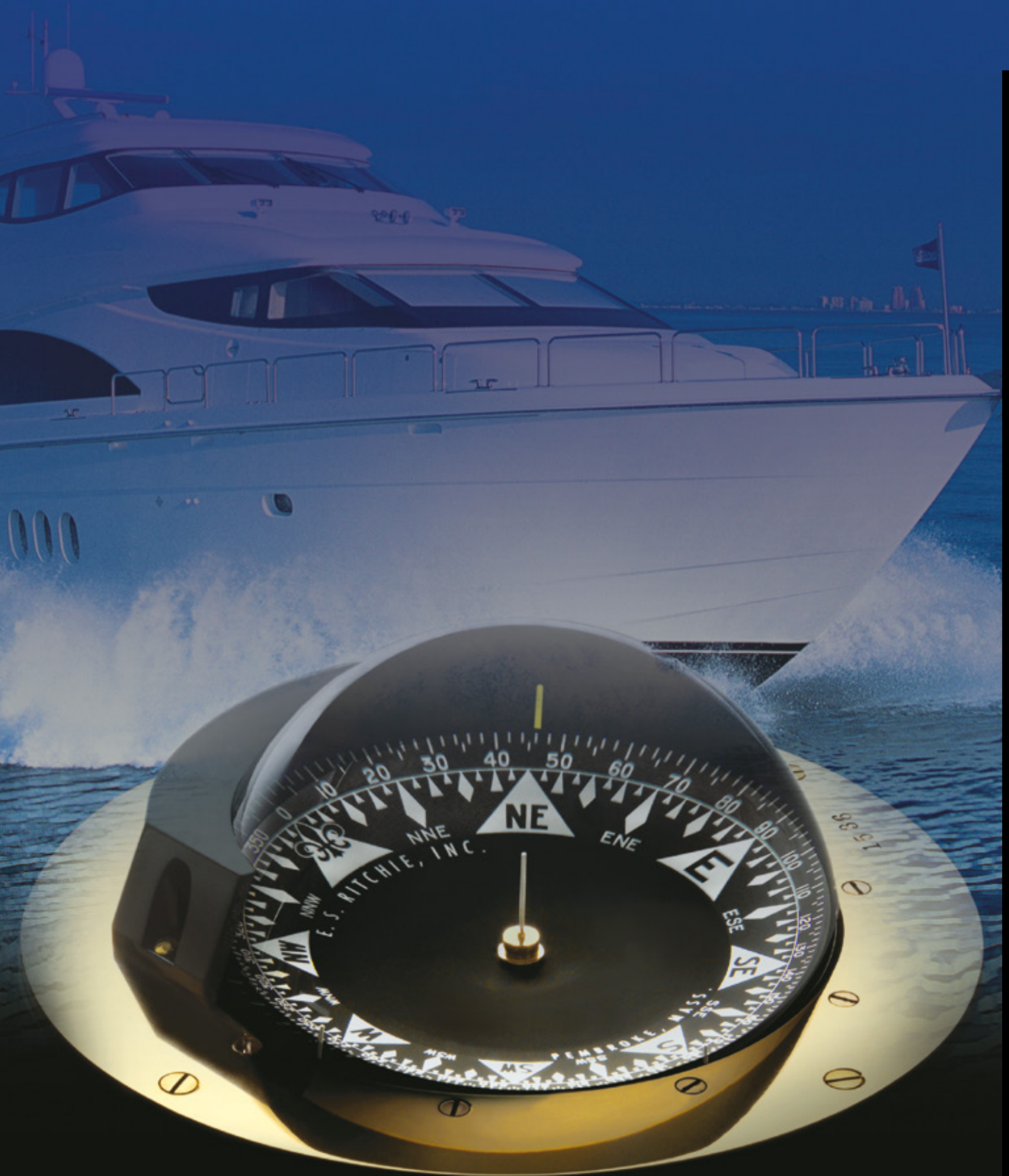
- USB & 3,5 mm jack input socket
- Waterproof cover

**AQ-AUX-4 USB** - 68962 W

# RITCHIE<sup>®</sup> NAVIGATION

39

MAGNETIC COMPASSES





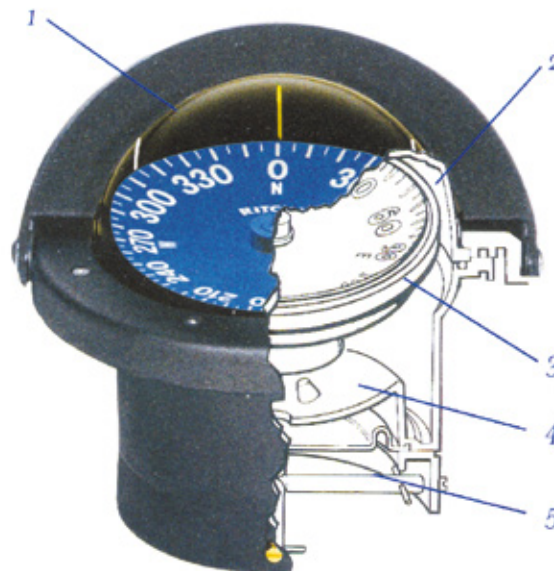


## RITCHIE® MAGNETIC COMPASSES

Since 1861, Ritchie® has been making only one thing – compasses. When properly sized, installed and compensated a marine compass is the most important instrument on any boat.

It will provide accurate, trouble-free heading references under the most adverse conditions without relying on electricity, radio signals or satellite communications.





Quality components aid accuracy, smooth response, stability and trouble-free operation.



### SELECTING AND INSTALLING YOUR COMPASS

When you choose your compass, you should always consider four things: mounting style, size, readability of the card and the design of your boat.

#### MOUNTING STYLE

<p><b>DASH MOUNT</b></p>  <p>Ideal for powerboats with limited dash space</p>	<p><b>BULKHEAD MOUNT</b></p>  <p>Often used on sailboats to reduce interference with lines and to save space</p>	<p><b>BRACKET MOUNT</b></p>  <p>Can be mounted on the deck or dash; allows compass to remain at proper viewing angle</p>
<p><b>FLUSH/SURFACE MOUNT</b></p>  <p>Ideal for today's compact helm designs</p>	<p><b>BINNACLE MOUNT</b></p>  <p>Features an outer case, often with a light-shielding hood</p>	

#### DIAL DESIGN

Dial dimensions refer to apparent dial diameter.

<p><b>FLAT-CARD DIAL</b></p>  <p>Allows you to look down on the compass to see the course heading</p>	<p><b>DIRECT-READ DIAL</b></p>  <p>Allows you to see the compass heading and lubber line from directly in front; good for when boat design requires your compass to be positioned at eye level</p>	<p><b>COMBI-DIAL</b></p>  <p>A combination of the direct-read and flat-card designs; incorporates dials that can be read from both above and directly in front of the compass and maximizes readability from any angle</p>
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#### POSITIONING

In an ideal situation, a compass should be mounted directly in front of the helm, as well as directly above the centerline of the hull. If this is not possible, the compass should be mounted parallel to the centerline. And on powerboats with upper steering stations, you should have a compass installed at both locations.





## WHEELMARK COMPASSES

### WHEELMARK

The Wheelmark approval is for Lifeboat and Rescue boat compasses. These compasses are also suitable for sailboats, power boats and motor sailing vessels.

The -WM suffix signifies type approval and compliance with the Navigation requirements of Marine Equipment Directive (MED) 95/98/EC and the last modification by Directive 2011/75/EU.

#### VOYAGER SERIES S-87-WM AND S-87W-WM

- **Dial size/design:** 76 mm (3") / CombiDial
- **Night lighting:** 12V green
- **Compensators:** built-in
- **Warranty:** 5 years
- **Weight:** 539g (1 lb. 3 oz.)



S-87-WM - 67322 B



S-87W-WM - 69147 W

#### VOYAGER SERIES F-83-WM AND F-83W-WM

- **Dial size/design:** 76 mm (3") / CombiDial
- **Night lighting:** 12V green
- **Compensators:** built-in
- **Mounting hole:** 107 mm (4 3/16")
- **Warranty:** 5 years
- **Weight:** 567g (1 lb. 4 oz.)



F-83-WM - 69728 T



F-83W-WM - 69730 D

#### VOYAGER SERIES B-81-WM

- **Dial size/design:** 76 mm (3") / CombiDial
- **Night lighting:** 12V green
- **Compensators:** built-in
- **Warranty:** 5 years
- **Weight:** 680g (1 lb. 8 oz.)



B-81-WM - 67364 U

#### NAVIGATOR SERIES FN-201-WM AND FN-201W-WM

- **Dial size/design:** 114 mm (4 1/2") / Flat-Card
- **Night lighting:** 12V green
- **Compensators:** built-in
- **Mounting hole:** 130 mm (5 1/8")
- **Warranty:** 5 years
- **Weight:** 1.19kg (2 lb. 10 oz.)
- **Protective cover:** Model No. N-203-C



FN-201-WM - 69731 F



FN-201W-WM - 69732 H

#### NAVIGATOR SERIES DNW-200-WM, DNP-200-WM AND DNB-200-WM

- **Dial size/design:** 114 mm (4 1/2") / Flat-Card
- **Night lighting:** 12V green
- **Compensators:** built-in
- **Warranty:** 5 years
- **Weight:** 1.65kg (3 lb. 10 oz.)
- **Protective cover:** Model No. N-203-C



DNW-200-WM - 69585 X



DNB-200-WM - 69586 Z



DNP-200-WM - 69587 B



# SPORT® SERIES

DIAL APP. DIAMETER: 2" (51 mm)



X-10-M



X-21BU



X-10-M



X-10W-M



X-10B-M



X-21BB



X-21BU



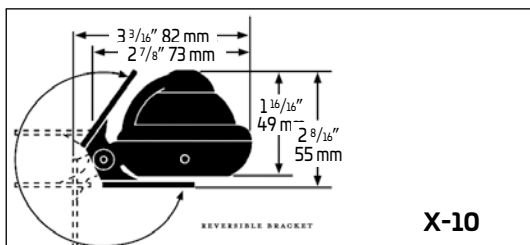
X-21WW

## REVERSIBLE BRACKET MOUNT

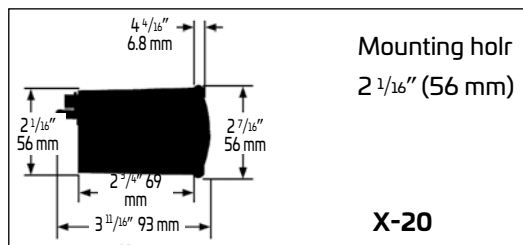
The fully adjustable and reversible Bracket allows a mounting range of over 300° from overhead, through angled and vertical mounts to horizontal surfaces.

These mounting position options and your choice of mounting hardware permit mounting on everything from windshield or supporting frame structures, to slanted dashboards and consoles, to almost any flat, angled or vertical surface.

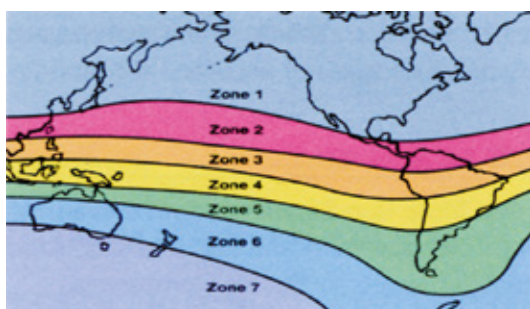
RITCHIE® MODEL	UFLEX® PART No.	DIAL APP. Ø	MOUNT	BOAT TYPE	DIAL READING	NIGHT LIGHTING	COMPENSATORS	WEIGHT
X-10-M	67099 B	2"	bracket	powerboats	front	12V green	built-in	142 g - 5 oz
X-10W-M	67331 C	2"	bracket	powerboats	front	12V green	built-in	142 g - 5 oz
X-10B-M	67332 E	2"	bracket	powerboats	front	12V green	built-in	142 g - 5 oz
X-21BB	67333 G	2"	bulkhead	powerboats	front	12V green	-	142 g - 5 oz
X-21BU	67334 J	2"	bulkhead	powerboats	front	12V green	-	142 g - 5 oz
X-21WW	67335 L	2"	bulkhead	powerboats	front	12V green	-	142 g - 5 oz



X-10



X-20



## CARD BALANCING

The dials in magnetic compasses should be balanced to compensate for dip caused by Earth's magnetic field. All Ritchie® Compasses come standard for Zone 1 (essentially all of the Northern Hemisphere). When requesting a compass for Zone 2-7, please indicate the zone most central to your boating area. Once balanced for a specific Zone, the compass will maintain accuracy for one Zone north or south.

# ANGLER® SERIES FISHING BOAT COMPASSES

DIAL APP. DIAMETER: 2 3/4" (70 mm)



RA-91



RA-93

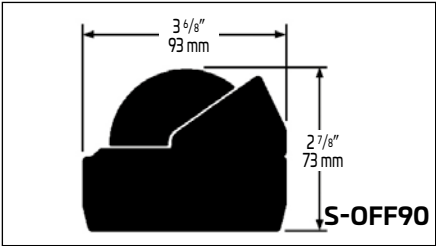
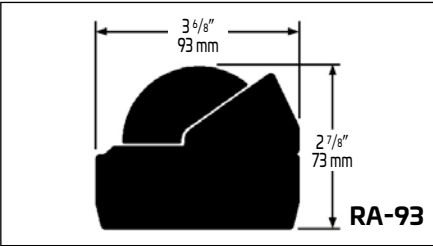
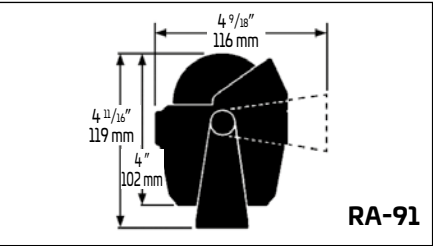


S-OFF90

RITCHIE® MODEL	UFLEX® PART No.	DIAL APP. Ø	MOUNT	BOAT TYPE	DIAL READING	NIGHT LIGHTING	COMPENSATORS	WEIGHT
RA-91	67352 L	2 3/4"	bracket	powerboats	front	12V green	built-in	454 g - 1 lbs
RA-93	67353 N	2 3/4"	surface	powerboats	front	12V green	built-in	454 g - 1 lbs
S-OFF90	67354 R	2 3/4"	surface	powerboats	front	12V green	built-in	454 g - 1 lbs

S-OFF90: 90° off for viewing from starboard

Optional protective cover E-50-C 67355 T: for RA-93 and S-OFF90 magnetic compasses



## KAYAK COMPASSES AND ACCESSORIES

DIAL APP. DIAMETER: 3" (76 mm)

RITCHIE® MODEL	UFLEX® PART No.	DIAL APP. Ø	DIAL READING	WEIGHT
XP-99	68295 G	3"	combi dial	454 g - 1 lbs
XP-99W	68296 J	3"	combi dial	454 g - 1 lbs

K-TD.2 - 68297 L (Compass not included). Designed for mounting the Ritchie Kayaker. No drill, no holes in the deck, flexible pad and foam ring.



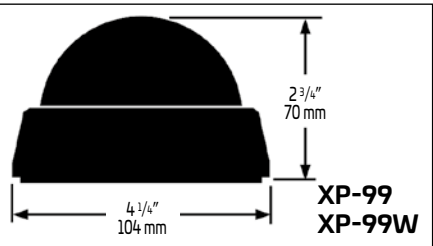
XP-99



XP-99W



K-TD-2



## EXPLORER® SERIES

DIAL APP. DIAMETER: 2 3/4" (70 mm)



F-50



F-50W



B-51



B-51W



B-51G



S-53



S-53W



S-53G



V-57.2



V-57W.2



V-537



V-537B



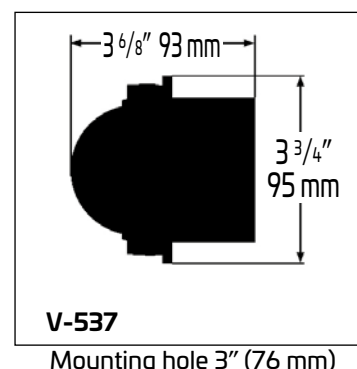
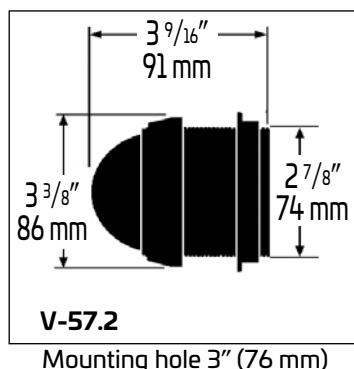
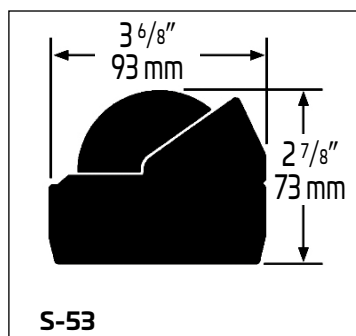
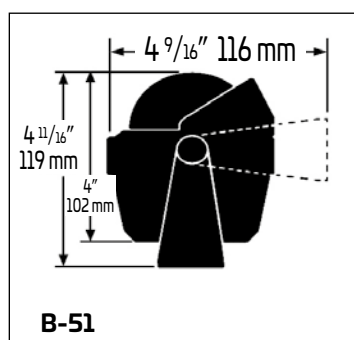
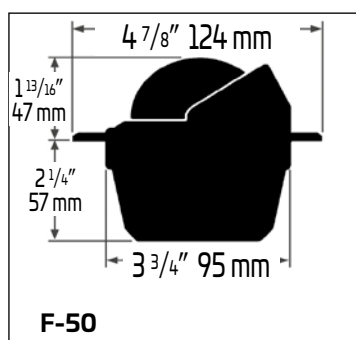
V-537W



<b>RITCHIE® MODEL</b>	<b>UFLEX® PART No.</b>	<b>DIAL APP. Ø</b>	<b>MOUNT</b>	<b>BOAT TYPE</b>	<b>DIAL READING</b>	<b>NIGHT LIGHTING</b>	<b>COMPENSATORS</b>	<b>WEIGHT</b>
<b>F-50</b>	67102 L	2 3/4"	flush	powerboats	front	12V green	built-in	454 g - 1 lbs
<b>F-50W</b>	67317 J	2 3/4"	flush	powerboats	front	12V green	built-in	454 g - 1 lbs
<b>B-51</b>	67103 N	2 3/4"	bracket	powerboats	front	12V green	built-in	454 g - 1 lbs
<b>B-51W</b>	67356 V	2 3/4"	bracket	powerboats	front	12V green	built-in	454 g - 1 lbs
<b>B-51G</b>	67318 L	2 3/4"	bracket	powerboats	front	12V green	built-in	454 g - 1 lbs
<b>S-53</b>	67104 R	2 3/4"	surface	powerboats	front	12V green	built-in	454 g - 1 lbs
<b>S-53W</b>	67320 X	2 3/4"	surface	powerboats	front	12V green	built-in	454 g - 1 lbs
<b>S-53G</b>	67319 N	2 3/4"	surface	powerboats	front	12V green	built-in	454 g - 1 lbs
<b>V-57.2</b>	67358 Z	2 3/4"	dash	powerboats	front	12V	built-in	454 g - 1 lbs
<b>V-57W.2</b>	67359 B	2 3/4"	dash	powerboats	front	12V	built-in	454 g - 1 lbs
<b>V-537</b>	67360 K	2 3/4"	bulkhead	sail	front	12V	built-in	454 g - 1 lbs
<b>V-537B</b>	67361 M	2 3/4"	bulkhead	sail	front	12V	built-in	454 g - 1 lbs
<b>V-537W</b>	67362 P	2 3/4"	bulkhead	sail	front	12V	built-in	454 g - 1 lbs

**Optional protective cover E-50-C 67355 T:** for F-50 and S-53 magnetic compasses

**Note:** V-57.2 and V-537 compasses are adjustable to 30°, heel angle to 25°.



45

MAGNETIC COMPASSES

## VOYAGER® SERIES

DIAL APP. DIAMETER: 3" (76 mm)



F-82W



F-83



B-81



S-87W



F-82



F-83 WM



B-80



S-87 WM



F-82W



F-83W WM



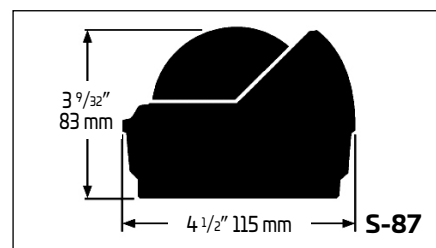
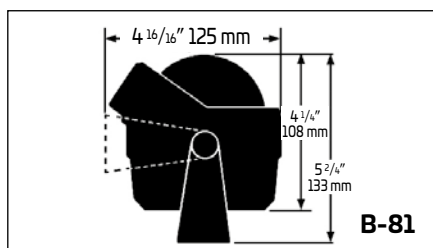
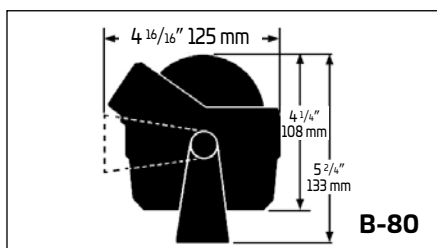
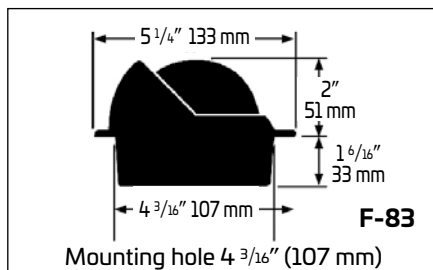
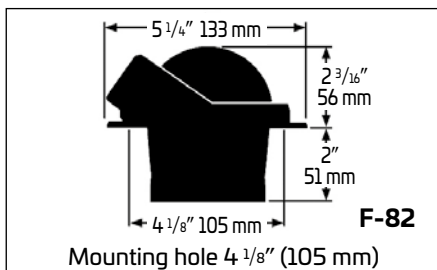
B-81 WM



S-87W WM



RITCHIE® MODEL	UFLEX® PART No.	DIAL APP. Ø	MOUNT	BOAT TYPE	DIAL READING	NIGHT LIGHTING	COMPENSATORS	WEIGHT
F-82	67105 T	3"	flush	powerboats	flat-card	12V green	built-in	680 g - 1.8 lbs
F-82W	67367 A	3"	flush	powerboats	flat-card	12V green	built-in	680 g - 1.8 lbs
F-83 WM	69728 T	3"	flush	powerboats	combi-dial	12V green	built-in	567 g - 1.4 lbs
F-83W WM	69730 D	3"	flush	powerboats	combi-dial	12V green	built-in	567 g - 1.4 lbs
B-80	67363 S	3"	bracket	powerboats	flat-card	12V green	built-in	680 g - 1.8 lbs
B-81 WM	67364 U	3"	bracket	powerboats	combi-dial	12V green	built-in	680 g - 1.8 lbs
S-87 WM	67322 B	3"	surface	powerboats	combi-dial	12V green	built-in	539 g - 1.3 lbs
S-87W WM	69147 W	3"	surface	powerboats	combi-dial	12V green	built-in	539 g - 1.3 lbs



Voyager compasses with wheel mark symbol (Wheelmark certified)

HELSMAN™ SERIES

DIAL APP. DIAMETER: 3 3/4" (94 mm)



47



HF-742



HB-741



HD-744



HF-742



HF-743



HB-740



HD-744



H-741-C



HF-742W



HF-743W



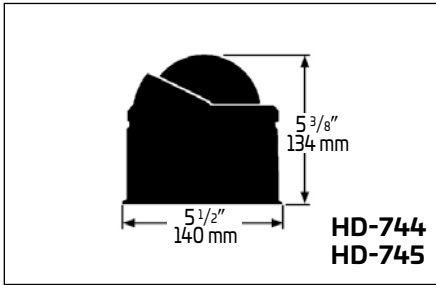
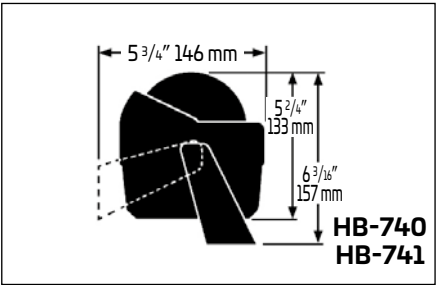
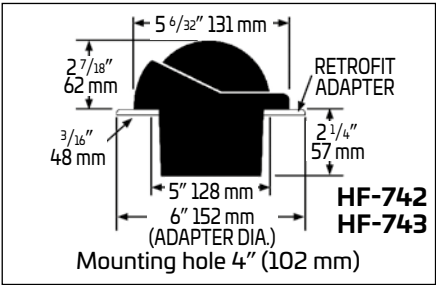
HB-741



HD-745

RITCHIE® MODEL	UFLEX® PART No.	DIAL APP. Ø	MOUNT	BOAT TYPE	DIAL READING	NIGHT LIGHTING	COMPENSATORS	WEIGHT
HF-742	67373 V	3 3/4"	flush	power/sail	flat-card	12V green	built-in	907 g - 2 lbs
HF-742W	67323 D	3 3/4"	flush	power/sail	flat-card	12V green	built-in	907 g - 2 lbs
HF-743	67107 X	3 3/4"	flush	power/sail	combi-dial	12V green	built-in	907 g - 2 lbs
HF-743W	67375 Z	3 3/4"	flush	power/sail	combi-dial	12V green	built-in	907 g - 2 lbs
HB-740	67370 N	3 3/4"	bracket	power/sail	flat-card	12V green	built-in	907 g - 2 lbs
HB-741	67371 R	3 3/4"	bracket	power/sail	combi-dial	12V green	built-in	907 g - 2 lbs
HD-744	67108 Z	3 3/4"	binnacle	power/sail	flat-card	12V green	built-in	907 g - 2 lbs
HD-745	67372 T	3 3/4"	binnacle	power/sail	combi-dial	12V green	built-in	907 g - 2 lbs

Optional protective cover H-741-C 67376 B: for HF-742, HF-743,HB-740, HB-741,HD-744 and HD-745 compasses



# **VENTURE® AND SUPERSPORT™ SERIES**

DIAL APP. DIAMETER: 3 3/4" (94 mm)



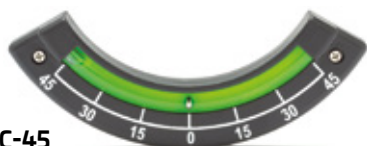
**VENTURE SR-2**



**SUPERSPORT SS-1002**



**SUPERSPORT SS-PR2**



**INC-45**



**SS-1002**



**SS-1002W**

Mount at any angle up to 45°



**SS-PR2**



**SR-CM2**  
Compensator for SR-2 compass (optional)

RITCHIE® MODEL	UFLEX® PART No.	DIAL APP. Ø	MOUNT	BOAT TYPE	DIAL READING	NIGHT LIGHTING	COMPENSATORS	WEIGHT
SR-2	67109 B	3 3/4"	bulkhead	sail	combi-dial	12-24V blue	optional	910 g - 2 lbs
SS-1002	67377 D	3 3/4"	flush	high perform. power	powerdamp + flat-card dial	12V green	built-in	907 g - 2 lbs
SS-1002W	67378 F	3 3/4"	flush	high perform. power	powerdamp + flat-card dial	12V green	built-in	907 g - 2 lbs
SS-PR2	67380 S	3 3/4"	bulkhead	powerboats	combi-dial	12V green	built-in	910 g - 2 lbs

Venture® compass is provided with protective cover (front and back cover) and with inclinometer **INC-45** 67381 U.

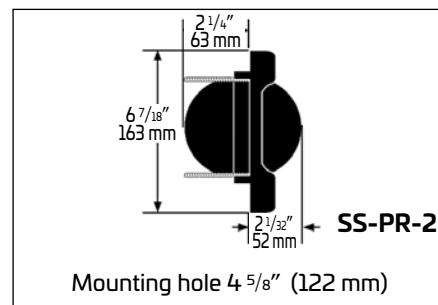
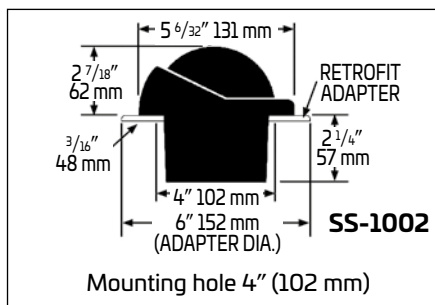
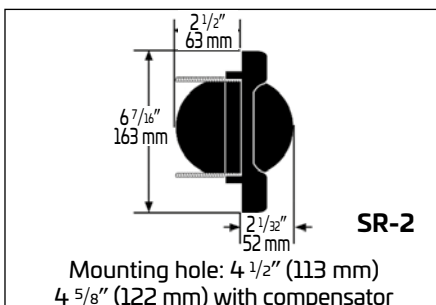
**SR-CM2** 67382 W compensator is optional.

Supersport™ SS-PR2 compass is provided with protective cover.

Optional protective **front cover BK-0019ASY** - 68878 H: for Venture and SS-PR2 compasses

Optional protective **back cover BK-0020** - 68879 K: for Venture and SS-PR2 compasses

Optional protective cover **H-741-C** 67376 B: for SS-1002 compasses



**H-741-C**



**BK-0019ASY**



**BK-0020**



# NAVIGATOR™ AND SUPERSPORT™ SERIES

DIAL APP. DIAMETER: 4 1/2" (114 mm)



49



BN-202



FNW-201



DNP-200



BN-C



FN-201 WM



FN-203



SS-2000



DNB-200 WM



FNW-201 WM



FNW-203



SS-2000W



DNW-200 WM



WS-P

Weather shield WS-P  
(optional) – 67403B  
for DN-200 compasses

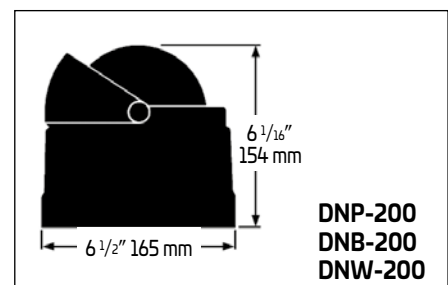
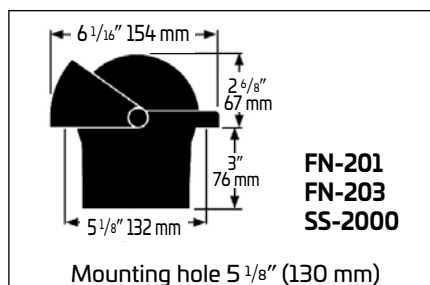
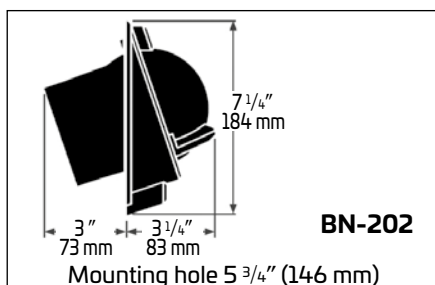


DNP-200 WM

RITCHIE® MODEL	UFLEX® PART No.	DIAL APP. Ø	MOUNT	BOAT TYPE	DIAL READING	NIGHT LIGHTING	COMPENSATORS	WEIGHT
BN-202	67324 F	4 1/2"	bulkhead mount	power/sail	combi-dial	12V	built-in	1050 g - 2.05 lbs
FN-201 WM	69731 F	4 1/2"	flush	power/sail	flat-card	12V green	built-in	1190 g - 2.1 lbs
FNW-201 WM	69732 H	4 1/2"	flush	power/sail	flat-card	12V green	built-in	1190 g - 2.1 lbs
FN-203	67326 K	4 1/2"	flush	power/sail	combi-dial	12V green	built-in	1190 g - 2.1 lbs
FNW-203	67387 G	4 1/2"	flush	power/sail	combi-dial	12V green	built-in	1190 g - 2.1 lbs
SS-2000 SUPERSPORT	67379 H	4 1/2"	flush	high perform power	powerdamp + flat-card dial	12V green	built-in	1190 g - 2.1 lbs
SS-2000W SUPERSPORT	67327 M	4 1/2"	flush	high perform power	powerdamp + flat-card dial	12V green	built-in	1190 g - 2.1 lbs
DNB-200 WM	69586 Z	4 1/2"	binnacle	power/sail	flat-card	12V green	built-in	1650 g - 3.1 lbs
DNW-200 WM	69585 X	4 1/2"	binnacle	power/sail	flat-card	12V green	built-in	1650 g - 3.1 lbs
DNP-200 WM	69587 B	4 1/2"	binnacle	power/sail	flat-card	12V green	built-in	1650 g - 3.1 lbs

Optional protective cover BN-C 67394 D: for BN-202 compass

Optional protective cover N-203-C 67395 F: for FN-201, FN-203, SS-2000 and DN-200 compasses



Navigator compasses with wheel mark symbol (Wheelmark certified)

MAGNETIC COMPASSES

# GLOBEMASTER® AND SUPERSPORT™ SERIES

DIAL APP. DIAMETER: 5" (127 mm)



SP-5C



D-515-EP



FB-500



SP-5B



D-515-EP



FB-500



SS-5000



SP-5C



D-515-X



SS-5000W

RITCHIE® MODEL	UFLEX® PART No.	DIAL APP. Ø	MOUNT	BOAT TYPE	DIAL READING	NIGHT LIGHTING	COMPENSATORS	WEIGHT
SP-5B	67329 S	5"	binnacle	power/sail	flat-card	12V/24V green	built-in	2720 g - 6 lbs
SP-5C	67328 P	5"	binnacle	power/sail	flat-card	12V/24V green	built-in	2720 g - 6 lbs
D-515-EP	67396 H	5"	binnacle	power/sail	flat-card	12V/24V green	built-in	4540 g - 10 lbs
D-515-X	67397 K	5"	binnacle	power/sail	flat-card	12V/24V green	built-in	4540 g - 10 lbs
FB-500	67398 M	5"	flush	power/sail	flat-card	12V/24V green	built-in	2610 g - 5 lbs
SS-5000 SUPERSPORT	67399 P	5"	flush	high perform. power	powerdamp + flat-card dial	12V/24V green	built-in	2610 g - 5 lbs
SS-5000W SUPERSPORT	67400 V	5"	flush	high perform. power	powerdamp + flat-card dial	12V/24V green	built-in	2610 g - 5 lbs

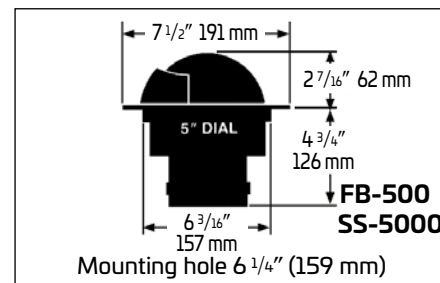
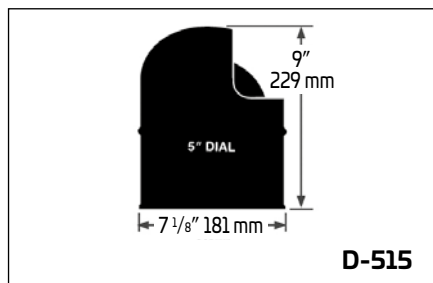
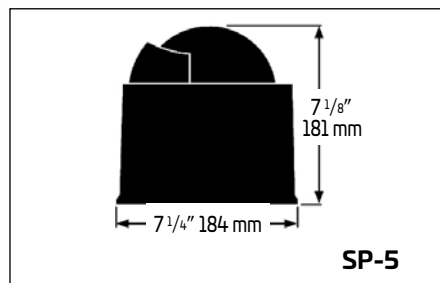
Voltage available on request: 32V

Optional protective cover GM-5-C 67401 X:  
for SP-5 and D-515-EP compasses

Optional protective cover LL-C 67402 Z:  
for FB-500 and SS-5000

Weather shield WS-P (optional) 67403 B:  
for SP-5 and D-515-EP

All Globemaster® compasses are individually custom assembled to order.  
When ordering a Globemaster® compass it is important to specify your choice of power or sailboat model; 2°, 2° w/points, or 5° dial; 12, 24, or 32-volt night lighting and your choice of Polished Stainless (P), Black (B) or Polished Brass (X) finish on all models.



## SUPER YACHT™ SERIES

DIAL APP. DIAMETER: 5" (127 mm) AND 6" (152 mm)

The Super Yacht Series is a unique blend of heritage polished bronze bezel, dial bushing and modern Ritchie compass technology.

Your compass can be personalized with engraving on the bezel.

Each compass is marked with a sequential coined serial number recorded at the factory.

Voltages available:  
12, 24 and 32 VDC.



SY-600LL



## GLOBEMASTER® SKYLIGHT SERIES

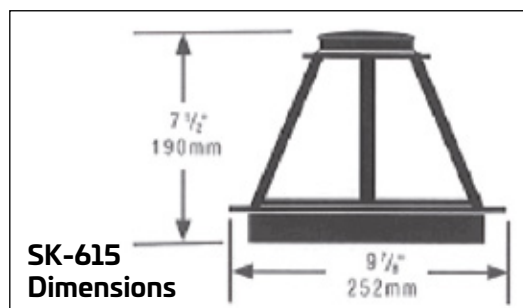
DIAL APP. DIAMETER: 6" (152 MM)



SK-615-C Chrome



SK-615-X Polished brass



- Binnacle mount
- 12V green powerlight lighting (optional 24V or 32V)
- 45° or 90° degree lubber lines for easy reading
- Built-in compensators
- Weight: 907 g – 20 lb

Frosted Sunshade Pane – Hood rotate to allow positioning of sunshade.





## STEEL AND COMMERCIAL BOAT COMPASSES

Ritchie® steel boat compasses are completely equipped with the necessary compensating equipment (BIC and quadrant spheres) to provide proper operation on steel hulled boats.

### HB-845

- **Dial size/design:** 82,5 mm (3 1/4") / Flat-Card Dial
- **Night lighting:** 12V green
- **Overall dimensions:** 305 x 157 mm (12" x 6 1/6")
- **Base:** 111 mm (4 3/8")
- **Warranty:** 5 years
- **Weight:** 2.72kg (6 lb.)
- **Protective cover:** Model No. H-741-C



HB-845 - 69588 D

### B-200P

- **Dial size/design:** 114 mm (4 1/2") / Flat-Card Dial
- **Night lighting:** 12V green
- **Overall dimensions:** 438 x 157 mm (17 1/4" x 6 1/6")
- **Base:** 184 mm (7 1/4")
- **Warranty:** 5 years
- **Weight:** 4.5kg (10 lb.)
- **Protective cover:** Model No. N-203-C



B-200P - 69589 F

## RITCHIE® POINT OF PURCHASE DISPLAY

For our distributors and dealers a **FREE** of charge Display is available ordering 12 compasses, two for each type, selected among the following models:

B-51, B-51W, B-81, S-53, S-53W, F-83, F-83W, SS-1002, SS-1002W

Ritchie® Display: 67577 M



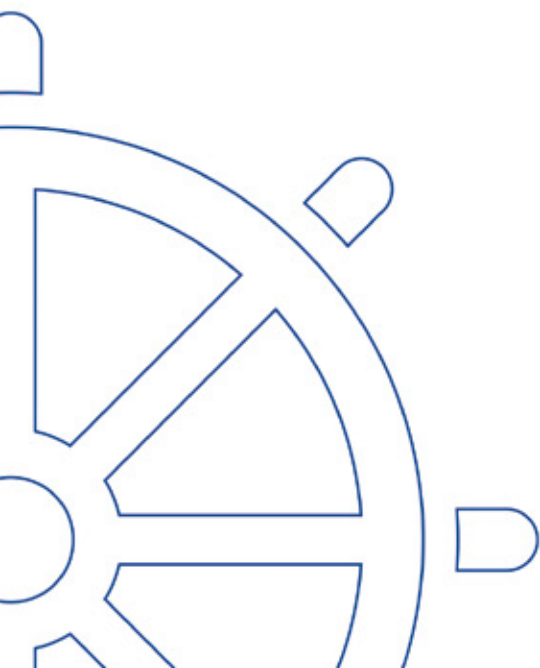




53

# ViewLine

At the cutting edge of tomorrow's trends.



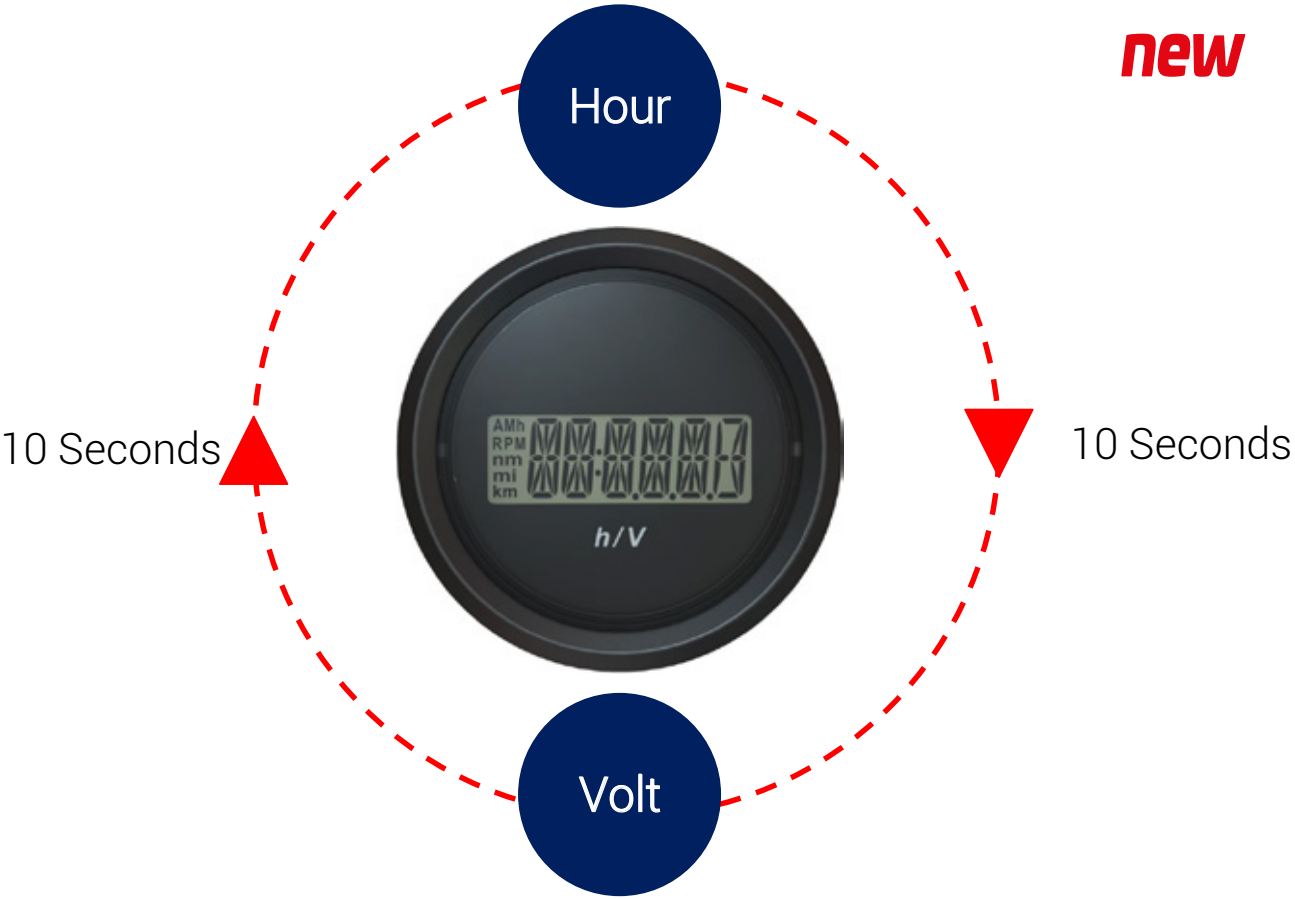
MARINE INSTRUMENTS



VIEWLINE 2 IN 1 - VOLTMETER AND HOUR COUNTER

The ViewLine 2 in 1 - 52 mm provides you with battery status and engine hours.

new

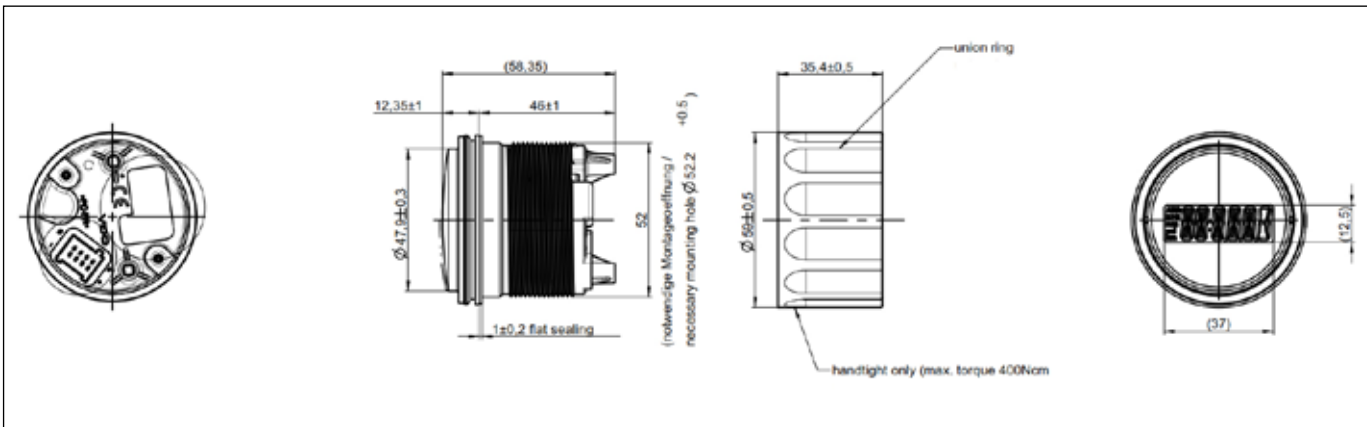


VDO Article No.	Part No.	Colour	Descriptions
Ø 52 mm			
B00005302	23073 J	Black	VLB EHCV 52 12+48 illum. DL rb
B00006302	23074 L	White	VLW EHCV 52 12+48 illum. DL rw

ELECTRICAL CHARACTERISTICS

- Operating voltage: 9-48 VDC
- Power consumption: <50 mA
- Reverse polarity protection: Yes
- Load dump protection: Yes
- Operating temperature: -40°C +80°C
- Storage temperature: -40°C +80°C
- Protection class: IP67 front and IP52 back

MECHANICAL DIMENSIONS



## TACHOMETER

The ViewLine rev counter can be connected to conventional marine engines (no data bus).

- 8 and 14 pole Tyco / Hirschmann bush housing
- Accuracy +/- 2.5 % of full scale reading
- Volatage: 8 - 32 V
- < 175 mA current consumption with an LED warning light as standard
- Number of pulses programmable via dip switch or PC software (ViewLine programming tool)
- Anti-fog double lens
- Front side protection rating IP67
- 52 & 85 mm installation diameter
- 50 mm installation depth

### PACKAGE CONTENTS

Tachometer gauge, adapter cable 8 pole, round bezel, pushbuttons for mode and configuration, spinlock nut, rubber seal, QR code, safety instructions



VDO Article No. (black)	Part No.	Range rpm
<b>Ø 52 mm</b>		
A2C59512344	60200 UA	4000
A2C59512345	60202 AA	6000
A2C59512346	60204 CA	8000
<b>Ø 85 mm</b>		
A2C59512430	60206 EA	3000
A2C59512431	60208 IA	4000
A2C59512432	60210 AA	6000

VDO Article No. (white)	Part No.	Range rpm
<b>Ø 52 mm</b>		
A2C59512347	60201 VA	4000
A2C59512348	60203 BA	6000
A2C59512349	60205 DA	8000
<b>Ø 85 mm</b>		
A2C59512433	60207 FA	3000
A2C59512434	60209 JA	4000
A2C59512435	60211 BA	6000

## TACHOMETER WITH LCD

Gauge to indicate engine revolution, engine hours, voltage and clock.

The Viewline rev counter with or without operating hours counter (OHC) can be connected to conventional marine engines (no data bus).

- Indication error < 2.5 % over the entire display range
- Current consumption < 175 mA, with warning light (LED)
- Volatage: 8 - 32 V
- Output for acoustic alert (option)
- Various sensor inputs
- LC display size 37 mm x 11 mm
- Individually programmable display e. g., for clock, trip, odometer, etc. via externally switchable button or PC software (ViewLine programming tool)
- Reverse polarity protection
- Anti-fog double lens
- Front side protection rating IP67
- 85 mm installation diameter
- 50 mm installation depth
- Input: W, Ind, Hall, Generator

### PACKAGE CONTENTS

Tachometer gauge, adapter cable 8 pole, adapter cable 14 pole, round bezel, pushbuttons for mode and configuration, spinlock nut, rubber seal, QR code, safety instructions

VDO Article No. (black)	Part No.	Range rpm
<b>Ø 85 mm</b>		
A2C59512390	60212 CA	3000
A2C59512391	60214 EA	4000
A2C59512392	60216 GA	5000
A2C59512393	60218 KA	6000
A2C59512394	60220 CA	7000
A2C59512395	60222 EA	8000

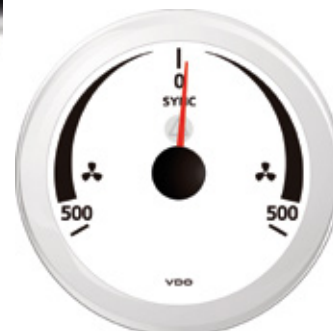
VDO Article No. (white)	Part No.	Range rpm
<b>Ø 85 mm</b>		
A2C59512396	60213 DA	3000
A2C59512397	60215 FA	4000
A2C59512398	60217 HA	5000
A2C59512399	60219 LA	6000
A2C59512400	60221 DA	7000
A2C59512401	60223 FA	8000



## SYNCHRONIZER

On pleasure boats with twin engine installations, the ViewLine synchronizer is an indispensable aid to ensuring correct synchronized running of both units.

- 8 and 14 pole Tyco / Hirschmann bush housing
- Accuracy +/- 2.5 %
- Current consumption 150 mA
- 2nd frequency input
- Connection for external alerts (option)
- Number of pulses programmable via dip switch or PC software (ViewLine programming tool)
- Anti-fog double lens
- Front side protection rating IP67
- 85 mm installation diameter
- 50 mm installation depth



### PACKAGE CONTENTS

Synchronizer gauge, adapter cable 8 pole, adapter cable 14 pole, round bezel, pushbuttons for mode and configuration, spinlock nut, rubber seal, QR code, safety instructions

VDO Article No.	Part No.	Colour	Range rpm	Voltage	Input
<b>Ø 85 mm</b>					
A2C59512402	60224 GA	Black	-500 / +500	8 - 32 V	W, 1, Ind
A2C59512403	60225 HA	White	-500 / +500	8 - 32 V	W, 1, Ind

## GPS SPEED

This multifunctional gauge with segment display is intended for use in the marine market in open boats. Based on the ViewLine housing concept, the cluster provides an ideal IP protection class, a modern appearance and high quality standards. It provides many parameters in NMEA 2000® and there are several customization opportunities to meet specific customer demands.

- Embedded GPS antenna
- Robust and flexible design for versatile applications
- CAN capability (NMEA 2000®)
- Pointer for analog indication of Speed over Ground (SOG)
- Programmable speed alarm
- Fixed segment LC display
- Flush mount possibility
- Front side protection rating IP67
- Compass for Course over Ground (COG)
- Clock
- 110 mm installation diameter
- 126 mm outer diameter
- 50 mm installation depth



### PACKAGE CONTENTS

GPS speed gauge, GPS speed cable, round bezel, pushbuttons for mode and configuration, spinlock nut, rubber seal, QR code, safety instructions

VDO Article No.	Part No.	Range (knots/kmh/mph)	Voltage	Operating temperature
<b>Ø 110 mm</b>				
A2C59501987	60226 IA	0 - 12	8.5 - 16 V	-20° / +85°C
A2C59501782	60227 JA	0 - 35	8.5 - 16 V	-20° / +85°C
A2C59501781	60228 MA	0 - 70	8.5 - 16 V	-20° / +85°C



## DEPTH GAUGE

Gauge to indicate Depth, Water Temperature, Time and Voltage.

The ViewLine depth indicator measures water depth. The integrated alarm, which can be configured to the user's specification, ensures safe passage through shallow waters.

- 8 and 14 pole Tyco / Hirschmann bush housing
- Accuracy + / - 2.5 % (depending on the nature of the bottom and water quality)
- Current consumption < 150 mA, with integrated warning light (LED)
- Warning light for configurable shallow water alarm
- NMEA input for active NMEA 0183 depth sensor
- Display with various functions, e. g., water temperature, depth, shallow water alarm, time, voltage, etc.
- Reverse polarity protection
- Anti-fog double lens
- Front side protection rating IP67
- 85 mm installation diameter
- 50 mm installation depth

### PACKAGE CONTENTS

Depth gauge, adapter cable 8 pole, adapter cable 14 pole, round bezel, pushbuttons for mode and configuration, spinlock nut, rubber seal, QR DB code, safety instructions



VDO Article No.	Part No.	Colour	Range	Voltage	Input
<b>Ø 85 mm</b>					
A2C59514247	60229 NA	Black	0 - 30 m	8 - 32 V	NMEA 0183
A2C59514250	60230 EA	White	0 - 30 m	8 - 32 V	NMEA 0183

## ENGINE OIL TEMPERATURE

The ViewLine temperature gauge displays any sudden rise in oil temperature, thus helping to prevent serious damage to the engine and the associated expense.

- 8 pole Tyco / Hirschmann MQS plug
- +/- 3.6° angle degree accuracy over the entire display range
- Current consumption < 150 mA, with integrated warning light (LED)
- Input signal: standard  $\Omega$  values
- 90° display angle
- Optional makepoint switch can be connected
- Reverse polarity protection
- Anti-fog double lens
- Front side protection rating IP67
- 52 mm installation diameter
- 50 mm installation depth

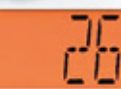
The outer scale is available also in °F

### PACKAGE CONTENTS

Oil temperature gauge, adapter cable 8 pole, round bezel, pushbuttons for mode and configuration, spinlock nut, rubber seal, QR code, safety instructions



VDO Article No.	Part No.	Colour	Range	Voltage	Input
<b>Ø 52 mm</b>					
A2C59514160	60231 FA	Black	50° - 150°C	8 - 32 V	322.8 - 1.6 $\Omega$
A2C59514231	60232 GA	White	50° - 150°C	8 - 32 V	322.8 - 1.6 $\Omega$



VDO

## COOLANT TEMPERATURE

The ViewLine temperature gauge displays any sudden rise in coolant temperature, thus helping to prevent serious damage to the engine and the associated expense.

- 8 pole Tyco / Hirschmann MQS plug
- +/- 3.6° angle degree accuracy over the entire display range
- Current consumption < 150 mA, with integrated warning light (LED)
- Input signal: standard  $\Omega$  values
- 90° display angle
- Optional makepoint switch can be connected
- Reverse polarity protection
- Anti-fog double lens
- Front side protection rating IP67
- 52 mm installation diameter
- 50 mm installation depth

The outer scale is available also in °F

### PACKAGE CONTENTS

Coolant temperature gauge, adapter cable 8 pole, round bezel, pushbuttons for mode and configuration, spinlock nut, rubber seal, QR code, safety instructions



VDO Article No.	Part No.	Colour	Range	Voltage	Input
<b>Ø 52 mm</b>					
A2C59514170	60235 JA	Black	40° - 120°C	8 - 32 V	287.4 - 22.7 $\Omega$
A2C59514237	60236 KA	White	40° - 120°C	8 - 32 V	287.4 - 22.7 $\Omega$

## PYROMETER

The Viewline pyrometer indicates the exhaust temperature at the end of the exhaust pipe (up to 900 °C/1650 °F). The relationship of this value to the maximum permitted exhaust temperature shows how efficient combustion is at that particular load. A rise in temperature is therefore an important early warning signal.

- 8 pole Tyco / Hirschmann MQS plug
- < 2.5 % accuracy over the entire display range
- Current consumption < 100 mA, with integrated warning light (LED)
- 240° display angle
- Programmable warning point (via optional PC software)
- Reverse polarity protection
- Anti-fog double lens
- Front side protection rating IP67
- 52 mm installation diameter
- 50 mm installation depth

The outer scale is available also in °F

### PACKAGE CONTENTS

Pyrometer gauge, adapter cable 8 pole, round bezel, pushbuttons for mode and configuration, spinlock nut, rubber seal, QR code, safety instructions



VDO Article No.	Part No.	Colour	Range	Voltage	Input
<b>Ø 52 mm</b>					
A2C59512332	60239 PA	Black	100° - 900°C	8 - 32 V	37 mV
A2C59512333	60240 GA	White	100° - 900°C	8 - 32 V	37 mV

## OUTSIDE AIR TEMPERATURE

The Viewline outside temperature gauge can display both the engine compartment temperature and the current air temperature.

- 8 pole Tyco / Hirschmann MQS plug
- < 2.5 % accuracy over the entire display range
- Current consumption < 100 mA, with integrated warning light (LED)
- 240° display angle
- Programmable warning point (via optional PC software)
- Reverse polarity protection
- Anti-fog double lens
- Front side protection rating IP67
- 52 mm installation diameter
- 50 mm installation depth

The outer scale is available also in °F

### PACKAGE CONTENTS

Outside temperature gauge, adapter cable 8 pole, round bezel, pushbuttons for mode and configuration, spinlock nut, rubber seal, QR DB code, safety instructions



VDO Article No.	Part No.	Colour	Range	Voltage	Input
<b>Ø 52 mm</b>					
A2C59512336	60243 JA	Black	-25° / +50°	8 - 32 V	2k Ω
A2C59512338	60244 KA	White	-25° / +50°	8 - 32 V	2k Ω
A2C59512337	60245 LA	Black	-10 / +120 °F	8 - 32 V	2k Ω
A2C59512339	60246 MA	White	-10 / +120 °F	8 - 32 V	2k Ω

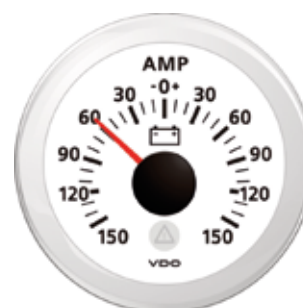
## AMMETER

The Viewline ammeter provides an overview of the entire electrical system. The level of current being drawn and the supply current are clearly displayed and the shunt – a measurement resistor – can be inserted into the measurement point in a matter of seconds. The fine connecting cable that runs from the shunt to the gauge is easy to lay without taking up much space.

- 8 pole Tyco / Hirschmann MQS plug
- < 2.5 % accuracy over the entire display range
- Current consumption < 100 mA, with integrated warning light (LED)
- 240° display angle
- Programmable warning point (PC software)
- Reverse polarity protection
- Anti-fog double lens
- Front side protection rating IP67
- 52 mm installation diameter
- 50 mm installation depth

### PACKAGE CONTENTS

Ammeter gauge, adapter cable 8 pole, round bezel, pushbuttons for mode and configuration, spinlock nut, rubber seal, QR code, safety instructions



VDO Article No.	Part No.	Colour	Range	Voltage	Input
<b>Ø 52 mm</b>					
A2C59512328	60289 GA	Black	-60 / +60 A	8 - 32 V	60 mV
A2C59512330	60290 XA	White	-60 / +60 A	8 - 32 V	60 mV
A2C59512329	60291 YA	Black	-150 / +150 A	8 - 32 V	60 mV
A2C59512331	60292 ZA	White	-150 / +150 A	8 - 32 V	60 mV



## ENGINE OIL PRESSURE 5 BAR

The Viewline pressure gauge detects fluctuations in engine oil pressure.

- 8 pole Tyco / Hirschmann MQS plug
- + / - 3.6° angle degree accuracy over the entire display range
- Current consumption < 150 mA, with integrated warning light (LED)
- Input signal: standard  $\Omega$  values
- 90° display angle
- Optional makepoint switch can be connected
- Reverse polarity protection
- Anti-fog double lens
- Front side protection rating IP67
- 52 mm installation diameter
- 50 mm installation depth

### PACKAGE CONTENTS

Oil pressure gauge, adapter cable 8 pole, round bezel, pushbuttons for mode and configuration, spinlock nut, rubber seal, QR code, safety instructions



VDO Article No.	Part No.	Colour	Range	Voltage	Input
<b>Ø 52 mm</b>					
A2C59514123	60249 RA	Black	0 - 5 bar	8 - 32 V	10 - 184 $\Omega$
A2C59514211	60250 IA	White	0 - 5 bar	8 - 32 V	10 - 184 $\Omega$

## ENGINE OIL PRESSURE 10 BAR

The Viewline pressure gauge detects fluctuations in engine oil pressure.

- 8 pole Tyco / Hirschmann MQS plug
- + / - 3.6° angle degree accuracy over the entire display range
- Current consumption < 150 mA, with integrated warning light (LED)
- Input signal: standard  $\Omega$  values
- 90° display angle
- Optional makepoint switch can be connected
- Reverse polarity protection
- Anti-fog double lens
- Front side protection rating IP67
- 52 mm installation diameter
- 50 mm installation depth

The outer scale is available also in PSI

### PACKAGE CONTENTS

Oil pressure gauge, adapter cable 8 pole, round bezel, pushbuttons for mode and configuration, spinlock nut, rubber seal, QR code, safety instructions



VDO Article No.	Part No.	Colour	Range	Voltage	Input
<b>Ø 52 mm</b>					
A2C59514111	60253 LA	Black	0 - 10 bar	8 - 32 V	10 - 184 $\Omega$
A2C59514199	60254 MA	White	0 - 10 bar	8 - 32 V	10 - 184 $\Omega$



## HYDRAULIC OIL PRESSURE 25 BAR

The Viewline pressure gauge detects fluctuations in gearbox oil pressure.

- 8 pole Tyco / Hirschmann MQS plug
- + / - 3.6° angle degree accuracy over the entire display range
- Current consumption < 150 mA, with integrated warning light (LED)
- Input signal: standard  $\Omega$  values
- 90° display angle
- Optional makepoint switch can be connected
- Reverse polarity protection
- Anti-fog double lens
- Front side protection rating IP67
- 52 mm installation diameter
- 50 mm installation depth

The outer scale is available also in PSI

### PACKAGE CONTENTS

Oil pressure gauge, adapter cable 8 pole, round bezel, pushbuttons for mode and configuration, spinlock nut, rubber seal, QR code, safety instructions



VDO Article No.	Part No.	Colour	Range	Voltage	Input
<b>Ø 52 mm</b>					
A2C59514136	60255 NA	Black	0 - 25 bar	8 - 32 V	10 - 184 $\Omega$
A2C59514206	60256 OA	White	0 - 25 bar	8 - 32 V	10 - 184 $\Omega$

## TRANSMISSION OIL PRESSURE 30 BAR

The Viewline pressure gauge detects fluctuations in gearbox oil pressure.

- 8 pole Tyco / Hirschmann MQS plug
- + / - 3.6° angle degree accuracy over the entire display range
- Current consumption < 150 mA, with integrated warning light (LED)
- Input signal: standard  $\Omega$  values
- 90° display angle
- Optional makepoint switch can be connected
- Reverse polarity protection
- Anti-fog double lens
- Front side protection rating IP67
- 52 mm installation diameter
- 50 mm installation depth

The outer scale is available also in PSI

### PACKAGE CONTENTS

Oil pressure gauge, adapter cable 8 pole, round bezel, pushbuttons for mode and configuration, spinlock nut, rubber seal, QR code, safety instructions



VDO Article No.	Part No.	Colour	Range	Voltage	Input
<b>Ø 52 mm</b>					
A2C59514141	60257 PA	Black	0 - 30 bar	8 - 32 V	10 - 184 $\Omega$
A2C59514208	60258 SA	White	0 - 30 bar	8 - 32 V	10 - 184 $\Omega$

## TURBO PRESSURE 2 BAR

The Viewline pressure gauge detects changes in the turbocharger boost.

- 8 pole Tyco / Hirschmann MQS plug
- + / - 3.6° angle degree accuracy over the entire display range
- Current consumption < 150 mA, with integrated warning light (LED)
- Input signal: standard  $\Omega$  values
- 90° display angle
- Optional makepoint switch can be connected
- Reverse polarity protection
- Anti-fog double lens
- Front side protection rating IP67
- 52 mm installation diameter
- 50 mm installation depth



The outer scale is available also in PSI

### PACKAGE CONTENTS

Turbo pressure gauge, adapter cable 8 pole, round bezel, pushbuttons for mode and configuration, spinlock nut, rubber seal, QR DB code, safety instructions

VDO Article No.	Part No.	Colour	Range	Voltage	Input
<b>Ø 52 mm</b>					
A2C59514149	60261 LA	Black	0 - 2 bar	8 - 32 V	10 - 184 $\Omega$
A2C59514225	60262 MA	White	0 - 2 bar	8 - 32 V	10 - 184 $\Omega$

## RUDDER POSITION

The Viewline rudder angle instrument for wheel-controlled yachts displays the current rudder position at all times. An important cockpit instrument for accident-free maneuvers in narrow waterways.

- 8 pole Tyco / Hirschmann bush housing
- Current consumption < 150 mA
- Anti-fog double lens
- Front side protection rating IP67
- 52 or 85 mm installation diameter
- 50 mm installation depth

#### Note:

52 mm range: 40° Port to 40° Starboard

85 mm range: 45°Port to 45° Starboard



### PACKAGE CONTENTS

Rudder angle instument, adapter cable 8 pole, round bezel, pushbuttons for mode and configuration, spinlock nut, rubber seal, QR code, safety instructions

VDO Article No.	Part No.	Colour	Range	Voltage	Input
<b>Ø 52 mm</b>					
A2C59514154	60263 NA	Black	-40° / +40°	8 - 32 V	3 - 180 $\Omega$
A2C59514230	60264 OA	White	-40° / +40°	8 - 32 V	3 - 180 $\Omega$
<b>Ø 85 mm</b>					
A2C59512410	60265 PA	Black	-45° / +45°	8 - 32 V	3 - 180 $\Omega$
A2C59512411	60266 QA	White	-45° / +45°	8 - 32 V	3 - 180 $\Omega$

## FUEL TANK LEVEL 0-90 Ω

The Viewline fuel gauge provides information about the fuel level in the tank and can be used with all types of tank sensors.

- 8 pole Tyco / Hirschmann MQS plug
- + / - 3.6° angle degree accuracy over the entire display range
- Current consumption < 150 mA, with integrated warning light (LED)
- Input signal: standard Ω values for lever type sensors
- 90° display angle
- Optional makepoint switch can be connected
- Reverse polarity protection
- Anti-fog double lens
- Front side protection rating IP67
- 52 mm installation diameter
- 50 mm installation depth

### PACKAGE CONTENTS

Fuel level gauge, adapter cable 8 pole, round bezel, pushbuttons for mode and configuration, spinlock nut, rubber seal, QR code, safety instructions



VDO Article No.	Part No.	Colour	Range	Voltage	Input
Ø 52 mm					
A2C59514085	60271 NA	Black	Empty - Full	8 - 32 V	0 - 90 Ω
A2C59514186	60272 OA	White	Empty - Full	8 - 32 V	0 - 90 Ω

## FUEL TANK LEVEL 3-180 Ω

The Viewline fuel gauge provides information about the fuel level in the tank and can be used with all types of tank sensors.

- 8 pole Tyco / Hirschmann MQS plug
- + / - 3.6° angle degree accuracy over the entire display range
- Current consumption < 150 mA, with integrated warning light (LED)
- Input signal: standard Ω values for lever type sensors
- 90° display angle
- Optional makepoint switch can be connected
- Reverse polarity protection
- Anti-fog double lens
- Front side protection rating IP67
- 52 mm installation diameter
- 50 mm installation depth

### PACKAGE CONTENTS

Fuel level gauge, adapter cable 8 pole, round bezel, pushbuttons for mode and configuration, spinlock nut, rubber seal, QR code, safety instructions



VDO Article No.	Part No.	Colour	Range	Voltage	Input
Ø 52 mm					
A2C59514082	60273 PA	Black	0 - 1/1	8 - 32 V	3 - 180 Ω
A2C59514184	60274 QA	White	0 - 1/1	8 - 32 V	3 - 180 Ω



## FUEL TANK LEVEL 240-33.5 Ω

The Viewline fuel gauge provides information about the fuel level in the tank and can be used with all types of tank sensors.

- 8 pole Tyco / Hirschmann MQS plug
- + / - 3.6° angle degree accuracy over the entire display range
- Current consumption < 150 mA, with integrated warning light (LED)
- Input signal: standard Ω values for lever type sensors
- 90° display angle
- Optional makepoint switch can be connected
- Reverse polarity protection
- Anti-fog double lens
- Front side protection rating IP67
- 52 mm installation diameter
- 50 mm installation depth



### PACKAGE CONTENTS

Fuel level gauge, adapter cable 8 pole, round bezel, pushbuttons for mode and configuration, spinlock nut, rubber seal, QR code, safety instructions

VDO Article No.	Part No.	Colour	Range	Voltage	Input
<b>Ø 52 mm</b>					
A2C59514094	60277 TA	Black	Empty - Full	8 - 32 V	240 - 33.5 Ω
A2C59514190	60278 WA	White	Empty - Full	8 - 32 V	240 - 33.5 Ω

## FUEL TANK LEVEL 90-4 Ω

The Viewline fuel gauge provides information about the fuel level in the tank and can be used with all types of tank sensors.

- 8 pole Tyco / Hirschmann MQS plug
- + / - 3.6° angle degree accuracy over the entire display range
- Current consumption < 150 mA, with integrated warning light (LED)
- Input signal: standard Ω values for dip type sensors
- 90° display angle
- Optional makepoint switch can be connected
- Reverse polarity protection
- Anti-fog double lens
- Front side protection rating IP67
- 52 mm installation diameter
- 50 mm installation depth



### PACKAGE CONTENTS

Fuel level gauge, adapter cable 8 pole, round bezel, pushbuttons for mode and configuration, spinlock nut, rubber seal, QR code, safety instructions

VDO Article No.	Part No.	Colour	Range	Voltage	Input
<b>Ø 52 mm</b>					
A2C59514079	60279 XA	Black	0 - 1/1	8 - 32 V	90 - 4 Ω
A2C59514182	60280 VA	White	0 - 1/1	8 - 32 V	90 - 4 Ω
A2C59514088	60281 WA	Black	Empty - Full	8 - 32 V	90 - 4 Ω
A2C59514188	60282 XA	White	Empty - Full	8 - 32 V	90 - 4 Ω



## TRIM ANGLE INDICATOR (OUTBOARD POSITION)

The Viewline trim gauge provides information about the position of the engine in relation to the boat's stern. In this way the skipper always knows whether the drive is in the raised or lowered position. He can also optimise the boat's trim.

- 8 pole Tyco / Hirschmann MQS plug
- + / - 3.6° angle degree accuracy over the entire display range
- Current consumption < 150 mA, with integrated warning light (LED)
- Input signal: standard  $\Omega$  values
- 90° display angle
- Reverse polarity protection
- Anti-fog double lens
- Front side protection rating IP67
- 52 mm installation diameter
- 50 mm installation depth

### PACKAGE CONTENTS

Trim gauge, adapter cable 8 pole, round bezel, pushbuttons for mode and configuration, spinlock nut, rubber seal, QR code, safety instructions



VDO Article No.	Part No.	Colour	Range	Voltage	Input
<b>Ø 52 mm</b>					
A2C59514180	60283 YA	Black	Up - Down	8 - 32 V	167 - 10 $\Omega$
A2C59514244	60284 ZA	White	Up - Down	8 - 32 V	167 - 10 $\Omega$

## VOLTMETER

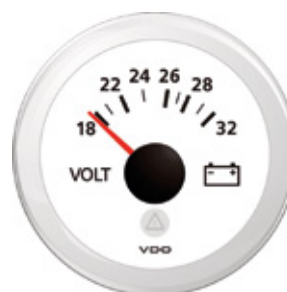
The Viewline voltmeter displays the status of generator and battery and their loads on a voltage scale. Values exceeding the normal charging voltages can therefore be monitored exactly. Even potential deep discharges can be detected.

- 8 pole Tyco / Hirschmann MQS plug
- + / - 3.6° angle degree accuracy over the entire display range
- Current consumption < 150 mA, with integrated warning light (LED)
- 90° display angle
- Reverse polarity protection
- Anti-fog double lens
- Front side protection rating IP67
- 52 mm installation diameter
- 50 mm installation depth

Available with 12 or 24 V

### PACKAGE CONTENTS

Voltmeter gauge, adapter cable 8 pole, round bezel, pushbuttons for mode and configuration, spinlock nut, rubber seal, QR code, safety instructions



VDO Article No.	Part No.	Colour	Voltage
<b>Ø 52 mm</b>			
A2C59512545	60285 AA	Black	8 - 16 V
A2C59512546	60286 BA	White	8 - 16 V
A2C59512458	60287 CA	Black	18 - 32 V
A2C59512459	60288 FA	White	18 - 32 V



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## FRESH WATER LEVEL (CAPACITIVE)

The Viewline freshwater tank gauge indicates the level of freshwater. Capacity sensors can be fitted for a maximum depth of up to 1,5 m.

- 8 pole Tyco / Hirschmann MQS plug
- + / - 3.6° angle degree accuracy over the entire display range
- Current consumption < 150 mA, with integrated LED warning light (red)
- Input signal: 4 - 20 mA current consumption (VDO fresh water sensor)
- 90° display angle
- Reverse polarity protection
- Anti-fog double lens
- Front side protection rating IP67
- 52 mm installation diameter
- 50 mm installation depth



### PACKAGE CONTENTS

Fresh water gauge, adapter cable 8 pole, round bezel, pushbuttons for mode and configuration, spinlock nut, rubber seal, QR code, safety instructions

VDO Article No.	Part No.	Colour	Range	Voltage	Input
<b>Ø 52 mm</b>					
A2C59514676	60297 EA	Black	0 - 1/1	8 - 32 V	4 - 20 mA
A2C59514677	60298 HA	White	0 - 1/1	8 - 32 V	4 - 20 mA

## FRESH WATER LEVEL (RESISTIVE)

The Viewline freshwater gauge provides information about the water level in the tank and can be used with all types of tank sensors.

- 8 pole Tyco / Hirschmann MQS plug
- + / - 3.6° angle degree accuracy over the entire display range
- Current consumption < 140 mA
- Input signal: standard  $\Omega$  values
- 90° display angle
- Reverse polarity protection
- Anti-fog double lens
- Front side protection rating IP67
- 52 mm installation diameter
- 50 mm installation depth
- Voltage: 12/24 V



### PACKAGE CONTENTS

Fresh water gauge, adapter cable 8 pole, round bezel, pushbuttons for mode and configuration, spinlock nut, rubber seal, QR code, safety instructions

VDO Article No.	Part No.	Colour	Range	Voltage	Input
<b>Ø 52 mm</b>					
A2C59514097	60301 CA	Black	0 - 1/1	8 - 32 V	3 - 180 $\Omega$
A2C59514192	60302 DA	White	0 - 1/1	8 - 32 V	3 - 180 $\Omega$
A2C59514099	60303 EA	Black	Empty - Full	8 - 32 V	3 - 180 $\Omega$
A2C59514193	60304 FA	White	Empty - Full	8 - 32 V	3 - 180 $\Omega$

## WASTE WATER TANK LEVEL

The Viewline blackwater tank gauge indicates the level of wastewater. Capacity sensors can be fitted for a maximum depth of up to 1,5 m.

- 8 pole Tyco / Hirschmann MQS plug
- < 2.5 % accuracy over the entire display range
- Current consumption < 100 mA, with integrated warning light (LED)
- Input signal: 4 – 20 mA current consumption (VDO waste water sensor)
- 240° display angle
- Reverse polarity protection
- Anti-fog double lens
- Front side protection rating IP67
- 52 mm installation diameter
- 50 mm installation depth

### PACKAGE CONTENTS

Waste water gauge, adapter cable 8 pole, round bezel, pushbuttons for mode and configuration, spinlock nut, rubber seal, QR code, safety instructions



VDO Article No.	Part No.	Colour	Range	Voltage	Input
<b>Ø 52 mm</b>					
A2C59512342	60305 GA	Black	0 - 1/1	8 - 32 V	4 - 20 mA
A2C59512343	60306 HA	White	0 - 1/1	8 - 32 V	4 - 20 mA

## HOURLMETER

The Viewline operating hours counter makes it easy to stick to a proper maintenance schedule. It is only activated when the engine is running so only genuine engine operating hours are counted.

- 8 pole Tyco / Hirschmann MQS plug
- Current consumption < 30 mA, with integrated LED function control light (red)
- Reverse polarity protection
- Anti-fog double lens
- Front side protection rating IP67
- 52 mm installation diameter
- 50 mm installation depth

### PACKAGE CONTENTS

Hour counter gauge, adapter cable 8 pole, round bezel, pushbuttons for mode and configuration, spinlock nut, Rubber seal, QR code, safety instructions



VDO Article No.	Part No.	Colour	Voltage
<b>Ø 52 mm</b>			
A2C59512453	60309 MA	Black	9 - 30 V
A2C59512454	60310 DA	White	9 - 30 V



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VIEWLINE - MARINE INSTRUMENTS

## CLOCK

The clearly readable dial on the Viewline quartz clock adds a stylish touch to every pleasure boat and yacht cockpit.

- 8 pole Tyco / Hirschmann MQS plug
- Current consumption < 10 mA
- Reverse polarity protection
- Anti-fog double lens
- Front side protection rating IP67
- 52 mm installation diameter
- 50 mm installation depth

Available as 12 or 24 volt

### PACKAGE CONTENTS

Clock gauge, adapter cable 8 pole, round bezel, pushbutton for time setting configuration, spinlock nut, Rubber seal, QR code, safety instructions



VDO Article No.	Part No.	Colour	Voltage
<b>Ø 52 mm</b>			
A2C59513445	60311 EA	Black	8 - 16 V
A2C59513443	60312 FA	White	8 - 16 V
A2C59513446	60313 GA	Black	18 - 32 V
A2C59513444	60314 HA	White	18 - 32 V

## RUDDER ANGLE SENSORS

### RUDDER ANGLE SENSOR FOR SINGLE STATION:

VDO Article No.	Part No.	Voltage	Resistance
A2C1102950001	20741 J	12/24 V	10 - 180 Ω

### RUDDER ANGLE SENSOR FOR DUAL STATION (FLY BRIDGE):

VDO Article No.	Part No.	Voltage	Resistance
A2C1102960001	20742 L	12/24 V	5 - 90 Ω



## FRESH WATER CAPACITIVE SENSORS

- Fresh water level sensor
- Sensor type: adjustable dip
- Voltage: 12/24 V

VDO Article number	Part No.	Signal range mA	Length
N02-240-402	60317 KA	40-20 mA	80-600 mm
N02-240-404	60318 NA	40-20 mA	600-1200 mm
N02-240-406	60319 OA	40-20 mA	1200-1500 mm





## FRESH WATER RESISTIVE SENSOR

- Fresh water level sensor
- Sensor type: adjustable lever
- Voltage: 12/24 V

VDO Article number	Part No.	Signal range ohm	Length
226-828-001-001K	60320 FA	3 - 180 $\Omega$	200-600 mm



## WASTE WATER CAPACITIVE SENSORS

- Waste water level sensor (capacitive)
- Sensor type: adjustable lever
- Voltage: 12/24 V

VDO Article number	Part No.	Signal range mA	Length
N02-240-902	60321 GA	4-20 mA	200-600 mm
N02-240-904	60322 HA	4-20 mA	600-1200 mm
N02-240-906	60323 IA	4-20 mA	1200-1500 mm



## AMMETER SHUNT

- Individual packaging
- Voltage 12/24 V

VDO Article number	Part No.	Range amp	Input
A2C59514043	60324 JA	-60 / +60 A	60 mV
A2C59514047	60325 KA	-150 / +150 A	60 mV



## ELECTRONIC PRESSURE SENSORS

The active pressure sensors with voltage output are used to measure pressure of gaseous and liquid media in a variety of applications at various locations.

The pressure sensor unit is based on a stainless steel sensing element and converts fluctuations of measuring medium into a pressure proportional electrical output signal (0.5 – 4.5 V).

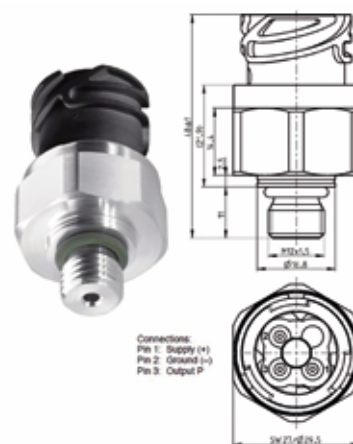
- Voltage: 8-32 V

### Note:

Tightening Torque depends on threaded port size and sensor body material.

Connector type: Bayonet according to ISO15170 (formerly DIN 72585).

VDO Article number	Part No.	Range	Thread
365-100-010-121C	60326 LA	10 bar	M12 x 1.5
365-100-016-121C	60327 MA	16 bar	M12 x 1.5
365-100-030-121C	60328 PA	30 bar	M12 x 1.5



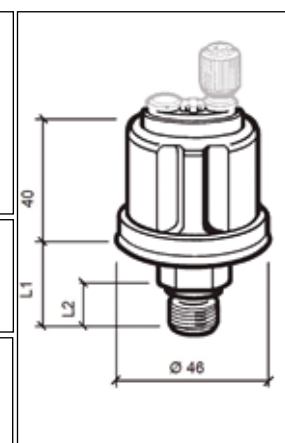
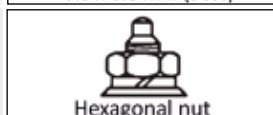
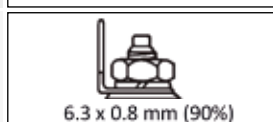
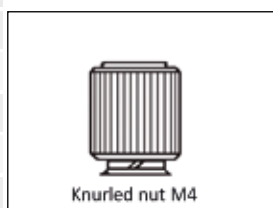


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## ENGINE OIL PRESSURE SENSORS 5 BAR

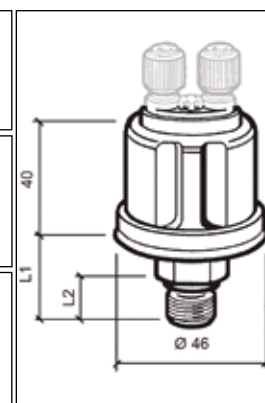
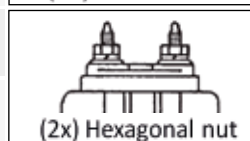
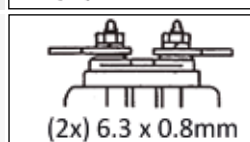
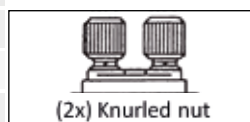
### SINGLE POLE, COMMON GROUND, 5 BAR, 6-24 V:

VDO Article number	Part No.	L1	L2	Thread
360-081-029-001C	60329 QA	19,5 mm	11 mm	M10x1 tapered, short
360-081-029-004C	60330 HA	19,5 mm	11 mm	1/8" - 27 NPTF
360-081-029-008C	60331 IA	23,8 mm	15,3 mm	1/4" - 18 NPTF
360-081-029-026C	60332 JA	20,5 mm	12 mm	M14 x 1.5
360-081-029-085C	60333 KA	20,5 mm	12 mm	M12 x 1.5
360-081-029-041C	60334 LA	19,5 mm	11 mm	1/8" - 27 NPTF
360-081-029-059C	60335 MA	20,5 mm	12 mm	M18 x 1.5



### DUAL POLE, INSULATED RETURN, 5 BAR, 6-24 V:

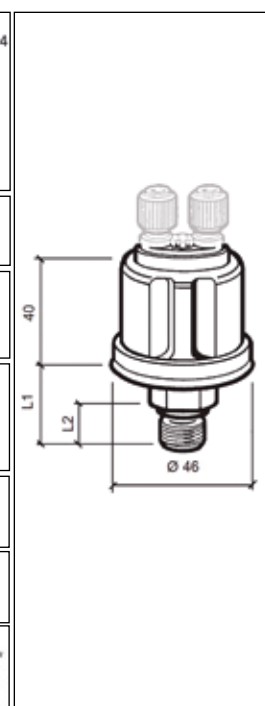
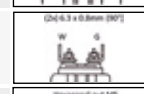
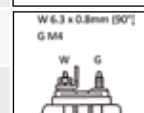
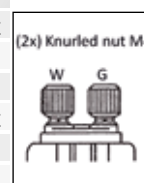
VDO Article number	Part No.	L1	L2	Thread
360-081-032-001C	60336 NA	19,5 mm	11 mm	1/8" - 27 NPTF
360-081-032-002C	60337 OA	19,5 mm	11 mm	M10x1 tapered, short
360-081-032-013C	60338 RA	20,8 mm	12 mm	M18 x 1.5
360-081-032-007C	60339 SA	19,5 mm	11 mm	1/8" - 27 NPTF
360-081-032-059C*	60340 JA	20,5 mm	12 mm	M18 x 1.5
360-081-032-060C*	60341 KA	20,5 mm	12 mm	M14 x 1.5



\*\* without hexagonal nut

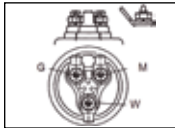
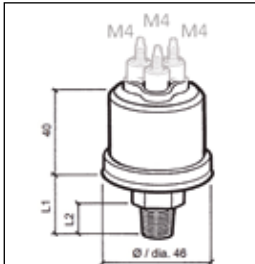
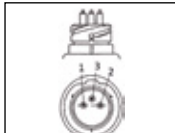
### WITH WARNING CONTACT, COMMON GROUND, 6-24 V:

VDO Article number	Part No.	Range bar	L1	L2	Thread
360-081-030-004C	60342 LA	0.7 ± 0.15	19,5 mm	11 mm	M10x1 tapered, short
360-081-030-008C	60343 MA	0.5 ± 0.15	20,5 mm	12 mm	M12 x 1.5
360-081-030-010C	60344 NA	1.4 ± 0.3	19,5 mm	11 mm	1/8" - 27 NPTF
360-081-030-018C	60345 OA	1.2 ± 0.15	19,5 mm	11 mm	M10x1 tapered, short
360-081-030-028C	60346 PA	0.5 ± 0.15	20,5 mm	12 mm	M14 x 1.5
360-081-030-036C	60347 QA	0.5 ± 0.15	20,5 mm	12 mm	M18 x 1.5
360-081-030-097C	60348 TA	0.5 ± 0.15	20,5 mm	12 mm	M14 x 1.5
360-081-030-085C	60349 UA	0.4 +0.2	20,5 mm	12 mm	M18 x 1.5
360-081-030-086C	60350 LA	0.5 +0.2	19,5 mm	11 mm	1/8" - 27 NPTF
360-081-030-071C	60351 MA	0.4 ± 0.15	20,5 mm	12 mm	M14 x 1.5
360-081-030-157C	60352 NA	0.5 +0.2	20,5 mm	12 mm	M18 x 1.5
360-081-030-119C	60353 OA	1.4 ± 0.3	19,5 mm	11 mm	1/8" - 27 NPTF
360-081-034-002C	60354 PA	0.25 ± 0.15	20,5 mm	12 mm	M14 x 1.5
360-081-062-002A	60355 PA	0.4 ± 0.2	20,5 mm	12 mm	M14 x 1.5
360-081-062-004A	60356 RA	1.0 ± 0.2	20,5 mm	12 mm	M14 x 1.5



G= Sensor terminal W= Warning contact terminal

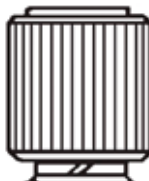
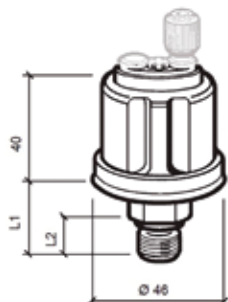

**WITH WARNING CONTACT, 3 CONNECTIONS, 6-24V:**

VDO Article number	Part No.	Range bar	L1	L2	Thread		
360-081-039-002C	60357 SA	0.8 ± 0.15	19,5 mm	11 mm	1/8" - 27 Dryseal NPTF		
360-081-064-001C	60358 VA	0.25 ± 0.15	20,5 mm	12 mm	M18 x 1.5		
360-081-064-003C	60359 WA	0.25 ± 0.15	20,5 mm	12 mm	M18 x 1.5		

G= Sensor; M= Ground; W= Warning contact; 1= Sensor; 2= warning contact; 3= Anti-twist guard

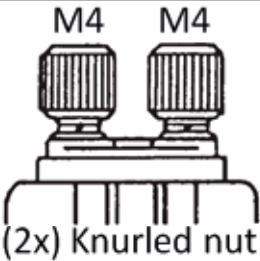
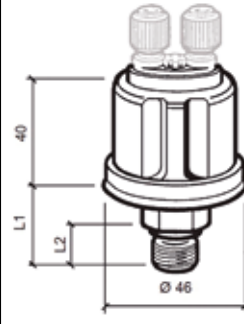
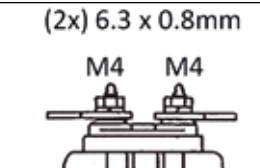
**ENGINE OIL PRESSURE SENSORS 10 BAR**

**SINGLE POLE, COMMON GROUND, 10 BAR, 6-24 V:**

VDO Article number	Part No.	L1	L2	Thread		
360-081-029-012C	60360 NA	19,5 mm	11 mm	1/8" – 27 NPTF	 Knurled nut M4	
360-081-029-013C	60361 OA	20,5 mm	12 mm	M12 x 1.5		
360-081-029-020C	60362 PA	23,8 mm	15,3 mm	1/4" - 18 NPTF		
360-081-029-033C	60363 QA	20,5 mm	12 mm	M14 x 1.5		
360-081-029-042C	60364 RA	19,5 mm	11 mm	1/8" – 27 NPTF	 6.3 x 0.8mm (50°)	
360-081-029-062C	60365 SA	19,5 mm	11 mm	R 1/8 DIN 2999		
362-081-003-002K*	60366 TA	19,5 mm	11 mm	1/8" – 27 NPTF		

\* for dual units (fly bridge)

**DUAL POLE, INSULATED RETURN, 10 BAR, 6-24 V:**

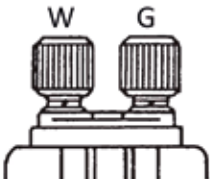
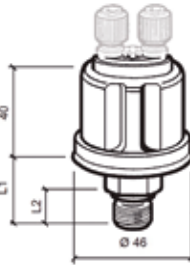
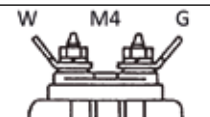
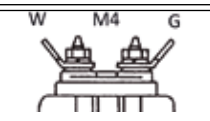
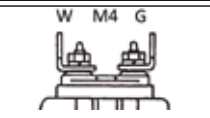
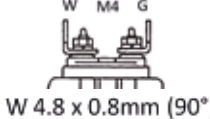
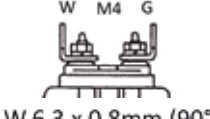
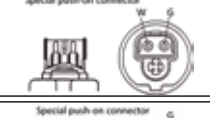

VDO Article number	Part No.	L1	L2	Thread			
360-081-032-003C	60367 UA	19,5 mm	11 mm	M10x1 tapered, short			
360-081-032-004C	60368 XA	20,5 mm	12 mm	M12 x 1.5			
360-081-032-006C	60369 YA	20,5 mm	12 mm	M14 x 1.5			
360-081-032-014C	60370 SA	19,5 mm	11 mm	1/8" – 27 NPTF			
360-081-032-053C	60371 TA	20,5 mm	12 mm	M12 x 1.5			
360-081-032-057C	60372 UA	40 mm	10 mm	R 1/8 DIN 2999			
362-081-001-002C*	60373 VA	19,5 mm	11 mm	1/8" – 27 NPTF			

\* for dual units (fly bridge)



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**WITH WARNING CONTACT, COMMON GROUND, 6-24 V:**

VDO Article number	Part No.	Range bar	L1	L2	Thread		
360-081-030-009C	60374 WA	0.5 ± 0.15	19,5 mm	11 mm	M10x1 tapered, short	 (2x) Knurled nut M4	
360-081-030-015C	60375 XA	0.8 ± 0.3	19.5 mm	12 mm	1/8" - 27 NPTF		
360-081-030-017C	60376 YA	0.9 ± 0.15	19,5 mm	11 mm	M10x1 tapered, short		
360-081-030-019C	60377 ZA	1.5 ± 0.15	20,5 mm	12 mm	M12 x 1.5		
360-081-030-022C	60378 CA	0.5 ± 0.15	20,5 mm	12 mm	M12 x 1.5		
360-081-030-030C	60379 DA	0.7 ± 0.15	20,5 mm	12 mm	M14 x 1.5		
360-081-030-032C	60380 YA	0.5 ± 0.15	20,5 mm	12 mm	M14 x 1.5		
360-081-030-037C	60381 ZA	0.75 ± 0.15	20,5 mm	12 mm	M18 x 1.5		
360-081-030-041C	60382 AA	2.0 ± 0.3	19,5 mm	11 mm	M10x1 tapered, short		
360-081-030-052C	60383 BA	0.4 ± 0.15	19,5 mm	11 mm	1/8" - 27 NPTF		
360-081-030-074C	60384 CA	0.5 +0.2	20,5 mm	12 mm	M18 x 1.5	 (2x) 6.3 x 0.8mm (50°)	
360-081-030-039C	60385 DA	0.5 ± 0.15	19,5 mm	11 mm	M10x1 tapered, short		
360-081-030-063C	60386 EA	0.75 ± 0.15	20,5 mm	12 mm	M14 x 1.5	 W 4.8 x 0.8mm (50°) G 6.3 x 0.8mm (50°)	
360-081-030-070C	60387 FA	1.0 ± 0.15	20,5 mm	12 mm	M18 x 1.5		
360-081-030-100C	60388 IA	0.5 ± 0.15	19,5 mm	11 mm	1/8" - 27 NPTF	 (2x) 6.3 x 0.8mm (90°)	
360-081-030-107C	60389 JA	4.0 +0.5	20,5 mm	12 mm	M16 x 1.5		
360-081-030-122C	60390 AA	5.5 ± 0.3	20,5 mm	12 mm	M18 x 1.5	 W 4.8 x 0.8mm (90°) G 6.3 x 0.8mm (90°)	
360-081-030-152C	60391 BA	0.75 ± 0.15	19,5 mm	11 mm	M10x1 tapered, short		
360-081-030-138C	60392 CA	5.2 ± 0.5	19,5 mm	11 mm	1/8" - 27 NPTF	 W 6.3 x 0.8mm (90°) G 4.8 x 0.8mm (90°)	
360-081-030-112C	60393 DA	1.25 +0.3	18,5 mm	10 mm	M10 x 1		
360-081-061-002C	60394 EA	1.35 ± 0.15	20,5 mm	12 mm	M14 x 1.5		
360-081-061-006C	60395 FA	5.0 ± 0.3	21,5 mm	13 mm	M12x1, tapered, short		
360-081-062-003C	60396 GA	5.5 ± 0.3	20,5 mm	12 mm	M14 x 1.5		
360-081-062-005A	60397 HA	3.0 ± 0.3	20,5 mm	12 mm	M14 x 1.5		

G= Sensor terminal; W= Warning contact terminal

**WITH WARNING CONTACT, 3 CONNECTIONS, 6-24 V:**

VDO Article number	Part No.	Range bar	L1	L2	Thread		
360-081-039-007C	60398 KA	1.0 ± 0.15	20,5 mm	12 mm	M14 x 1.5	<p>(3x) Hexagonal nut M4</p>	
360-081-039-003C	60399 LA	0.8 ± 0.15	19,5 mm	11 mm	1/8" - 27 Dryseal NPTF NPTF		
360-081-063-001C	60400 EA	5.2 ± 0.3	20,5 mm	12 mm	M12 x 1.5		
360-081-064-004C	60401 FA	0.6 +0.3	20,5 mm	12 mm	M18 x 1.5		



## TRASMISSION OIL PRESSURE SENSORS 25 BAR

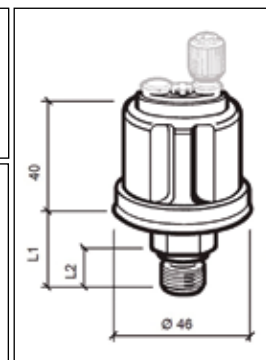
**SINGLE POLE, COMMON GROUND, 25 BAR, 6-24 V:**

VDO Article number	Part No.	L1	L2	Thread
360-081-037-008C	60402 GA	19,5 mm	11 mm	M10x1 tapered, short
362-081-004-001C*	60403 HA	19,5 mm	11 mm	1/8" - 27 NPTF
360-081-037-003C	60404 IA	20,8 mm	11 mm	M18 x 1.5
360-081-037-010C	60405 JA	19,5 mm	11 mm	1/8" - 27 NPTF
360-081-037-017C	60406 KA	20,5 mm	12 mm	M14 x 1.5
360-081-037-018C	60407 LA	20,5 mm	12 mm	M18 x 1.5

6.3 x 0.8mm (50°)  
M4



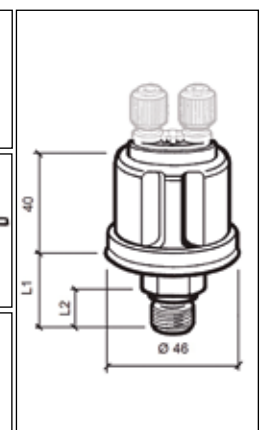
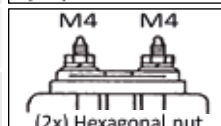
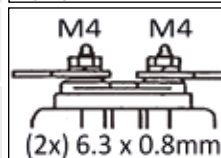
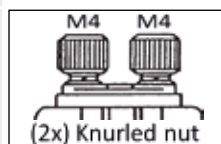
6.3 x 0.8mm (90°)  
M4



\* for dual units (fly bridge)

**DUAL POLE, INSULATED RETURN, 25 BAR, 6-24 V:**

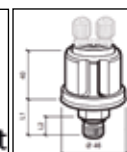
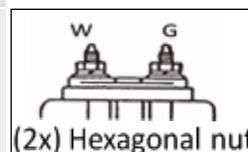
VDO Article number	Part No.	L1	L2	Thread
360-081-038-005C	60408 OA	20,5 mm	12 mm	M18 x 1.5
360-081-038-002C	60409 PA	23,8 mm	15,3 mm	3/8" - 18 Dryseal NPTF
362-081-002-001K*	60410 GA	19,5 mm	11 mm	1/8" - 27 NPTF
360-081-038-001C	60411 HA	20,5 mm	12 mm	M14 x 1.5
360-081-038-003C	60412 IA	19,5 mm	11 mm	1/8" - 27 NPTF



\* for dual units (fly bridge)

**WITH WARNING CONTACT, COMMON GROUND, 6-24 V:**

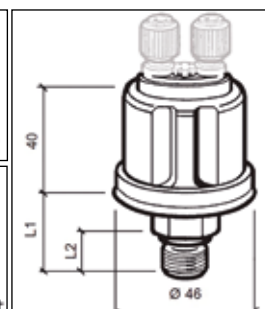
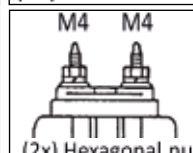
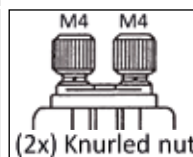
VDO Article number	Part No.	Range	L1	L2	Thread
360-081-053-003C	60413 JA	5.5 +10 -0.5	20,5 mm	12 mm	M18 x 1.5



## TRASMISSION OIL PRESSURE SENSORS 400-435 PSI

**DUAL POLE, INSULATED RETURN, 30 BAR, 6-24 V:**

VDO Article number	Part No.	L1	L2	Thread
362-081-002-003C*	60414 KA	19,5 mm	11 mm	1/8" - 27 NPTF
362-081-002-004C*	60415 LA	19,5 mm	11 mm	1/8" - 27 NPTF



\* for dual units (fly bridge)



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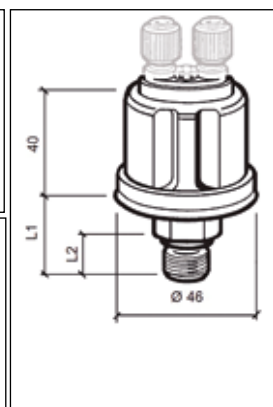
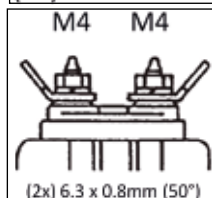
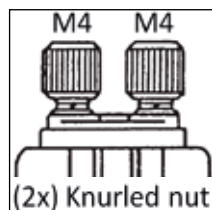
VDO

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## TURBO PRESSURE SENSORS

**DUAL POLE, INSULATED RETURN, 2 BAR, 6-24 V:**

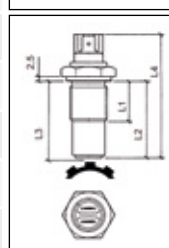
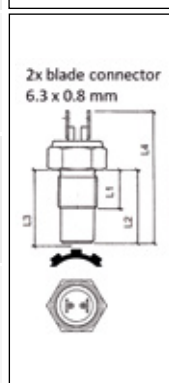
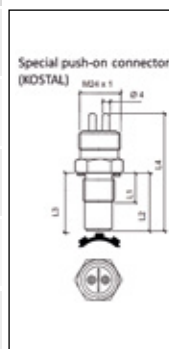
VDO Article number	Part No.	L1	L2	Thread
360-081-032-058C	60416 MA	20,5 mm	12 mm	M18 x 1.5
360-081-032-011C	60417 NA	20,5 mm	12 mm	M18 x 1.5
360-081-032-025C	60418 QA	19,5 mm	11 mm	1/8" - 27 NPTF



## SPEED AND REVOLUTION SENSORS

**INDUCTIVE SENSOR 2 POLE, INSULATED RETURN (INDIPENDENT VOLTAGE), 6-24 V:**

VDO Article number	Part No.	L1	L2	L3	L4	Thread
340-804-005-001C	60419 RA	18 mm	35 mm	36,5-35,80 mm	71,5 mm	M18 x 1.5
340-804-005-007C	60420 IA	15 mm	35 mm	36,1 ± 0,1	71,5 mm	M18 x 1.5
340-804-005-013A	60421 JA	18 mm	71,4 mm	72,63-72,20	107,9 mm	M18 x 1.5
340-804-005-028C	60422 KA	24,9 mm	63,4 mm	64,55-64,20	99,9 mm	M18 x 1.5
340-804-005-033C	60423 LA	24,9 mm	26,5 mm	27,5 +0.15 -0.2	63 mm	M18 x 1.5
340-804-006-002C	60424 MA	18 mm	35 mm	36,1 ± 0,1	63,5 mm	M18 x 1.5
340-804-006-007C	60425 NA	33 mm	34 mm	35,1 ± 0,1	62 mm	M18 x 1.5
340-804-007-003C	60426 OA	33 mm	34 mm	35,1 ± 0,1	64,5 mm	M18 x 1.5
340-804-007-002A*	60427 PA	27,5 mm	28,5 mm	29,6 ± 0,1	70 mm	M18 x 1.5
340-804-007-004C*	60428 SA	27,5 mm	28,5 mm	29,6 ± 0,1	70 mm	3/4" - 16 UNF-2A
340-804-007-011C*	60429 TA	33 mm	34 mm	35,1 ± 0,1	70 mm	M18 x 1.5
340-804-007-019C**	60430 KA	18,2 mm	70,7 mm	71,8 ± 0,1	79,7 mm	M18 x 1.5
340-804-007-020C**	60431 LA	20 mm	39 mm	40,1 ± 0,1	62 mm	M18 x 1.5



\* = Blade connector G = 6.3 x 0.8 mm, W = 6.3 x 0.8 mm; \*\* = Blade connector G = 4.8 x 0.8 mm, W = 6.3 x 0.8 mm

**BLOCKING OSCILLATOR SENSOR 4-POLE, INSULATED RETURN, 12 MA, 8-15 V:**

VDO Article number	Part No.	L1	L2	
340-216-005-001C	60432 MA	90,2 mm	133 mm	
340-216-005-002C	60433 NA	63,2 mm	106 mm	
A2C59513983	60434 OA	25 mm	74 mm	
340-216-010-003C	60435 PA	25 mm	78,3 mm	

**BLOCKING OSCILLATOR SENSOR 4-POLE, INSULATED RETURN, 14 MA, 30 V:**

VDO Article number	Part No.	Voltage	L1	L2	
340-216-010-004C	60436 QA	30 V	90,2 mm	133 mm	

**GENERATOR SENSORS 2-POLE, 3-POLE, INSULATED RETURN (NO-LOAD VOLTAGE), 19.3 V TO 2000 MIN -1:**

VDO Article number	Part No.	Type	Thread	
340-808-001-002C	60437 RA	2 pole, M4	M22 x 1.5	
340-807-001-001C	60438 UA	3 pole, M4	M22 x 1.5	
340-807-001-003C	60439 VA	3 pole, 8-32UNC-2A	7/8" - 18UNS-2B	

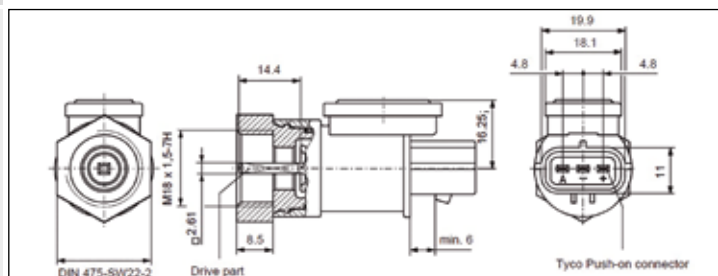




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**HALL-EFFECT SENSOR, 3-POLE, INSULATED RETURN:**

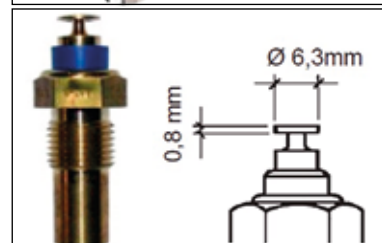
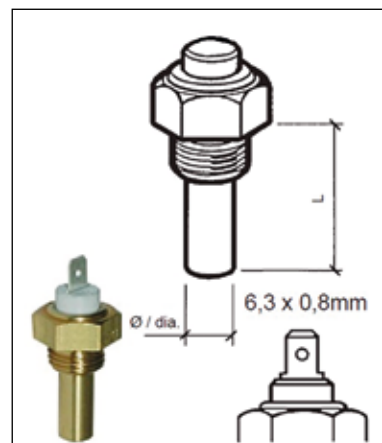
VDO Article number	Part No.	Voltage
340-214-013-001Z	60440 MA	10.8 a 16 V



**COOLANT TEMPERATURE SENSORS**

**SINGLE POLE, COMMON GROUND, 40°-120°C, 6-24 V:**

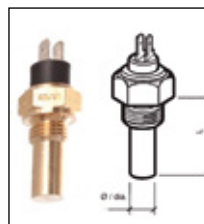
VDO Article number	Part No.	Length	Diameter Ø	Thread
323-801-001-006N	60441 NA	29 mm	9 mm	M14 x 1.5
323-801-001-007N	60442 OA	29 mm	9 mm	3/8" - 18 NPTF
323-801-001-008N	60443 PA	29 mm	9 mm	5/8" - 18 UNF-3A
323-801-001-009N	60444 QA	29 mm	9 mm	1/4" - 18 NPTF
323-801-001-010N	60445 RA	29 mm	9 mm	1/2" - 14 NPTF
323-801-001-022N	60446 SA	29 mm	9 mm	M18 x 1.5
323-801-001-040N	60447 TA	29 mm	9 mm	M16 x 1.5
323-801-001-029N	60448 WA	29 mm	9 mm	M16 x 1.5
323-801-001-058C	60449 XA	29 mm	9 mm	R 3/8" DIN 2999, tapered
323-801-005-001D	60450 RA	22 mm	8,5 mm	1/8" - 27 NPTF
323-801-017-001N	60451 SA	10,5 mm	8,4 mm	M10 x 1 tapered, short



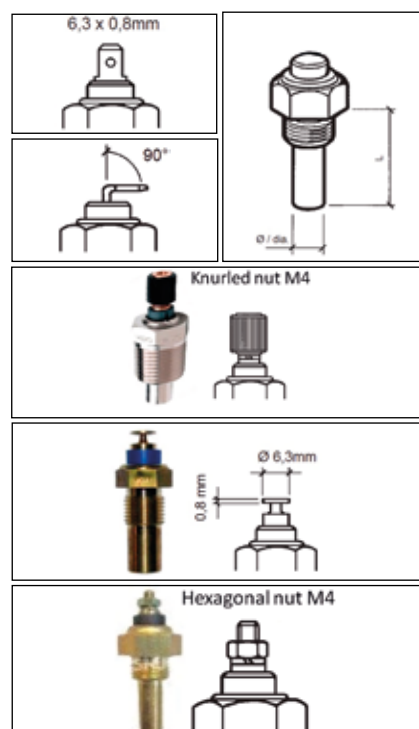


**DUAL POLE, INSULATED RETURN, 40°-120°C, 6-24 V:**

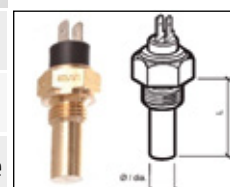
VDO Article number	Part No.	Length	Diameter Ø	Thread
323-805-001-002C	60452 TA	24 mm	11 mm	5/8" - 18 UNF-2A
323-805-001-004N	60453 UA	29 mm	11 mm	1/2" - 14 NPTF
323-805-001-005N	60454 VA	29 mm	11 mm	3/8" - 18 Dryseal NPTF
323-805-001-015N	60455 WA	29 mm	9 mm	M18 x 1,5

**ENGINE OIL TEMPERATURE SENSORS****SINGLE POLE, COMMON GROUND, 50°-150°C, 6-24 V:**

VDO Article number	Part No.	Length	Diameter Ø	Thread
323-801-004-002N	60456 XA	29 mm	9 mm	M14 x 1.5
323-801-004-003D	60457 YA	29 mm	9 mm	R 1/2
323-801-004-007D	60458 BA	29 mm	9 mm	1/2" - 14 NPTF
323-801-004-039D	60459 CA	29 mm	9 mm	M14 x 1,5
323-801-012-001D	60460 TA	15 mm	9 mm	M16 x 1,5
323-801-012-002D	60461 UA	15 mm	9 mm	M14 x 1,5
323-801-012-003D	60462 VA	15 mm	9 mm	M18 x 1.5
323-801-004-012C	60463 WA	29 mm	9 mm	M16 x 1.5
323-801-010-001D	60464 XA	22 mm	6,9 mm	M10 x 1.5
323-801-004-017D	60465 YA	29 mm	9 mm	1/4" - 18 NPTF

**DUAL POLE, INSULATED RETURN:**

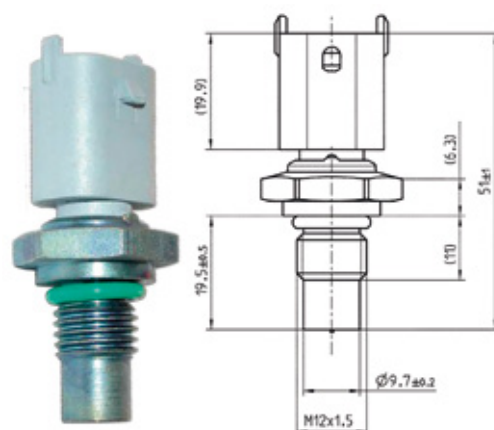
VDO Article number	Part No.	Range degrees	Voltage	Length	Diameter Ø	Thread
323-805-003-001N	60466 ZA	50° - 150°C	6-24 V	29 mm	11 mm	M14 x 1.5
323-805-003-002N	60467 AA	50° - 150°C	6-24 V	29 mm	11 mm	1/4" - 18 NPTF
323-805-003-003N	60468 DA	50° - 150°C	6-24 V	29 mm	11 mm	5/8" - 18 UNF-2A with sealing cone



## IP TEMPERATURE CONNECTORS

Sensors for electronically controlled safety functions are the eyes, ears and the antenna of a modern-day high-tech vehicle. Nothing escapes them – neither the smallest temperature deviations inside cooling systems, nor the monitoring of engine and gear oil temperature. Intelligent safety systems are inconceivable without them.

The temperature sensor is based on NTC-Technology (Negative Temperature Coefficient). It is a semi-conductor which changes the resistance value according to temperature deviation. This resistance value as an output value is much more an indication of a media's medium temperature.

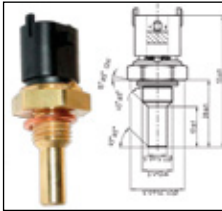
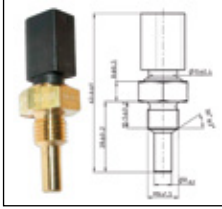
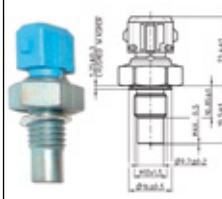


### SUITABLE FOR ENGINE OIL, ENGINE COOLANT, DIESEL FUEL:

VDO Article number	Part No.	Mating connector	Thread	O-Ring	Tightening Torque
A2C59900813*	60469 EA	Bosch 1928403920 code 2	M12 x 1.5	FMP (Shore A 70 +-5)	From 15 Nm to 20 Nm

\* = Mating connector: Bosch, 1928403920, code 2

### SUITABLE FOR ENGINE COOLANT, M12X1.5:

VDO Article number	Part No.	Mating connector	O-Ring	Tightening Torque	
A2C59515306**	60470 VA	Delphi DRW. 152624 way 2 code 1	Copper	17 Nm + 3 Nm - 0 Nm	
A2C59515307***	60471 WA	Leopold Kostal receptacle housing (black) 2 pole code A, 09 4412 11 Contact SLK 8 ELA TAB 2 99 00 47295 0	None	Max 45 Nm	
A2C59900816****	60472 XA	Tyco AMP925597-2 or AMP925596	EN AW - 1200 (Al 99)	20 Nm ± 10%	

\*\* = Mating connector: Delphi, DRW. 152624 way 2, code 1

\*\*\* = Mating connector: Leopold Kostal receptacle housing (black) 2 pole code A, 09 4412 11, Contact SLK 8 ELA, TAB 2 99 00 47295 0

\*\*\*\* = Mating connector: Tyco, AMP925597-2 or AMP925596\* + 150 °C max 10 min

PYROMETER SENSORS

THERMOCOUPLE ELEMENT - COMPATIBLE ONLY WITH VDO:

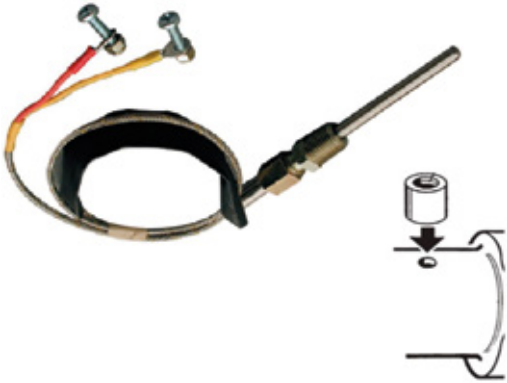
VDO Article number	Part No.	Range bar	Terminals
N03-320-264	60473 YA	100° - 900°C 250° - 1650°F	Red = Negative Yellow = Positive

CONNECTING CABLE:

VDO Article number	Part No.	Range bar	Terminals
N03-320-268	60474 ZA	6 m	White = Negative Blue = Positive

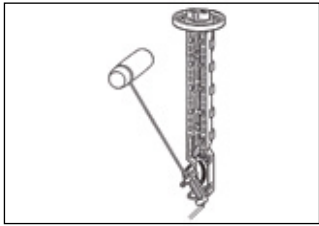
THREADED BUSHING FOR WELDING TO MANIFOLD:

VDO Article number	Part No.	Range bar	Terminals
N03-320-266	60475 AA	-	-



FUEL LEVEL 2-90 / 3-180 Ω SENSORS

VDO Article number	Part No.	Item specifics	Length
226-801-015-001G	60478 FA	Fuel level sensor Sensor type: Adjustable lever 3-180 Ω	150 - 600 mm
N02-240-106	60479 GA	Fuel level sensor Sensor type: Adjustable lever 2-90 Ω	150 - 600 mm



FUEL LEVEL 240-33,5 Ω SENSORS

Fuel level sensor without warning contact  
Sensor type: Adjustable lever ALAS I

VDO Article No.	Part No.	Signal range empty/full	Length	Item specifics
A2C1364580001	21124 N	240 - 33.6 Ω	150 - 600 mm	Fuel lever sensor Sensor type: adjustable lever





## DEEP-PIPE LEVEL SENSOR 90-4 $\Omega$ / 0-180 $\Omega$ / 240-33 $\Omega$

The VDO Deep-Pipe Level Sensor is ideal for usage in fuel tanks. Its 38 mm diameter vertical tube contains a float inside, which measures a level of the liquid. Small holes at the top and bottom of the tube act as a baffle to fuel sloshing around in the fuel tank, so the float position remains stable at any sea state.

Sensors are made in various lengths starting at 150 mm increasing to 1200 mm. Please ensure that the length chosen is at least 4 mm from the base of the fuel tank once fitted.

- TE Superseal Connector IP67
- Compensation chamber
- Flange: PA66 GF30
- Wiring harness with length of 200 mm
- 3 signal ranges: 90-4  $\Omega$ , 0-180  $\Omega$ , 240-33  $\Omega$
- Length: 150 mm-1200 mm (every 10mm step)
- Mounting diameter: 54 mm
- IP67 protection rating

### AFT. PACKAGE CONTENTS

Deep-Pipe Level Sensor, Safety Instructions, Installation Instructions, Installation Kit A2C17593300 - 23071 E

### ACCESSORIES

6 m Wiring Harness A2C17563000 - 23072 G



Deep-pipe liquid level sensor

For the identification of the codes, once the length and the desired signal are known, please refer to your Uflex dealer.





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# AcquaLink® and OceanLink

Timeless instruments.



MARINE INSTRUMENTS



# TFT DISPLAY

AcquaLink® multifunction TFT displays are available in 4.3" and 7" sizes. The full 24 bit / 16 mio colors optically bonded displays feature transmissive layer technology for unprecedented and unsurpassed readability even in direct sunlight. The TFT display a wide array of data received from the AcquaLink® NavBox or NMEA 2000®. Users can customize up to 40 different data pages with single, double, treble or quad grid layouts.

TFT displays can be daisy chained with other AcquaLink® gauges, displays or NavControls using the unique VDO Bus or directly connected to the NMEA 2000® backbone (optional adapter cable required) for simple installation on any yacht.

7" TFTs are equipped with capacitive multi touch screens to slide between pages whereas 4.3" displays require the use of a NavControl unit for data input and operation.

- 1x plug with 2 Video input
- 2x VDO Bus connectors
- Operating temperature range -20°C / +70°C
- Protection level front and rear IPX6, IPX9K

## PACKAGE CONTENTS

TFT Display, bezel, silicone cover, mounting screws, drilling template, installation instructions, safety instructions



4.3" TFT display



4.3" TFT display

VDO Article No.	Part No.	Voltage	Colour	Resolution
<b>4.3"</b>				
A2C59501996	20205 H	12-24 V	Black	480 x 272 (WQVGA)
A2C3983940001	21142 R	12-24 V	White	480 x 272 (WQVGA)
<b>7"</b>				
A2C59501997	20206 K	12-24 V	Black	800 x 480 (WVGA)
A2C3997470001	21637 V	12-24 V	White	800 x 480 (WVGA)



7" TFT display



7" TFT display

## NAVCONTROL

The AcquaLink® NavControl can assume control of any AcquaLink® TFT display connected to the VDO Bus or NMEA 2000® network. Even multiple units can be connected to the same Bus without conflicts.

- 2x VDO Bus connectors
- Operating temperature range -20°C / +70°C
- Protection level front and rear IPX6, IPX9K

### PACKAGE CONTENTS

NavControl, bezel, silicone cover, mounting screws, drilling template, installation instructions, safety instructions



NavControl



NavControl

VDO Article No.	Part No.	Voltage	Colour
A2C59501982	20202 B	12-24 V	Black
A2C3997620001	21145 X	12-24 V	White

## WIND GAUGES

The VDO Wind Gauges display wind speed and angle information received from the VDO AcquaLink® NavBox or the NMEA 2000® data bus.

- 2x VDO Bus connectors
- <150 mA
- Reverse polarity protection
- Anti-fog coated mineral glass lens
- Front & rear side protection IPX6, IPX9K
- Operating temperature range -20°C / +70°C

### PACKAGE CONTENTS

Gauge, bezel, rubber seal, spinlock,, drilling template, installation instructions, safety instructions



110 mm apparent  
wind angle 360°

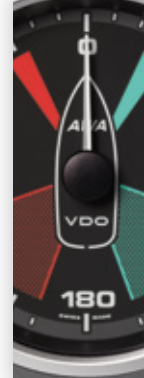


110 mm apparent  
wind angle  
magnified 360°



110 mm apparent wind  
speed 50 knots

VDO Article No.	Part No.	Voltage	Colour	Range
<b>Apparent wind angle</b>				
A2C59501900	20129 U	12-24 V	Black	360°
A2C1338770001	21090 Y	12-24 V	White	360°
<b>Apparent wind angle magnified</b>				
A2C59501901	20130 C	12-24 V	Black	360°
A2C1338780001	21091 A	12-24 V	White	360°
<b>Apparent wind speed</b>				
A2C59501902	20131 E	12-24 V	Black	0-50 knots
A2C1338940001	21105 J	12-24 V	White	0-50 knots



## TACHOMETER

The VDO Tachometer displays RPM information received from the VDO AcquaLink® NavBox or the NMEA 2000® data bus and distributes additional engine information to optional 52mm AcquaLink® EasyLink Gauges.

- 2x VDO Bus connectors, 1x AMP Superseal EasyLink
- <150 mA
- Anti-fog coated mineral glass lens
- Front and rear protection rating IPX6, IPX9K
- Operating temperature range -20°C / +70°C

### PACKAGE CONTENTS

Gauge, bezel, rubber seal, spinlock, drilling template, installation instructions, safety instructions



110 mm tachometer 3000 rpm



110 mm tachometer 5000 rpm



110 mm tachometer 7000 rpm

VDO Article No.	Part No.	Voltage	Colour	Range
A2C59501913	20142 K	12-24 V	Black	3000 rpm
A2C1338910001	21102 C	12-24 V	White	3000 rpm
A2C59501914	20143 M	12-24 V	Black	5000 rpm
A2C1338920001	21103 E	12-24 V	White	5000 rpm
A2C59501915	20144 P	12-24 V	Black	7000 rpm
A2C1338930001	21104 G	12-24 V	White	7000 rpm



NAVIGATION GAUGES

The VDO Navigation Gauges display depth, Speed over Ground, Speed through Water, Rudder Angle or Compass information received from the VDO AcquaLink® NavBox or the NMEA 2000® data bus.

- 2x VDO Bus connectors
- <150 mA
- Reverse polarity protection
- Anti-fog coated mineral glass lens
- Front and rear protection rating IPX6, IPX9K
- Operating temperature range -20°C / +70°C

PACKAGE CONTENTS

Gauge, bezel, rubber seal, spinlock, drilling template, installation instructions, safety instructions

VDO Article No.	Part No.	Voltage	Colour	Range
Compass				
A2C59501911	20140 F	12-24 V	Black	360°
A2C1338790001	21092 C	12-24 V	White	360°
Rudder angle				
A2C59501902	20131 E	12-24 V	Black	80°
A2C1338860001	21098 R	12-24 V	White	80°
Depth				
A2C59501903	20132 G	12-24 V	Black	200 m / 660 ft
A2C1338810001	21093 E	12-24 V	White	200 m / 660 ft
A2C59501904	20133 J	12-24 V	Black	180 m / 600 ft
A2C1338820001	21094 G	12-24 V	White	180 m / 600 ft
Speed Over Ground (SOG)				
A2C59501908	20137 T	12-24 V	Black	12 knots
A2C1338870001	21099 T	12-24 V	White	12 knots
A2C59501910	20139 X	12-24 V	Black	35 mph / 55 kmh
A2C1338880001	21100 Y	12-24 V	White	35 mph / 55 kmh
A2C59501909	20138 V	12-24 V	Black	70 mph / 115 kmh
A2C1338900001	21101 A	12-24 V	White	70 mph / 115 kmh
Speed through water (LOG®)				
A2C59501905	20134 L	12-24 V	Black	12 knots
A2C1338830001	21095 J	12-24 V	White	12 knots
A2C59501906	20135 N	12-24 V	Black	50 knots
A2C1338850001	21097 N	12-24 V	White	50 knots
A2C59501907	20136 R	12-24 V	Black	35 mph / 55 kmh
A2C1338840001	21096 L	12-24 V	White	35 mph / 55 kmh



110 mm compass 360°



110 mm rudder angle



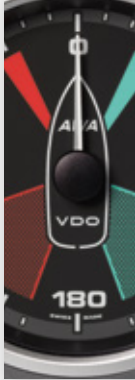
110 mm depth  
600 feet / 180 m



110 mm SOG 35 mph / 55 kmh



110 mm LOG® 50 knots



## TEMPERATURE GAUGES

- AMP Superseal EasyLink connector
- <100 mA
- 270° pointer deflection angle
- Reverse polarity protection
- Anti-fog mineral glass lens
- Front and rear protection rating IPX6, IPX9K
- Operating temperature range -20°C / +70°C

The outer scale is available also in PSI

### PACKAGE CONTENTS

Gauge, rubber seal, spinlock, drilling template, installation instructions, safety instructions

VDO Article No.	Part No.	Voltage	Colour	Range
<b>Coolant temperature</b>				
A2C59501931	20151 L	12-24 V	Black	120°C / 250°F
A2C3968790001	21638 X	12-24 V	White	120°C / 250°F
<b>Engine oil temperature</b>				
A2C59501926	20146 U	12-24 V	Black	150°C / 300°F
A2C1338620001	21075 C	12-24 V	White	150°C / 300°F
<b>Pyrometer</b>				
A2C59501933	20153 R	12-24 V	Black	900°C / 1650°F
A2C1338660001	21079 L	12-24 V	White	900°C / 1650°F



52 mm coolant temperature  
120°C / 250°F



52 mm engine  
oil temperature  
300°F / 150°C



52 mm pyrometer  
900°C / 1650°F

## PRESSURE GAUGES

- AMP Superseal EasyLink connector
- <100 mA
- 270° pointer deflection angle
- Reverse polarity protection
- Anti-fog mineral glass lens
- Front and rear protection rating IPX6, IPX9K
- Operating temperature range -20°C / +70°C

The outer scale is available also in PSI

### PACKAGE CONTENTS

Gauge, rubber seal, spinlock, drilling template, installation instructions, safety instructions

VDO Article No.	Part No.	Voltage	Colour	Range
<b>Boost pressure</b>				
A2C59501944	20164 W	12-24 V	Black	2 bar / 30 psi
A2C1338720001	21085 F	12-24 V	White	2 bar / 30 psi
<b>Engine oil pressure</b>				
A2C59501935	20155 V	12-24 V	Black	10 bar / 150 psi
A2C1338600001	21073 Y	12-24 V	White	10 bar / 150 psi
<b>Transmission oil pressure</b>				
A2C59501937	20157 Z	12-24 V	Black	30 bar / 440 psi
A2C1338690001	21082 Z	12-24 V	White	30 bar / 440 psi



52 mm boost pressure  
30 psi / 2 bar



52 mm engine  
oil pressure  
10 bar / 150 psi



52 mm transmission  
oil pressure  
30 bar / 440 psi

LIQUID LEVEL

- AMP Superseal EasyLink connector
- <100 mA
- 270° pointer deflection angle
- Reverse polarity protection
- Anti-fog mineral glass lens
- Front and rear protection rating IPX6, IPX9K
- Operating temperature range -20°C / +70°C

PACKAGE CONTENTS

Gauge, rubber seal, spinlock, drilling template, installation instructions, safety instructions

VDO Article No.	Part No.	Voltage	Colour	Range
Fuel level				
A2C59501930	20150 J	12-24 V	Black	Empty - Full
A2C1338650001	21078 J	12-24 V	White	Empty - Full
Fresh water				
A2C59501929	20149 A	12-24 V	Black	Empty - Full
A2C1338620001	21075 C	12-24 V	White	Empty - Full
Waste water				
A2C59501928	20148 Y	12-24 V	Black	Empty - Full
A2C1338760001	21089 P	12-24 V	White	Empty - Full



52 mm fuel level  
Empty - Full



52 mm fresh water level  
Empty - Full



52 mm waste water level  
Empty - Full

BATTERY STATUS

- AMP Superseal EasyLink connector
- <100 mA
- 270° pointer deflection angle
- Reverse polarity protection
- Anti-fog mineral glass lens
- Front and rear protection rating IPX6, IPX9K
- Operating temperature range -20°C / +70°C

PACKAGE CONTENTS

Gauge, rubber seal, spinlock, drilling template, installation instructions, safety instructions

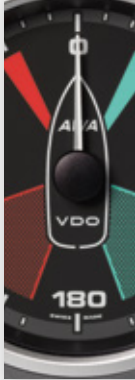
VDO Article No.	Part No.	Voltage	Colour	Range
Current				
A2C59501942	20162 S	12-24 V	Black	-60 / +60 A
A2C1338540001	21070 S	12-24 V	White	-60 / +60 A
A2C59501943	20163 U	12-24 V	Black	-150 / +150 A
A2C1338550001	21071 U	12-24 V	White	-150 / +150 A
Voltage				
A2C59501940	20160 M	12-24 V	Black	8 - 16 V
A2C1338740001	21087 K	12-24 V	White	8 - 16 V
A2C59501941	20161 P	12-24 V	Black	16 - 32 V
A2C1338750001	21088 M	12-24 V	White	16 - 32 V

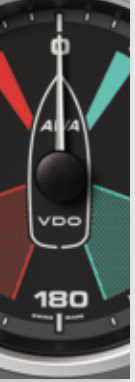


52 mm ammeter 60 A



52 mm voltmeter  
16 - 32 V





# VESSEL STATUS

- AMP Superseal EasyLink connector
- <100 mA
- 270° pointer deflection angle
- Reverse polarity protection
- Anti-fog mineral glass lens
- Front and rear protection rating IPX6, IPX9K
- Operating temperature range -20°C / +70°C

## PACKAGE CONTENTS

Gauge, rubber seal, spinlock, drilling template, installation instructions, safety instructions



52 mm rudder angle



52 mm trim

VDO Article No.	Part No.	Voltage	Colour	Range
<b>Rudder angle</b>				
A2C59501939	20159 D	12-24 V	Black	90°
A2C1338680001	21081 X	12-24 V	White	90°
<b>Engine trim</b>				
A2C59501925	20145 S	12-24 V	Black	Up / Down
A2C1338710001	21084 D	12-24 V	White	Up / Down





## NAVBOX AND ENGINEBOX

The AcquaLink® NavBox is the heart of the AcquaLink® VDO Bus system. It acts as a CPU and signal interface. The NavBox provides a wide range of digital and analog input possibilities. It supports J1939, NMEA 2000® and analogue signals. It also features two VDO Sumlog® paddle wheel sensor and one analogue VDO Windsensor connections, so legacy VDO products can be used and brought to the digital age.

With a dedicated analogue input port it can support the following analogue signal from VDO sensor or from 3rd parties company

- Engine oil pressure
- Engine oil temperature
- Engine coolant temperature
- Transmission oil pressure
- Fresh water/waste water and fuel level
- Ammeter status
- Rudder angle
- Engine frequency

It also features a NMEA 0183 input and output port as well as a buzzer output. All received data are converted and sent to the NMEA 2000® network and to the VDO Bus. This gateway function allows displaying engine, liquid level, pressure, temperature other vital information on any compatible display on the NMEA 2000® network or on designed VDO AcquaLink® gauges or TFT displays

The configuration of the NavBox can be done by using an AcquaLink® TFT and NavControl or by using the intuitive VDO App.

- NMEA 2000® certified
- LED signal status indication
- Aluminum base plate
- Front & rear side protection rating IPX4
- 3x VDO bus lines
- 1x J1939 CAN bus
- 1x NMEA 2000® bus
- 1 x VDO analogue wind sensor input
- 2x VDO Sumlog® inputs
- AMP Super Seal power input
- 26 pin AUX input (analog signal, NMEA 0183)
- Operating temperature range -20°C / +70°C

The EngineBox expands the possibilities of the NavBox for multi-engine applications or can be used as stand-alone when navigation information is not required. The EngineBox has a NMEA2000® and a J1939 CAN port. The EngineBox can also be used on older, completely analog engines, thanks to the analog input ports provided and designed for: RPM data, 0–400 Ω sensors and 4–20 mA sensors. EngineBox is available in 2 versions: Single Engine and Dual Engine. The EngineBox has to be set up using an intuitive PC configuration tool making it easy for programming the inputs (delivered free of charge).

- Analog to NMEA 2000® gateway
- J1939 to NMEA 2000® gateway
- 1x J1939 (2x J1939 Dual Engine)
- 1x M12 5 pins NMEA 2000®
- 1x Input 0–4 kHz for RPM (2x with Dual Engine)
- 4x Inputs 0–400 Ω (8x Inputs with Dual Engine)
- 2x Inputs 4–20 mA
- 1x Input 0–5 V (2x Inputs with Dual Engine)



NavBox



EngineBox



VDO Article No.	DESCRIPTION
A2C1824820001	EngineBox Single Engine
A2C1767000001	EngineBox Double Engine



## TFT DISPLAY

The OceanLink 4.3" and 7" multifunction TFT displays feature a full 24 bit / 16 mio. colors optically bonded display with transmissive layer technology for perfect readability even in direct sunlight.

The TFT displays and distributes a wide array of data received from NMEA 2000® and J1939 CAN Bus systems and analogue sensors directly connected to the display. Users can customize up to 40 different data pages with single, double, treble or quad grid layouts.

The OceanLink TFT displays send the received data to up to 20 satellite 52 mm OceanLink gauges. They also convert and send J1939 and analogue data to the NMEA 2000® network and can be used as CAN Bus gateway.

- 1x NMEA 2000® connector
- 1x J1939 and analogue input
- 1x frequency input
- Operating temperature range -20°C / +70°C
- Optical bonded mineral glass lens
- Front & rear side protection rating IPX9

### PACKAGE CONTENTS

TFT Display, bezel, silicone cover, mounting screws, connection cable, installation instructions, safety instructions



4.3" TFT display



7" TFT display

VDO Article No.	Part No.	Voltage	Colour	Resolution
<b>4.3"</b>				
A2C1352150001	21123 L	12-24 V	Black	480 x 272 (WQVGA)
<b>7"</b>				
A2C1865330001	22545 V	12-24 V	Black	480 x 272 (WQVGA)

## TACHOMETER

The OceanLink Tachometer automatically presents all the key data-up to 256 standard measurement values ranging from oil pressure and fuel consumption to operating hours – on a generously proportioned inverted dot matrix digital display. Besides a CAN interface with NMEA 2000® certified and SAE J1939 data protocol it features two inputs for analogue sensors.

The innovative EasyLink data connection make the installation easy and cost effective. Satellite instruments for further dynamic measurement values receive updates from the central instrument every 20 ms.

OceanLink is available in various designs and a number of bezel colour options. The instruments can also be conveniently integrated into customer-specific panel solutions.

The VDO Tachometer displays all important engine related data and distribute it to up to sixteen 52 mm satellite gauges.

- 1x NMEA 2000® input
- 1x J1939 and analogue input
- Reverse polarity protection
- Anti-fog double layer plastic lens
- Protection rating IPX5
- Operating temperature range -20°C / +70°C



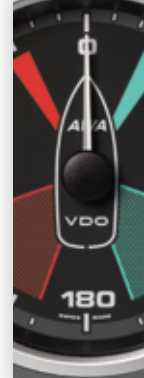
85 mm tachometer 5000 rpm



85 mm tachometer 5000 rpm

### PACKAGE CONTENTS

Gauge, bezel, rubber seal, spinlock, connection cable, installation instructions, safety instructions



VDO Article No.	Part No.	Voltage	Colour	Range
<b>Ø 85 mm</b>				
A2C1065660001	21022 E	12-24 V	Black	3000 rpm
A2C1065670001	21023 G	12-24 V	White	3000 rpm
A2C1065720001	21024 J	12-24 V	Black	5000 rpm
A2C1065800001	21025 L	12-24 V	White	5000 rpm
A2C1065810001	21026 N	12-24 V	Black	7000 rpm
A2C1065820001	21027 R	12-24 V	White	7000 rpm

## GPS SPEEDOMETER

The OceanLink GPS speedometer features an embedded GPS antenna, an inverted dot matrix LCD and NMEA 2000® connectivity. The LCD displays information like position, date and time and - if connected to a NMEA 2000® network - sea water temperature, depth and speed through water information. The IP65 waterproof design allows the installation on open or enclosed boats. Up to 20 satellite gauges of 52 mm each, can be connected thanks to the integrated EasyLink connectivity.

- 1x connector NMEA 2000®
- Reverse polarity protection
- Front & rear side protection rating IPX5
- Operating temperature range -20°C / +70°C



85 mm GPS speedometer  
0 - 35 knots / kmh / mph



### PACKAGE CONTENTS

Gauge, bezel, rubber seal, spinlock, connection cable, installation instructions, safety instructions



85 mm GPS speedometer  
0 - 14 knots / kmh / mph

VDO Article No.	Part No.	Voltage	Colour	Range
<b>Ø 85 mm</b>				
A2C1351970001	21114 K	12-24 V	Black	0 - 14 knots / kmh / mph
A2C1352010001	21117 S	12-24 V	White	0 - 14 knots / kmh / mph
A2C1351980001	21115 M	12-24 V	Black	0 - 35 knots / kmh / mph
A2C1352080001	21118 U	12-24 V	White	0 - 35 knots / kmh / mph
A2C1351990001	21116 P	12-24 V	Black	0 - 70 knots / kmh / mph
A2C1352090001	21120 E	12-24 V	White	0 - 70 knots / kmh / mph

## TEMPERATURE GAGUES

- AMP Superseal EasyLink
- <100 mA
- 270° pointer deflection angle
- Reverse polarity protection
- Anti-fog double layer plastic lens
- Front & rear protection rating IPX5
- Operating temperature range -20°C / +70°C

The outer scale is available also in °F

### PACKAGE CONTENTS

Gauge, bezel, rubber seal, spinlock, installation instructions, safety instructions



52 mm  
Coolant Temperature  
120°C / 250°F

VDO Article No.	Part No.	Voltage	Colour	Range outer/inner
<b>Coolant temperature</b>				
A2C1065950001	21040 G	12-24 V	Black	120°C / 250°F
A2C1065970001	21041 J	12-24 V	White	120°C / 250°F
<b>Engine oil temperature</b>				
A2C1065850001	21030 D	12-24 V	Black	150°C / 300°F
A2C1065860001	21031 F	12-24 V	White	150°C / 300°F
<b>Pyrometer</b>				
A2C1349690001	21110 B	12-24 V	Black	900°C / 1650°F
A2C1349710001	21112 F	12-24 V	White	900°C / 1650°F

## PRESSURE GAGUES

- AMP Superseal EasyLink
- <100 mA
- 270° pointer deflection angle
- Reverse polarity protection
- Anti-fog double layer plastic lens
- Front & rear protection rating IPX5
- Operating temperature range -20°C / +70°C

The outer scale is available also in psi

### PACKAGE CONTENTS

Gauge, bezel, rubber seal, spinlock, installation instructions, safety instructions



52 mm transmission oil  
pressure 30 bar / 440 psi



52 mm engine oil pressure  
Low / High

VDO Article No.	Part No.	Voltage	Colour	Range outer/inner
<b>Boost pressure</b>				
A2C1066140001	21058 C	12-24 V	Black	2 bar / 30 psi
A2C1066150001	21059 E	12-24 V	White	2 bar / 30 psi
<b>Engine oil pressure</b>				
A2C1066000001	21044 R	12-24 V	Black	10 bar / 150 psi
A2C1066010001	21045 T	12-24 V	White	10 bar / 150 psi
<b>Transmission oil pressure</b>				
A2C1066040001	21048 Z	12-24 V	Black	30 bar / 440 psi
A2C1066050001	21049 B	12-24 V	White	30 bar / 440 psi



## LIQUID LEVEL

- AMP Superseal EasyLink
- <100 mA
- 270° pointer deflection angle
- Reverse polarity protection
- Anti-fog double layer plastic lens
- Front & rear protection rating IPX5
- Operating temperature range -20°C / +70°C



52 mm fuel level  
Empty – Full



52 mm fresh water level  
Empty – Full

### PACKAGE CONTENTS

Gauge, bezel, rubber seal, spinlock, installation instructions, safety instructions

VDO Article No.	Part No.	Voltage	Colour	Range
<b>Fuel level</b>				
A2C1065930001	21038 W	12-24 V	Black	Empty - Full
A2C1065940001	21039 Y	12-24 V	White	Empty - Full
<b>Fresh water</b>				
A2C1065910001	21036 S	12-24 V	Black	Empty - Full
A2C1065920001	21037 U	12-24 V	White	Empty - Full
<b>Waste water</b>				
A2C1065890001	21034 M	12-24 V	Black	Empty - Full
A2C1065900001	21035 P	12-24 V	White	Empty - Full

## BATTERY STATUS

- AMP Superseal EasyLink connector
- <100 mA
- 270° pointer deflection angle
- Reverse polarity protection
- Anti-fog mineral glass lens
- Front and rear protection rating IPX5
- Operating temperature range -20°C / +70°C

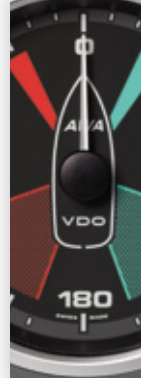
### PACKAGE CONTENTS

Gauge, bezel, rubber seal, spinlock, installation instructions, safety instructions



52 mm voltmeter  
16 - 32 V

VDO Article No.	Part No.	Voltage	Colour	Range
<b>Current</b>				
A2C1349640001	21106 L	12-24 V	Black	-60 / +60 A
A2C1349660001	21108 R	12-24 V	White	-60 / +60 A
A2C1349650001	21107 N	12-24 V	Black	-150 / +150 A
A2C1349680001	21109 T	12-24 V	White	-150 / +150 A
<b>Voltage</b>				
A2C1066100001	21054 U	12-24 V	Black	8 - 16 V
A2C1066110001	21055 W	12-24 V	White	8 - 16 V
A2C1066120001	21056 Y	12-24 V	Black	16 - 32 V
A2C1066130001	21057 A	12-24 V	White	16 - 32 V



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## VESSEL STATUS

- AMP Superseal EasyLink connector
- <100 mA
- 270° pointer deflection angle
- Reverse polarity protection
- Anti-fog mineral glass lens
- Front and rear protection rating IPX5
- Operating temperature range -20°C / +70°C

## PACKAGE CONTENTS

Gauge, bezel, rubber seal, spinlock, installation instructions, safety instructions



52 mm rudder angle

VDO Article No.	Part No.	Voltage	Colour	Range
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### Rudder angle

A2C1066080001	21052 P	12-24 V	Black	90°
A2C1066090001	21053 S	12-24 V	White	90°

### Engine trim

A2C1065830001	21028 T	12-24 V	Black	Up / Down
A2C1065840001	21029 V	12-24 V	White	Up / Down



52 mm trim

## GPS SPEED, WIND ANGLE, MAG WIND ANGLE, WIND SPEED, COMPASS, DEPTH

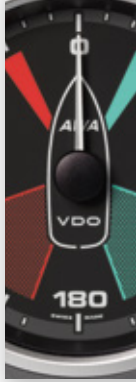
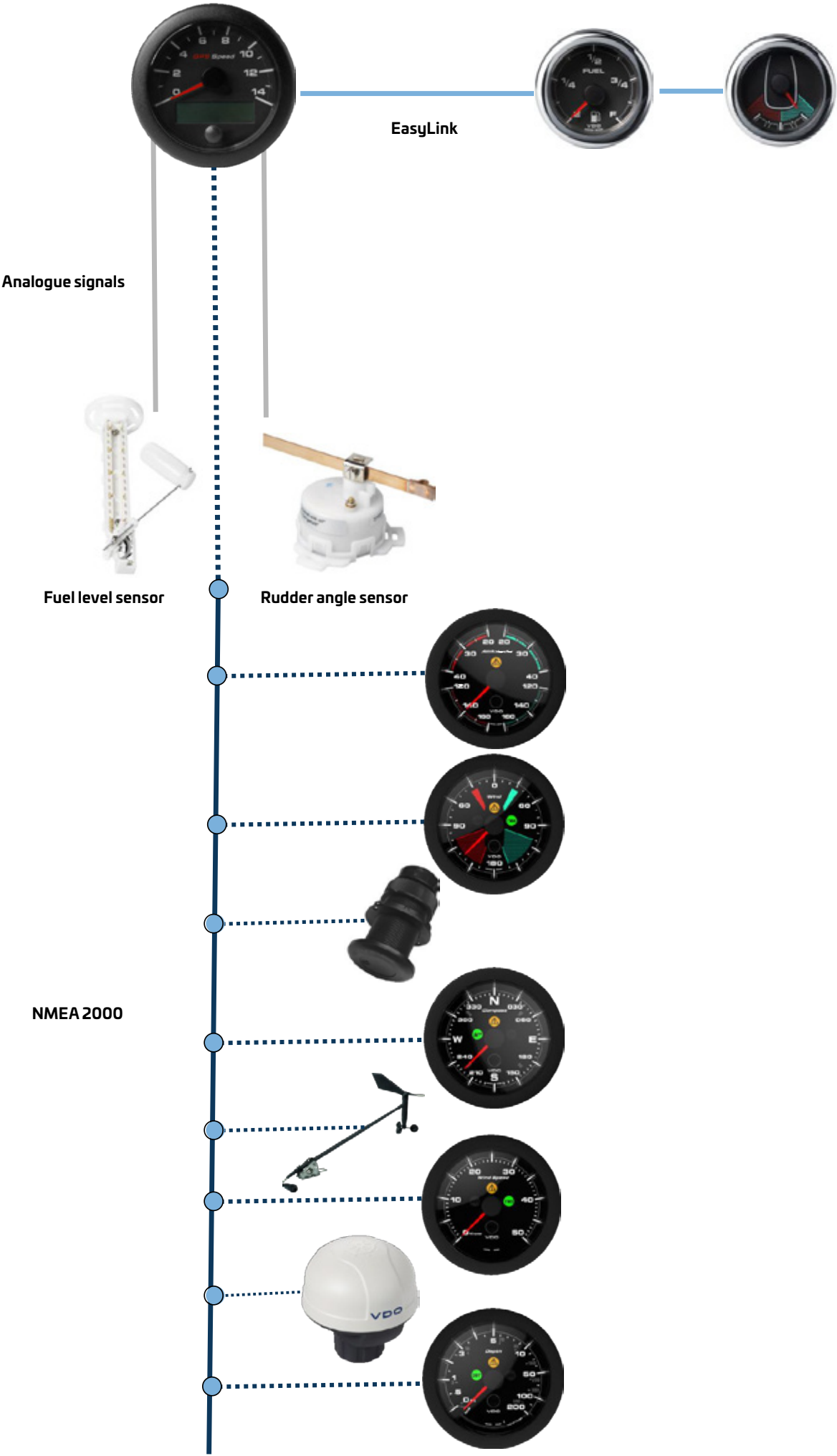


- Analogue indicator readable in extreme weather conditions
- Infrared electronic switch
- NMEA2000 compatible, AcquaLink compatible
- Spinlock installation method or flush mount
- Anti fog dual lens
- White and chrome bezel available as optional
- Protection grade IPX7 exposed front and IPX5 extended back
- Movement: stepper motor
- Dial scale through it illumination cold white
- Pointer with red illumination
- 9-16Volt (rated voltage); 12 (Nominal)
- Fitting Angle NL o to 90° according to DIN16527
- Operation Temperature -25°C to +70°C
- Storage Temperature -40°C to +85°C



- CE certified
- NMEA2000 compatible
- EN60945-2002
- IEC 60945 Classification Exposed
- RoHS2 2002/95/CE
- Electrical Disturbance ISO7637-1/2

VDO Article No.	Part No.	DESCRIPTION
A2C1351980001	21115 M	OL 85 mm GPS Speedo 0-35 Black
A2C1957360001	22546 X	OL 85 mm Depth 200 m / 600 ft Black
A2C1957380001	22547 Z	OL 85 mm Compass Black
A2C1957390001	22548 B	OL 85 mm Magnified Apparent Wind Angle Black
A2C1957420001	22549 D	OL 85 mm Wind speed Black
A2C1957400001	22550 M	OL 85 mm Wind angle Black





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## 7" MAST DISPLAY

**new**

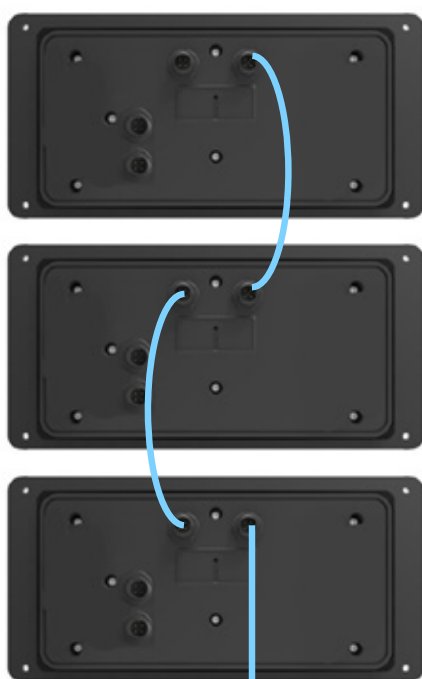
### FEATURES

- New Mast Display functionality has been implemented in all 7" AcquaLink® TFTs
- Landscape and Portrait orientation
- New Mast Pages to enhance readability
- New software update required
- Automatic detection of AcquaLink® NavBox to self configure as Mast Display

Same technical specifications as AcquaLink® 7" displays:

- High readability
- NMEA 2000® compatible
- IP67 exposed
- Touch screen with swipe function
- Operation Temperature range design for -25°C to +70°C

**Mast Display 7" - 23004 N**



To NMEA 2000® network

### INSTALLATION CONCEPT

- Minimum-sized and clean installation thanks to daisy-chain wiring concept between displays
- No "tees" are required to be hidden or taped behind the displays
- Access to NMEA 2000® network via VDObus to NMEA 2000® adapter cable



### USER OPERATION-1

16 data available to be displayed:

- AWA
- AWS
- TWA
- TWS
- Boat speed (BSpd)
- COG
- SOG
- Heading
- Depth
- Rudder position
- Heel angle
- Battery voltage
- Velocity Made Good (VMG)
- Distance To Waypoint (DTW)
- Bearing To Waypoint (BTW)
- Easy touch-based interaction to setup the pages

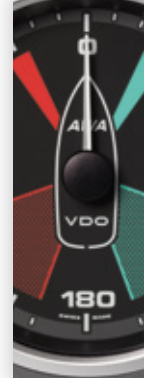
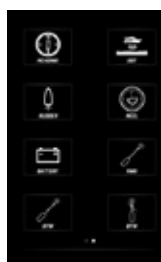
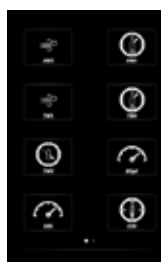




**new**

## USER OPERATION-2

- NavControl integration to operate the displays from remote without touch interaction
- OceanLink® 4.3 TFT can be used remotely (e.g. at helm station) to set offsets and dampings for the data
- Basic settings available on Mast display as well to quickly change backlight intensity or unity references



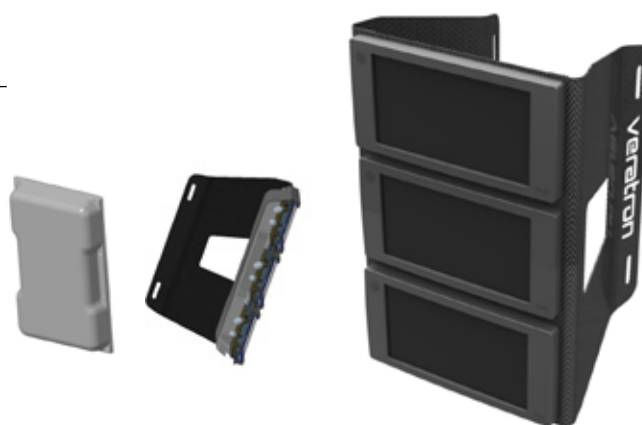
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## PORTRAIT ORIENTATION

- Portrait orientation also available for smaller and cost-effective installations
- Same amount of data available as per Landscape mode
- Swipe function also available for each data as well as NavControl integration

## CARBON BRACKET

- Elegant and efficient solution for mast installation
- Holds three 7" displays
- Rear cover available with minimum installation space thanks to the AcquaLink daisy-chain between displays



## WIND PAGE

- Available for both standard AcquaLink® and Mast display mode
- 6 data fields at the corner fully configurable via integrated menu
- Rudder and Compass indication fixed on the top and the bottom side of indicator
- Amber and Blue colours available as well as Day and Night modes





# VDO MARINE SAILING KIT NMEA 2000®

The kit includes everything you need for the installation and provides all the information for a safe sailing.

**new**



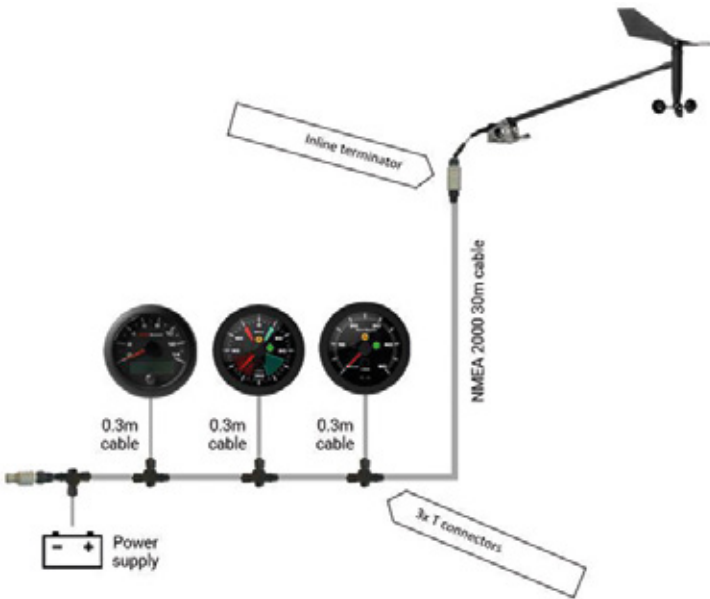
Thanks to the NMEA 2000 protocol common to all the components of the kit is possible to switch in real time the reading of direction and wind speed between real and apparent thanks to the pressure of an infrared button positioned on the instrument itself.

Thanks to the NMEA2000 and VDO Easylink protocols it is possible to integrate the system with other instruments of the Oceanlink series in order to have the complete monitoring of the engine, the level of the tanks and share them on the navigation instruments.

VDO Marine Sailing KIT by Veratron AG works on low consumption, it complies with REACH, RoHS and it is produced with environmentally friendly materials

## KIT COMPONENTS:

- NMEA2000® short arm wind sensor
- OceanLink® 85mm GPS Speedo 14Knots
- OceanLink® 85mm Classic wind angle
- OceanLink® 85mm Classic wind speed
- 30m NMEA2000® cable, 0.3m NMEA2000® cable
- NMEA2000® inline terminator + terminator female + infield connector male
- NMEA2000® Power cable
- User manual & safety instructions



VDO Article No.	Part No.
A2C3935310001	22919 L

MEDIA BOX

The VDO MediaBox features a waterproof, compact and black box design that can be mounted literally everywhere on the boat. Listen to Radio and weather forecasts with it's built in AM / FM Tuner or connect a MP3 player or smartphone via USB or Bluetooth to enjoy your favorite music. The MediaBox is NMEA 2000® certified and can be used with any compatible NMEA 2000® head unit or with the VDO AcquaLink® or OceanLink TFT Displays. Additionally VDO offers a free Remote App so the MediaBox can be used as a stand alone radio.

- AM/FM radio tuner with RDS - Backup memory
- Bluetooth audio player
- USB memory device MP3 player on smartphone
- Three band equalizer with volume control
- Power amplifier 4x 28W (D class)
- NMEA 2000® certified
- IPX5 protection rating
- Operating temperature range -20°C / +70°C

PACKAGE CONTENTS

MediaBox, cable harness, mounting screws, installation instructions, safety instructions

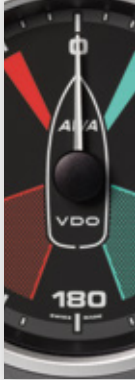


MediaBox



Speaker pair - 22566 D  
(to be ordered separately)

VDO Article No.	Part No.	Voltage
A2C59501980	20200 X	8-16 V





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## NAV SENSOR

The multifunctional AcquaLink® Nav Sensor is the gem of all sensors. The inertial sensor complements the inbuilt satellite receiver module to provide accurate readings of the speed of travel as well as the pitch & roll (up and down) and YAW (sideways) motion of the boat. Compass readings can be displayed electronically thanks to the embedded compass, which also facilitate course corrections in electronic autopilots. The barometer and air temperature sensors are early indicators of forthcoming weather conditions.

- Standard MicroC connector for NMEA 2000®
- NMEA 2000® certified
- IP65 protection rating
- GPS module: position, time, boats vector, signal quality, satellites
- Compass: +/-40° tilt angle, <2° accuracy, alarm (rapid field strength change, tilt angle overrun, undervoltage conduction)
- Barometer: air pressure, air temperature inside the sensor
- Air temperature: -20°C / +65°C
- Inertial sensor: resolution 1°/s
- YAW-range 100°/s, linearity +/-3°/s
- Acceleration range 50 m/s², linearity +/-1 m/s²
- Calculated heeling, pitch & roll-range +/-50°
- Operating temperature range -20°C / +70°C



Nav Sensor



### PACKAGE CONTENTS

Nav Sensor, 2x brackets, installation instructions, safety instructions

VDO Article No.	Part No.	Voltage
A2C59501981	20201 Z	12-24 V

## NMEA 2000® WIND SENSOR

The wind vane turns in the direction of the wind and steers the wind direction gauge. The wind cups records the relative wind speed which in turn is displayed on the wind speed gauge.



NMEA 2000® Wind Sensor

VDO Article No.	Part No.	Voltage
A2C59501984	20203 D	9-16 V



## NMEA 2000® FRESH WATER CAPACITIVE SENSORS

Fresh water level sensor (capacitive)  
Sensor type: adjustable dip

VDO Article No.	Part No.	Voltage	Length
A2C1364680001	21639 Z	8-16 V	80-600 mm
A2C1364690001	21640 H	8-16 V	600-1200 mm



NMEA 2000® Fresh Water Capacitive Sensors

## NMEA 2000® WASTE WATER CAPACITIVE SENSORS

Waste water level sensor (capacitive)  
Sensor type: adjustable lever

VDO Article No.	Part No.	Voltage	Length
A2C1364660001	21641 K	8-16 V	200-600 mm
A2C1364670001	21642 M	8-16 V	600-1200 mm



NMEA 2000® Waste Water Capacitive Sensors

## SUMLOG® TRANSDUCER KIT

The Sumlog® Transducer is required to measure boat speed through water. The Sumlog® includes two paddle wheels which can be exchanged to match the speed range of the boat, thereby supporting speeds from 0 to 18 or up to 50 knots respective of the installed paddle wheels. The NavBox supports up to two Sumlogs® which can be directly connected to the dedicated Sumlog® ports using a 4 pin M12 connector extension cable.

- 4 pin M12 connector

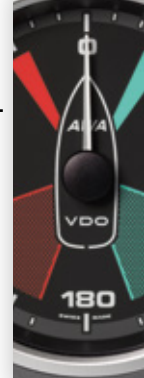
### PACKAGE CONTENTS

18 knots Sumlog® transducer, additional 50 knots paddle wheels, valve, plug, 2x rubber seal, installation instructions, safety instructions



Sumlog® transducer kit

VDO Article No.	Part No.	Voltage
A2C59501986	20204 F	12-24 V



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## ANALOGUE WIND SENSOR

The legacy wind vane turns in the direction of the wind and steers the wind direction gauge. The wind cups records the relative wind speed which in turn is displayed on the wind speed gauge. Also compatible with VDO "Standard", "Logic" series.



Analogue wind sensor

VDO Article No.	Part No.	Voltage
A2C59501983	600119 Y	12-24 V

## RUDDER ANGLE SENSORS

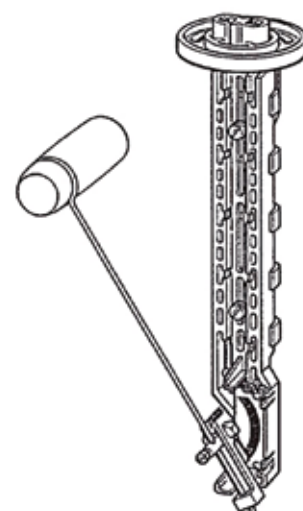
VDO Article No.	Part No.	Voltage	Resistance ohm
<b>Single station</b>			
A2C51102950001	20741 J	12-24 V	10 - 180 $\Omega$
<b>Dual station (fly bridge)</b>			
A2C51102960001	20742 L	12-24 V	5 - 90 $\Omega$



Rudder angle sensor

## FUEL LEVEL SENSORS

VDO Article No.	Part No.	Signal range empty/full	Length	Item specifics
226-801-015-001G	60478 FA	3 - 180 $\Omega$	150 - 600 mm	Fuel level sensor Sensor type: Adjustable lever
226-801-015-001C	20084 Y	3 - 180 $\Omega$	150 - 600 mm	Bulk adjustable lever arm sensor (10 pcs)
N02-240-106	60479 GA	2 - 90 $\Omega$	150 - 600 mm	Fuel level sensor Sensor type: Adjustable lever
A2C1364580001	21124 N	240 - 33.6 $\Omega$	150 - 600 mm	Fuel lever sensor Sensor type: adjustable lever



\*for dual units (flying bridge)

## FRESH WATER CAPACITIVE SENSORS

Fresh water level sensor (capacitive) with adjustable dip

VDO Article No.	Part No.	Voltage	Signal range	Length
N02-240-402	60317 KA	12-24 V	4-20 mA	80-600 mm
N02-240-404	60318 NA	12-24 V	4-20 mA	600-1200 mm
N02-240-406	60319 OA	12-24 V	4-20 mA	1200-1500 mm



Fresh water capacitive sensor

## FRESH WATER RESISTIVE SENSORS

Fresh water level sensor (resistive) with adjustable lever

VDO Article No.	Part No.	Voltage	Signal range	Length
226-828-001-001K	60320 FA	12-24 V	3 - 180 Ω	200-600 mm



Fresh water resistive sensor

## WASTE WATER CAPACITIVE SENSORS

Waste water level sensor (capacitive) with adjustable dip

VDO Article No.	Part No.	Voltage	Signal range	Length
N02-240-902	60321 GA	12-24 V	4-20 mA	200-600 mm
N02-240-904	60322 HA	12-24 V	4-20 mA	600-1200 mm
N02-240-906	60323 IA	12-24 V	4-20 mA	1200-1500 mm



Waste water capacitive sensor

## AMMETER SHUNT

VDO Article No.	Part No.	Voltage	Range	Input
A2C59514043	60324 JA	12-24 V	-60 / +60	60 mV
A2C59514047	60325 KA	12-24 V	-150 / +150	60 mV



Ammeter shunt

## ELECTRONIC PRESSURE SENSORS

The active pressure sensors with voltage output are used to measure pressure of gaseous and liquid media in a variety of applications at various locations.

The pressure sensor unit is based on a stainless steel sensing element and converts fluctuations of measuring medium into a pressureproportional electrical output signal (0.5 – 4.5 V).

VDO Article No.	Part No.	Voltage	Thread	Range
365-100-010-121C	60326 LA	12-24 V	M12 x 1.5	10 bar
365-100-016-121C	60327 MA	12-24 V	M12 x 1.5	16 bar
365-100-030-121C	60328 PA	12-24 V	M12 x 1.5	30 bar



Electronic pressure sensor with voltage output



## VERATRON GO - GPS & BLUETOOTH NMEA 2000® CERTIFIED SENSOR

### SPECIFICATIONS

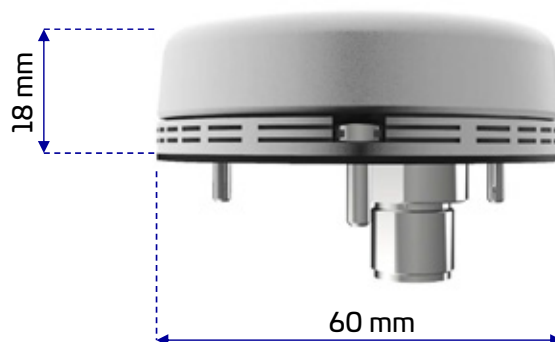
- Fixation double adhesive tape or three screws
- NMEA 2000® Male (M12 - 5 pin)
- 12V only (NMEA 2000® powered)
- Plug & Play installation (no calibrations needed)
- Bluetooth 5.1 connectivity for NMEA remote diagnostic
- IPX9K front and rear
- GPS / GLONASS with SBAS support (WAAS, EGNOS, MSAS, GAGAN)
- NMEA 2000® supported PGNs:  
System time, position, COG and SOG, GNSS position data, GNSS satellites in view, magnetic variation

GPS SENSOR - 23112 S

### CERTIFICATIONS



**new**



## DEEP-PIPE LEVEL SENSOR 90-4 Ω / 0-180 Ω / 240-33 Ω

The VDO Deep-Pipe Level Sensor is ideal for usage in fuel tanks. Its 38 mm diameter vertical tube contains a float inside, which measures a level of the liquid. Small holes at the top and bottom of the tube act as a baffle to fuel sloshing around in the fuel tank, so the float position remains stable at any sea state.

Sensors are made in various lengths starting at 150 mm increasing to 1200 mm. Please ensure that the length chosen is at least 4 mm from the base of the fuel tank once fitted.

- TE Superseal Connector IP67
- Compensation chamber
- Flange: PA66 GF30
- Wiring harness with length of 200 mm
- 3 signal ranges: 90-4 Ω, 0-180 Ω, 240-33 Ω
- Length: 150 mm-1200 mm (every 10mm step)
- Mounting diameter: 54 mm
- IP67 protection rating

### AFT. PACKAGE CONTENTS

Deep-Pipe Level Sensor, Safety Instructions, Installation Instructions, Installation Kit A2C17593300 - 23071 E

### ACCESSORIES

6 m Wiring Harness A2C17563000 - 23072 G













Deep-pipe liquid level sensor



For the identification of the codes, once the length and the desired signal are known, please refer to your Uflex dealer.

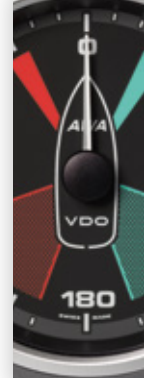


## AQUALINK® GAUGES ACCESSORIES

Image	VDO Article No.	Part No.	Item specifics
	A2C59501965	20185 E	Bezel 52 mm single, black
	A2C3979480001	21138 A	Bezel 52 mm single, white
	A2C59501966	20186 G	Bezel 52 mm double, black
	A2C3979510001	21139 C	Bezel 52 mm double, white
	A2C59501963	20184 C	Bezel 110 mm, black
	A2C3979530001	21140 L	Bezel 110 mm, white
	A2C59501967	20187 J	Bezel TFT 4.3", black
	A2C3983920001	21141 N	Bezel TFT 4.3", white
	A2C59501968	20188 L	Bezel TFT 7", black
	A2C3995200001	21643 P	Bezel TFT 7", white
	A2C1156050001	21068 F	Bezel NavControl, black
	A2C3997600001	21144 V	Bezel NavControl, white
	A2C5205947101	20112 A	Spinlock nut, 52 mm
	A2C5323888101	20122 D	Spinlock nut, 110 mm
	A2A59501971	20191 Z	Silicone instrument cover 52 mm double
	A2C59501972	20192 B	Silicone cover for 4.3" TFT Display and 110 mm gauge
	A2C59501973	20193 D	Silicone cover for 7" TFT Display
	A2C59501974	20194 F	Silicone cover for NavControl

## OCEANLINK GAUGES ACCESSORIES

Image	VDO Article No.	Part No.	Item specifics
	A2C5205947101	20112 A	Spinlock nut, 52 mm
	A2C13760900	21125 R	Spinlock nut, 85 mm
	A2C1141440001	21065 Z	Round Bezel 52 mm, black
	A2C5336487001	21543 K	Round Bezel 52 mm, chrome
	A2C1352110001	21121 G	Round Bezel 52 mm, white
	A2C1111380001	21064 X	Round Bezel 85 mm, black
	A2C1141580001	21066 B	Round Bezel 85 mm, chrome
	A2C1352140001	21122 J	Round Bezel 85 mm, white
	A2C1152980001	21067 D	Bezel TFT 4.3", white
	A2C1083230001	21063 V	Bezel TFT 4.3", black



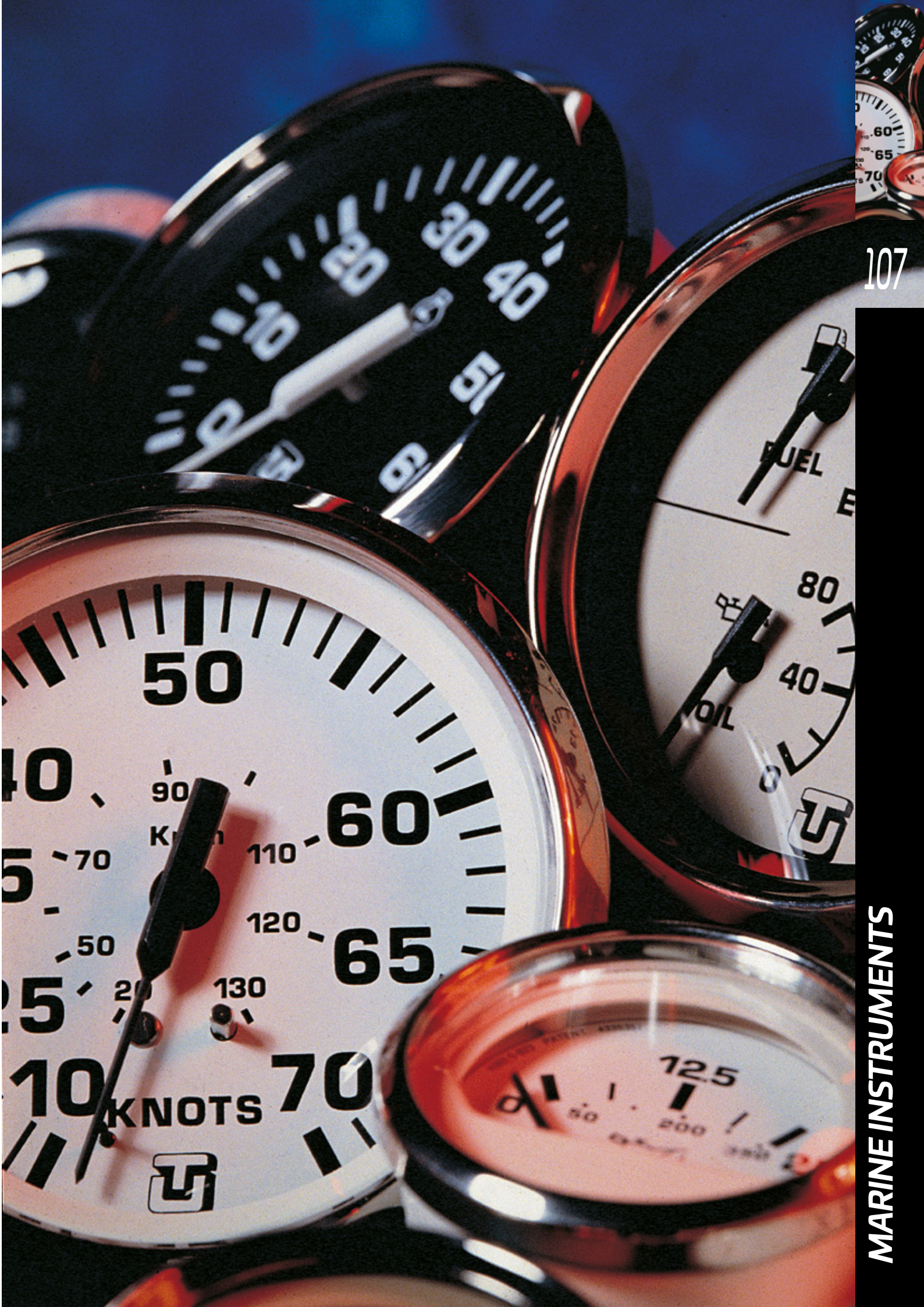
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## CAN BUS ACCESSORIES - ACQUALINK® & OCEANLINK

Image	VDO Article No.	Part No.	Item specifics
	A2C96244900	21153 W	VDO Bus to NMEA 2000® Adapter 0.3 m
	A2C96244600	21152 U	VDO Bus Cable 0.3 m
	A2C38805700	21128 X	VDO Bus Cable 2 m
	A2C96245000	21154 Y	VDO Bus Cable 5 m
	A2C96245100	21155 A	VDO Bus Cable 10 m
	A2C38805500	21127 V	VDO Bus Gender Changer
	A2C99793900	21159 J	VDO Bus Termination Resistor
	A2C39312900	21135 U	NMEA 2000® Power Cable
	A2C39312700	21134 S	NMEA 2000® T Splitter
	A2C96243700	21148 D	NMEA 2000® Cable 0.5 m
	A2C96243800	21149 F	NMEA 2000® Cable 2 m
	A2C96244000	21150 P	NMEA 2000® Cable 6 m
	A2C96244200	21151 S	NMEA 2000® Cable 10 m
	A2C59501950	20170 R	NMEA 2000® Cable 30 m
	A2C39310600	21131 K	NMEA 2000® Termitaor Female
	A2C39311000	21132 M	NMEA 2000® Termitaor Male
	A2C39312500	21133 P	NMEA 2000® Inline Termitaor
	A2C39308500	21129 Z	NMEA 2000® Infield Installation Connector Female
	A2C39310500	21130 H	NMEA 2000® Infield Installation Connector Male
	A2C38804900	21126 T	Infield Installation Connector VDO Bus / Wind Sensor Cable
	A2C99794200	21160 T	J1939 Termination Resistor, Inline J1939









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ULTRA BLACK



ULTRA WHITE

**FEATURES:**

- Red or yellow perimeter-lighted black (ULTRA BLACK) or white dial (ULTRA WHITE) with bold graphics.
- Default working voltage 12/24V (except voltmeters)
- Black plastic bezel
- Double layer reinforced anti-fogging glass
- Metric and american scales.
- Plug and play installation with multi-plug socket connection design
- IP67 protection rating for the entire gauge

Uflex® instruments are single tested and CE marked according to the European Standards.





INSTRUMENT	HOLE SIZE mm (")	DIAL RANGE	DESCRIPTION	ULTRA BLACK PART No.	ULTRA WHITE PART No.
Tachometer/hourmeter	85 (3.35)	4000 RPM	Tachometer 4000 1/10 speed ratio*	60510 JK	60534 UK
	85 (3.35)	4000 RPM	Tachometer 4000 0,5/250 speed ratio**	22464 VK	22449 ZK
	85 (3.35)	6000 RPM	Tachometer 6000 1/10 speed ratio*	60738 GK	60691 KK
	85 (3.35)	6000 RPM	Tachometer 6000 0,5/250 speed ratio**	22465 XK	22442 JK
	85 (3.35)	8000 RPM	Tachometer 8000 1/10 speed ratio*	22466 ZK	22437 SK
	85 (3.35)	8000 RPM	Tachometer 8000 0,5/250 speed ratio**	22467 BK	22438 TK
Speedometer	85 (3.35) 85 (3.35) 85 (3.35)	35 Knots 55 Knots 65 Knots	Pitot tube provides pressure signals (not included)	22468 DK 22470 PK 22469 FK	22439 WK 22441 GK 22443 LK
	85 (3.35)	60 Knots GPS	GPS signal (antenna included)	22471 SK	22445 RK
Fuel level gauge	52 (2.05)	E - 1/2 - F	0-190 ohm	60518 TK	60542 UK
Water level gauge	52 (2.05)	E - 1/2 - F	0-190 ohm	60520 LK	60544 WK
Holding tank level gauge	52 (2.05)	E - 1/2 - F	240-33 ohm	22463 TK	22430 BK
Oil pressure gauge	52 (2.05) 52 (2.05)	0 - 5 bar 0 - 10 bar	Pressure sensors provide signals (not included)	60521 MK 60522 NK	60545 XK 60546 YK
	52 (2.05)	0 - 800°C	Exhaust temperature sensor provides signal (not included)	22475 AK	22447 VK
Clock	52 (2.05)	-	Analog	60531 RK	60539 BK
Ammeter	52 (2.05)	± 80 A	Matched with 100 A current shunt unit (included)	22472 WK	22431 DK
Water temperature gauge	52 (2.05)	40 - 120 °C	Temperature sensor provides signals (not included)	60526 RK	60550 UK
Hourmeter	52 (2.05)	0 - 99999 hours	-	60530 QK	60554 YK
Trim gauge	52 (2.05) 52 (2.05)	160-10 ohm 0-190 ohm	Requires sending unit on outboard or sterndrive (check resistance values)	22474 YK 22475 MK	22432 FK 22433 HK
Rudder angle indicator	85 (3.35)	Port-Starboard	Indicates relative position of rudder	60699 UK	60700 QK
Voltmeter	52 (2.05) 52 (2.05)	8-16 Volt 18-32 Volt	For all 12 Volt electrical system For all 24 Volt electrical system	60529 WK 60741 ZK	60553 XK 60742 AK

\* **SPEED RATIO SETTING 1/10**

**Common setup on boat engines**

OUTBOARD				INBOARD & GAS ENGINE				
POLES	SPEED RATIO			CYLINDER	CYCLE	SPEED RATIO		
	4000 RPM	6000 RPM	8000 RPM			4000 RPM	6000 RPM	8000 RPM
4	1.3	2.0	2.6	4	4	1.3	2.0	2.6
6	2.0	3.0	4.0	6	4	2.0	3.0	4.0
8	2.7	4.0	5.3	8	4	2.7	4.0	5.3
10	3.3	5.0	6.6	10	4	3.3	5.0	6.6
12	4.0	6.0	8.0					

H-0040 H

\*\* **SPEED RATIO SETTING 0,5/250 TO 25.0 EXAMPLE**

H-0250 H



ULTRABLACK SS



ULTRAWHITE SS

**FEATURES:**

- Red or yellow perimeter-lighted black (ULTRABLACK SS) or white dial (ULTRAWHITE SS) with bold graphics.
- Default working voltage 12/24V (except voltmeters)
- 316 stainless steel bezel with convex glass
- Double layer reinforced anti-fogging glass
- Metric and american scales.
- Plug and play installation with multi-plug socket connection design
- IP67 protection rating for the entire gauge

Uflex® instruments are single tested and CE marked according to the European Standards.



INSTRUMENT	HOLE SIZE mm (")	DIAL RANGE	DESCRIPTION	U-BLACK SS PART No.	U-WHITE SS PART No.
Tachometer/hourmeter	85 (3.35)	4000 RPM	Tachometer 4000 1/10 speed ratio*	22481 VK	62005 LK
	85 (3.35)	4000 RPM	Tachometer 4000 0,5/250 speed ratio**	22482 XK	22450 HK
	85 (3.35)	6000 RPM	Tachometer 6000 1/10 speed ratio*	22483 ZK	62004 JK
	85 (3.35)	6000 RPM	Tachometer 6000 0,5/250 speed ratio**	22484 BK	22451 KK
	85 (3.35)	8000 RPM	Tachometer 8000 1/10 speed ratio*	22485 DK	22452 MK
	85 (3.35)	8000 RPM	Tachometer 8000 0,5/250 speed ratio**	22486 FK	22453 PK
Speedometer	85 (3.35) 85 (3.35) 85 (3.35)	35 Knots 55 Knots 65 Knots	Pitot tube provides pressure signals (not included)	22487 HK 22489 MK 22488 KK	22454 SK 22456 WK 22455 UK
	85 (3.35)	60 Knots GPS	GPS signal (antenna included)	22490 WK	22457 YK
Fuel level gauge	52 (2.05)	E - 1/2 - F	0-190 ohm	22476 BK	62014 MK
Water level gauge	52 (2.05)	E - 1/2 - F	0-190 ohm	22477 EK	62018 WK
Holding tank level gauge	52 (2.05)	E - 1/2 - F	240-33 ohm	22478 GK	22462 RK
Oil pressure gauge	52 (2.05) 52 (2.05)	0 - 5 bar 0 - 10 bar	Pressure sensors provide signals (not included)	22479 JK 22480 TK	62016 SK 62017 UK
Exhaust temperature gauge	52 (2.05)	0 - 800°C	Exhaust temperature sensor provides signal (not included)	22491 YK	22458 AK
Clock	52 (2.05)	-	Analog	22492 AK	62013 KK
Ammeter	52 (2.05)	± 80 A	Matched with 100 A current shunt unit (included)	22493 CK	22459 CK
Water temperature gauge	52 (2.05)	40 - 120 °C	Temperature sensor provides signals (not included)	22494 EK	62024 RK
Hourmeter	52 (2.05)	0 - 99999 hours	-	22495 GK	62015 PK
Trim gauge	52 (2.05) 52 (2.05)	160-10 ohm 0-190 ohm	Requires sending unit on outboard or sterndrive (check resistance values)	22496 JK 22497 LK	22460 LK 22461 NK
Rudder angle indicator	85 (3.35)	Port-Starboard	Indicates relative position of rudder	22498 NK	62027 XK
Voltmeter	52 (2.05) 52 (2.05)	8-16 Volt 18-32 Volt	For all 12 Volt electrical system For all 24 Volt electrical system	22499 RK 22500 WK	62022 LK 62023 NK

\* **SPEED RATIO SETTING 1/10**

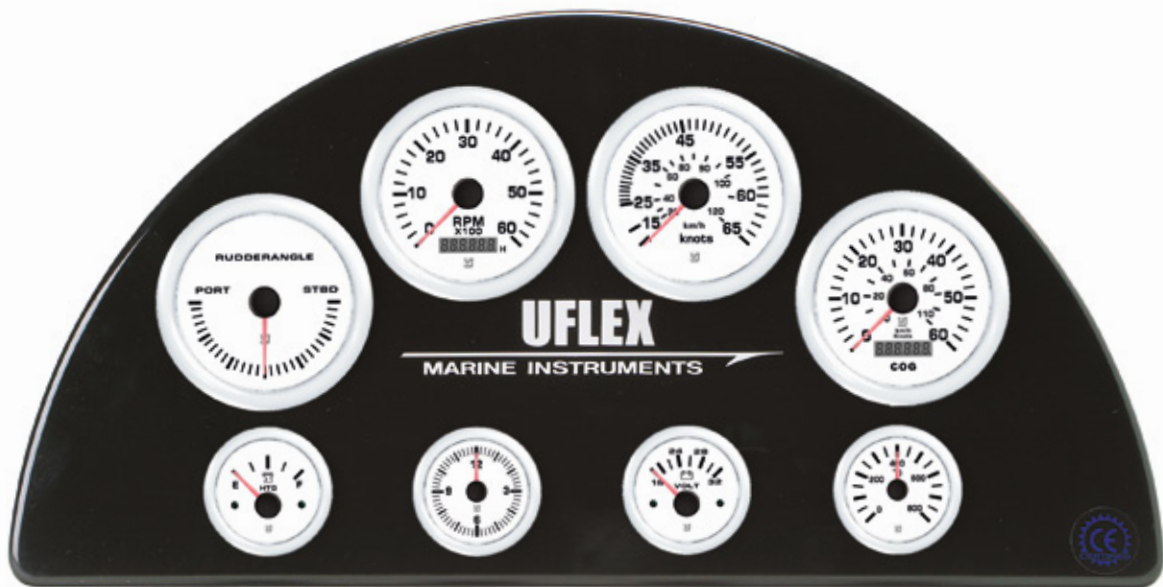
**Common setup on boat engines**

OUTBOARD				INBOARD & GAS ENGINE				
POLES	SPEED RATIO			CYLINDER	CYCLE	SPEED RATIO		
	4000 RPM	6000 RPM	8000 RPM			4000 RPM	6000 RPM	8000 RPM
4	1.3	2.0	2.6	4	4	1.3	2.0	2.6
6	2.0	3.0	4.0	6	4	2.0	3.0	4.0
8	2.7	4.0	5.3	8	4	2.7	4.0	5.3
10	3.3	5.0	6.6	10	4	3.3	5.0	6.6
12	4.0	6.0	8.0					

H-0040 H

\*\* **SPEED RATIO SETTING 0,5/250 TO 25.0 EXAMPLE**

H-0250 H



## DRESS WHITE

### FEATURES:

- Red or yellow perimeter-lighted white dial with bold black graphics.
- Default working voltage 12/24V (except voltmeters)
- White plastic bezel
- Double layer reinforced anti-fogging glass
- Metric and american scales
- Plug and play installation with multi-plug socket connection design
- IP67 protection rating for the entire gauge

Uflex® instruments are single tested and CE marked according to the European Standards.

## REPLACEMENT PLASTIC BEZEL Ø 52 MM - 85 MM

Black bezel 52 mm - 22535 SK  
White bezel 52 mm - 22514 HK  
Silver bezel 52 mm - 22536 UK

Black bezel 85 mm - 68028 GK  
White bezel 85 mm - 68029 JK  
Silver bezel 85 mm - 68030 OK



Replacement bezels Ø 52 mm



Replacement bezels Ø 85 mm

## RESISTANCE RESISTOR

This product can perfectly connect two equipments whose signals didn't match.

**If E-F end short circuit:**

Input 240-33 ohm - Output 0-190 ohm

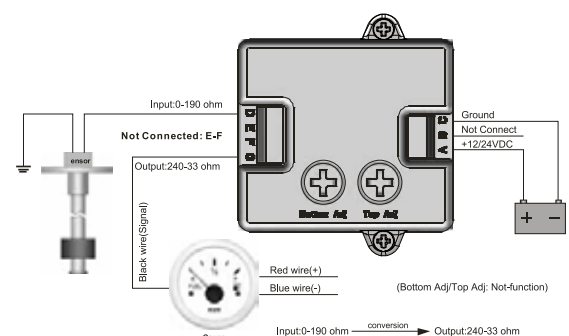
**If E-F end off:**

Input 0-190 ohm - Output 240-33 ohm



RESISTANCE RESISTOR - 22537 WK

Please note the connection of E-F







INSTRUMENT	HOLE SIZE mm (")	DIAL RANGE	DESCRIPTION	DRESS WHITE PART No.
Tachometer/hourmeter	85 (3.35)	4000 RPM	Tachometer 4000 1/10 speed ratio*	62658 KK
	85 (3.35)	4000 RPM	Tachometer 4000 0,5/250 speed ratio**	22502 AK
	85 (3.35)	6000 RPM	Tachometer 6000 1/10 speed ratio*	62656 FK
	85 (3.35)	6000 RPM	Tachometer 6000 0,5/250 speed ratio**	22503 CK
	85 (3.35)	8000 RPM	Tachometer 8000 1/10 speed ratio*	22504 EK
	85 (3.35)	8000 RPM	Tachometer 8000 0,5/250 speed ratio**	22505 GK
Speedometer	85 (3.35)	35 Knots	Pitot tube provides pressure signals (not included)	22506 JK
	85 (3.35)	55 Knots		22508 NK
	85 (3.35)	65 Knots		22507 LK
	85 (3.35)	60 Knots GPS	GPS signal (antenna included)	22509 RK
Fuel level gauge	52 (2.05)	E - 1/2 - F	0-190 ohm	62664 EK
Water level gauge	52 (2.05)	E - 1/2 - F	0-190 ohm	62665 GK
Holding tank level gauge	52 (2.05)	E - 1/2 - F	240-33 ohm	22501 YK
Oil pressure gauge	52 (2.05)	0 - 5 bar	Pressure sensors provide signals (not included)	62666 JK
	52 (2.05)	0 - 10 bar		62667 LK
Exhaust temperature gauge	52 (2.05)	0 - 800°C	Exhaust temperature sensor provides signal (not included)	22510 ZK
Clock	52 (2.05)	-	Analog	62676 MK
Ammeter	52 (2.05)	± 80 A	Matched with 100 A current shunt unit (included)	22511 BK
Water temperature gauge	52 (2.05)	40 - 120 °C	Temperature sensor provides signals (not included)	62669 RK
Hourmeter	52 (2.05)	0 - 99999 hours	-	62672 DK
Trim gauge	52 (2.05) 52 (2.05)	160-10 ohm 0-190 ohm	Requires sending unit on outboard or sterndrive (check resistance values)	22512 DK 22513 FK
Rudder angle indicator	85 (3.35)	Port-Starboard	Indicates relative position of rudder	62678 SK
Voltmeter	52 (2.05)	8-16 Volt	For all 12 Volt electrical system For all 24 Volt electrical system	62670 ZK
	52 (2.05)	18-32 Volt		62671BK

#### \* SPEED RATIO SETTING 1/10

#### Common setup on boat engines

OUTBOARD				INBOARD & GAS ENGINE				
POLES	SPEED RATIO			CYLINDER	CYCLE	SPEED RATIO		
	4000 RPM	6000 RPM	8000 RPM			4000 RPM	6000 RPM	8000 RPM
4	1.3	2.0	2.6	4	4	1.3	2.0	2.6
6	2.0	3.0	4.0	6	4	2.0	3.0	4.0
8	2.7	4.0	5.3	8	4	2.7	4.0	5.3
10	3.3	5.0	6.6	10	4	3.3	5.0	6.6
12	4.0	6.0	8.0					

H-0040 H

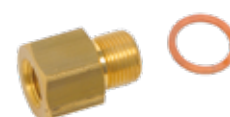
#### \*\* SPEED RATIO SETTING 0,5/250 TO 25.0 EXAMPLE

H-0250 H



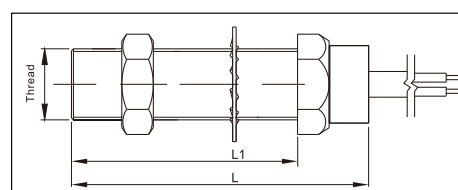
## SENDERS AND ACCESSORIES

TYPE	SCALE	DESCRIPTION	PART No.
Diesel tachometer sender	-	Attaches to diesel sender mechanical take-off. Includes coupling and 4 drive keys	60613 S
Oil pressure sender	5 bar 10 bar	Single station, 1/8" NPTF Single station, 1/8" NPTF	60525 QK 60360 NK
Water temperature sender	40 - 120 °C	Single station, 1/8" NPTF	60528 VK
Bushing kit	Temperature and pressure senders	1/8" NPTF - M10x1	60618 Z
		1/8" NPTF - M12x1	60619 A
		1/8" NPTF - M16x1.5	60620 R
		1/8" NPTF to 1/4" - 3/8"	60615 U
		1/8" NPTF to 1/2" - 5/8"	60616 V
		1/8" NPTF to 1/8" BSP/F	60617 W
Exhaust temperature sender	0 - 800 °C	Stainless steel 316 sender, thread: PT 3/8", supplied with 5 m sleeving cable	22533 MK
Fuel level sender	20 - 60 cm (7.9" - 23.6")	Single station 10 -180 Ω	66180 C
Pitot kits	-	Pitot tube complete with transom mount mounting hardware	60515 OK
		As above complete with 20' of tubing	60516 PK
Rudder angle sender	-	Sender for single rudder angle indicator	68451 UK



**NOTE:**SINGLE SENDER: to connect to 1 gauge DOUBLE SENDER: to connect to 2 gauges

**TACHOMETER SENDERS: USED TO MEASURE THE FLYWHEEL ROTATION SPEED. IP65 PROTECTION**



MOD.	DESCRIPTION	L mm	L1 mm	THREAD	OUTPUT SIGNAL	FREQUENCY RANGE	CONNECTION	PART No.
KE10010	Magnetoelectric tacho sender	100	80	M16x1.5	Sine wave	100-15000 Hz	Two wires	22531 HK
KE10004	Holzer tacho sender	80	70	M16x1.5	Square wave	0-20000 Hz	Three wires	22532 KK

## FUEL LEVEL KIT

### 66234 Z

Fuel level Ultra Black Series gauge complete with sender 20 - 60 cm (7.9" - 23.6")

### 66235 B

Fuel level Ultra White Series gauge complete with sender 20 - 60 cm (7.9" - 23.6")



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## UFLEX® - US5 AND US3 FUEL/WATER SENDERS

- Stainless steel senders
- SAE 5-hole mounting flange or threaded mounting flange
- Resistance rating: 0 Ohm (empty) - 180 Ohm (full)
- S5 and S3 senders interface all Uflex fuel and water level indicators

LENGTH	US5 EUROPEAN RESISTANCE 5 HOLE FLANGE		US5 AMERICAN RESISTANCE 5 HOLE FLANGE		US3 EUROPEAN RESISTANCE THREAD FLANGE	
	MODEL	PART No.	MODEL	PART No.	MODEL	PART No.
150 mm (5.9")	US5-E150	20606 C	-	-	-	-
175 mm (6.9")	US5-E175	20607 E	US5-A175	20625 G	-	-
200 mm (7.9")	US5-E200	20608 G	US5-A200	20626 J	-	-
225 mm (8.9")	US5-E225	20609 J	-	-	-	-
250 mm (9.8")	US5-E250	20610 T	US5-A250	20627 L	-	-
275 mm (10.8")	US5-E275	20611 V	US5-A275	20628 N	-	-
300 mm (11.8")	US5-E300	20612 X	US5-A300	20629 R	US3-E300	20634 H
350 mm (13.8")	US5-E350	20613 Z	US5-A350	20630 Z	US3-E350	20635 K
400 mm (15.7")	US5-E400	20614 B	US5-A400	20632 D	US3-E400	20636 M
450 mm (17.7")	US5-E450	20615 D	US5-A450	21634 N	US3-E450	20637 P
500 mm (19.7")	US5-E500	20616 F	US5-A500	20633 F	US3-E500	20638 S
550 mm (21.7")	US5-E550	20617 H	-	-	US3-E550	20639 U
600 mm (23.6")	US5-E600	20618 K	-	-	US3-E600	20640 C
650 mm (25.6")	US5-E650	20619 M	-	-	-	-
700 mm (27.6")	US5-E700	20620 W	-	-	-	-
750 mm (29.5")	US5-E750	20621 Y	US5-A750	65181 Z	-	-
800 mm (31.5")	US5-E800	20622 A	-	-	US3-E800	65631 E
850 mm (33.5")	US5-E850	20623 C	-	-	-	-
900 mm (35.4")	US5-E900	20624 E	-	-	-	-
1400 mm (55.1")	-	-	-	-	US3-E1400	20370 Z
1500 mm (59.1")	US5-E1500	62501 Z	-	-	-	-
2000 mm (78.7")	-	-	-	-	US3-E2000	20371 B



US5

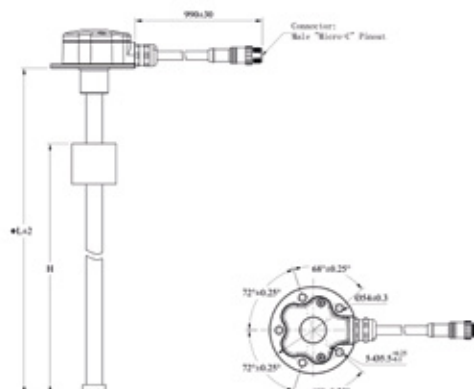
FL-2 - 68417 U - Adapter flange for SAE3 threaded head senders to 5 holes SAE5 flange

SENDERS

**UFLEX® - NS5 FUEL/WATER SENDERS NMEA 2000®**

- 316 stainless steel body
- SAE 5 hole mounting flange
- Signal output for network NMEA 2000®
- Operating voltage 9-16V - Electrical consumption 720mW
- Cable length 980 mm - Micro-C male connector
- Length can be customized according to the requirements (from 100 to 2000 mm)

LENGTH	NS5 NMEA 2000® SAE 5 HOLE FLANGE	
	MODEL	PART No.
300 mm (11.8")	NS5-300	21685 G
400 mm (15.7")	NS5-400	21686 J
500 mm (19.7")	NS5-500	21687 L
600 mm (23.6")	NS5-600	21688 N
700 mm (27.6")	NS5-700	21689 R
800 mm (31.5")	NS5-800	21690 Z

**MOUNTING FLANGE SAE 5****UFLEX® - US3H HOLDING TANK SENDERS**

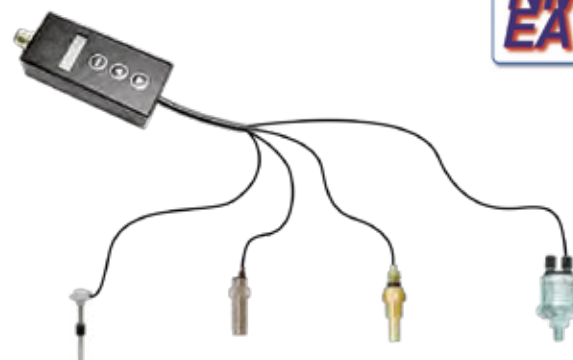
- Stainless steel
- Resistance rating: 240 Ohm (empty) – 33 Ohm (full)
- Threaded mounting flange

LENGTH	MODEL	PART No.
100 mm (3.9")	US3H-1	20602 U
205 mm (8.0")	US3H-2	20603 W
305 mm (12.0")	US3H-3	20604 Y
410 mm (16.1")	US3H-4	20605 A
510 mm (20.1")	US3H-5	21717 T

HFL - 64719 P - 1 1/4" Spare or  
adapting flange - NPT threads

**HFL****US3H****UFLEX® - UNIVERSAL CONVERTER NMEA 2000® FOR ANALOG SENDERS**

- The converter allows to connect the traditional analogue resistive signals to the NMEA 2000® network, both 240-33 ohm and 0-190 / 10-180 ohm
- It can be used to get engine data, tank levels, alarm status, generic pressure and temperature indications from any resistive sensors
- Available with 4 analogue input channels
- IP67 waterproof standard
- 9-16 V
- Resistance values: from 0 to 999 or from 999 to 0



MODEL	PART No.	DESCRIPTION
UCNM4	21710 C	NMEA 2000® converter - 4 analogue channels





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# SHURFLO<sup>®</sup>

## MARINE PUMPS, FILTRATION AND ACCESSORIES

MARINE PRODUCT GUIDE

FRESH WATER AND BILGE PUMPS



## SHURFLO® FRESH WATER PUMPS

**DIE CAST  
COMPONENTS**  
Solid Construction

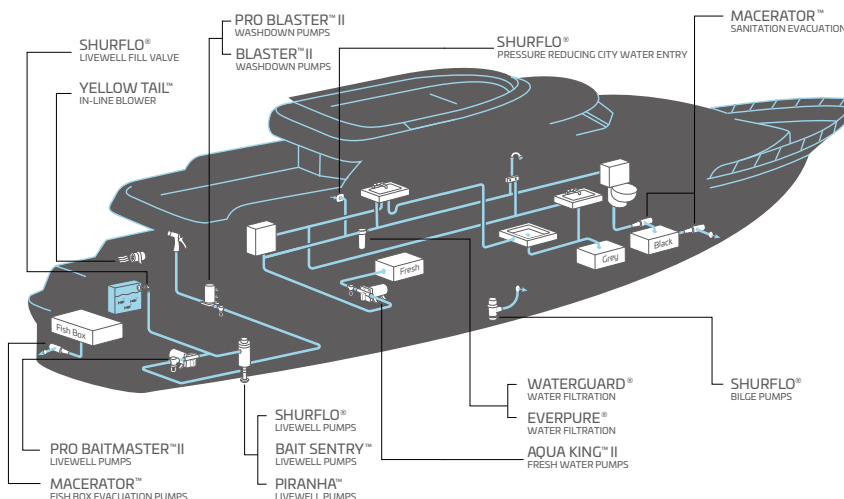
**4 INDEPENDENT CHAMBER**  
Smooth, Even Flow

**COMMERCIAL GRADE  
HEAVY DUTY MOTOR**  
Superior Design, Built for  
Power, Built to Last

**O-RING CHECK VALVE**  
Long Lasting,  
Durable Design

**FULLY SEALED  
PRESSURE SWITCH**

**NYLON BASE WITH  
NEOPRENE FEET**  
High Strength  
& Vibration Resistant



The pump may be mounted up to 6' (1.8 m) vertical above the source. Wiring should be switched above the source. Wiring should be switched as well as fused with the recommended size fuse. Inlet side of all fresh water pumps should include the use of a SHURflo® strainer. Mount the pump in an accessible area for a strainer inspection. Refer to installation instruction included for individual pump recommended wire and fuse size.

### FRESH WATER MULTI-FIXTURE SYSTEMS

AQUA KING II™ FRESH WATER PUMPS



The Next Generation SHURflo® pumps guarantee quiet operation and smooth performance while providing the ultimate in durability and reliability. These automatic water pumps are self priming with a three-chamber design to lift water up to 8ft (2,4 m).

- Run dry capability
- Built-in check valve prevents backflow into the tank
- Sealed switch
- Corrosion resistant seamless e-coated motor
- Thermally Protected. Ignition Protected
- CE marked



SLV

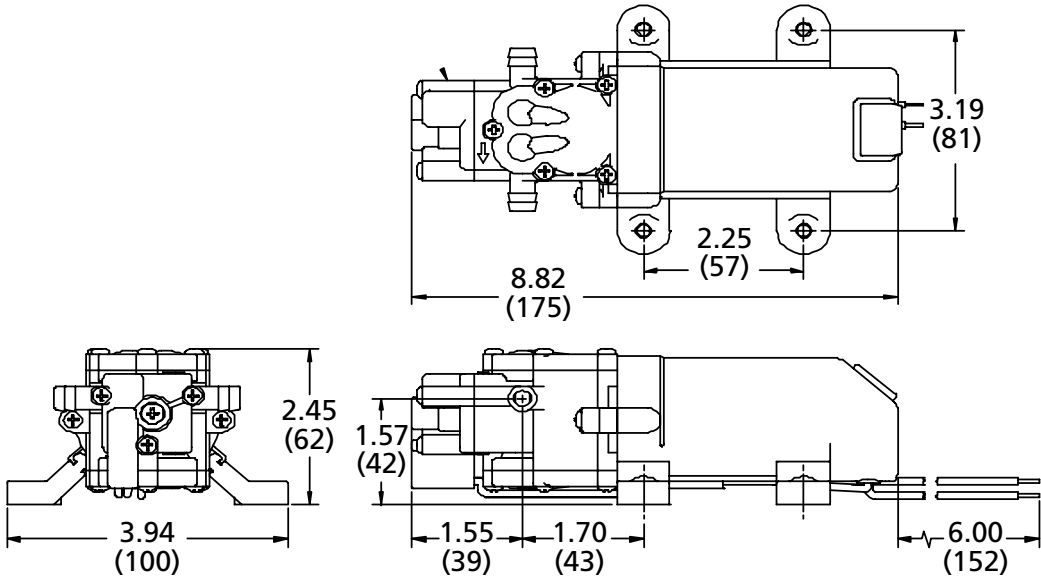


Aqua King™ II Junior 2.0



Aqua King™ II Standard 3.0

MODEL	PART No.	VOLT	FLOW RATE	DIMENSIONS mm (")	SHUT-OFF PRESSURE	AMP MAX
SLV	68851 L	12V DC	1.0 GPM - 3,8 l/min	170x100x60 (6.7x3.9x2.5)	30 PSI - 2,0 Bar	2,5
Aqua King™ II Junior	69590 P	12V DC	2.0 GPM - 7,6 l/min	208x124x105 (8.2x4.9x4.1)	30 PSI - 2,0 Bar	3,5
Aqua King™ II Standard 12V	69591 S	12V DC	3.0 GPM - 11,35 l/min	208x124x105 (8.2x4.9x4.1)	45 PSI - 3,1 Bar	6,5
Aqua King™ II Standard 24V	69592 U	24V DC	3.0 GPM - 11,35 l/min	208x124x105 (8.2x4.9x4.1)	45 PSI - 3,1 Bar	3,8



SLV DIMENSIONS

## AQUA KING™ II SERIES PREMIUM 4.0

The Aqua King™ II Premium Series 4.0 fresh water pump design was created with unique over-molded single-piece diaphragm and internal by-pass, assuring long life and top performance in all plumbing systems. These pumps are constructed for high flow demand, smooth flow and no rapid cycling.

The Series 4.0 fresh water automatic demand pumps are quiet, thermally protected and can run dry without damage.

- Sealed switch
- Sealed motor
- Corrosion resistant electro coated motor
- 4 independent chambers
- Built-in check valve
- Co-molded diaphragm
- Adjustable switch and by-bass
- Self-priming up to 6 ft (1,8 m)
- Dry run capability
- Thermally protected
- CE marked – Ignition protected



Aqua King™ II Premium 4.0

MODEL 4148	PART No.	VOLT	DIMENSIONS mm (")	FLOW RATE	AMP MAX	SHUT-OFF PRESSURE
Aqua King™ II Premium 4.0 12V	68806 F	12V	254x127x120 (10x5x4.75)	4.0 GPM – 15,1 l/min	10	55 PSI – 3,8 Bar
Aqua King™ II Premium 4.0 24V	68850 J	24V	254x127x120 (10x5x4.75)	4.0 GPM – 15,1 l/min	5	55 PSI – 3,8 Bar

## AQUA KING™ II SERIES SUPREME 5.0

The Aqua King™ II Supreme Series 5.0 fresh water pump design was created with unique over-molded single-piece diaphragm and internal by-pass, assuring long life and top performance in all plumbing systems. These pumps are constructed for high flow demand, smooth flow and no rapid cycling.

The Series 5.0 fresh water automatic demand pumps are quiet, thermally protected and can run dry without damage.

- Sealed switch
- Sealed motor
- Corrosion resistant electro coated motor
- 4 independent chambers
- Built-in check valve
- Co-molded diaphragm
- Adjustable switch and by-bass
- Self-priming up to 6 ft (1,8 m)
- Dry run capability
- Thermally protected
- CE marked – Ignition protected



Aqua King™ II Supreme 5.0

MODEL 4158	PART No.	VOLT	DIMENSIONS mm (")	FLOW RATE	AMP MAX	SHUT-OFF PRESSURE
Aqua King™ II Supreme 5.0 12V	68804 B	12V	254x127x120 (10x5x4.75)	5.0 GPM – 18,9 l/min	13	55 PSI – 3,8 Bar
Aqua King™ II Supreme 5.0 24V	68805 D	24V	254x127x120 (10x5x4.75)	5.0 GPM – 18,9 l/min	7	55 PSI – 3,8 Bar





## MACERATOR PUMPS

Designed specifically for sanitation waste and fish box evacuations, SHURflo's Macerator pump features a premium impeller design.

- Run dry capability
- Self Priming
- SHURflo's unique dual blade and housing construction ensures problem free pumping
- Thermally Protected. Ignition Protected
- CE marked
- Impeller for Macerator pump: 63432 M



Macerator

MODEL	PART No.	VOLT	DIMENSIONS mm (")	FLOW RATE	AMP MAX	PORT SIZE
<b>Macerator 12V</b>	62767 R	12V DC	274x97x114 (10.8x3.8x4.5)	13 GPM - 50 l/min	14	inlet: 1.5" barb / 1,5 NPT outlet: 1" barb
<b>Macerator 24V</b>	62768 T	24V DC	274x97x114 (10.8x3.8x4.5)	13 GPM - 50 l/min	8	inlet: 1.5" barb / 1,5 NPT outlet: 1" barb

## HORIZONTAL MACERATOR PUMP WITH BLACK WATER TANK KIT

Kit is sold with pump already mounted and ready for installation. Compatible with all manual and electric wc.

- Electric soaker 12 V or 24 V
- 3 kind of tank available: 40 l, 60 l and 70 l
- 1" 1/2 + 3/4" loading female threads
- 3/4" vent female threads
- 1" 1/2 manual emergency drain female threads
- Housing for fastening hooks 52.195.00
- Shut off valve for soaker drainage in case of maintenance
- 5-hole flange for level sensor (sensor to order separately)
- Protection for sensor level
- Complying with ISO 8099



MODEL	PART No. 12V	PART No. 24V	CAPACITY	DIMENSIONS mm (") WxHxd	DRY WEIGHT kg (lbs)
<b>KITMCT-40</b>	20915 S	20918 Y	40 l	500 x 300 x 390 (19.7 x 11.8 x 15.3)	4,5 (9.9)
<b>KITMCT-60</b>	20916 U	20919 A	60 l	645 x 300 x 390 (25.4 x 11.8 x 15.3)	5,5 (12.1)
<b>KITMCT-70</b>	20914 P	20917 W	70 l	800 x 300 x 390 (31.5 x 11.8 x 15.3)	6,5 (14.3)

CE



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MACERATOR PUMPS AND BLACK WATER TANK KIT

CE

## WASHDOWN PUMPS

Perfect for tough washdown applications, such as fish box, scaling and anchor chain cleaning, these rugged self-priming pumps deliver high lift, can run dry without damage, and won't overheat with extended use.

- Run dry capability
- Sealed switch
- Corrosion resistant seamless e-coated motor
- Thermally Protected. Ignition Protected
- CE marked



**Blaster II 12 V™**  
**Blaster II 24 V™**

MODEL	PART No.	VOLT	DIMENSIONS mm (")	FLOW RATE	AMP MAX	SHUT-OFF PRESSURE
<b>Blaster II™ 12V</b>	69437 F	12V DC	229x124x104 (9.0x4.9x4.1)	3.5 GPM - 13,2 l/min	7,5	45 PSI - 3,1 Bar
<b>Blaster II™ 24V</b>	69436 D	24V DC	229x124x104 (9.0x4.9x4.1)	3.5 GPM - 13,2 l/min	3,5	45 PSI - 3,1 Bar

## DELUXE AND ULTIMATE PROBLASTER™ II WASHDOWN PUMPS

Deluxe and Ultimate ProBlaster™ II deliver over 5 GPM (20 l/min) and pressure up to 45 PSI (3,1 Bar), giving you the ultimate in washdown capabilities. This high volume pump will clean your deck quickly and easily. The corrosion resistant coated seamless motor shell with sealed switch provides excellent protection against the harsh marine environment. The Extreme™ Pro Blaster™ is designed for the toughest washdown applications.

- Compact 4 chamber design
- Superior five-chamber design that incorporates large inlet and outlet passages to maximize water flow and efficiency
- Current limiting and over/under voltage protection
- Run dry capability
- Self Priming
- Sealed switch
- Corrosion resistant seamless e-coated motor with o-ring sealed end bells
- Quick-Connect fittings included
- Thermally Protected. Ignition Protected
- CE marked



**Problaster™ II Deluxe 4.0**  
**Problaster™ II Ultimate 5.0**

MODEL	PART No.	VOLT	DIMENSIONS mm (")	FLOW RATE	AMP MAX	SHUT-OFF PRESSURE
<b>Problaster™ II – Deluxe 4.0</b>	68803 Z	12V DC	254.48x124.97x121.16 (10.02x4.92x4.77)	4.0 GPM - 15.1 l/min	8.8	45 PSI - 3.1 Bar
<b>Problaster™ II – Deluxe 4.0</b>	69202 B	24V DC	254.48x124.97x121.16 (10.02x4.92x4.77)	4.0 GPM - 15.1 l/min	5	45 PSI - 3.1 Bar
<b>Problaster™ II – Ultimate 5.0</b>	68802 X	12V DC	254.48x124.97x121.16 (10.02x4.92x4.77)	5.0 GPM - 18.9 l/min	11.5	45 PSI - 3.1 Bar
<b>Problaster™ II – Ultimate 5.0</b>	68801 V	24V DC	254.48x124.97x121.16 (10.02x4.92x4.77)	5.0 GPM - 18.9 l/min	6	45 PSI - 3.1 Bar

WASHDOWN KIT™ II DELUXE 4.0

SHURflo's new washdown kit includes everything you need for tough washdown applications all in one box. The kit includes the Next Generation ProBlaster™ Pump, Fittings, Blaster™ Nozzle, Raw Water Strainer and a 7,6 m (25') coiled hose.

- CE marked



Washdown kit™ II Deluxe 4.0

MODEL	PART No.	VOLT	DIMENSIONS mm (")	FLOW RATE	AMP MAX	SHUT-OFF PRESSURE
Washdown Kit™	69194 F	12V DC	210x136x127 (8.3x5.3x5.0)	4.0 GPM - 15,1 l/min	10	45 PSI - 3,1 Bar

PRE-PRESSURIZED ACCUMULATOR TANK

Reduces cycling pulsation and pressure spikes, increases the life of your pump and even saves battery power. SHURflo® accumulator tank is NSF certified.

- Easy handles pressure requirements from 1,4 Bar (20 PSI) to 8,8 Bar (125 PSI)
- 1/2" male threaded Ports - Uses standard SHURflo® fittings
- Can be mounted in-line
- Nylon housing/Butyl Bladder
- CE marked



Nylon Tank

MODEL	PART No.	DIMENSIONS mm (")	TOTAL VOLUME	MAXIMUM PSI - BAR	PRECHARGED
Nylon Tank	65861 Y	232x121x97 (9.1x4.8x3.8)	24 oz - 0,7 litres	125 PSI - 8,8 Bar	20 PSI - 1,4 Bar

## OIL CHANGE, WINTERIZING AND LIQUID TRANSFER SYSTEM

- 13 litres (3,5 gal) storage container – 2,4 m (8') cable with battery clips and hose kit included
- Reversible switch
- Motor : 12V DC permanent magnet, continuous duty
- Self Priming up to 1,82 m (6')
- Thermal overload protection
- CE marked



20975 L

MODEL	PART No.	DIMENSIONS mm (")	FLOW RATE	AMP MAX	PORT SIZE
Oil Change System	20975 L	406x318 (16.0x12.5)	15 GPM - 5,6 l/min	4,5	3/8" F NPT

## PRESSURE REGULATED CITY WATER ENTRIES

An exclusive diaphragm design prevents high-pressure damage often caused by city water systems. Leak-tight, stress and crack-resistant, these high-performance water entries limit water pressure safely to 50 or 65 PSI (3.5 or 4.5 Bar) while meeting or surpassing all check valve code requirements

- 63378 J - Wall mount Pressure regulator - Chrome
- 64717 K - Wall mount Pressure regulator - White
- 65306 T - Hose Adapter fitting 1/2" NPT (F) x 3/4" GSH (M)
- 20731 F - In-Line Pressure regulator



63378 J



65306 T



20731 F



64717 K



## STRAINERS

MODEL	PART No.	DESCRIPTION	FITTINGS
<i>In-Line Strainer</i>	63185 X	Protects pumps from harmful debris. High capacity, rugged nylon housing, slide out easy to clean screen.	1/2" (13 mm) female
<i>Swivel nut strainer</i>	66526 N	Protects pumps from harmful debris. High capacity, rugged nylon housing, slide out easy to clean screen.	1/2" (13 mm) barb inlet
<i>In-line check valve</i>	61125 F	Allows flow in one direction only to safeguard against backsurge up to 6,8 Bar (1000 PSI)	1/2" (13 mm) barb inlet
<i>High Pressure Blaster Nozzle</i>	61120 A	High impact plastic for long life. Use with SHURflo® pumps or garden hose. Adjust to fine mist or full stream. Lock clip for continuous spray.	3/4" (19 mm) female



63185 X



66526 N



61125 F



61120 A

**NOTE:** The images are purely for information. They may not represent the real product features such as dimensions, colours or accessories.

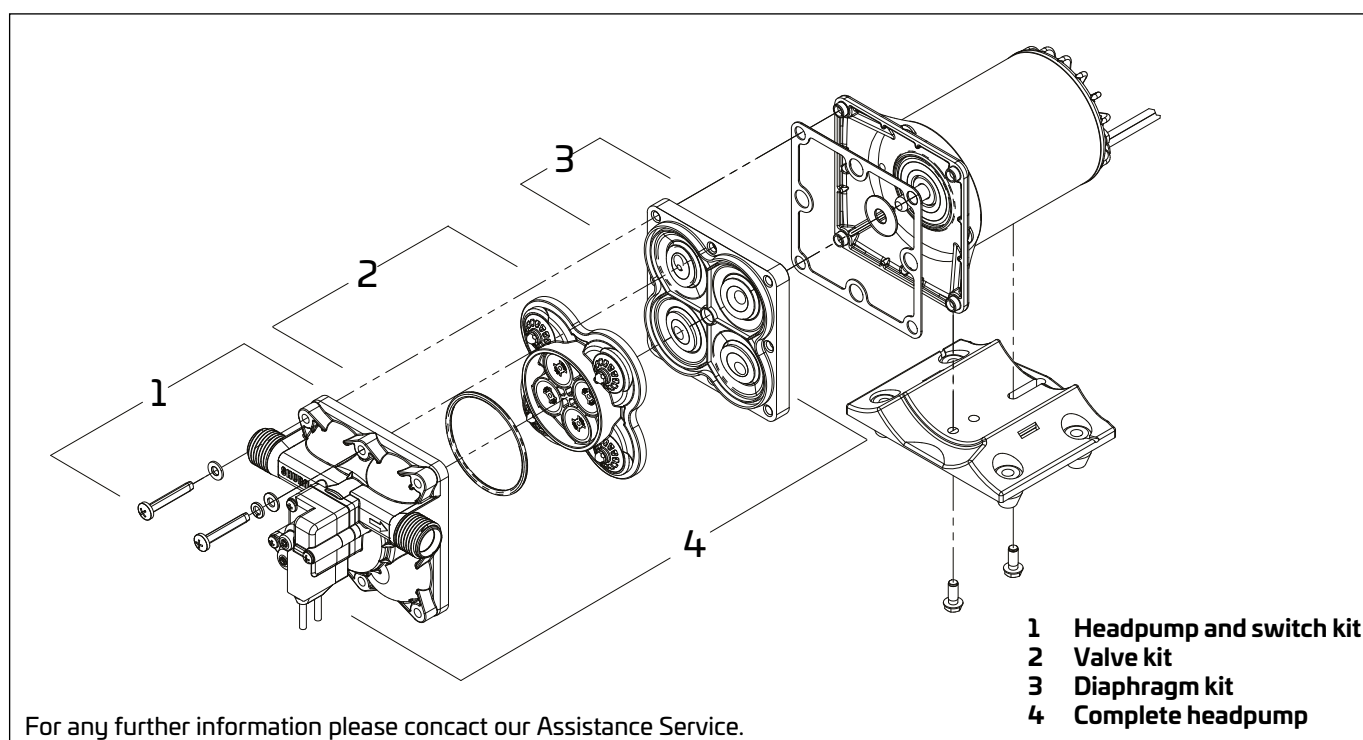
## FITTINGS

MODEL	PART No.
Straight fitting 1/2" NPT (f) x 3/8" barb swivel	61129 L
Elbow fitting 1/2" NPT (f) x 3/8" barb swivel	61130 C
Straight fitting 1/2" NPT (f) x 1/2" barb swivel	61127 H
Elbow fitting 1/2" NPT (f) x 1/2" barb swivel	61128 K
Straight fitting 1/2" NPT (f) x 3/4" barb swivel	64220 B
Elbow fitting 1/2" NPT (f) x 3/4" barb swivel	64340 M
Straight adaptor 1/2" NPT (m) x 1/2"	61132 E



61128 K

## SPARE PARTS



## SHURFLO® BILGE PUMPS 380/500/700/1000 GPH

Quality bilge pumps you can trust. SHURflo® bilge pumps are built for the harsh marine environment to withstand the toughest conditions. Water cooled motors for extended life.

- Continuous duty
- Submersible with 3' tinned wire assembly
- Tough nylon housing
- Quick-snap swivel baseplate
- Ignition protected. ISO 8849
- All the pumps can be integrated with a drive switch



Shurflo® 380 GPH with switch

Shurflo® 380/500/700/1000 GPH



MODEL	PART No.	VOLT	DIMENSIONS mm (")	Ø BASE mm (")	FLOW RATE	AMP MAX	OUTLET
<b>Bilge 380</b>	66527 R	12V DC	114x95 (4.5x3.75)	60 (2 3/8)	380 GPH - 24 l/min	1,7	3/4" - 19 mm
<b>Bilge 500</b>	66528 T	12V DC	114x95 (4.5x3.75)	60 (2 3/8)	500 GPH - 32 l/min	1,8	3/4" - 19 mm
<b>Bilge 700</b>	66529 V	12V DC	114x95 (4.5x3.75)	60 (2 3/8)	700 GPH - 42 l/min	3,2	3/4" - 19 mm
<b>Bilge 1000</b>	66530 D	12V DC	114x95 (4.5x3.75)	60 (2 3/8)	1000 GPH - 63 l/min	3,2	3/4" - 19 mm

## 1500/2000 GPH

Heavy duty and built to last. SHURflo®'s 1500 and 2000 GPH nylon bilge pumps offer a unique motor cooling system (patent pending) to ensure efficient performance and long life. Installation is a snap with our patented swivel base.

- Continuous duty
- Submersible with 6' (1,8 m) tinned wire assembly
- Anti-air lock
- Run dry without damage
- Quick-snap swivel baseplate
- Commercial duty
- Ignition protected. ISO 8849



Shurflo® 1500/2000 GPH



MODEL	PART No.	VOLT	DIMENSIONS mm (")	FLOW RATE	AMP MAX	BARB OUTLET
<b>Bilge 1500/12</b>	66531 F	12V DC	183x152 (7.2x6)	1500 GPH - 94,6 l/min	8	1 1/8" - 28,5 mm
<b>Bilge 1500/24</b>	66532 H	24V DC	183x152 (7.2x6)	1500 GPH - 94,6 l/min	4	1 1/8" - 28,5 mm
<b>Bilge 2000/12</b>	66533 K	12V DC	183x152 (7.2x6)	2000 GPH - 126 l/min	10	1 1/8" - 28,5 mm
<b>Bilge 2000/24</b>	66534 M	24V DC	183x152 (7.2x6)	2000 GPH - 126 l/min	5	1 1/8" - 28,5 mm

# WAVESTREAM™ - LLOYDS APPROVED BILGE WATER FILTRATION SYSTEM

## WAVESTREAM MICRO - 65973 K

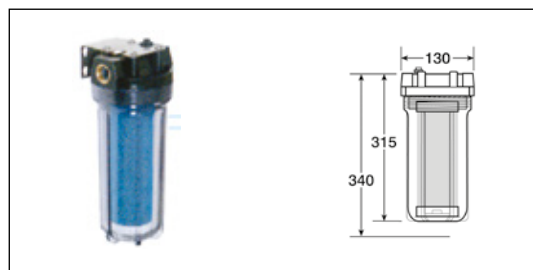
Designed for the bilges of day boats, RIBs and small sports boats or where minimal space is available, the Micro unit is easy to connect into the bilge water system, using 3/4" BSP connections. Filter cartridges can be replaced in seconds.



- Flow rate: 1 – 40 liters/minute
- Max. pressure: 10 bar
- Max. temperature: 40°C
- Min. temperature: 1° C
- Connections: 3/4" BSP
- Cartridge: WS-CM – 65977 U

## WAVESTREAM 1000 - 65974 M

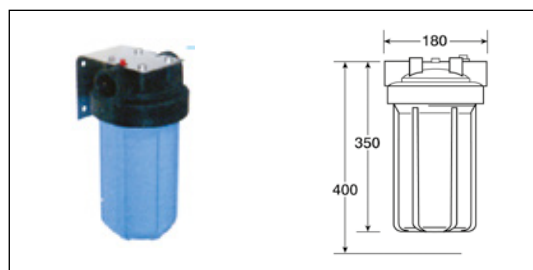
The 1000 system has a larger filter element to cope with the demands of larger pleasure boats up to 20m. 3/4" BSP connections are used, and the flow rate, at 40 liters, is the same as the Micro system but filter cartridge replacement intervals double.



- Flow rate: 1-40 liters/minute
- Max. pressure: 8 bar
- Max. temperature: 40°C
- Min. temperature: 1°C
- Connections: 3/4" BSP
- Cartridge: WS-C1 - 65978 W

## WAVESTREAM 2000 - 65975 P

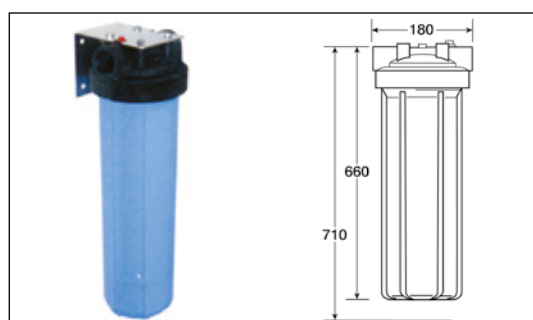
Recommended for large pleasure craft and commercial boats, the 2000 system will handle bilge pump flow rates up to 265 liters per minute with a 117mm diameter filter cartridge and 1 1/2" BSP connections.



- Flow rate: 1-265 liters/minute
- Min. pressure: 0,5 bar
- Max. pressure: 6,8 bar
- Max. temperature: 37°C
- Min. temperature: 1°C
- Connections: 1 1/2" BSP
- Cartridge: WS-C2 - 65979 Y

## WAVESTREAM 3000 - 65976 S

The 3000 is designed for large commercial craft and ships. It incorporates a massive filter cartridge almost 500mm long, with significantly increased capacity. The flow rate and BSP connectors are common with the 2000 series.



- Flow rate: 1-265 liters/minute
- Min. pressure: 0,5 bar
- Max. pressure: 6,2 bar
- Max. temperature: 37°C
- Min. temperature: 1°C
- Connections: 1 1/2" BSP
- Cartridge: WS-C3 - 65980 G



**AUTOMATIC FLOAT SWITCHES**

The SHURflo® float switches provide the ultimate in reliability for your boat.

Complete line includes a solid state control, standard float switch and protected cage switch.

Manufactured in corrosion resistant and explosion proof material. They can be used for any kind of pump and also for water bilge and other alarm systems.



MODEL	PART No.	DESCRIPTIONS	VOLT	DIMENSIONS mm (")
SWS	66535 P	Standard float switch	12/24V DC	116x53x40 (4.6x2.1x1.6)
SWSC	66536 S	Protected cage switch	12/24V DC	116x53x40 (4.6x2.1x1.6)

**SHURFLO® YELLOW TAIL™ - 3" AND 4" IN-LINE BILGE BLOWERS**

Shurflo® in-line blowers provide ventilation for engine compartments, galleys, bilge and heads. Mounting feet allow vertical or horizontal installation in confined spaces.

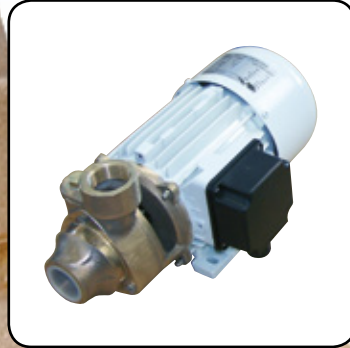
- Wider base-plate and oval screw hole for ease of installation
- Splash-proof motor with rubber boot
- Heavy duty shaft seal
- High volume air flow - low current draw
- Longer barb for ease of duct connection
- CE, ISO 9097 and Ignition Protected



IN-LINE BILGE BLOWERS

PART No.	VOLT	HOSE INT. Ø	DIMENSIONS mm (")	DRAW AMP	AIR FLOW
64703 Y	12V DC	76 mm - 3"	130x140x96 (5.1x5.5x3.8)	3,8	3,3 m³/min
64704 A	12V DC	100 mm - 4"	130x162x122 (5.1x6.4x4.8)	5,5	6,0 m³/min







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## BRONZE SELF-PRIMING - ELECTRIC PUMPS

Self-priming side liquid ring electric pumps used to empty bilges and transfer unflammable liquids such as: fresh water, sea water, fuel diesel and generally all low viscosity and free of solid impurities liquids.



U070



U050



U030/U040



U025



U020

MODEL	PART No.	VOLT	MAX AMP	MAX INLET	MAX HEAD	MAX DELIVERY
U020-12	64809 R	12V DC	26 A	4 m (13.1')	10 m (32.8')	28 l/min
U020-24	64812 D	24V DC	14 A	4 m (13.1')	10 m (32.8')	28 l/min
U025-12	64810 Z	12V DC	38 A	6 m (19.7')	12 m (39.4')	52 l/min
U025-24	64813 F	24V DC	22 A	6 m (19.7')	12 m (39.4')	52 l/min
U030-12	64811 B	12V DC	40A	6 m (19.7')	18 m (59.0')	75 l/min
U030-24	64814 H	24V DC	24 A	6 m (19.7')	18 m (59.0')	75 l/min
U040	64815 K	24 V DC	45 A	6 m (19.7')	22 m (72.2')	120 l/min
U050-M	66329 L	230V AC	12 A	6 m (19.7')	30 m (98.4')	250 l/min
U050-T	66330 V	380V AC	7,6 ÷ 4,4 A	6 m (19.7')	30 m (98.4')	250 l/min
U070-T	66331 X	380V AC	11,8 A	6 m (19.7')	40 m (131.2')	500 l/min

### Standard features

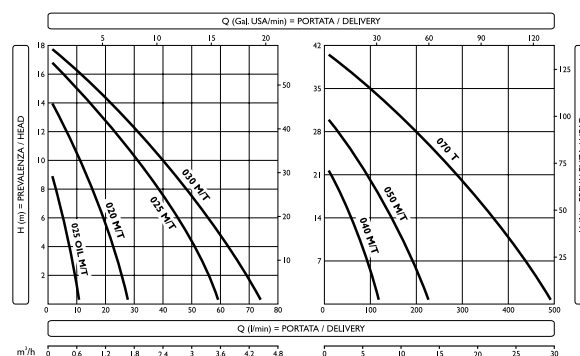
Bronze pump body, bronze impeller, AISI 316 stainless steel shaft, corrosion-proof clamping rings, continuous duty electric motor with F insulation class, IP55 protection.  
BSP threads on pumps.

### Application limits

Unflammable liquids free of solid impurities.

Liquid temperature range: from 0° C to 70° C. Static pressure internal to the pump body: 6 bar max.

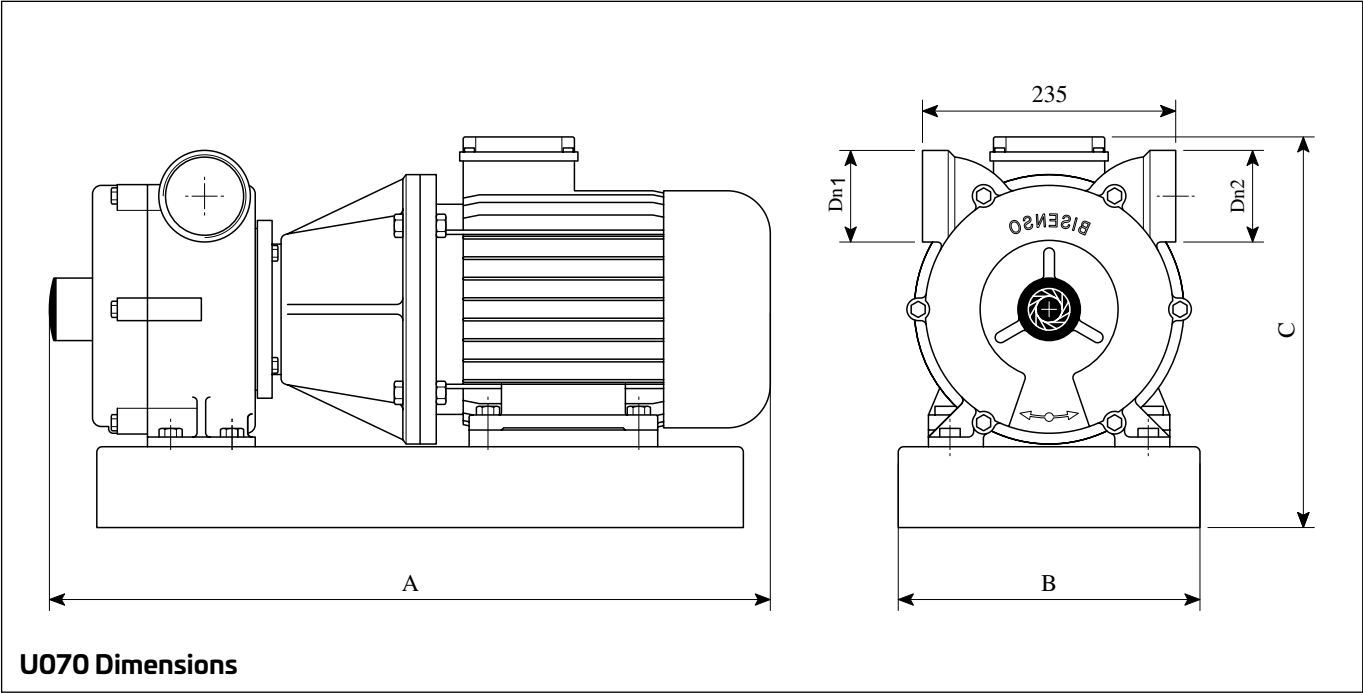
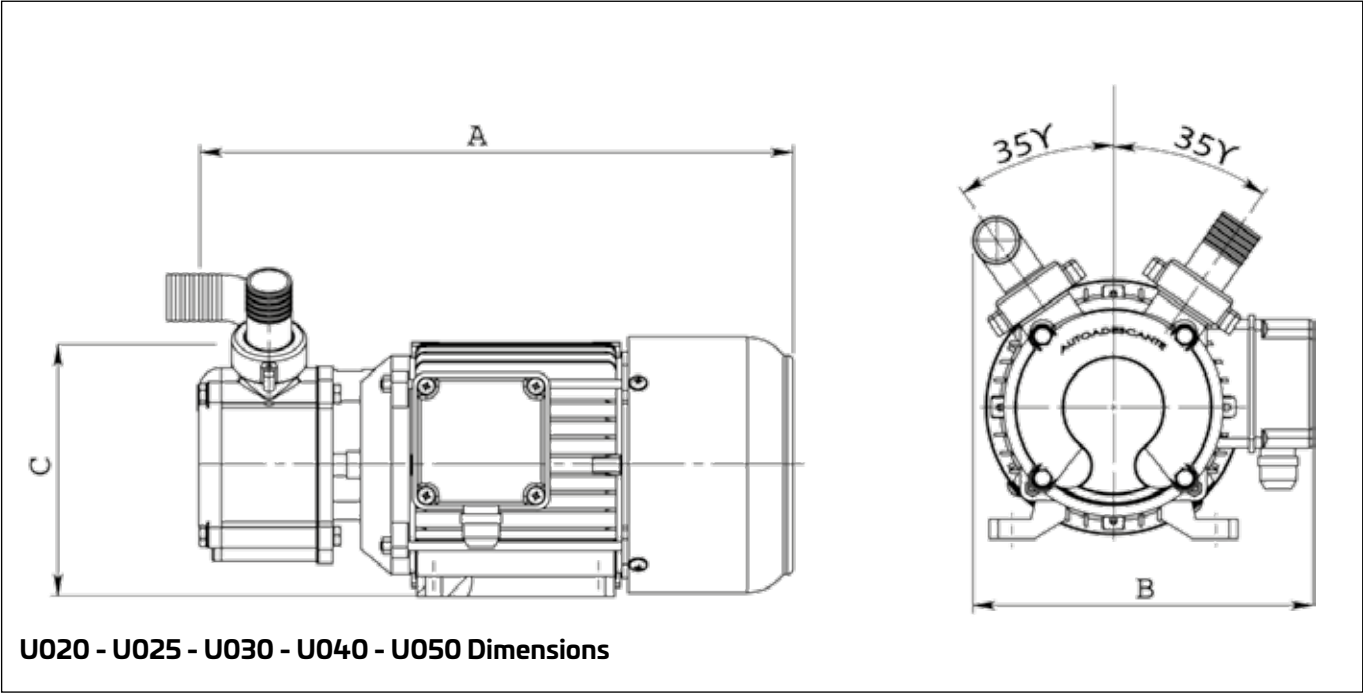
### CORRENTE CONTINUA (C.C.) / DIRECT CURRENT (D.C.)



BRONZE SELF-PRIMING - ELECTRIC PUMPS



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DIMENSIONS AND WEIGHTS

MODEL	Ø IN mm (")	Ø OUT mm (")	A mm (")	B mm (")	C mm (")	WEIGHT kg (lbs)
U020	20 (0.8)	20 (0.8)	295 (11.6)	165 (6.5)	123 (4.8)	5.7 (12.6)
U025	25 (1)	25 (1)	320 (12.6)	180 (7.1)	139 (5.5)	9.6 (21.2)
U030	30 (1.2)	30 (1.2)	375 (14.8)	205 (8.1)	156 (6.1)	13.5 (29.8)
U040	40 (1.6)	40 (1.6)	490 (19.3)	218 (8.6)	178 (7)	21 (46.3)
U050	50 (1.9)	50 (1.9)	435 (17.1)	247 (9.7)	200 (7.9)	26.5 (58.4)
U070	70 (2.7)	70 (2.7)	705 (27.8)	280 (11)	370 (14.6)	75 (165.3)

ELECTRIC PUMPS





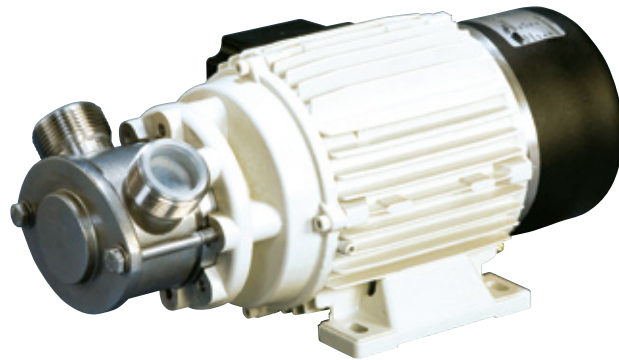
# USBM-MIDEX SELF-PRIMING ELECTRIC PUMP

Rotary self-priming bi-directional volumetric electric pump used on boats to empty waste tanks, toilet sewage and particularly viscous oily fluids or liquids with small debries in suspension.



### Standard features

AISI 316 stainless steel body pump, neoprene impeller, AISI 316 stainless steel shaft, corrosion-proof clamping rings, continuous duty electric motor with F insulation class, IP44 protection.



USBM-midex

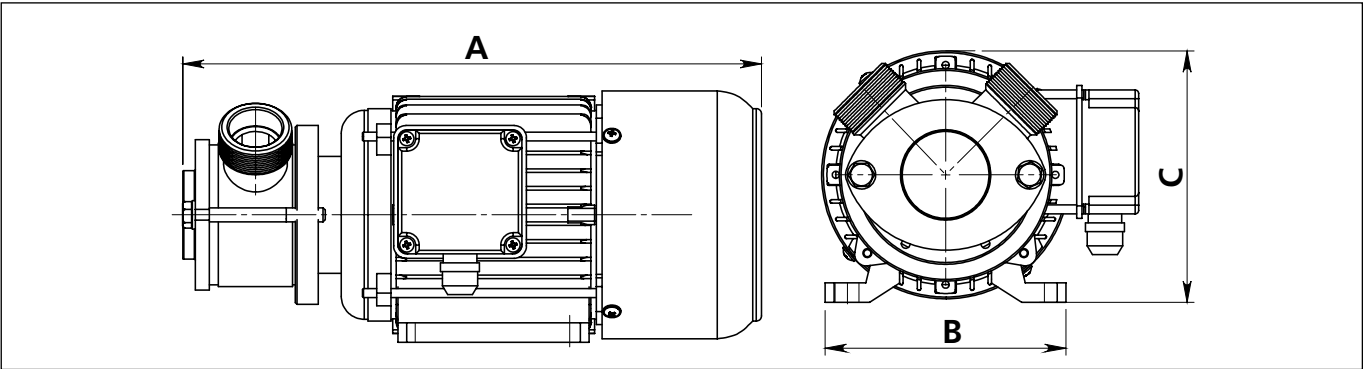
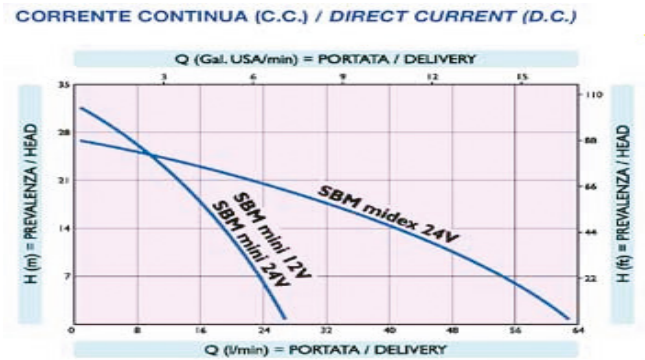
### Application limits

Never let the USBM-Midex pump run when empty.  
Liquid temperature range: from 0° C to 70° C. Static pressure internal to the pump body: 6 bar max.  
For use as oil and/or fuel transfer pump it is necessary nitrile impeller (available on request).

### Spare impellers:

- Neoprene impeller - 66538 W
- Nitrile impeller (for only transfer) - 66539 Y

MODEL	PART No.	VOLT	MAX AMP	MAX INLET	MAX HEAD	MAX DELIVERY
USBM - midex	64821 E	24V DC	28 A	6 m (19.7')	27 m (88.6')	64 l/min



### DIMENSIONS AND WEIGHTS

MODEL	Ø IN mm (")	Ø OUT mm (")	A mm (")	B mm (")	C mm (")	WEIGHT kg (lbs)
USBM-midex	1" 1/4 BSP-F	1" 1/4 BSP-F	373 (14.7)	160 (6.3)	180 (7.1)	16 (32.3)



CENTRIFUGAL ELECTRIC PUMPS - UB-CE SERIES

Single impeller centrifugal electric pumps used to transfer and/or supply large quantity of liquid. They are used to transfer unflammable liquids such as diesel fuel or to deliver fresh water and sea water to those equipments that require a high water flow rate (ex. Air conditioning units).

Standard features

BRONZE pump body, BRONZE impeller, AISI 316 stainless steel shaft, bronze support, wound field electric motor. F insulation class. IP 55 protection (AC), IP20 protection (DC)

Application limits

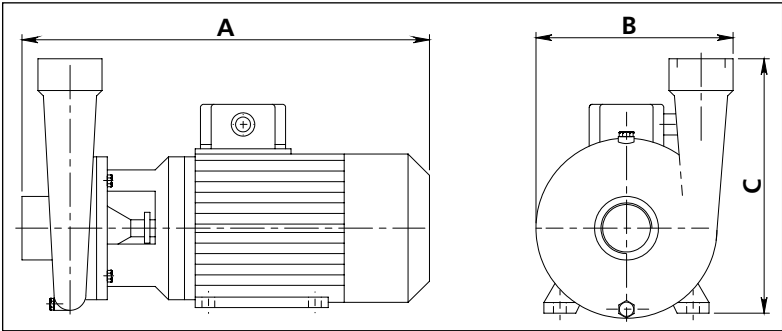
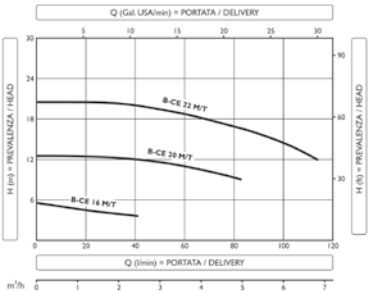
Solid impurities free liquid, liquid temperature range 0 to + 90 C°, max static internal pressure of the body pump: 6 bar.



UB-CE



MODEL	PART No.	VOLT	MAX AMP	MAX INLET	MAX HEAD	MAX DELIVERY
UB-CE 16-12	67958 A	12V DC	16 A	7 m (22.9')	7 m (22.9')	40 l/min
UB-CE 16-24	67959 C	24V DC	8 A	7 m (22.9')	7 m (22.9')	40 l/min
UB-CE 16-M	67960 L	230V AC	1,7 A	7 m (22.9')	7 m (22.9')	40 l/min
UB-CE 16-T	67961 N	380V AC	1,5 ÷ 1 A	7 m (22.9')	7 m (22.9')	40 l/min
UB-CE 20-12	67962 R	12V DC	38 A	7 m (22.9')	14 m (45.9')	80 l/min
UB-CE 20-24	67963 T	24 V DC	20 A	7 m (22.9')	14 m (45.9')	80 l/min
UB-CE 20-M	67964 V	230V AC	2,8 A	7 m (22.9')	14 m (45.9')	80 l/min
UB-CE 20-T	67965 X	380V AC	2,3 ÷ 1,3 A	7 m (22.9')	14 m (45.9')	80 l/min
UB-CE 22-24	67966 Z	24V DC	30 A	7 m (22.9')	21 m (68.9')	120 l/min
UB-CE 22-M	67967 B	230V AC	4,5 A	7 m (22.9')	21 m (68.9')	120 l/min
UB-CE 22-T	67968 D	380V AC	3 ÷ 1,7 A	7 m (22.9')	21 m (68.9')	120 l/min
UB-CE 25-12-M	20848 D	230V AC	5,8 A	7 m (22.9')	24 m (78.7')	200 l/min
UB-CE 25-12-T	20849 F	380V AC	4 ÷ 2,3 A	7 m (22.9')	24 m (78.7')	200 l/min
UB-CE 41-1 A-M	20850 P	230V AC	5,8 A	7 m (22.9')	19 m (62.3')	250 l/min
UB-CE 41-1 A-T	20851 S	380V AC	4 ÷ 2,3 A	7 m (22.9')	19 m (62.3')	250 l/min



**DC - DIMENSIONS AND WEIGHTS**

MODEL	Ø IN mm (")	Ø OUT mm (")	A mm (")	B mm (")	C mm (")	WEIGHT kg (lbs)
UB-CE 16	1/2"	1/2"	285 (11.2)	122 (4.8)	138 (5.4)	5,6 (12.3)
UB-CE 20	1"	1"	325 (12.8)	154 (6.0)	161 (6.3)	9,1 (20.0)
UB-CE 22	1"	1"	325 (12.8)	174 (6.9)	181 (7.1)	10,3 (22.7)

**AC - DIMENSIONS AND WEIGHTS**

MODEL	Ø IN mm (")	Ø OUT mm (")	A mm (")	B mm (")	C mm (")	WEIGHT kg (lbs)
UB-CE 16	1/2"	1/2"	266 (10.5)	122 (4.8)	138 (5.4)	5,6 (12.3)
UB-CE 20	1"	1"	303 (11.9)	154 (6.0)	161 (6.3)	9,1 (20.0)
UB-CE 22	1"	1"	303 (11.9)	174 (6.9)	181 (7.1)	10,3 (22.7)
UB-CE 25-12	1"	1"	313 (12.3)	173 (4.8)	230 (9.0)	14,5 (31.9)
UB-CE 41-1 A	1 1/2"	1 1/2"	380 (14.9)	193 (7.6)	240 (9.5)	17,5 (38.6)

**BRONZE SELF-PRIMING ELECTRIC PUMPS - UABR SERIES**

Multi-stage bronze self-priming electric pump fitted with radial impellers. These pumps are widely used to empty bilges, to attend fire equipments, to wash chains, to transfer fuel diesel etc.

**Standard features**

Bronze pump body, bronze impellers, AISI 316 stainless steel shaft, continuous duty electric motor with F insulation class, IP20 protection.

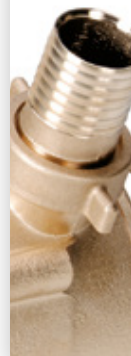
**Application limits**

Solid impurities free liquid, liquid temperature range from 0 to + 90 C°, max static internal pressure of the pump body: 20 bar.

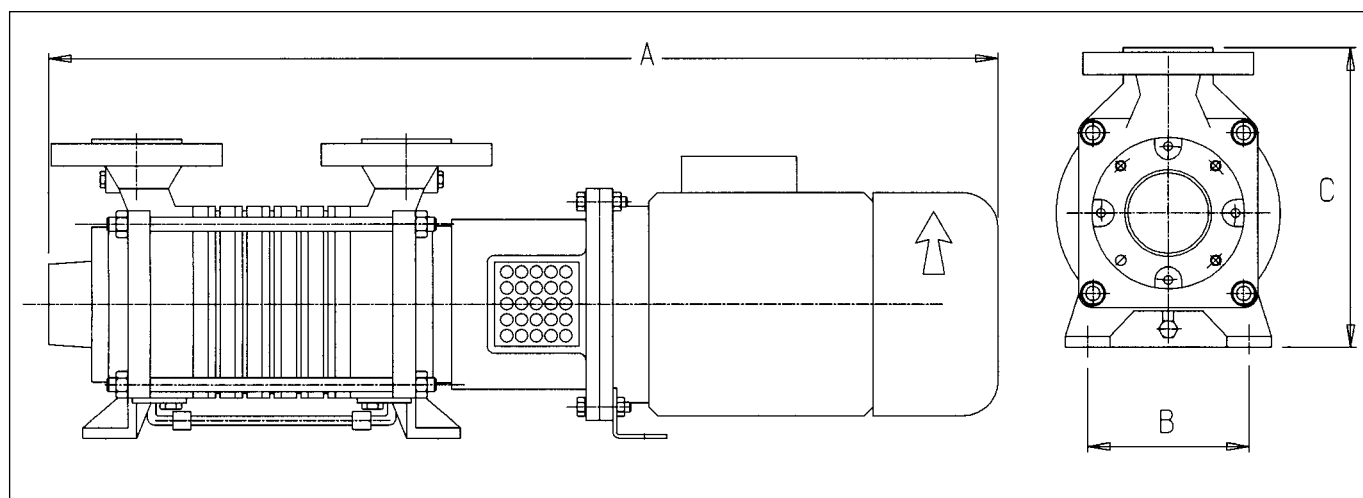
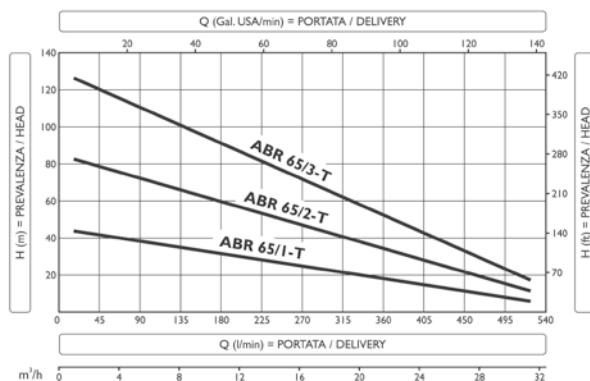
**UABR**

MODEL	PART No.	VOLT	MAX AMP	MAX INLET	MAX HEAD	MAX DELIVERY
UABR 32/1	66068 J	24V DC	52 A	9 m (29.5')	28 m (82')	160 l/min
UABR 32/2	66069 L	24V DC	90 A	9 m (29.5')	52 m (164')	160 l/min
UABR 40/1	66070 V	24V DC	90 A	9 m (29.5')	40 m (114.8')	250 l/min
UABR 32/1-M	67948 X	230V AC	9,6 A	9 m (29.5')	25 m (82')	150 l/min
UABR 32/1-T	67949 Z	380V AC	4,8 ÷ 2,7 A	9 m (29.5')	25 m (82')	150 l/min
UABR 32/2-M	66071 X	230V AC	12 A	9 m (29.5')	50 m (164')	150 l/min
UABR 32/2-T	66092 F	380V AC	7,7 ÷ 4,4 A	9 m (29.5')	50 m (164')	150 l/min
UABR 40/1-M	67950 H	230V AC	14 A	9 m (29.5')	38 m (124.7')	220 l/min
UABR 40/1-T	67951 K	380V AC	9 ÷ 5,2 A	9 m (29.5')	38 m (124.7')	220 l/min
UABR 40/2-T	66093 H	380V AC	15 ÷ 8,7 A	9 m (29.5')	75 m (236.2')	220 l/min
UABR 50/2-T	66073 B	380V AC	18,2 ÷ 10,2 A	9 m (29.5')	82 m (269')	400 l/min
UABR 65/2-T	66074 D	380V AC	29 ÷ 16 A	9 m (29.5')	85 m (278.8')	600 l/min

# BRONZE SELF-PRIMING ELECTRIC PUMPS - UABR SERIES



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## DIMENSIONS AND WEIGHTS

MODEL	Ø IN mm (")	Ø OUT mm (")	A mm (")	B mm (")	C mm (")	WEIGHT kg (lbs)
UABR 32/1	100 (3.9)	140 (5.5)	690 (27.2)	135 (5.3)	247 (9.7)	56 (123.4)
UABR 32/2	100 (3.9)	140 (5.5)	730 (28.7)	135 (5.3)	247 (9.7)	60 (132.3)
UABR 40/1	110 (4.3)	150 (5.9)	785 (30.9)	155 (6.1)	272 (10.7)	70 (154.3)
UABR 32/1-M or T	100 (3.9)	140 (5.5)	680 (26.7)	135 (5.3)	247 (9.7)	40 (88.2)
UABR 32/2-M or T	100 (3.9)	140 (5.5)	720 (28.3)	135 (5.3)	247 (9.7)	44 (97.0)
UABR 40/1-M or T	110 (4.3)	150 (5.9)	780 (30.7)	155 (6.1)	272 (10.7)	58 (127.8)
UABR 40/2-T	110 (4.3)	150 (5.9)	840 (33.1)	155 (6.1)	272 (10.7)	75 (165.3)
UABR 50/2-T	125 (4.9)	165 (6.5)	1100 (43.3)	170 (6.7)	325 (12.8)	132 (291.0)
UABR 65/2-T	145 (5.7)	185 (7.3)	1225 (48.2)	195 (7.6)	360 (14.2)	202 (445.3)

ELECTRIC PUMPS



## BRONZE/STAINLESS STEEL SELF-PRIMING ELECTRIC PUMPS – USBR SERIES

Bronze self-priming electric pumps fitted with a worm screw rotor. These pumps are widely used to empty waste tanks, toilet sewage and particularly viscous fluids or liquids with small debris in suspension.



### Standard features

BRONZE pump body, AISI 316 stainless steel rotor, AISI 316 stainless steel shaft, permanent magnet electric motor with F insulation class. IP 55 protection (DC), IP 44 protection (DC).

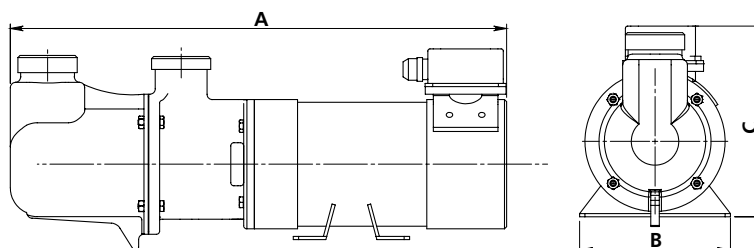
### Application limits

Liquid temperature range from 0 to +70°C, max static internal pressure of the pump body: 6 bar.



USBR

MODEL	PART No.	VOLT	MAX AMP	MAX INLET	MAX HEAD	MAX DELIVERY
USBR-12	67954 S	12V DC	36 A	6 m (19.7')	50 m (164)	50 l/min
USBR-24	67955 U	24V DC	20 A	6 m (19.7')	50 m (164)	50 l/min
USBR-M	67956 W	230V AC	4 A	6 m (19.7')	50 m (164)	50 l/min
USBR-T	67957 Y	380V AC	3,6 ÷ 2 A	6 m (19.7')	50 m (164)	50 l/min



### DIMENSIONS AND WEIGHTS

MODEL	Ø IN mm (")	Ø OUT mm (")	A mm (")	B mm (")	C mm (")	WEIGHT kg (lbs)
USBR-12/24	1"	1"	500 (19.7)	160 (6.3)	190 (7.5)	15 (33)
USBR-M	1"	1"	465 (18.3)	160 (6.3)	210 (8.3)	16,5 (36.4)
USBR-T	1"	1"	465 (18.3)	160 (6.3)	210 (8.3)	16,5 (36.4)



# SELF-PRIMING STAINLESS STEEL ELECTRIC PUMPS UJ - UMG-INOX SERIES

## UJ SERIES ELECTRIC PUMPS

Self-priming centrifugal electric pumps, Jet type, with high suction capacity. These electric pumps are used to deliver pressurized water to on-board appliances (showers, toilets, washbasins etc.).

### Standard features

AISI 304 stainless steel pump body, noryl diffuser and venture tube, AISI 316 stainless steel shaft, corrosion-proof clamping rings, continuous duty electric motor with F insulation class.

### Application limits

Liquid free of solid impurities, liquid temperature range: from 0° C to 50° C, static pressure inside the pump body: 6 bar max.



UJ-INOX



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## UMG SERIES ELECTRIC PUMPS

Self-priming electric pumps featuring 4 impellers that allow for a higher pressure and flow rate than the UJ-Inox pumps.

### Standard features

AISI 304 stainless steel pump body, noryl diffuser and Venturi tube, AISI 316 stainless steel shaft, corrosion-proof clamping rings, continuous duty electric motor with F insulation class.

### Application limits

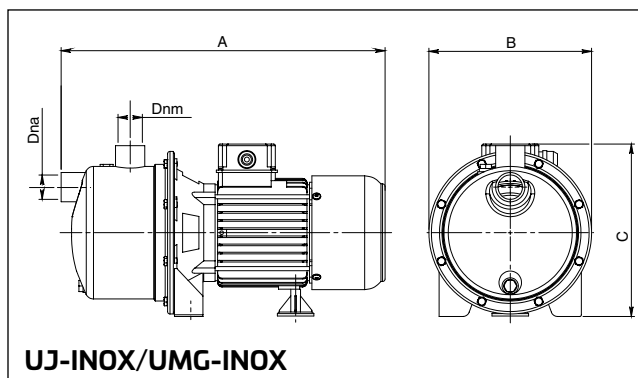
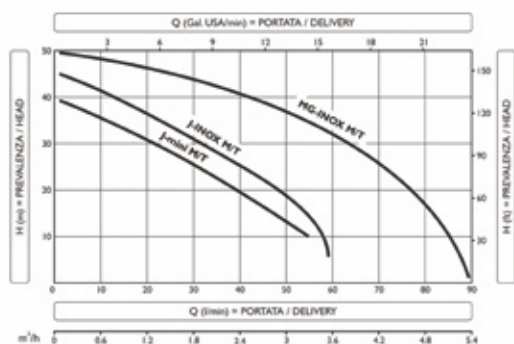
Liquid free of solid impurities. Liquid temperature range: from 0°C to 50°C. Static pressure inside the pump body: 6 bar max.



UMG-INOX



MODEL	PART No.	VOLT	MAX AMP	MAX INLET	MAX HEAD	MAX DELIVERY
UJ-INOX 12	64824 L	12V DC	40 A	9 m (29.5')	30 m (118.8')	50 l/min
UJ-INOX 24	64825 N	24V DC	28 A	9 m (29.5')	38 m (124.7')	50 l/min
UJ-INOX M	64827 T	230V AC	3,8 A	9 m (29.5')	48 m (177.2')	50 l/min
UMG-INOX 24	64826 R	24V DC	40 A	9 m (29.5')	50 m (164.0')	90 l/min
UMG-INOX M	64828 V	230V AC	5 A	9 m (29.5')	50 m (164.0')	90 l/min



UJ-INOX/UMG-INOX

## DIMENSIONS AND WEIGHTS

MODEL	Ø IN mm (")	Ø OUT mm (")	A mm (")	B mm (")	C mm (")	WEIGHT kg (lbs)
UJ-INOX 12	1" BSP-F	1" BSP-F	400 (15.7)	185 (7.3)	215 (8.5)	10 (22.0)
UJ-INOX 24	1" BSP-F	1" BSP-F	400 (15.7)	185 (7.3)	215 (8.5)	10 (22.0)
UJ-INOX M	1" BSP-F	1" BSP-F	345 (13.6)	185 (7.3)	200 (7.9)	8,5 (18.7)
UMG-INOX 24	1" BSP-F	1" BSP-F	507 (19.9)	200 (7.9)	230 (9.0)	15 (33.0)
UMG-INOX M	1" BSP-F	1" BSP-F	420 (16.5)	200 (7.9)	215 (8.5)	11,5 (25.3)



## WATER PRESSURE SYSTEMS UJ AND UMG-INOX SERIES

### WATER PRESSURE SYSTEMS - UJ SERIES

**UJ-INOX water pressure systems** are equipped with **UJ** electric pumps and with a stainless steel cylindrical tank (X) with inside butyl rubber diaphragm suitable for food stuff, widely used for constant water pressure for all on-board appliances such as kitchens, showers, washbasins etc.

### UMG SERIES - WATER PRESSURE SYSTEMS

**UMG-INOX water pressure systems** are equipped with a **UMG** series electric pump and with a stainless steel cylindrical tank (X) with inside butyl rubber diaphragm suitable for food stuff, widely used for constant water pressure for all on-board appliances such as kitchens, showers, washbasins etc.

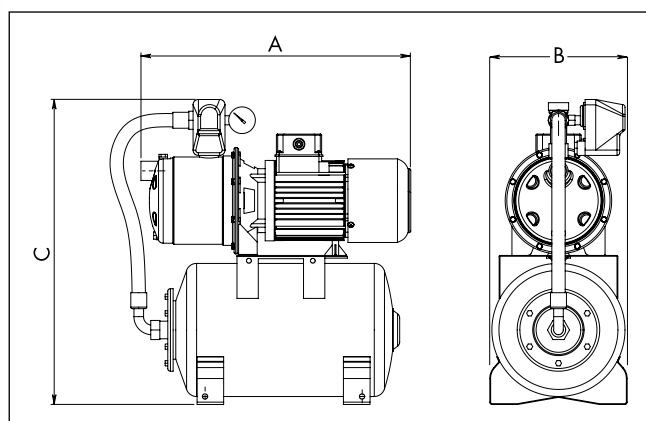
#### Standard features

Manual safety pressure switch, pressure gauge, non return valve, 5 ways brass pipe fitting.

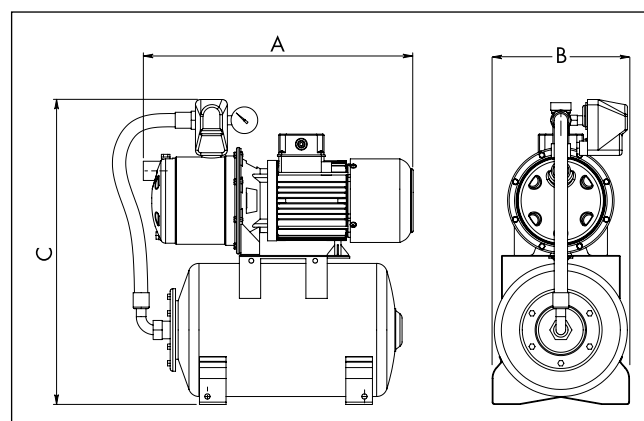


UJ-INOX 20X - UMG-INOX 20X

MODEL	PART No.	SWITCH PRE-SET	TANK PRESSURE	MAX DELIVERY	MAX PRESSURE	TANK CAPACITY
UJ-INOX 12/20X	64833 M	1.2-2.0 bar	1.2 bar	50 l/min	3.0 bar	20 litres
UJ-INOX 24/20X	64834 P	1.4-2.8 bar	1.2 bar	50 l/min	3.8 bar	20 litres
UJ-INOX M/20X	64836 U	1.4-3.0 bar	1.2 bar	50 l/min	4.8 bar	20 litres
UMG-INOX 24/20X	64835 S	1.4 - 4.0 bar	1.4 bar	90 l/min	5 bar	20 litres
UMG-INOX M/20X	64837 W	1.4 - 4.0 bar	1.4 bar	90 l/min	5 bar	20 litres



UJ-INOX 20X



UMG-INOX 20X

### DIMENSIONS AND WEIGHTS

MODEL	Ø IN mm (")	Ø OUT mm (")	A mm (")	B mm (")	C mm (")	WEIGHT kg (lbs)
UJ-INOX 12/24-20X	1" BSP-F	1" BSP-F	440 (17.3)	260 (10.2)	575 (22.6)	15 (33.0)
UJ-INOX M-20X	1" BSP-F	1" BSP-F	440 (17.3)	260 (10.2)	575 (22.6)	13.5 (29.7)
UMG-INOX 24-20X	1" BSP-F	1" BSP-F	507 (19.9)	260 (10.2)	575 (22.6)	20 (44.0)
UMG-INOX M-20X	1" BSP-F	1" BSP-F	507 (19.9)	260 (10.2)	575 (22.6)	16.5 (36.4)

SELF-PRIMING BRONZE ELECTRIC PUMPS - UJBR SERIES

UJBR SERIES ELECTRIC PUMPS

Self-priming electric pumps, Jet type, with closed impeller, featuring a high suction capacity. These electric pumps are used **for rising both fresh and sea water and to deliver pressurized water to on-board appliances** (showers, toilets, washbasins etc), to air-conditioning units, anti-fire equipment. Used for washing of decks and chains.

Standard features

Bronze pump body, polycarbonate diffuser and Venturi tube, AISI 316 stainless steel shaft, special brass alloy impeller, corrosion-proof clamping rings, continuous duty electric motor with F insulation class.

Application limits

Liquid free of solid impurities. Liquid temperature range: from 0° C to 70° C. Static pressure inside the pump body: 6 bar max.



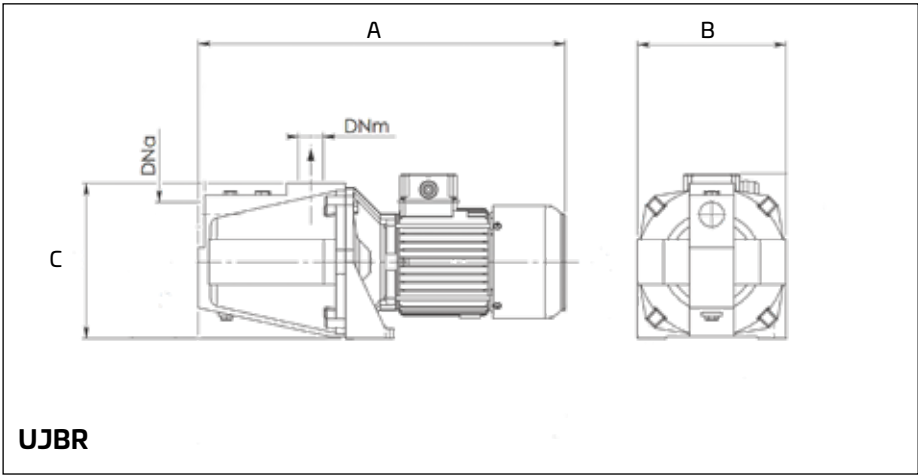
UJBR-3



UJBR



MODEL	PART No.	VOLT	MAX AMP	MAX INLET	MAX HEAD	MAX DELIVERY
UJBR 12	64816 M	12V DC	40 A	9 m (29.5')	30 m (98.4')	44 l/min
UJBR 24	64817 P	24V DC	28 A	9 m (29.5')	36 m (118.1')	55 l/min
UJBR M	64818 S	230V AC	4,5 A	9 m (29.5')	52 m (170.6')	55 l/min
UJBR-3 M	69659 A	230V AC	7,4 A	9 m (29.5')	50 m (164')	100 l/min



UJBR

DIMENSIONS AND WEIGHTS

MODEL	Ø IN mm (")	Ø OUT mm (")	A mm (")	B mm (")	C mm (")	WEIGHT kg (lbs)
UJBR 12	1" BSP-F	1" BSP-F	455 (17.9)	185 (7.3)	195 (7.7)	25 (55.1)
UJBR 24	1" BSP-F	1" BSP-F	455 (17.9)	185 (7.3)	195 (7.7)	25 (55.1)
UJBR M	1" BSP-F	1" BSP-F	430 (16.9)	185 (7.3)	195 (7.7)	21 (46.3)
UJBR-3 M	1 1/2" BSP-F	1" BSP-F	560 (19.9)	215 (8.5)	222 (8.7)	31.5 (69.5)



## WATER PRESSURE SYSTEMS UJBR SERIES

### UJBR SERIES - WATER PRESSURE SYSTEMS

UJBR water pressure systems are equipped with a UJBR electric pump and with a stainless steel cylindrical tank (X) with inside butyl rubber diaphragm suitable for food stuff, widely used for constant water pressure for all on-board appliances such as kitchens, showers, washbasins etc.

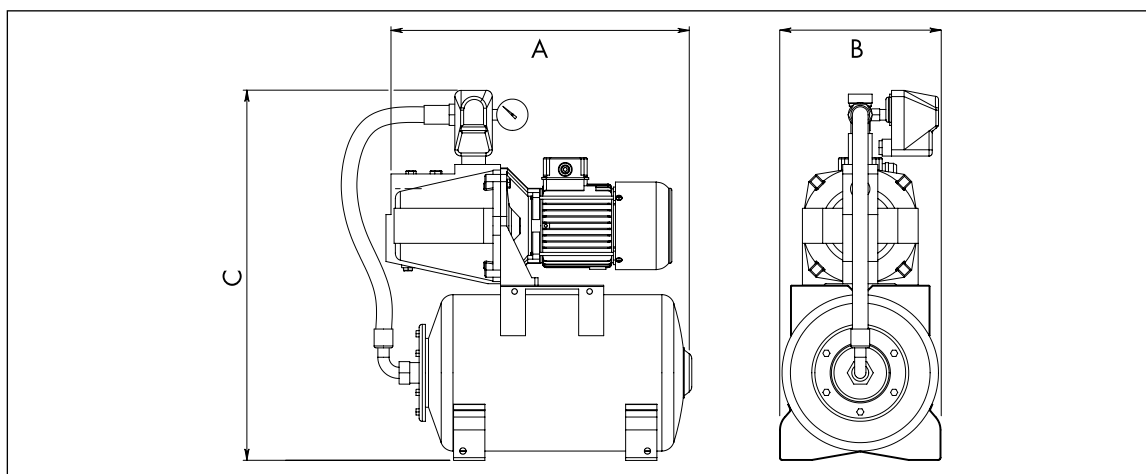
#### Standard features

Manual safety pressure switch, pressure gauge, non return valve, 5 ways brass pipe fitting.



UJBR 20X

MODEL	PART No.	SWITCH PRE-SET	TANK PRESSURE	MAX DELIVERY	MAX PRESSURE	TANK CAPACITY
UJBR 12/8X	64838 Y	1.2-2.0 bar	1.2 bar	44 l/min	3.0 bar	8 litres
UJBR 12/20X	64840 J	1.2-2.0 bar	1.2 bar	44 l/min	3.0 bar	20 litres
UJBR 24/8X	64839 A	1.4-2.8 bar	1.2 bar	55 l/min	3.8 bar	8 litres
UJBR 24/20X	64841 L	1.4-2.8 bar	1.2 bar	55 l/min	3.8 bar	20 litres
UJBR M/20X	64842 N	1.4-3.5 bar	1.2 bar	55 l/min	5.2 bar	20 litres



### DIMENSIONS AND WEIGHTS

MODEL	Ø IN mm (")	Ø OUT mm (")	A mm (")	B mm (")	C mm (")	WEIGHT kg (lbs)
UJBR 12/8X	1" BSP-F	1" BSP-F	455 (17.9)	220 (8.7)	420 (16.5)	26 (57.3)
UJBR 12/20X	1" BSP-F	1" BSP-F	460 (18.1)	260 (10.2)	590 (23.2)	28 (61.7)
UJBR 24/8X	1" BSP-F	1" BSP-F	455 (17.9)	220 (8.7)	420 (16.5)	26 (57.3)
UJBR 24/20X	1" BSP-F	1" BSP-F	460 (18.1)	260 (10.2)	590 (23.2)	28 (61.7)
UJBR M/20X	1 1/2" BSP-F	1" BSP-F	460 (18.1)	260 (10.2)	590 (23.2)	26 (57.3)



PERIPHERAL BRONZE ELECTRIC PUMPS AND WATER PRESSURE SYSTEMS - UPB SERIES

UPB SERIES ELECTRIC PUMPS

Compact single-impeller peripheral electric pumps apt to develop high pressures compared to limited flow rate. These electric pumps are used for rising both and sea water and to deliver pressurized water to on-board appliances (showers, toilets, washbasins etc.), to air-conditioning units, anti-fire equipment. Used for washing of decks and chains.

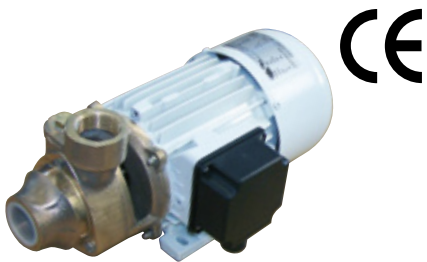
Standard features

Bronze body pump, AISI 316 stainless steel shaft, special BRASS alloy impeller, corrosion-proof clamping rings, continuous duty electric motor with F insulation class.

Application limits

Liquid free of solid impurities. Liquid temperature range: from 0° C to 70° C. Static pressure inside the pump body: 6 bar max.

MODEL	PART No.	VOLT	MAX AMP	MAX INLET	MAX HEAD	MAX DELIVERY
UPB 12	64819 U	12V DC	36 A	6 m (19.7')	40 m (131.2')	36 l/min
UPB 24	64820 C	24V DC	22 A	6 m (19.7')	42 m (137.8')	36 l/min



UPB



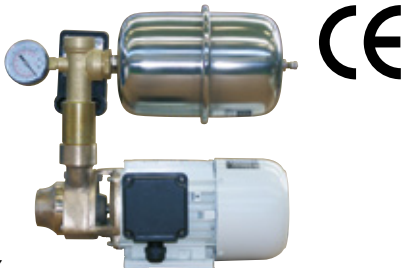
141

UPB SERIES - WATER PRESSURE SYSTEMS

UPB are equipped with a UPB electric pump, a stainless steel (X) or white painted steel (L) cylindrical tank with a stainless steel flange and with an internal butyl rubber diaphragm suitable for food stuff, widely used for constant water pressure for all on-board appliances such as kitchens, showers, washbasins etc.

Standard features

Manual safety pressure switch, pressure gauge, non return valve, 5 ways brass pipe fitting.

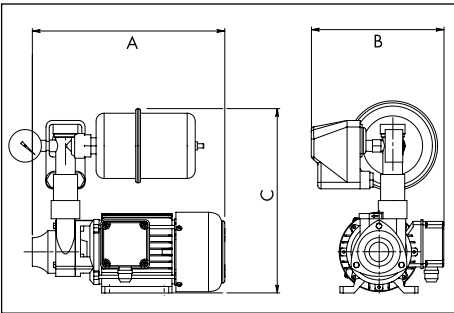


UPB 2X

MODEL	PART No.	SWITCH PRE-SET	TANK PRESSURE	MAX DELIVERY	MAX PRESSURE	TANK CAPACITY
UPB-12/2-X	64843 R	1.4-2.8 bar	1.2 bar	35 l/min	4 bar	2 litres
UPB-12/8-L	64829 X	1.4-2.8 bar	1.2 bar	35 l/min	4 bar	8 litres
UPB-12/8-X	64845 V	1.4-2.8 bar	1.2 bar	35 l/min	4 bar	8 litres
UPB-24/2-X	64844 T	1.4-2.8 bar	1.2 bar	36 l/min	4.2 bar	2 litres
UPB-24/8-L	64830 F	1.4-2.8 bar	1.2 bar	36 l/min	4.2 bar	8 litres
UPB-24/8-X	64846 X	1.4-2.8 bar	1.2 bar	36 l/min	4.2 bar	8 litres

DIMENSIONS AND WEIGHTS

MODEL	Ø IN	Ø OUT	A mm (")	B mm (")	C mm (")	WEIGHT kg (lbs)
UPB-12/24	1" BSP-F	1" BSP-F	295 (11.6)	160 (6.3)	142 (5.6)	7 (15.4)
UPB-12/24-2X	1" BSP-F	1" BSP-F	455 (17.9)	220 (8.6)	350 (13.8)	25 (55.1)
UPB-12/24-8X	1" BSP-F	1" BSP-F	455 (17.9)	220 (8.6)	420 (16.5)	26 (57.3)
UPB-12/24-8L	1" BSP-F	1" BSP-F	430 (16.9)	220 (8.6)	420 (16.5)	24 (52.9)



ELECTRIC PUMPS AND WATER PRESSURE SYSTEMS



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## TWIN WATER PRESSURE SYSTEMS

### TWIN WATER PRESSURE SYSTEMS

Twin water pressure systems including 2 self-priming electric pumps (UJ-INOX or UMG-INOX stainless steel made), or 2 self priming electric pumps (UJBR bronze made), widely used in the marine field to grant a proper and constant water pressure for all on board utilities such as: showers, kitchen, washbasins, toilets, etc.

With this peculiar application a double flow rate can be obtained and the system can face an emergency stop of one of the pumps during navigation.

The use of twin water pressure systems **UGDE-J**, **UGDE-MG** and **UGDE-JBR** Series allows a water capacity higher than the traditional pressure sets, as the two pumps, whatever DC, AC, or mixed DC and AC, can work either simultaneously or singularly.

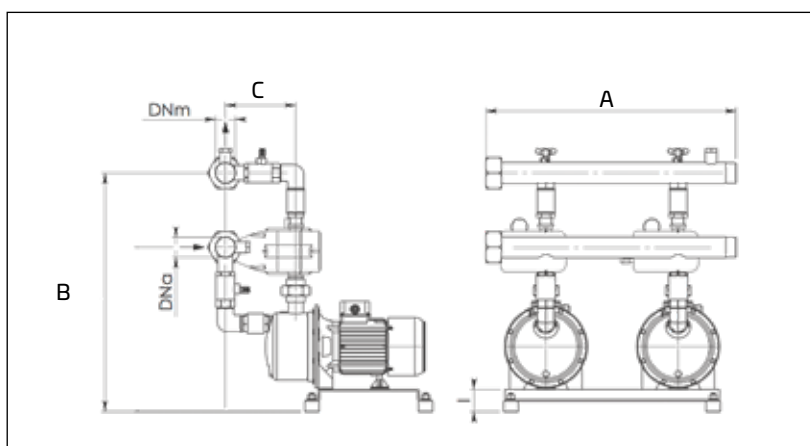
For a proper operation of the group, a water tank is recommended.

Vertical twin water pressure systems are available on request.



UGDE J/1 - UGDE MG/1

MODEL	PART No.	PUMP 1	PUMP 2	MOTOR	POWER Kw	CURRENT A	MAX DELIVERY	MAX PRESSURE
UGDE J/1	66332 Z	UJ-INOX 24	UJ-INOX 24	DC+DC	0,6+0,6	28+28	50+50 l/min.	4 bar
UGDE J/2	66333 B	UJ-INOX M	UJ-INOX M	AC+AC	0,6+0,6	/	50+50 l/min.	4 bar
UGDE J/3	20852 U	UJ-INOX 24	UJ-INOX M	DC+AC	0,6+0,6	28+ /	50+50 l/min.	4 bar
UGDE MG/1	66335 F	UMG-INOX 24	UMG-INOX 24	DC+DC	0,75+0,75	40+40	90+90 l/min.	5 bar
UGDE MG/2	66336 H	UMG-INOX M	UMG-INOX M	AC+AC	0,75+0,75	/	90+90 l/min.	5 bar
UGDE MG/3	66337 K	UMG-INOX 24	UMG-INOX M	DC+AC	0,75+0,75	40+ /	90+90 l/min.	5 bar
UGDE JBR/1	66338 M	UJBR 24	UJBR 24	DC+DC	0,6+0,6	28+28	55+55 l/min.	3,6 bar
UGDE JBR/2	66339 P	UJBR M	UJBR M	AC+AC	0,6+0,6	/	55+55 l/min.	5 bar
UGDE JBR/3	66340 Y	UJBR 24	UJBR M	DC+AC	0,6+0,6	28+ /	55+55 l/min.	5 bar



### DIMENSIONS AND WEIGHTS

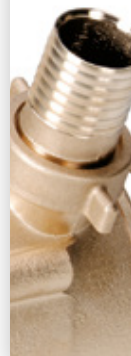
MODEL	Ø IN mm (")	Ø OUT mm (")	A mm (")	B mm (")	C mm (")	WEIGHT kg (lbs)
UGDE J/1-2-3	1" 1/2 BSP-F	1" 1/2 BSP-F	610 (24)	540 (21.3)	160 (6.3)	30-26-28 (66.1-57.3-61.7)
UGDE UMG/1-2-3	1" 1/2 BSP-F	1" 1/2 BSP-F	610 (24)	540 (21.3)	160 (6.3)	40-35-37 (88.2-77.2-81.6)
UGDE JBR/1-2-3	1" 1/2 BSP-F	1" 1/2 BSP-F	610 (24)	540 (21.3)	150 (5.9)	60-52-56 (132.3-114.6-123.5)

## WATER PRESSURE SYSTEMS WITH ELECTRONIC PRESSURE CONTROL

Water Pressure Systems featuring an **Electronic Control System EPC (Electronic Pressure Control)** that automatically controls the pump start and stop stages when the pressure drops or when the water supply to the system is interrupted.

The electronic control system EPC will guarantee the automatic stop of the pump when the water supply has run out (preventing damage to the pump if dry running) and will offer constant monitoring of the operation by means of warning lights.

If in lack of water the pump stops, in which case the EPC device will allow the pump to make brief starts at regular breaks to check the availability of water. If the pump is able to take in water during one of these attempts (maximum 4), the pressure booster set will restart its normal operation. After four attempts, the EPC device will stop the pump definitively. The pump can then be restarted only by pressing the "Reset" button.



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UJ-INOX/EPC  
UMG-INOX/EPC



UJBR/EPC



UPB/EPC

MODEL	PART No.	VOLT	MAX AMP	MAX DELIVERY	MAX PRESSURE
UJ-INOX/EPC-12	66076 H	12V DC	40 A	50 l/min	3 bar
UJ-INOX/EPC-24	66077 K	24V DC	28 A	50 l/min	3,8 bar
UJ-INOX/EPC-M	66078 M	230V AC	3,8 A	50 l/min	4,8 bar
UMG-INOX/EPC-24	66079 P	24V DC	40 A	90 l/min	5 bar
UMG-INOX/EPC-M	66080 Y	230V AC	5 A	90 l/min	5 bar
UJBR/EPC-12	66081 A	12V DC	42 A	44 l/min	3 bar
UJBR/EPC-24	66082 C	24V DC	28 A	55 l/min	3,6 bar
UJBR/EPC-M	66083 E	230V AC	4,5 A	55 l/min	5,2 bar
UPB/EPC-12	66084 G	12V DC	36 A	36 l/min	4 bar
UPB/EPC-24	66085 J	24V DC	22 A	36 l/min	4,2 bar

Inlet: 1" BSP - F (Gas)

Outlet: 1" BSP - M (Gas)

## BIDIRECTIONAL SELF-PRIMING PUMPS NAUTIC AND SPECIAL SERIES



UN



UN F



US



US FM

Bidirectional side liquid ring self-priming pumps. Thanks to their high delivery capability, these pumps are widely used in marine applications sector to empty bilges or for sea water suction. Upon request these pumps are also available with BSP thread.

### Standard features

Bronze body pump, bronze impeller, bronze pipe fittings, AISI 316 stainless steel shaft, corrosion-proof clamping rings.

### Application limits

Liquid free of solid impurities, liquid temperature range: from 0° C to 70° C, static pressure inside the pump body: 6 bar max.

### NAUTIC SERIES

MODEL	PART No.	OPERATION	MAX INLET	MAX HEAD	MAX DELIVERY l/min@ rpm
UN 025	64847 Z	Bare shaft	6 m (19.7')	18 m (70.8')	60 @ 2800
UN 030-030 F	64857 C	Manual clutch	6 m (19.7')	18 m (70.8')	75 @ 1400
UN 040-040 F	64858 E	Manual clutch	6 m (19.7')	22 m (88.6')	120 @ 1400
UN 050-050 F	64859 G	Manual clutch	6 m (19.7')	30 m (118.1')	230 @ 1400
UN 070-070 F	64860 R	Manual clutch	6 m (19.7')	40 m (157.4')	500 @ 1400

### SERIE SPECIAL

MODEL	PART No.	OPERTION	MAX INLET	MAX HEAD	MAX DELIVERY l/min@ rpm
US 020	64852 S	Bare shaft	6 m (19.7')	15 m (59.0')	30 @ 2800
US 025	64853 U	Bare shaft	6 m (19.7')	18 m (70.8')	60 @ 2800
US 030-030 FM 12V	64861 T	Electromagnetic clutch	6 m (19.7')	18 m (70.8')	75 @ 1400
US 030-030 FM 24V	64864 Z	Electromagnetic clutch	6 m (19.7')	18 m (70.8')	75 @ 1400
US 040-040 FM 12V	64862 V	Electromagnetic clutch	6 m (19.7')	22 m (88.6')	120 @ 1400
US 040-040 FM 24V	64865 B	Electromagnetic clutch	6 m (19.7')	22 m (88.6')	120 @ 1400
US 050-050 FM 12V	64863 X	Electromagnetic clutch	6 m (19.7')	30 m (118.1')	230 @ 1400
US 050-050 FM 24V	64866 D	Electromagnetic clutch	6 m (19.7')	30 m (118.1')	230 @ 1400



## CENTRIFUGAL ELECTRIC BLOWERS - UBLC SERIES

UBLC spiral centrifugal electric blowers are used for suction and ventilation of air in closed compartments such as toilets, kitchen, engine room etc.

### Standard features

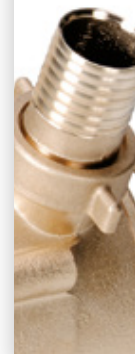
Painted steel casing, fan with forward and balanced steel blades, continuous duty electric motor with F insulation class, IP 44 protection (alternating current), IP 23 (direct current)

The orientation of the blower must be stated when ordering (see drawing).

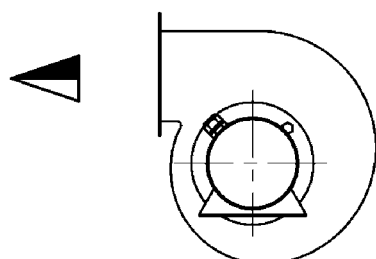
UBLC



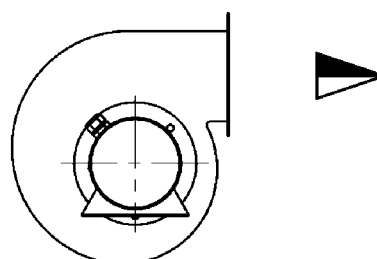
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**LD**  
(LEFT DIRECTION)  
(DIREZIONE SINISTRA)



**RD**  
(RIGHT DIRECTION)  
(DIREZIONE DESTRA)

MODEL	PART No.	VOLT	MAX AMP	RPM	MAX HEAD m <sup>3</sup> /min	MAX DELIVERY mm H <sub>2</sub> O
UBLC 002-12	65433 A	12V DC	3,2 A	2800	4,5	22
UBLC 002-24	65434 C	24V DC	1,6 A	2800	4,5	22
UBLC 002-M or T	65435 E 65436 G	230V AC/380V AC	0,8/0,5 A	2800	4,5	22
UBLC 004-12	65437 J	12V DC	6 A	2500	12	35
UBLC 004-24	64867 F	24V DC	3 A	2500	12	35
UBLC 004-M or T	65438 L 65439 N	230V AC/380V AC	2,2/0,8 A	2800	15	45
UBLC 015-12	67971 S	12V DC	24 A	1400	24	34
UBLC 015-24	64868 H	24V DC	12 A	1400	24	34
UBLC 015-M or T	65440 X 65441 Z	230V AC/380V AC	2,2/0,8 A	1400	24	34
UBLC 028-12	67973 W	12V DC	26 A	2800	24	64
UBLC 028-24	64869 K	24V DC	14 A	2800	24	64
UBLC 028-M or T	65442 B 65443 D	230V AC/380V AC	2,8/0,9 A	2800	24	64
UBLC 023-12	67972 U	12V DC	30 A	2000	37	64
UBLC 023-24	65444 F	24V DC	22 A	2000	37	64
UBLC 023-M or T	65445 H 65446 K	230V AC/380V AC	7/2,9 A	2800	58	130
UBLC 025-24	65447 M	24V DC	30 A	1400	50	55
UBLC 025-M or T	65448 P 65449 S	230V AC/380V AC	5,2/2,2 A	1400	50	55
UBLC 030-M or T	65450 A 65451 C	230V AC/380V AC	7,2/2,9 A	1400	95	75

**DIMENSIONS AND WEIGHTS: SEE PAGE 147**

CENTRIFUGAL BLOWERS



## HELICOIDAL ELECTRIC BLOWERS - UVE SERIES



UVE helicoidal electric blowers are used for suction and ventilation of air in closed compartments such as toilets, kitchen and engine rooms.

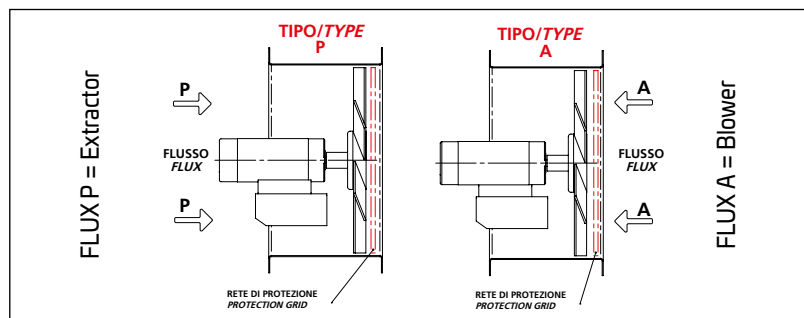
### Standard features

Painted sheet steel drum, polypropylene balanced fan (temperature range: from -5° C to 70° C), continuous duty electric motor with F insulation class, IP 44 protection.

The orientation of the blower must be specified when ordering (see drawing below).



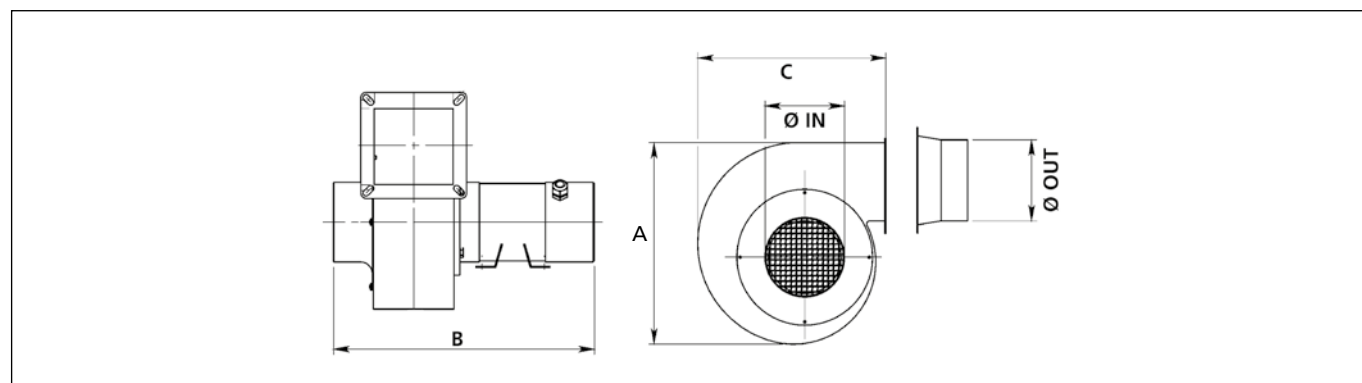
### UVE



MODEL	PART No.	VOLT	MAX AMP	RPM	MAX DELIVERY m <sup>3</sup> /min	MAX HEAD mm H <sub>2</sub> O
UVE 21-12	67969 F	12V DC	12 A	2800	22	14
UVE 21-24	67970 P	24V DC	6 A	2800	22	14
UVE 25-12	65452 E	12V DC	17 A	2500	37	19
UVE 25-24	64873 A	24V DC	9 A	2500	37	19
UVE 25-M or T	65453 G 65454 J	230V AC/380V AC	2,7/0,8 A	2800	42	20
UVE 30-12	65455 L	12V DC	10 A	1400	42	10
UVE 30-24	65456 N	24V DC	5 A	1400	42	10
UVE 30-M or T	65457 R 65458 T	230V AC/380V AC	1,8/0,6 A	1400	42	10
UVE 30/2-24	65459 V	24V DC	14 A	2000	75	22
UVE 30/2-M or T	65460 D 65491 R	230V AC/380V AC	4/1,7 A	2800	80	35
UVE 35-12	65461 F	12V DC	12 A	1400	62	16
UVE 35-24	64874 C	24V DC	6 A	1400	62	16
UVE 35-M or T	65462 H 65463 K	230V AC/380V AC	1,8/0,6 A	1400	62	16
UVE 35/2-24	65464 M	24V DC	16 A	2000	96	22
UVE 35/2-M or T	65465 P 65466 S	230V AC/380V AC	7,2/2,9 A	2800	100	60
UVE 40-12	65467 U	12V DC	14 A	1400	70	20
UVE 40-24	65468 W	24V DC	7 A	1400	70	20
UVE 40-M or T	65469 Y 65470 G	230V AC/380V AC	1,8/0,6 A	1400	70	20
UVE 40/2-24	65471 J	24V DC	20 A	2000	130	24
UVE 40/2-M or T	65472 L 65473 N	230V AC/380V AC	7,2/2,9 A	2800	135	70
UVE 45-24	65474 R	24V DC	9 A	1400	108	20
UVE 45-M or T	65475 T 65476 V	230V AC/380V AC	2,6/0,9 A	1400	108	20
UVE 45/2-24	65477 X	24V DC	28 A	2000	145	28
UVE 45/2-M or T	65478 Z 65479 B	230V AC/380V AC	9,6/4,3 A	2800	175	74
UVE 50-24	65480 K	24V DC	22 A	1400	160	28
UVE 50-M or T	65481 M 65482 P	230V AC/380V AC	5,1/2,2 A	1400	160	28
UVE 56-24	65483 S	24V DC	22 A	1400	225	28
UVE 56-M or T	65484 U 65485 W	230V AC/380V AC	5,1/2,2 A	1400	225	28
UVE 63-M or T	65486 Y 65487 A	230V AC/380V AC	7,2/2,9 A	1400	312	36
UVE 71-T	65489 E	380V AC	4,3 A	1400	330	36
UVE 71/B - T	65490 N	380V AC	8,2 A	1400	400	42

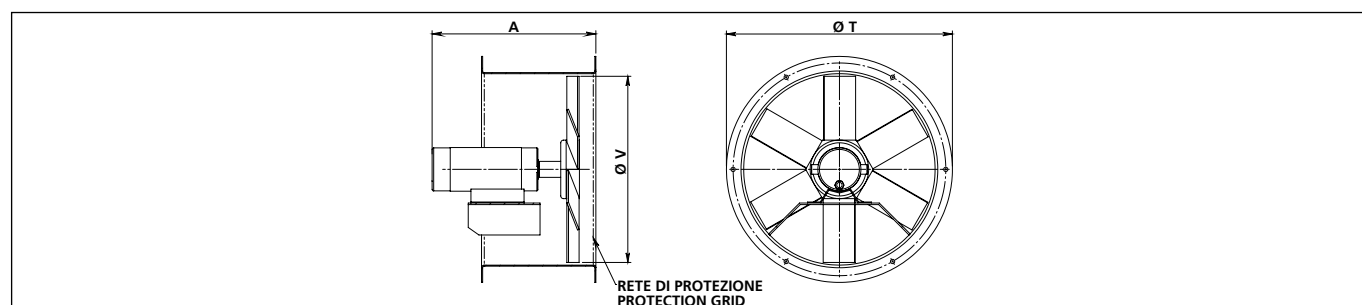
# CENTRIFUGAL AND HELICOIDAL ELECTRIC BLOWERS

## UBLC - DIMENSIONS AND WEIGHTS

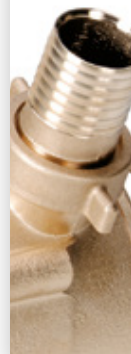


MODEL	Ø IN mm (")	Ø OUT mm (")	A mm (")	B mm (")	C mm (")	WEIGHT kg (lbs)
UBLC 002	58 (2.3)	58 (2.3)	190 (7.5)	295 (11.6)	168 (6.6)	3,5 (7.7)
UBLC 004	98 (3.8)	98 (3.8)	270 (10.6)	370 (14.6)	225 (8.8)	6 (13.2)
UBLC 015	148 (5.8)	148 (5.8)	405 (16.0)	415 (16.3)	338 (13.3)	14 (30.9)
UBLC 028	118 (4.6)	118 (4.6)	322 (12.7)	390 (15.3)	273 (12.6)	10 (22.1)
UBLC 023	200 (7.8)	160 (6.3)	420 (16.5)	530 (20.9)	340 (13.4)	18 (39.7)
UBLC 025	250 (9.8)	200 (7.8)	510 (20)	570 (22.7)	420 (16.5)	23 (50.7)
UBLC 030	300 (11.8)	250 (9.8)	610 (24)	580 (22.8)	500 (19.7)	38 (83.8)

## UVE - DIMENSIONS AND WEIGHTS



MODEL	A mm (")	Ø V mm (")	Ø T mm (")	WEIGHT Kg (lbs)
UVE 21	255 (10)	205 (8.1)	275 (10.8)	6 (13.2)
UVE 25	325 (12.8)	240 (9.5)	315 (12.2)	7 (15.4)
UVE 30	300 (11.8)	305 (12.0)	378 (14.9)	8 (17.6)
UVE 30/2	330 (13.0)	305 (12.0)	378 (14.9)	10 (22)
UVE 35	300 (11.8)	350 (13.8)	425 (16.7)	9 (19.8)
UVE 35/2	330 (13.0)	350 (13.8)	425 (16.7)	11 (14.3)
UVE 40	330 (13.0)	400 (15.7)	473 (18.6)	12 (26.4)
UVE 40/2	370 (14.5)	400 (15.7)	473 (18.6)	14 (30.8)
UVE 45	330 (13.0)	450 (17.7)	523 (20.6)	13 (28.6)
UVE 45/2	380 (14.9)	450 (17.7)	523 (20.6)	18 (39.7)
UVE 50	400 (15.7)	500 (19.7)	573 (22.5)	21 (46.3)
UVE 56	400 (15.7)	560 (22.0)	633 (24.9)	24 (52.9)
UVE 63	420 (16.5)	630 (24.8)	704 (27.7)	27 (59.5)
UVE 71	450 (17.7)	700 (27.5)	774 (30.5)	48 (105.8)
UVE 71/B	510 (20.1)	700 (27.5)	774 (30.5)	58 (127.9)



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BLOWERS



# STAINLESS STEEL FIRE DAMPERS

Multi blade stainless steel fire dampers “MED” and USCG approved by LLOYDS REGISTER – MCA for class of fire A0-A60 and MIL 901-D certified (Shock test). Our fire dampers are dampers with electrical actuator (24V, 120V, 230V) and safety thermal fuse rated at 72°C.

## Standard features

Square/rectangular flange selection or circular flange:

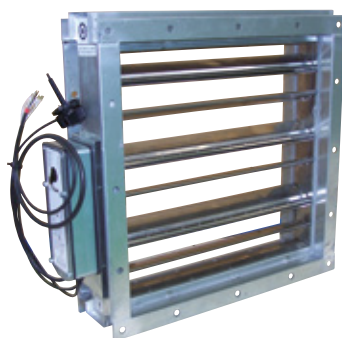
- UFD-A60: AISI 316 stainless steel case and blades
- UFD-A60Z: galvanized steel case, AISI 316 stainless steel blades.

## Optional accessories

- Dampers supplied with pneumatic actuator
- Dampers with ignition protected actuator (ATEX rule)

## Holes

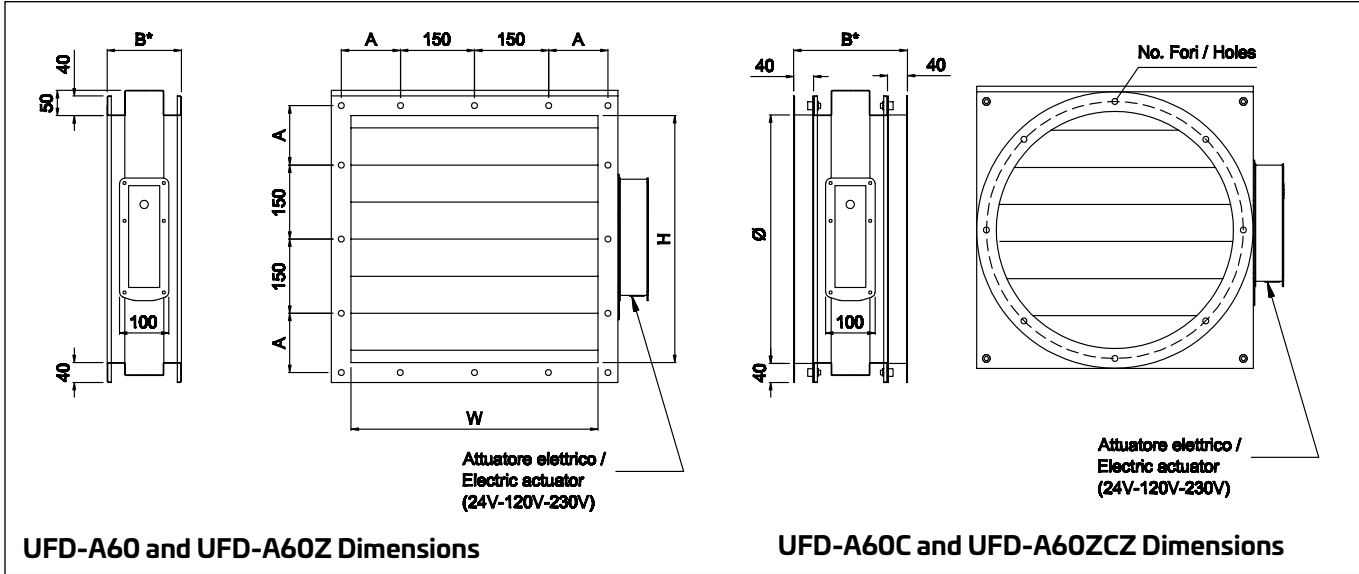
DAMPER Ø	No.	Ø
100 – 250	4	7
251 – 500	8	10
501 – 750	12	12
751 – 1000	16	12



UFD-A60 and UFD-A60Z



UFD-A60C and UFD-A60ZCZ



## DIMENSIONS

MODEL	A mm (")	B* mm (")	W Duct Width mm (")	H Duct Height mm (")	Case Thickness mm (")
UFD-A60/UFD-A60Z	Min.75 (2.9) Max. 150 (5.9)	150 (5.9)	100 / 1000 (3.9/39.4)	100 / 1000 (3.9/39.4)	1,5 (0.06)

MODELLO	B* mm (")	Ø Duct mm (")	Case Thickness mm (")
UFD-A60/UFD-A60Z	230 (9.0)	100 / 1000 (3.9/39.4)	1,5 (0.06)

\*B: 210 mm (8.3") on request  
Electric actuator width: 42 mm (1.6")  
Electric actuator height: 155 mm (6.1") (for 100/400 mm - 3.9"/15.7" dampers) – 248 mm (9.7") (for 400/1000 mm -15.7"/39.4"dampers)





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**MARINCO®**

QUALITY MARINE ELECTRICAL PRODUCTS

MARINE ELECTRICAL EQUIPMENTS



## SHORE POWER FEATURES

### EASY LOCK™ SYSTEM

Marinco's exclusive Easy Lock System has been designed to make hook-up quick and easy. Just connect the cordset (with an Easy Lock locking ring installed) to the inlet and turn the locking ring less than a quarter turn.

The tabs on the locking ring lock into the inlet for a positive watertight hook-up while eliminating any chance of cross threading. The locking ring features lock locators positioned at 180° to improve finger grip during attachment.

Easy Lock inlets have a threaded boss that will accept threaded cordsets as well.

### SOFT TOUCH™ CAP DESIGN

MARINCO inlets feature the Soft Touch cap design. The Soft Touch hinge is designed with a special cam feature that allows it to stay "locked" open in the upright position during hook-up. A "soft touch" unlocks it for closing.

### POWERCORD PLUS® CORDSET

The PowerCord PLUS® has features you will not find on other cordsets.

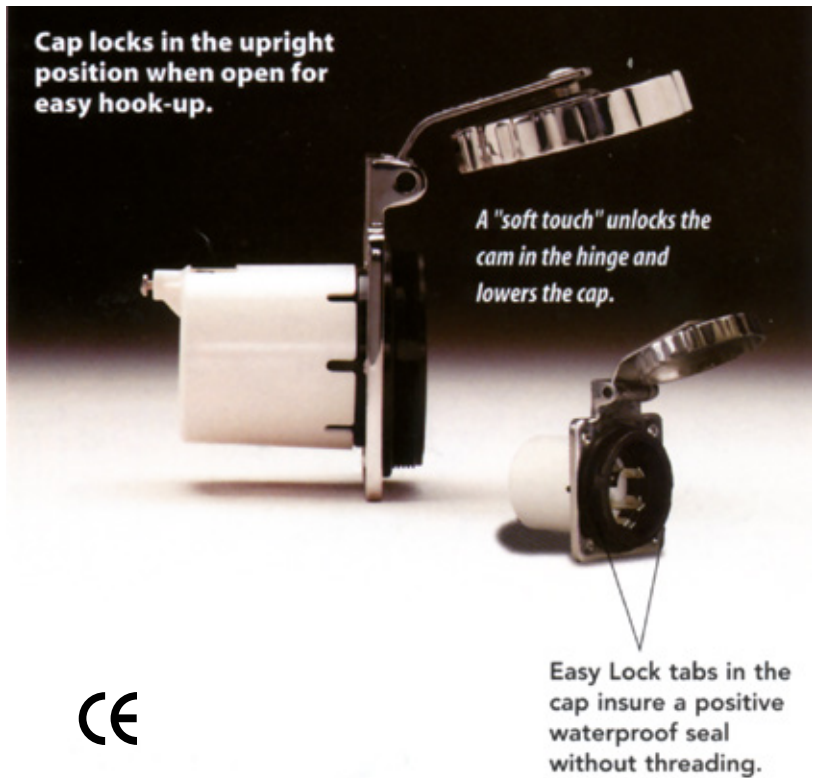
#### Power Indicator light

LED Power indicator light – lets you know if you have power

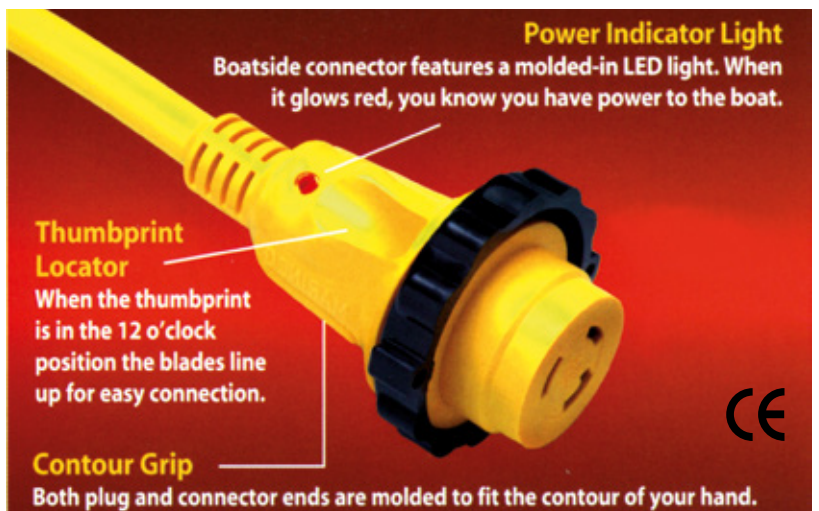
#### Comfort Grip with Thumbprint Locator

Moulded to fit the contour of your hand. Thumbprint Locator lines up the locking blades for quick and easy connections.

- LED Power Indicator Light
- Contour Grip Ends
- Thumbprint Locator
- Super Flexible 10/3 Cable
- Easy Lock™ System
- High Quality Marine Grade Construction
- Watertight Molded Plug & Connectors
- Includes threaded ring and Easy Lock ring
- All PowerCord PLUS cords assembled complete with Watertight Connector Cap to ensure CE compliance
- CE marked



CE



## 16 AMP/220V & 32 AMP/220V SHORE POWER PRODUCTS

### 16 AMP/220V & 32 AMP/220V 50 HZ - POWER INLETS



- 316 Stainless Steel
  - Easy Lock System
  - Soft Touch cap design
  - Rear safety enclosure with strain relief
- 303SSEL-BX** - 66753 A - 16A  
**6371ELX** - 22554 W - 32A



- Glass-filled polyester
  - Easy Lock System
  - Watertight
  - Rear safety enclosure with strain relief
- 301EL-BX** - 66754 C - 16A  
**6351EL-BX** - 66767 M - 32A



- Glass-filled polyester
  - Easy Lock System
  - Watertight
  - Rear safety enclosure w/ strain relief
- 304EL-BX** - 66755 E - 16A  
**6343EL-BX** - 66768 P - 32A

### 16 AMP/220V & 32AMP/220V - FEMALE CONNECTORS



- Female Connector
  - Corrosion resistant contacts and terminals
- 305CRCXN** - 66757 J - 16A  
**6360CRNX** - 66770 A - 32A



- Weatherproof Cover with threaded ring
  - Use with female connectors
- 103RNX** - 66758 L - for 16A  
**7715CRNX** - 66771 C - for 32A



- Watertight Connector Sealing Cap
  - For use on 16 or 32 A products for CE compliance
  - For use on 30 or 50 A products to protect the connector when not in use
- 199109PK** - 66759 N - for 16A/30A  
**199110PK** - 66772 E - for 32A/50A



- Includes female connector, weatherproof cover with treaded ring and watertight cap
- 199114** - 22555 Y - for 16A  
**199115** - 22556 A - for 32A

### 16 AMP/220V 50 HZ - SHORE POWER CORDSETS



- PowerCord™ Cordset
  - 3,3 mm<sup>2</sup> (12/3)
  - With Female connector
  - Blunt cut male end
- 50PCMX** - 66760 X  
 15,24 m (50 ft)



- PowerCord™ PLUS Cordset
  - 3,3 mm<sup>2</sup> (12/3)
  - With moulded connector with LED power indicator light
  - Blunt cut male end
- 50SPPX** - 66762 B - 15,24 m (50 ft)



- PowerCord™ PLUS Cordset
- 2,5 mm<sup>2</sup> (10/3)
- With moulded connector with LED power indicator light and IEC 60309 male plug (IP44)
- Watertight connector sealing cap for CE compliance

- 20MSPPXP** - 66763 D  
 20 m (65.6 ft)  
**15MSPPXP** - 66764 F  
 15 m (49.2 ft)  
**10MSPPXP** - 66765 H  
 10 m (32.8 ft)

### 32 AMP/220V 50 HZ - SHORE POWER CORDSETS



- PowerCord™ PLUS Cordset
- 3,3 mm (12/3)
- With moulded connector with LED power indicator light and IEC 60309 male plug (IP44)
- Watertight connector sealing cap for CE compliance

**15M32AXP** - 66773 G  
 15 m (49.2 ft)



- Blunt cut
- Watertight connector sealing cap for CE compliance
- With moulded connector with LED power indicator light

**15M32AX** - 22557 C  
 15 m (49.2 ft)

#### CABLE CLIP

- Includes 6 Cable Clips with stainless steel mounting screws, easy to install
- CLIP** - 66825 Z

## 50 AMP 125V/250V; 3 POLE, 4-WIRE SHORE POWER PRODUCTS

### 50 AMP 125V/250V; 3 POLE, 4-WIRE - POWER INLETS



- Solid cast 316 stainless steel
- Easy Lock System
- Soft Touch cap stays open in the upright position
- Rear safety enclosure with strain relief
- Locking waterproof cap



- Same as 6373EL-B power inlet, without rear safety enclosure
- 6373EL - 66776 N - 50A**



- Glass-filled polyester
  - Easy Lock System
  - Watertight cap
  - Rear safety enclosure w/ strain relief
  - Marine stainless steel trim
- 6353EL-B - 66775 L - 50A**



- Contour chrome power inlet
  - Chrome finish cover
- 6344EL-BCR - 66777 R - 50A**

**6373EL-B - 66774 J - 50A**

### 50 AMP 125V/250V; 3 POLE, 4-WIRE - MALE PLUG AND FEMALE CONNECTOR



- Male Plug ribbed, thick wall nylon housing for secure gripping
  - Use with weatherproof 7717N cover for superior seal
- 6365CRN - 66778 T - 50A**



- Weatherproof cover for male plug 6365CRN
- 7717N - 66822 T**



- Female connector ribbed, nylon housing for secure gripping
  - Use with weatherproof 7715CRN cover for superior seal
- 6364CRN - 66779 V - 50A**



- Weatherproof cover for female connector 6364CRN
- 7715CRN - 66771 C**

### 50 AMP 125/250V; 3 POLE, 4-WIRE SHORE POWER CORDSET



- PowerCord™ PLUS Cordset
- LED power indicator light - lets you know if you have power
- Watertight molded plug and connector for safety and durability
- Contoured grip ends with Thumbprint Locator for fast and easy connection
- Includes Easy Lock Ring and standard threaded ring for hook-up to ordinary threaded inlets

**6152SPP - 66783 K - 15,24 m (50 ft)**  
**6152SPP-25 - 66784 M - 7,62 m (25 ft)**

### "Y" ADAPTER



- Locking with Sealing Collar System 510R
- 165AY - 66781 F - 50A**

### SEALING COLLAR WITH THREADED RING



- Provides maximum moisture protection between cordset and adapter.
- 510R - 66782 H**



**110R - 67056 G - Per sistemi 30A**



## 63 AMP/230V 50 HZ SHORE POWER PRODUCTS - SINGLE PHASE 3-WIRE, THREE PHASE 4-WIRE



**6401EL-BX** - 66785 M - 63A Single Phase, 3-wire  
**6402EL-BX** - 66788 W - 63 A Three Phase, 4-wire

- Power Inlet
- 316 stainless steel
- Easy Lock System
- Soft Touch cap design
- Rear safety enclosure with strain relief



**6401CRCX** - 66786 S - 63A Single Phase, 3-wire  
**6402CRCX** - 66789 Y - 63A Three Phase, 4-wire

- Female Connector
- Corrosion resistant contacts and terminals
- Best when used with weatherproof cover 7715CRNX



**6401CRPX** - 66787 U - 63A Single Phase, 3-wire  
**6402CRPX** - 66790 G - 63A Three Phase, 4-wire

- Male Plug
- Corrosion resistant materials
- Best when used with weatherproof cover 7715CRNX



**7715CRNX** - 66771 C

- Weatherproof cover for 63 Amp male plugs and female connectors both single and three phase



**199111PK** - 60102 TA

- Watertight Connector Cap
- For use on 16, 32 or 63 A products for CE compliance
- For use on 30 or 50 A products to protect the connector when not in use

## 100 AMP 125/250V SHORE POWER PRODUCTS



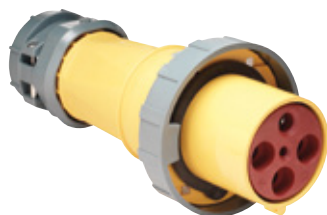
**M4100P12** - 67038 E - 3 pole, 4 wire  
**M5100P9** - 20856 C - 4 pole, 5 wire

- Plugs with gasketed locking ring
- For use with 100A 125/250V shore power cordsets



**M4100C12** - 20857 E - 3 pole, 4 wire  
**M5100C9** - 20858 G - 4 pole, 5 wire

- Body connectors
- Mate with plug on extension cords or adapters. Note: It does not mate with shore power inlet



**M4100C12R** - 66792 L - 3 pole, 4 fili (Mate with M4100B12R)  
**M5100C9R** - 66794 R - 4 pole, 5 wire (Mate with M5100B9R)

- Body connectors with gasketed locking ring
- For use with 100A 125/250V shore power cordsets



**M4100B12R** - 66793 N - 3 pole, 4 wire  
**M5100B9R** - 66795 T - 4 pole, 5 wire

- Shore power inlets on boat side
- Gray inlets have a gasketed, spring-loaded cover providing an IP-67 watertight rating (withstands temporary immersion) when tightened

**new**



**CW100IT4**  
100 Amp 125/250V 3 pole 4-wire



**CW100IT5**  
100 Amp 3ØY 120/208V 4 pole 5-wire

- For use with 100 amp 125/250 volt (**CW100IT4**) or 120/208 volt (**CW100IT5**) shore power systems
- High visibility, 2 AWG, flexible yellow STOW cable is oil, water, UV resistant, and rated to 105°C
- IEC pin & sleeve plugs and connectors are designed for harsh environments, watertight, and corrosion resistant. Feature integrated locking rings
- Options for use with on-board isolation transformers
- UL and ABYC approved

**CW100IT4** - 23959 E - 100' (30m) blunt out, yellow  
**CW100IT5** - 23960 N - 100' (30m) blunt out, yellow

## 30 AMP/125V SHORE POWER PRODUCTS



**305CRPN** - 66817 A - 30A

- Male Plug ribbed for secure gripping
- Compact design



**102N** - 66818 C

- Weatherproof cover for male plug 305CRPN



**305CRCN** - 66819 E - 30A

- Female Connector ribbed for secure gripping
- Compact design



**103RN** - 66758 L

- Weatherproof cover with threaded ring for female connector 305CRCN

## 50 AMP/125V; 2 POLE, 3-WIRE SHORE POWER PRODUCTS



- 6361CRN - 66821 R - 50A**
- Male Plug ribbed, thick wall nylon housing for secure gripping
  - Use with weatherproof 7717N cover for superior seal



- 7717N - 66822 T**
- Weatherproof cover for male plug 6361CRN



- 6360CRN - 66823 V - 50A**
- Female connector ribbed, nylon housing for secure gripping
  - Use with weatherproof 7715CRN cover for superior seal



- 7715CRN - 66771 C**
- Weatherproof cover for female connector 6360CRN

## PHONE AND CABLE TV INLETS



- 316 stainless steel inlet
- Locking waterproof cap
- Soft Touch cap design
- Watertight rear boot (PH/TV inlet only)

**PH6592TV-SS - 66796 V**

Phone and Cable TV Inlet

**TV6592 - 66797 X**

Cable TV / internet inlet



**TV6444 - 66801 J**  
Cable TV / internet inlet



- Standard glass-filled polyester inlet
- Watertight cap
- Stainless steel trim on cap

**PH6574TV - 66798 Z**

Phone and Cable TV Inlet

**TV6574 - 66799 B**

Cable TV / internet inlet



- Female Phone Connector With cover
- PH6629 - 66848 M**

## PHONE AND CABLE TV CORDSETS



### Telephone Cordset

- 3 conductor vinyl cord provides portable connection for RVs and pleasure boats

**PH6599 - 66802 L - 15,24 m (50 ft)**



### TV Cable Cordset

- Standard 75 Ohm, with quick, slip-on connections and heavy duty boots included on both ends

**TV99-25 - 66805 T - 7,62 m (25 ft)**

## SeaLink® 12 VOLT RECEPTACLE AND PLUG



### 12V DC Receptacle

- Watertight sealing cap
- Easy to install with mounting plate for front panel installation, or locking ring for rear access installation

**Mounting plate** – 20767 D (optional)

- Compatible with standard 12V plugs

**12VRC** – 66156 F



### 12V DC Receptacle white

- Weather resistant plug cover
- Easy to install, with supplied mounting plate for front panel installation, or locking ring for rear access installation

- Compatible with standard 12V plugs

**12VRCW** – 66862 F



### 12V DC Plug

- Moisture proof sealing ring
- LED power indicator light
- Interchangeable 10A fuse
- Internal strain relief and cord seal
- Compatible with standard 12V receptacles

**12VPG** – 66415 D



### 12VBP Plug

- O-ring seal for waterproof connections
- Weather resistant plug cover
- Corrosion resistant, plated brass electrical components
- Ergonomic contoured grip for easy hook-up and ground blade alignment

**12VBP** – 67219 J



### 12VBR Receptacle

- Watertight sealing cap
- Corrosion resistant, plated brass electrical components
- Drain holes in receptacle keep water away from electrical components
- Perma-Lock screw terminals will not loosen under extreme hull vibration
- Easy to install with supplied mounting plate for front panel installation or locking ring for rear access installation

**12VBR** – 67220 T



### 12VCP Plug + Receptacle

- 12VBP and 12VBR packaged together

**12VCP** – 67225 D



### 12V USB

- 12 to 24VDC input
- 5V, 2.1 amp total output
- Blue LED power indicator light for USB
- Water resistant cover protects against dust and water
- Dual USB ports
- Terminals not included

**12VDUSB-B** – 21630 E



### 12V USB

- 12 to 24VDC input
- 5V, 2.1 amp total output
- Blue LED power indicator light for USB
- Water resistant cover protects against dust and water
- Dual USB ports
- Terminals not included

**12VDUSB-W** – 21631 G

## SeaLink® - ACCESSORIES



### 12V DC Extension Cord

- Heavy duty 18 gauge wire, extends to over 1,8 m (6 ft)
- Watertight cap
- Plug features a LED indicator light, moisture proof sealing ring, strain relief and built-in 10A fuse
- Works with any standard 12V plug and receptacle

**12VXT** – 66810 K



### 12V DC Dual Outlet Cord

- Heavy duty 18 gauge wire, extends to over 0,3 m (1 ft)
- Watertight cap
- Plug features a LED indicator light, moisture proof sealing ring, strain relief and built-in 10A fuse
- Works with any standard 12V plug and receptacle

**12VAD** – 66811 M



# EEL SHORE POWER CORDSETS

## ONE HAND. A SIMPLE TWIST. FULL POWER

The EEL (Easily Engaged Lock) ShorePower Cordsets has a patented industry first, jaw-clamp design providing one-handed operation and a secure waterproof seal which completely eliminates the need for a locking ring. The EEL connection is built for the harshest environments and is UL approved. This easy-to-use cordset features a built-in cord light which serves as an alert to boaters when the cord is left plugged in. And, best of all, it works with your current inlet. In addition to cordsets with EEL System, Marinco® also has a full set of Pigtail and “Y” adapters all using the new EEL technology.

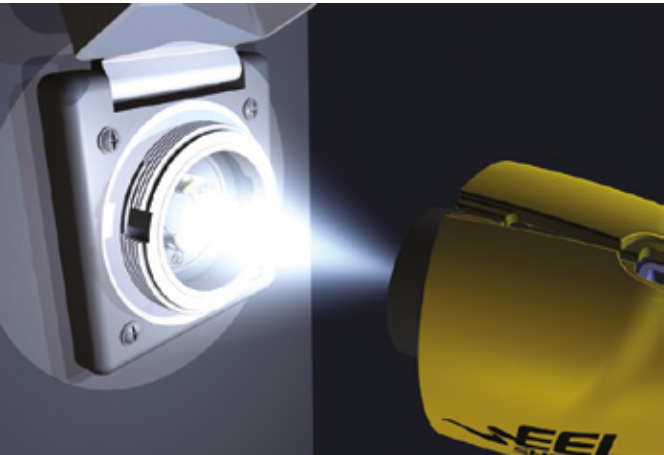


## PATENTED EEL TECHNOLOGY

- Designed for use with standard inlets (NEMA)
- Single-handed operation
- No sealing ring required
- Patented jaw-clamp technology provides a watertight seal every time

## FEATURES & BENEFITS

- Built-in cord light for added safety - alert light indicates if you are plugged into the dock and cord is powered
- Power indicator light on both ends informs you full power is flowinng through the cord
- Meets and exceeds rigorous UL testing standards
- 50 Amp 125/250V cordset models, 25’ and 50’ lengths in white and yellow available
- EEL product line includes connectors, pigtail, straight and “Y” adapters



MODEL	PART No.	LENGTH	COLOUR
CS504-25	21506 D	25’	yellow
CS504-50	21507 F	50’	yellow
CS504-50W	21644 S	50’	white



## PERMANENT IMMERSION SHORE POWER CORDS

### FEATURES:

- Conductor: Red Copper Class 5 in conformity with HD 383 / IEC 228 rules
- Insulation: special compound
- Protective covering: yellow special compound, for marine applications.  
Flame retardant: NFC.32-070 C2 – IEC 60332-1
- Rated voltage: 0,6/1kW – 50/60 Hz
- Operating temperature in air: -40°C to +70°C. In motion: -25°C to +70°C
- Operating temperature in immersion: 50°C
- Immersion depth: 250 m (820') – 25 bar
- Permanent immersion in conformity with BS 6920 – AD8 NF C 15-100 rule
- Flame retardant in conformity with NF C 32-070 C2 – IEC 60332-1 rules
- Excellent resistance to weathering and low water absorption: 1% / 2%
- Excellent resistance to UV according to SEPAP test 1000 hours at 60°C
- Resistance to radiations: 80 Mrad (8.100 cJ/kg)
- Excellent resistance to ozone in conformity with VDE 0472 § 805 rule
- Resistance to salt fogs: in conformity with ASTM B - 117 test 500 hours



DIMENSION mm <sup>2</sup>	COIL 20 m	COIL 30 m	COIL 60 m	Amp
3 x 2,5	69845 X	67310 U	69846 Z	16
3 x 4	69847 B	67311 W	69848 D	32
3 x 6	69849 F	67837 M	69850 P	32
3 x 10	67755 K	68946 Y	69815 M	50
3 x 16	68911 C	-	69600 P	63
4 x 10	69817 S	-	69816 P	50
4 x 16	69599 J	-	69598 G	63
4 x 25	20920 J	-	20921 L	100

## MONOFILAMENT POLYESTER BRAIDED SLEEVINGS FOR CABLES

### TECHNICAL FEATURES

- Temperature class: F
- Continuous working temperature rating: -50°C +155°C with peaks at +180°C
- Halogen free
- Flammability: self extinguishing
- Good mechanical resistance
- Excellent resistance to abrasion
- Good resistance to solvent
- Non watertight
- Very flexible
- Expansion ratio: from 1 to 2
- Use: hot cutting to avoid fraying
- Colour: black



### APPLICATIONS



### STANDARDS

- Compliant with RoHS 2002/95/CE specifications
- NF EN 60684-1 (10-2003)
- NF EN 60684-2 (01-1998) modified by  
NF EN 60684-2/A1 (12-2003)  
NF EN 60684-2/A2 (05/2006)
- NF EN 60684-3 sheets 340 to 342 (4-2003)



NOMINAL INTERNAL DIAMETER	PART No. 1 m length	BULK PART No. 100 m length	ROLL WEIGHT Kg
10 mm (0.39")	68146 N	68180 N	8,0
15 mm (0.59")	68147 R	20540 Y	12,16
20 mm (0.78")	68148 T	20542 C	17,8
25 mm (0.98")	68149 V	20543 E	20,2
30 mm (1.18")	68150 D	20544 G	27,0

# SPL SERIES – PRECISION WIRELESS CONTROLLED SPOTLIGHTS

## TECHNICAL FEATURES:

- Bright 100W halogen bulb
- Uniform 132sq. ft (25 m) coverage with 370° rotation and 120° tilt
- Durable, weatherproof housing
- Universal 12V or 24V operation
- Wireless, hand held control SPRL-2 supplied with spotlight. Range 65 m (200 ft)
- Current draw: 7 Amp in use. 0,03 Amp standby
- Peak beam intensity: 210.000 CP. Peak beam distance: 280 m
- Operation temperature: -15°C a 45°C
- Dimensions: 7,5"x7,5"x9,25" (cm 19x19x23,5)
- Weight: 3,3 lbs (1.5 kg)
- IP rating: IP56
- Housing material: UV resistant PC/ASA
- Lens material: UV resistant Lexan®

**SPL-12W** – 68115 B 12/24 V, white  
**SPL-12B** – 68116 D 12/24 V, black  
**SPL-12C** – 68117 F 12/24 V, chrome

**SPRL-2** – 68120 U  
Wireless control supplied with spotlight  
Dim. 88x57x19mm (3.5"x2.5"x0.75")



SPRL-2 Supplied with spotlight

**SPRL-1** – 68121 W  
Hand held bridge remote (optional)  
Dim. 51x96x25 mm (2.0"x3.78"x1")



SPRL-1 Optional control



SPL-12W



SPL-12B



SPL-12C

## REPLACEMENT BULBS:

MODEL	PART No.	DESCRIPTION
202319	68118 H	12 Volt, halogen H3
202320	68119 K	24 Volt, halogen H3





**STAINLESS STEEL HALOGEN SPOT/FLOOD WITH REMOTE JOYSTICK CONTROL**

- 316 stainless steel base, 304 stainless steel head
- Includes joystick control and 15' wiring cable with easy to install plug ends
- Secondary station may be added (see parts and accessories)
- Light can be directed manually without damaging motors
- Spot Power: 72.000 CP
- Flood Power: 30.000 CP
- Amp Draw: 7 Amp
- Operation: 12V Incandescent
- Bulb: Replaceable Incandescent
- Lamp Dimensions: H 241mm (9.5") x W 114mm (4.5") x L 190mm (7.5")
- Base Dimensions: L 140mm (5.5") x W 89mm (3.5")
- Weight: 2,7 kg (6 lbs)
- Joystick requires 70mm (2.75") installation hole



**22040 A**

**22040A - 66860 B - Stainless Steel Halogen Spot/Flood with Joystick Control**

**PARTS & ACCESSORIES**

SPOTLIGHT MODEL	CONTROL PANEL	REPLACEMENT BULB KIT
<b>22040A - 66860 B</b>	<b>22240 - 66989 G</b>	<b>22014-P - 67001 E</b>

**WIRELESS IP67 SS SPOT/FLOOD**

- Wireless remote communication
- 316 stainless steel base, 304 stainless steel head
- 350 degree horizontal, 60 degree vertical two speed movement
- Peak beam intensity: 165.000 CP
- Amp draw: Spot 8.3A, flood 7.5A
- Power (input voltage): 12V
- Bulb: H4 halogen
- Dimensions: H 250,1 mm (9.875") x W 120,6 mm (4.75") x L 212,1 mm (8.35")
- Weight: 2,7 kg (6 lbs)
- IP Rating: IP67

**22050A - 21505 B with remote included**  
**22051A - 21645 U without remote included**

24V version is available on request



**22050A**

**22051A**

**IP67 LED STAINLESS STEEL SOPTLIGHTS**

- Wireless remote communication
- 316 stainless steel base, 304 stainless steel head
- 350 degree horizontal, 60 degree vertical two speed movement
- Amp draw: 3A @12V DC
- Power (input voltage): 12V or 24V
- Dimensions: H 250,1 mm (9.875") x W 120,6 mm (4.75") x L 212,1 mm (8.35")
- Weight: 4,24 kg (11.36)
- IP Rating: IP67
- 92000 CD bright intensity (12 and 24 V)

**23050A - 22361 J - 12V remote control included**  
**23051A - 22362 L - 12V remote control not included**  
**22150A - 22590 A - 24V remote control included**  
**22151A - 22591 C - 24V remote control not included**



**23050A (12V)**  
**22150A (24V)**

**23051A (12V)**  
**22151A (24V)**



**23250-R - 22542 N**  
 12V wireless IP67 spotlights  
 bridge remote

**23350-R - 22543 R**  
 24V wireless IP67 spotlights  
 bridge remote



**23250-HH - 22544 T**  
 Wireless IP67 spotlights hand held remote



## MARINE HORNS

AFI is the leading supplier of horns to the marine industry, with over a fifty years of experience in designing and manufacturing sound devices specifically for use in harsh marine environments. Stainless steel is used for all critical components such as trumpets, motor cover, diaphragms and mounting hardware.

AFI offers a complete line of marine horn products designed to meet almost any need, including electric and air trumpet horns, compact horns, below deck and deck horns.

### DROP-IN BELOW DECK HORNS - ELECTRIC COMPACT HORNS

#### "H" HORN PHASE II - DROP-IN HIDDEN HORN

- Easy installation: 69,8mm (2.75") diameter hole x 25,4mm (1") deep
- 12 Volt, maximum Amp draw: 4 Amp
- dB(A) rating: 111 at one meter
- Fundamental frequency: 370±20Hz
- Grills have water resistant fabric liners. Ordered separately.
- Easy retrofit

**11080** - 66904 V - Drop-in Hidden Horn without Grill

**11187** - 66905 X - Screw-in White ASA Grill for 11080

**11188** - 66906 Z - Screw-in Black ABS Grill for 11080

**11096** - 66907 B - Screw-in Stainless Steel Grill Kit for 11080: includes stainless steel grill cover and plastic white (11187) screw-in grill



**11080**



Only 1" deep



#### DROP-IN "H" HORN WITH GRILLS

- Comes with both black ABS and white ASA snap-in grills
- dB(A) rating: 107 at one meter
- Fundamental frequency: 370±20Hz
- Internal space requirements: H 50,8mm (2") x W 85,6mm (3.37") x D 82,5mm (3.25")
- Distinctive marine horn sound
- Easy installation or retrofit, mounts from the outside
- 12 Volt, maximum Amp draw: 4 Amp

**10079** - 66908 D - Drop-in "H" Horn with Grills



**10079**

#### DROP-IN HIDDEN HORN WITHOUT GRILL

- Internal space requirements: H 57,2mm (2.25") x W 92,2mm (3.63") x D 88,9mm (3.5")
- Maximum Amp draw: 3 Amp
- dB(A) rating: 105 at one meter
- Fundamental frequency: 440±20Hz
- Mounts from the outside, horn grill snap on for easy installation
- Easy retrofit
- Grill must be ordered separately

**11095** - 66909 F - Drop-in Hidden Horn without Grill

**11090** - 66910 P - Snap-in White ASA Grill for 11095

**11091** - 66911 S - Snap-in Black ABS Grill for 11095

**11225** - 66912 U - Snap-in Chrome Plated ABS Grill for 11095 horn



**11095**



## ELECTRIC DECK COMPACT HORNS

### MINIBLAST™ - COMPACT ELECTRIC HORNS

- Long lasting, non-corrosive ASA plastic cover
- Sealed sound unit with stainless steel diaphragm
- Dimensions: L 109,2mm (4.37") x W 85,6mm (3.37") x H 50,8mm (2.0")
- Maximum Amp draw: 3 Amp, 12Volt
- dB(A) rating: 106 at one meter (3ft)
- Fundamental frequency: 440±20Hz

**10099** – 66920 T – White MiniBlast Compact Electric Horn

**10098** – 66921 V – Black MiniBlast Compact Electric Horn



**10099**



**10098**

## DECK HORNS - FULLBLAST™ AIR HORNS

AFI® FullBlast compressor driven air horns are the loudest and most complete line of 12V air horns available. They produce sound levels ranging between 120 and 127 dB, which means they meet the ABYC and NMMA regulations for boats up to 20 meters (66 ft). Both 12V and 24V compressors are CE listed.

### SINGLE TRUMPET MINI AIR HORNS

- Solid brass construction
- Non-corrosive Lexan® diaphragm
- Include compressor, air tubing, fittings and hardware
- Dimensions: L 241,3mm (9.5") x W 88,9mm (3.5") x H 88,9mm (3.5")
- Maximum Amp draw: 12 Volt: 20 Amp, 24 Volt: 10 Amp
- dB rating: 126 at one meter, 1/3 octave band
- Fundamental frequency: 630±15Hz

**10107** – 66913 W – 12 Volt Chrome Single Trumpet Mini Air Horn - chrome plated solid brass

**10104** – 66914 Y – 12 Volt White Single Trumpet Mini Air Horn - white epoxy powder-coated finish over solid brass



**10107**



**10104**

### DUAL TRUMPET MINI AIR HORNS

- Solid brass construction
- Non-corrosive Lexan® diaphragm
- Include compressor, air tubing, fittings and hardware
- Dimensions: L 241,3mm (9.5") x W 127,0mm (5.0") x H 95,3mm (3.75")
- Maximum Amp draw: 12 Volt: 20 Amp, 24 Volt: 10 Amp
- dB rating: 127 at one meter, 1/3 octave band
- Fundamental frequency: 630±15Hz/525±15Hz

**10108** – 66915 A – 12 Volt Chrome Dual Trumpet Mini Air Horn - chrome plated solid brass



**10108**

### AIR COMPRESSORS

- Replacement compressors fit all AFI 12 Volt Air Horns
- Dimensions: L 127,0mm (5.0") x D 66,8mm (2.63")
- Include mounting bracket
- Maximum Amp draw: 12 Volt: 20 Amp, 24 Volt: 10 Amp. Produce 9-11 PSI
- CE marked

**10102** – 66917 E – 12 Volt Air Compressor

**10224** – 66918 G – 24 Volt Air Compressor



**10102**

## UNDER DECK HORN

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### UNDER DECK HORN

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- dB(A) rating: 110 at one meter
- Fundamental frequency:  $420 \pm 20\text{Hz}$
- 12V DC
- Dimensions:  
L 146,05mm (5.75") x W 101,6mm (4") x H 92,33mm (3.635")
- Permanently mounted grill to protect against water intrusion

**11045** – 21511 W – Under deck horn



**11045**



163

## SINGLE TRUMPET ELECTRIC HORN

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### SINGLE TRUMPET ELECTRIC HORN

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- dB(A) rating: 118 at one meter
- Fundamental frequency:  $370 \pm 20\text{Hz}$
- Dimensions:  
L 419,1mm (16.5") x W 101,6mm (4") x H 120,65mm (4.75")
- Maximum Amp draw: 5 amps (12V), 2,5 amps (24V)
- 100% stainless steel exterior
- Type 304 stainless steel diaphragm
- 5 year warranty

**10028XLP** – 21646 W – 12 Volt Single Trumpet Electric Horn

**10017XL** – 21647 Y – 24 Volt Single Trumpet Electric Horn



**10028XLP-10017XL**

## DUAL TRUMPET ELECTRIC HORN

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### DUAL TRUMPET ELECTRIC HORN

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- dB(A) rating: 123 at one meter
- Fundamental frequency:  $370 \pm 20\text{Hz}$  /  $310 \pm 20\text{Hz}$
- Dimensions:  
L 470mm (18.5") x W 203,2mm (8") x H 127mm (5")
- Maximum Amp draw: 10 amps (12V), 5 amps (24V)
- 100% stainless steel exterior
- Type 304 stainless steel diaphragm
- 5 year warranty

**10029XLP** – 21648 A – 12 Volt Dual Trumpet Electric Horn

**10018XL** – 21649 C – 24 Dual Single Trumpet Electric Horn



**10029XLP-10018XL**

## WIPER SYSTEMS

### INTELLIGENT SWITCH FOR HEAVY DUTY PLUS WIPER SYSTEMS

AFI's microcontroller based "intelligent" switch provides all necessary wiper motor functions in one small component

- Settings for two continuous speed functions and three intermittent speed functions (2 sec delay, 4 sec delay, 8 sec delay)
- Washer system operation function
- Blinking LED lights in switch indicate operating function
- Works with 12V or 24V DC motors
- Fits standard switch size openings, requires 67,5mm (2.65") depth
- Includes one ten pole connector with female pins and two female quick-connects



MODEL	PART No.	DESCRIPTION
76030	66935 G	Single Motor Intelligent Switch

### INTERMITTENT WIPER MOTOR CONTROLLER

- Single speed and dual speed options
- Allows for the control of single motor systems and synchronized control of dual motor systems
- Intuitive automotive-style functionality-features adjustable intermittent settings, adjustable continuous settings and washer system operation
- IP67-Potted case for harsh environment durability
- Includes Contura Switch, SPDT (On)-Off-(On)
- Easy to install with 1/4" spade connectors
- Reverse polarity protection
- Compatible with 12V and 24V DC motors



MODEL	PART No.	DESCRIPTION
76090	23957 A	Single speed
76080	23958 C	Dual speed



## 2.5 - HEAVY DUTY WATERPROOF WIPER MOTOR

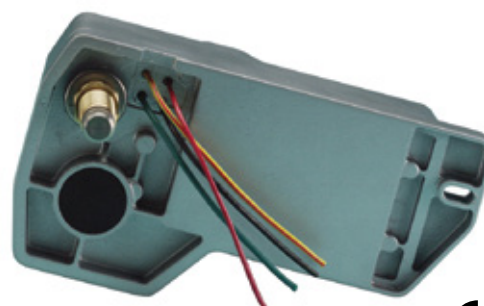
- The most powerful waterproof wiper motor available
- Fully sealed powder coated aluminum waterproof base and housing
- Powers a 26" Deluxe arm and blade combination or a 24" Premier arm and blade combination
- Available in two shaft lengths: 1" and 2" (knurled arm fitting adds ½" to overall length)
- Factory pre-set sweep angle of 80° or 110°, can be easily adjusted to 45° or 60°
- Chrome plated solid brass knurled drive nut with 16 mm (5/8") dia. brass and stainless steel drive shaft
- Measures approx.: L 201,0mm (7.91"), W 108,0mm (4.25"), D 76,8mm (3.02")
- Available in 12V and 24V models
- Coast to park with adjustable right or left self parking
- Two speed motor
- CE marked

MODEL	PART No.	SWEEP	SHAFT	VOLT
82082	66938 N	80°	2"	12V
82012	66940 Z	110°	2"	12V
82312	66941 B	110°	2"	24V



CE

165



CE

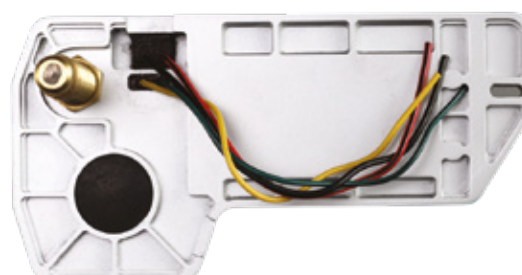
## 1.5 - HEAVY DUTY WATERPROOF WIPER MOTOR

- Fully sealed powder coated aluminum waterproof base and housing
- Powers a 22" Deluxe arm and blade combination or a 20" Premier arm and blade combination
- Available in two shaft lengths: 1" and 2" (knurled arm fitting adds ½" to overall length)
- Factory pre-set sweep angle of 80° or 110°, can be easily adjusted to 45° or 60°
- Chrome plated solid brass knurled drive nut with 16 mm (5/8") dia. brass and stainless steel drive shaft
- Measures approx.: L 197,0mm (7.76"), W 101,0mm (3.98"), D 70,3mm (2.77")
- Available in 12V
- Coast to park with adjustable right or left self parking
- Two speed motor
- CE marked



CE

MODEL	PART No.	SWEEP	SHAFT	VOLT
71081	66952 G	80°	1"	12V
71082	66953 J	80°	2"	12V
71011	66954 L	110°	1"	12V
71012	66955 N	110°	2"	12V



CE

## DELUXE™ - STAINLESS STEEL WIPER BLADES

- Works well on curved or flat windshields
- All stainless steel construction
- Marine grade silicone squeegee

MODEL	PART No.	DESCRIPTION
34016S	23075N	16" stainless steel
34018S	23076R	18" stainless steel
34020S	22883S	20" stainless steel
34022S	23077T	22" stainless steel
34024S	22884U	24" stainless steel

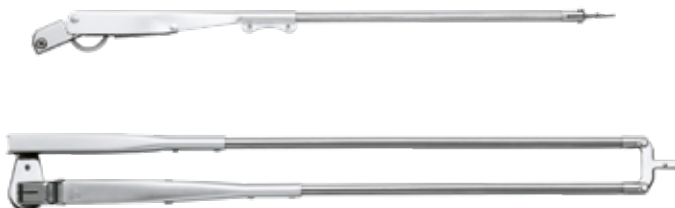
**new**



## PREMIER™ - STAINLESS STEEL ADJUSTABLE SINGLE AND PANTOGRAPHIC WIPER ARMS

- Available in standard and pantographic styles with both versions offered in normal and wet arm configurations

MODEL	PART No.	DESCRIPTION
33086	66957 T	Single Arm, Adjusts 20" to 25"
33092	66958 V	Pantographic Arm, Adjusts 17" to 22"
33094	66959 X	Pantographic Arm, Adjusts 22" to 26"
33086W	66960 F	Single Wet Arm, Adjusts 20" to 25"
33092W	66961 H	Pantographic Wet Arm, Adjusts 17" to 22"



Note: pantographic wiper arms will ONLY function properly with wiper motor sweep angles 80° or less

## PREMIER™ - STAINLESS STEEL WIPER BLADES

- Available in stainless steel or black finish

MODEL	PART No.	DESCRIPTION
34020B	22918J	20" Black Blade
33024 S	66965 S	24" Blade
33024 B	66966 U	24" Black Blade



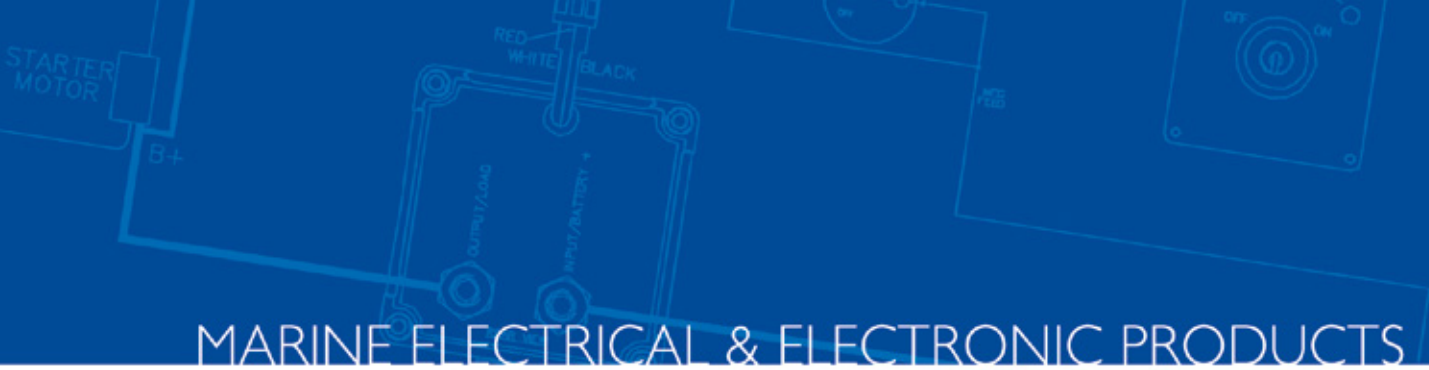
## DELUXE™ - STAINLESS STEEL ADJUSTABLE SINGLE AND PANTOGRAPHIC WIPER ARMS

- Available in stainless steel or black finish

MODEL	PART No.	DESCRIPTION
33010 A	66967 W	Single Arm, Adjusts 14" to 20"
33070 A	66968 Y	Single Black Arm, Adjusts 18" to 24"
33037 A	66969 A	Pantographic Black Arm, Adjusts 17" to 22"



Note: pantographic wiper arms will ONLY function properly with wiper motor sweep angles 80° or less



## MARINE ELECTRICAL & ELECTRONIC PRODUCTS



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CIRCUIT BREAKER PANELS AND INSTRUMENTS



# CIRCUIT BREAKER PANELS

**BEP Marine** manufactures a wide range of control panels for any type and dimension of boats utilizing high quality products and components as, for instance, the certified AIRPAX® circuit breakers fitted in modern and elegant designed panels.

Panels are supplied standard with preassembled cables for an easy installation and equipped with back lit label sets and indication LED's.

Configurations available: 12V DC, 24V DC (please specify voltage requested on ordering to receive the correct back lit labels), 220V AC or voltage combination. All panels are available with Analog or Digital meters.

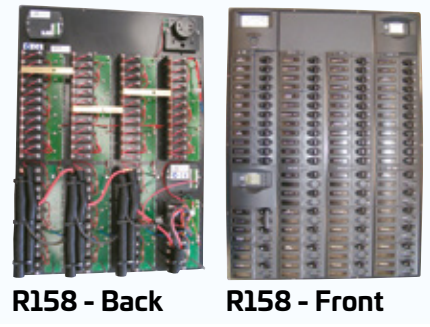
BEP AC Panels back covers are designed to insulate the exposed terminals at the rear of the AC panels. The back covers are made from flame retardant PVC.



# CUSTOM PANELS

BEP Marine manufactures a wide range of Custom panel sizes for OEM's. The Contour panel design allows for flexibility in layout. Although the panels shown in this catalogue are BEP Marine standard range, there are a number of changes that can be made to fit the needs of custom and production boatbuilders.

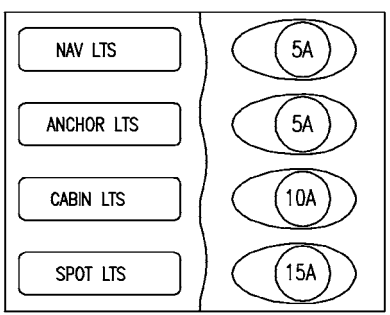
For example, a panel can be made up with eight circuit breakers, four systems in operation lights plus a meter; or a panel can consist of a mixture of analog and digital meters if required. If the panel involves a total custom layout, as described above, a specific part number will be applied to that panel and quoted accordingly. If the design is unable to be achieved we will notify the customer.



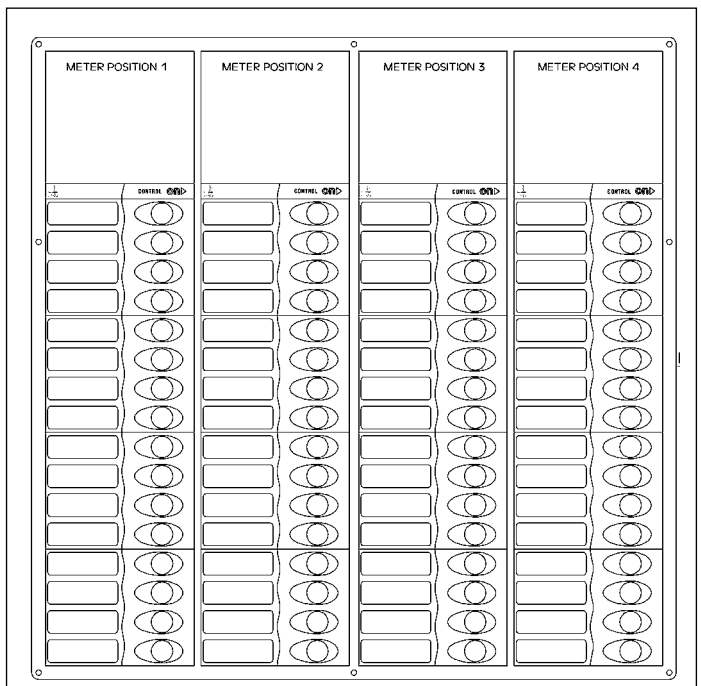
Alternatively a customer may request a standard panel with circuit breakers laid out to their requirements with labels factory fitted: this involves a personalised layout charge. When ordering personalised panels, please specify the desired label sets.

When ordering BEP Marine standard range panels or smaller size models, it may be useful to refer to the following layout panel template where you can fill in model and number of meters requested, circuit breaker rating (double pole for 220V AC) and label set.

Layout template available directly from Uflex or from BEP Marine website.



LABEL SHEET



LAYOUT CUSTOM PANELS



## DC CIRCUIT BREAKER PANELS

New Zealand has a world wide recognized success both in pleasure and sport boats field as developer of innovative quality boats and electrical products for the marine market. The success of BEP Marine has been brought about through world class campaigns by New Zealand boats and crews in events such as the One Ton Cup, Admirals Cup Sydney to Hobart race, Volvo round the World Race and more recently the America's Cup.

BEP Marine Ltd is actively involved in the research and development of new products as circuit panels, circuit breakers panels and accessories that will be installed in the most important boats all around the world.

BEP Marine is today the most innovative manufacturer of electrical products for the sport and commercial boats. Its product are today available in Italy through UFLEX.

### FEATURES:

- Stylish Contour Design
- Red LED's for systems "ON"
- Green LED backlit labels
- All panels available in 12V or 24V configuration
- Cutout size: 10 mm (3/8") inside all external edges
- **NOTE:** All panels are supplied with label set 1



900-DC



900-AM



901V



901V-DCSM



901H



902-AM & 902-DCSM



904NM



NC32Y-DCSM & NC32Y-AM



NC36L-DCSM & NC36L-AM

MODEL	PART No.	DIMENSIONS mm (") H x W x D	CIRCUIT BREAKERS - SINGLE POLE						NEG BUS	VOLT	METER	LABEL SHEET
			5	10	15	20	25	30				
900-DC	63125 C	115x127x65 (4.5x5.0x2.5)	1	2	1				6 way	12V DC	N/D	Set 1
900-AM	64363 A	200x127x65 (7.8x5.0x2.5)	1	2	1				6 way	12V DC	ANALOGIC	Set 1
901V	63126 E	200x127x65 (7.9x5.0x2.5)	2	2	3	1			6 way	12V DC	N/D	Set 1
901V-DCSM	64364 C	295x127x65 (11.6x5.0x2.5)	2	2	3	1			6 way	12V DC	DIGITAL	Set 1
901H	63127 G	115x239x65 (4.5x9.4x2.5)	2	2	3	1			6 way	12V DC	N/D	Set 1
902-AM	63128 J	200x239x65 (7.8x9.4x2.5)	3	4	4		1		6 way	12V DC	ANALOGIC	Set 1
902-DCSM	64365 E	200x239x65 (7.8x9.4x2.5)	3	4	4		1		6 way	12V DC	DIGITAL	Set 1
904NM	63129 L	200x239x65 (7.8x9.4x2.5)	4	5	5	1	1		12 way	12V DC	N/D	Set 1
NC32Y-DCSM	63145 J	380x351x65 (15x13.9x2.5)	7	11	11	1	1	1	24 way	12 o 24 V DC	DIGITAL	Set 1-4, 6
NC32Y-AM	66413 Z	380x351x65 (15x13.9x2.5)	7	11	11	1	1	1	24 way	12 o 24 V DC	ANALOGIC	Set 1-4, 6
NC36L-DCSM	63144 G	380x351x65 (15x13.9x2.5)	8	12	12	2	1	1	24 way	12 o 24 V DC	DIGITAL	Set 1-4, 6
NC36L-AM	66412 X	380x351x65 (15x13.9x2.5)	8	12	12	2	1	1	24 way	12 o 24 V DC	ANALOGIC	Set 1-4, 6

## AC CIRCUIT BREAKER PANELS



900-ACM2W



900-ACCH



900-ACM6W



900-ACM2-AM



900-ACM6V-AM



900-AC2H-ACSM

### FEATURES:

- All AC panels available in 110 V or 230 V options
- Double pole circuit breakers
- The panels are available with analog and digital meter.  
Models with digital meters show Volt, Amp and Frequency
- **NOTE:** All panels are supplied with label set 5.

MODEL	PART No.	DIMENSIONS mm (") H x W x D	SINGLE POLE						DOUBLE POLE				NEG BUS	VOLT	METER	LABEL SHEET
			5	10	15	20	25	30	20	25	30	50				
900-ACM2W	64517 B	115X127X65 (4.5X5.0X2.5)		2					1				IS-6 mm-2	230 V	N/D	Set 5
900-ACCH	68859 D	115X127X65 (4.5X5.0X2.5)							2				IS-6 mm-2	230 V	N/D	Set 5
900-ACM6W	63131 X	115X127X65 (4.5X5.0X2.5)		3	3	1			1				IS-6 mm-2	230 V	N/D	Set 5
900-ACM2-AM	20861 V	200X127X65 (7.9X5.0X2.5)		2					1				IS-6 mm-2	230 V	ANALOGIC	Set 5
900-ACM6V-AM	20862 X	295X127X65 (11.6X5.0X2.5)		2	3	1			1				IS-6 mm-2	230 V	ANALOGIC	Set 5
900-AC2H-ACSM	20863 Z	200X239X65 (7.9X9.75X2.5)	1	3	3	1			1		1		2x6 way	230 V	DIGITAL	Set 5

### CIRCUIT BREAKERS PANELS LABEL SETS

ACCESSORIES	BAIT TANK PUMP	AFT DECK LIGHT	BILGE ALARM	AC MAINS	ACCESSORIES
<b>Set 1N</b> 63254 P	<b>Set 2N</b> 63255 S	<b>Set 3N</b> 63256 U	<b>Set 4N</b> 63257 W	<b>Set 5N</b> 63258 Y	<b>Set 6N</b> 63259 A
Accessories Auto Pilot Bilge Pumps Cabin Lights Cabin Lights Cockpit Lights Compass Lights DC Outlets Depth Sounder Freezer Freshwater Pump GPS Instruments LPG Control Mast Light Navigation Light Riding Light Saltwater Pump Shower Drain Pump Spare Spreader Light Spotlight Stereo Trim Tabs VHF Winch Wiper	Bait Tank Pump Bilge Pump Aft Bilge Pump Forward Bilge Pump Mid Bilge Pump Port Bilge Pump STBD Blower Boarding Light Cabin Lights Aft Cabin Lights Mid Cabin Lights Port Cabin Lights STBD Deck Wash Pump Electric Toilet Engine room Lights Fridge Horn Nav Lts Port Nav Lts STBD Panel Lights Radar Saloon Lights SSB Start Stern Lights Stop Sum Log Tri Light	AFT Deck Light Bilge Auto Man Bow Lights Docking Lights Emergency Parallel Engine Alarm Engine Blowers Extraction Fan Floodlights Fore Deck Light Holding Tank Pump House Batteries Lazerette Light Port Radio Battery Toilet LT Search Light Spare Galley LT Starboard Start Batteries Step Light Strobe Light Weather Fax Window Washers Windex Light 12v Outlets 24v Outlets	1,2,3,4,5 6,7,8,9,10, Bilge Alarm Davit Winch Engine ALT Fire System Fish Finder Fishing Light House ALT Intercom Load Locker Light Tank Room Lights Mid Wiper Mlzen Spar Light Plotter Port Wiper Preheat Sole Light Heater Fan Spare Spare Starboard Wiper Start Stop Sub Main Sump Pump Towing Light	AC Mains AC Outlets AC Outlets AC Outlets Air Conditioning Battery Changer Cook Top Dive Comp Dryer Frequency Genset Hotwater Cylinder Ice Maker Inverter Refrigeration Microwave Oven Reverse Polarity Ships Power Shore Power Trash Compactor TV Video Washing Machine Wastemaster Water Maker 230v AC 110v AC	Accessories AC Mains Anchor Wash Automatic Autopilot Auxiliary Bilge Auto-Manual Bilge Lights Book Furl Bridge Lights Burglar Alarm CB Radio Cell Phone Computer DC Mains Fuel Transfer Cabin Fan Hatch Controls Hydraulics Loud Hailer Macerator Manual Night Lights Pelmet Lights Solar Panel Galley Fan Spare TV Antenna

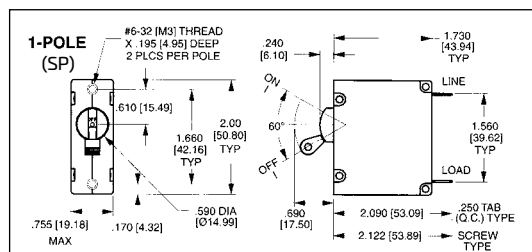
# CIRCUIT BREAKERS

## AIRPAX® IEG

B Series circuit breakers Carlingswitch magnetic circuit breakers are current sensing devices employing a time proven hydraulic magnetic design. These precision mechanisms are temperature stable and are not adversely affected by temperature changes in their operating environment. As such, derating consideration due to temperature variations are not normally required and heat induced nuisance tripping is avoided.

### FEATURES:

- Trip free mechanism, a safety feature which makes it possible to manually hold the contacts closed during overcurrent or fault conditions
- Worldwide safety agency approval are available
- Common trip linkage between all poles. Another safety feature ensures that an overload in one pole will trip all adjacent poles.



## BUSSMANN HEAVY DUTY

Single pole thermal type breakers

### FEATURES:

- Ratings: 50Amp to 150Amp; 30V DC; 3000Amp Interrupt Capacity
- Operating temperature: -32°C to 82°C
- Storage temperature: -32°C to 150°C
- Applications: Typically used in auxiliary and accessory circuits - trucks, buses, RV's and marine applications. Others might include battery charges and DC audio systems. Series 184 and 185 are sealed for engine compartment and bilge area applications.
- Mounting: Panel or surface
- Indicator: series 184 and 185 have a unique reset mechanism which provides visible indication of tripped condition.
- Approvals: complies with SAE J 1625

### MANUAL RESET:

MODEL	PART No.	RATING	SURFACE	PANEL
184 050P-01-1	65382 K	50	-	X
184 060P-01-1	65383 M	60	-	X
184 100F-01-1	63160 E	100	X	-
184 100P-01-1	63162 J	100	-	X
184 150F-01-1	63161 G	150	X	-
184 150P-01-1	63163 L	150	-	X

### SWITCHABLE RESET:

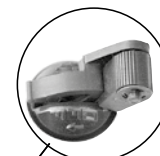
MODEL	PART No.	RATING	SURFACE	PANEL
185 050P-01-1	63927 S	50	-	X
185 070P-01-1	65385 S	70	-	X
185 080P-01-1	63928 U	80	-	X
185 100P-01-1	63166 T	100	-	X



CBS-50A-DP



CBS-50A-SP



121-710-1101

SINGLE POLE PART No.	DOUBLE POLE PART No.	TRIPLE POLE PART No.
CBS 2.5 A - SP 63260 J	-	-
CBS 5 A - SP 63261 L	-	-
-	CBS 10 A - DP 63265 V	-
CBS 15 A - SP 63146 L	CBS 15 A - DP 63151 D	-
CBS 20 A - SP 63147 N	CBS 20 A - DP 63152 F	-
CBS 25 A - SP 63148 R	-	-
CBS 30 A - SP 63149 T	-	CBS 30 A - TP 63266 X
CBS 40 A - SP 63150 B	-	-
CBS 50 A - SP-IGP 63263 R	-	-



Reset only

184 150P



Switchable  
& Reset

185 100F



SPRAY PROOF SWITCH PANELS - 900 SERIES

The next generation of BEP Marine's very popular Spray Proof panel range. Many new features have been incorporated into the series (eg. easy access to fuses from the front of the panel) as well as fresh new look. These new panels replace the part numbers 900-3WPS, 900-4WP, 900-5WPS, 900-6WP and having the same dimensions can easily be retrofitted.

Switches clip easily into rear of panel and can be removed to replace with different function switches eg. on/on, on/off/ on, off/on and (on) off(on)



900-5WPS

Custom designed toggle cover with unique sealing feature



900-2WPOFO



900-2WP



900-2WPMOM



900-3WPSW



900-4WP



900-6WP

SPECIFICATIONS

MODEL	PART No.	COLOUR	DIMENSIONS mm (") H x W x D	LABEL SHEET	SWITCHES
900-2WPOFO	63135 F	BLACK	86x58x28 (3.4x2.3x1.2)	LBL-WP	2
900-2WP	63133 B	BLACK	86x58x28 (3.4x2.3x1.2)	LBL-MIC1 LBL-MIC2	2
900-2WPMOM	63134 D	BLACK	86x58x28 (3.4x2.3x1.2)	LBL-MICSYM	2
900-3WPS	64401 F	BLACK	95x107x75 (3.75x4.25x2.9)	LBL-WP	3 + DC socket
900-3WPSW	64405 P	WHITE	95x107x75 (3.75x4.25x2.9)	LBL-WP	3 + DC socket
900-4WP	63139 P	BLACK	95x107x75 (3.75x4.25x2.9)	LBL-WP	4
900-5WPS	64402 H	BLACK	95x107x75 (3.75x4.25x2.9)	LBL-WP	5 + DC socket
900-6WP	63140 Y	BLACK	95x107x75 (3.75x4.25x2.9)	LBL-WP	6

LABEL SHEET

LBL - WP - 63252 K
LBL - MIC1 - 63136 H
LBL - MIC2 - 63137 K
LBL - MICSYM - 63138 M

ATM FUSES ARE SUPPLIED IN PACKS OF 2

MODEL	PART No	RATING
603905	66520 A	5 A
603910	66521 C	10 A
603915	66522 E	15 A
603920	66523 G	20 A
603930	66524 J	30 A



CSP6 SWITCH PANELS

All CSP6 models are supplied with label back lit sheet set



CSP6

The CSP6 panel range comes in 3 models. All models are back lit.  
**CSP6** Includes six switches unfused for installation where separate fused supply is available.  
**CSP6-F** Includes six switches and 3 **WAFH14** fuse holders with fuses behind panel.  
**CSP6-PTC** This panel utilises the latest technology in overload protection – Positive Temperature Coefficient (PTC). PTC fuses are solid state resettable fuses which will change to a high resistance device on over-current. To reset: Switch circuit off for 10 seconds. If fault remains the PTC will trip back to a resistive state. The panel is supplied with 6 x 9A PTC fuses mounted internally.  
No more changing fuses!

FEATURES:

- Switches protected by high quality neoprene rubber boots
- Green LED backlit labels
- Red LED's for system "ON"
- Waterproof to IP56 rating
- Removable cover plate over switches conceals screws and water drain
- Switch current ratings 20 Amp DC, 10 Amp AC
- Charcoal colour

MODEL	PART No.	DIMENSIONS mm (") H x W x D	SET LABEL SHEET	FUSES	PTC
CSP6	64375 H	158x112x65 (6.2x4.4x2.5)	SET-1SP	NO	NO
CSP6-F	64376 K	158x112x65 (6.2x4.4x2.5)	SET-1SP	3	NO
CSP6-PTC	63141 A	158x112x65 (6.2x4.4x2.5)	SET-1SP	NO	6

Set - 1SP  
63253 M

<Anc.Light Nav.Lts>  
Accessories  
Aerator  
Anchor Lights  
Autopilot  
Bait Tank Pump  
Bilge Pump  
Bilge Pump Auto/Man  
Blower  
Cabin Lights  
Cockpit Lights  
DC Outlets  
Deck Wash  
Depth Sounder  
Flood Lights  
Freshwater Pump  
Fridge  
Horn  
Inst. Lights  
Instruments  
Navigation Lights  
Trim Tabs  
Radio  
Saltwater Pump  
Spot Lights  
Winch  
Wiper



SPARE PARTS FOR SPRAY  
PROOF PANELS

- **WAFH-14** Waterproof fuse holder
- **SW-M331** Splash proof cover

# G2 SPRAY PROOF PANELS

The Generation 2 spray proof range offers unique styling utilising the latest techniques in injection moulding. The switch tray is moulded plastic with a rubber gasket and seal moulded into the plastic.

The cover is moulded in a clear plastic with a rubber over-mould allowing the flexibility to operate the switches through the front of the panel while providing a clear window for label backlighting. Panels available in black or white colour with charcoal or blue strips. When ordering white add "W" on the end of black colour model. G2 can be mounted vertically or horizontally and is available in 2, 4 and 6 way configurations. A joiner is available for multiple panel installations. Supplied complete with on/off switches.



CG2-2W



CG2-4W



CG2-4W-W



CG2-2W-W

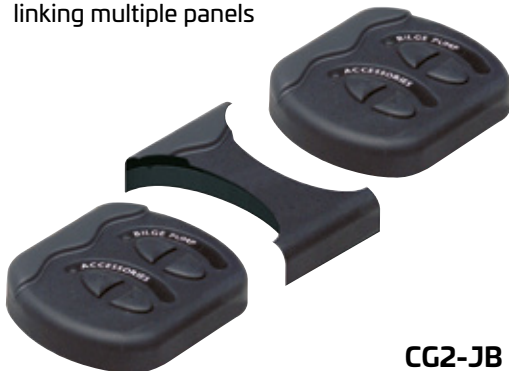


CG2-6W



CG2-6W-W

Joiner available for linking multiple panels



CG2-JB  
64403 K

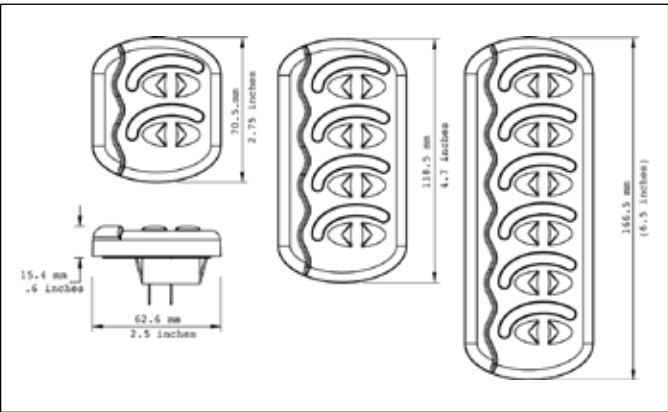
MODEL	PART No.	SWITCHES	FUSE	LABEL SHEET
CG2-2W	64366 G	2	No	Set - G2 - 1
CG2-2W-W	64591 P	2	No	Set - G2 - 1
CG2-2WF	64367 J	2	1	Set - G2 - 1
CG2-4W	64368 L	4	No	Set - G2 - 1
CG2-4W-W	64542 A	4	No	Set - G2 - 1
CG2-4WF	64369 N	4	2	Set - G2 - 1
CG2-6W	64370 X	6	No	Set - G2 - 1
CG2-6W-W	64543 C	6	No	Set - G2 - 1
CG2-6WF	64371 Z	6	3	Set - G2 - 1

G2 SPRAY PROOF PANELS



Unique label design allows it to be read either vertically or horizontally mounted.

CG2-4W



Switch rated for 16 Amp



SW-CG1

MODEL	PART No.	SPARE SWITCH FOR G2 PANELS
SW-CG1	64372 B	ON/OFF
SW-CG2	64750 H	MOMENTARY ON/OFF
SW-CG3	64751 K	ON/OFF/ON
SW-CG4	64752 M	MOMENTARY ON/OFF/MOMENTARY ON

CONTOUR 1100 SERIES SWITCHES

The Contour Interior switch can be either surface or recess mounted. The interior series is supplied standard with a three terminal on/on switch which can be used for ON/OFF circuits or two way light installations. For applications, eg: shower drain pumps or electric toilets, momentary switches can be interchanged into the switch plate. Switches can be turned 90° for horizontal mounting, and all are current rated at 10A DC. All switches include a label set.

MODEL	PART No.	AMP	SINGLE/DUAL	DIMENSIONS LxWxH mm (")
1100-BK	63666 P	10 A	Single	60 x 30 x 18 (2.4 x 1.2 x 0.75)
1101-BK	63668 U	10 A	Dual	91 x 30 x 18 (3.6 x 1.2 x 0.75)

REPLACEMENT AND/OR DIFFERENT OPERATIONAL SWITCH

- SW-6064B3P - 20866 F - ON/ON - ON/OFF switch (supplied as standard)
- SW-6064C3P - 20867 H - ON/OFF/ON switch
- SW6064D3P - 20868 K - ON/OFF button spring loaded in "on" position

LABEL SET FOR G2 SPRAY PROOF PANELS

LABEL SET SET - G2 - 1 64373 D	LABEL SET SET - G2 - 2 64374 F
Accessories Aerator Anchor Lt Bait Tank Bilge Pump Auto B/P Man Blower Cabin Lights Cockpit Lts Dc Outlets Deck Wash Dn Winch Up Electronics Engroom Lts Flood Lights Fw Water Fridge Gps Horn Inst. Lights Instruments Nav Lights Radio Sw Water Spot Lights Up Port Dn Up Stbd Dn Wiper	B/Pump Port B/Pump Stbd B/Pump Fwd B/Pump Mid B/Pump Aft B/Pump Eng Rm Compass Lt Deck Lts Steaming Lt Nav Lts Pt Nav Lts Stbd Step Lts Stern Lt Wiper Pt Wiper Mid Wiper Stbd Washers Freezer H/Tank Pump Sump Pump Locker Lts Panel Lts Tri Lt Bow Lts Shower Lt Shower Pump Spare Spare

NOTE: Panels supplied standard with label set G2-1. Label set G2-2 can be ordered separately.





# 100 SERIES CONTROL PANEL

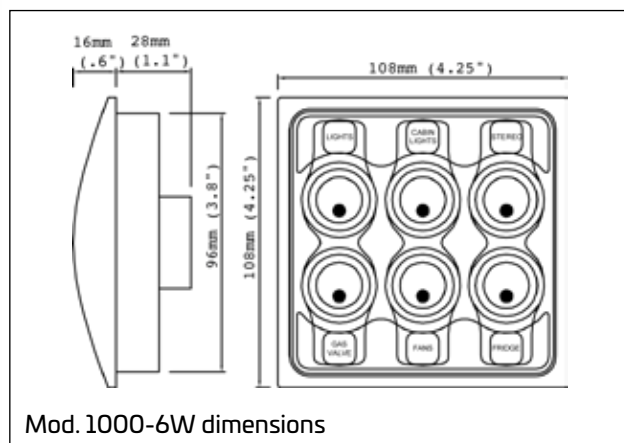
The 1000 Series control panels are offered for interior use on smaller sail boats or cruises.

- The ATC fuses are easily accessible from the front of the unit.
- The range is fully modular allowing it to be mounted in a vertical or horizontal configuration.

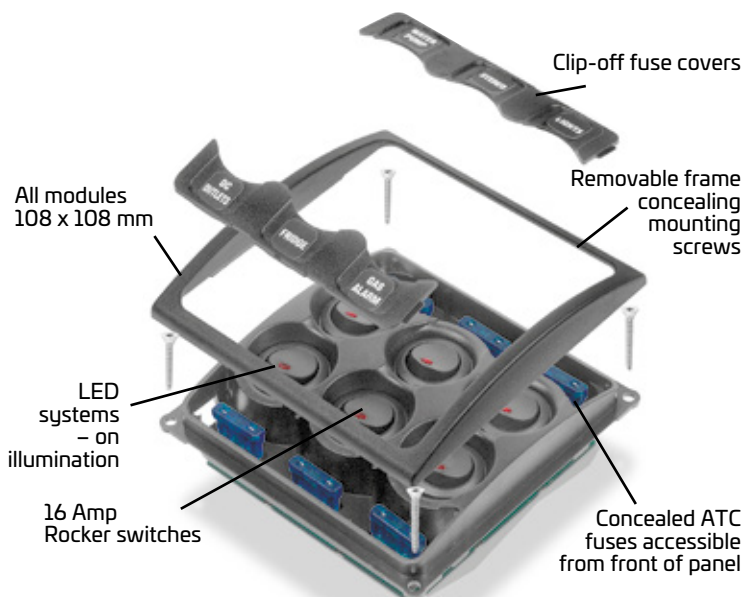
## FEATURES:

- Supplied with ATC fuses accessible from front cover
- Square dimensions allow for modular mounting
- Supplied with label sheet part no. SET-1000
- Systems – on LED on each switch
- Matching trim conceals mounting screws
- An On/Off/Momentary switch is available for horn operation. Ordered separately Part No. SW-RVS2 - 65380 F

MODEL	PART No.	SWITCHES	FUSES	VOLT
1000-6W-12V	64379 S	6	6	12V DC



SW-RVS2 - 65380 F  
ON/OFF switch



1000-6W



1000-6W

## LABEL SHEETS FOR 1000 SERIES CONTROL PANEL

### Included



SET-1000 - 64383 G

### Ordered separately



SET-1002 - 64384 J

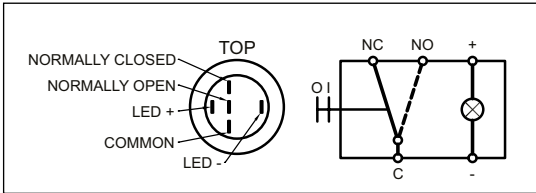
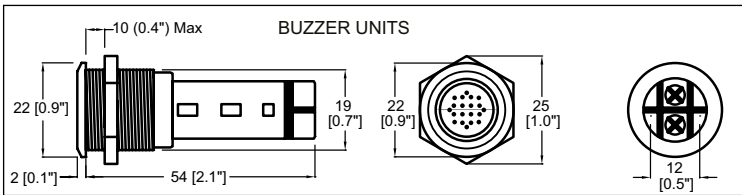
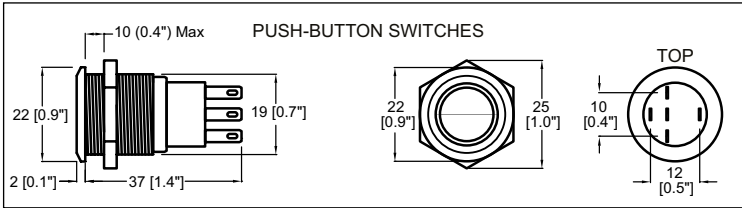


12V & 24V PUSH BUTTON SWITCHES & BUZZERS WITH LED RING

New push-button Switches & Buzzers are built to last with their stainless steel components and silver alloy contacts. The through panel mount switches are ideal for lighting, switch, or dash panels, with colored rings that can be wired to either display power to the system or switch back lighting. The product line includes both switches and warning buzzers with LED light rings.

FEATURES & BENEFITS:

- Maximum switch current rating 5 amps
- IP67 environmental protection switches
- IP50 environmental protection buzzers
- 80 decibel buzzer sound intensity
- Warning buzzers flash red on alarm



MODEL 12V	PART No.	DESCRIPTION	COLOUR
80-511-0001-00	20872 A	ON/OFF	Red
80-511-0003-00	20873 C	ON/OFF	Blue
80-511-0002-00	20874 E	Momentary (ON)/OFF	Red
80-511-0004-00	20875 G	Momentary (ON)/OFF	Blue
80-511-0009-00	20876 J	Buzzer	Red

MODEL 24V	PART No.	DESCRIPTION	COLOUR
80-511-0005-00	20877 L	ON/OFF	Red
80-511-0007-00	20878 N	ON/OFF	Blue
80-511-0006-00	20922 N	Momentary (ON)/OFF	Red
80-511-0008-00	20923 R	Momentary (ON)/OFF	Blue
80-511-0010-00	20924 T	Buzzer	Red

CONNECTION CABLE

This 300 mm (12") cable simply pushes onto the back of the push button switches and features 0.8 mm<sup>2</sup> / 18 g cables for switch and backlight connections that comply with ISO/ABYC. Other end is stripped wire for easy connection.

80-511-0031-00 - 21652 R



# BATTERY DISTRIBUTION SWITCHES

## BEP MARINE BATTERY SWITCH TEST PROCEDURES (UL 1107)

Continuous (1 hour) intermittent (5 minutes) and cranking (engine starting – 10 seconds). The test is to determine the maximum current the switch can handle for the stated time, without the rear terminals exceeding 100°C above the ambient temperature. The continuous and intermittent ratings are tested at 110% of specified ratings. All BEP switches are tested independently to this specification by a 3rd party laboratory.

## 701 BATTERY MASTER SWITCH - 63142 C

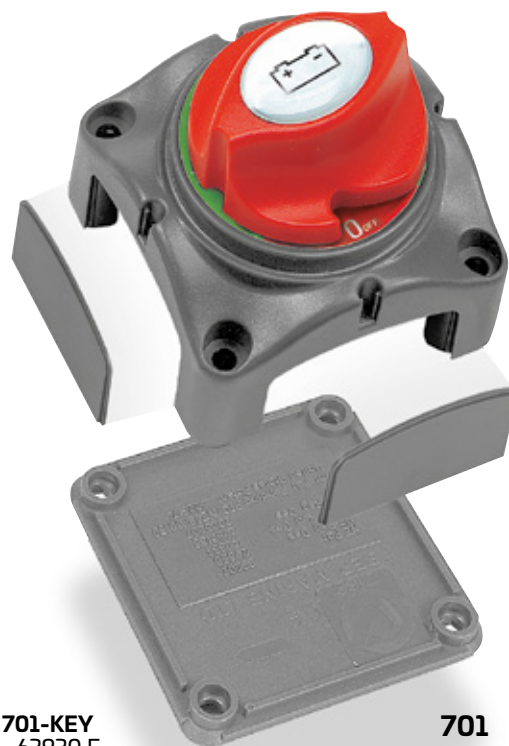
The 701 Contour Battery Master Switch offers a number of unique features. The highlights being the patented contour lock system, allowing it to be a stand alone unit, or locked together with other switches. The 701 also features a control knob which cannot be removed whilst in the On or OFF position, however can be removed by switching to an anti-clockwise 45° position. The control knob also features an interchangeable labelling system allowing a full range of applications (Set-715). The 701 also features removable side plates on 4 sides for access of up to 1/0 cables. Plus a rear cover insulating the rear terminals against any short circuits ensuring the switch meets ABYC requirements. The 701 can be either surface or recess mounted by cutting a 52 mm (2 1/16") hole.

### FEATURES:

- Continuous rating: 275 Amp DC
- Intermittent rating: 455 Amp DC
- Cranking rating: 1250 Amp DC
- Voltage rating: 48V DC
- Operation: ON/OFF
- Mounting: recessed or surface
- Termination stud size: 2 x 10 mm (3/8")
- Dimensions: 69 x 69 x 75h mm (2.75 x 2.75 x 3h inches)
- Tin plated copper studs and nuts
- Ignition protected

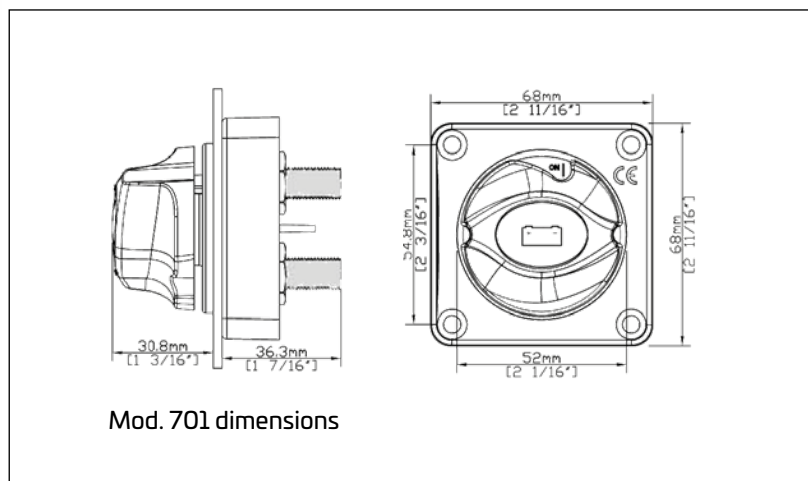
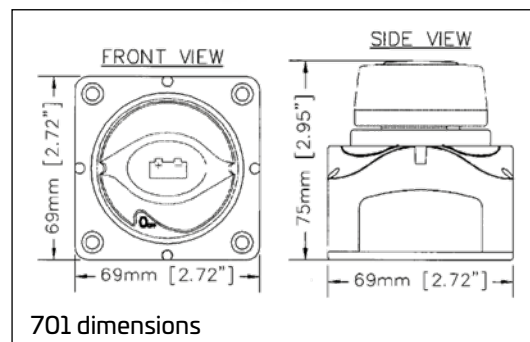
## 701-PM PANEL MOUNT BATTERY SWITCHES - 65494 X

Same specifications as 701 switch



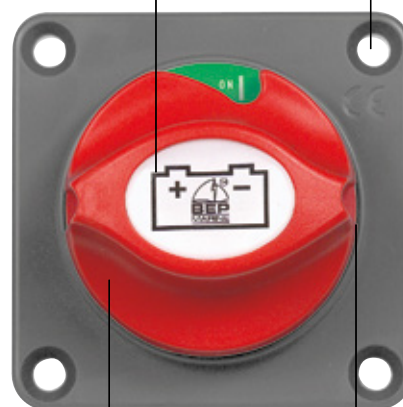
**701-KEY**  
- 63930 E  
Spare Part  
Removable knob

**701**



Standard BEP  
interchangeable  
label system

Countersunk  
recess for  
surface mount  
application



**701 - PM**

Removable  
key

Standard  
52,4 mm (2 1/16")  
hole cut out

## 720 HEAVY DUTY BATTERY SWITCH - 63174 S

The 720 Heavy Duty Battery Switch fits into the same contour lock system as used on the battery distribution Switch system. Rated at 600 Amp continuous and 2500 Amp cranking. It is well suited to larger vessels. As with the 701 and 720 can be recessed or surface mounted. The 720 uses the same style of self cleaning sliding contact as used in the 701. Also utilises the same label sheet as 701 (Set-715).

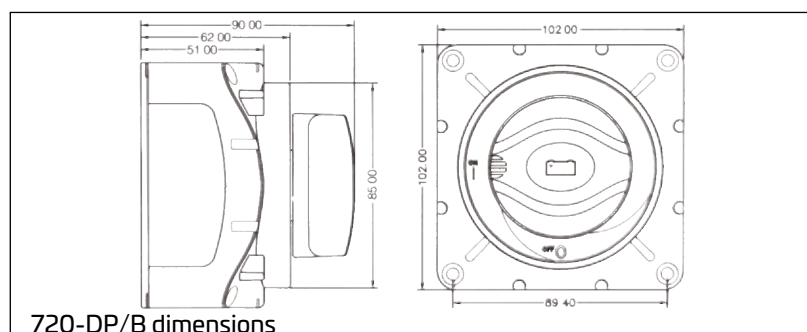
### FEATURES:

- Continuous rating: 600 Amp DC
- Intermittent rating: 800 Amp DC
- Cranking rating: 2500 Amp DC
- Voltage rating: 48V DC
- Operation: ON/OFF
- Mounting: recessed or surface
- Termination stud size: 2 x 12 mm (1/2")
- Dimensions: 102 x 102 x 90h mm (4 x 4 x 3.5h inches)
- Tin plated copper studs and nuts
- Ignition protected
- Available in bulk only



Recessed  
hole cut  
out 85 mm  
(3.3")

720



720-DP/B dimensions

## 700 EASYFIT BATTERY SWITCH - 63672 J

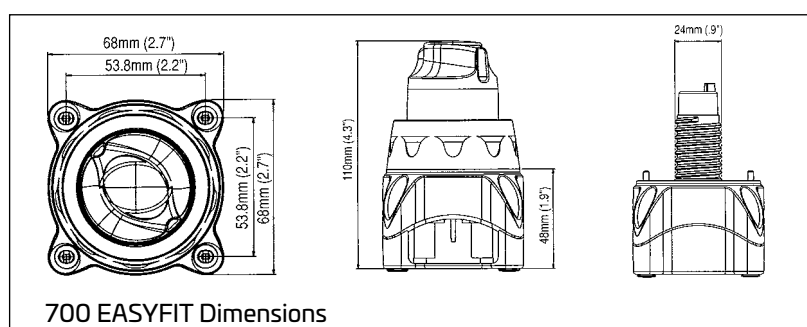
The 700 Easyfit is ideal on those installations where switches need to be recessed through varying thickness of panels. 700 Easyfit features an easily removable threaded ring allowing for panel thickness up to 19 mm (3/4"). It uses the same features as the 701 with the removable key 45° past the off position, labelled handle and a removable back cover covering exposed terminals to meet ABYC specifications. The switch can also be surface mounted offering a unique style compared to other switches available on the market. The 700 Easyfit can easily be retrofitted in place of most European post and lever type switches.

### FEATURES:

- Continuous rating: 275 Amp DC
- Intermittent rating: 455 Amp DC
- Cranking rating: 1250 Amp DC
- Voltage rating: 48V DC
- Operation: ON/OFF
- Mounting: recessed or surface
- Termination stud size: 2 x 10 mm (3/8")
- Tin plated copper studs and nuts
- 700-KEY spare Part Removable knob
- Ignition protected



700 EASYFIT



700 EASYFIT Dimensions



## BATTERY DISTRIBUTION SWITCHES

### 701-S MINI BATTERY SELECTOR SWITCH - 64387 R

The 701-S is the most compact selector switch available on the market. Housed in the same dimensions as the 701 and includes the same removable side plates and back cover.

While BEP Marine foremost recommends isolated battery systems as outlined with our distribution clusters, the 721 offers a simple economical way of separating two batteries.

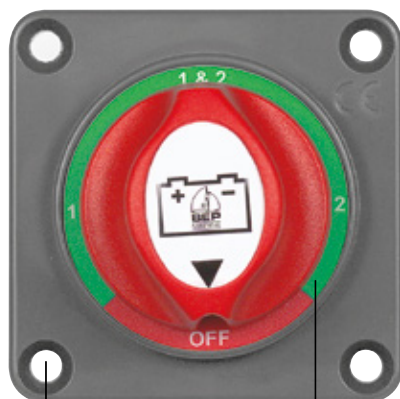
**Please note this system will not separate electronics from harmful engine starting spikes.**

#### FEATURES:

- Continuous rating: 200 Amp DC
- Intermittent rating: 300 Amp DC
- Cranking rating: 1000 Amp DC
- Voltage rating: 48V DC
- Operation: Selector 1-2-both-off
- Mounting: recessed or surface
- Termination stud size: 3 x 8 mm (5/16")
- Dimensions: 69 x 69 x 75h mm (2.75 x 2.75 x 3h inches)
- Tin plated copper studs and nuts

### 701S-PM PANEL MOUNT BATTERY SWITCHES - 66163 C

Same specifications as 701S switch



Countersunk recess for surface mount application

Standard 52,4 mm (2 1/16") hole cut out

### 721 BATTERY SELECTOR SWITCH - 63143 E

The 721 is our heavy duty selector switch, housed in the same module as the 720 and includes the same removable plates and back cover. While BEP Marine foremost recommends isolated battery systems as outlined with our distribution clusters, the 721 offers a simple economical way of separating two batteries. **Please note this system will not separate electronics from harmful engine starting spikes.**

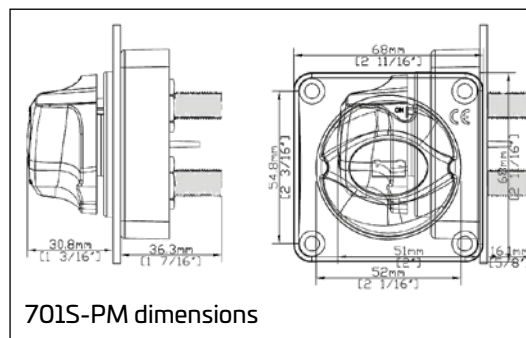
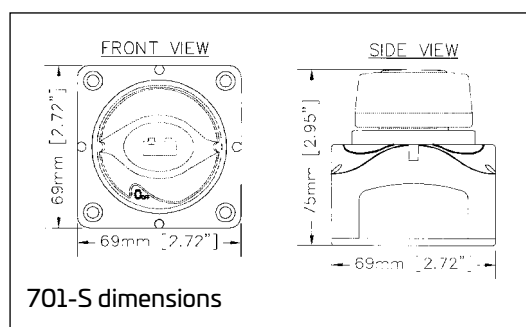
#### FEATURES:

- Continuous rating: 350 Amp DC (between common and B1 or B2)
- Continuous rating: 500 Amp DC (between common and B1 or B2)
- Intermittent rating: 500 Amp DC
- Cranking rating: 1500 Amp DC
- Voltage rating: 48V DC
- Operation: Selector - Battery 1-2-both off
- Mounting: recessed or surface
- Termination stud size: 3 x 10 mm (3/8")
- Dimensions: 102 x 102 x 90h mm (4 x 4 x 3.5h inches)
- Tin plated copper studs and nuts
- Ignition protected



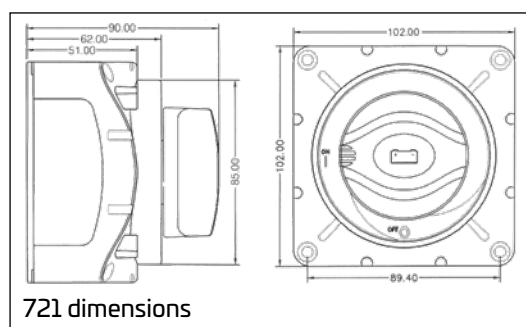
Recessed hole cut out 52 mm (2.1")

701-S



Recessed hole cut out 85 mm (3.3")

721





## REMOTE OPERATED BATTERY SWITCHES

Due to the increased loading requirements on modern boats and large increases in the cost of copper battery cable, the MD range of battery switches allows you to mount the battery switch very close to the battery, reducing cable lengths to starter motor. They are also ideal for remote isolation of bow thrusters.

### THE MD RANGE OFFERS THE FOLLOWING FEATURES:

- Remote operation (easier access for battery control).
- Battery switch can be mounted alongside battery, reducing cable lengths and cable sizes to starter motor (large cost saving in copper cable).
- Reduced labour for fitting, due to shorter battery cabling.
- Manual override option to meet CE requirements.
- LED status identification for remote control switch.
- Same capacity/specification and mounting options as standard BEP battery switches.
- Utilize same interchangeable labelling system as BEP battery switches.

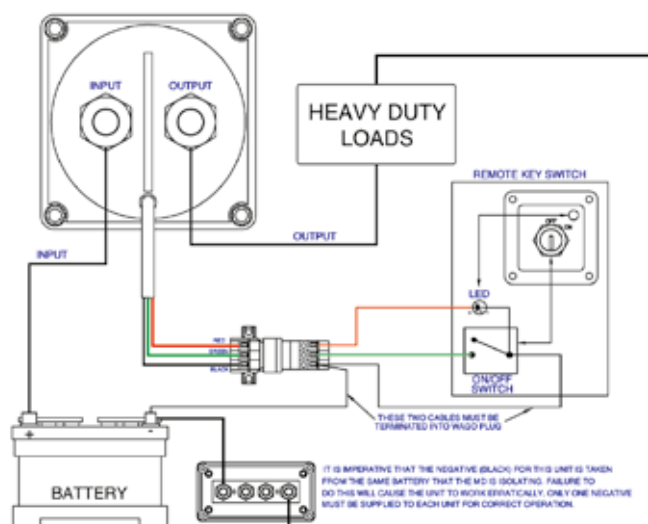
### 701-MD SPECIFICATIONS - 66026 S

- Continuous rating: 275 Amp DC
- Intermittent rating: 455 Amp DC
- Cranking rating: 1250 Amp DC
- Voltage rating: 9,5 – 32 Volt
- Operation: On / Off
- Mounting: recessed or surface
- Ignition protected
- Stud size: 2 x 10 mm (3/8")
- Tin plated copper studs and nuts

### 720-MDO SPECIFICATIONS - 66027 U

- Continuous rating: 500 Amp DC
- Intermittent rating: 700 Amp DC
- Cranking rating: 2500 Amp DC
- Voltage rating: 9,5 – 32 Volt
- Operation: On / Off
- Mounting: recessed or surface
- Ignition protected
- Stud size: 2 x 12 mm (1/2")
- Tin plated copper studs and nuts

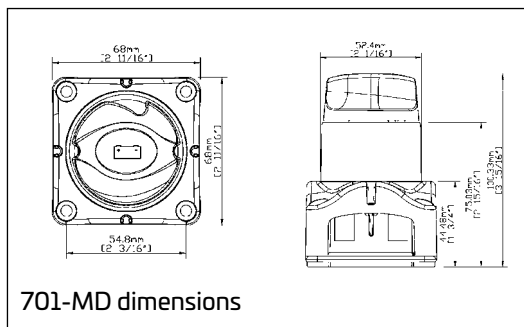
### WIRING DIAGRAM



720 - MDO



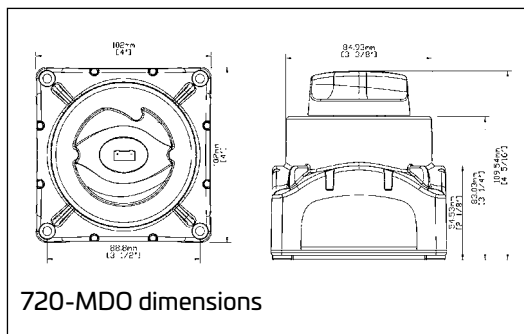
701-MD



701-MD dimensions



720-MDO



720-MDO dimensions

### Optical sensor benefits (720-MDO only)

- Can be used to switch in positive or negative lines
- Low stand by current draw (7mA). Zero if aux control switch used (See instructions).
- Main contacts isolated from control circuit allowing operation via another battery source

**WIRELESS REMOTE CONTROL AND RECEIVER TO OPERATE BATTERY SWITCHES**

You can now wire your Battery to the BEP receiver and operate the On/Off switch by remote control, from a distance of up to 50 metres away

- You can control up to 4 separate 5 Amp circuits, eg. 701/720-MD battery switches, anchor light, navigation lights and courtesy lights
- No more lifting hatches to turn on battery switches – it is now all controlled from your remote keyfob
- Control battery switches easily (On/Off) from the dock or carpark
- The remote has a rolling code, for your security

80-911-0045-00 - 66951 E - Wireless remote control



**REPLACING KNOBS FOR 701 SWITCHES**

701-KEY-EP – 67866 V replacing knob  
701-KEY – 63930 E replacing knob

**LABEL SET FOR BATTERY DISTRIBUTION SWITCHES**

Set - 715 - 64389 V  
Set 715 contains the three most commonly requested labels



701-KEY-EP  
67866 V



701-KEY  
63930 E

**REMOTE BATTERY MANAGEMENT SYSTEM**

**BATTERY SWITCH CONTROL CENTER (BCC) - 67405 F**

Sophisticated electrical systems need reliable automation. It is possible to centralize power handling with BEP Battery Control Center (BCC) that can control all battery switches from one convenient position.

**FEATURES:**

- The BCC is equipped with locks that ensures group operation at the turn of the key. Any switch can be isolated by disengaging its lock and toggling the switch off
- Isolate each battery via key switch or designated battery banks via breaker.
- LED Status indicators for battery switch status.



80-700-0051-00

MODEL	PART No.	DESCRIPTION
80-700-0050-00	68857 Z	Single engine remote
80-700-0051-00	67405 F	Dual engine remote
80-700-0052-00	68858 B	Triple engine remote

**REMOTE ON/OFF KEY SWITCH**

The remote On/Off key switch is used for the remote operation of the 701-MD and 720-MDO battery switches. It can be mounted standalone or within the Contour Connect panel range.

80-724-0006-00 – 21651 N

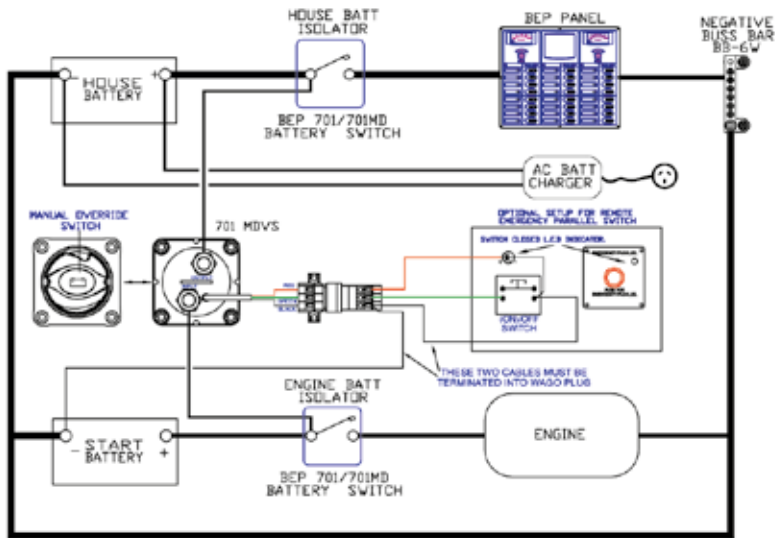


80-724-0006-00

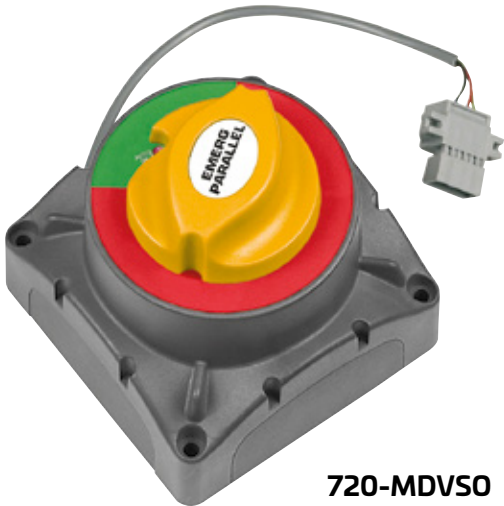
DUAL BATTERY CHARGING VOLTAGE SENSING RELAYS(VSR)

REMOTE OPERATED WITH EMERGENCY PARALLEL

The VSR switch utilizes the same operation as the MD battery switches and is packed with features which complimet the MD range.



701-MDVS and 80-701-0018-00 Same specifications as 701-MD



720-MDVSO and 720-MDO-EP Same specifications as 720-MD

FEATURES:

- Dual battery sensing
- Remote emergency parallel function 701-MDVS and 720-MDVSO can be operated through a momentary button on the dash which will parallel the batteries for a present time of 10 minutes. Once this 10 minutes has passed, if the voltage is up high enough for the voltage sensitive switch to operate, it will stay engaged. If not, it will discharge.
- Engine run sensing VSR will engage when the voltage on either start or house battery reaches 13,7 Volt. If the combined battery voltage drops below 13,0 Volt and the engine is not running, after 5 seconds the contacts will open and stay open until the start or house battery voltage exceeds 13,7 Volt. If the combined battery voltage drops below 12,2 Volt and the engine is running, after 5 minutes the contacts will open and stay open until the start or house battery voltage exceeds 13,7 Volt. If voltage drops below 13,0 Volt and stays above 12,2 Volt on either start or house battery while engine is running, the VSS will stay engaged.
- Manual override option
- The VSR will cover your dual battery charging requirements and emergency parallel operation in one unit

MODEL	PART No.	VOLT	RATING	ENGAGES	DISENGAGES
701-MDVS	66416 F	12V DC	275A	13.7V DC	12.2-13.00V DC
701-MDVS-24V	66418 K	24V DC	275A	27.4V DC	24.4-26.00V DC
720-MDVSO	21374 N	12/24V DC	500A	13.3-26.6V DC	12.7-25.4V DC
80-701-0018-00	68152 H	12/24V DC	275A	Emergency parallel only	
720-MDO-EP	68346 X	12/24V DC	500A	Emergency parallel only	

## DUAL BATTERY CHARGING VOLTAGE SENSING RELAY

### 710 -140A - DIGITAL VOLTAGE SENSING RELAY (DVSR)

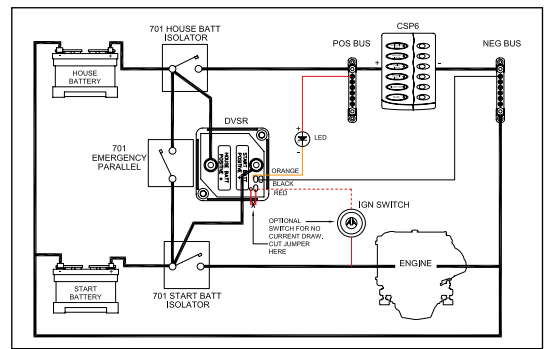
The Voltage Sensing Relay (VSR) allows the charging of a second battery from a single charging source. When the voltage on the start battery rises to a level indicating a 60% charge, the VSR engages allowing the 2nd battery to charge. When charging stops and voltage falls, the VSR will disengage isolating the two battery banks from each other. Dual sensing functionality enables the sensing of two battery banks allowing two way charging.

- Safely charge two or more independent battery banks from one charge source (alternator, battery charger....)
- Protects start batteries from becoming flattened by domestic loads
- Simple to install 3-wire connection, leaves alternator wiring intact
- No Volt drop vs. diode isolators
- Zero stand by current draw
- Multi voltage, auto selects between 12 and 24V DC operation
- Ignition protected
- Surface or panel mountable

It replaces previous models 710-125A and 710-125A-DS



710-140A



MODEL	PART No.	VOLT	APPLICATIONS	SIZE mm (") H x W x D
710-140A	68101 P	12V DC/24V DC	For use on charging systems up to: 140 Amp	69 x 69 x 50 (2.75 x 2.75 x 2)

## BATTERY DISTRIBUTION COMPONENTS

### GALVANIC ISOLATORS PROSAFE SERIES

- ABYC A-28 compliant
- Prevent galvanic corrosion due to dissimilar metals between boats
- Gold plated terminals provide superior corrosion resistance to marine environment
- Block DC current from flowing through shore power cable
- Ignition protected
- Use the ProSafe FS30 for 30 Amp Shore Cord Applications
- Use the ProSafe FS60 for (1) 50 Amp or (2) 30 Amp Shore Cord Applications



PROSAFE FS30



PROSAFE FS60

MODEL	PART No.	AMP	VOLTAGE	FREQUENCY	OPERATING TEMPERATURE	DIMENSIONS mm (")	WEIGHT kg (lbs)
ProSafe FS30	20588 D	30A	120/240V	50/60 Hz	max 50° C	171,5 x 177,8 x 63,5 (6.75 x 7 x 2.5)	1,4 (3)
ProSafe FS60	20589 F	50A single cable 60A dual cable	120/240V	50/60 Hz	max 50° C	184,2 x 165,1 x 95,3 (7.25 x 6.5 x 3.75)	1,7 (3.7)



# BATTERY DISTRIBUTION CLUSTERS

## 715-V DUAL BATTERY CHARGING CLUSTERS

- To be used on following systems:
- Single outboard dual battery bank
  - Single alternator dual battery bank
  - Twin alternator dual battery bank



715-V

## 716-SQ-140A-DVSR DUAL BATTERY CHARGING CLUSTERS

- For use on charging systems up to 150A. To be used on following systems:
- Single outboard dual battery bank
  - Single alternator inboard engine dual battery bank



716-SQ-140A-DVSR

## 715-S DUAL BATTERY CHARGING CLUSTERS

The 715-S is designed for systems with twin engines and 2 batteries. The house loads can be switched between port and starboard battery. The selector switch can also be used to parallel the batteries when in both position.



715-S

## 717-140A-DVSR THREE BATTERY CHARGING CLUSTERS

This system is designed for twin outboard installations using outboards without AUX outputs. It will allow the port engine to charge the port start battery and the house battery when the VSR is engaged. It will also allow the starboard engine to charge the starboard start battery and the house battery when the starboard VSR is engaged, giving a combined charge from two outboards into the house battery until the voltage regulators on both engines control the charge. It will also allow the house battery to be charged if steaming on one engine.

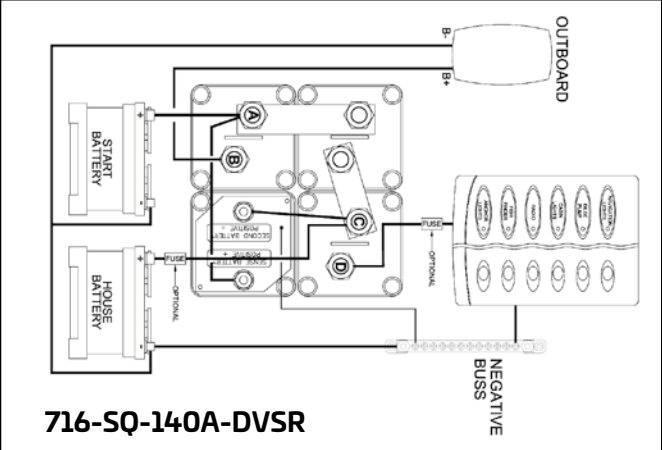


717-140A-DVSR

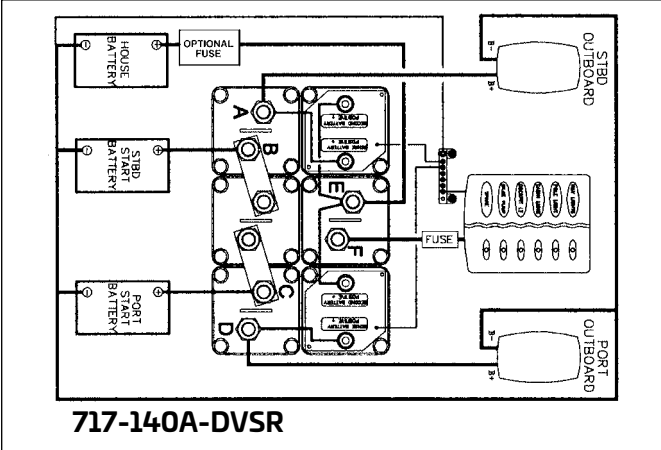
## TWO ENGINE AND FOUR BATTERY SYSTEMS

719-140A-DVSR - 21368V

MODEL	PART No.	ENGINE/BATTERIES	ORIENTATION	SIZE mm (") W x D
715-V	68856 X	Single inboard or outboard engine/2 banks	RECTANGULAR	207 x 69 (8.1 x 2.75)
716-SQ-140A-DVSR	68102 S	Single inboard or outboard engine/2 banks	SQUARE	138 x 138 (5.4 x 5.4)
715-S	65352 A	Twin inboard or outboard engine/2 banks	RECTANGULAR	138 x 69 (5.4 x 2.75)
717-140A-DVSR	68103 U	Twin outboard engine/3 banks	RECTANGULAR	207 x 138 (8.1 x 5.4)
719-140A-DVSR	21368 U	Triple outboard engine	SQUARE	207 x 207 (8.1 x 8.1)



716-SQ-140A-DVSR

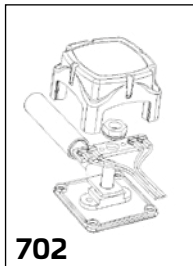


717-140A-DVSR

## BATTERY DISTRIBUTION COMPONENTS

### 702 DISTRIBUTION STUD

The 702 Contour Distribution Stud allows terminating of heavy duty cables for 1 or more connections. Contour lock housing has removable side plates which allow for connections from all sides, utilising link bars 702SB.



702

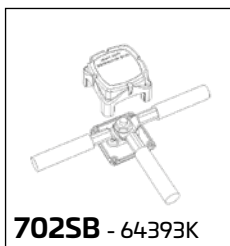


703-300A

MODEL	PART No.	STUD SIZE	AMP	DIMENSIONS mm (")
702	63687 Y	10 mm (3/8")	200A	69 x 69 x 50 (2.71 x 2.71 x 2)
703-300A	68058 S	10 mm (3/8")	300A	138 x 69 x 50 (5.4 x 2.71 x 2)
703-500A	63688 A	10 mm (3/8")	500A	69 x 69 x 50 (2.71 x 2.71 x 2)

### 702SB SECONDARY BUS

Fitted to distribution stud 702 allows for small wire connections without cluttering main stud. Terminal screws 4 mm (1/8").



702SB - 64393K



702SB

### BUS BARS

Marine grade negative or positive Bus Bars are supplied as standard with all BEP AC/DC control panels

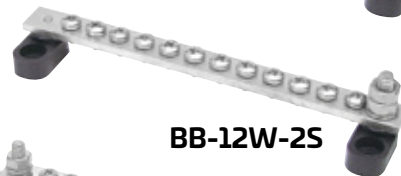
#### FEATURES:

- 4 mm (5/32") stainless steel screws with shakeproof washers
- 2x6 mm (1/4") input stud
- Tin plated brass
- Insulated mounting base

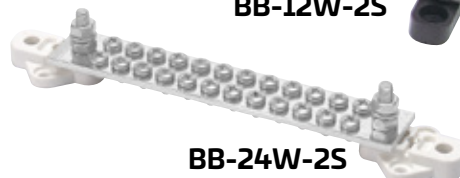
MODEL	PART No.	OUTPUT SCREWS 4 mm (5/32")	INPUT STUDS 6 mm (1/4")	CURRENT RATING
BB-6W-2S	63690 L	6	1	100A
BB-12W-2S	63691 N	12	1	100A
BB-24W-2S	63692 R	24	2	150A



BB-6W-2S



BB-12W-2S



BB-24W-2S

### INSULATED STUDS

#### FEATURES:

- Tinned copper 10 mm (3/8") or brass studs 6 mm (1/4") with spring washers
- High temperature plastic insulated mounting base

#### DIMENSIONS W X H X D MM ("):

- IS-10MM-1: 44x35x18 mm (1.73x1.37x0.7)
- IS-6MM-2: 42x32x36 mm (1.65x1.25x1.42)



IS-10MM-1  
64392H



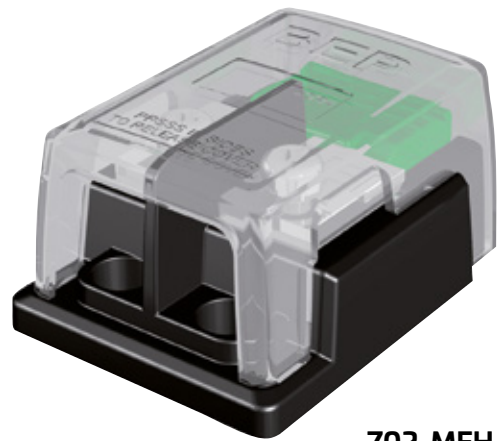
IS-6MM-2  
63689C

## BATTERY DISTRIBUTION COMPONENTS

### 702-MFH AND 702-HDBFH SINGLE FUSE HOLDER

BEP Marine's new heavy duty fuse holders are an economical way of fusing heavy loads 30-80 amp. Ideal for battery charger outputs or mains feeds. 6 mm (1/4") studs receive ring terminals and cables up to 25 mm<sup>2</sup> (4 gauge). Fuse is clamped between tinned brass clamp for positive connection. Covers enclose exposed terminals to meet ABYC standards.

MODEL	PART No.	STUD SIZE	DIMENSIONS mm (")
702-MFH	67406 H	6 mm (1/4")	71 x 53 x 36 (2,8 x 2 x 1,42)



702-MFH

### HIGH AMPERAGE FUSES

- Fuses available 30-80 Amp
- Interrupt capacity: 1000 Amp DC
- Maximum voltage: 32 Volt DC

### FUSIBILI HEAVY DUTY

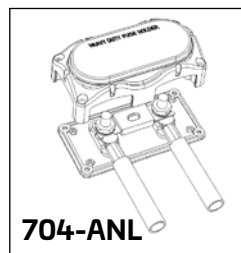
MODEL	PART No.	RATING	MODEL	PART No.	RATING
BFHD-30A	66132 R	30 Amp	BFHD-60A	66135 X	60 Amp
BFHD-40A	66133 T	40 Amp	BFHD-70A	66136 Z	70 Amp
BFHD-50A	66134 V	50 Amp	BFHD-80A	66137 B	80 Amp

### 704-ANL FUSE HOLDER HEAVY DUTY - 63235K

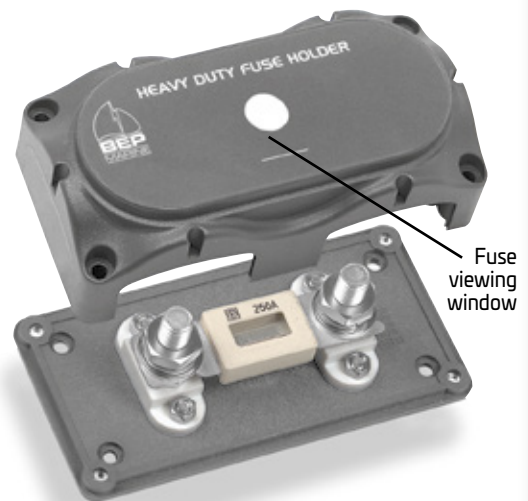
The 704-ANL allows fusing of heavy duty accessories between 80 Amp - 500 Amp. Mounted in contour lock mouldings with removable sides. Meets ABYC standards for exposed terminals.



ANL-FUSE



704-ANL



704-ANL

### HIGH AMPERAGE FUSES

MODEL	PART No.	ANL FUSE LINKS	DIMENSIONS mm (")
IP100A	64395 P	100 Amp	138 x 69 x 50 (5,4 x 2,75 x 2)
IP150A	63806 D	150 Amp	138 x 69 x 50 (5,4 x 2,75 x 2)
IP200A	63807 F	200 Amp	138 x 69 x 50 (5,4 x 2,75 x 2)
IP250A	63808 H	250 Amp	138 x 69 x 50 (5,4 x 2,75 x 2)
IP300A	20764 X	300 Amp	138 x 69 x 50 (5,4 x 2,75 x 2)
IP425A	63810 U	425 Amp	138 x 69 x 50 (5,4 x 2,75 x 2)
IP500A	64407 U	500 Amp	138 x 69 x 50 (5,4 x 2,75 x 2)

IGNITION PROTECTED



# ATC FUSE HOLDERS

The BEP ATC fuse holder includes the patented contour lock system (as used in all BEP battery management products). This allows you to module as many fuse holders as you like together.

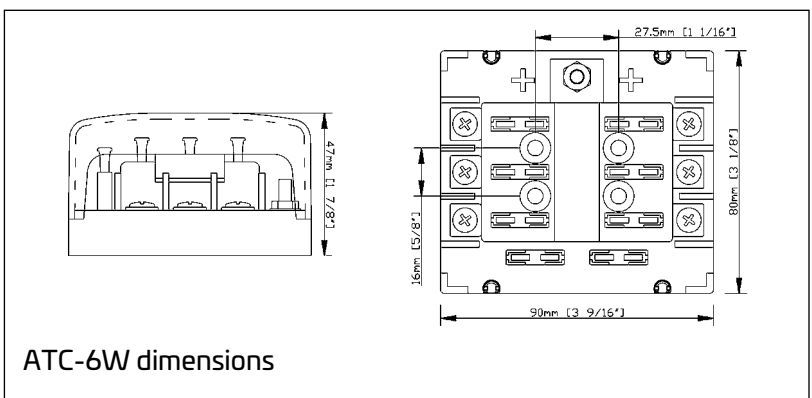
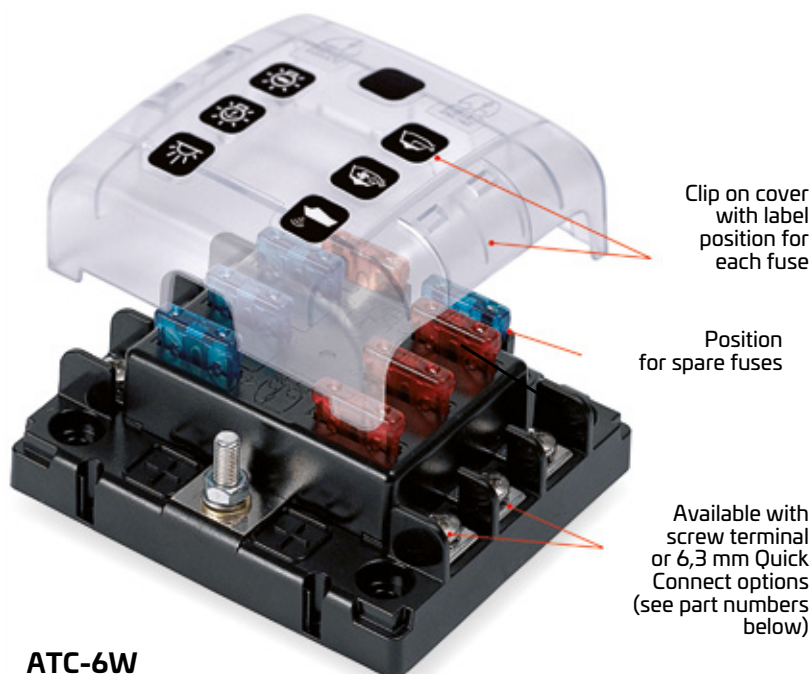
The advantage of this is that it allows you to link the inputs together, or split them apart to allow multiple power groups within one fuse holder: eg. switched supply or 24 hour supply.

For the aftermarket the modular system allows you to carry one part number instead of 3 or 4.

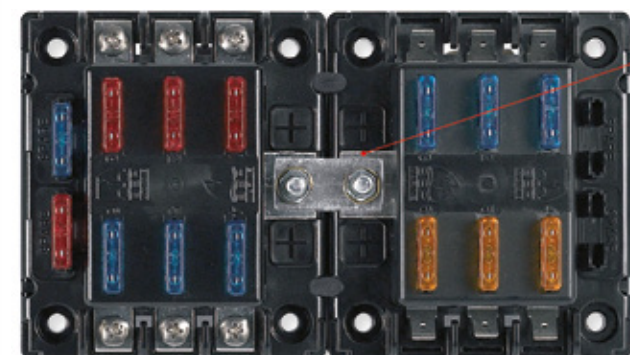
The 6W-ATC also includes a clip on cover and label positions. The label positions receive the same label as the 1000 series panels (ordered separately).

## SPECIFICATIONS

- Maximum amperage per circuit: 30 Amp
- Maximum amperage per block: 100 Amp
- Maximum voltage: 32V DC
- Base material: polycarbonate
- Cover material: clear polycarbonate



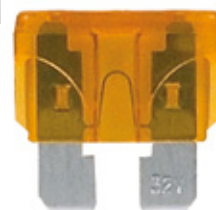
ATC FUSE HOLDERS		
MODEL	PART No.	DESCRIPTION
ATC-6W	65569 C	6 way fuseholder, screw terminals, with cover
ATC-6WQC	66017 R	6 way fuseholder, quick connect, with cover



BB-LINK - 17 mm

Fuse holder link  
Part No. - 23006 T  
**BB-LINK-17 mm**  
Ordered separately

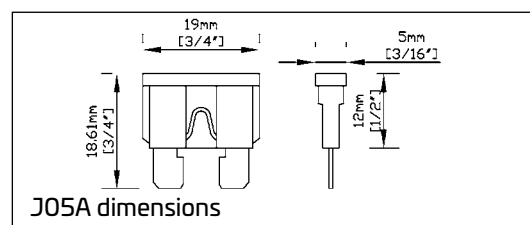
ATC FUSES		
MODEL	PART No.	RATING
J03A	66018 T	3 Amp
J05A	66019 V	5 Amp
J7.5A	66020 D	7.5 Amp
J10A	66021 F	10 Amp
J15A	66022 H	15 Amp
J20A	66023 K	20 Amp
J25A	66024 M	25 Amp
J30A	66025 P	30 Amp



J05A

## SPECIFICATIONS

- Fuses available: 3-30 Amp
- Interrupt capacity: 1000 amp DC
- Maximum voltage: 32 Volt DC





## PRO INSTALLER EZ-MOUNT BATTERY SELECTOR SWITCHES



As easy as 1,2,3, these revolutionary battery switches allow you to wire from the front. Never has been so easy and cabling so accessible. With their shared interconnection height, Pro Installer-EZ-Mount battery switches "cluster" directly with the Pro Installer Busbar Range, resulting in the fastest, most compact installations. Optimized cable access makes installation a breeze.

Pro Installer switches set the new benchmark with outstanding ergonomics, intuitive look/feel, and are engineered from the finest materials to withstand the harsh marine environment. The outstanding performance and features of this powerful new generation battery switch appeal to both the installer and user. All ratings, footprints and features of the Pro Installer-EZ-Mount switches match the high quality of our standard switches.

### FEATURES:

- Continuous rating: 400 Amp DC
- Intermittent rating: 600 Amp (5 mins)
- Cranking rating: 1500 Amp (10 secs)
- Waterproof to IP66
- Tinned copper 10 mm (3/8") studs
- Stainless steel washers/nuts
- Fiber reinforced plastics
- Same interconnection height as Pro Installer
- Removable knob allows isolation during servicing
- 3 removable sideplates for protection
- Industry standard 3.85" x 3.85" footprint
- Dimensions mm ("): 97.8 x 97.8 (3.85 x 3.85)
- Tested to UL1107 ignition protection, CE

**770-EZ-400A** - 69149 A - On/off master switch EZ-MOUNT

**770-DP-400A** - 69952 Y - Double pole, on/off master switch

**770-DP-EZ-400A** - 69953 A - Double pole on/off master switch EZ-MOUNT

**771-S-EZ-400A** - 69150 J - Selector battery switch EZ-MOUNT

**771-S-400A** - 69954 C - Selector battery switch

**772-DBC-EZ-400A** - 69889 U - Dual bank control battery switch EZ-MOUNT

**771-SFD-400A** - 69955 E - Selector battery switch with alternator switch disconnect



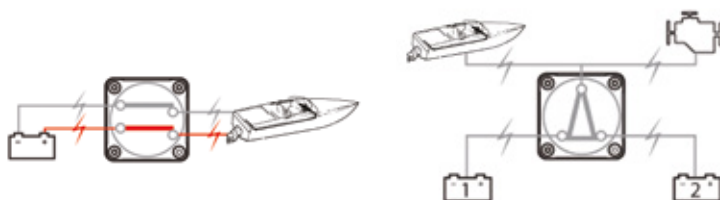
770-DP-EZ



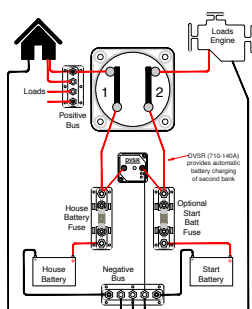
771-S-EZ



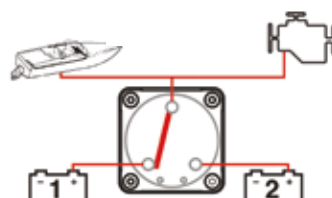
772-DBC-EZ



770-DP-400A - 770-DP-EZ-400A 771-S-400A - 771-S-EZ-400A



772-DBC-EZ-400A



771-SFD-400A



# Z-BARS



This patent-pending, space saving buss bar range is a completely new concept for marine cable termination. Offering almost unlimited installation flexibility, the high and low level bars can be bussed together with Z-Link, or used as separate positive/negative bars.

## FEATURES:

- Modular sizing and common interconnection height: Easily linked with other Pro Installer Busbars and Fuseholders to save installation time and space
- Clean installation—all cables can be run from one side of the Z-bar
- Innovative clear covers insulate/protect on three sides, with “snap outs” for extra cable access as required
- Label recess on cover allows fitting up to 1/2” width (12.7mm) printed labels
- Insert molded studs offer superior mechanical strength
- Designed for the harsh marine environment

## SPECIFICATIONS:

- 4x 6mm (1/4”) studs
- 10 x 4mm (5/32”) terminals
- 200A maximum per bar (2x 200A)
- 50 VDC
- High temperature, fibre reinforced plastic base provides strength and chemical resistance
- Clear polycarbonate cover
- Tinned CDA102 copper conductors, stainless steel studs/screws, and nickel plated brass nuts for longevity in the marine environment
- All threads are metric
- Dimensions: 3.9” x 1.9” x 2.0” (98 x 49 x 51mm)
- Weight: 6.7 Oz (189g)

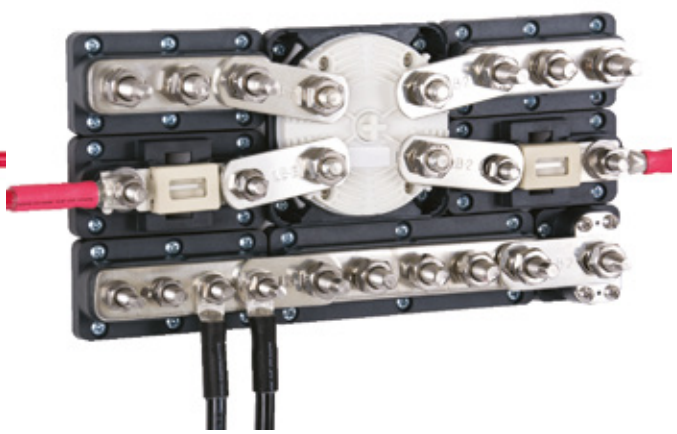


777-BBZ18W-200



777-BBZ10W-200

MODEL	PART No.	TERMINAL		CONNECTING STUD		AMPS	DIMENSIONS mm (")
		Q.TY	DIMENSIONS mm (")	Q.TY	DIMENSIONS mm (")		
777-BBZ18W-200	68864 W	18	4 (5/32)	4	6x19 (1/4x3/4)	200A	147x49x51 (5.8x1.9x2.0)
777-BBZ10W-200	68865 Y	15	4 (5/32)	4	6x19 (1/4x3/4)	200A	98x49x51 (3.9x1.9x2.0)



# HEAVY-DUTY BUSBARS



Available in a broad range from 3-studs to 8-studs, Pro Installer busbars offer the installer greater flexibility to select busbars to match their load and space requirements. Compact footprints and modular designs allow for space saving and scalability. Robust construction, thicker copper conductors and additional mounting holes provide the basis for secure, reliable, electrical installations. The covers feature snap-out side skirts providing additional cable entry as required, while the label recess provides the perfect landing for handheld-printer labels. It's easy linking to other Pro Installer products because of the common interconnection height, and the radiused busbar ends improve cable routing options for large cables.

### FEATURES:

- Modular sizing and common interconnection height: Easily linked with other Pro Installer Busbars and Fuseholders to save installation time and space
- Radiused bar ends allow large cable attachment at any angle between -90° and +90°, to improve installation flexibility. Generous stud lengths
- Innovative clear covers insulate/protect on three sides, with “snap outs” for extra cable access as required
- Label recess on cover allows fitting up to ½” width (12.7mm) printed labels
- Robust construction and additional mounting holes for ultimate security
- Designed for the harsh marine environment
- Plated brass nuts and stainless steel studs prevent thread galling if over-tightened



BUSBARS

### SPECIFICATIONS:

- 650A and 500A busbars 10mm (3/8”) stainless steel studs
- 50 VDC
- High temperature, fibre reinforced plastic base provides strength and chemical resistance
- Clear polycarbonate cover
- Tinned CDA102 Copper conductors, stainless steel studs/screws, and nickel plated brass nuts for longevity in the marine environment
- All threads are metric

MODEL	PART No.	CONNECTING STUD		AMPS	SIZE mm (")
		Q.TY	SIZE mm (")		
777-BB8S-650	68860 M	8	10x25 (3/8x1)	650A	249x48x66 (9.8x1.9x2.6)
777-BB5S-650	68861 P	5	10x25 (3/8x1)	650A	147x48x66 (5.8x1.9x2.6)
777-BB3S-650	68862 S	3	10x22 (3/8x7/8)	650A	99x48x63,5 (3.9x1.9x2.5)
777-BB4S-500	68863 U	4	8x22 (5./16x7/8)	500A	99x48x63,5 (3.9x1.9x2.5)





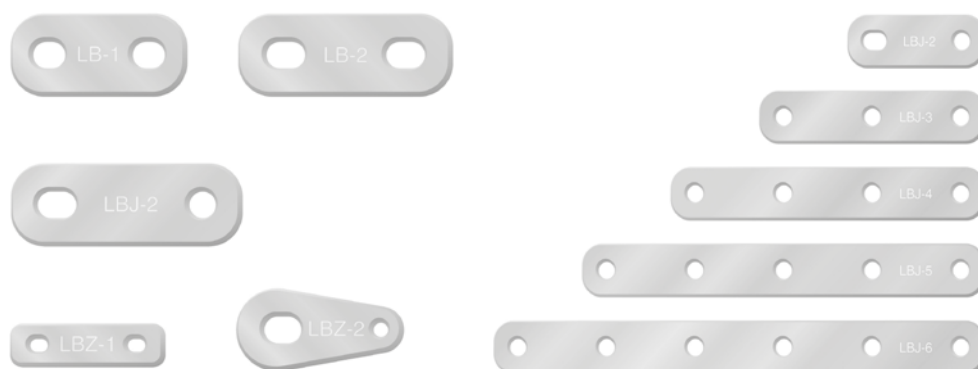
## LINK BARS



- A range of linking bars complement the Pro Installer range of products
- High purity copper, tin plated for optimum marine electrical performance
- Fastest, most economic way of connecting for the most compact installations
- Saves space, allows clustering for the most compact installations
- Links can be doubled for higher loads



Application example



Application example

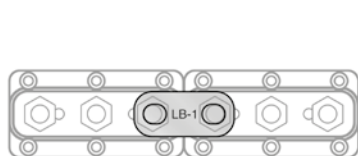
MODEL	PART No.	DESCRIPTION	LINK	MAX AMPS	DIMENSIONS mm (")
LB-1	69318 X	Link bar 31-34.7 mm	Short Link Bar 8 & 10mm studs	650	56x25 (2.2x1.0)
LB-2	69319 Z	Link bar 35.5-42.5 mm	Medium Link Bar 8 & 10mm studs	650	69x25 (2.8x1.0)
LBJ-2	69320 H	Joiner 2-way 46-50 mm	Long Link Bar 8 & 10mm studs	650	74x25 (3.0x1.0)
LBZ-1	69321 K	Link Z Bar to Z Bar	Joins Z Bars E:E and S:S	250	49x12 (2.0x0.5)
LBZ-2	69322 M	Link Z Bar to Busbar or Fuseholder	Joins Z Bars to Busbar or FuseHolder	400	53x25 (2.1x1.0)
LBJ-3	69324 S	Joiner 3-way	Side to Side joiner 3 products	525	123x25 (4.9x1.0)
LBJ-4	69325 U	Joiner 4-way	Side to Side joiner 4 products	450	172x25 (6.9x1.0)
LBJ-5	69326 W	Joiner 5-way	Side to Side joiner 5 products	400	221x25 (8.8x1.0)
LBJ-6	69327 W	Joiner 6-way	Side to Side joiner 6 products	350	270x25 (10.8x1.0)



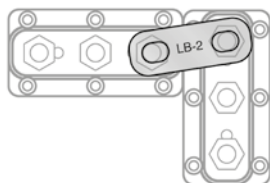
## LINK BARS



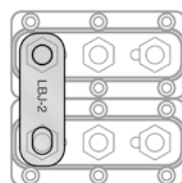
### LINK BAR DIAGRAMS:



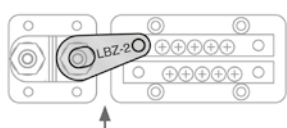
**E:E** End to End linking



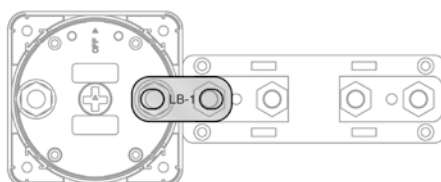
**S:E** Side to End linking



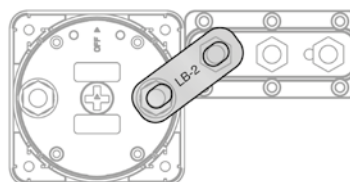
**S:S** Side to Side joining



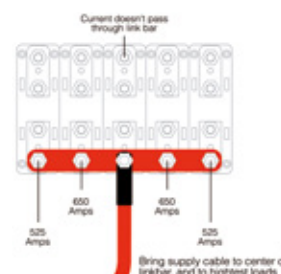
**Gap** For small gaps between products



**C** Centerline linking



**O** Offset linking



### FOR HIGH LOAD LINK JOINER APPLICATIONS

Links can be doubled for higher loads. Example: If 2 x 779-LBJ-5-B joiners are used in the diagram at right, quoted Amps can be doubled: maximum of 1300 Amps to the adjacent stud, or 1050 Amps to the stud 2 positions away from the feed cable.

	Heavy Duty Busbars	Z Busbars	Fuseholder 778ANL	Fuseholder ANL	Fuseholder ANL & Class T	Single insulated studs	Double insulated studs	EZ Mount battery switch On/Off
<b>BUSBARS</b>								
Heavy Duty Busbars	LB-1	LBZ-2	LB-1	-	LB-1 (4 Gap)	LB-2	S:E LB-1 Gap LB-1	O: LB-2 C: LB-1
Z Bars	LBZ-2	LBZ-1	LBZ-2	-	LBZ-2	-	Gap LBZ-2	LBZ-2
<b>FUSEHOLDER</b>								
778ANL	LB-1	LBZ-2	LB-2	-	LB-1	LB-2	S:E LB-1 Gap LB-1	O: LB-2 C: LB-1
778ANLTP	-	-	-	LB-2	-	-	-	-
778ANL2S	LB-1	LBZ-2	LB-1	-	LB-1	LB-2	S:E LB-1 Gap LB-1	O: LB-2 C: LB-1
<b>INSULATED STUDS</b>								
Single insulated stud	LB-2	-	LB-2	-	LB-2	LBJ-2	LB-1	LBJ-2 C: LB-2
Double insulated studs	S:E LB-1 Gap LB-1	Gap LBZ-2	S:E LB-1 Gap LB-1	- -	S:E LB-1 Gap LB-1	LB-1	S:S LBJ-2 Gap LB-1	O: LB-1 C: Gap LB-1
<b>EZ MOUNT BATTERY SWITCHES</b>								
EZ - ON/OFF	O: LB-2 C: LB-1	LBZ-2	LBZ-2 C: LB-1	- -	O: LB-2 C: LB-1	O: LBJ-2 C: LB-2	O: LB-1 C: Gap LB-1	LB-1
EZ - Battery studs	LB-2 (4 studs LB-1)	LBZ-2	LB-2	- -	O: LB-1 C: LB-2	LBJ-2	LB-1	-
EZ - Common studs	O: LB-2 C: LB-1	LBZ-2	O: LB-2 C: LB-1	-	O: LB-2 C: LB-1	O: LBJ-2 C: LB-2	O: LB-1 C: Gap LB-1	-

## INSULATED STUDS



The Pro Installer insulated studs are a smart choice for marine installers. Increased stainless steel stud length allows up to three large cable lugs to be connected. The clear polycarbonate cover provides insulation/protection, while the snap-out side skirts allow for additional cable entry. The power tapping plate variant provides additional termination points for small cables.

### FEATURES:

- Modular sizing and common interconnection height: Easily linked with other Pro Installer Busbars and Fuseholders saving installation time and space
- Power tapping plate converts from a single stud, adding four connection points for smaller cables, while preserving access for larger cables
- Generous stud lengths allow securing of three 95mm<sup>2</sup> (3/0) cable lugs
- Innovative clear covers provide insulation/protection, with "snap outs" for extra cable access as required
- Label recess on cover allows fitting up to ½" width (12.7mm) printed labels
- Snap out partition on double stud base provides insulation to separate studs for isolated (positive/negative) application. Snapping this partition allows easy linking of the studs
- Insert moulded studs offer superior mechanical strength
- Four mounting holes in base allow installer choice of using two, or four fastenings depending on level of securing required
- Designed for the harsh marine environment

### SPECIFICATIONS:

- Note: no power passes through the stud so no amp rating is given
- 50 VDC
- High temperature, fiber reinforced plastic base provides strength and chemical resistance
- Clear poly carbonate cover
- Stainless steel studs/screws, and nickel plated brass nuts for longevity in the marine environment
- All threads are metric
- Double studs feature "snap out" insulating partition, to allow linking of studs



IST-8MM-2S



IST-8MM-1SPT



IST-8MM-1S

MODEL	PART No.	TERMINAL		CONNECTING STUD		DIMENSIONS mm (")
		Q.TY	DIMENSIONS mm (")	Q.TY	DIMENSIONS mm (")	
IST-8MM-1S	68866 A	4	4 (5/32)	1	8x22 (5/16x7/8)	49x49x62 (1.9x1.9x2.5)
IST-8MM-1SPT	68867 C	4	4 (5/32)	1	8x22 (5/16x7/8)	49x49x62 (1.9x1.9x2.5)
IST-8MM-2S	68868 E	4	4 (5/32)	2	8x22 (5/16x7/8)	49x49x62 (1.9x1.9x2.5)

## ANL FUSEHOLDERS



Providing high-capacity fusing, fast response and high interrupt ratings (ANL up to 3,000 Amps DC), these fuse holders are ideal for protecting today's demanding onboard power electronics technology including inverters and battery chargers. They also protect wiring from short circuits, for example as a main fuse to protect house circuits, protection for digital switching main feed circuits, or heavy duty loads. ANL fuses in the following sizes/ratings are suitable:  
Bussmann 35A – 750A. 8mm (5/16") hole for stud  
Littelfuse 35A-500A. 10mm (3/8") hole for stud, fits all Pro Installer ANL fuseholders

### FEATURES:

- Innovative through-panel mounting version (Patent Pending) offers the user easy visual inspection of fuse state, and fast/safe access to change fuse if blown
- Modular sizing and common interconnection height: Easily linked with other Pro Installer Busbars and Fuseholders saving installation time and space
- Durable construction allows fuses to run at maximum load
- Radius ends improve large cable routing options (can fit back-to-back lugs at any angle -90° to +90°)
- Innovative clear covers provide insulation/protection, with "snap outs" for extra cable access as required
- Fuse viewing "window" in cover aids visual inspection of fuse-state
- Label recess on cover allows fitting up to 1/2" width (12.7mm) printed labels
- Insert moulded studs offer superior mechanical strength
- Designed for the harsh marine environment
- All threads are metric

### SPECIFICATIONS:

- Cable connection studs: Shared 8mm (5/16")
- Fuse mounting studs: 8mm (5/16"). Also allows 10mm (3/8") ANL fuses to be used
- Fuse type: ANL / ANN
- Swinging fuse style allows changing fuse without removing fastened nuts
- Amperage: 35-300A
- 50 VDC (or determined by fuse fitted)
- High temperature, fibre reinforced plastic base provides strength and chemical resistance
- Clear poly carbonate cover
- Stainless steel studs, and nickel plated brass nuts for longevity in the marine environment



MODEL	PART No.	FUSE	FUSE STUD	CONNECTING STUD		AMPS	DIMENSIONS mm (")
				Q.TY	DIMENSIONS mm (")		
778ANL	68869 G	Bussmann 8 mm (5/16") - Pruden o Siba 10 mm	8 mm (5/16")	2 studs shared with fuse	8x22 (5/16x7/8)	300A	98x49x54 (3.9x1.9x2.1)
778ANLTP	68870 R	Bussmann 8 mm (5/16") - Pruden o Siba 10 mm	8 mm (5/16")	+ 2 per cable	10x25 (3/8x1)	500A	98x49x36 (3.9x1.9x1.4)
778ANL2S	68871 T	Bussmann 8 mm (5/16") - Pruden o Siba 10 mm	8 mm (5/16")	+ 2 per cable	10x29 (3/8x1/8)	750A	147x49x61 (5.8x1.9x2.4)



# CLASS T FUSEHOLDERS



Provide high-capacity fusing, with very fast response and very high interrupt ratings (Class-T 20,000-50,000 Amps interrupt). These fuse holders are ideal for protecting today's demanding on board power electronics technology including inverters and battery chargers. They also protect wiring from short circuits, for example as a main fuse to protect house circuits, where modern battery technologies such as Lithium Ion and AGM, are capable of producing very high short circuit currents.

## FEATURES:

- Modular sizing and common interconnection height: Easily linked with other Pro Installer Busbars and Fuseholders, saving installation time and space
- Durable construction allows fuses to run at maximum load
- Radiused ends improve large cable routing options (can fit back-to-back lugs at any angle -90° to +90°)
- Innovative clear covers provide insulation/protection, with "snap outs" for extra cable access as required
- Label recess on cover allows fitting up to ½" width (12.7mm) printed labels
- Insert molded studs offer superior mechanical strength
- Designed for the harsh marine environment



CLASS T

## SPECIFICATIONS:

- Cable connection studs: 10mm (3/8") studs
- Fuse mounting studs: 10mm (3/8")
- Fuse type: Class T (JLLN / TJN / A3T)
- Maximum amperage: 400A
- 50 VDC
- High temperature, fiber reinforced plastic base provides strength and chemical resistance
- Clear poly carbonate cover
- Tinned CDA102 copper conductors, stainless steel studs, and nickel plated brass nuts for longevity in the marine environment
- All threads are metric

MODEL	PART No.	FUSE	FUSE STUD	CONNECTING STUD Q.TY	DIMENSIONS mm (")	AMPS	DIMENSIONS mm (")
778T2S-400	68872 V	Class T 225A-400A	10 mm (3/8")	+ 2 per cable	10x29 (3/8x1/8)	225A - 400A	147x49x61 (5.8x1.9x2.4)
778T2S-600	68873 X	Class T 450A-600A	12 mm (0.47")	+ 2 per cable	10x29 (3/8x1/8)	400A - 600A	147x49x61 (5.8x1.9x2.4)



## AC SYSTEM MONITOR (ACSM)

ACSM SYSTEM INCLUDES 1 X AC-VSEN-4 AND 2 X CT-10-3 80-600-0023-00 - 67408 M

### MONITORS:

- AC volts, amps and frequency

### FEATURES:

- 3 generic user configurable inputs
- Displays data in analogue, digital and graphic forms
- Programmable high/low audio/visual alarms for each input

### SPECIFICATIONS:

- 2.8" colour QVGA LCD
- Input voltage: 8-32VDC
- Dimensions: W 38mm (1.50") x H 40mm (1.57")
- Backlit keypad



80-600-0023-00



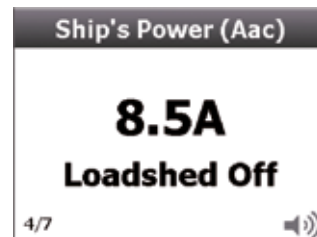
### AC POWER METER:

- Displays AC volts, amps frequency and power for two supplies with a third position for monitoring AC volts and frequency of a third supply
- Displays AC power in kW



### AC VOLTS/FREQUENCY:

- Displays AC voltage and frequency, 80-264 Vac 50 & 60 Hz



### AC AMPS:

- Displays current for 2 x AC supplies (0-75A)



### ALARMS:

- High and low alarms for each input
- User selectable alarm levels
- Mutable

## DC SYSTEM MONITOR (DCSM)

DCSM SYSTEM INCLUDES 1 X SHUNT AND CABLE-10-3 80-600-0021-00 - 67407 K

### MONITORS:

- Charge/discharge amps for two banks
- Capacity remaining in A/h and %
- Battery condition
- Tank fluid level
- Circuit status

### FEATURES:

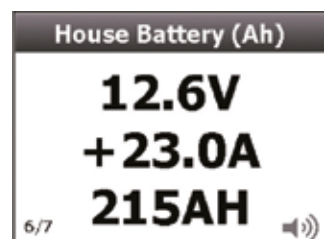
- 8 Generic, user configurable inputs
- Programmable high/low audio/visual alarms for volts, amps and tank levels
- Backlit keypad and dimmable screen
- Can be panel or surface mounted

### SPECIFICATIONS:

- 2.8" Color QVGA LCD
- Input voltage 8-32V DC
- Dimensions (WxH): 90 x 100 mm
- Backlit keypad

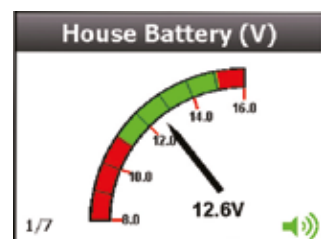


80-600-0021-00



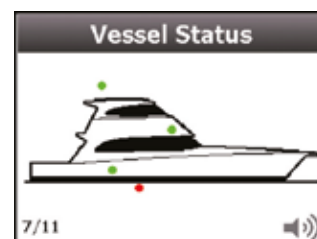
### DC POWER METER:

- Displays voltages of multiple battery banks (0-32V DC)
- Displays charge and discharge (amps) of 2 battery banks
- Displays battery capacity in amp hours
- High/Low level alarms



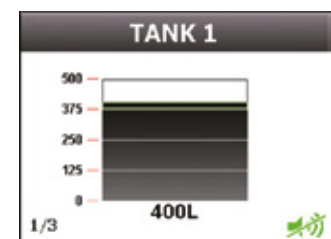
### DISPLAY TYPE:

- Configure the DCSM to show the data in analog, digital and graphic form



### CIRCUIT STATUS:

- View the status of important circuits (on/off)
- In graphic and numeric form



### TANK LEVEL:

- View tank level information for multiple tanks in numeric and graphic forms
- Resetable when leaving boat



**AC TRASDUCER**

- The AC-VSEN-4 includes 3 voltage transformers for up to 3 voltage inputs.
- Dimensions: 69x140x50 mm (2.75"x5.5"x2")

**AC-VSEN-4 – 67314 C**

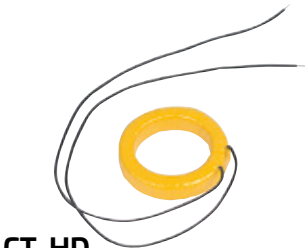


**AC TRASDUCER**

**HEAVY-DUTY CURRENT TRANSFORMER**

- Maximum current 150A AC
- CT-HD is available for systems with large mains cables, too large for CT-10-3 (ordered separately)
- CT-HD dimensions: Ø 47x10.5 mm (1.85"x0.4")
- Hole size: 32 mm (1.25")

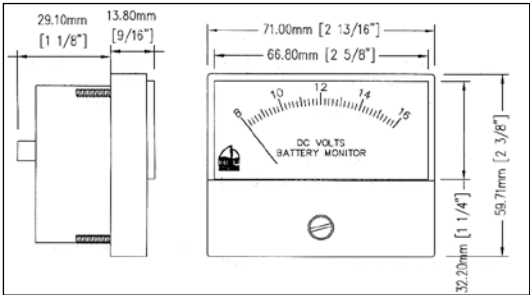
**CT-HD - 68904 F**



**CT-HD**

**ANALOG STAND-ALONE METERS**

ANALOG VOLTMETERS			
MODEL	PART No.	VOLT	SCALE
N816DCV	63682 M	12V DC	8-16 Volt DC
N1632DCV	63683 P	24V DC	16-32 Volt DC



ANALOG VOLTMETERS				
MODEL	PART No.	SCALE	CURRENT TRASFORMER	SHUNT MODEL
N050A	64399 A	0-50 Amp DC	N/D	50A-50MV
N100A	64400 D	0-100 Amp DC	N/D	100A-50MV
N150A	64183 Y	0-150 Amp DC	N/D	150A-50MV



**N816DCV**

AMMETER SHUNT		
MODEL	PART No.	SCALE
50A - 50MV	64515 X	0-50 A
100A - 50MV	64178 F	0-100 A
150A - 50MV	64516 Z	0-150

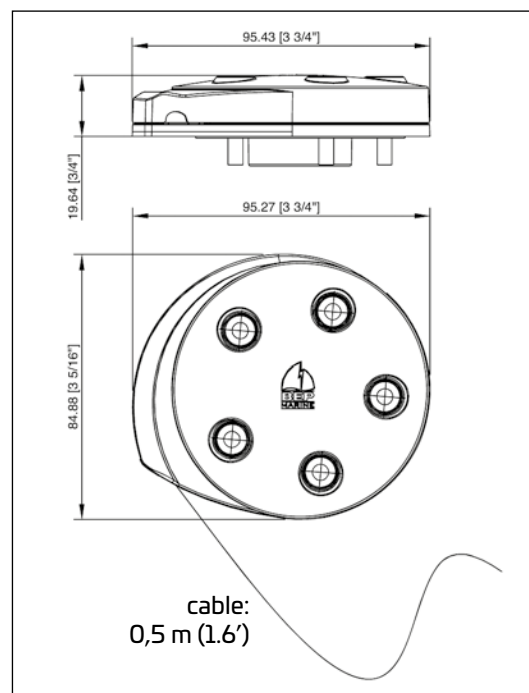
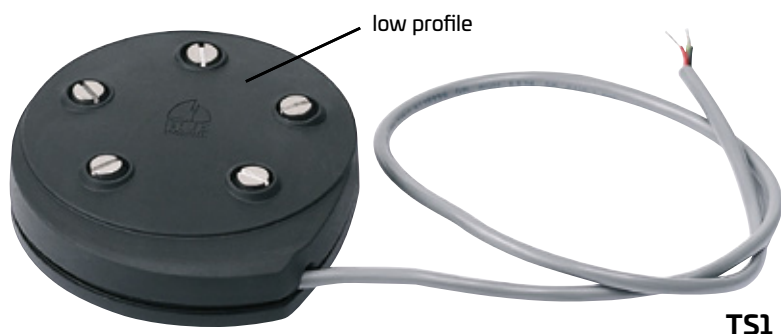


**AMMETER SHUNT**

# ULTRASONIC TANK SENDER

TS1 - 66322 W

The TS1 Ultrasonic Tank Sender can be used on fuel (petrol or diesel), fresh water, grey or black water tanks.  
One part number suits all tanks!  
Not suitable for tank depths less than 200 mm (8")



## SPECIFICATIONS:

- The TS1 is programmable for the following outputs: 240-33 Ohm, 10-180 Ohm and 0-5 Volt
- The TS1 offers low profile and standard SAE 5 hole mounting pattern, allowing it to be retrofitted to practically all other sender brands
- The TS1 can be programmed for tank dimensions via a computer utilizing BEP Marine's proprietary TS1 software and TS1-PK kit software avoiding experimental tank filling on site
- The TS1 configured to a 0-5V output will connect straight into the BEP 600-TLMN and 600-DCTLM digital tank monitors
- When configured to a 240-33 Ohm or 10-180 Ohm output the TS1 can be connected to Uflex®, Wema®, Faria®, VDO®, Teleflex® and many other popular instrument brands. When connecting to non-adjustable gauges the TS1 must be pre-calibrated
- Standard off the shelf TS1 sender is set for 0-2000 mm (6.5')
- The TS1 sender is not compatible with digital systems like Volvo® EVC, Mercury® SmartCraft, etc. For any information, please contact our Technical Service.

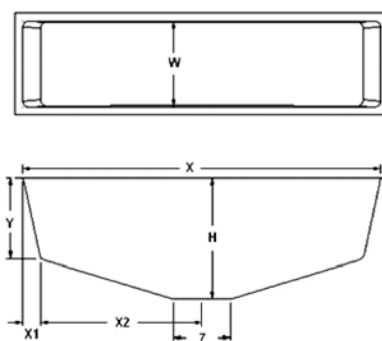


TS1-PK - 66323 Y

## SPECIFICATIONS

Current draw	10-32VDC
Power draw	25mA with 5 volt gauge output
Measurement method	acoustic sonic measurement
Tank depth	0 to 2000mm (6.5 ft)
Accuracy	distance 0-2000mm (6.5') at 2 mm accuracy
Mounting	SAE 5 stud mounting pattern with gasket, seal and screws. Top mount only
Environmental	temperature 4 to 65 degrees C
Chemical resistance	Petrol, diesel, water, toilet chemicals
Tank type	Metal and plastic with non linear capacity, grey and black water, petrol and diesel

## Non linear Tank Parameter Calculation



BEP Marines proprietary software allows distributors or volume users to pre-programme tank dimensions giving accurate measurement avoiding experimental tank filling.

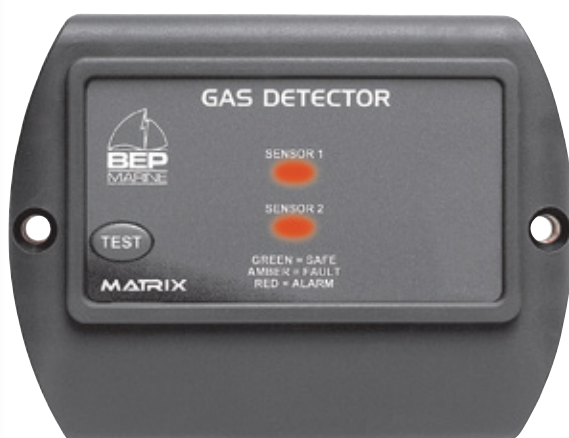
## GAS DETECTORS

### 600-GD, 600-GDL AND 600-GDRV

The BEP Detectors use microprocessor control to ensure correct sensor sensitivity. The Detectors have the capability to control two sensors which detect both LPG and Petrol, with visual and audible alarms.

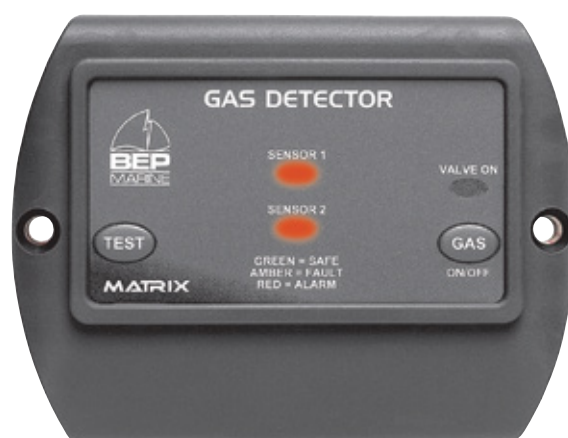
- Dual sensor for LPG and petrol
- Visual and audible alarms; provision for external alarm
- Automatic shut-off solenoid control with pulse and hold circuit for low power draw (600-GDL only)
- Self-testing
- Provision of bilge blower

<b>Voltage (V DC)</b>	10-32
<b>Current (mA)</b>	350 max.
<b>Alarm sensitivity</b>	20% lower explosive limit
<b>Current@Out (mA)</b>	800 max.
<b>Solenoid (mA)</b>	700 pulse, 250 hold
<b>Dimensions mm (")</b>	67x88x17 (2.4x3.5x0.7)



#### 600-GD - 68008 A

600-GD will detect LPG, Petrol and CNG fumes. Supplied with one sensor, with an option for a second sensor (BL-SL-L) output for remote alarm and blower unit. 600-GD can be used on 12 or 24V systems.



#### 600-GDL - 63597 X

Same features as the 600-GD, with the ability to switch a valve on. It contains a unique "Pulse & Hold" circuit within the detector. This reduces power consumption and heat while gas is turned on.



#### 600-GDRV - 20871 Y

600-GDRV has the sensor mounted in the front fascia creating a stand alone unit. The unit is designed to be surface mounted at the vessel's lowest point.



#### BL-SL-L - 64487 V

Gas sensor lead with a 5 meter lead. Fits 600-GD, 600-GDL and 600-GDRV.



# SAFE-T-ALERT™

201



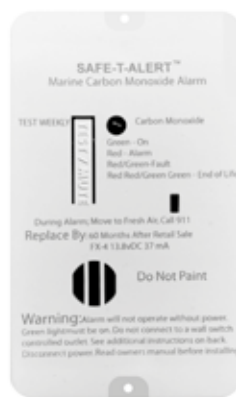
MINI CARBON MONOXIDE ALARM



## MINI CARBON MONOXIDE ALARMS

### TECHNICAL SPECIFICATIONS:

- Microprocessor technology programmed to detect carbon monoxide levels using time weighted average (TWA) at 10% COHb curves
- No false alarms from new boat smell or outgassing
- Full 5 year service life. End of life clock starts when power is applied, not in inventory or on retail shelves
- Eliminates nuisance alarms caused by temporary background levels of CO encountered while boating
- Memory scan. Retains the CO level that activated the alarm. After ventilation, it is impossible to know what the CO level was unless your detector has memory
- Alarm mute button silences alarm while boat is ventilated. Rapid recovery sensor resets when silenced or reactivates alarm if dangerous levels of CO remain
- Low current draw. Innovative micro current circuit saves precious battery power. 37 milliamp (0.037 amp) current draw
- ABYC Compliant. NMMA Listed Component
- Listed to UL 2034 Marine Use and CSA 6.19-01



FX-4



62-542-MARINE



62-541-MARINE

SURFACE MOUNT	PART No. (WHITE)	PART No. (BLACK)	DESCRIPTION	DIMENSIONS WxHxD mm (")
62-541-MARINE*	20930 M	21265 H	CO alarm - 12 V	89 x 63 x 32 (3.5 x 2.5 x 1.25)
62-541-MARINE-R-NC*	20931 P	21635 R	CO alarm with relay that breaks when in alarm- 12 V	89 x 63 x 32 (3.5 x 2.5 x 1.25)
62-541-MARINE-R-NO*	20932 S	21636 T	CO alarm with relay that makes when in alarm - 12 V	89 x 63 x 32 (3.5 x 2.5 x 1.25)
FX-4	22567 F	N.A.	CO alarm - 12 V	63 x 89 x 32 (2.5 x 3.5 x 1.25)

\*24 V versions are also available (FX-4 available 12 V only)

FLUSH MOUNT	PART No. (WHITE)	PART No. (BLACK)	DESCRIPTION	DIMENSIONS WxHxD mm (")
62-542-MARINE*	20933 U	21619 T	CO alarm - 12 V	114 x 83 x 32 (4.5 x 3.25 x 1.25)
62-542-MARINE-R-NC*	20934 W	21418 G	CO alarm with relay that breaks when in alarm- 12 V	114 x 83 x 32 (4.5 x 3.25 x 1.25)
62-542-MARINE-R-NO*	20935 Y	21266 K	CO alarm with relay that makes when in alarm - 12 V	114 x 83 x 32 (4.5 x 3.25 x 1.25)

\*24 V versions are also available

### SMOKE ALARMS

#### SPECIFICATIONS:

- Photoelectric smoke alarms
- 10 year battery
- Sealed-in battery - No replacement needed
- Low battery indication (audible and visual)
- 3 V DC seal-in battery operated
- Built-in test / hush functions
- Easy installation



MODEL	PART No. (WHITE)	PART No. (BLACK)	DESCRIPTION
SA-866	22568 H	22569 K	USA specific version (UL listed: UL217 RV)
SA-866-EN	20936 A	22570 U	EU specific version (meets EN 14604:2009)



**victron energy**  
BLUE POWER



ENERGY UNLIMITED

## BATTERY CHARGERS

### PORTABLE BATTERY CHARGERS IP65

Depending on the application, clamps, eyelets or a cigarette plug (all included) can be connected to the charger.

The state of charge of the battery is indicated by 4 LED's:

- Red LED marked 25% flashing: state of charge less than 25%.
- Red LED marked 25% on, and red LED marked 50% flashing: state of charge less than 50%.
- Red LED's on, and yellow LED marked 75% flashing: state of charge less than 75%.
- Red and yellow LED's on and green LED marked 100% flashing: battery nearly charged.
- All charge level LED's solid on: battery fully charged. Flooded, AGM or GEL batteries. Ambient temperature below 10°C, or batteries requiring a higher charge voltage (OPTIMA spiral cell batteries for example).

In case of reverse polarity connection, the orange LED ! will turn on after pressing the MODE button.

If the red LED STANDBY remains on, even after pressing the MODE button, the connection to the battery is interrupted.

The charger always starts in STANDBY mode when connected to the AC supply.



**AUTOMOTIVE IP65**



MODEL	PART No.	INPUT VOLTAGE RANGE	CHARGE VOLTAGE	CHARGE CURRENT	DIMENSIONS H x W x D mm (")	WEIGHT kg (lbs)
6V/12V-1,1A	69868 K	200-265V / 50-60 Hz	7,2 o 14,4	1,1 A	42x61x185 (1.6x2.4x7.3)	0,6 (1.3)
12V/4A-12V/0,8A	69869 M	200-265V / 50-60 Hz	14,4 o 14,7	4 A o 0,8 A	42x61x185 (1.6x2.4x7.3)	0,6 (1.3)

### BLUE SMART PORTABLE BATTERY CHARGERS IP65

#### WITH DC CONNECTOR

- Water, dust and chemical resistant
- Seven step smart charge algorithm
- Recovery of fully discharged "dead" batteries
- Automatic power supply function
- Automatic compensation for high or low temperature
- Several other battery life enhancing features
- Li-ion battery mode
- Bluetooth built-in function for smartphone monitoring



**BLUE SMART IP 65**



MODEL	PART No.	INPUT VOLTAGE RANGE	CHARGE VOLTAGE ABSORPTION	CHARGE CURRENT	DIMENSIONS H x W x D mm (")	WEIGHT kg (lbs)
12/4 IP65	21654 V	180-265V AC / 45-65 Hz	14,4V DC	4A	47x95x190 (1.8x3.7x7.5)	0,8 (1.8)
12/5 IP65	21655 X	180-265V AC / 45-65 Hz	14,4V DC	5A	45x81x182 (1.7x3.2x7.2)	0,6 (1.3)
12/7 IP65	21656 Z	180-265V AC / 45-65 Hz	14,4V DC	7A	47x95x190 (1.8x3.7x7.5)	0,8 (1.8)
12/10 IP65	21657 B	180-265V AC / 45-65 Hz	14,4V DC	10A	60x105x190 (2.4x4.1x7.5)	0,9 (2.0)
12/15 IP65	21658 D	180-265V AC / 45-65 Hz	14,4V DC	15A	60x105x190 (2.4x4.1x7.5)	0,9 (2.0)
12/25 IP65 <sup>new</sup>	23053 C	180-265V AC / 45-65 Hz	14,4V DC	25A	75x140x240 (2.9x5.5x9.5)	1,9 (4.2)
24/5 IP65	21659 F	180-265V AC / 45-65 Hz	28,8V DC	5A	47x95x190 (1.8x3.7x7.5)	0,8 (1.8)
24/8 IP65	21660 P	180-265V AC / 45-65 Hz	28,8V DC	8A	60x105x190 (2.4x4.1x7.5)	0,9 (2.0)
24/13 IP65 <sup>new</sup>	23054 E	180-265V AC / 45-65 Hz	28,8V DC	13A	47x95x190 (1.8x3.7x7.5)	1,9 (4.2)

### ACCESSORIES

M6 eyelet connector with fuse - 69856 C

2 m extension cable - 69857 E

12V cigarette lighter plug with fuse - 69858 G

Connect clamps with fuse - 69859 J

Battery indicator panel - 23976 E



# BATTERY CHARGERS

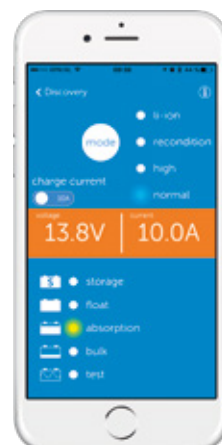
## BLUE SMART CHARGERS IP22

With up to 94% efficiency, these chargers generate up to four times less heat when compared to the industry standard. And once the battery is fully charged, power consumption reduces to 0,5 Watt, some five to ten times better than the industry standard.

Bluetooth built-in function for smartphone monitoring.

### Standard features

Adaptive 6-stage charge algorithm: test-bulk-absorption-recondition-float-storage. Storage Mode: less maintenance and aging when the battery is not in use. Also charges Li-ion batteries. NIGHT and LOW setting: the output current is reduced to max. 25% of the nominal output and the charger will be totally noiseless. Protected against overheating. Eleven LEDs for Status indication.



BLUE SMART IP 22



MODEL	PART No.	INPUT VOLTAGE RANGE	CHARGE VOLTAGE ABSORPTION	CHARGE CURRENT	DIMENSIONS H x W x D mm (")	WEIGHT kg (lbs)
12/15 IP22 <sup>(1)</sup>	21661 S	180-265V AC / 45-65 Hz	Variable*	15A	235x108x65 (9.2x4.2x2.6)	1,4 (3.1)
12/15 IP22 <sup>(3)</sup>	21662 U	180-265V AC / 45-65 Hz	Variable*	15A	235x108x65 (9.2x4.2x2.6)	1,4 (3.1)
12/20 IP22 <sup>(1)</sup>	21663 W	180-265V AC / 45-65 Hz	Variable*	20A	235x108x65 (9.2x4.2x2.6)	1,4 (3.1)
12/20 IP22 <sup>(3)</sup>	21664 Y	180-265V AC / 45-65 Hz	Variable*	20A	235x108x65 (9.2x4.2x2.6)	1,4 (3.1)
12/30 IP22 <sup>(1)</sup>	21665 A	180-265V AC / 45-65 Hz	Variable*	30A	235x108x65 (9.2x4.2x2.6)	1,4 (3.1)
12/30 IP22 <sup>(3)</sup>	21553 N	180-265V AC / 45-65 Hz	Variable*	30A	235x108x65 (9.2x4.2x2.6)	1,4 (3.1)
24/8 IP22 <sup>(1)</sup>	22135 Z	180-265V AC / 45-65 Hz	Variable*	8A	235x108x65 (9.2x4.2x2.6)	1,4 (3.1)
24/12 IP22 <sup>(1)</sup>	69864 B	180-265V AC / 45-65 Hz	Variable*	12A	235x108x65 (9.2x4.2x2.6)	1,4 (3.1)
24/16 IP22 <sup>(1)</sup>	22219 F	180-265V AC / 45-65 Hz	Variable*	16A	235x108x65 (9.2x4.2x2.6)	1,4 (3.1)
24/16 IP22 <sup>(3)</sup>	22258 S	180-265V AC / 45-65 Hz	Variable*	16A	235x108x65 (9.2x4.2x2.6)	1,4 (3.1)

\* **Absorption:** 12V Normal 14,4V, High 14,6V, Li-ion 14,2V – 24V Normal 28,8V, High 29,2V, Li-ion 28,4V

**Float:** 12V Normal 13,8V, High 13,8V, Li-ion 13,35V – 24V Normal 27,6V, High 27,6V, Li-ion 26,7V

**Storage:** 12V Normal 13,2V, High 13,8V, Li-ion n.d. – 24V Normal 26,4V, High 26,4V, Li-ion: n.d

## BATTERY CHARGERS

### BLUE SMART BATTERY CHARGERS - WATERPROOF IP 67

- Power supply range : 180-265 VAC
- Completely encapsulated body. Water, oil or dirt will not damage the Blue Power IP67 charger. The casing is made of cast aluminium and the electronics are moulded in resin.
- Top level efficiency: with 92% efficiency or better, these chargers waste three to four times less heat
- Adaptive 4-stage charge algorithm: bulk – absorption – float – storage. The Blue Power charger features a microprocessor controlled 'adaptive' battery management. This feature will automatically optimise the charging process relative to the way the battery is being used.
- Bluetooth built-in function for smartphone monitoring



BLUE SMART IP 67



MODEL	PART No.	INPUT VOLTAGE RANGE	CHARGE VOLTAGE	CHARGE CURRENT	DIMENSIONS H x W x D mm (")	WEIGHT kg (lbs)
12/7 IP67 <sup>(1)</sup>	21544 M	180-265V AC / 45-65 Hz	14,4V DC	7A	85x211x60 (3.4x8.3x2.4)	1.8 (4)
12/13 IP67 <sup>(1)</sup>	21378 X	180-265V AC / 45-65 Hz	14,4V DC	13A	85x211x60 (3.4x8.3x2.4)	1.8 (4)
12/17 IP67 <sup>(1)</sup>	21667 E	180-265V AC / 45-65 Hz	14,4V DC	17A	99x219x65 (3.9x8.6x2.6)	2.4 (5.3)
12/25 IP67 <sup>(1)</sup>	21668 G	180-265V AC / 45-65 Hz	14,4V DC	25A	99x219x65 (3.9x8.6x2.6)	2.4 (5.3)
12/25 IP67 (1+SI)	21669 J	180-265V AC / 45-65 Hz	14,4V DC	25A	99x219x65 (3.9x8.6x2.6)	2.4 (5.3)
24/5 IP67 <sup>(1)</sup>	21670 T	180-265V AC / 45-65 Hz	28,8V DC	5A	85x211x60 (3.4x8.3x2.4)	1.8 (4)
24/8 IP67 <sup>(1)</sup>	21671 V	180-265V AC / 45-65 Hz	28,8V DC	8A	99x219x65 (3.9x8.6x2.6)	2.4 (5.3)
24/12 IP67 <sup>(1)</sup>	21672 X	180-265V AC / 45-65 Hz	28,8V DC	12A	99x219x65 (3.9x8.6x2.6)	2.4 (5.3)
24/12 IP67 (1+SI)	21673 Z	180-265V AC / 45-65 Hz	28,8V DC	12A	99x219x65 (3.9x8.6x2.6)	2.4 (5.3)

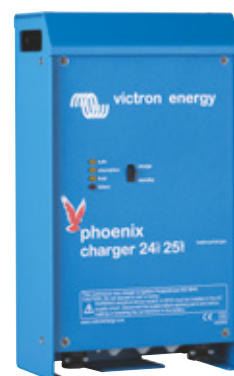
The models with suffix (1+Si) feature a second current limited output which is always powered as long as 180 - 265 VAC is present on the input. This output can for example be used to prevent starting of a vehicle before unplugging the battery charger (start interrupt function).

### PHOENIX BATTERY CHARGERS - MICROPROCESSOR CONTROL

Phoenix automatic battery chargers with microprocessor can suit perfectly and automatically the charge for the batteries. During the 4 charge stages (bulk-absorption-float-storage) the battery charger will maintain the optimal charge depending on battery status and use.

#### Standard features

Aluminium epoxy powder coated case with drip shield, circuit board protection with an acrylic coating, built-in temperature sensors, forced cooling, protection against output short circuit and over temperature, battery temperature sensor, compensation on cable voltage fall, two full charge output and one output limited to 4 A, RS-485 data port for computer connection, feeder function.



PHOENIX



MODEL	PART No.	INPUT VOLTAGE RANGE	CHARGE VOLTAGE (Absorption)	CHARGE CURRENT <sup>(1)</sup>	Ah BATTERIES	DIMENSIONS H x W x D mm (")	WEIGHT kg (lbs)
12/30	64900 A	90-265V AC / 45-65 Hz	14,4V DC	30 A (x2) + 4 A	100/400	350x200x108 (13.8x7.9x4.3)	3.8 (8.4)
12/50	64901 C	90-265V AC / 45-65 Hz	14,4V DC	50 A (x2) + 4 A	200/800	350x200x108 (13.8x7.9x4.3)	3.8 (8.4)
24/16	64902 E	90-265V AC / 45-65 Hz	28,8V DC	16 A (x2) + 4 A	100/200	350x200x108 (13.8x7.9x4.3)	3.8 (8.4)
24/25	64903 G	90-265V AC / 45-65 Hz	28,8V DC	25 A (x2) + 4 A	100/400	350x200x108 (13.8x7.9x4.3)	3.8 (8.4)

(1) 100 % output up to 40°C, 80% nominal output at 50°C and 60% of nominal at 60°C

# BATTERY CHARGERS

## PHOENIX SMART IP43 BATTERY CHARGERS

### Bluetooth Smart enabled

Any Bluetooth enabled smart phone, tablet or other device can be used to monitor, to change settings and to update the charger when new software features become available.

### Phoenix Smart (1+1): two outputs to charge 2 battery banks

The second output, limited to approximately 3A and with a slightly lower output voltage, is intended to top up a starter battery.

### Phoenix Smart (3): three full current outputs to charge 3 battery banks

Each output can supply the full rated output current. But the total of the 3 outputs combined can never exceed the current rating of the charger

### Automatic voltage compensation

The charger compensates for voltage drop over the DC cabling by slightly increasing output voltage when the DC current increases.

### Adaptive 5-stage charge algorithm:

#### bulk – absorption – recondition – float – storage

The Phoenix Smart Charger features Vctron well-known 'adaptive' battery management system that can be preset to suit different types of batteries. The 'adaptive' feature will automatically optimise the charge process relative to the way the battery is being used.

### The right amount of charge: variable absorption time

When only shallow discharges occur (a yacht connected to shore power for example) the absorption time is kept short in order to prevent overcharging of the battery. After a deep discharge the absorption time is automatically increased to make sure that the battery will be fully charged.

### Also charges Li-ion (LiFePO<sub>4</sub>) batteries

Charger on-off control can be implemented by connecting a relay or open collector optocoupler output from a Li-ion BMS to the remote on-off port. Alternatively full control of voltage and current can be achieved with Bluetooth.

### Fully programmable charge algorithm

The charge algorithm can be programmed with help of Bluetooth or the VE.Direct interface. Three preprogrammed algorithms can be selected with the mode button.

### Remote on-off

The remote on/off consists of two terminals: Remote H and Remote L. A remote on/off switch or relay contact can be connected between H and L. Alternatively, terminal H can be pulled high, or terminal L can be pulled low.

### VE.Direct interface

For a wired data connection to a Color Control panel, PC or other devices.

### Programmable relay

Can be programmed using the VE.Direct interface or a Bluetooth enabled device to trip on an alarm or other events.

**new**



PHOENIX SMART IP43 (1+1)



PHOENIX SMART IP43 (3)



2m AC cord CEE 7/7  
to be ordered separately - 23069 U

MODEL	PART No.	INPUT VOLTAGE	FREQUENCY	CHARGE VOLTAGE	CHARGE CURRENT	DIMENSIONS HxWxD mm (")	WEIGHT kg (lbs)
12/30 (1+1)	23886 D	230 VCA	45-65 Hz	14,4 V	30/50 A	180x249x100 (7.1x9.8x4)	3,5 (7.7)
12/30 (3)	23063 F	230 VCA	45-65 Hz	14,4 V	30/50 A	180x249x100 (7.1x9.8x4)	3,5 (7.7)
12/50 (1+1)	23064 H	230 VCA	45-65 Hz	14,4 V	30/50 A	180x249x100 (7.1x9.8x4)	3,5 (7.7)
12/50 (3)	23880 R	230 VCA	45-65 Hz	14,4 V	30/50 A	180x249x100 (7.1x9.8x4)	3,5 (7.7)
24/16 (1+1)	23065 K	230 VCA	45-65 Hz	28,8 V	16/25 A	180x249x100 (7.1x9.8x4)	3,5 (7.7)
24/16 (3)	23066 M	230 VCA	45-65 Hz	28,8 V	16/25 A	180x249x100 (7.1x9.8x4)	3,5 (7.7)
24/25 (1+1)	23067 P	230 VCA	45-65 Hz	28,8 V	16/25 A	180x249x100 (7.1x9.8x4)	3,5 (7.7)
24/25 (3)	23068 S	230 VCA	45-65 Hz	28,8 V	16/25 A	180x249x100 (7.1x9.8x4)	3,5 (7.7)

## BATTERY CHARGERS

### CENTAUR BATTERY CHARGERS - ANALOGIC CONTROL

Centaur battery chargers have automatic three stage IUoUo charging. All models are designed to operate all over the world without any adjustment needed on input voltage range or frequency.

They have three isolated outputs to simultaneously charge 3 battery banks. Each output is capable to supply the full rated current.

#### Standard features

Aluminium epoxy powder coated case with drip shield, circuit board protection with an acrylic coating, built-in temperature sensors, forced cooling, protection against output short circuit and over temperature, analog ammeter, DIP switch for selection of charge/float voltage for flooded lead-acid, gel or AGM batteries, Europe CE certification and U.S.A. UL certification.

Temperature range: -20 + 60° C



CENTAUR



MODEL	PART No.	INPUT VOLTAGE RANGE	CHARGE VOLTAGE ABSORPTION	CHARGE CURRENT <sup>(1)</sup>	Ah BATTERIES	DIMENSIONS H x W x D mm (")	WEIGHT kg (lbs)
12/20	64886 K	90-265V AC / 45-65 Hz	14.3V DC	20 A	80 / 200	355x215x110 (14.0x8.5x4.3)	3.8 (8.4)
12/30	64887 M	90-265V AC / 45-65 Hz	14.3V DC	30 A	120/300	355x215x110 (14.0x8.5x4.3)	3.8 (8.4)
12/40	64888 P	90-265V AC / 45-65 Hz	14.3V DC	40 A	160/400	426x239x135 (16.8x9.4x5.3)	5 (11)
12/50	64889 S	90-265V AC / 45-65 Hz	14.3V DC	50 A	200/500	426x239x135 (16.8x9.4x5.3)	5 (11)
12/60	64890 A	90-265V AC / 45-65 Hz	14.3V DC	60 A	240/600	426x239x135 (16.8x9.4x5.3)	5 (11)
12/80	64891 C	90-265V AC / 45-65 Hz	14.3V DC	80 A	320/800	505x255x130 (19.9x10.0x5.2)	12 (26.4)
12/100	64892 E	90-265V AC / 45-65 Hz	14.3V DC	100 A	400/1000	505x255x130 (19.9x10.0x5.2)	12 (26.4)
24/16	64894 J	90-265V AC / 45-65 Hz	28.5V DC	16 A	45/150	355x215x110 (14.0x8.5x4.3)	3.8 (8.4)
24/30	64895 L	90-265V AC / 45-65 Hz	28.5V DC	30 A	120/300	426x239x135 (16.8x9.4x5.3)	5 (11)
24/40	64896 N	90-265V AC / 45-65 Hz	28.5V DC	40 A	160/400	505x255x130 (19.9x10.0x5.2)	12 (26.4)
24/60	64897 R	90-265V AC / 45-65 Hz	28.5V DC	60 A	240/600	505x255x130 (19.9x10.0x5.2)	12 (26.4)

(1) 100 % output up to 40°C, 80% nominal output at 50°C and 60% of nominal at 60°C.



**new**

## SKYLLA IP44 BATTERY CHARGERS

### Skylla-IP44 (1+1): two outputs to charge 2 battery banks

The Skylla-IP44 (1+1) features 2 isolated outputs. The second output, limited to approximately 3A and with a slightly lower output voltage, is intended to top up a starter battery.

### Skylla-IP44 (3): three full current outputs to charge 3 battery banks

The Skylla-IP44 (3) features 3 isolated outputs. All outputs can supply the full rated output current.



SKYLLA IP44

### IP44 protection

Steel epoxy powder coated case and splash proof. Withstands the rigors of an adverse environment: heat, humidity and salt air. Circuit boards are protected with an acrylic coating for maximum corrosion resistance.

Temperature sensors ensure that power components will always operate within specified limits, if needed by automatic reduction of output current under extreme environmental conditions.

### LCD display

For status monitoring and to easily adapt the charge algorithm to a particular battery and its conditions of use.

### CAN bus interface (NMEA2000)

To connect to a CAN bus network, to a Skylla-i Control panel or to the Color Control digital display.

### Synchronised parallel operation

Several chargers can be connected in parallel and synchronised with help of the CAN bus interface. This is achieved by simply interconnecting the chargers with RJ45 UTP-cables.

### The right amount of charge for a lead-acid battery: variable absorption time

When only shallow discharges occur the absorption time is kept short in order to prevent overcharging of the battery. After a deep discharge the absorption time is automatically increased to make sure that the battery is completely recharged.

### Preventing damage due to excessive gassing: the BatterySafe mode

If, in order to quickly charge a battery, a high charge current in combination with a high absorption voltage has been chosen, the Skylla-IP44 will prevent damage due to excessive gassing by automatically limiting the rate of voltage increase once the gassing voltage has been reached.

### Less maintenance and aging when the battery is not in use: the Storage mode

The Storage mode kicks in whenever the battery has not been subjected to discharge during 24 hours. In the storage mode float voltage is reduced to 2,2V/cell (26,4V for 24V battery) to minimise gassing and corrosion of the positive plates. Once a week the voltage is raised back to the absorption level to 'refresh' the battery. This feature prevents stratification of the electrolyte and sulphation, a major cause of early battery failure.

### To increase battery life: temperature compensation

Every Skylla-IP44 comes with a battery temperature sensor. When connected, charge voltage will automatically decrease with increasing battery temperature. This feature is especially recommended for sealed lead-acid batteries and/or when important fluctuations of battery temperature are expected.

### Battery voltage sense

In order to compensate for voltage loss due to cable resistance, the Skylla-IP44 is provided with a voltage sense facility so that the battery always receives the correct charge voltage.

### Use as a power supply

As a result of the excellent control circuit, the Skylla-IP44 can be used as a power supply with perfectly stabilized output voltage if batteries or large buffer capacitors are not available.

### Li-Ion (LiFePO4) ready

Simple charger on-off control can be implemented by connecting a relay or open collector opto coupler output from a Li-Ion BMS to the remote control port of the charger. Alternatively complete control of voltage and current can be achieved by connecting to the CAN bus port.

MODEL	PART No.	INPUT VOLTAGE	FREQUENCY	CHARGE VOLTAGE	CHARGE CURRENT	DIMENSIONS HxWxD mm (")	WEIGHT kg (lbs)
12/60 (1+1)	23055 G	120/230 VCA	45-65 Hz	14,4 V	60 A	401x265x151 (16x10.5x6)	6 (14)
12/60 (3)	23056 J	120/230 VCA	45-65 Hz	14,4 V	3x60 A	401x265x151 (16x10.5x6)	6 (14)
24/30 (1+1)	23057 L	120/230 VCA	45-65 Hz	28,8 V	30 A	401x265x151 (16x10.5x6)	6 (14)
24/30 (3)	23058 N	120/230 VCA	45-65 Hz	28,8 V	3x30 A	401x265x151 (16x10.5x6)	6 (14)

## BATTERY CHARGERS

### SKYLLA BATTERY CHARGERS - MICROPROCESSOR CONTROL

Skylla battery chargers have automatic three stage IUoUo charging. They are designed for use on battery banks with 24V DC / 48V DC. They have two outputs, two full charge output and one output limited to 4 A.

#### Standard features

Aluminium epoxy powder coated case with drip shield, circuit board protection with an acrylic coating, built-in temperature sensors, forced cooling, protection against output short circuit and over temperature, battery temperature sensor, compensation on cable voltage fall, feeder function.

SKYLLA



### SKYLLA GMDSS BATTERY CHARGERS

Power supply: The Skylla TG has proven itself to be an excellent battery charger and power supply for GMDSS applications. However, when using a standard Skylla charger, additional equipment is needed to perform the monitoring and alarm functions required for GMDSS.

No adjustments needed: The whole system is 'click and go': the panels are pre-programmed for GMDSS functionality. A simple, intuitive menu allows changing of settings if required.

Battery time to go: The Skylla GMDSS charger has a built-in battery controller. The capacity of the battery is fully monitored so the panel can even indicate the 'time to go' in case of a power supply black out.

SKYLLA GMDSS



MODEL	Part No.	INPUT VOLTAGE RANGE	CHARGE VOLTAGE (Absorption)	CHARGE CURRENT <sup>(1)</sup>	Ah BATTERIES	DIMENSIONS H x W x D mm ("")	WEIGHT kg (lbs)
TG 24/30	64904 J	185-265V AC / 45-65 Hz	28.5 VDC	30 A + 4 A	150/300	365 x 250 x 147 (14.4 x 9.9 x 5.8)	5.5 (12.1)
TG 24/30 GMDSS	66036 V	185-265V AC / 45-65 Hz	28.5 VDC	30 A + 4 A	150/300	485 x 250 x 147 (19.1 x 9.9 x 5.8)	6 (13.2)
TG 24/50	64905 L	185-265V AC / 45-65 Hz	28.5 VDC	50 A + 4 A	250/500	365 x 250 x 147 (14.4 x 9.9 x 5.8)	5.5 (12.1)
TG 24/50 GMDSS	67918 M	90-265V AC / 45-65 Hz	28.5 VDC	50 A + 4 A	250/500	485 x 250 x 147 (19.1 x 9.9 x 5.8)	6 (13.2)
TG 24/50 3 fasi	68895 H	320-450V AC / 45-65 Hz	28.5 VDC	50 A + 4 A	250/500	365 x 250 x 257 (14.4 x 9.9 x 10.1)	13 (28.7)
TG 24/80	64906 N	185-265V AC / 45-65 Hz	28.5 VDC	80 A + 4 A	400/800	365 x 250 x 257 (14.4 x 9.9 x 10.1)	10 (22)
TG 24/100	64907 R	185-265V AC / 45-65 Hz	28.5 VDC	100 A + 4 A	500/1000	365 x 250 x 257 (14.4 x 9.9 x 10.1)	10 (22)
TG 24/100 3 phases	64908 T	320-450V AC / 45-65 Hz	28.5 VDC	100 A + 4 A	500/1000	515 x 260 x 265 (20.0 x 10.2 x 5.8)	23 (48)

(1) 100 % output up to 40°C, 80% nominal output at 50°C and 60% of nominal at 60°C.  
OPTIONAL: Skylla control panel - 65007 G

# BATTERY CHARGERS

## SKYLLA-I BATTERY CHARGERS - MICROPROCESSOR CONTROL

### Synchronised parallel operation

Several chargers can be synchronised with the CAN bus interface. This is achieved by simply interconnecting the chargers with RJ45 UTP cables. Please see the manual for details.

### The right amount of charge for a lead-acid battery: variable absorption time

When only shallow discharges occur the absorption time is kept short in order to prevent overcharging of the battery. After a deep discharge the absorption time is automatically increased to make sure that the battery is completely recharged.

### Preventing damage due to excessive gassing: the BatterySafe mode

If, in order to quickly charge a battery, a high charge current in combination with a high absorption voltage has been chosen, the Skylla-i will prevent damage due to excessive gassing by automatically limiting the rate of voltage increase once the gassing voltage has been reached

### Less maintenance and aging when the battery is not in use: the Storage mode

The storage mode kicks in whenever the battery has not been subjected to discharge during 24 hours. In the storage mode float voltage is reduced to 2,2 V/cell (26,4 V for 24 V battery) to minimise gassing and corrosion of the positive plates. Once a week the voltage is raised back to the absorption level to 'refresh' the battery. This feature prevents stratification of the electrolyte and sulphation, a major cause of early battery failure.

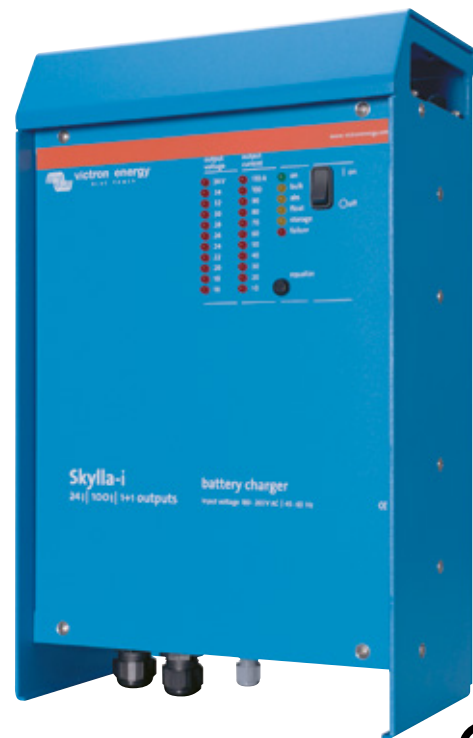
### To increase battery life: temperature compensation

Every Skylla-i comes with a battery temperature sensor. When connected, charge voltage will automatically decrease with increasing battery temperature. This feature is especially recommended for sealed lead-acid batteries and/or when important fluctuations of battery temperature are expected.

### Battery voltage sense

In order to compensate for voltage loss due to cable resistance, the Skylla-i is provided with a voltage sense facility so that the battery always receives the correct charge voltage.

- Power supply range: 180-265 VAC and 180-350 VDC
- This particular version has all the features of excellence present in the Skylla family and it adds other interesting features such as The Predisposition to charge Li-Ion (LiFePO4) and the Synchronised parallel operation via CANbus interface
- The Skylla-I chargers, as the other Skylla units, are suitable for AC and DC (AC-DC and DC-DC operation), and as a power source due to the perfect stabilization of the output voltage



SKYLLA-i



MODEL	PART No.	INPUT VOLTAGE RANGE	CHARGE VOLTAGE	Ah BATTERIES	DIMENSIONS H x W x D mm (")	WEIGHT kg (lbs)
i 24/80 (1+1)	68896 K	180-265V AC / 45-65 Hz	28.8V	400-800 Ah	402x250x140 (15.8x9.9x5.5)	8.0 (17.6)
i 24/80 (3)	68897 M	180-265V AC / 45-65 Hz	28.8V	400-800 Ah	402x250x140 (15.8x9.9x5.5)	8.0 (17.6)
i 24/100 (1+1)	68898 P	180-265V AC / 45-65 Hz	28.8V	500-1000Ah	402x250x140 (15.8x9.9x5.5)	8.0 (17.6)
i 24/100 (3)	68899 S	180-265V AC / 45-65 Hz	28.8V	500-1000Ah	402x250x140 (15.8x9.9x5.5)	8.0 (17.6)

- (1+1) one full power output and a second one limited
- (3) three full current outputs

## INVERTERS

### PHOENIX INVERTER

Developed for professional duty, **Phoenix** pure sine inverters are suitable for the widest range of applications. The design criteria have been to produce a true sine wave inverter with optimised efficiency without compromise in performance. Employing hybrid HF technology, the result is a top quality product with compact dimensions, light in weight and capable of supplying power, problem-free, to any load. A unique feature of the **SinusMax** technology is very high start-up power. Phoenix inverters, in fact, are well suited to power up difficult loads such as: refrigeration compressors, electric motors and similar applications. Conventional high frequency technology does not offer such extreme performance.



### PHOENIX INVERTER UP TO 1200 VA

#### Standard features

Aluminium epoxy powder coated case with drip shield, circuit board protection with an acrylic coating, forced cooling with temperature sensors, remote connector, battery cables (1.5 m), output short circuit protection, over temperature protection.

**Warranty:** 5 years



MODEL	PART No.	INPUT VOLTAGE RANGE DC	CONT. OUTPUT POWER - VA <sup>(1)</sup>	PEAK POWER-W		MAX. EFFIC. %	DIMENSIONS H x W x D mm (")	WEIGHT kg (lbs)
12/250 VE. Direct	20404 P	9,2 – 17,0	250	400	OUTPUT: 230V AC ± 2% - 50 Hz ± 2%	87	86x165x260 (3.4x6.5x10.2)	2,4 (5.3)
12/375 VE. Direct	20405 S	9,2 – 17,0	375	700		89	86x165x260 (3.4x6.5x10.2)	3.0 (6.6)
12/500 VE. Direct	20809 T	9,2 – 17,3	500	900		90	86x172x275 (3.4x6.8x10.8)	3.9 (8.6)
12/800 VE. Direct	21549 Y	9,2 – 17,3	800	1600		91	105x216x305 (4.2x8.5x11.9)	5.5 (12.1)
24/250 VE. Direct	20406 U	18,4 – 34,0	250	350		88	86x165x260 (3.4x6.5x10.2)	2,4 (5.3)
24/375 VE. Direct	20407 W	18,4 – 34,0	375	700		89	86x165x260 (3.4x6.5x10.2)	3.0 (6.6)
24/500 VE. Direct	20810 B	18,4 – 34,0	500	900		90	86x172x275 (3.4x6.8x10.8)	3.9 (8.6)
24/800 VE. Direct	21550 G	18,4 – 34,0	800	1500		90	105x216x305 (4.2x8.5x11.9)	5.5 (12.1)
24/1200 VE. Direct	21802 H	18,4 – 34,0	1200	2200		91	117x232x327 (4.6x9.1x12.9)	7,4 (16.3)

(1) Continuous output power at 25° C



PHOENIX SMART INVERTERS

Bluetooth built-in: fully configurable with a tablet or smartphone

- Low battery voltage alarm
- Low battery voltage cut-off and restart levels
- Dynamic cut-off: load dependent cut-off level
- Output voltage: 210 - 245V
- Frequency: 50 Hz or 60 Hz
- ECO mode on/off and ECO mode sense level

• Alarm relay

Monitoring:

- In- and output voltage, load and alarms

VE.Direct communication port

The VE.Direct port can be connected to a computer (VE.Direct to USB interface cable needed) to configure and monitor the same parameters.

Proven reliability

The full bridge plus toroidal transformer topology has proven its reliability over many years.

The inverters are short circuit proof and protected against overheating, whether due to overload or high ambient temperature.

High start-up power

Needed to start loads such as power converters for LED lamps, halogen lamps or electric tools.

ECO mode

When in ECO mode, the inverter will switch to standby when the load decreases below a preset value. Once in standby the inverter will switch on for a short period every 2,5 seconds (adjustable).

If the load exceeds the preset level, the inverter will remain on.

Se il carico supera il livello prestabilito, l'inverter rimarrà acceso.

Remote on/off

A remote on/off switch or relay contact can be connected to a two pole connector. Alternatively, the H terminal (left) of the two pole connector can be switched to battery plus, or the L terminal (right) of the two pole connector can be switched to battery minus (or the chassis of a vehicle, for example).

new



PHOENIX SMART 12/1600

MODEL	PART No.	INPUT VOLTAGE RANGE DC	CONT. OUTPUT POWER - VA <sup>(1)</sup>	PEAK POWER-VA		MAX. EFFIC. %	DIMENSIONS H x W x D mm (")	WEIGHT kg (lbs)
12/1600 Smart	22825 B	9,3 – 17,0	1600	3000	USCITA: 230V AC ± 2% 50 Hz o 60 Hz ± 1%	92	485x219x125 (19.1x8.6x4.9)	12 (26.5)
12/2000 Smart	22826 D	9,3 – 17,0	2000	4000		92	485x219x125 (19.1x8.6x4.9)	13 (28.7)
12/3000 Smart	23059 R	9,3 – 17,0	3000	6000		93	533x285x150 (21x11.2x5.9)	19 (41.9)
24/1600 Smart	22827 F	18,6 – 34,0	1600	3000		94	485x219x125 (19.1x8.6x4.9)	12 (26.5)
24/2000 Smart	22828 H	18,6 – 34,0	2000	4000		94	485x219x125 (19.1x8.6x4.9)	13 (28.7)
24/3000 Smart	23060 Z	18,6 – 34,0	3000	6000		94	485x285x150 (19.1x11.2x5.9)	19 (41.9)

(1) Continuous output power at 25° C



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# INVERTERS

## PHOENIX INVERTERS 1200 VA - 5000 VA

Developed for professional duty, the Phoenix range of inverters is suitable for the widest range of applications. The design criteria have been to produce a true sine wave inverter with optimized efficiency but without compromise in performance. A unique feature of the SinusMax technology is very high start-up power. Conventional high frequency technology does not offer such extreme performance. Phoenix nverters, however, are well suited to power up difficult loads such as refrigeration compressors, electric motors and similar appliances. Up to 6 units inverters can operate in parallel to achieve higher power output. Six 24/5000 units, for example, will provide 24kW / 30kVA output power. Operation in 3-phase configuration is also possible.

### To transfer the load to another AC source: the automatic transfer switch.

If an automatic transfer switch is required we recommend using the MultiPlus inverter/charger instead. The switch is included in these products and the charger function of the MultiPlus can be disabled. Computers and other electronic equipment will continue to operate without disruption because the MultiPlus features a very short switchover time (less than 20 milliseconds).

**Computer interface:** All models have a RS-485 port. All you need to connect to your PC is our MK2 interface (see under accessories). This interface takes care of galvanic isolation between the inverter and the computer, and converts from RS-485 to RS-232.



PHOENIX 1200 VA



### Standard features

Aluminum epoxy powder coated case with drip shield, circuit board protection with an acrylic coating, forced cooling with temperature sensors, protection against: output short circuit, overload, low battery voltage, reverse polarity, reverse voltage on output, input voltage ripple, high temperature.  
Relay multifunction.

MODEL	PART No.	INPUT VOLTAGE RANGE V DC	CONT OUTPUT POWER VA <sup>(1)</sup>	PEAK POWER W		MAX. EFFIC %	DIMENSIONS H x W x D mm (")	WEIGHT kg (lbs)
C12/1200	64918 W	9,5 - 17,0	1200	2400	OUTPUT: 230V AC ± 2% - 50 Hz ± 2%	92	375x214x110 (14.7x8.4x4.3)	10 (22)
C12/1600	64919 Y	9,5 - 17,0	1600	3000		92	375x214x110 (14.7x8.4x4.3)	10 (22)
C12/2000	66407 E	9,5 - 17,0	2000	4000		92	520x255x125 (20.5x10.0x4.9)	13 (28.6)
12/3000	66037 X	9,5 - 17,0	3000	6000		93	362x258x218 (14.2x10.1x8.6)	18 (39.7)
C24/1200	64921 J	19,0 - 33,0	1200	2400		94	375x214x110 (14.7x8.4x4.3)	10 (22)
C24/1600	64922 L	19,0 - 33,0	1600	3000		94	375x214x110 (14.7x8.4x4.3)	10 (22)
C24/2000	66408 G	19,0 - 33,0	2000	4000		92	520x255x125 (20.5x10.0x4.9)	13 (28.6)
24/3000	64923 N	19,0 - 33,0	3000	6000		94	362x258x218 (14.2x10.1x8.6)	18 (39.7)
24/5000	66244 C	19,0 - 33,0	5000	10.000		94	444x328x240 (17.5x12.9x9.4)	28 (61.7)

(1) Continuous output power at 25°C

All models are suitable for parallel (max 6 parallel units) and 3-phase operation

OPTIONAL: control panel Phoenix CC Inverter - 65006 E

MULTI-FUNCTION INVERTER/BATTERY CHARGERS

QUATTRO

Two AC inputs with integrated transfer switch

The Quattro can be connected to two independent AC sources, for example shore-side power and a generator, or two generators: the Quattro will automatically connect to the active source.

Two AC outputs

The main output has no-break functionality. In the event of a grid failure, or shore or generator power being disconnected, the Quattro takes over the supply to the connected loads. This happens so fast (less then 20 milliseconds) that computers and other electronic equipment will continue to operate without disruption. The second output is live only when AC source is available. Loads that should discharge the battery, like a water heater for example can be connected to this output.

Virtually unlimited power thanks to parallel operation

Up to 10 Quattro's can operate in parallel. Ten units 24/5000/120, for example, will provide 40kW / 50kVA output power and 1200 Amp charging capacity.

Three phase capability

Three units can be configured for three-phase output and up to 6 sets of three units can be parallel connected to provide 75kW / 90kVA inverter power and more then 2000 Amp charging capacity.

Power Control - Dealing with limited generator, shore-side or grid power

The Quattro is a very powerful battery charger. It will therefore draw a lot of current from the generator or shore-side supply (16A per Quattro at 230 VAC). A current limit can be set for both AC inputs. The Quattro will then take account of the other AC loads and use whatever is spare for charging, thus preventing the generator or shore supply from being overloaded.

Power Assist – Boosting shore or generator power

Where peak power is so often required only for a limited period, the Quattro makes sure that insufficient shore or generator power is immediately compensated for by power from the battery. When the load reduces, the spare power is used to recharge the battery. With this feature, problems related to insufficient shore or generator power are solved once and for all. Air conditioning, an electric hob, a washing machine, a dish washer, a 16A shore connection, or even less than 16A, will not limit you in any way.



QUATTRO 5kVA



MODEL	PART No.	INPUT VOLTAGE RANGE	CONT. OUTPUT POWER <sup>(1)</sup>		BATTERY CHARGE INPUT VOLTAGE RANGE	CHARGE CURRENT	DIMENSIONS H x W x D mm (")	WEIGHT kg (lbs)
12/3000/120-50-50	69355 D	9,5 - 17	3000	OUTPUT: 230V AC ± 2% 50 Hz ± 2%	14.4V DC (absorption) 13.8V DC (float)	120A + 4A	362x258x218 (14.3x10.1x8.6)	19,0 (41.8)
12/5000/220-100-100	67437 V	19 - 33	5000		14.4V DC (absorption) 13.8V DC (float)	220A + 4A	470x350x280 (18.5x13.8x11)	34,0 (74.9)
24/3000/70-50-50	69356 F	19 - 33	3000		28.8V DC (absorption) 27.6V DC (float)	70A + 4A	362x258x218 (14.3x10.1x8.6)	19,0 (41.8)
24/5000/120-100-100	66097 S	19 - 33	5000		28.8V DC (absorption) 27.6V DC (float)	120A + 4A	444x328x240 (17.4x12.9x9.4)	30.0 (66.1)
24/8000/200-100-100	67338 T	19 - 33	8000		57,6V DC (absorption) 55,2V DC (float)	110A + 4A	470x350x280 (18.5x13.8x11)	41,0 (90.4)

(1) Continuous output power at 25°C



## MULTI-FUNCTION INVERTER/BATTERY CHARGERS

### MULTIPLUS

The MultiPlus is a powerful true sine wave inverter, a sophisticated battery charger that features adaptive charge technology, and a high-speed AC transfer switch in a single compact enclosure. **The MultiPlus is compatible with Lithium-ion batteries.**



MULTIPLUS 500VA - 1600VA



MULTIPLUS COMPACT



MULTIPLUS 800VA - 5000VA



#### Double AC outputs

The main output features a no-break function: when the shore power or the genset power fails, the MultiPlus takes charge of the active loads without discontinuity. The second output is active only when an AC source is connected. The loads that may discharge the batteries, like the boiler, shall be connected to the second output.

#### Parallel operation and three-phase configuration

The MultiPlus are able to be installed in parallel up to 6 units. In addition to parallel connection, three units of the same model can be configured for three-phase output: up to 6 sets of three units can be parallel connected for a total output of 75KW /90kVA and a current of 2000A.

#### Power Control

The MultiPlus is a very powerful battery charger, drawing high currents from the genset or from the shore power (up to 10A per 5kVA Multi at 230 VAC). In order to avoid any generator or shore overload, a current limit can be set through the Multi Control Panel; this way the Multiplus will charge the battery with the current not used from the others AC loads on board.

#### Power Assist

In the event that the onboard load exceeds the available shore power, the inverter function works in parallel with the shore connection to boost the total energy available and avoid overload. This works just the same with a generator.

#### Four stage adaptive charger and dual battery charging

#### System configuration

After installation, the MultiPlus is ready to work. If settings have to be changed, this can be done with the DIP switch setting procedure. Even parallel and 3-phase operation can be programmed with DIP switches. The VE.Net panel can be used as well for any setting modification.

Multiplus 48/3000/35-50 certified CEI 021





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MODEL	PART No.	INPUT VOLTAGE RANGE	CONT. OUTPUT POWER <sup>(1)</sup>	OUTPUT	BATTERY CHARGE INPUT VOLTAGE RANGE	CHARGE CURRENT	DIMENSIONS H x W x D mm (")	WEIGHT kg (lbs)
12/500/20-16	20813 H	9,5 – 17 V	500	230V AC ± 2% 50 Hz ± 2%	187-265 V AC / 45-55 Hz	20 A + 1 A	311x182x100 (12.2x7.2x3.9)	4,4 (9.7)
12/800/35-16	21623 H	9,5 – 17 V	800			35 A + 1 A	360x240x100 (14.2x9.5x3.9)	6,4 (14.1)
C12/800/35-16	69358 K	9,5 – 17 V	800			35 A + 4 A	375x214x110 (14.7x8.4x4.3)	10 (22)
12/1200/50-16	21711 E	9,5 – 17 V	1200			50 A + 1 A	406x250x100 (16x9.8x3.9)	8,2 (18.1)
C12/1200/50-16	69359 M	9,5 – 17 V	1200			50 A + 4 A	375x214x110 (14.7x8.4x4.3)	10 (22)
12/1600/70-16 <sup>new</sup>	23061 B	9,5 – 17 V	1200			70 A + 1 A	470x265x120 (18.5x10.4x4.7)	10,2 (22.5)
C12/1600/70-16	69360 W	9,5 – 17 V	1600			70 A + 4 A	375x214x110 (14.7x8.4x4.3)	10 (22)
C12/2000/80-30	69361 Y	9,5 – 17 V	2000			80 A + 4 A	520x255x125 (20.5x10.0x4.9)	13 (28.7)
12/3000/120-16	69362 A	9,5 – 17 V	3000			120 A + 4 A	362x258x218 (14.2x10.1x8.6)	18 (39.7)
12/3000/120-50	69363 C	9,5 – 17 V	3000			120 A + 4 A	362x258x218 (14.2x10.1x8.6)	18 (39.7)
24/500/10-16	21554 R	19 – 33 V	500			10 A + 1 A	311x182x100 (12.2x7.2x3.9)	4,4 (9.7)
24/800/16-16	21624 K	19 – 33 V	800			16 A + 1 A	360x240x100 (14.2x9.5x3.9)	6,4 (14.1)
C24/800/16-16	69364 E	19 – 33 V	800			16 A + 4 A	375x214x110 (14.7x8.4x4.3)	10 (22)
24/1200/25-16	21712 G	19 – 33 V	1200			25 A + 1 A	406x250x100 (16x9.8x3.9)	8,2 (18.1)
C24/1200/25-16	69876 J	19 – 33 V	1200			25 A + 4 A	375x214x110 (14.7x8.4x4.3)	10 (22)
24/1600/40-16 <sup>new</sup>	23062 D	19 – 33 V	1600			40 A + 1 A	470x265x120 (18.5x10.4x4.7)	10,2 (22.5)
C24/1600/40-16	69365 G	19 – 33 V	1600			40 A + 4 A	375x214x110 (14.7x8.4x4.3)	10 (22)
C24/2000/50-30	69189 N	19 – 33 V	2000			50 A + 4 A	520x255x125 (20.5x10.0x4.9)	13 (28.7)
24/3000/70-16	69366 J	19 – 33 V	3000			70 A + 4 A	362x258x218 (14.2x10.1x8.6)	18 (39.7)
24/3000/70-50	69178 H	19 – 33 V	3000			70 A + 4 A	362x258x218 (14.2x10.1x8.6)	18 (39.7)
24/5000/120-100	69367 L	19 – 33 V	5000			120 A + 4 A	444x328x240 (17.5x12.8x9.4)	30 (66.1)

(1) Continuous output power at 25°C. **Color Control GX** - 68999 W is available to monitor and manage system functions.



## DC-DC CONVERTERS

Orion DC/DC Converters are designed to deliver a stable 12 Volt supply from a 24 Volt system. An inferior supply can cause irreparable damage to 12 Volt system, but the use of an Orion voltage converter prevents such problems. Next to converters from 24V to 12V, a wide range of other models is available.  
Warranty: 5 years

### NON ISOLATED RESIN ENCAPSULATED - IP67 ORION CONVERTERS

#### Completely encapsulated: waterproof, shockproof and ignition protected

Water, oil or dirt will not damage the Orion IP67 DC-DC Converter. The casing is made of cast aluminium and the electronics are moulded in resin.

#### Extra-long input and output cables

Thanks to the cables of 1.8 meters in length, intermediate cable interconnections to increase length even more will in most cases not be needed. This is an important reliability increasing feature in an area where IP67 protection grade is needed.

#### Wide input voltage range

With 15 to 40 Volts input range, a stable output is ensured during surges or sags due to other equipment connected to same battery.

#### Protected against overheating

It can be used in a hot environment such as a machine room.



ORION IP67 24/12 -10 -20

MODEL	PART No.	INPUT VOLTAGE RANGE VDC	OUTPUT VOLTAGE - VDC	MAX OUTPUT CURRENT	TEMPERATURE CONTROL	DIMENSIONS HxWxD mm (")	WEIGHT kg (lbs)
Orion IP67 12/24-50 <sup>new</sup>	23080 F	10-15	24	50	no	340x127x63 (13.4x5x2.5)	3 (6.6)
Orion IP67 24/12-5	69893 J	15-40	12	5	no	25x43x20 (1.0x1.7x0.8)	0,1 (0.2)
Orion IP67 24/12-10	69894 L	15-40	12	10	no	74x74x32 (2.9x2.9x1.3)	0,4 (0.8)
Orion IP67 24/12-20	69895 N	15-40	12	20	no	74x74x32 (2.9x2.9x1.3)	0,45 (0.1)
Orion IP67 24/12-100 <sup>new</sup>	23081 H	18-35	12	100	no	265x127x63 (10.4x5x2.5)	2,15 (4.7)

### NON ISOLATED ORION CONVERTERS

#### Remote on-off connector

The remote on-off eliminates the need for a high current switch in the input wiring. The remote on-off can be operated with a low power switch or by the engine run/stop switch.

#### All models with adjustable output can also be used as a battery charger

For example to charge a 12 Volt starter or accessory battery in an otherwise 24V system.

#### All models with adjustable output can be paralleled to increase output current

Up to five units can be connected in parallel.

#### Easy to install

Delivery includes four Insulated Fastons Female Crimp 6.3mm (eight Fastons in case of the Orion 24/12-40).



ORION DC-DC 24/12-40

MODEL	PART No.	INPUT VOLTAGE RANGE	OUTPUT VOLTAGE - VDC	MAX OUTPUT CURRENT	TEMPERATURE CONTROL	DIMENSIONS HxWxD mm (")	WEIGHT kg (lbs)
Orion 12/24-8	68126 G	9-18	24	20	no	45x90x115 (1.8x3.5x4.5)	0,3 (0.7)
Orion 12/24-10*	64956 E	9-18	20-30	20	no	45x90x125 (1.8x3.5x4.9)	0,4 (0.8)
Orion 12/24-20*	68882 Y	9-18	20-30	30	yes	65x88x195 (2.6x3.5x7.7)	0,9 (2.0)
Orion 24/12-25*	68027 E	18-35	10-15	25	no	65x88x160 (2.6x3.5x7.3)	0,7 (1.55)
Orion 24/12-40	68107 C	18-35	13,2	40	yes	65x88x185 (2.6x3.5x7.3)	0,85 (1.9)
Orion 24/12-70*	68222 C	18-35	10-15	70	yes	65x88x195 (2.6x3.5x7.7)	0,9 (2.0)

## DC-DC CONVERTERS

### NON ISOLATED ORION-TR CONVERTERS

#### High efficiency

Using synchronous rectification, full load efficiency exceeds 95%.

#### IP43 protection

When installed with the screw terminals oriented downwards.

#### Screw terminals

No special tools needed for installation.



ORION-TR DC-DC 24/12-10

MODEL	PART No.	INPUT VOLTAGE RANGE	OUTPUT VOLTAGE - VDC	MAX OUTPUT CURRENT	CONT. OUTPUT CURRENT	DIMENSIONS HxWxD mm (")	WEIGHT kg (lbs)
Orion-Tr 24/12-5	20391 H	18-35	12.7	7	5	53x51x27 (2.1x2x1.1)	0,1 (0.2)
Orion-Tr 24/12-10	20179 K	18-35	12.5	12	10	73x94x37 (2.9x3.7x1.5)	0,2 (0.44)
Orion-Tr 24/12-15	20392 K	18-35	12.5	20	15	73x94x45 (2.9x3.7x1.8)	0,3 (0.7)
Orion-Tr 24/12-20	20393 M	18-35	12.5	25	20	73x94x45 (2.9x3.7x1.8)	0,3 (0.7)

### ISOLATED ORION-TR CONVERTERS

#### Adjustable output voltage: can also be used as a battery charger

For example to charge a 12 Volt starter or accessory battery in an otherwise 24V system.

#### All models are short circuit proof and can be paralleled to increase output current

An unlimited number of units can be connected in parallel.

#### High temperature protected

The output current will reduce at high ambient temperature.

#### IP43 protection

When installed with the screw terminals oriented downwards.

#### Screw terminals

No special tools needed for installation.

#### Input fuse (not replaceable)

On 12V and 24V input models only.



ISOLATED ORION-TR DC-DC

MODEL	PART No.	INPUT VOLTAGE RANGE	OUTPUT VOLTAGE - VDC	MAX OUTPUT CURRENT	EFFICIENCY	DIMENSIONS H x W x D mm (")	WEIGHT kg (lbs)
Orion-Tr 12/12-9	20396 U	8-17	10-15	12,5	87%	100x113x47 (3.9x4.5x1.9)	0,6 (1.3)
Orion-Tr 12/12-18	21588 J	8-17	10-15	25	88%	130x186x70 (5.1x7.3x2.8)	1,3 (2.9)
Orion-Tr 12/12-30 <sup>new</sup>	23082 K	10-17	10-15	40	87%	130x186x80 (5.1x7.3x3.2)	1,8 (4)
Orion-Tr 12/24-5	20398 Y	8-17	20-30	6,3	88%	100x113x47 (3.9x4.5x1.9)	0,6 (1.3)
Orion-Tr 12/24-10	21681 Y	8-17	20-30	12,5	88%	130x186x70 (5.1x7.3x2.8)	1,3 (2.9)
Orion-Tr 12/24-15 <sup>new</sup>	22903 V	10-17	20-30	25	88%	130x186x80 (5.1x7.3x3.2)	1,8 (4)
Orion-Tr 24/12-9	20399 A	16-35	10-15	12,5	85%	100x113x47 (3.9x4.5x1.9)	0,6 (1.3)
Orion-Tr 24/12-20	21682 A	16-35	10-15	25	88%	130x186x70 (5.1x7.3x2.8)	1,3 (2.9)
Orion-Tr 24/12-30 <sup>new</sup>	23083 M	20-35	10-15	45	88%	130x186x80 (5.1x7.3x3.2)	1,8 (4)
Orion-Tr 24/24-5	20073 T	16-35	20-30	6,3	87%	100x113x47 (3.9x4.5x1.9)	0,6 (1.3)
Orion-Tr 24/24-12	20976 N	16-35	20-30	15	88%	130x186x70 (5.1x7.3x2.8)	1,3 (2.9)
Orion-Tr 24/24-17 <sup>new</sup>	64968 M	20-35	20-30	25	89%	130x186x70 (5.1x7.3x2.8)	1,6 (3.5)

# ISOLATION TRANSFORMERS AND AUTOTRANSFORMERS

## ISOLATION TRANSFORMERS

The isolation transformer eliminates any electrical continuity between AC shore power and the ship. It is essential for safety and eliminates the need for galvanic isolators and polarity alarms. The shore power is fed to the primary side of the transformer and the ship is connected to the secondary. The isolation transformer completely isolates the boat from the shore ground. By connecting all metal parts to the neutral output on the secondary side of the transformer, a GFCI (ground fault current interrupter) will trip or a fuse will blow in case of a short circuit.

### Features

Aluminium epoxy powder coated case with drip shield, circuit board protection with an acrylic coating, toroidal transformer.



ISOLATION TRANSFORMER

MODEL	PART No.	WATT	DIMENSIONS mm (")	WEIGHT kg (lbs)
2000 W 115/230 V	64969 P	2000 W	375x214x110 (14.8x8.4x4.3)	10 (22.0)
3600W 115/230 V	64970 Y	3600 W	362x258x218 (14.2x10.1x8.5)	23 (50.7)
7000W 230 V	64972 C	7000 W	362x258x218 (14.2x10.1x8.5)	26 (57.3)
3600W Auto 115/230 V*	69852 U	3600 W	362x258x218 (14.2x10.1x8.5)	23 (50.7)

\*Automatic input voltage detection

## AUTOTRANSFORMER 120/240 32A AND 100A

- An autotransformer or autostep down transformer is an electrical transformer with only one winding. An autotransformer, portions of the same winding act as both the primary and secondary sides of the transformer. The winding has at least three taps where electrical connections are made. Autotransformers have the advantages of often being smaller, lighter, and cheaper than typical dual-winding transformers, but autotransformers have the disadvantage of not providing electrical isolation.
- Autotransformers are often used to step up or step down voltages in the 110-115-120 volt range and voltages in the 220-230-240 volt range - for example. providing 120V (with taps) from 240V input, allowing equipment designed for 120 volts to be used with a 240 volt supply (as in using US electrical equipment with higher European voltages)
- Temperature protected. In case of overheating, the autotransformer is disconnected from the supply. Reset is manual
- Trasformator type: toroidal
- Enclosure Aluminium. Protection category IP21



ISOLATION TRANSFORMER

MODEL	PART No.	INPUT/OUTPUT VOLTAGE	MAXIMUM 240V FEED CURRENT	DIMENSIONS H x W x D mm (")	WEIGHT kg (lbs)
32 A	68349 D	120/ 240 V - 50/60Hz	32 A	375x214x110 (14.8x8.4x4.3)	10 (22.0)
100 A	68883 A	120/ 240 V - 50/60Hz	100 A	425x214x110 (16.7x8.4x4.3)	14 (30.9)

## GALVANIC ISOLATORS VDI-16, VDI-32

- Prevent galvanic corrosion due to dissimilar metals between boats
- Gold plated terminals provide superior corrosion resistance to marine environment
- Block DC current from flowing through shore power cable
- Ignition protected



VDI-32

MODEL	PART No.	PEAK CURRENT	MAX CURRENT	DIMENSIONS H x W x D mm (")	WEIGHT kg (lbs)
VDI-16	68884 C	1600 A / 20 ms	16 A	60X120X200 (2.3x4.7x7.9)	1 (2.2)
VDI-32	69851 S	1600 A / 20 ms	32 A	63x164x235 (2.4x6.5x9.2)	2 (4.4)
VDI-64 <sup>new</sup>	23078 V	1600 A / 20 ms	64 A	64x164x224 (2.5x6.5x8.8)	2 (4.4)



## ACCESSORIES

### BATTERY MONITORS

The BMV monitors feature an advanced microprocessor control system combined with high resolution measuring system for battery voltage and charge/discharge current. It can display: voltage, charge/discharge current, SOC, remaining time. Using the dongle Bluetooth (opt), all the data can be monitored by smartphone. Standard with connection cables and shunt.

**Mounting hole:** 52 mm (2")

**BMV 700** - 69112 A – monitoring 1 battery 9-90 VDC

**BMV 702** - 69151 L – monitoring 2 batteries 9-90 VDC

**BMV 702 BLACK** - 69159 D – monitoring 2 batteries 9-90 VDC

**BMV 712 Smart** - 21396 Z – monitoring 2 batteries 9-90 VDC - Bluetooth included

**Temperature Sensor** - 69160 M – Temperature sensor for BMV 702/712



BMV 712 Smart



### BATTERY ISOLATORS

Battery isolators allow simultaneous charging of two or more batteries from one alternators, without connecting the batteries together. Discharging the accessory battery, for example, will not result in discharging the starter battery.

#### ARGO – DIODE BATTERY ISOLATORS

The Argo battery isolators feature a low voltage drops thanks to the use of Schottky diodes: at low current the voltage drop is approximately 0,3V and at the rated output approximately 0,45 V.

All models are fitted with a compensation diode that can be used to slightly increase the output voltage of the alternator. This compensates for the voltage drop over the diodes in the isolator.



ARGO



#### Alternator energize input

Some alternators need DC voltage on the B+ output to start charging. Obviously, DC will be present when the alternator is directly connected to a battery.

Inserting a Diode or FET splitter will however prevent any return voltage/current from the batteries to the B+, and the alternator will not start. The new diode isolators have a special current limited energize input that will power the B+ when the engine run/stop switch is closed.

MODEL	PART No.	MAX CHARGE CURRENT	ALTERNATOR MAX CURRENT	No. of BATTERIES	DIMENSIONS H x W x D mm (")	WEIGHT kg (lbs)
80-2AC	67435 R	80A	80A	2	60x120x90 (2.4x4.7x3.5)	0.6 (1.3)
100-3AC	64984 K	100A	100A	3	60x120x115 (2.4x4.7x4.5)	0.8 (1.8)
120-2AC	64985 M	120A	120A	2	60x120x115 (2.4x4.7x4.5)	0.8 (1.8)
140-3AC	64986 P	140A	140A	3	60x120x150 (2.4x4.7x6.0)	1.1 (2.4)
160-2AC	64987 S	160A	160A	2	60x120x150 (2.4x4.7x6.0)	1.1 (2.4)
180-3AC	64988 U	180A	180A	3	60x120x200 (2.4x4.7x7.9)	1.5 (3.3)

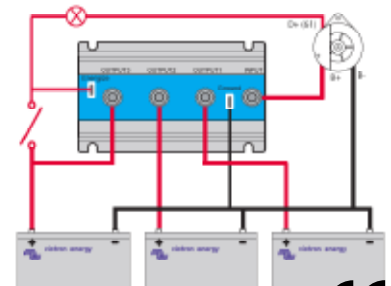
#### ARGO FET BATTERY ISOLATORS: NO VOLTAGE LOSS

Differently from diode battery isolators, FET isolators have virtually no voltage loss. Voltage drop is less than 0,02 Volt at low current and averages 0,1 Volt at higher currents.

When using ARGO FET battery isolators, there is no need to also increase the output voltage of the alternator. Care should be taken however to keep cable lengths short and of sufficient cross section.

#### Alternator energize input

The new ARGO FET isolators have a special current limited energize input that will power the B+ when the engine run/stop switch is closed.



ARGO FET



MODEL	PART No.	MAX CHARGE CURRENT	ALTERNATOR MAX CURRENT	No. of BATTERIES	DIMENSIONS H x W x D mm (")	WEIGHT kg (lbs)
100/2-FET	64989 W	100A	100A	2	65x120x200 (2.6x4.7x7.9)	1.4 (3.1)
100/3-FET	64990 E	100A	100A	3	65x120x200 (2.6x4.7x7.9)	1.4 (3.1)
200/2-FET	64991 G	200A	200A	2	65x120x200 (2.6x4.7x7.9)	1.4 (3.1)
200/3-FET	64992 J	200A	200A	3	65x120x200 (2.6x4.7x7.9)	1.4 (3.1)



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## CIRYX - MICROPROCESSOR CONTROLLED BATTERY COMBINER

The Ciryx battery combiner is a microprocessor controlled heavy duty relay that automatically connects batteries in parallel when one of them has reached a preset voltage (indicating that the battery has been charged) and disconnects when the voltage decreases below float level (indicating that one or more batteries have been discharged).

### No voltage loss

Ciryx battery separators are an excellent replacement for diode isolators. The main feature is that there is virtually no voltage loss so that the output voltage of alternators or battery chargers does not need to be increased.

### Prioritising the starter battery

In a typical setup the alternator is directly connected to the starter battery. The accessory battery and possibly also a bow thruster and other batteries are each connected to the starter battery by Ciryx battery combiners. When a Ciryx senses that the starter battery has reached its connect voltage will engage, to allow for parallel charging of the other batteries.

### Bidirectional voltage sensing

The Ciryx senses the voltage of both connected batteries. It will therefore also engage if for example the accessory battery has been charged by a battery charger.

### Parallel connection in case of emergency

The Ciryx can also be engaged with a switch to connect manually batteries in parallel. This is especially useful in case of emergency when the starter battery is discharged or damaged.

### 12/24V auto ranging with Ciryx-i

The Ciryx-i 12/24-400 automatically detects system voltage.



CIRIX-i 12/24-400A



CIRIX-CT 12/24-120A

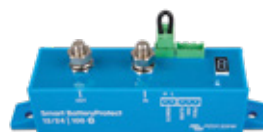


CIRIX-CT 12/24-230A

MODEL	PART No.	CONTINUOUS CURRENT A	PEAK CURRENT	CONNECT VOLTAGE V	DISCONNECT VOLTAGE	DIMENSIONS H x W x D mm (")	WEIGHT kg (lbs)
CT 12/24-120	68956 B	120	180	13÷13.8V e 26÷27.6V	11÷12.8V e 22÷25.7V	46x46x80 (1.8x1.8x3.2)	0.11 (0.24)
CT 12/24-230	69357 H	230	500	13÷13.8V e 26÷27.6V	11÷12.8V e 22÷25.7V	65x100x50 (2.6x3.9x2.0)	0.27 (0.6)
i 12/24-400	67064 F	400	2000	13÷13.8V e 26÷27.6V	10,5÷12.8V e 21÷25.6V	78x102x110 (3.0x4.0x4.3)	0.9 (1.9)

## BATTERY PROTECTION

The Victron battery protection disconnects the battery from non essential loads before it is completely discharged (which would damage the battery) or before it has insufficient power left to crank the engine.



BP-100A Smart



BP-65A Smart



BP-220A Smart

MODEL	PART No.	MAX CONTINUOUS CURRENT	PEAK CURRENT	OPERATING VOLTAGE RANGE	LOAD DISCONNECT DELAY	DIMENSIONS HxWxD mm (")	WEIGHT kg (lbs)
BP-65	69853 W	12/24V 65A	100A	6-35V	1 minute	40x48x106 (1.6x1.9x4.2)	0.2 (0.5)
BP-65 <sup>new</sup> Smart	22835 E	12/24V 65A	100A	6-35V	1 minute	40x48x106 (1.6x1.9x4.2)	0.2 (0.5)
BP-100	69854 Y	12/24V 65A	600A	6-35V	1 minute	59x42x115 (2.4x1.7x4.6)	0.6 (1.3)
BP-100 <sup>new</sup> Smart	22836 G	12/24V 65A	600A	6-35V	1 minute	59x42x115 (2.4x1.7x4.6)	0.6 (1.3)
BP-220	69855 A	12/24V 65A	600A	6-35V	1 minute	62x123x120 (2.5x4.9x4.8)	0.8 (1.8)
BP-220 <sup>new</sup> Smart	22837 J	12/24V 65A	600A	6-35V	1 minute	62x123x120 (2.5x4.9x4.8)	0.8 (1.8)

ACCESSORIES

## REMOTE CONTROL PANELS AND CONNECTION CABLES



DMC



CCGX



PHOENIX CC



CANvu GX



Phoenix Inverter Control VE. Direct



MODEL	PART No.	DESCRIPTION
DMC 200/200A	66717 W	Digital Multi Control 200/200
DMC 200/200A GX	67920 Y	Digital Multi Control 200/200GX for Multi (Plus) and Quattro
Color Control GX	68999 W	Digital Remote Control
System Controller Venus GX	21201 E	Same functions as CCGX without display
CANvu GX	23084 P	Touch Screen Digital Remote Control
CANvu GX kit	23085 S	Wiring kit (necessary to install CANvu GX)
Phoenix CC Charger	65006 E	Phoenix Charger Control Panel
Phoenix Inverter	66202 K	Phoenix Inverter Control Panel
Phoenix Inverter Control VE. Direct	23003 L	Phoenix Inverter VE. Direct Remote Control Panel
Skylla-i	68885 E	Skylla-i Control GX Panel
Skylla CC	65007 G	Skylla Control Panel
CW	65008 J	On-Off switch battery charge
Battery Alarm GX	65009 L	Battery Alarm Panel
VE. Direct Bluetooth Dongle	69545 E	Dongle Bluetooth for remote monitoring data
Wifi Module Simple	69536 H	CCGX Wifi Module Simple
Wifi Module Long Range	69537 K	CCGX Wifi Module Long Range

### CABLES AND CONNECTION KIT

MODEL	PART No.	DESCRIPTION
UTP-1,8 RJ 45	67776 U	UTP 1,8 m cable
UTP-3 RJ 45	20413 R	UTP 3 m cable
UTP-5 RJ 45	65010 V	UTP 5 m cable
UTP-10 RJ 45	65011 X	UTP 10 m cable
UTP-15 RJ 45	65012 Z	UTP 15 m cable
UTP-20 RJ 45	65013 B	UTP 20 m cable
UTP-25 RJ 45	65014 D	UTP 25 m cable
UTP-30 RJ 45	65015 F	UTP 30 m cable
RS232/MK.2b	65018 M	Connection Kit RS232/MK.2b Victron Interface
USB/RS232	65019 P	Converter USB/RS232
MK2/USB	67082 H	Converter Kit USB/MK.2b



### AUTOMATIC TRANSFER SWITCH

66138 D Filax transfer switch CE 50Hz (up to 3500W) shore/inverter

## BATTERIES



AGM



GEL



OPZV

Deep cycle **AGM** batteries are more suitable for short-time delivery of very high currents (engine starting) than gel batteries. Life: 7 – 10 years

AGM Type	PART No.	CAPACITY*	DIMENSIONS W x D x H mm (")	WEIGHT kg (lbs)
12/60	65022 C	60 - 55 Ah	229x138x227 (9x5.4x8.9)	18 (39.7)
12/66	65023 E	66 - 60 Ah	258x166x235 (10.1x6.5x9.2)	24 (52.9)
12/90	65024 G	90 - 80 Ah	350x167x183 (13.8x6.6x7.2)	27 (59.5)
12/110	65645 S	110 - 100 Ah	330x171x220 (13x6.7x8.7)	32 (70.5)
12/130	65025 J	130 - 120 Ah	410x176x227 (16.1x6.9x8.9)	38 (83.7)
12/165	65026 L	165 - 150 Ah	485x172x240 (19.1x6.7x9.4)	47 (103.6)
12/220	65027 N	220 - 200 Ah	522x238x240 (20.5x9.3x9.4)	65 (143.0)

\*value for 20 hours of discharging

GEL deep cycle batteries. Life: 12 years

GEL Type	PART No.	CAPACITY*	DIMENSIONS W x D x H mm (")	WEIGHT kg (lbs)
12/60	65028 R	60 - 55 Ah	229x138x227 (9x5.4x8.9)	19 (41.9)
12/66	65029 T	66 - 60 Ah	258x166x235 (10.1x6.5x9.2)	24 (52.9)
12/90	65030 B	90 - 80 Ah	350x167x183 (13.8x6.6x7.2)	26 (57.3)
12/110	65646 U	110 - 100 Ah	330x171x220 (13x6.7x8.7)	33 (72.7)
12/130	65031 D	130 - 120 Ah	410x176x227 (16.1x6.9x8.9)	38 (83.7)
12/165	65032 F	165 - 150 Ah	485x172x240 (19.1x6.7x9.4)	48 (103.6)
12/220	65033 H	220 - 200 Ah	522x238x240 (20.5x9.3x9.4)	66 (143.0)
12/265 (M8)	22887 A	265 - 230 Ah	520x268x223 (20.4x10.5x8.8)	75 (165.3)

\*value for 20 hours of discharging

GEL long life 2Vcc batteries with lead calcium grids. Life: 20 years.

GEL 2 V DC Type	PART No.	CAPACITY*	DIMENSIONS W x D x H mm (")	WEIGHT kg (lbs)
2/800	65034 K	800 Ah	210x191x688 (8.3x7.5x27.1)	65 (143.3)
2/1000	65035 M	1000 Ah	210x233x690 (8.3x9.2x27.2)	80 (176.4)
2/1200	23086 U	1200 Ah	210x275x690 (8.3x10.8x27.2)	93 (205)
2/1500	65036 P	1500 Ah	210x275x850 (8.3x10.8x33.5)	115 (253.5)
2/2000	65037 S	2000 Ah	215x400x815 (8.5x15.7x32.1)	155 (341.7)
2/2500	23087 W	2500 Ah	215x490x815 (8.5x19.3x32.1)	200 (440.9)
2/3000	65038 U	3000 Ah	215x580x815 (8.5x22.8x32.1)	235 (518.1)

\*value for 10 hours of discharging

Lithium batteries available on request



## 12,8V & 25,6V LITHIUM SUPERPACK BATTERIES

### Integrated BMS and safety switch

The SuperPack batteries are extremely easy to install, needing no additional components.  
The internal switch will disconnect the battery in case of over discharge, over charge or high temperature.

### Abuse proof

A lead-acid battery will fail prematurely due to sulfation:

- If it operates in deficit mode during long periods of time (i.e. if the battery is rarely, or never at all, fully charged).
- If it is left partially charged or worse, fully discharged.

A Lithium-Ion battery does not need to be fully charged. Service life even slightly improves in case of partial charge instead of a full charge. This is a major advantage of Li-ion compared to lead-acid.

The SuperPack batteries will cut-off the charge or discharge current when the maximum ratings are exceeded.

### Efficient

In several applications (especially off-grid solar), energy efficiency can be of crucial importance.

The round-trip energy efficiency (discharge from 100% to 0% and back to 100% charged) of the average lead-acid battery is 80%.

The round-trip energy efficiency of a Li-ion battery is 92%.

The charge process of lead-acid batteries becomes particularly inefficient when the 80% state of charge has been reached, resulting in efficiencies of 50% or even less in solar systems where several days of reserve energy are required (battery operating in 70% to 100% charged state).

In contrast, a Li-ion battery will still achieve 90% efficiency even under shallow discharge conditions.

### Can be connected in parallel

The batteries can be connected in parallel. Series connection is not allowed.  
Use in upright position only.



12,8/20

**new**



12,8/60



12,8/100



25,6/50



12,8/200

MODEL	12,8/20	12,8/60	12,8/100	12,8/200	25,6/50
Part No.	23097 Z	22840 X	22841 Z	22842 B	23098 B
Nominal voltage	12,8 V	12,8 V	12,8 V	12,8 V	25,6 V
Nominal capacity @25°C	20 Ah	60 Ah	100 Ah	200 Ah	50 Ah
Nominal capacity @0°C	16 Ah	48 Ah	80 Ah	160 Ah	40 Ah
Nominal energy @25°C	256 Ah	768 Ah	1280 Ah	2560 Ah	1280 Ah
Cycle life @80% DoD and 25°C	2500 cycles				
Max. continuous discharge current	30 A	30 A	50 A	70 A	50 A
Peak discharge current (10 sec)	80 A	80 A	100 A	100 A	100 A
Charge voltage, absorption	14,2-14,4 V	14,2-14,4 V	14,2-14,4 V	14,2-14,4 V	28,4-28,8 V
Charge voltage, float	13,5 V	13,5 V	13,5 V	13,5 V	27 V
Max. continuous charge current	15 A	30 A	50 A	70 A	50 A
Dimensions mm (") WxDxH	181x77x167 (7.1x3x6.6)	229x138x213 (9x5.4x8.4)	330x171x220 (13x6.7x8.7)	520x269x208 (20.5x10.6x8.2)	330x171x220 (13x6.7x8.7)
Weight kg (lbs)	3,5 (7.7)	9,5 (21)	14 (30.9)	31 (68.3)	14 (30.9)

## Lithium-ion 12,8V & 25,6V BATTERIES

Lithium-iron-phosphate (LiFePO<sub>4</sub> or LFP) is the safest of the mainstream li-ion battery types. The nominal voltage cell is 3,2V (lead-acid: 2V/cell). A 12,8V Li-ion battery therefore consists of 4 cells connected in series; and a 25,6V battery consists of 8 cells connected in series.



LFP

MODEL	LFP-SMART 12,8/60	LFP-SMART 12,8/100	LFP-SMART 12,8/150	LFP-SMART 12,8/200	LFP-SMART 12,8/300	LFP-SMART 25,6/200
Part No.	68763 P	22260 C	22261 E	68766 W	22262 G	23903 A
Nominal voltage	12,8 V	12,8 V	12,8 V	12,8 V	12,8 V	25,6 V
Nominal capacity @ 25°C	60 Ah	100 Ah	150 Ah	200 Ah	300 Ah	200 Ah
Nominal capacity @ 0°C	48 Ah	80 Ah	125 Ah	160 Ah	240 Ah	160 Ah
Nominal capacity @ -20°C	30 Ah	50 Ah	75 Ah	100 Ah	150 Ah	100 Ah
Nominal energy @ 25°C	768 Wh	1280 Wh	1920 Wh	2560 Wh	3840 Wh	5120 Wh
Maximum continuous discharge current	120 A	200 A	300 A	400 A	600 A	400 A
Recommended continuous discharge current	≤60 A	≤100 A	≤150 A	≤200 A	≤300 A	≤200 A
Maximum charge current	120 A	200 A	300 A	400 A	600 A	400 A
Recommended charge current	≤30 A	≤50 A	≤75 A	≤100 A	≤150 A	≤100 A
Power connection (threaded inserts)	M8	M8	M10	M10	M10	M8
Dimensions mm (") HxWxD	235x285x136 (9.2x11.2x5.3)	197x321x152 (7.8x12.6x6)	237x321x152 (9.3x12.6x6)	237x321x152 (9.3x12.6x6)	347x425x274 (13.7x16.7x10.8)	317x631x208 (12.5x25.8x8.2)
Weight kg (lbs)	12 (26.5)	15 (33.1)	20 (44.1)	22 (48.5)	51 (112.4)	56 (123.6)

### ACCESSORIES:

BMS 12/200 - 69015 C  
VE.BUS BMS - 69016 E (see page 228)

### CABLES WITH M8 CIRCULAR CONNECTOR FOR LI-ION BATTERIES:

Male to female 3 pole 1 m (3.3 ft) - 68886 G  
Male to female 3 pole 2 m (6.6 ft) - 68887 J  
Male to female 3 pole 3 m (9.8 ft) - 68888 L  
Male to female 3 pole 5 m (16.4 ft) - 68889 N

## BMS 12/200 FOR LITHIUM BATTERIES

### Why a Battery Management System (BMS) is needed:

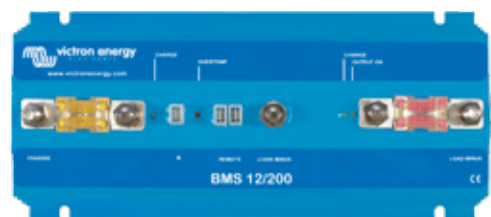
- A LFP cell will be damaged if the voltage over the cell falls to less than 2,5V.
- A LFP cell will be damaged if the voltage over the cell increases to more than 4,2V. Lead-acid batteries will eventually also be damaged when discharged too deeply or overcharged, but not immediately. A lead-acid battery will recover from total discharge even after it has been left in discharged state during days or weeks (depending on battery type and brand).

- The cells of a LFP battery do not auto-balance at the end of the charge cycle.

The cells in a battery are not 100% identical. Therefore, when cycled, some cells will be fully charged or discharged earlier than others. The differences will increase if the cells are not balanced/equalized from time to time.

The differences between cells may become some so extreme over time that, even though the overall battery voltage is within limits, some cells will be destroyed due to over- or under-voltage.

A LFP battery therefore must be protected by a BMS that actively balances the individual cells and prevents under- and over-voltage.



BMS 12/200 - 69015 C



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### A 12V BMS that protects the alternator (and wiring), and supplies up to 200A in any DC load (including inverters and inverter/chargers)

#### Alternator/battery charger input (Power Port AB)

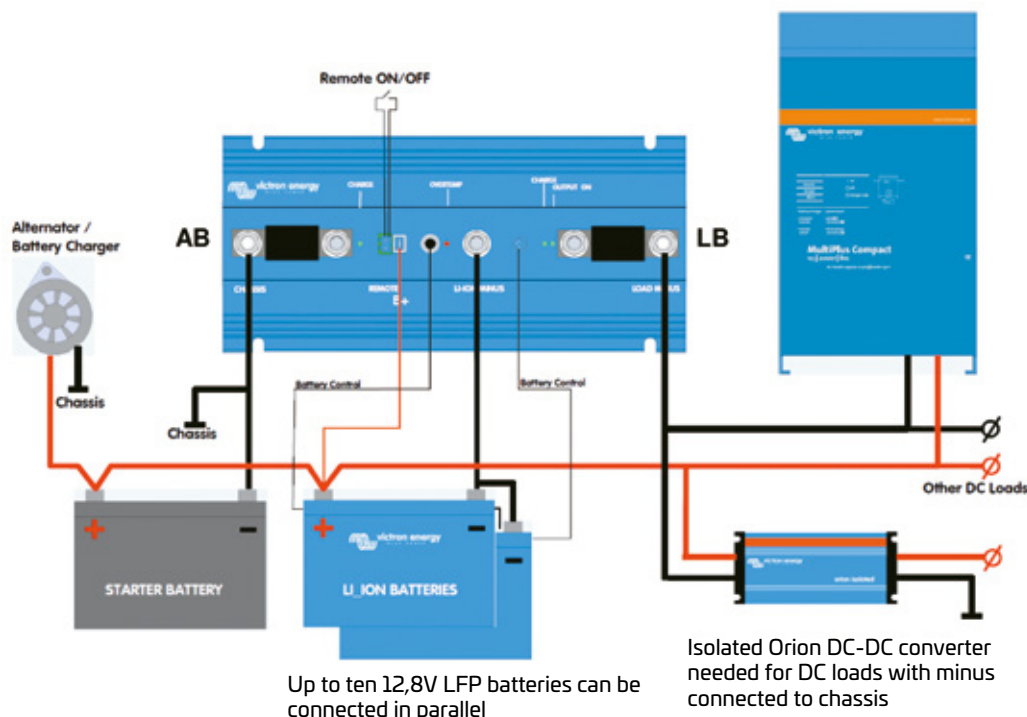
- The first function of Power Port AB is to prevent the load connected to the LFP battery from discharging the starter battery. This function is similar to that of a Cyrix battery combiner or Argo FET battery isolator. Current can flow to the LFP battery only if the input voltage (= voltage on the starter battery) exceeds 13V.
- Current cannot flow back from the LFP battery to the starter battery, thus preventing eventual damage to the LFP battery due to excessive discharge.
- Excessive input voltage and transients are regulated down to a safe level.
- Charge current is reduced to a safe level in case of cell unbalance or over temperature.
- The input current is electronically limited to approximately 80% of the AB fuse rating. A 50A fuse, for example, will therefore limit the input current to 40A.

Choosing the right fuse will therefore:

- a. Protect the LFP battery against excessive charge current (important in case of a low capacity LFP battery).
  - b. Protect the alternator against overload in case of a high capacity LFP battery bank (most 12V alternators will overheat and fail if running at maximum output during more than 15 minutes).
  - c. Limit charge current in order not to exceed the current handling capability of the wiring.
- The maximum fuse rating is 100A (limiting charge current to approximately 80A).

#### Load/battery charger output/input (Power Port LB)

- Maximum current in both directions: 200A continuous.
- Peak discharge current electronically limited to 400A.
- Battery discharge cut-off whenever the weakest cell falls below 3V.
- Charge current is reduced to a safe level in case of cell unbalance or over temperature.





# VE.BUS BMS

Protects each individual cell of a Victron lithium iron phosphate (LiFePO4 or LFP) battery

The BMS will:

- shut down or disconnect loads in case of imminent cell under voltage,
- reduce charge current in case of imminent cell overvoltage or over temperature (VE.Bus products only),
- shut down or disconnect battery chargers in case of imminent cell overvoltage or over temperature..

Protects 12 V, 24 V and 48 V systems

Operating voltage range of the BMS: 9 to 70 V DC.

Communicates with all VE.Bus products

The VE.Bus BMS connects to a MultiPlus, Quattro or Phoenix inverter with a standard RJ45 UTP cable.

- Protection grade: IP20
- Standards: EN60950; EN61000-6-3; EN55014-1 ; EN61000-6-2 ; EN61000-6-1; EN 55014-2 and EN 50498

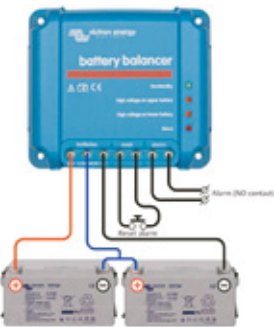
## BATTERY BALANCER

The Battery Balancer equalizes the state of charge of two series connected 12 V batteries, or of several parallel strings of series connected batteries. When the charge voltage of a 24 V battery system increases to more than 27 V, the Battery Balancer will turn on and compare the voltage over the two series connected batteries. The Battery Balancer will draw a current of up to 1 A from the battery (or parallel connected batteries) with the highest voltage. The resulting charge current differential will ensure that all batteries will converge to the same state of charge.

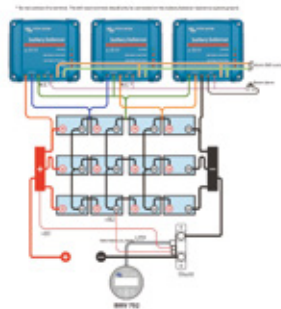
If needed, several balancers can be paralleled.

A 48 V battery bank can be balanced with three Battery Balancers.

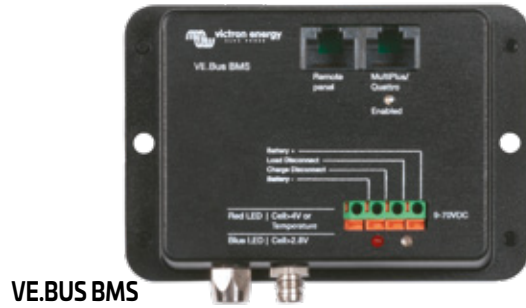
IP20 protection



Series connection



Parallel connection



VE.BUS BMS



MODEL	VE.BUS BMS
Part No.	69016 E
Input Voltage Range	9-70 Vdc
Current Draw, Normal Operation	10 Ma
Current Draw, Low Cell Voltage	2 Ma
Operating Temperature	-20 A +50°c
Weight kg (lbs)	0,09 (0.2)
Dimensions (")	30x105x72 (1.2x4.1x2.8)

MODEL	BATTERY BALANCER
Part No.	69369 R
Input voltage range	Up to 18V per battery, 36 V total
Turn on level	27,3 V +/- 1%
Turn off level	26,6 V +/- 1%
Stand-by current draw	0,7 mA
Midpoint deviation to start balancing	50 mV
Max. balancing current	0,7 A (when deviation > 100mV)
Alarm trigger level	210 mV
Alarm reset level	140 mV
Alarm relay	60 V / 1A
Alarm relay reset	Two terminals to connect a push button
Over temperature protection	Yes
Operating temperature	-30°C to +50°C
Dimensions mm (")	100 x 113 x 47 (3.94 x 4.45 x 1.85)
Weight kg (lbs)	0,6 (0.3)



## CHARGE CONTROLLERS

### SMARTSOLAR MPPT 75/10 - 75/15 - 100/15 - 100/20 - 100/30 - 100/50 - 150/35 CHARGE CONTROLLERS

- **Ultra-fast Maximum Power Point Tracking (MPPT):** Especially in case of a clouded sky, when light intensity is changing continuously, an ultra fast MPPT controller will improve energy harvest by up to 30% compared to PWM charge controllers and by up to 10 % compared to slower MPPT controllers
- **Load output:** Over-discharge of the battery can be prevented by connecting all loads to the load output. The load output will disconnect the load when the battery has been discharged to a preset voltage
- **BatteryLife:** intelligent battery management. The BatteryLife algorithm will monitor the state of charge of the battery and, if needed, day by day slightly increase the load disconnect level (i. e. disconnect the load earlier) until the harvested solar energy is sufficient to recharge the battery to nearly the full 100%
- **Resin encapsulated electronics**
- **Day/night timing and light dimming option**
- **Outstanding conversion efficiency:** No cooling fan. Maximum efficiency exceeds 98%. Full output current up to 40°C (104°F). No cooling fan
- **Advanced Maximum Power Point Detection in case of partial shading conditions:** If partial shading occurs, two or more maximum power points may be present on the power-voltage curve. Conventional MPPT's tend to lock to a local MPP, which may not be the optimum MPP. The innovative BlueSolar algorithm will always maximize energy harvest by locking to the optimum MPP
- **Flexible charge algorithm:** Fully programmable charge algorithm, and eight preprogrammed algorithms, selectable with a rotary switch
- **Extensive electronic protection:** Over-temperature protection and power derating when temperature is high. PV short circuit and PV reverse polarity protection. PV reverse current protection



MODEL	75/10	75/15	100/15	100/20	100/30	100/50	150/35
Part No.	21674 B	21675 D	22401 U	22402 W	21678 K	21679 M	21680 W
Battery voltage	12V/24V auto detected						
Maximum output current	10 A	15 A		20 A	30 A	50 A	35 A
Maximum PV power	135W /12V) 270W (24V)	200W (12V) 400W (24V)		290W (12V) 580W (24V)	440W (12V) 880W (24V)	700W (12V) 1400W (24V)	500W (12V) 1000W (24V)
Maximum PV open circuit voltage	75 V		100 V				150 V
Maximum efficiency	98%						
Self-consumption	100mA						
Low voltage load disconnect	11,1V/22,2V o 11,8/23,6V o algorithm BatteryLife				-		
Load voltage load reconnect	13,1V/26,2V o 14V/28V o algorithm BatteryLife				-		
Operating temperature	-30°C ÷ +60°C						
Protection class	IP43 (electronic components) - IP22 (connections)						
Dimensions mm (")	100x113x40 (3.9x4.5x1.6)		100x113x47 (3.9x4.5x1.8)	100x113x50 (3.9x4.5x2)	130x186x70 (5.1x7.3x2.8)		
Weight kg (lbs)	0,4 (0.9)	0,5 (1.1)	0,6 (1.3)	0,7 (1.5)	1,3 (2.9)		

## PWM-PRO CHARGE CONTROLLERS

- **Programmable:** The BlueSolar PWM-Pro series is ready for use with its default settings. It also is fully programmable with help of the dedicated BlueSolar Pro Remote Panel.

### BLUE SOLAR PWM-PRO CHARGE CONTROLLERS

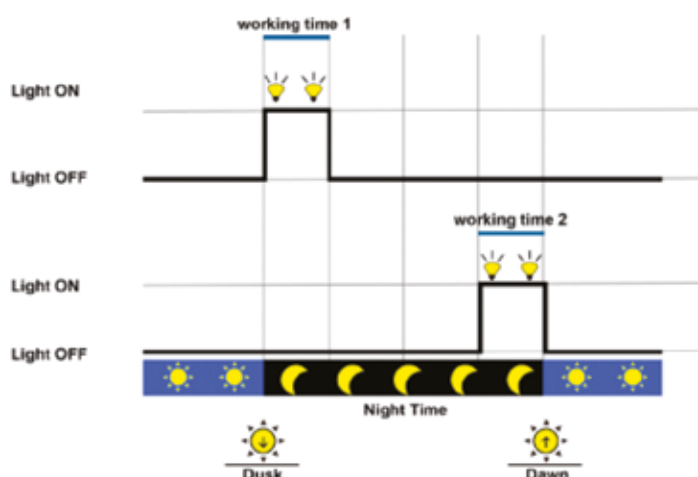
- Low cost PWM controller
- Lighting control function, fully programmable with the Remote Panel (optional) - 69450 X
- Three stage battery charging (bulk, absorption, float), fully programmable with the Remote Panel (optional)
- Integrated battery monitor function (Remote Panel needed to display state of charge)
- Load output with low voltage disconnect and manual control (default setting)
- **Optional external temperature sensor** - 69898 V
- Load output protected against over load and short circuit
- Protected against reverse polarity connection of the solar panels and/or battery
- Protection category: IP30
- Certifications: IEC62103-1, EN61000-6-1, EN 61000-6-3, ISO 7637-2
- Warranty: 5 years



**BlueSolar PWM-Pro10A**



**BlueSolar Pro Remote Panel (optional) - 69450 X**



MODEL	PWM-PRO 12/24-10		PWM-PRO 12/24-20		PWM-PRO 12/24-30	
Part No.	69446 G		69368 N		69452 B	
Voltage	12 V	24 V	12 V	24 V	12 V	24 V
Rated load current	10 A	10 A	20 A	20 A	30 A	30 A
Maximum solar voltage	28 V	55 V	28 V	55 V	28 V	55 V
Self consumption	<10mA		<10mA		<10mA	
Low voltage load disconnect	11,1V / 22,2V		11,1V / 22,2V		11,1V / 22,2V	
Low voltage load reconnect	12,6V / 25,2V		12,6V / 25,2V		12,6V / 25,2V	
Operating temperature	-20 to + 50°C		20 to + 50°C		-20 to + 50°C	
Dimensions mm (")	70 x 138 x 37 (2.8 x 5.4 x 1.5)		82 x 160 x 48 (3.2 x 6.2 x 1.8)		100 x 200 x 57 (3.9 x 7.9 x 2.2)	
Weight kg (lbs)	0,15 (0.3)		0,3 (0.7)		0,5 (1.1)	

# FAAM

Heavy Duty Batteries Specialist



# STARTER

*Energy, power, reliability*



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BATTERIES



## START SERIES BATTERIES

The designing of the START range was born from the need to satisfy the demand of a high starting current, great reliability, Lack of servicing and high safety. The use of a recombination watertight cover with a centralized degassing system and a special flame retardant pad represents a remarkable benefit for the safety and reliability of this battery.



**new**

MODEL	PART No.	V	AH/20 H	CCA (EN)	LENGTH L mm (")	WIDTH W mm (")	TOTAL HEIGHT H mm (")	WEIGHT kg (lbs)
62R22	23102 N	12	62	530	242 (9.5)	175 (6.9)	190 (7.5)	14,5 (32)
80R42	23103 R	12	80	750	352 (13.9)	175 (6.9)	190 (7.5)	19,8 (43.6)
00R52	23104 T	12	100	800	352 (13.9)	175 (6.9)	190 (7.5)	21,3 (47)

## CYCLES SERIES BATTERIES

CYCLES range satisfies the application needs through a new designing of inner electrodes concerning alloys, grids, thickness, new elaboration of active materials and special systems of inner separation. The batteries of the CYCLES range represent the best solution as regards performance, lifetime, reliability and safety due to their strong starting power, to the high cycling resistance and a strong inclination to charge acceptance.



**new**

MODEL	PART No.	V	AH/20 H	CCA (EN)	LENGTH L mm (")	WIDTH W mm (")	TOTAL HEIGHT H mm (")	WEIGHT kg (lbs)
60A22	23105 V	12	60	680	242 (9.5)	175 (6.9)	190 (7.5)	18,5 (40.8)
70A32	23106 X	12	70	760	278 (10.9)	175 (6.9)	190 (7.5)	20,3 (44.7)
80A42	23107 Z	12	80	800	315 (12.4)	175 (6.9)	190 (7.5)	22,9 (50.5)
95A52	23108 B	12	95	900	353 (13.9)	175 (6.9)	190 (7.5)	25,9 (57.1)

## SMART SERIES BATTERIES

The batteries of SMART series are batteries for Super Heavy Duty use. They are designed with plates (e/electrodes) with high thickness and strenghtened structure to satisfy the need for high energies and high cyclical resistance with low-maintenance.

They are an excellent compromise among performances, long-lasting and cost, for the use on professional and pleasure boats.



**new**

MODEL	PART No.	V	AH/20 H	CCA (EN)	LENGTH L mm (")	WIDTH W mm (")	TOTAL HEIGHT H mm (")	WEIGHT kg (lbs)
62061	23109 D	12	120	850	509 (20)	175 (6.9)	228 (9)	35 (77.2)
66061	23110 M	12	160	950	513 (20.2)	223 (8.8)	223 (8.8)	43,8 (96.6)
72061	23111 P	12	220	1200	518 (20.4)	273 (10.7)	242 (9.5)	56 (123.5)





# SPECTRA

## WATERMAKERS

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DESALINATORS



# MANUAL DESALINATORS

## SURVIVOR SERIES

The Survivor series are the world’s smallest desalinators and are essential for any emergency kit or liferafts. You don’t have to sacrifice safety because of space or weight constraints. These systems are durable and long-lasting so you will never be left without fresh water in an emergency.

### Survivor 06

- The world’s smallest desalinator
- Hand-operated desalinator for 1 - 6 people.
- Provides 0.89 litres of water per hour, ensures survival in an emergency
- Optimum pump frequency: 40 pumps per minute.
- High energy efficiency means pumping does not require much effort
- Can be operated manually and is not dependent on electricity
- Durable design for extreme reliability and long life
- Weighs only 1.13kg and is ideal wherever minimum weight is an issue



Survivor 06

### Survivor 35

- Compact dimensions, find space for it anywhere
- Hand-operated desalinator for up to 20 people.
- Provides 4.5 litres of water per hour, ensuring survival in an emergency
- Optimum pump frequency: 30 pumps per minute.
- High energy efficiency means pumping does not require much effort
- Can be operated manually and is not dependent on electricity
- Durable design for extreme reliability and long life
- Weighs only 3.2 kg and is ideal wherever minimum weight is an issue
- Approved by the U.S. Coast Guard



Survivor 35

MODEL	Survivor 06	Survivor 35
Part No.	64711 X	64712 Z
Water production	0.89 l/hour 0.5 oz/min (±15%)	4.5l/hour 1.2 gallons (±15%)
Salt rejection	98.4% ave. (95.3% min)	98.4% ave. (95.3% min)
Average pump rate	40 strokes/min	30 strokes/min
Dimensions mm (")	130x200x60 (5x8x2.5)	140x560x90 (5.5x22x3.5)
Weight kg (lbs)	1 (2.5)	3 (7)

# POWERED DESALINATORS

Each model runs independently of a generator; in fact, our units commonly run off standard marine batteries, solar panels, or wind generators. As a result, you minimize battery drain and recharging time. We have built these watermakers to last. Each one is tested to meet strict performance standards. They are compact and simple to operate, and you will easily find the best match for your water needs.

## POWERSURVIVOR 40E

The PowerSurvivor 40E is compact and energy efficient, drawing only 4 amps to desalinate water for your yacht. Its simple construction and rugged design make the 40E easy to operate, and maintain. With its space-saving design, it can be fit in the smallest compartments. In the event of a power shortage, the 40E is the only system on the market that can convert to a hand operated system.

- Simple, lightest, and most compact machine
- Runs on 4 Amps at 12 Volts DC, making 1.5 gallons (6 liters) per hour
- Rugged and reliable 316 stainless steel pump
- Easily rebuilt in the field
- Lowest amperage draw of any electric watermaker
- So small it can be fit on any vessel, even transoceanic rowboats.
- Converts to hand operation in case of power shortage



PowerSurvivor 40E

VENTURA SERIES

The Spectra Ventura series is engineered to be energy-efficient and lightweight. The compact, modular design, makes for easy installation in confined spaces. The Ventura 150 delivers over 24 liters (6 gallons) an hour, the Ventura 200 T operates in warm waters, delivering over 31 litres (8 gallons) per hour. With its modular design, it's an ideal system for installation in tight spaces. Simple analog controls and gauges display the feed water pressure and the product flow meter. A hand-held salinity monitor and a three-way valve for product water testing are included.

- Simple analog control panel
- Compact modular design
- Low power consumption, can be run on batteries, solar, or wind power
- Whisper quiet
- Commercial grade diaphragm pumps with run dry protection
- System includes installation kit, handheld water quality tester, and product sample valve

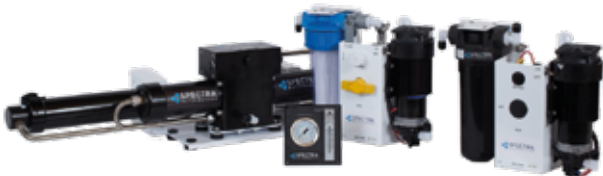


Ventura 150 - Ventura 200T

CAPE HORN EXTREME 330

The Cape Horn Extreme is reliable and durable, with its diaphragm feed pumps in parallel, it can be run on a single pump for high efficiency or two pumps for high output. The system uses rugged mechanical controls and gauges and is perfect for the hands-on racer or cruiser. The Cape Horn Extreme continues to be the choice for serious offshore racing campaigns like the Volvo Ocean Race and Clipper Challenge round-the-world yachts

- Redundant dual feed pumps for maximum reliability
- Simple analog control panel
- Compact modular design
- High and low speed operation for customizable power management and output volume
- Low power consumption, can be run on batteries, solar, or wind power
- Whisper quiet
- Commercial grade diaphragm pumps with run dry protection
- System includes installation kit, handheld water quality tester, and product sample valve



Cape Horn Extreme 330

MODEL	PowerSurvivor 40E	Ventura 150	Ventura 200T	Cape Horn Extreme 330
Part No.	64705 C (12V) 64706 E (24V)	63704 V (12V) 63705 X (24V)	22142 W (12V) 22143 Y (24V)	64524 Y (12V) 64529 J (24V)
Production/Day	151 l (40 gal)	568 l (150 gal)	757 l (200 gal)	1249 l (330 gal)
Production/Hour	6 l (1.5 gal)	24 l (6.3 gal)	31 l (8.3 gal)	56 l (15 gal)
Power requirement	12 VDC 4 A/24 VDC 2 A 8.5 Watts/1 l 32 Watts/1 gal	12 VDC 9 A/24 VDC 4.5 A 4.5 Watts/1 l 17 Watts/1 gal	12 VDC 10 A/24 VDC 5 A 4 Watts/1 l 14.5 Watts/1 gal	12 VDC 19 A/24 VDC 10 A 4.2 Watts/1 l 16 Watts/1 gal
Pre filters	2.5"x10" pleated polyester 5 micron	2.5"x10" pleated polyester 5 micron	2.5"x10" pleated polyester 5 or 20 micron	2.5"x10" pleated polyester 5 micron
Controls	Analog controls	Analog controls	Analog controls	Analog controls
Installation requirements	Dedicated thruhull, dry and well ventilated area not to exceed 110F/37C			
Membranes	High rejection spiral wound polyamide	20"x2.5" high rejection spiral wound polyamide	20"x2.5" high rejection spiral wound polyamide	40"x2.5" high rejection spiral wound polyamide
Motor	High efficiency brushed DC motor	Shurflo diaphragm pump	Shurflo diaphragm pump	Shurflo diaphragm pump
Salt rejection	99,2%	99,2%	99,2%	99,2%
Temperature range	Max 110F/37C Min 36F/2C	Max 110F/37C Min 36F/2C	Max 110F/37C Min 36F/2C	Max 110F/37C Min 36F/2C
Baseline conditions	3000 PPM feed water at 77F/25C			
pH range	3-11 (typical seawater pH is 8)			
Dimensions WxHxD mm (")	420x390x170 (16.5x15.5x6.75)	840x640x490 (33x25x19)	840x640x490 (33x25x19)	1200x590x460 (47x23x18)
Weight kg (lbs)	11 (25)	34 (75)	34 (75)	43 (95)





# AUTOMATED DESALINATORS

## VENTURA C SERIES

The Spectra Ventura series is engineered for the smaller vessel to be energy-efficient and lightweight. These watermakers are composed of compact modules, making for easy installation in confined spaces. The Ventura 150 C delivers over 24 liters (6 gallons) of fresh drinking water an hour, the Ventura 200T C delivers over 31 liters (8 gallons) per hour. Supplied with digital Spectra Connect control panel that allows to operate and monitor the desalinator in remote. Moreover it is possible to add the Z±ION Membrane Protection System to extend storage up to 30 days.

- Completely automated with the Spectra Connect
- Compact modular design
- Low power consumption, can be run on batteries, solar, or wind power
- Whisper quiet
- Commercial grade diaphragm pumps with run dry protection
- System includes installation kit, handheld water quality tester, and product sample valve



Ventura 150 C - Ventura 200T C

## CATALINA 340C

The Catalina 340c produces 53 liters (14 gallons) of water per hour. It uses the Spectra Magdrive feed water pump, making the system extremely quiet, energy-efficient, and reliable. The Spectra Connect allows you to operate and monitor your watermaker from a remote device, and has new added features like the Fill Tank mode, or a customizable Auto Run mode, One-TouchSensor Calibration, and suggested maintenance intervals displayed on the dashboard.

- Completely automated with the Spectra Connect
- Compact modular design
- High and low speed operation for customizable power management and output volume
- Low power consumption, can be run on batteries, solar, or wind power
- Whisper quiet
- Commercial grade diaphragm pumps with run dry protection
- System includes installation kit, handheld water quality tester, and product sample valve
- Compact version with 2x 20" membranes is also available



Catalina 340C

MODEL	Ventura 150 C	Ventura 200T C	Catalina 340C
Part No.	63768 Y (12V) 63769 A (24V)	22144 A (12V) 22145 C (24V)	63770 J (12V) 63771 L (24V)
Production/Day	568 l (150 gal)	757 l (200 gal)	1287 l (340 gal)
Production/Hour	24 l (6.3 gal)	31 l (8.3 gal)	53 l (14 gal)
Power requirement	12 VDC 9 A/24 VDC 4.5 A 4.5 Watts/1 l 17 Watts/1 gal	12 VDC 10A/24 VDC 5 A 4 Watts/1 l 14.5 Watts/1 gal	12 VDC 18 A/24 VDC 9 A 4 Watts/1 l 15 Watts/1 gal
Pre filters	2.5"x10" pleated polyester 5 or 20 micron		2.5x10" pleated pol 5 micron
Controls	Spectra Connect Remote Control		
Installation requirements	Dedicated thruhull, dry and well ventilated area not to exceed 110F/37C		
Membranes	20"x2.5" rejection spiral wound polyamide (40"x2.5" Catalina 340C)		
Motor	Shurflo diaphragm pump	Shurflo diaphragm pump	Brushed DC motor with carbon vane pump
Salt rejection	99.2%	99.2%	99.2%
Temperature range	Max 110F/37C Min 36F/2C	Max 110F/37C Min 36F/2C	Max 110F/37C Min 36F/2C
Baseline conditions	33000 PPM feed water at 77F/25C		
pH range	3-11 (typical seawater pH is 8)		
Dimensions WxHxD mm (")	840x640x490 (33x25x19)	840x640x490 (33x25x19)	1200x590x460 (47x23x18)
Weight kg (lbs)	38.5 (85)	38.5 (85)	50 (110)



## NEWPORT C SERIES

The Newport series are the most energy efficient, automated and easy-to-use watermakers available today. Systems use motor speed control technology, allowing for quiet operation on an inverter or straight off the battery bank. Multi-speed capacity allows the machine to operate at its' optimum speed in all conditions. The system will automatically switch to low mode to extend the prefilter life in challenging feed water. The Spectra Connect allows you to operate and monitor your watermaker from a remote device, and has new added features like the Fill Tank mode, or a customizable Auto Run mode, One-Touch Sensor Calibration, and suggested maintenance intervals displayed on the dashboard.

- Completely automated with the Spectra Connect
- Compact modular design
- High and low speed operation for customizable power management and output volume
- Low power consumption, can be run on batteries, solar, or wind power
- Whisper quiet
- Commercial grade Magdrive pump with run dry protection
- Commercial grade, continuous duty motor
- Manual bypass for diversion valve
- System includes installation kit and product sample valve
- Newport 400C is also available in compact version with 2x 20" membranes



**Newport 400C**



**Newport 700C**



**Newport 1000C**

MODEL	Newport 400C	Newport 700C	Newport 1000C
Part No.	63708 D (12V) 63709 F (24V)	65054 S (24V)	63938 X (24V)
Production/Day	1514 l (400 gal)	2650 l (700 gal)	3785 l (1000 gal)
Production/Hour	64 l (17 gal)	110 l (29 gal)	155 l (41 gal)
Power requirement	12 VDC 24 A/24 VDC 12 A 4.8 Watts/l   18 Watts/1 gal	24 VDC 24 A 110 VAC 9 A/220 VAC 4.5 A	24 VDC 28 A 110 VAC 10 A/220 VAC 5 A
Pre filters	2.5"x10" pleated polyester 5 or 20 micron		
Controls	Spectra Connect Controller		
Installation requirements	Dedicated thruhull, dry and well ventilated area not to exceed 110F/37C		
Membranes	40"x2.5" rejection spiral polyamide	(2) 40"x2.5" rejection spiral polyamide	(3) 40"x2.5" rejection spiral polyamide
Motor	Commercial DC motor with carbon vane pump	Carbon vane pump with variable speed comm. motor	Carbon vane pump with variable speed comm. motor
Salt rejection	99.2%	99.2%	99.2%
Temperature range	Max 110F/37C Min 36F/2C	Max 110F/37C Min 36F/2C	Max 110F/37C Min 36F/2C
Baseline conditions	33000 PPM feed water at 77F/25C		
pH range	3-11 (typical seawater pH is 8)		
Dimensions WxHxD mm (")	1200x590x460 (47x23x18)	1200x590x460 (47x23x18)	1200x590x460 (47x23x18)
Weight kg (lbs)	63,5 (140)	DC system 80 (176.4) AC system 76 (167.5)	DC system 83 (183) AC system 80 (176.4)

# COMMERCIAL DESALINATORS

## FARALLON SERIES

Farallon systems feature the revolutionary Pearson Pump™, which is engineered to maintain the proper pressure throughout a wide range of ocean temperatures and water conditions. The systems are equipped as standard with the new Spectra Connect Controller and the variable frequency motor controller ensures soft start-ups, without too high peaks for the on-board generator or inverter.

- Completely automated with the Spectra Connect
- Semi-modular design to allow flexible installations
- Pearson Pump technology standard
- Multiple run speeds for optimum system operation
- Highest output system rated for inverter operation
- Quiet operation
- Industrial grade motor and components
- Slow moving high pressure pump gives long service life
- System includes a complete installation kit



Farallon 1800C



Farallon 2800C

MODEL	Farallon 1800C	Farallon 2800C
Part No.	22150 V	22151 X
Production/Day	6813 l (1800 gal)	10600 l (2800 gal)
Production/Hour	284 l (75 gal)	454 l (120 gal)
Power requirement	110 VAC 14 A 208-240 VAC 7 A 1200 Watts	110 VAC 18 A 208-240 VAC 9 A 1500 Watts
Pre filters	4"x10" pleated polyester 5 micron and 20 micron	
Controls	Spectra Connect Controller	Spectra Connect Controller
Installation requirements	Dedicated thruhull, dry and well ventilated area not to exceed 110F/37C°	
Membranes	(2) 40"x4" high rejection spiral wound polyamide	(3) 40"x4" high rejection spiral wound polyamide
Motor	Commercial variable AC motor with Spectra Pearson Pump	
Salt rejection	99.2%	99.2%
Temperature range	Max 110F/37C Min 36F/2C	Max 110F/37C Min 36F/2C
Baseline conditions	33000 RPM feed water at 77F/25C	33000 RPM feed water at 77F/25C
pH range	3-11 (typical seawater pH is 8)	3-11 (typical seawater pH is 8)
Dimensions WxHxD mm (")	1550x540x510 (61x21x20)	1550x540x510 (61x21x20)
Weight kg (lbs)	141 (310)	166 (365)

## SPECTRA CONNECT CONTROLLER TO REMOTELY MONITOR AND RUN WATERMAKER

- The Spectra Connect will allow users to control, monitor and run their watermaker remotely from your phone, tablet, computer or from the local touchscreen
- One-Touch Fill Tank feature will fill tanks with fresh water, automatically fresh water flush after use
- Self-regulating and maintenance interval monitoring - No guesswork for operation or upkeep

The Spectra Connect can be accessed from boat's local network, or Spectra's unique access system can be installed to connect wirelessly. Maintenance and troubleshooting are easier than ever with the Spectra Connect. Suggested maintenance intervals are displayed on the new controller, reminding the user when to change filters, change a pump, or perform upcoming preventative maintenance.

# WIND & SOLAR RENEWABLE ENERGY

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WIND & SOLAR



## AIR BREEZE™/AIRX MARINE™ WIND GENERATORS

### Quiet, reliable energy for sea and shore

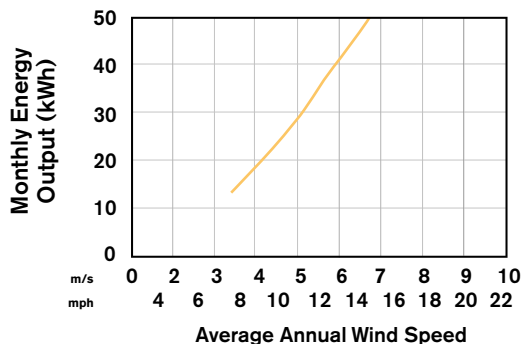
AirBreeze/Airx Marine is trusted by sailors around the world and recommended as the best high-energy output turbine by Yachting Monthly. Its optimized electronic controls deliver energy quietly and efficiently. Extensive third party testing and certification shows more consistent output than the competition. AirBreeze/Airx Marine is part of the latest generation of AIR products – the world's best-selling wind turbines – with more than 135,000 units sold in more than 120 countries.

### High performance in marine environments

We recommend AirBreeze for all small battery-charging applications in coastal areas or offshore: boats, docks and other marine uses. The AirBreeze is an ideal wind turbine for hybrid systems with solar to offset those cloudy or stormy periods. AirBreeze is built and backed by the worldwide leader in small wind.

- Improved reliability backed by a lifetime warranty
- Quiet operation
- Energy in light winds
- Lightweight; unique design is simple and easy to install
- Stop switch included
- Corrosion resistant paint tested to SAE J2334 standard
- Marine grade O-ring seal
- Stainless steel external fasteners
- Anodized blade hub

Monthly Wind Energy



AIR BREEZE	Air Breeze M1 12V	Air Breeze M2 24V	AirX Marine 12V	AirX Marine 24V
Part No.	68070 F	68071 H	63034 Z	63035 B
Energy	app. 3200 Ah/month at 5,8 m/s (11.3 knots)		30kW h/m at 5,8 m/s (13 mph)	
Rotor Diameter	117 m (6 in)			
Weight	5.9 kg (13 lb)			
Shipping dimensions	686 x 318 x 229 mm (27 x 12.5 x 9 in)			
Mount	48 mm (1.9 in) outer diameter			
Startup Wind Speed	3.13 m/s (7 mph)		3.58 m/s (8 mph)	
Voltage	12 or 24 V DC			
Turbine Controller	Microprocessor-based smart internal regulator			
Overspeed protection	Electronic torque control			
Survival Wind Speed	49.2 m/s (110 mph)			



# SILENTWIND® - WIND GENERATORS

## SILENTWIND 400 - THREE BLADE GENERATORS

### • Features:

- Generator type: permanent magnet generator, 3 phase
  - Integrated electronic/manual stop switch
  - Very light: 6,8 kg only
  - Hand laminated, UV-resistant carbon blades, successfully tested according to DIN EN 61400-2 at hurricane speed 122km/h.
  - Low noise
  - Very good start-up performance due to low cogging torque at 2,2 m/s wind speed
  - **Supplied with external hybrid controller** for wind and solar energy with multi-function LCD display (for 12V and 24V models).
- It can be connected to photovoltaic modules.

• **Applications:** universal application for marine, land and professional systems with low, middle and high wind

• **Warranty:** 3 years

• **Certification:** DIN VDE protection class II; CE; Rohs

Model	SLW-420-12	SLW-450-24	SLW-500-48
Part No.	20381 E	20382 G	20383 J
Rated voltage	12 VDC	24 VDC	48 VDC
Rated power	420 W	450 W	500 W
Rated wind speed	14,5 m/s	14,5 m/s	14,5 m/s
Start-up wind speed	2,2 m/s	2,2 m/s	2,2 m/s
Start up charging	2,8 m/s	2,8 m/s	2,8 m/s
Rotor diameter	1,15 m	1,15 m	1,15 m
Rotor speed range	550-1700 rpm	550-1700 rpm	550-1700 rpm
Packing dimensions mm (")	780 x 400 x 210 (30.7 x 15.8 x 8.3)	780 x 400 x 210 (30.7 x 15.8 x 8.3)	780 x 400 x 210 (30.7 x 15.8 x 8.3)
Dry weight kg (lbs)	6,8 (15)	6,8 (15)	6,8 (15)

### WIND/SOLAR HYBRID CHARGE REGULATOR

#### (FOR 12V AND 24V MODELS)

The LCD multifunction display shows all main operating values (W, A, V/ Ah, kWh, Ah).

Battery system voltage automatically detected. Maximum power input of the solar panel: 550 Wp.

Part No.	20384 L (12 V) - 20385 N (24 V) - 20386 R (48 V)
Rated battery voltage	12, 24 or 48 VDC
Max wind gen. power input	600 W /40 A (12 V) /30 A (24 V) /15 A (48 V)
Max solar mod. power input	300 W /50VOC /20 A (12 V) /10 A (24 V) /5 A (48 V)
Display data	W, A, V/Ah, kWh, Ah
Dimensions mm (")	220 x 150 x 82 (8.7 x 5.9 x 3.2)
Dry weight kg (lbs)	2,8 (6.2)

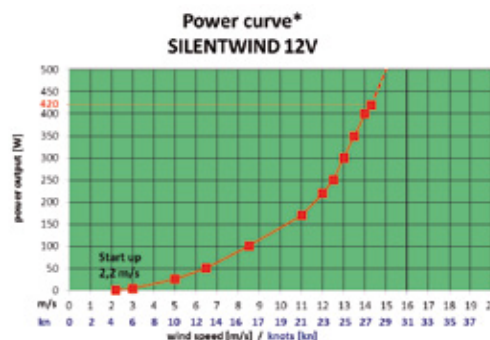
### THREE BLADE SPARE KIT

68485M - Three blade kit for AirBreeze™ and AirX™

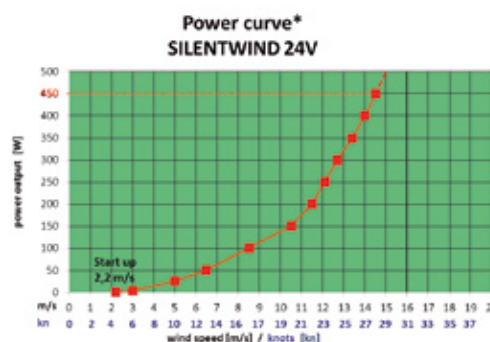
### POLE AND MOUNTING KIT

68689E - Reinforced pole for high wind speed

68690N - Mounting kit



\* measured in the wind tunnel with laminar wind



\* measured in the wind tunnel with laminar wind



**SUPERWIND® - WIND GENERATOR**

**SILENTIWIND 350 – THREE BLADE GENERATOR**

The Superwind 350 is a small wind turbine for professional use, which even under extreme conditions works autonomously and automatically.

- **Features:**
  - Adjust the speed and power by varying the pitch of the blades
  - Carbon fiber reinforced blades
  - Alternator with permanent magnet, three-phase rectifier
  - Stop: Short circuit of the generator
  - Superwind 350 is often used in mixed wind / photovoltaic systems
- **Applications:**

Ideal fields of application for example are navigational aids, traffic control systems, environmental monitoring stations or transmitters, but also sailing yachts, campers, summer cottages and mountain shelters.

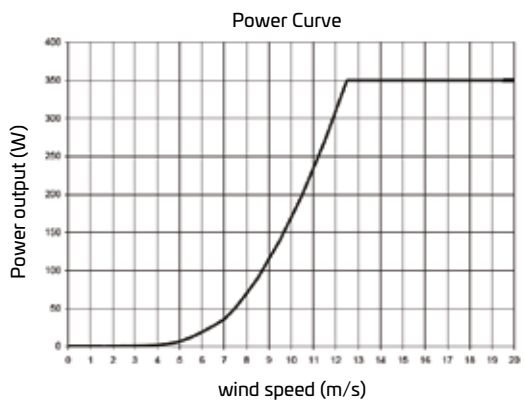
SUPERWIND	Superwind 350 12V	Superwind 350 24V
Part No.	65726 S	65727 U
Max power at 12,5 m/s	350 W	350 W
Voltage	12 V DC	24 V DC
Cut-in wind speed	3,5 m/s	3,5 m/s
Cut-off wind speed	none	none
Rotor diameter	1,20 m	1,20 m
Rotor speed	500-1300 rpm	500-1300 rpm
Rotor thrust (operation)	70 N	70 N
Rotor thrust (extreme wind speed)	220 N	220 N
Dry weight kg (lbs)	11,5 (25.3)	11,5 (25.3)

**ACCESSORIES**

CRM 12V Charge controller - 65728 W  
CRM 24V Charge controller - 65729 Y

Stop switch - 65730 G

Installation Kit - 65731 J



## LE-V50™ AND LE-V150™ WIND TURBINES

### • Features:

- 3 phase brushless wind turbines. The cross-ventilated 'savonius' vertical axis rotor coupled with the well proven axial flux alternator.
- Quiet; reliable.
- Robust design, almost indestructible: these vertical axis wind turbine are designed & proven to survive 120mph Antarctic winds.
- Compact and lightweight, can be installed in a variety of positions with ease
- Marine quality finish, high quality components and lasting performance
- High efficiency due to anticipated start-up charge
- Charge controller included (only LE-v150™ model)

### • Applications:

Trickle charging for batteries installed on boats and land.  
Polar stations for monitoring air pollution.  
Buoys and marine lights. Telecom systems.  
Signaling systems that require low energy.

### • Warranty: 2 years

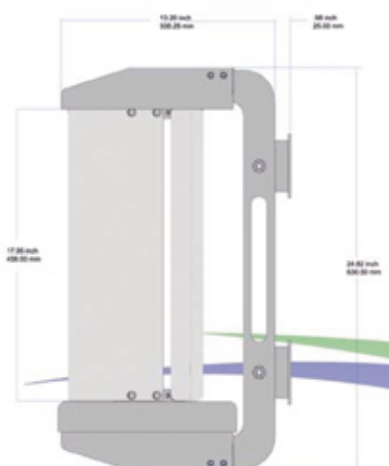
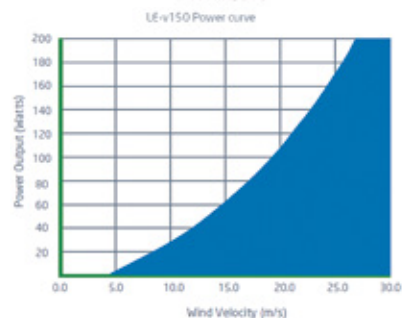
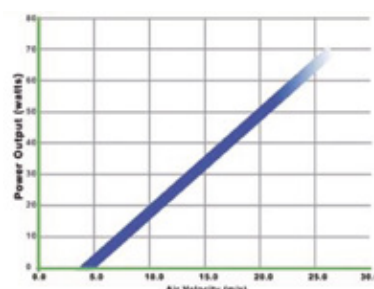


LE-v50™

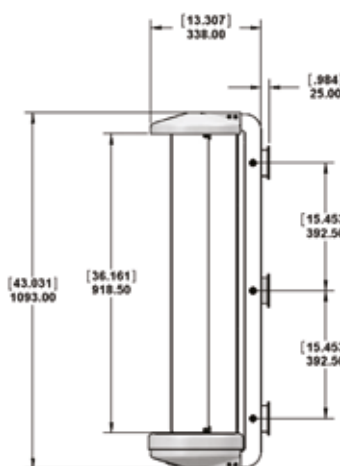


LE-v150™

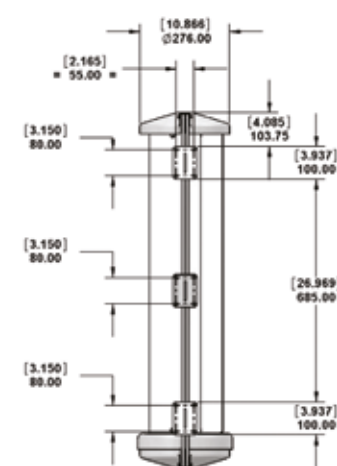
Model	LE-v50	LE-v150
Part No.	68641 Z (12 V) 68642 B (24 V)	69771 U (12 V) 69772 W /24 V)
Voltage	12 or 24 V	12 or 24 V
Nominal power	11 W @ 8 m/s (15,5 knots)	24 W @ 8 m/s (17,8 knots)
Peak power	70 W	200 W
Cut-in wind speed	4 m/s (7,7 knots)	3 m/s (9 knots)
Rotor diameter	200 mm (7.92)	270 mm (10.6")
Dry weight kg (lbs)	9 (19.9)	13 (28.7)



LE-v50™



LE-v150™





Sunware solar modules, without glass, are functionally reliable, robust, light-weight, weather-proof and sea-water resistant: therefore they have been specially designed for marine applications on board.

The innovative manufacturing process, make them particularly suitable to be installed on the deck of the boat, avoiding vibrations and the negative effects of high temperature.

Self-cleaning and safe to step-on, SUNWARE modules are easy to bend and can therefore adhere to the deck (maximum bending 3%, i.e. bending of 3 cm per 1 m long module).

Each module is supplied complete with stainless steel back-plate, a sea-water proof and UV resistant cable (3 m long – red/blue 2x1.5 mmq).



**SW-20**  
cable outlet on the front,  
no ventilation required



**SW-40**  
cable output on the back,  
front side completely flat

Model	Part No.	Max. Power	No. of Cells	Nominal Voltage	I <sub>max</sub>	I <sub>sc</sub>	Dimensions HxWxD mm (")	Weight kg (lbs)
SW-20143 SW-40143	22112 L 600100 A	14 Wp	40	12 V	0.69 A	0.72 A	468x243x6 (18.4x9.6x0.2)	0,7 (1.5)
SW-20144 SW-40144	22113 N 600101 C	20 Wp	40	12 V	0.91 A	0.96 A	643x273x6 (25.3x10.7x0.2)	1,2 (2.6)
SW-20145 SW-40145	22114 R 600102 E	25 Wp	40	12 V	1.2 A	1.37 A	807x273x6 (31.8x10.7x0.2)	1,3 (2.9)
SW-20146 SW-40146	22115 T 600103 G	38 Wp	40	12 V	1.81 A	1.92 A	1154x273x6 (45.4x10.7x0.2)	2,2 (4.8)
SW-20163 SW-40163	21010 X 600104 J	25 Wp	38	12 V	1.36 A	1.44 A	426x481x6 (16.7x18.9x0.2)	1,3 (2.9)
SW-20164 SW-40164	21735 V 600105 L	38 Wp	39	12 V	1.8 A	1.92 A	599x481x6 (23.6x18.9x0.2)	1,8 (4)
SW-20165 SW-40165	21296 V 600106 N	50 Wp	39	12 V	2.4 A	2.54 A	772x481x6 (30.4x18.9x0.2)	2,3 (5.1)
SW-20166 SW-40166	22116 V 600107 R	75 Wp	39	12 V	3.62 A	3.84 A	1119x481x6 (44x18.9x0.2)	3,6 (8)
SW-20185 SW-40185	21364 K 600109 V	100 Wp	35	12 V	5.43 A	5.75 A	1012x689x6 (39.8x27.1x0.2)	4,7 (10.4)

## ACCESSORIES



**MID CLIPS AND SIDE CLIPS**  
- Part No. 64098 H (2 clips)  
- Part No. 64099 K (4 clips)



## PLUGS, SOCKETS AND CONNECTORS

- Male Socket: Part No. - 64100 R
- Female Socket: Part No. - 64101 T
- Plug: Part No. - 64102 V
- Bulkhead kit: Part No. - 64104 Z
- Bulkhead Connector: Part No. - 64103 X



## WAAREE® - MARINE PV SOLAR MODULES

**WAAREE®**  
One with the Sun

### WLW-50W FEATURES

- Ultra-Light weight
- Easy and quick to install. Simple peel and stick
- Improves electrical redundancy and continuity
- Reduce reflectivity and increased light trapping
- Providing excellent wind and seismic resistance
- Module size, shape and colour customizable
- Superior low light & low sun angle performance

### WM-110-FX-24L FEATURES

- Ultra-Light weight
- Higher open circuit voltage
- Easy and quick to install
- Built in crack tolerance
- Maintain module integrity and power maintenance
- Superior low light & low sun angle performance



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MODEL	WLW-50W	WM-110-FX-24L
Part No.	23005 R	23051 Y
Rated Power (P max) in Watt	50	110
Number of cell in series	36	24
Max peak voltage (Vmp) (Volt)	18.6	12.89
Max peak current (Imp) (Amp)	2.70	8.54
Open circuit voltage (Voc) (Volt)	22.3	15.5
Short circuit current (Isc) (Amp)	2.90	8.81
Max system voltage (V DC)	600	100 V (IEC)/600 V (UL)
Max series fuse rating (Amp)	10	15
Power tolerance (%)	+3	+3
Operating temperature	-40°C to 85°C	-40°C to 85°C
Dimensions mm HxWxD (")	610x690x20 (24x27.2x0.8)	2030x373x21 (80x14.7x0.82)
Weight kg (lbs)	1.5±0.5 (3.3±1.1)	3.5±0.5 (7.7±1.1)

## XUNZEL™ - SEMI-FLEXIBLE SOLAR PANELS

The Xunzel™ solar panels are very thin (3 mm – 0,12”), light and bendable up to 30°. Thanks to the innovative All-Back-Contact Technology, these solar panels supply higher power than conventional PV modules of same size. By adopting the Back-Contact technique, the wafer can be coated with flexible materials and finally forms the high efficiency flexible solar panel.

These panels offer high performances also early in the morning, late in the evening and even on cloudy days. They effectively absorb different wavelengths of light to generate more electricity. Furthermore, the hotter it gets, the better is their performance compared to competitor efficiency.

Designed for boat and RVs applications, for off-grid solutions (telecom, ups-backup energy, street lighting, etc.)

### FEATURES

- Easy to install. Reasy to connect. Stainless steel rings (dia. 10 mm)
- Secure and easy wiring. Includes 3 m pre-assembled solar cable
- Completely waterproof and weatherproof junction box (IP65)
- **Design:** high quality, reliability and performance. Crystalline silicon cell panels wuth patented All-Back-Contact Technology. Very thin, light and bendable up to 30°
- **Endurance:** High quality UV resistant materials ensure a long life
- **Electrical Connection:** Junction box mounted at the front side for protection against corrosion. The Xunzel™ solar panels are delivered with pre-assembled cables for a quick and safe installation



Model	Part No.	Pmax Watt	Vmp Volt	Imp Amp	Voc Volt	Isc Amp	Dimensions mm (")	Weight kg (lbs)
HD 20W	20786 H	20W	17.6	1.14	20.8	1.23	580x310x3 (22.8x12.2x0.12)	0,6 (1.32)
HD 50W	21691 B	50W	17.36	2.88	20.8	3.11	620x500x3 (24.4x19.7x0.12)	1 (2.2)
HD 110W	21692 D	110W	18.56	5.97	21.9	6.32	1155x560x3 (45.5x22.1x0.12)	2,5 (5.51)

## UFLEX® - CRYSTALLINE PV MODULES

Uflex® uses top quality materials to factory build reliable and long lasting crystalline PV Modules.

Uflex® prime quality main components are: high efficiency cells, reflection-free and power transmitting glasses, anodized aluminium frames. Back positioned mounting holes for easy of installation.

The Quality Management System is certified in compliance with **ISO 9001:2008** standards.

Solar Modules manufactured by Uflex® are certified in accordance with **IEC61215**, **IEC61215** and **CE** standards.

**Product warranty: 10 years**

**Performance warranty: 90% for 10 years, 80% for 25 years**



Model	Part No.	P <sub>max</sub> <sup>(I)</sup> Watt	V <sub>mp</sub> <sup>(II)</sup> Volt	I <sub>mp</sub> <sup>(III)</sup> Amp	V <sub>oc</sub> <sup>(IV)</sup> Volt	I <sub>sc</sub> <sup>(V)</sup> Amp	Dimensions mm (")	Weight kg (lbs)
UFX010PM	69572 M	10	17.7	0.57	21.5	0.65	300x350x22 (11.8x13.8x0.8)	1.2 (2.6)
UFX020PM	69573 P	20	17.7	1.13	21.5	1.3	520x350x22 (20.5x13.8x0.8)	2.2 (4.8)
UFX040PM	69574 S	40	17.7	2.3	21.5	2.5	465x665x34 (18.3x26.2x1.3)	3.9 (8.6)
UFX060PM	69576 WE	60	17.7	3.39	21.5	3.75	665x665x34 (26.2x26.2x1.3)	5.4 (11.9)
UFX080PM	69577 YE	80	17.7	4.52	21.5	5	840x665x34 (33.1x26.2x1.3)	6.5 (14.3)
UFX100PM	69578 AN	100	17.7	5.7	21.5	6.2	1010x665x34 (39.8x26.2x1.3)	8.5 (18.7)
UFX120PM	69583 TE	120	17.7	6.78	21.5	7.4	1260x665x34 (49.6x26.2x1.3)	9.5 (20.9)
UFX160PM	21742 SE	160	18.4	8.7	22.5	8.7	1495x665x34 (58.8x26.2x1.3)	12.2 (26.9)
UFX160PM*	22137 D	160	18.4	8.7	22.5	8.7	1495x665x34 (58.8x26.2x1.3)	12.2 (26.9)
UFX180MM*	22908 F	180	18.4	8.7	22.5	8.7	1495x665x34 (58.8x26.2x1.3)	12.2 (26.9)
UFX310PM*	22094 M	310	18.3	16.4	22.6	17.2	1955x990x42 (77x39x1.6)	22.0 (48.5)

\*: Includes 1200 mm length, 4mm<sup>2</sup>, solar cable with MC4 connectors.

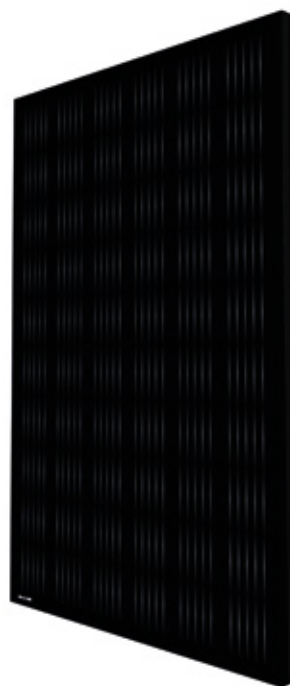
## EURENER® - POLY-CRYSTALLINE AND MONO-CRYSTALLINE PV MODULES



- Electroluminescence tested (EL-Test)
  - IP67 + 1 m cable
  - High transmissivity and high resistance glass
  - Frame with high mechanical resistance and inner tube
  - Recyclable and environmentally friendly materials
- **Certified:** IEC 61215:2005; IEC 61730-1:2004 / IEC 61730-2:2004; Front load (snow) 5.400 Pa; Rear load (wind) 2.400 Pa; Fire Resistance Certified / Class 1 (UNI 9177); MCS (R.U); EEE016-20130528-001 (France); WEEE conformity in Germany; ETL Listed Mark (USA-Canada); PID Resistance (only poly-crystalline pv modules)



Poly-crystalline module



Mono-crystalline module  
all black



Mono-crystalline module

MODEL	PEPV 280W	MEPV 300W all black	MEPV 320W
Part No.	22975 X	22207 YB	22855 L
Nominal power, P <sub>mpp</sub>	280 W	300 W	320 W
Tolerance, P <sub>mpp</sub>	±1%	0/+3%	±3%
Module area	1.62	1.62	1.62
Module efficiency	17.28%	18.52%	19.75%
I <sub>sc</sub>	9.25 A	9.89 A	9.98 A
U <sub>oc</sub>	39.10 V	39.75 V	40.85 V
I <sub>mpp</sub>	8.85 A	9.37 A	9.97 A
U <sub>mpp</sub>	31.65 V	32.02 V	32.10 V
Maximum voltage	1000 V	1000 V	1000 V
α I <sub>sc</sub>	0.039% / °C	0.05% / °C	0.05% / °C
β U <sub>oc</sub>	-0.29% / °C	-0.29% / °C	-0.29% / °C
γ P <sub>max</sub>	-0.42% / °C	-0.42% / °C	-0.39% / °C
Temperature range	-40°C to +85°C	-40°C to +85°C	-40°C to +85°C
NOCT	44°C ± 2°C	44°C ± 2°C	44°C ± 2°C
Dimensions mm (") HxW±1%	1640/50x992x35/40 (64.6/2x14/1.6)	1640/50x992x35/40 (64.6/2x14/1.6)	1640/50x992x35/40 (64.6/2x14/1.6)
Weight kg (lbs)	19 (41.9)	20 (44.1)	20 (44.1)



## **MORNINGSTAR® CHARGE CONTROLLERS - PROSTAR™ AND SUNSAVER™ SERIES**



### **PROSTAR™ SERIES FEATURES**

- 3 digits LCD display reading in sequence: Battery Current, PV Current, Loads Current
- Automatic voltage select for either 12 or 24V DC systems
- Automatic voltage select for either a sealed or flooded battery
- Full electronic protection against any consequence of reversed wire connection
- Instant disconnection/connection of all PV modules and loads by a button

### **SUNSAVER™ SERIES FEATURES**

- Multi-colour status LED
- 3 LED's for battery state of charge with self-diagnostic
- Full electronic protection against reversed PV, battery or load wire connections
- Either a flooded or sealed battery can be selected with a simple jumper
- Encapsulated in epoxy compound for service in harsh environment
- Dead battery recovery



### **PROSTAR™ SERIES TECHNICAL SPECIFICATIONS**

MODEL	PS15M	PS30M	PS15M-48V
Part No.	62643W	61737A	63072H
Nominal Voltage	12V DC	24V DC	48V DC
Rated solar current	15 Amp	30 Amp	15 Amp
Rated load current	15 Amp	30 Amp	15 Amp
Load disconnect/LVD reconnect	11,5 V/12,6V	11,5 V/12,6V	11,5 V/12,6V
Self consumption	22 mA	22 mA	28 mA
Dimensions mm	153 x 105 x 55	153 x 105 x 55	153 x 105 x 55
Weight	0,34 kg	0,34 kg	0,34 kg

### **SUNSAVER™ SERIES TECHNICAL SPECIFICATIONS**

MODEL	SS 6 L	SS 10	SS 10 L	SS 20 L	SS10 L-24
Part No.	61213E	61415B	61192X	61734U	61938L
Nominal Voltage	12V DC	12V DC	12V DC	12V DC	24V DC
Rated solar current	6 A	10 A	10 A	20 A	10 A
Rated load current	6 A	10 A	10 A	20 A	10 A
Load disconnect/LVD reconnect	11,5 /12,6V	11,5 /12,6V	11,5 /12,6V	11,5 /12,6V	23/25,2V
LVD reconnect	Yes	No	Yes	Yes	Yes
Dimensions mm	152x55x34	152x55x34	152x55x34	152x55x34	152x55x34
Weight	0,23 kg	0,23 kg	0,23 kg	0,23 kg	0,23 kg

## MORNINGSTAR® CHARGE CONTROLLERS - SUNSAVER DUO™

SunSaver DUO™ is a two battery solar controller with remote adjustable meter

### FEATURES

- Will charge two separate and isolated batteries at the same time based on user selectable priorities
- Includes a backlit remote meter with LED display which may be mounted in or on a wall and displays information about the solar power system
- User adjustable via DIP switch or connection to a PC
- Two battery charging eliminates the added cost of two separate solar charging systems and the need for isolation between the batteries
- Will not be damaged by wiring mistakes during installation
- Epoxy encapsulated for environmental protection
- Options: Remote Temperature Sensor



### TECHNICAL SPECIFICATIONS

#### MODEL

**SunSaver DUO™**

#### Part No.

66129 C

#### Battery Voltage

12 Volt

#### Rated Solar Input

25 Amp

#### Max Solar Voltage

30 Volt

#### Max battery Voltage

15 Volt

#### Self Consumption

25 mA (controller and meter)

#### Operating Ambient Temperature

-40°C a +40°C

#### Dimensions

170 x 56 x 41 mm

#### Meter Hole size

76 mm

#### Largest wire

16 mm<sup>2</sup>

#### Weight

0,26 kg

### ELECTRONIC PROTECTION

- PV: Over Current, Short Circuit
- Reverse polarity
- Lightning
- High Temperature
- Reverse Current at Night

### CERTIFICATIONS

- CE

# MORNINGSTAR® MPPT CHARGE CONTROLLERS



## ECOBOOST™

The EcoBoost MPPT™ solar charge controller brings Morningstar's proprietary TrakStarTechnology™ to our new line of Essentials controllers and accessories. The EcoBoost controllers automatically detect 12 or 24 V system configuration. They are highly efficient and accurate controllers designed to ensure that batteries attain a complete state of charge. They are also sophisticated load controllers. Using this feature to manage DC power consumption protects the batteries from over discharge and helps ensure long term system reliability.

- **7 battery types:** with the possibility of customization
- **2 USB input:** to charge smartphones and tablets - 3A at 5V
- **Solar input electronic protection:** overload, short-circuit, high voltage, reverse polarity, high temperature, nighttime reverse current.
- **Load output electronic protection:** overload, short-circuit, high temperature, reverse polarity.
- **Battery electronic protection:** reverse polarity.
- **Load control:** Low Voltage Disconnect and Low Voltage Reconnect settings.
- **Lighting control:** dusk and dawn settings
- **Optional Meter:** provides access to system operational information including current and historical performance data. All EcoBoost "M" controllers include the meter
- **Operating temperature:** -40°C to +60°C
- **Tropicalization:** conformal coating, marine-rated terminals
- **Power terminals:** 2,5-16 mm² / 14-2AWG
- **Enclosure:** IP20
- **Dimensions:** 19,6x17,3x7,1 cm (7.7x6.8x2.8 in)
- **Weight:** 1,4 kg (3.1 lbs)
- **Certifications:** CE, TUV Listed, IEC 62109, EN 62109-1, Emissions 55014-1, Immunity 55014-2
- **WARRANTY: 2 years**
- **Accessories:** Remote Temperature Sensor (RTS), mobile phone holder (included)

**new**



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Model	EB-MPPT-20	EB-MPPT-20-M	EB-MPPT-30	EB-MPPT-30-M	EB-MPPT-40	EB-MPPT-40-M
Par No.	22296 A	22264 L	22297 C	22265 N	22298 E	22266 R
Max battery current	20 A	20 A	30 A	30 A	40 A	40 A
Load current rating	20 A	20 A	30 A	30 A	40 A	40 A
Maximum PV Open Circuit Voltage (VOC)	120 V					
Nominal battery voltage	12 or 24 V automatic sensing setting					
Max nominal operation power*						
12 V battery	300W @ 40C	300W @ 40C	400W @ 40C	400W @ 40C	560W @ 40C	560W @ 40C
24 V battery	600W @ 40C	600W @ 40C	800W @ 40C	800W @ 40C	1120W @ 40C	1120W @ 40C
Battery voltage range	10/35 V					
Self-consumption	<1.2 Watts					
Maximum combined USB charging output	3 at 5 V					

\*Input power can exceed nominal maximum operating power, but controller will limit and provide its rated continuous maximum output current into batteries. This will not harm the controller.

CHARGE CONTROLLERS

## ECOPULSE™

EcoPulse™ is a pulse width modulation (PWM) solar charge controller within Morningstar's Essential Series™ of products which provides essential off-grid battery regulation functions. Metered and non-metered versions of this product are available at 10, 20, and 30 amp charge ratings for 12 and 24 volt battery systems

- **4-Stage charging:** Bulk, Absorption, Float, Equalize.
- **PV electronic protection:** overload, short-circuit, high voltage, reverse polarity, high temperature, nighttime reverse current.
- **Load electronic protection:** overload, short-circuit, high temperature, reverse polarity.
- **Battery electronic protection:** reverse polarity.
- **Load control:** Low Voltage Disconnect and Low Voltage Reconnect.
- **Lighting control:** Dusk to Down.
- **Operating temperature:** -40°C a +45°C
- **Tropicalization:** conformal coating, marine-rated terminals
- **Terminals:** 2,5-16 mm<sup>2</sup> / 14-6AWG
- **Enclosure:** IP20
- **Dimensions:** 15,3 x 10,5 x 5,5 cm
- **Weight:** 0,4 kg
- **Certifications:** CE
- **WARRANTY:** 2 years
- **Accessories:** Remote temperature sensor (RTS)



MODEL	EC-10	EC-10M	EC-20	EC-20M	EC-30	EC-30M
Part No.	21419 J	21420 T	21421 V	21422 X	21423 Z	21424 B
Display	No	Yes	No	Yes	No	Yes
Maximum PV open circuit voltage	60 V	60 V	60 V	60 V	60 V	60 V
Load current rating	10 A	10 A	20 A	20 A	30 A	30 A
Nominal battery voltage	12/24 VDC	12/24 VDC	12/24 VDC	12/24 VDC	12/24 VDC	12/24 VDC
Battery voltage range	10/35 VDC	10/35 VDC	10/35 VDC	10/35 VDC	10/35 VDC	10/35 VDC
Self-consumption	<22mA	<40mA	<22mA	<40mA	<22mA	<40mA



# COELMO®



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3.0 - 31.6 kW MARINE GENERATORS



## MARINE GENERATORS

### Your energy

Whether you sail for leisure or for work, Coelmo® is able to provide all the energy you need, ensuring safety, comfort and maximum performance. The variety of Coelmo® product range offers tailor-made solutions to meet every need.

Since 1946 years Coelmo® means innovation, reliability, safety and sustainability. Coelmo® designs and manufactures Industrial and Marine Generators Sets, from 3 up to 3000 kVA, supplying solutions for several applications. The advanced technologies meet the experience of those working in the industry for three generations.

### A safe choice

Wherever you are sailing and in any weather condition, Coelmo® is a safe choice. Coelmo's reliability is also expressed in its international warranty: a network of official distributors and workshop around the world ensures parts and immediate assistance.

### POWER RANGE

Coelmo Marine compact, silent and reliable Generating Sets from 3 to 40 kVA are designed to improve the comfort both on board sailing and engine powered boats and to satisfy even the most demanding shipowners.



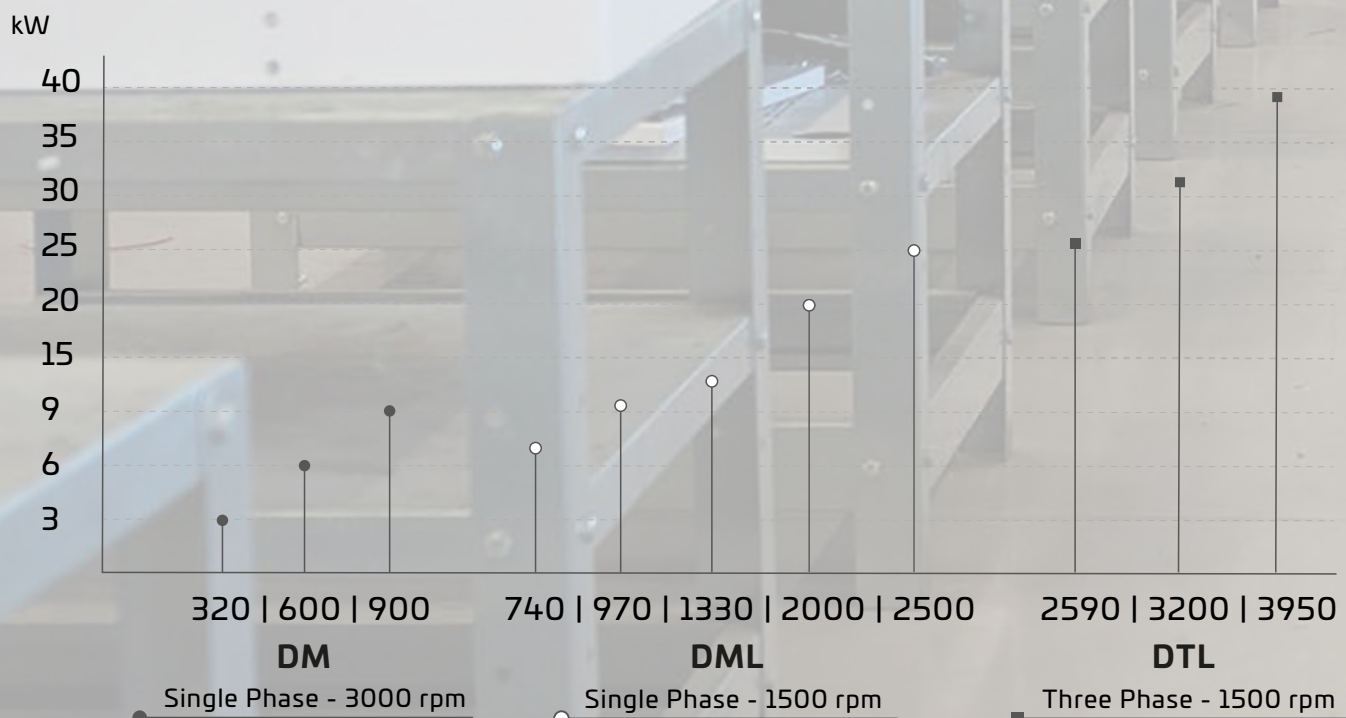
**DM SERIES: 3,2 - 9 KVA**



**DML SERIES: 7,4 - 25 KVA**



**DTL SERIES: 25,9 - 39,5 KVA**





Features

- Connection on one side
- Electronic management
- Easy maintenance
- Local and remote control
- Reduced dimensions and noise level

Standards applied

- CE certified
- Power: ISO 8528
- Directive Machinery: 2006/42/CE - 89/392CEE - 98/37/CE
- Electromagnetic compatibility: 2004/108/CE - 89/336/CEE - 93/68/CEE
- Acoustic emission: 2005/88/CE - 2000/14/CE (sound proof version only)

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Standard equipment

- **Sound proof canopy:** Made entirely from marine grade aluminum (LEGA 5754 H111) powder coated,.
- **EOS® control panel:** Waterproof control panel for engine protection with LCD display.  
Dimensions on the dashboard 96x96 mm, supplied separately for all the generators.  
On board the generators there is a selector for manual start bypassing the control panel.
- **Generating set anchor brackets:** 4 steel brackets to attach the generator to the floor of the boat.
- **Emergency button:** Emergency button positioned on the Generating Set to allow for the immediate shutdown in case of danger or damage.
- **Manuals:** User and installation manuals of the generating set along with relative engine and alternator user manuals.

Optional equipment

- Silenced muffler kit
- Sea water intake kit
- Siphon breaker
- Water gas separator
- Electrical fuel pump
- Diesel prefilter with water separator
- Intercooler system
- Diesel water separator



DM600

MODEL	DM320	DM600	DM900
Part No.	22381 R	22376 Y	22382 T
Max power kVA (kW)	3.2 (3.2)	6.0 (6.0)	9.0 (9.0)
Phase	Single phase	Single phase	Single phase
Current (A)	14.00	26.00	40.00
Voltage	230 V	230 V	230 V
Frequency	50 Hz	50 Hz	50 Hz
Engine cooling system	Sea water/air	Heat exchanger	Heat exchanger
Noise level db(A) @ 7 meters	54	54	54
Engine model	YANMAR L70N	KUBOTA Z482	KUBOTA D722
Round per minute	3000	3000	3000
No. of cylinders	1	2	3
Dimensions soundproof version mm (")	560x405x510 (22.1x15.9x20.1)	650x480x530 (25.6x18.9x20.9)	750x480x530 (29.5x18.9x20.9)
Weight soundproof version kg (lbs)	87 (191.8)	128 (282.2)	155 (341.7)

## Features

- Connection on one side
- Electronic management
- Easy maintenance
- Local and remote control
- Reduced dimensions and noise level

## Standards applied

- CE certified
- Power: ISO 8528
- Directive Machinery: 2006/42/CE - 89/392CEE - 98/37/CE
- Electromagnetic compatibility: 2004/108/CE - 89/336/CEE - 93/68/CEE
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## Standard equipment

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- **Manuals:** User and installation manuals of the generating set along with relative engine and alternator user manuals.

## Optional equipment

- Silenced muffler kit
- Sea water intake kit
- Siphon breaker
- Water gas separator
- Electrical fuel pump
- Diesel prefilter with water separator
- Intercooler system
- Diesel water separator



DML1330

MODEL	DML740	DML970	DML1330	DML2000	DML2500
Part No.	22383 V	22384 X	22377 A	22385 Z	22378 C
Max power kVA (kW)	7.4 (7.4)	9.7 (9.7)	13.3 (13.3)	20.0 (20.0)	25.0 (25.0)
Phase	Single phase	Single phase	Single phase	Single phase	Single phase
Current (A)	32.00	42.00	57.00	87.00	108.00
Voltage	230 V	230 V	230 V	230 V	230 V
Frequency	50 Hz	50 Hz	50 Hz	50 Hz	50 Hz
Engine cooling system	Heat exchanger	Heat exchanger	Heat exchanger	Heat exchanger	Heat exchanger
Noise level db(A) @7m	54	54	54	54	54
Engine model	KUBOTA D1105-BG	KUBOTA V1505-BG	KUBOTA D1703-BG	KUBOTA V2403-BG	KUBOTA V2403-BG
Round per minute	1500	1500	1500	1500	1500
No. of cylinders	3	4	3	4	4
Dimensions soundproof version mm (")	910x540x670 (35.8x21.3x26.4)	1010x540x675 (39.8x21.3x26.6)	1020x600x730 (40.2x23.6x28.7)	1130x600x730 (44.5x23.6x28.7)	1130x600x730 (44.5x23.6x28.7)
Weight soundproof version kg (lbs)	286 (630.5)	316 (696.7)	360 (793.7)	430 (948)	448 (987.7)



## Features

- Connection on one side
- Electronic management
- Easy maintenance
- Local and remote control
- Reduced dimensions and noise level

## Standards applied

- CE certified
- Power: ISO 8528
- Directive Machinery: 2006/42/CE - 89/392CEE - 98/37/CE
- Electromagnetic compatibility: 2004/108/CE - 89/336/CEE - 93/68/CEE
- Acoustic emission: 2005/88/CE - 2000/14/CE (sound proof version only)

## Standard equipment

- **Sound proof canopy:** Made entirely from marine grade aluminum (LEGA 5754 H111) powder coated,.
- **EOS® control panel:** Waterproof control panel for engine protection with LCD display. Dimensions on the dashboard 96x96 mm, supplied separately for all the generators. On board the generators there is a selector for manual start bypassing the control panel.
- **Generating set anchor brackets:** 4 steel brackets to attach the generator to the floor of the boat.
- **Emergency button:** Emergency button positioned on the Generating Set to allow for the immediate shutdown in case of danger or damage.
- **Manuals:** User and installation manuals of the generating set along with relative engine and alternator user manuals.

## Optional equipment

- Silenced muffler kit
- Sea water intake kit
- Siphon breaker
- Water gas separator
- Electrical fuel pump
- Diesel prefilter with water separator
- Intercooler system
- Diesel water separator



DTL3200

MODEL	DTL2590	DTL3200	DTL3950
Part No.	22386 B	22387 D	22388 F
Max power kVA (kW)	25.9 (20.7)	32.0 (25.6)	39.5 (31.6)
Phase	Three phase	Three phase	Three phase
Current (A)	37.00	46.00	57.00
Voltage	400/230V+N	400/230V+N	400/230V+N
Frequency	50 Hz	50 Hz	50 Hz
Engine cooling system	Heat exchanger	Heat exchanger	Heat exchanger
Noise level db(A) @7m	54	54	54
Engine model	KUBOTA V2403-BG	KUBOTA V3300-BG	KUBOTA V3300T-BG
Round per minute	1500	1500	1500
No. of cylinders	4	4	4
Dimensions soundproof version mm (")	1130x600x730 (44.5x23.6x28.7)	1590x700x900 (62.6x27.6x35.4)	1590x700x900 (62.6x27.6x35.4)
Weight soundproof version kg (lbs)	448 (987.7)	670 (1477.1)	680 (1499.1)





## MARINE GENERATORS - ACCESSORIES AND SPARE PARTS

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3.0 - 3.6 kW MARINE GENERATORS

	DM320	DM600	DM900
Sea water cooled alternator	standard	standard	standard
Air water intercooler suitable to ensure operation @ 60°C	-	-	-
Manual brass oil drain pump	on request	on request	on request
Four external anchoring steel support	standard	standard	standard
Filter on the outlet of the sea water pump	standard	standard	standard
Polyester dust painted marine aluminum sound proof canopy	standard	standard	standard
On board management with EOS module (optional)	-	-	-
Remote management on dashboard with EOS (15 m)	standard	standard	standard
Contactors on board for LMS (EOS system)	on request	on request	on request
Remote management on dashboard with EOS module (15 m) serial cable	standard	standard	standard
Additional EOS remote kit	on request	on request	on request
Local on board selector start/stop switch	standard	standard	standard
Emergency push button	-	-	-
Oil pressure and water temperature gauge	-	-	-
Electronic speed regulator	-	-	-
Automatic voltage regulator	-	-	-
Automatic circuit breaker for generating set protection	standard	standard	standard
High water temperature and low oil pressure alarm	standard	standard	standard
High riser temperature alarm	standard	standard	standard
External marine antivibration mounting kit	on request	on request	on request
Kit sea water intake DM series	on request	on request	on request
Kit sea water intake DML series	-	-	-
Kit sea water intake DTL series	-	-	-
Kit ordinary maintenance DM series	on request	on request	on request
Kit ordinary maintenance DML series	-	-	-
Kit ordinary maintenance DTL series	-	-	-
Kit silenced muffler 7 lt	on request	on request	on request
Kit silenced muffler 20 lt	-	-	-
Kit silenced muffler 33 lt	-	-	-
Siphon breaker D13/38	on request	on request	on request
Water/gas separator D40/45/50	on request	on request	on request
Water/gas separator D65	-	-	-
Water/gas separator D90	-	-	-

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## MARINE GENERATORS - ACCESSORIES

### EOS® CONTROL PANEL

EOS® is the most advanced and complete command and control board for Coelmo Marine Generators, available as standard across the range. It allows to monitor all the major electrical and mechanical parameters of the generator, to have it constantly under control.



EOS® control panel

### ACCESSORIES FOR THE INSTALLATION



Seawater filtering kit



Diesel prefilter  
with water separator



Intercooling system



Siphon



Oil extraction pump



Silenced exhaust



Water/gas separator



Diesel water separator



Electrical fuel pump



Siphon braker



On board contactor  
for LMS (FIDIO® system)



On board contactor  
for LMS (EOS® system)



# BALMAR®

WWW.BALMAR.NET

## DC CHARGING SOLUTIONS

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DC CHARGING SOLUTIONS

## DC CHARGING SYSTEMS WITH ALTERNATORS

Balmar® supply high efficiency DC charging systems and battery monitors.

Balmar® alternators performances:

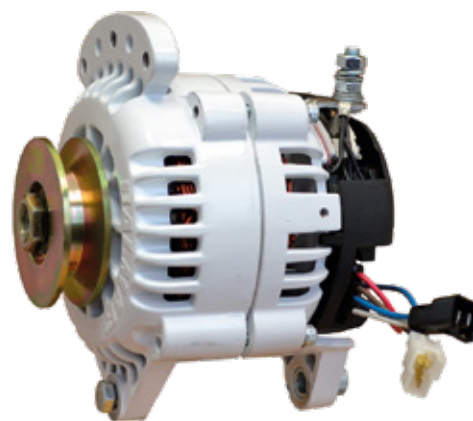
- More charging Amps at low RPM
- 30% faster, more complete charging
- Longer battery bank life
- Less fuel consumption

### HOW TO SELECT THE CORRECT BALMAR® CHARGING SYSTEM

- **Determine your electrical load:** all your device loads and expected duty cycles will clarify your expected daily battery discharge requirements. Add a safety factor
- **Identify your battery bank technology and capacity:** how many batteries are in your bank and what is the total storage capacity? What type of batteries are employed? (Different technologies require different charging programs)
- **Select your alternator output:** the correct charging load depends on the battery technology and capacity. For example, an AGM battery can accept a 50% charge loads so a 300 Ah bank of AGMs can accept 150 A of charging for the alternator. Therefore you could support at least a 150 A alternator to charge your bank as quickly as possible
- **Select the alternator mounting style present on your engine:** most mounting styles are either 1" - 2" single foot, 3.15" - 4" saddle
- **Determine your belt and pulley requirements:** a belt/pulley conversion kit may be required to handle your alternator PTO load
- **Select additional charging systems options:** kit greatly simplify belt tensioning. The smartgauge battery monitor provides accurate state of charge information

### 6-SERIES CHARGING SYSTEM

- Available in outputs ranging from 70 A to 120 A
- 12 V and 24 V configurations with four popular mounts
- Gas or diesel engines
- Patented SmartReady voltage regulation
- Multi-stage external regulation provides seven selectable programs tailored to your battery technology
- Pulley conversion kits for your engine as required
- USCG Title 33, CE, ISO 8846 and SAE J1171 Certified



60-70-SV

6-SERIES	REGULATOR	MOUNTING	ALTERNATOR PART No.			
			Single pulley	Dual pulley	Poly-V 6	Poly-V10
70 A 12 V	ARS-5H part No. - 20596 C	1-2" Single foot	20548 R	20546 L	20547 N	-
		3.15" Saddle mount	20551 D	20549 T	20550 B	
100 A 12 V	ARS-5H part No. - 20596 C	1-2" Single foot	20554 K	20552 F	20553 H	-
		3.15" Saddle mount	20557 S	20555 M	20556 P	
120 A 12 V	ARS-5H part No. - 20596 C	1-2" Single foot	-	20558 U	20560 E	20559 W
		3.15" Saddle mount		20561 G	20563 L	20562 J
70 A 24 V	ARS-5H part No. - 20596 C	1-2" Single foot	-	20564 N	20566 T	20565 R
		3.15" Saddle mount		20567 V	20569 Z	20568 X



DC CHARGING SYSTEMS WITH ALTERNATORS

AT-SERIES ADVANCED TECHNOLOGY CHARGING SYSTEM

- Available in outputs of 170 A to 220 A with up to 140 A at idle
- 12 V configuratuons with the most popular mounts
- High airflow frame with dual fan cooling
- Ideal for high tech batteries
- Multi-stage external regulation provides seven selectable programs tailored to your battery technology
- Pulley conversion kits for your engine as required
- USCG Title 33, CE, ISO 8846 and SAE J1171 Certified



220A AT Series

AT-SERIES	REGULATOR	MOUNTING	ALTERNATOR PART No.		
			Dual pulley	Poly-V 6	Poly-V 10
170 A 12 V	MC-614-H part No. - 20597 E	1-2" Single foot 3.15" Saddle mount	20570 H	20572 M	20571 K
			20573 P	20576 W	20575 U
220 A 12 V	MC-614-H part No. - 20597 E	1-2" Single foot 3.15" Saddle mount	20577 Y	20579 C	20578 A
			20580 L	20582 R	20581 N

ALTERNATORS

94LY-SERIES LARGE CASE ALTERNATORS

MID DUTY-CYCLE, large case.

- Extra heavy duty windings, diodes & brushless
- Isolated ground termination
- Corrosion resistant powder coated finish
- Maximum RPM: 6000
- USCG title 33 ignition protection Compliant



MODEL	PART No.	VOLT	AMPS	MOUNTING	MINIMUM PULLEY
94LY-12-165-IG	20583 T	12	165	Dual Foot 3.15" (Hitachi-style)	1/2" Dual pulley
94LY-12-210-IG	20584 V	12	210	Dual Foot 3.15" (Hitachi-style)	1/2" Dual pulley
94LY-24-140-IG	20585 X	24	140	Dual Foot 3.15" (Hitachi-style)	1/2" Dual pulley



# ALTERNATORS

## 97-SERIES EXTRA LARGE CASE ALTERNATORS

HEAVY DUTY-CYCLE, extra large case.

- Highly efficient brushless design
- Isolated ground termination
- Bi-directional cooling fan
- Maximum RPM: 7000
- External regulation required
- USCG Title 33, CE, ISO 8846 and SAE J1171 Compliant

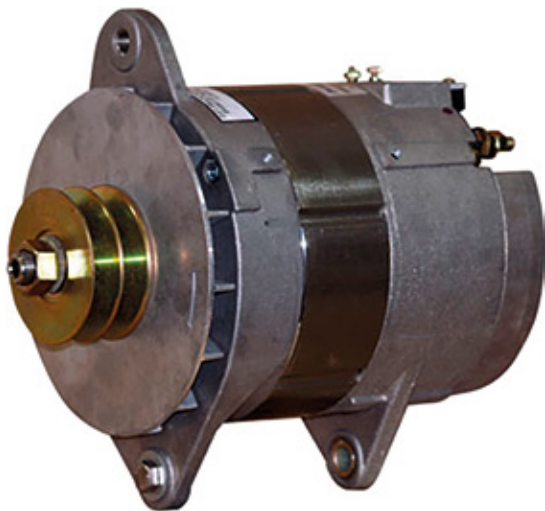


MODEL	PART No.	VOLTS	AMPS	MOUNTING STYLE	MINIMUM PULLEY
9704-12-160-BL-IG	20586 Z	12	160	Dual Foot 4" (J180-style)	1/2" Dual pulley
9704-24-140-BL-IG	20479 Y	24	140	Dual Foot 4" (J180-style)	1/2" Dual pulley

## 97EHD-SERIES EXTRA LARGE CASE ALTERNATORS

HEAVY DUTY-CYCLE, extra large case.

- Designed for extended duty operation
- Case ground or isolated ground terminations available
- Bi-directional cooling fan
- Maximum RPM: 7000
- External regulation required
- USCG Title 33 Compliant



MODEL	PART No.	VOLTS	AMPS	MOUNTING STYLE	MINIMUM PULLEY
97EHD-265-12-IG	20592 U	12	265	Dual Foot 4" (J180-style)	1/2" Dual pulley
97EHD-190-24-IG	20593 W	24	190	Dual Foot 4" (J180-style)	1/2" Dual pulley



# ALTERNATORS

## 98-SERIES EXTRA LARGE CASE ALTERNATORS

**HEAVY DUTY-CYCLE, extra large case.**

- Highly efficient brushless design
- Isolated ground termination
- Dual cooling fans, oversized bearings
- High amperage diodes
- Maximum RPM: 7000
- External regulation required
- USCG Title 33, CE, ISO 8846 and SAE J1171 Compliant



MODEL	PART No.	VOLTS	AMPS	MOUNTING STYLE	MINIMUM PULLEY
98-12-310-IG-BL	20594 Y	12	310	Dual Foot 4" (J180-style)	1/2" Dual pulley
98-24-220-IG-BL	20595 A	24	220	Dual Foot 4" (J180-style)	1/2" Dual pulley

## SG200 BATTERY MONITOR

**Learns & Displays All Critical Battery Parameters:**

- State of Charge (SoC%)
- State of Health (SoH%)
- Charge/Discharge Current Flow
- Time Remaining
- History, Faults & Alerts

**Support for All Common Battery Chemistries & Voltages:**

- Including Lead Acid, Lithium (LiFePO4), Standard AGM, TPPL AGM, Carbon Foam AGM, and GEL Batteries
- Supports 12V-48V Battery Banks

**Intelligent, Self-Calibrating Accuracy:**

- Typically 97% Accurate within 2 Cycles
- Auto-Calibrating
- Does not Lose Accuracy with Age

**Large, Bright Color Display:**

- Sunlight Readable, Configurable & Dimmable
- 60 Degree Viewing Angle
- Fits in Standard 2 1/16" (54 mm) Gauge Socket

**Expandable Architecture:**

- Support Multiple Displays (Optional)
- Supports Multiple Battery Banks (Optional)
- Standard Support for 2 Start Batteries (Voltage Only)
- Simple, easy-to-install Point-to-Point Network

**Optional Smartphone/Bluetooth® Gateway:**

- Free iOS and Android Apps (Requires Bluetooth® Gateway PN SG2-0300)
- View All Parameters on your Phone
- Download Product Updates



**new**

**SG200 - 23070 C**

Includes:

- Color display
- Smart shunt
- Smart link comm cable



**SMART SHUNT**

## ACCESSORIES

### MAX CHARGE MC-614-H AND MC-624-H REGULATORS

- 7 selectable programs for marine batteries
- Exclusive belt load manager function
- Alternator and battery temperature sensing and control
- Maximum field current: 15A (MC-614-H) and 10A (MC-624-H)
- Bright LED display and easy programming mode
- Can be used in twin engine applications with Centerfielder II
- Provided with 54" cable harness

MC-614-H -12V - 20597 E  
MC-624-H -24V - 20480 G



MC-614-H -12V



MC-624-H -24V

### ARS-5-H VOLTAGE REGULATOR

- Smooth start for alternator to reduce stress bel
- 5 selectable programs for marine batteries
- Appropriate for 6-series alternators (120 A and below)
- Easy installation and programming mode
- Single engine, single alternator applications only
- 9 A maximum field current
- Provided with 54" cable harness

ARS-5 - 20596 C



### DDC-12/24 DIGITAL DUO CHARGE

The DDC is a solid state battery combiner

- Controls voltage and current between house and start batteries
- Eliminates the need for an isolator, relay or manually operated battery switch
- Used in concert with Max Charge or ARS-5 regulator or any other regulator
- Works in both 12 and 24 V applications
- House and start batteries can be different technologies
- Start battery temperature sensing available with the MC-TS-B sensor cable

DDC-12/24 - 20791 A



### CFII-12/24 CENTERFIELDER II: TWIN ENGINE CHARGING BALANCER

- Balances charging in twin engine applications
- Eliminates alternator chatter by unifying field current
- For use with Max Charge Regulators only
- Works in both 12V and 24V applications
- Can be used with the DDC to charge a second battery

CFII-12/24 - 20792 C



### TEMPERATURE SENSORS

- For use with either Max Charge or ARS-5-H voltage regulators
- Interchangeable for 12 and 24 V systems
- Battery sensor can be used with the Digital Duo Charge (DDC)

MC-TS-A - 20481 J - Alternator temperature sensor - Cable length 54"  
MC-TS-B - 20482 L - Battery temperature sensor - Cable length 240"



MC-TS-A

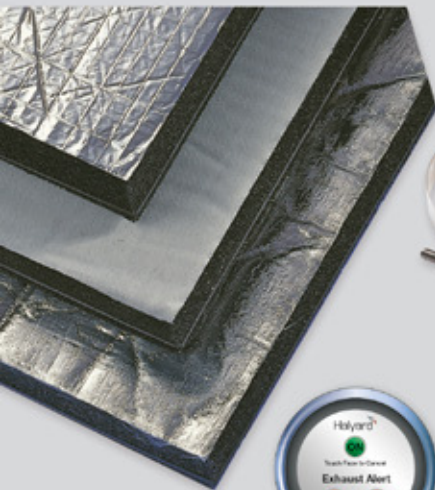


MC-TS-B

### ALTERNATOR ACCESSORIES

20793 E - Universal adjustment arm and belt buddy combination  
20794 G - Pulley D2,4", Poly-V 6 nervature (17 mm)  
20795 J - Pulley D1,9", Poly-V 6 nervature (17 mm)





# SILENCING AND EXHAUST SYSTEMS



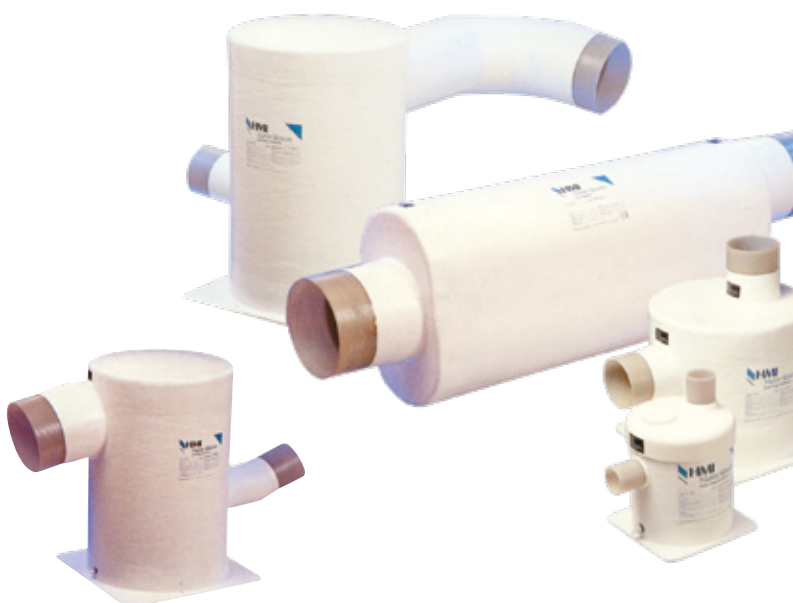
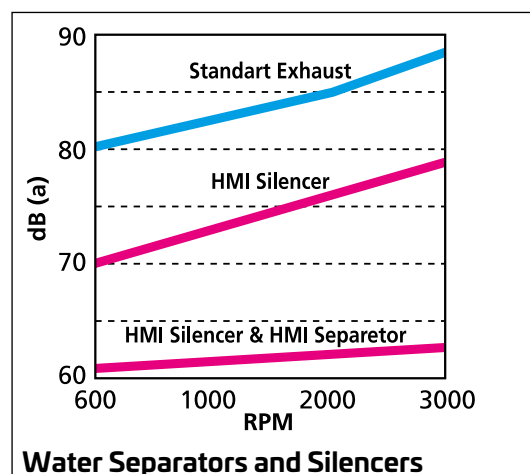
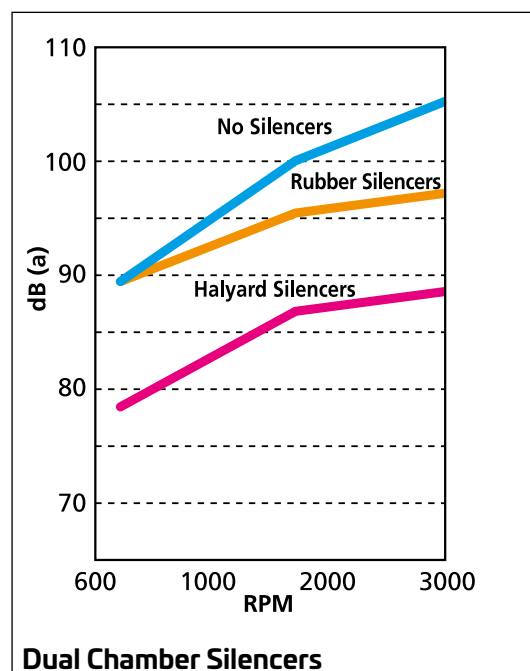
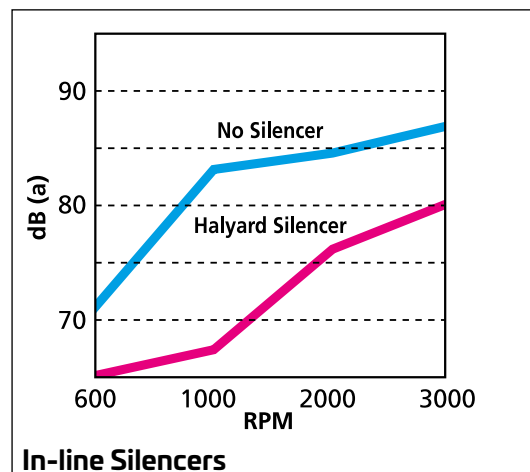
A marine engine exhaust system ejects the cooling water as well as silencing the engine's combustion noise and removing the exhaust gasses. The system must create minimal restriction to the flow of exhaust gasses, known as back pressure, or the engine may be damaged.

Halyard® produces GRP silencers using specialist resins, allowing Halyard® silencers to survive remarkably high temperatures if the cooling water supply blocks for short periods. Halyard® silencers are usually made from filament wound GRP tube, manufactured in our own plant, which is hand-laminated with flat sheet bases. Every single silencer produced is pressure tested individually to guard against leaks.

GRP is used as the base material to avoid the corrosion and acoustic problems of welded stainless units, and to avoid the low melting points of plastic silencers. Although normal marine exhausts run at between 40°C and 60°C, Halyard® silencers will remain operational after exposure to 300°C or more, while a plastic unit will melt at around 150°C. Halyard® GRP silencers are approved by Lloyds Register.

Here are four main objectives achieved by Halyard®:

1. To reduce noise by between 40% and 90%.
2. To cool the exhaust, and eject the engine cooling water through the exhaust without excessive back pressure.
3. To minimise the risk of water running back up the exhaust and into the engine cylinders, causing serious engine damage.
4. To site the outlets at the stern of the boat to minimise exhaust fumes on board.





# HALYARD® - SILENCING AND EXHAUST SYSTEMS

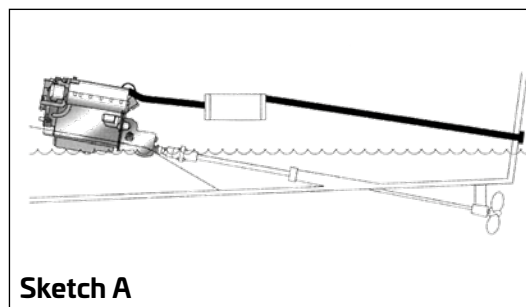
## APPLICATIONS AND INSTALLATION DIAGRAMS

### WHERE'S THE WATERLINE?

Marine exhausts are cooled by sea water, so it's essential that the water cannot run back up the exhaust and into the engine's cylinders. The resulting damage can be catastrophic. A few simple rules need to be followed, and engine installers should seek expert advice if in any doubt.

### ENGINE WELL ABOVE WATERLINE

This engine is sited well above the waterline, and the exhaust system has a downhill gradient of 1 in 8, or steeper, as it scope to the stern. The water will naturally run down the slope and away from the engine. A standard in-line silencer will achieve a noise reduction of approximately 40%. A dual chamber silencer will achieve up to 80%. (Sketch A)

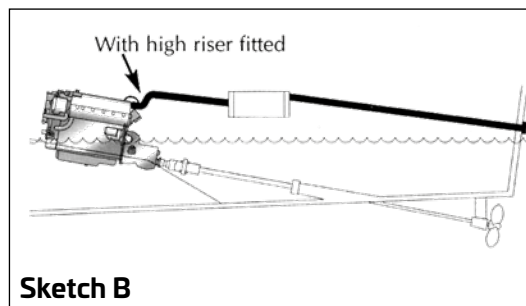


Sketch A

### ENGINE JUST ABOVE WATERLINE

Water could run back into the engine if the vessel pitches on its mooring – or a wave could do the same. There are two solutions:

1. Fit a “high riser”. This is an extension to the exhaust outlet on the engine taking it well above water-line to create a 1 in 8 gradient from the water injection on the engine down to the stern. An in-line silencer can then be used with a noise reduction of around 40%. Alternatively you might get the necessary height by using a Dual Chamber silencer, with a noise reduction of around 80%. (Sketch B)
2. Fit a dual chamber silencer.  
The dual chamber silencer means the hose scope steeply down from engine to silencer, and again from silencer to stern. The geometry needs careful checking, but it can solve the problem and it offers a noise reduction up to 80%. (Sketch C)

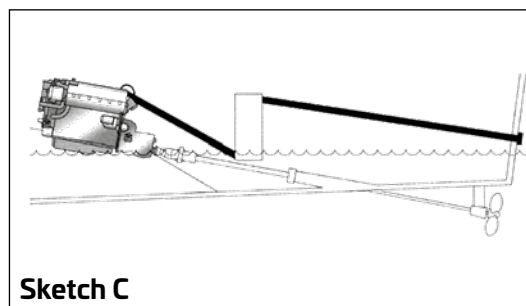


Sketch B

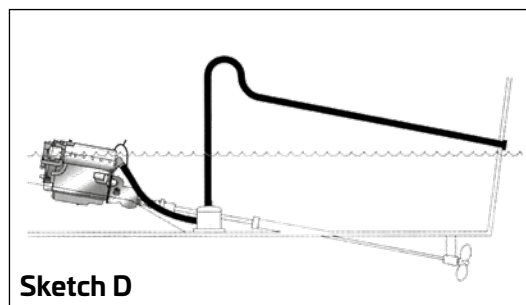
### ENGINE NEAR OR BELOW WATERLINE

Most displacement craft have their engines low down. The sketch shows a typical water-trap silencer positioned below and behind the engine. The hose from this silencer runs gradually down to the stern. Water in the system drains into the silencer when the engine is stopped. A wave coming up the stern is unlikely to climb over the gooseneck. (Sketch D)

Siphon breakers should always be used in the cooling water supply to installations of this type. Normal lift silencers reduce noise by 45% or so. You can add a water separator to increase this around 90%.



Sketch C



Sketch D

**NOTE:** Dimensions on Lift Silencing systems vary widely, but a 12m yacht normally needs a drop of 300mm (12”) from the water injection point on the engine exhaust outlet to the top of the lift silencer. The gooseneck should then be 450mm (18”) above waterline – or more if the exhaust is to one side. The lift silencer should not fill with water by more than 30% when the engine is stopped, and it must be large enough for this. These are very general guidelines and will change with angles of heel, size of vessel, engine choice etc. Individual installations must be checked with qualified designers or marine engineers.

## **HALYARD® LIFT SILENCERS - LLOYDS APPROVED UP TO 50% NOISE REDUCTION**

Halyard® Lift silencers are designed for use with engines positioned on, or below waterline. Halyard® Lift Silencers are as popular with generators as they are with propulsion engines.

### **SIDE IN, TOP OUT LIFT SILENCERS**

The side in, top out lift silencer is the best selling small lift silencer in the Halyard® range. Every unit is pressure tested and gel-coated for a durable and smart appearance.

Available lengths: page 275

### **TOP IN, TOP OUT LIFT SILENCERS**

In many applications a top inlet unit will be easier to use. The noise result and cost are the same as the side inlet units, and the same rigorous quality tests apply.

Available lengths: page 275

### **HORIZONTAL LIFT SILENCERS**

These low lying units can be very useful in sailing yachts, where the silencer needs to be secured alongside the propeller shaft. The moulded ends are used on smaller units.

Available lengths: page 276



## **HALYARD® IN-LINE SILENCERS - LLOYDS APPROVED**

### **UP TO 50% NOISE REDUCTION**

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Halyard® in-line silencers are used where the engine is well above the water-line, or where a high-riser has been fitted to achieve a 1 in 8 gradient from the engine to the transom outlet. They are simple to specify and fit, and ideally need to be 0,5m to 1m behind the engine. The internal design requires the exhaust gasses and water to bubble through a layer of water on the bottom of the silencer to reduce noise. They offer excellent noise reduction and are widely used on both pleasure and commercial engines.

#### **ROUND IN-LINE SILENCERS**

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These silencers are made from enormously strong filament wound tube, giving the maximum possible protection if the exhaust back-fires. Every unit is pressure tested before being gel-coated. They must be installed within 5 degrees of horizontal.

Available lengths: page 277

#### **OVAL IN-LINE SILENCERS**

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Our oval silencers are hand-moulded for use where the round body unit cannot be accommodated. They give the same excellent results and every single unit is pressure tested and gel-coated. The inlets can be angled to ease the connection to the engine and positioned on the end or the side.

Available lengths: page 277



## **HALYARD® DUAL CHAMBER SILENCERS - LLOYDS APPROVED**

### **UP TO 80% NOISE REDUCTION**

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Halyard® Dual Chamber silencers is the best wet-exhaust silencer on the market today.

Exhaust noise reductions of up to 80% can be achieved and the back pressure created by the unit is minimal.

Most units are hand-built with inlet and outlet positioned to suit the particular craft.

The quality standards applied are designed to give a life in excess of ten years on a privately owned craft.

Available lengths: see page 277



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# HALYARD® EXHAUST WATER SEPARATORS

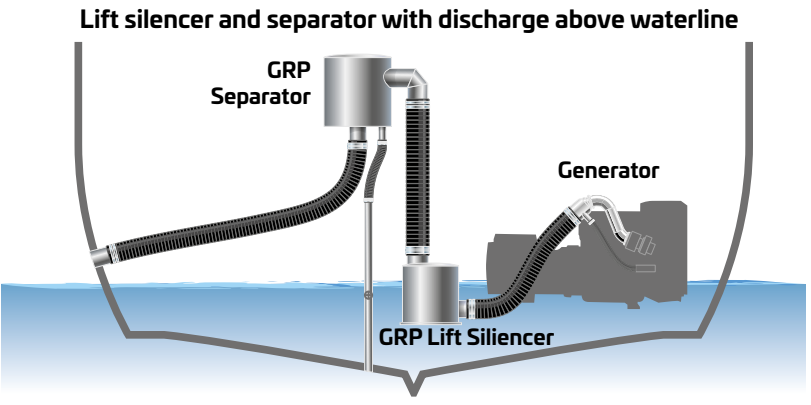
Halyard developed the concept of water separation and now designs and produces systems for engines ranging from small diesel generators through to mighty power providers on super-yachts and commercial craft.

Fitting a water separator into the exhaust to replace the gooseneck removes water once it has done its cooling job, draining this quietly away below waterline. Back pressure is reduced dramatically. The separator removes the principal cause of back pressure and stops the splashing noise which accompanies every marine engine ticking over in a harbour – or on a generator splashing away in a quiet haven somewhere, to the fury of nearby boats.



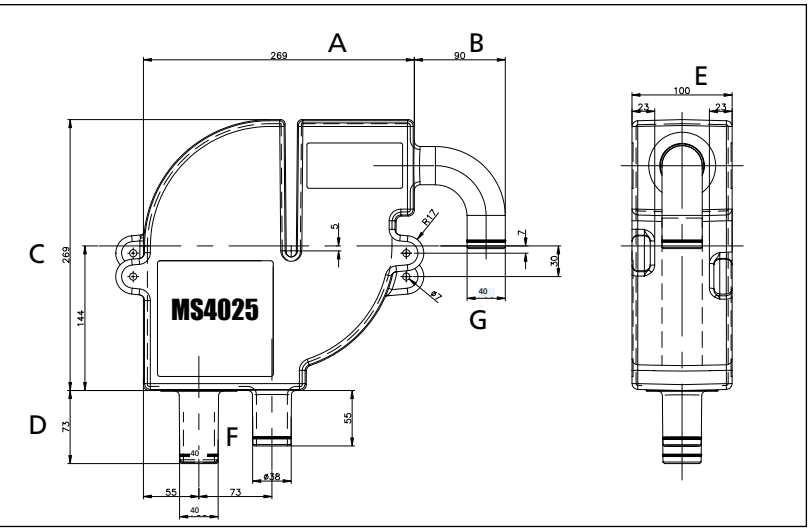
## EXHAUST WATER SEPARATORS MS SERIES

The MS Series of exhaust water separators covers a wide range of exhaust diameters, for generators and propulsion engines with cooling water flow rates of up to 65 liters per minute. The MS unit will remove all but a tiny trickle of water.



## HIGH TEMPERATURE POLYOLEFIN MS 4000 SERIES

- Two sizes cover exhaust diameters of 40 mm (1.6")
- Maximum water flow rate: 18 litres per minute



PART No.	HALYARD REF.	HALYARD PART No.	A mm	B mm	C mm	D mm	E mm	F mm	G mm
66902 R	MS4025	H012752	269	90	269	73	100	40	40

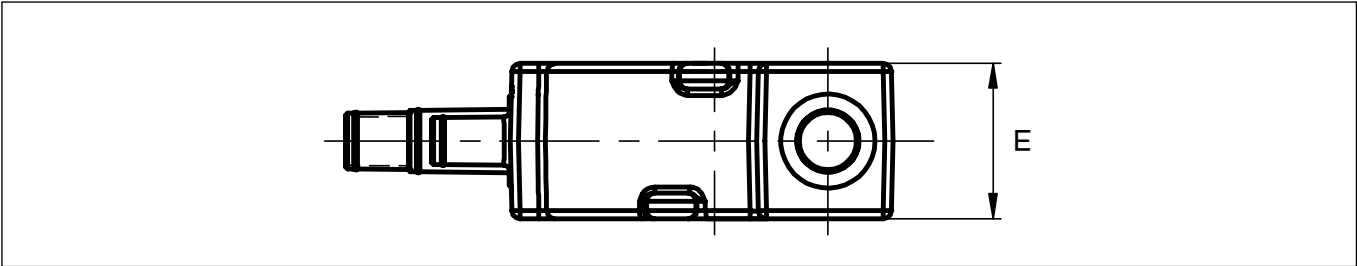
HALYARD® CAN SUPPLY ON REQUEST EXHAUST SEPARATORS COMPLETE WITH STANDARD HOSES (UP TO 160°C) OR SILICON HOSES (UP TO 270°C), AND COMPLETE WITH SILICON FITTINGS AND BRONZE SIPHON BREAK. For any further information, please contact our Technical Service.



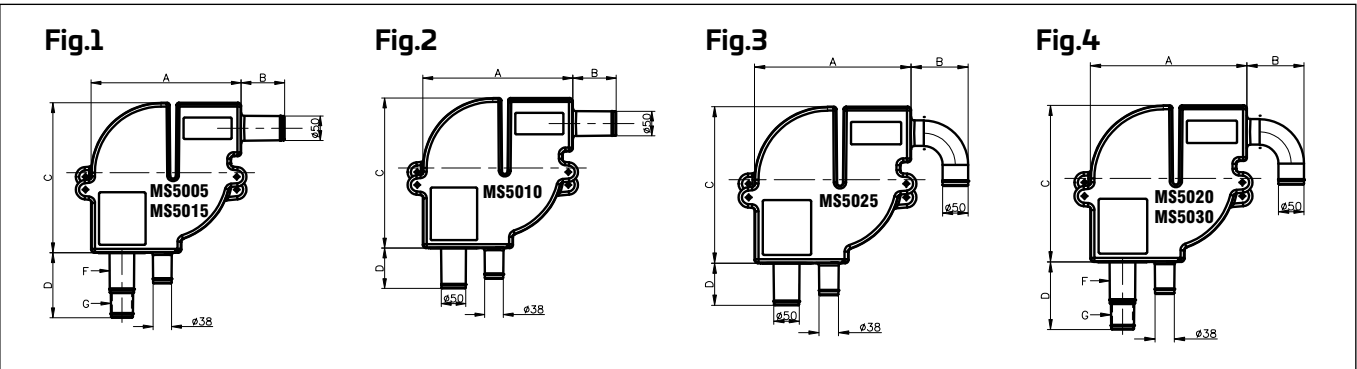
# HALYARD® SILENCERS AND EXHAUST WATER SEPARATORS

## HIGH TEMPERATURE POLYOLEFIN MS 5000 SERIES

- Three sizes cover exhaust diameters of 45 mm, 50 mm, 63 mm (1 3/4", 2", 2 1/2")
- Maximum water flow rate: 42 litres per minute

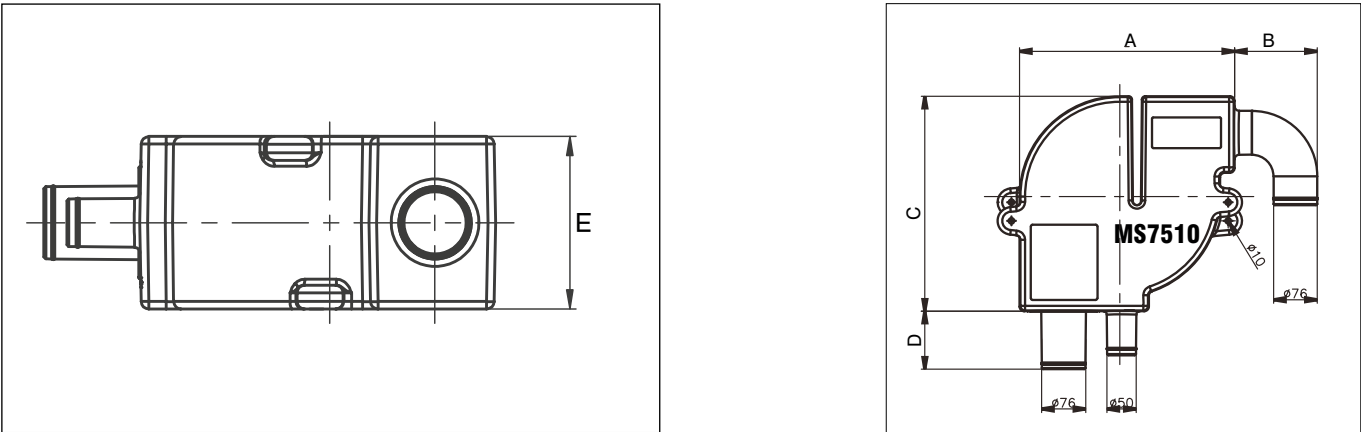


PART No.	HALYARD REF.	HALYARD PART No.	A mm	B mm	C mm	D mm	E mm	F mm	G mm	FIG.
66710 F	MS5005	H010257	306	89	306	133	125	50	45	1
66812 P	MS5010	H010258	306	89	306	83	125	50	50	2
66711 H	MS5015	H010261	306	89	306	164	125	63	60	1
66708 V	MS5020	H010259	306	112	306	133	125	50	45	4
66882 M	MS5025	H010260	306	112	306	83	125	50	50	3
66709 X	MS5030	H010262	306	112	306	164	125	63	60	4



## MS 7000 SERIES

- Size covers exhaust diameter: 75 mm (3")
- Maximum water flow rate: 65 litres per minute



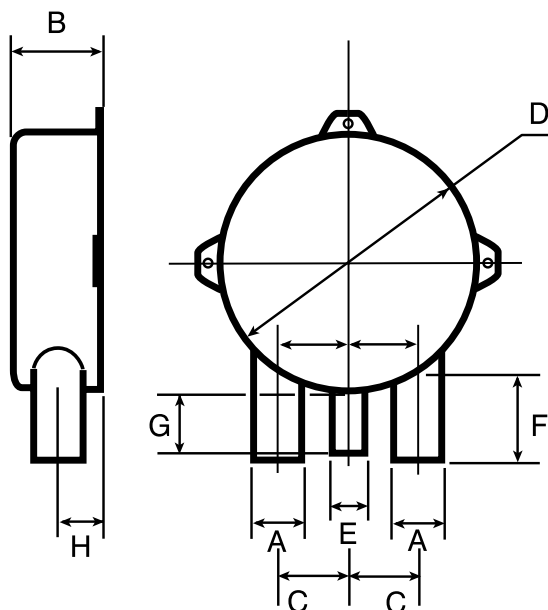
PART No.	HALYARD REF.	HALYARD PART No.		A mm	B mm	C mm	D mm	E mm
66884 S	MS7510	H008363	90 deg. outlet	371	143	371	100	180





## GRP MID-GEN EXHAUST WATER SEPARATORS - LLOYDS APPROVED

PART No.	HALYARD REF.	HALYARD PART No.	A mm (")	B mm	C mm	D mm	E mm (")	F mm	G mm	H mm
65843 W	HFS025	H001511	63 - (2.5)	140	100	346	38 - (1.5)	144	100	70
65845 A	HFS035	H001515	89 - (3.5)	140	110	398	51 - (2.0)	144	107	70
65568 A	HFS040	H001516	102 - (4.0)	170	110	398	51 - (2.0)	144	107	85



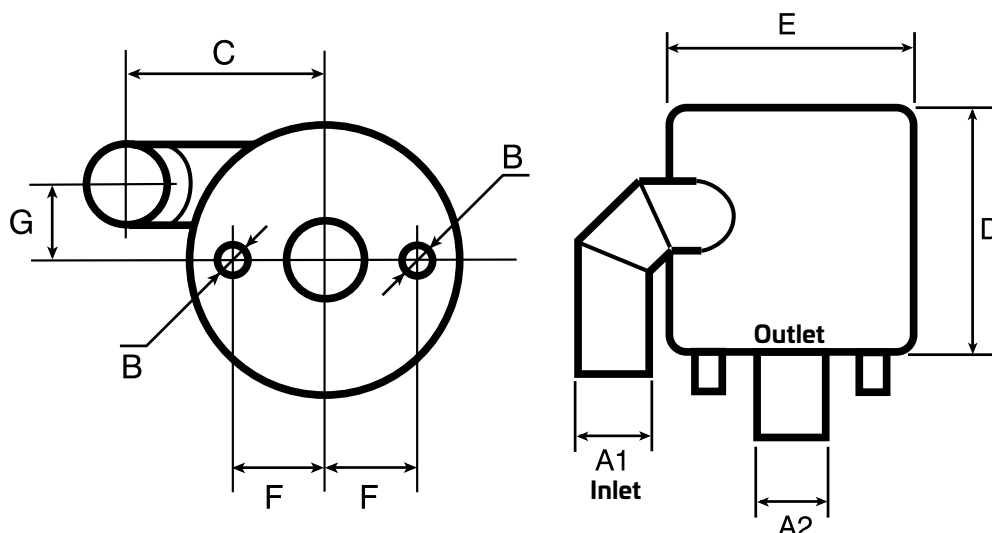
**LOW PROFILE SEPARATOR**

**Universal separators:**

"A" hoses can be used both as inlet or outlet

## GRP MID-ENGINE EXHAUST WATER SEPARATORS - LLOYDS APPROVED

PART No.	HALYARD REF.	HALYARD PART No.	A1 mm	A2 mm	B mm	C mm	D mm	E mm	F mm	G mm
65846 C	HWS035	H001688	89	89	38	264	356	346	120	110
65847 E	HWS040	H001689	102	102	38	283	356	346	120	100
65848 G	HWS050	H001690	127	127	51	310	406	398	150	110
65849 J	HWS060	H001691	152	152	51	335	406	398	158	100

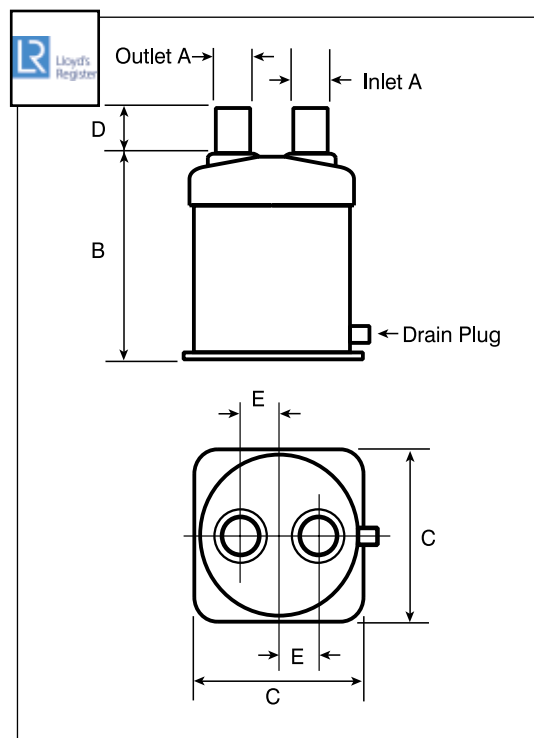


**GENERAL SEPARATOR**

# HALYARD® SILENCERS AND EXHAUST WATER SEPARATORS - LLOYDS APPROVED

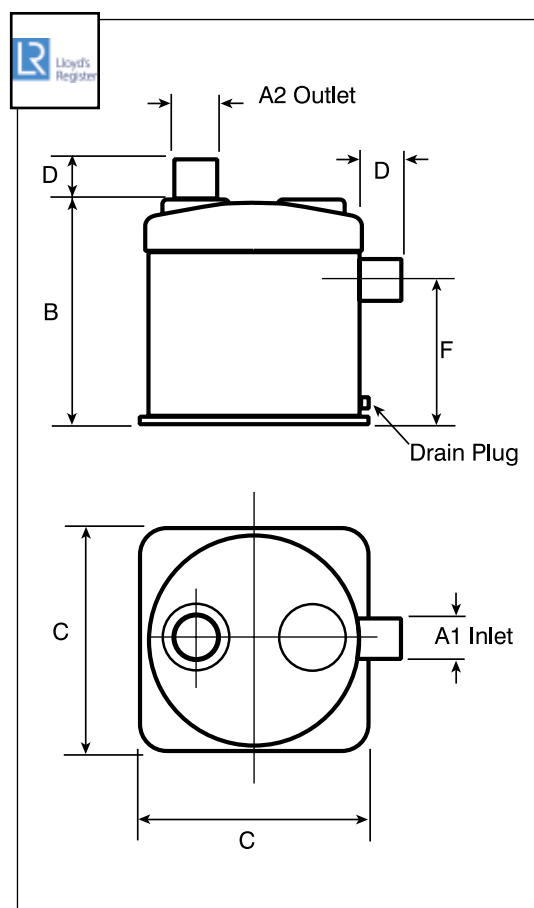
## LIFT SILENCERS - TOP IN TOP OUT

PART No.	HALYARD REF.	A mm (")	B mm	C mm	D mm	E mm	PESO Kg
65850 T	HTT005	38 - (1.50)	158	200	50	44	1,4
65852 X	HTT025	40 - (1.62)	158	200	50	44	1,5
65853 Z	HTT030	40 - (1.62)	230	200	50	44	1,9
65854 B	HTT040	45 - (1.77)	158	200	50	44	1,5
65855 D	HTT045	45 - (1.77)	230	200	50	44	1,9
65856 F	HTT055	51 - (2.00)	158	200	72	44	1,6
65857 H	HTT065	51 - (2.00)	255	275	51	68	3,3
65858 K	HTT070	51 - (2.00)	305	324	80	84	4,9
65896 U	HTT085	60 - (2.36)	255	275	73	68	3,5
65897 W	HTT090	63 - (2.50)	255	275	64	68	3,6
65898 Y	HTT110	76 - (3.00)	255	275	76	68	3,7
65899 A	HTT115	89 - (3.50)	305	324	90	84	5,6
65900 F	HTT120	102 - (4.00)	305	344	102	70	5,6
65901 H	HTT125	125 - (5.00)	370	446	128	83	10,4
65902 K	HTT130	152 - (6.00)	370	446	127	102	10,7



## LIFT SILENCERS - SIDE IN TOP OUT

PART No.	HALYARD REF.	A1 mm (")	A2 mm (")	B mm	C mm	D mm	F mm	PESO Kg
65903 M	HST005	38 - (1.50)	38 - (1.50)	169	200	38	95	1,5
65904 P	HST010	38 - (1.50)	38 - (1.50)	230	200	38	139	1,8
65905 S	HST025	40 - (1.62)	40 - (1.62)	169	200	38	95	2,2
65906 U	HST035	40 - (1.62)	40 - (1.62)	255	275	55	165	3,3
65907 W	HST055	45 - (1.77)	45 - (1.77)	230	200	50	139	1,9
65908 Y	HST105	51 - (2.00)	51 - (2.00)	230	200	51	139	1,9
65769 L	HST110	51 - (2.00)	51 - (2.00)	255	275	51	165	3,3
65909 A	HST115	51 - (2.00)	51 - (2.00)	305	324	81	200	4,9
65910 J	HST145	60 - (2.36)	60 - (2.36)	305	324	75	200	5,1
65911 L	HST150	60 - (2.36)	60 - (2.36)	255	275	74	165	3,5
65912 N	HST165	63 - (2.50)	63 - (2.50)	255	275	64	165	3,5
65913 R	HST200	76 - (3.00)	76 - (3.00)	255	275	76	165	4,4
65914 T	HST205	76 - (3.00)	76 - (3.00)	305	324	100	184	6,0
65793 H	HST210	89 - (3.50)	89 - (3.50)	305	324	90	184	5,6
65770 V	HST215	102 - (4.00)	102 - (4.00)	305	324	102	184	5,6
65915 V	HST220	127 - (5.00)	127 - (5.00)	370	446	102	222	10,0
65916 X	HST225	127 - (5.00)	127 - (5.00)	343	342	114	219	6,6
65917 Z	HST230	152 - (6.00)	152 - (6.00)	370	446	127	254	11,4
65918 B	HST235	152 - (6.00)	203 - (8.00)	370	446	152	222	12,4
65919 D	HST240	203 - (8.00)	203 - (8.00)	585	500	200	392	15,6



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SILENCING AND EXHAUST SYSTEMS

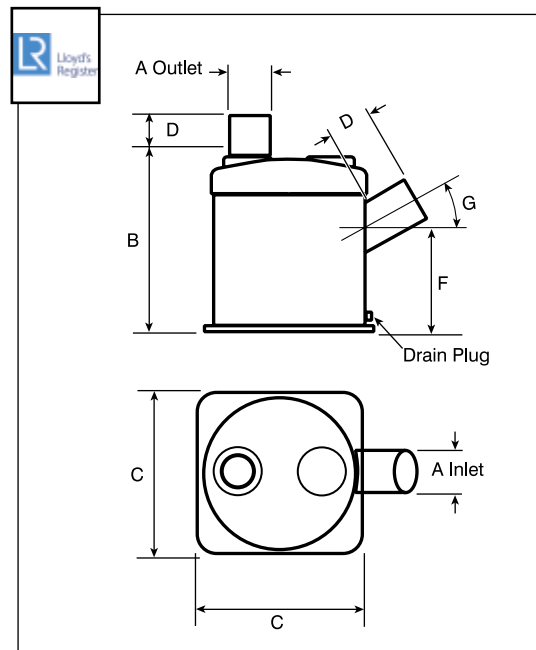


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# HALYARD® SILENCERS AND EXHAUST WATER SEPARATORS - LLOYDS APPROVED

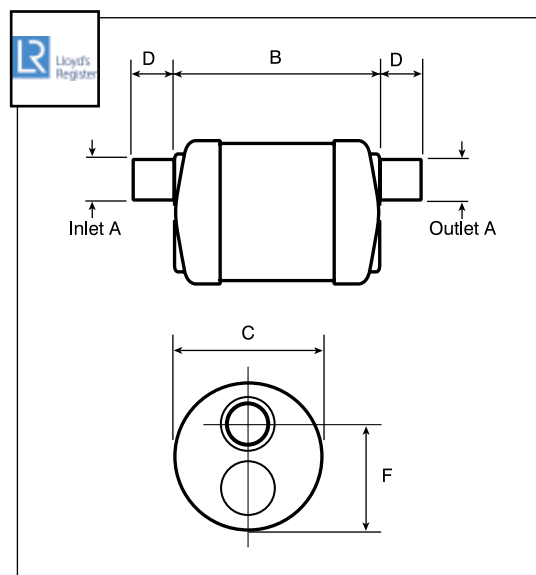
## LIFT SILENCERS - SIDE ANGLE IN TOP OUT

PART No.	HALYARD REF.	A mm (")	B mm	C mm	D mm	F mm	G °	PESO Kg
65920 M	HAT015	60 - (2.36)	270	275	60	175	30	3,6
65921 P	HAT020	76 - (3.00)	270	275	76	175	30	3,9
65922 S	HAT025	89 - (3.50)	305	324	91	184	30	5,5
65923 U	HAT030	89 - (3.50)	266	275	89	152	30	4,4
65924 W	HAT035	102 - (4.00)	480	324	130	300	35	7,8
65925 Y	HAT040	102 - (4.00)	305	324	85	184	35	5,7
65926 A	HAT043	114 - (4.50)	480	324	135	300	35	7,9
65927 C	HAT045	127 - (5.00)	480	324	140	300	35	8,7
65928 E	HAT050	152 - (6.00)	370	446	200	222	35	11,2



## LIFT SILENCERS - END IN END OUT

PART No.	HALYARD REF.	A mm (")	B mm	C mm	D mm	F mm	PESO Kg
65929 G	HEE005	38 - (1.50)	250	178	55	141	1,7
65930 R	HEE010	40 - (1.62)	250	178	65	133	1,8
65931 T	HEE020	45 - (1.77)	250	178	65	133	1,8
65932 V	HEE035	51 - (2.00)	310	178	65	133	2,1
65933 X	HEE040	51 - (2.00)	420	254	65	195	4,2
65934 Z	HEE045	51 - (2.00)	250	178	65	133	1,8
65935 B	HEE060	60 - (2.36)	310	254	75	195	3,7
65936 D	HEE065	60 - (2.36)	420	254	75	195	4,4
65937 F	HEE070	63 - (2.50)	420	254	75	195	4,4
65938 H	HEE080	76 - (3.00)	420	254	80	195	4,7
65939 K	HEE090	89 - (3.50)	465	254	89	188	5,2
65940 U	HEE095	102 - (4.00)	462	305	102	222	6,8
65941 W	HEE100	114 - (4.50)	462	305	114	220	7,0
65942 Y	HEE105	127 - (5.00)	599	305	126	220	8,8

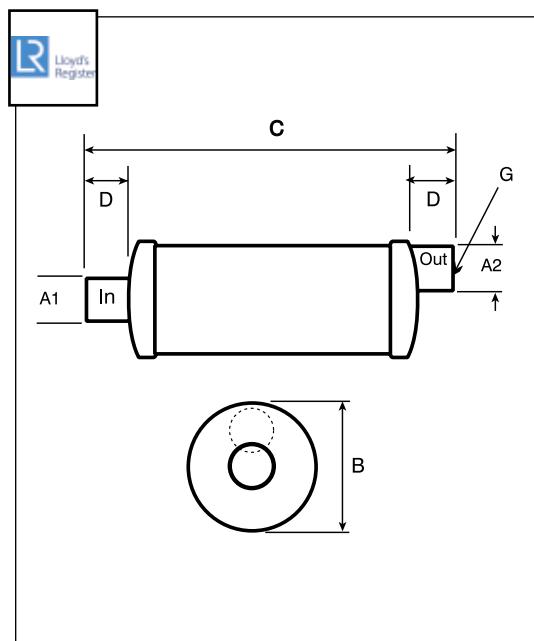




# HALYARD® SILENCERS AND EXHAUST WATER SEPARATORS - LLOYDS APPROVED

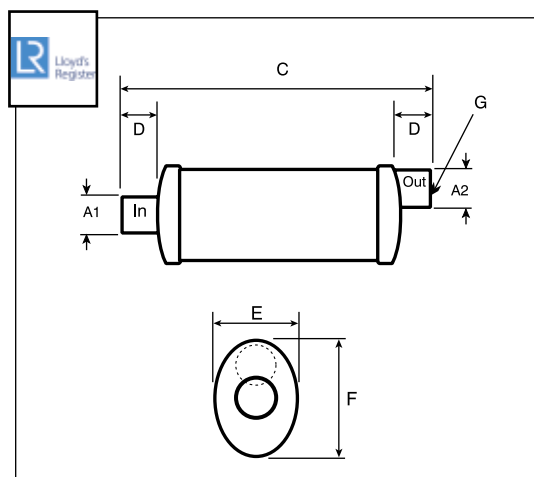
## IN-LINE SILENCERS - ROUND BODY

PART No.	HALYARD REF.	A1 mm (")	A2 mm (")	B mm	C mm	D mm	G mm	PESO Kg
65943 A	HILR003	60 - (2.36)	60 - (2.36)	152	212	70	40	1,8
65944 C	HILR005	76 - (3.00)	76 - (3.00)	203	335	75	59	3,5
65945 E	HILR010	89 - (3.50)	89 - (3.50)	203	390	100	53	4,2
65946 G	HILR015	102 - (4.00)	102 - (4.00)	254	465	102	68	6,4
65947 J	HILR020	114 - (4.50)	114 - (4.50)	254	502	114	61	6,8
65948 L	HILR025	127 - (5.00)	127 - (5.00)	254	546	127	55	7,9
65949 N	HILR030	127 - (5.00)	152 - (6.00)	305	762	127	65	12,1
65950 X	HILR035	152 - (6.00)	152 - (6.00)	305	661	152	65	11,4
65951 Z	HILR040	152 - (6.00)	203 - (8.00)	398	880	200	91	22,0
65952 B	HILR045	203 - (8.00)	203 - (8.00)	395	880	201	88	23,0
65954 F	HILR050	254 - (10.00)	254 - (10.00)	446	1092	254	87	32,0
65955 H	HILR055	305 - (12.00)	305 - (12.00)	489	1308	305	87	41,0



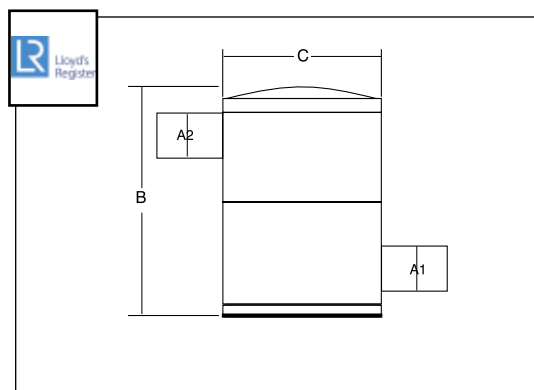
## IN-LINE SILENCERS - OVAL BODY

PART No.	HALYARD REF.	A1 mm (")	A2 mm (")	C mm	D mm	E mm	F mm	G mm	PESO Kg
65956 K	HILO005	127 - (5.00)	127 - (5.00)	520	140	225	385	118	10,8
65957 M	HILO006	127 - (5.00)	152 - (6.00)	640	150	225	385	105	10,6
65958 P	HILO010	152 - (6.00)	152 - (6.00)	640	150	225	385	105	9,5
65959 S	HILO012	152 - (6.00)	203 - (8.00)	928	203	270	420	93	12,2
65960 A	HILO015	203 - (8.00)	203 - (8.00)	876	203	270	420	93	16,3
65961 C	HILO016	203 - (8.00)	254 - (10.00)	758	203	295	465	87	21,6
65962 E	HILO020	254 - (10.00)	254 - (10.00)	1092	254	365	630	164	39,0



## DUAL CHAMBER SILENCERS

PART No.	HALYARD REF.	A1 mm (")	A2 mm (")	B mm	C mm
65964 J	HDC025	102 - (4.00)	102 - (4.00)	600	446
65965 L	HDC035	127 - (5.00)	127 - (5.00)	700	446
65966 N	HDC040	127 - (5.00)	152 - (6.00)	800	446
65967 R	HDC045	152 - (6.00)	152 - (6.00)	800	446
65968 T	HDC050	152 - (6.00)	203 - (8.00)	800	446
65969 V	HDC055	203 - (8.00)	203 - (8.00)	900	648
65970 D	HDC060	203 - (8.00)	254 - (10.00)	900	650
65971 F	HDC065	254 - (10.00)	254 - (10.00)	1000	650
65972 H	HDC070	305 - (12.00)	305 - (12.00)	1000	630



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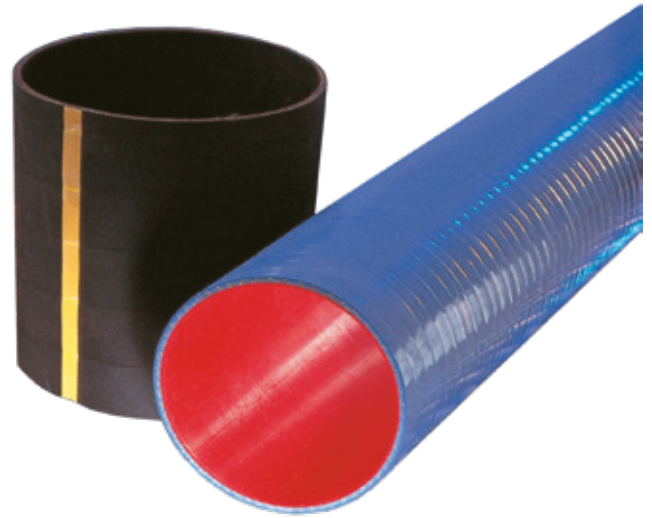
## ACCESSORIES FOR EXHAUST SYSTEMS

### HIGH TEMPERATURE EXHAUST HOSE

Halyard® produces a wide range of exhaust hoses, some of which are reinforced to reach high temperatures up to 160°C.

### SILICONE EXHAUST HOSES

For really high temperatures Halyard® can provide silicone exhaust hose, in two grades, handling temperatures of 170°C and 270°C.



### EXHAUST HOSES CLAMPS

Exhaust hoses should be fitted using tough "T" Bar clamps like these illustrated in figure, doubled wherever possible. Halyard® stocks clamps to suit hoses up to 300 mm (12"), both in stainless steel and in zinc passivated steel.

Halyard® exhaust hoses are stocked in sizes from 40 mm (1.5") right through to 300 mm (12") and are generally Lloyds approved. Almost all these hoses pass Lloyds stringent tests on temperature and on ozone deterioration, and will give many years of service.

Halyard® hoses offer very tight corners, but the wall thickness remains heavy enough to give security. The specific bend radius available for each diameter, together with the sizes available and their weights, is shown in tables on the following page. Exhaust hose should be fitted using tough "T" Bar clamps, doubled wherever possible.



### SILICONE BELLOWS

Flexible exhaust bellows are important to isolate engine vibration from the exhaust system, particularly where a silencer or rigid section is close to the engine. Our bellows cover a wide range of sizes up to 300 mm (12") exhaust systems, and they will take temperatures up to 170°C.

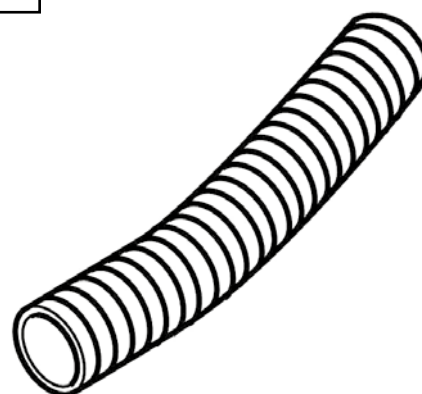


# HAYLARD® - ACCESSORIES FOR EXHAUST SYSTEMS - LLOYDS APPROVED

## SUPREME EXHAUST HOSE - NITRILE - LLOYDS APPROVED

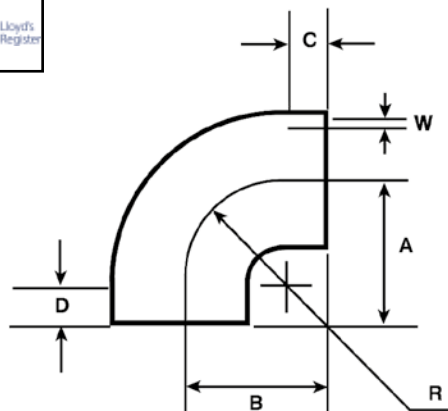
PART No.	HALYARD PART NO.	INT. DIA. Ø mm (")	OUTER DIA. mm	STROKE OF CURVING mm	VACUUM bar	OPERATING PRESSURE bar	CURVING PRESSURE bar	WEIGHT Kg/m
66342 C	HS38	38 - (1.50)	46	150	0.4	3	10	0,68
66343 E	HS41	40 - (1.62)	48	160	0.4	3	10	0,71
66344 G	HS44	44 - (1.75)	53	180	0.4	3	10	0,79
66239 K	HS51	51 - (2.00)	60	200	0.4	3	10	0,98
66345 J	HS60	60 - (2.36)	69	240	0.3	2	8	1,14
66346 L	HS63	63,5 - (2.50)	73	254	0.2	2	8	1,20
66347 N	HS76	76 - (3.00)	85	380	0.2	2	8	1,35
66348 R	HS89	89 - (3.50)	99	400	0.2	1	4	1,58
66349 T	HS102	102 - (4.00)	112	460	0.2	1	4	1,90
66350 B	HS114	114 - (4.50)	125	480	0.2	1	4	2,08
66240 U	HS127	127 - (5.00)	137	650	0.2	1	4	2,40
66351 D	HS152	152 - (6.00)	163	700	0.2	1	4	2,98
66352 F	HS177	177 - (7.00)	191	1000	0.2	1	4	3,50
66354 K	HS254	254 - (10.00)	271	2540	0.2	1	4	9,04
66355 M	HS304	305 - (12.00)	321	3658	0.2	1	4	10,76

Also available in silicone and GRP



## BLACK FELXIBLE BENDS - 90 DEGREES - 120°C MAX

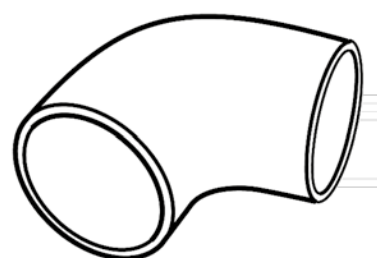
PART No.	HALYARD PART NO.	INT. DIA. Ø mm (")	A mm	B mm	C mm	D mm	R mm	W mm
66356 P	CBR90040	51	125	125	50	50	50	5
66357 S	CBR90045	63	145	145	50	50	95	5
66358 U	CBR90050	76	145	145	50	50	95	6.5
65794 K	CBR90055	89	155	155	50	50	100	6.5
65795 M	CBR90060	102	160	160	50	50	110	7
66117 V	CBR90065	127	240	240	50	50	187	8
66359 W	CBR90070	152	350	350	60	60	285	8
66360 E	CBR90075	203	400	400	65	65	300	10
66361 G	CBR90080	254	425	425	65	65	300	12



## BLACK FELXIBLE BENDS - 45 DEGREES - 120°C MAX

PART No.	HALYARD PART NO.	INT. DIA. Ø mm (")	A mm	B mm	C mm	D mm	W mm
66362 J	CBR450040	51	125	125	50	50	5
66364 N	CBR450050	76	145	145	50	50	6.5
66365 R	CBR450055	89	155	155	50	50	6.5
66366 T	CBR450060	102	160	160	50	50	7
66367 V	CBR450065	127	240	240	50	50	8
66368 X	CBR450070	152	350	350	60	60	8
66369 Z	CBR450075	203	400	400	65	65	10
66370 H	CBR450080	254	425	425	65	65	12

Also available in silicone 250°C max

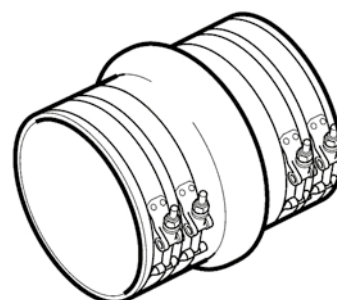


## FELXIBLE SILICONE BELLOWS FOR EXHAUST - LLOYDS APPROVED

for standard hoses (-30°C +110°C, clamps not included)

PART No.	HALYARD PART NO.	INT. DIA. Ø mm (")	LENGTH mm
67515 N	CB1076	76 (3)	Silicon bellow 76 mm 170
67516 R	CB1090	89 (3.5)	Silicon bellow 90 mm 220
67336 N	CB1102	102 (4)	Silicon bellow 102 mm 220
67517 T	CB1203	203 (8)	Silicon bellow 203 mm 220
67518 V	CB1254	254 (10)	Silicon bellow 254 mm 250
67519 X	CB2203	203 (8)	Double silicon bellow 203 mm 350
67520 F	CB2305	305 (12)	Double silicon bellow 305 mm 350

Also available in nitrile



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ACCESSORIES FOR EXHAUST SYSTEMS

## HALYARD® GRP BENDS AND ADAPTORS

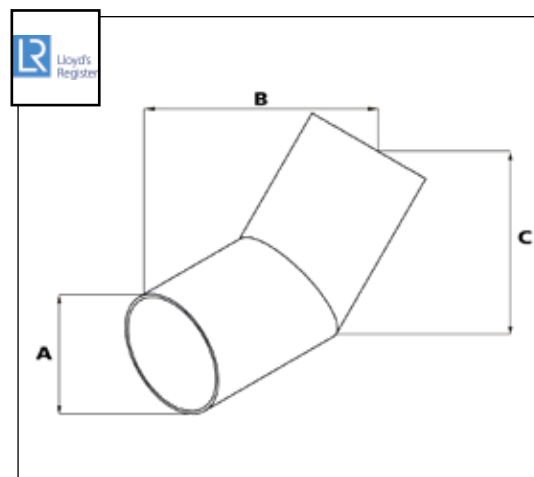
Halyard® makes a full range of GRP bends and adaptors, all fabricated from our special high temperature GRP tube and designed to get you round 45, 90 and 180 degrees bends, or to couple hoses of differing diameters.



### GRP 45 DEGREES FLEXIBLE BENDS

PART No.	HALYARD PART No.	A mm	B mm	C mm	WEIGHT kg
21172 A	H45050	76	213	142	0,6
21696 M	H45060	102	243	173	0,7
21697 P	H45070	127	339	230	1,2
65711 C	H45075	152	376	263	2
21352 C	H45080	203	710	438	4,5

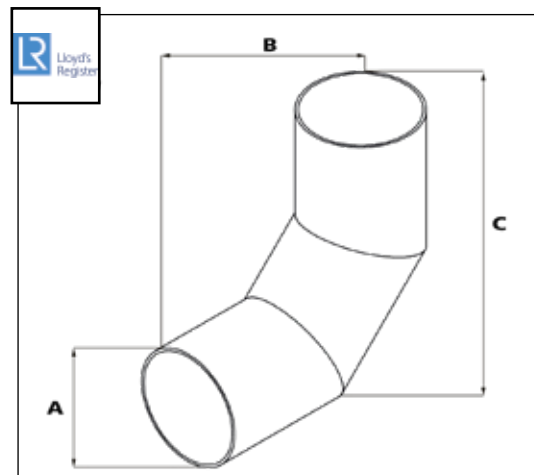
Diameters available from 2" to 10"



### GRP 90 DEGREES FLEXIBLE BENDS

PART No.	HALYARD PART No.	A mm	B mm	C mm	WEIGHT kg
67210 P	H90050	76	197	197	0,8
68450 S	H90055	89	229	229	1
21698 S	H90060	102	242	242	1,2
66624 N	H90070	127	308	308	1,8
66123 P	H90075	152	358	358	2,5

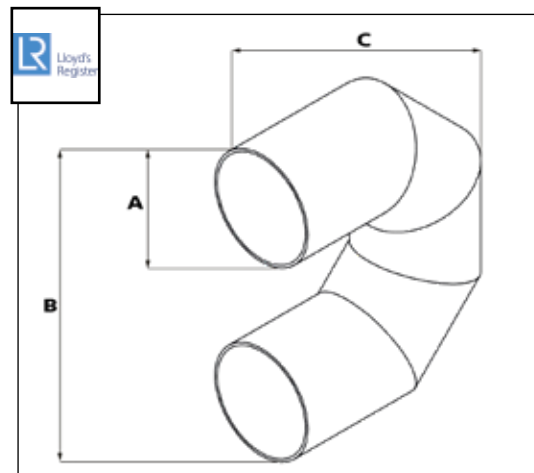
Diameters available from 1,5" to 12"



### GRP 180 DEGREES FLEXIBLE BENDS

PART No.	HALYARD PART No.	A mm	B mm	C mm	WEIGHT kg
21173 C	H180050	76	187	214	1,1
21699 U	H180060	102	228	293	1,8
21700 Z	H180075	152	327	427	3,6

Diameters available from 1,75" to 8"





# HALYARD® BULKHEAD EXHAUST UNITS

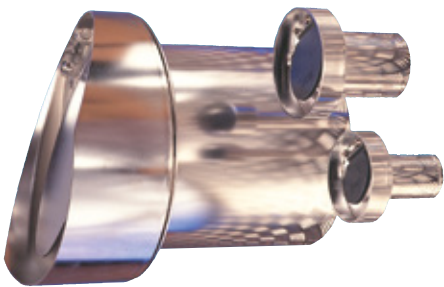
Halyard® exhaust units are infinitely stronger than the plastic and GRP units on the market. Halyard® uses 3 mm thick 316 stainless to ensure that the risks of damage when manoeuvring a craft are reduced to the absolute minimum. All units are designed so that the flap, at rest, is shrouded by the stainless rim to prevent damage if the vessel nudges a harbour wall.



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## BULKHEAD EXHAUST UNITS – NEOPRENE FLAP VALVE

Units to accept exhaust hose up to and including 100 mm (4”) hose have neoprene flaps. Each has a really generous tail allowing “T” bar exhaust hose clamps to be used to secure the hose. Smaller sizes have 3 countersunk fixing holes. The 90 mm and 100 mm (3.5” and 4”) units have 4 bolt holes and a bolting flange which fits right around the unit inside the hull.



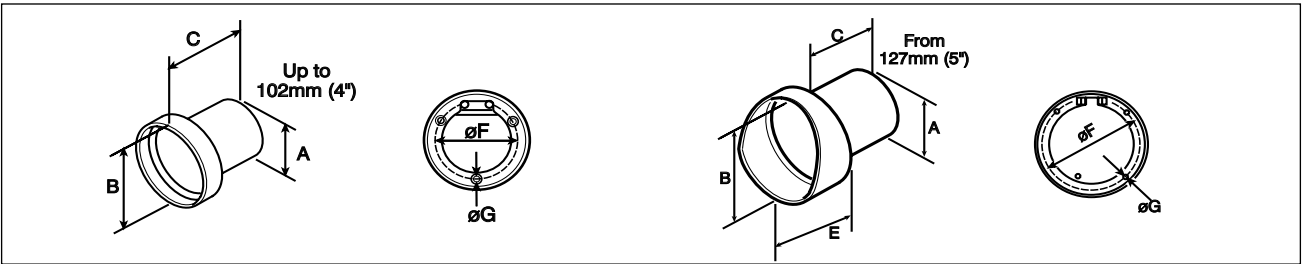
## BULKHEAD EXHAUST UNITS – STAINLESS FLAP VALVE

Units from 125 mm (5”) upwards all have stainless flaps lined with neoprene. All have tails with plenty of space to use proper “T” bar clamps to secure the hose. Between 4 and 8 bolt holes are provided and all units have bolting flanges to fit around the unit inside the hull.

## STAINLESS STEEL BULKHEAD EXHAUST UNITS

PART No.	HALYARD PART No.	A mm/inch	B mm	C mm	E mm	FIXING PCD F	G mm	N° FIXING HOLE	FLAP MATERIAL	FLANGIE
66885 U	HF004	45 - (1.75)	89	80	25	65	5,5	3	NBR	N
66886 W	HF005	51 - (2.00)	102	80	25	80	5,5	3	NBR	N
66887 Y	HF006	60 - (2.38)	114	87	25	90	5,5	3	NBR	N
66890 L	HF010	76 - (3.00)	127	95	30	102	6,5	3	NBR	N
66891 N	HF015	90 - (3.5)	140	110	35	118	6,5	4	NBR	Y
66892 R	HF020	102 - (4.0)	152	123	35	130	6,5	4	NBR	Y
66685 K	HF025	127 - (5.0)	195	145	78	165	9	4	SS	Y
66684 H	HF030	152 - (6.0)	220	175	90	190	9	4	SS	Y
66893 T	HF035	203 - (8.0)	273	220	100	240	11	4	SS	Y

NBR = Nitrile    SS = Stainless Steel



## NOISE INSULATION MATERIALS

### HALYARD® QUALITY

Marine diesels create very high noise levels – often well over 100 decibels. Engines are always located close to the boat user, generally in engine spaces made from GRP, timber, or steel. Noise insulation changes all this. It adds a soft facing to hard bulkheads to absorb noise and stop it bouncing around and growing. It features a clever multi-layer construction to make a thin material more effective than simple insulations many times thicker.

- **The absorption layer**

A thick layer of fire zero rated foam which soaks up noise and stops it bouncing around the engine space.

- **The transmission layer**

A high density barrier provides the highest possible mass and gives the best noise reduction. The damping layer weighs 5kgs per square meter – more than the lead sheet used in older materials.

- **The isolation layer**

This thin layer of foam has a crucial function: It acts like the gap in double glazing and stops the noise which hits the transmission layer being carried through to the bulkhead – just like the gap in double glazing.

The multi-layer construction used in Halyard® materials offers the best possible acoustic result in a thicknesses which can be accommodated in the tightest engine space, beating simpler materials many times as thick.

### PROTECTIVE SKIN

- **Maritex**

An immensely tough fibreglass cloth with a sealed metallised skin so it cannot absorb oil. It won't tear or fray. It looks heavy duty, and it is fire zero rated. Maritex is simply the best facing in the Halyard® range.

Maritex is fire zero rated to BS 476 parts 6 and 7.

- **Sealglass**

A tough off-white glass cloth, sealed against oil. The cloth is extremely tough and will not tear. The sealant will burn off in a fire. The material meets the ISO 9094 fire requirements of the EU Recreational Craft Directive.

- **Re-inforced Silver Polyester**

This facing meets the requirements of the Recreational Craft Directive. It provides a seal to keep oil out. You can pierce it, but it has a reinforcing layer behind it. It will burn, but once laminated in place it meets the ISO 9094 fire requirements of the EU Recreational Craft Directive. In a fire the facing will burn, but not the foam behind it.

### HOW TO CHOOSE THE PROPER THICKNESS

- 45mm (1.75").

This unique double damper material was invented by Halyard® and is designed to give the best possible result for the minimum thickness and weight. It is used where big turbo-charged engines are involved, or for vessels where noise is a particular problem

Supplied with 2 sheets 1000 mm x 600 mm (39" x 24") per box

- 2mm (1.25").

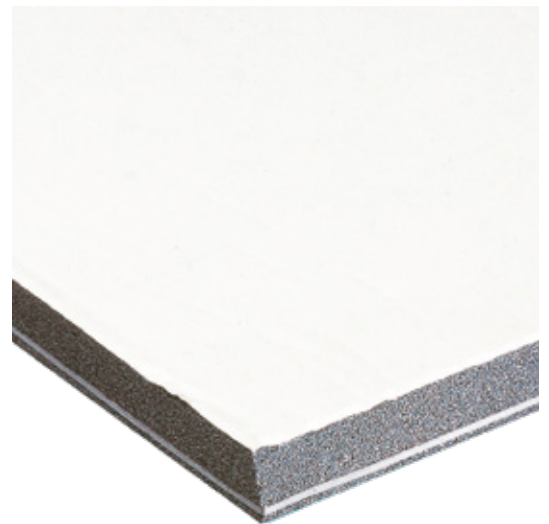
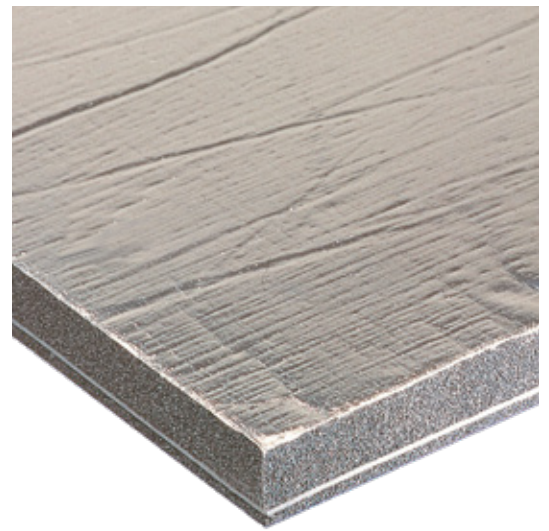
The standard thickness used throughout the industry. Today's fire zero rated foams have increased the weight and made this material even more effective. 32 mm is the choice for any installation where the builder wants an excellent result at a sensible cost. Remember, you can always double layer it in critical areas.

Supplied with 4 sheets 1000 mm x 600 mm (39" x 24") per box

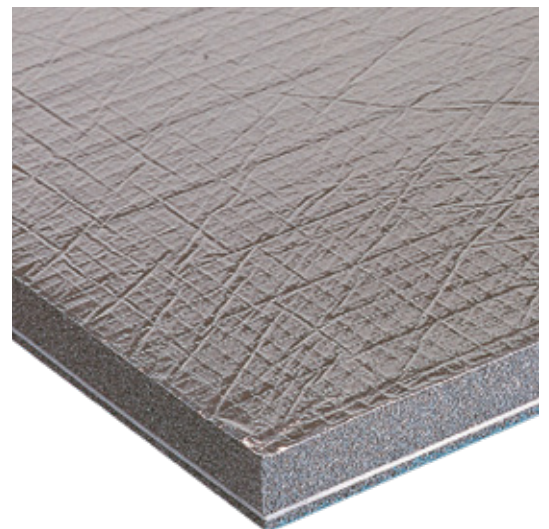
- 12mm (0.5").

The budget material when thickness or cost are crucial. Although it is only 12mm or half an inch thick, this material is highly effective and will reduce noise by 50% if used properly. You can also double layer it in places.

Supplied with 4 sheets 1000 mm x 600 mm (39" x 24") per box



Sealglass



Re-inforced Silver Polyester

## NOISE INSULATION MATERIALS

**12 mm (1/2") Materials** - All are supplied with 4 sheets 1000 x 600mm (39" x 24") per box: tot 2,4 m<sup>2</sup>

66383 T	S3002	Maritex faced material
66384 V	S3004	Sealglass faced material
66385 X	S3003	Reinforced silver polyester faced material

**12 mm (1/2") Self-adhesive materials** - All are supplied with 4 sheets 1000 x 600mm (39" x 24") per box: tot 2,4 m<sup>2</sup>

66386 Z	S5002	Maritex faced material
66387 B	S5004	Sealglass faced material
66388 D	S5003	Reinforced silver polyester faced material

**32mm (1.25") Materials** - All are supplied with 4 sheets 1000mm x 600mm (39" x 24") per box: tot 2,4 m<sup>2</sup>

66007 M	S3017	Maritex faced material
66389 F	S3015	Sealglass faced material
66390 P	S3016	Reinforced silver polyester faced material

**32mm (1.25") Self-adhesive materials** - All are supplied with 4 sheets 1000mm x 600mm (39" x 24") per box: tot 2,4 m<sup>2</sup>

66391 S	S5017	Maritex faced material
66392 U	S5015	Sealglass faced material
66393 W	S5016	Reinforced silver polyester faced material

**45mm (1.75") Materials** - All are supplied with 2 sheets 1000mm x 600mm (39" x 24") per box: tot 1,2 m<sup>2</sup>

66394 Y	S3039	Maritex faced material
66395 A	S3037	Sealglass faced material
66396 C	S3038	Reinforced silver polyester faced material

**45mm (1.75") Self-adhesive materials\*** - All are supplied with 2 sheets 1000mm x 600mm (39" x 24") per box: tot 1,2 m<sup>2</sup>

66397 E	S5039	Maritex faced material
66398 G	S5037	Sealglass faced material
66399 J	S5038	Reinforced silver polyester faced material

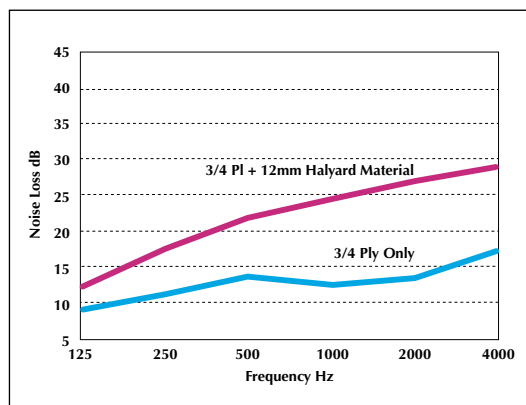
\*Self-adhesive materials have to be fixed when ceiling mounted

### JOINING TAPES

66400 P	S4021	5m x 50mm (16'x2") Sealglass tapes
66008 P	S4025	5m x 50mm (16'x2") Maritex tapes
66401 S	S4035	10m x 50mm (33'x2") Re-inforced silver polyester tapes
66402 U	S4036	50m x 50mm (164'x2") Re-inforced silver polyester tapes

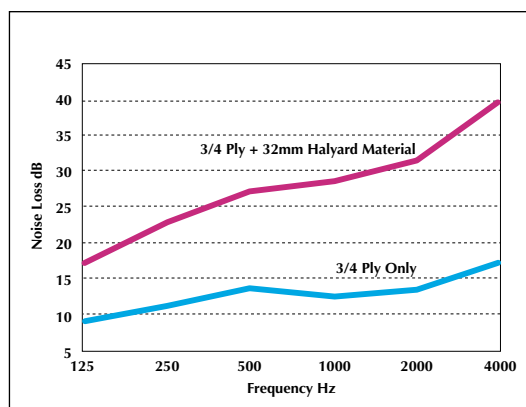
### PACKAGING

- 12 mm (1/2") and 32 mm (1.25") Materials  
Every sheet is 1000mm x 600mm (39"x24"). 4 sheets per box: total 2,4 m<sup>2</sup> (26 sq ft). Weight per box: 14 kg (12 mm) and 19 kg (32 mm).
- 45mm (1.75") Materials  
Every sheet is 1000mm x 600mm (39"x24"). 2 sheets per box: total 1,2 m<sup>2</sup> (13 sq ft). Weight per box: 16 kg.



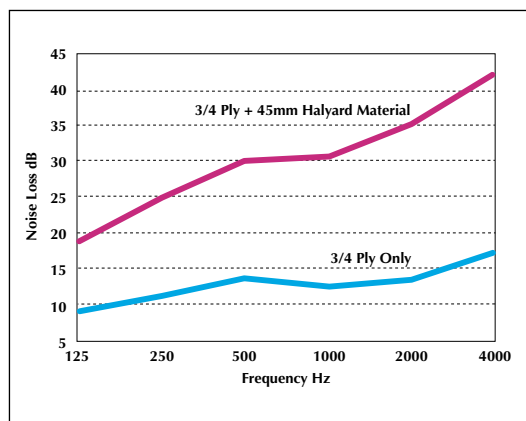
### 12 MM (1/2") MATERIALS

These material offers around 12dB reduction at 1000Hz and above, but its efficiency reduces with the heavier noises of lower frequencies. The overall reduction will give excellent results with smaller, lighter engines.



### 32 MM (1.25") MATERIALS

The 32 mm materials offer a startling 15dB reduction at 1000Hz. Noise doubles every three decibels, so this is nearly three times as good as the 12mm. It also holds a good performance at lower frequencies, making it excellent with larger engines.



### 45 MM (1.75") MATERIALS

These materials offer more noise reduction than other. They are suggested when noise is a serious problem.

# EXHAUST GAS TEMPERATURE ALERT SYSTEM

Marine diesel water cooled exhaust systems are designed to take temperatures of only 120°C. The uncooled exhaust gasses may reach more than 500°C. To cool the gasses, the exhaust depends on a free flow of cooling raw water from the engine. This flow can be cut off by a plastic bag, seaweed being sucked into the raw water intake or by damage to the raw water impeller. The exhaust gas temperature will rise immediately and the exhaust system will overheat and may be seriously damaged. In most situations the exhaust alert alarm will sound before any damage occurs. An exhaust temperature alarm must measure the temperature inside the exhaust system to be effective, external mounted sensors will not respond quickly enough as they must wait for the heat to penetrate the hose or GRP. The Halyard Exhaust Alert is designed to protect the exhaust system and should not be regarded as an engine protection device, although it will beat the engine temperature sensors to react.



Helm display



Sensor



Removable sensor



<i><b>HALYARD PART No.</b></i>	<i><b>PART No.</b></i>	<i><b>SYSTEM DESCRIPTION</b></i>
H021247	23963 V	Single engine single station gauge with through hose sensor with 16 m cable
H021248	23964 X	Single engine single station gauge with removable through hose sensor with 16 m cable
H021249	23965 Z	Single engine dual station gauges with through hose sensors with 16 m cable
H021250	23966 B	Single engine dual station gauges with removable through hose sensors with 16 m cable
H021251	23967 D	Twin engine single station gauge with through hose sensor with 16 m cable
H021252	23968 F	Twin engine single station gauge with removable through hose sensor with 16 m cable
H021253	23969 H	Twin engine dual station gauges with through hose sensors with 16 m cable
H021254	23970 S	Twin engine dual station gauges with removable through hose sensors with 16 m cable



# MARINE AIR CONDITIONING SYSTEMS

**Ultimate Climate Control  
Technology for  
Motor Yachts and  
Sailing Boats**

# VELAIR



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MARINE AIR CONDITIONING SYSTEMS



## SELF-CONTAINED AIR CONDITIONING SYSTEMS

### COMPACT 7 - THE NEW SUPER COMPACT UNIT

In order to have a solution even when the spaces are minimal, Uflex introduces the Compact 7, the super-compact air conditioning self contained unit that in just 43cm in length and 26cm in width develops 7000 BTU of cooling power. 7000 BTU model is built with a stainless steel tray and fan body. The fan can not be rotated but it offers the possibility to connect directly up to 3 air hoses.

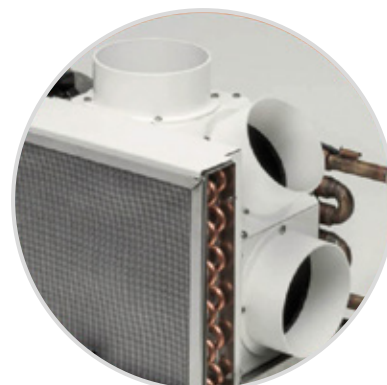
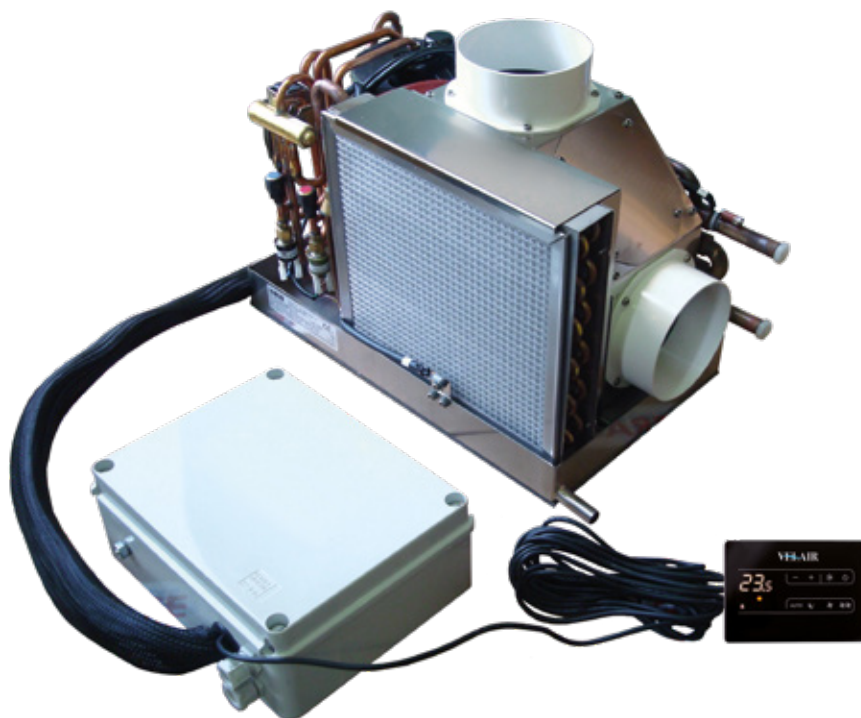
#### Advantages:

- Unit extremely compact in dimensions and light weight
- Brushless fan with high efficiency and low noise
- Max electrical power absorbed 660 W (in cooling)
- New wall touch display included

#### Easy to install:

With its compact dimensions and low weight, the Compact can be installed on all types of boats.

The Compact 7 can be installed with 2 or 3 air output grilles, 100 mm diameter without the need to use any T or Y additional dividers.



Ø 100 mm three air outputs  
application example

### ON-OFF COMPACT SERIES TECHNICAL SPECIFICATIONS

MODEL	Compact 7 WiFi	Compact 13 WiFi	Compact 18 WiFi
Part No.	20379 UW	21821 MW	21822 PW
Cooling capacity	7000 BTU/h	13000 BTU/h	18000 BTU/h
Power supply voltage	230 V - 50 Hz*	230 V - 50 Hz	230 V - 50 Hz
Cooling power consumption	2,1 - 3,0 A	3,1 - 3,9 A	4,3 - 5,0 A
Protection	10 A	10 A	10 A
Wire size (minimum)	2,5 mm <sup>2</sup>	2,5 mm <sup>2</sup>	2,5 mm <sup>2</sup>
Maximum air flow	350 m <sup>3</sup> /h	500 m <sup>3</sup> /h	700 m <sup>3</sup> /h
Flange diameter	100 mm	125 mm	150 mm
Minimum opening for return air grill	360 cm <sup>2</sup>	640 cm <sup>2</sup>	800 cm <sup>2</sup>
Minimum opening for supply air grill (rec.)	150 cm <sup>2</sup>	300 cm <sup>2</sup>	400 cm <sup>2</sup>
Seawater minimum flow rate	8 l/min	14 l/min	19 l/min
Dimensions mm (") WxHxD	433x280x260 (17.1x11x10.2)	427,8x312,8x305 (16.8x12.3x12)	500x350x306 (19.7x13.8x12.1)
Weight kg (lbs)	23 (50.7)	29 (63.9)	34 (75)

\*Compact 7 is also available in 115V - 60 Hz version

Uflex VELAIR self-contained air conditioners represent a light and solid solution to conditionate small and medium boats.

They are made of high quality materials (stainless steel and aluminium) and with a design that follows our inverter models one (see the following pages).

This allows, in the case of serial production, to prepare a unique air and water distribution layout and decides at the last moment whether to install a conventional unit (ON / OFF compressor) or to go for an inverter driven variable speed unit (VSD), leaving the customer the final choice of the unit version. Or later on, in the case of upgrading or retrofitting, the units without and with inverter are for perfectly interchangeable for the layout point of view. R410A refrigerant (CE marked), small rotary compressor and multi-injection heat exchanger guarantee highest efficiency and reduced energy consumption. Thanks to their features, they can be powered by small generators or directly by DC-AC converter from the battery pack.

The units have, as standard, the reverse cycle option that converts the A/C machine into a heat pump, able to warm up a boat during cold months drawing the heat from seawater.



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## CONTROL PANEL

The units are supplied with a wall-mounted touch control digital panel, easy to install because, being very thin, it can be applied on the wall itself, without the classic rectangular cut. A simple round hole is enough to pass the data cable.



## CONTROL BOX

The units are extremely easy to install thanks to the prewired electrical box with a cable bundle that allows the optimal positioning around the machine itself.

Unlocking the four screws, it's possible to access directly to the terminal block where to connect the power supply and the sea water pump.



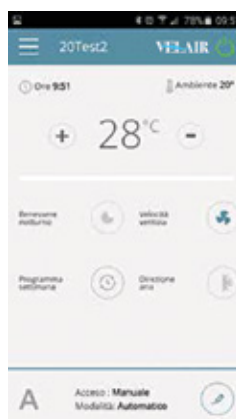
VELAIR APP

## WIFI: REMOTE CONTROL VIA SMARTPHONE

A Wi-Fi module has been introduced into the panel. This function allows to reach, monitor and set-up your unit through a dedicated app.

When you are on board, the smartphone will speak directly with the unit. When away from the boat, the communication will take place through internet, therefore a wi-fi network in the marina or a router on board is required. This allows to turn on the air conditioning or heat pump in advance, in order to arrive on board finding the cabins at a comfortable temperature and humidity level.

A free app is available for IOS and Android







# INVERTER DRIVEN SELF-CONTAINED AIR CONDITIONING SYSTEMS 230V-50/60HZ\* VARIABLE SPEED DRIVE REVERSE CYCLE FUNCTION

VELAIR



## VARIABLE SPEED DRIVE



Self-contained-VSD air conditioners provides the best of the existing technology: compressor with brushless DC motor and inverter that constantly controls speed and cooling power delivered (Variable Speed Drive); reverse blade brushless fan; electronic expansion valve; R410A refrigerant . Three sizes available: 10.000, 16.000, 21.000 and 27.000\*\* BTU/h. The inverter technology, already used in residential air-conditioning, offers the following **benefits** in marine applications:

- No current peaks during start-up
- Highest energy efficiency: overall reduction of electricity consumption (-40%)
- Perfectly running with small generators or battery powered
- Compressor noise and vibrations almost zero
- Constant temperature of the air flow
- Wi-fi connection for smartphone available through a dedicated app

The compressor continuously changes its running speed depending from ambient and set temperature. The compressor operates at maximum power to cool rapidly the cabins, but reaching the set temperature, it reduces the power and electricity consumption. In this way it maintains the optimal comfort level with the minimum consumption. The inverter works between 20 and 100 Hz.

Self-contained-VSD Uflex VELAIR units meet EMC 2004/108/EC directives.



Compact i27 VSD



Compact i10 VSD



## TECHNICAL SPECIFICATIONS

MODEL	Compact i10 VSD	Compact i16 VSD	Compact i21 VSD	Compact i27 VSD
Part No.	69752 PW	69750 KW	22571 WW	-
Cooling capacity range	3000 - 10000 BTU/h	4000 - 16000 BTU/h	7000 - 21000 BTU/h	9000 - 27000 BTU/h
Power supply voltage	1 PH 230V - 50/60Hz*	1 PH 230V - 50/60Hz*	1 PH 230V - 50/60Hz*	1 PH 115V - 50/60Hz**
Power consumption cooling (max) @230 V	3,1 A	4,6 A	6,1 A	7,7 A
Protection	10 A	10 A	10 A	10 A
Cable size (min)	2,5 mm <sup>2</sup>	2,5 mm <sup>2</sup>	4 mm <sup>2</sup>	4 mm <sup>2</sup>
Max air flow	400 m <sup>2</sup> /h	550 m <sup>2</sup> /h	800 m <sup>2</sup> /h	900 m <sup>2</sup> /h
Flange diameter	2x125 mm	2x150 mm	4x150 mm	4x150 mm
Min. opening for return air grill	400 cm <sup>2</sup>	600 cm <sup>2</sup>	800 cm <sup>2</sup>	1000 cm <sup>2</sup>
Min. opening for supply air grill (recommended)	250 cm <sup>2</sup>	300 cm <sup>2</sup>	400 cm <sup>2</sup>	500 cm <sup>2</sup>
Min. seawater flow rate	12 l/min	17 l/min	20 l/min	25 l/min
Dimensions WxHxD mm (")	559x319x305,8 (22x12.6x12)	616x346,8x305,8 (24.3x13.7x12)	820x445x322 (32.3x17.5x12.7)	780x471x340 (30.7x18.5x13.4)
Weight kg (lbs)	27 (59.5)	30 (66.1)	38 (83.8)	44 (97)

\*i10/i16/i21 models are also available in 115V - 50/60Hz version

\*\*i27 model is only available in 115V - 50/60Hz version

**N.B.** In the VSD models is possible to install the electrical box remote from the unit in order to reduce the installation dimensions



## **INVERTER DRIVEN CHILLERS WITH CONTINUOUS MODULATION** **VARIABLE SPEED DRIVE - REVERSE CYCLE FUNCTION**

**VELAIR**



### **VARIABLE SPEED DRIVE**



This inverter driven chiller line provides the best of the existing technology: brushless DC motor with inverter that constantly control speed and power delivered by the compressor (Variable Speed Drive). They also use R410A eco-friendly refrigerant. Two sizes available: 42.000 e 62.000 BTU/h with modular combination to obtain systems with higher cooling power

#### **Benefits** in marine applications:

- No current peaks during start-up phase
- Highest energy efficiency: Overall reduction of electricity consumption (-45%)
- It can operate with small generators
- Compressor noise and vibrations almost zero
- Small dimensions and weights compared to the cooling capacity
- Temperature stability at fancoil air outlet

**Comfort:** The compressor continuously changes the running speed and consequently its cooling power. In this way, the chiller water loop temperature remains constant, regardless of power drawn by the fancoils. This guarantees the maximum comfort - thanks to the temperature stability of air - and the best efficiency, adapting continuously the cooling power to the real need. As result, the compressor will operate at maximum power to cool rapidly the rooms, but coming closer to the set temperature, it will reduce the power and, as well, the electricity consumption.

**Reliability:** "Brushless DC" compressors, together with variable capacity operation, eliminate the typical ON/OFF function of the traditional systems. This allows a much longer lifetime to all the electrical and mechanical components than non-inverter models.

**Silence:** Thanks to its function and its sound proofing cover, the compressor has minimal sound levels. This is appreciated especially during night operation.

**NIGHT mode:** It is possible to limit the maximum output power to a preselected value (factory 40%) simply pressing a button. This means the possibility to limit the max current requested, with no risk to break down the shore power if weak and, in double genset applications, it is possible to use the small and quiet generator during the night.

**Modular:** A number of units can be combined together in order to obtain the maximum power needed: for example, to get 250.000 BTU/h as max power, it is enough to install 4 units of 62.000 BTU/h in parallel. The units will regulate automatically in order to guarantee always the pre-determined value temperature with the lowest energy consumption.

**Inverter-VSD Uflex VELAIR chillers units meet EMC 2004/108/EC directives.**



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# **INVERTER DRIVEN CHILLERS WITH CONTINUOUS MODULATION VARIABLE SPEED DRIVE - REVERSE CYCLE FUNCTION**

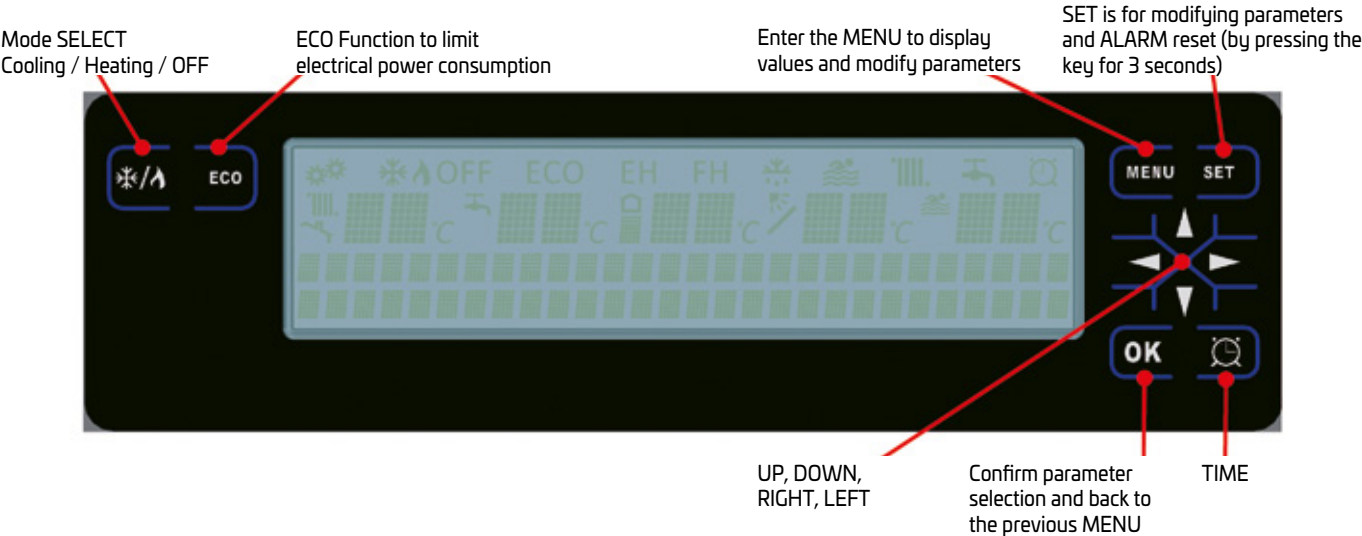
**VELAIR**

## **TECHNICAL SPECIFICATIONS (for single unit):**

MODEL	Chiller i42 VSD	Chiller i62 VSD
Part No.	69338 D	69339 F
Cooling capacity range	18000 - 42000 BTU/h	30000 - 62000 BTU/h
Power supply voltage	230V - 50/60 Hz	230V - 50/60 Hz
Power consumption cooling (max)	10,5 A	16 A
Power consumption cooling (max) with "NIGHT MODE" activated	4,5 A	6,1 A
Min water flow rate chiller circuit	35 l/min	45 l/min
Chiller loop pipe diameter	25 mm	25 mm
Min seawater flow rate	30 l/min	40 l/min
Seawater loop pipe diameter	20 mm	25 mm
Dimensions WxHxD mm (")	331x436x476 (13x17.2x18.7)	431x436x476 (17x17.2x18.7)
Weight kg (lbs)	48 (105.8)	64 (141.1)

The digital control panel can be placed on the chiller or remoted in a control room.

The main functions can be controlled from any centralised on-board control system by three simple switches.

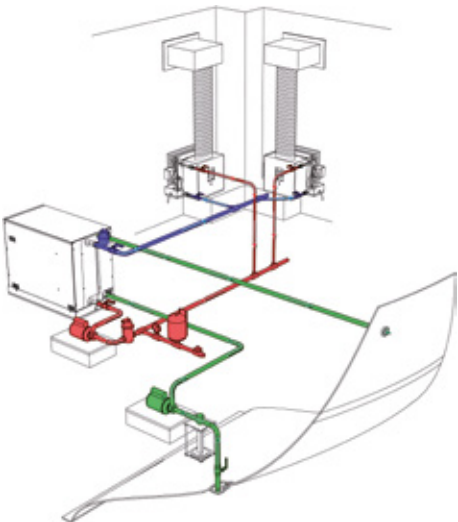


## **ACCESSORIES**

For a complete installation the following accessories are needed:

- Fancoils (see next page)
- Seawater pump
- Water pump for chilled loop
- Seawater loop components (sea water intake, water outlet, strainer, safety valve and pipeline)
- Chilled water loop components (insulated pipes, fittings, valves, bleeders, accumulator tank and glycols)
- Air ducting parts (insulated pipe, dividers, transition box, air grills)

Please contact our Technical Service for a correct choice of required accessories.





## **U721 - U722 - U724 FANCOILS**

Fancoil with tangential fan unit, air output not ductable – 3600, 5400 and 7760 BTU/h.

Perfect solution for sleeping cabin.

Silent, to be placed directly behind the grill, without air hoses.

Made in white alloy body



## **U727 - U728 FANCOILS**

Fancoil with centrifugal fan - 4000 e 5000 BTU/h

Air hose connection Ø 100 mm

Air outlet can be vertical or horizontal

Made in white alloy body



## **U742 VERTICAL FANCOIL**

Fancoil for high and narrow applications, air output canalization up to 1,5m - 6000 BTU/h

Air hose connection Ø 125 mm

Air outlet can be vertical or horizontal

Made in white alloy body



## **U746 - U744 - U745 FANCOILS**

Fancoil with centrifugal fan - 8000, 10000 and 12000 BTU/h

Air hose connection Ø 125 mm

Air outlet can be vertical or horizontal

Made in white alloy body



## **U747 FANCOIL**

Fancoil with centrifugal fan - 15000 BTU/h

Air hose connection Ø 125 mm

Air outlet can be vertical or horizontal

Made in white alloy body



## **U748 FANCOIL**

Fancoil with dual ductable centrifugal fan - 24000 BTU/h

Air hose connection 2x Ø125 mm

Dual air outlet can be vertical or horizontal

Made in white alloy body



# TECHNICAL SPECIFICATIONS



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MODEL	U721	U722	U724	U727	U728	U742	U746	U744	U745	U747	U748
Part No.	69340 P	69341 S	69342 U	69344 Y	69345 A	69343 W	69346 C	69347 E	69348 G	69349 J	69629 R
Cooling capacity (BTU/h)	3600	5400	7760	4000	5000	6000	8000	10000	12000	15000	24000
Power supply	230V - 50Hz										
Width (mm)	400	510	610	420	420	410	410	460	460	640	850
Height (mm)	210	240	240	200	200	365	370	270	270	275	275
Depth (mm)	190	220	240	240	240	170	270	310	310	330	330
Weight (kg)	4	5	7	6	6	6	8	9	9	10	18
N° Speed	2	2	2	3	3	3	3	3	3	3	3
Air flow (m³/h)	140	250	310	140	255	330	370	370	470	470	940

## U626A - 69350 T - Room temperature control digital panel



- Illuminated display with auto switch off
- Easy and intuitive to use.
- Automatic or manual fancoil speed control.
- Summer and winter function mode
- Power box. Drive up to four fancoils parallel connected to external power box.
- ModBUS connection for domotic systems. (U626C - 69371 B)

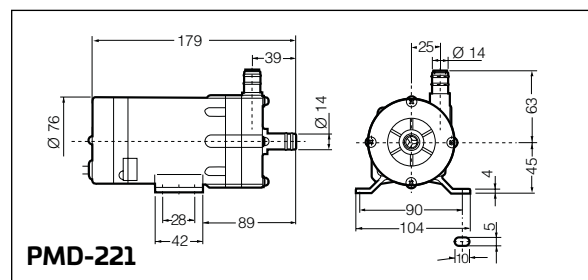
FANCOILS



\*N.B. 115V - 50/60Hz seawater pumps are available on request.

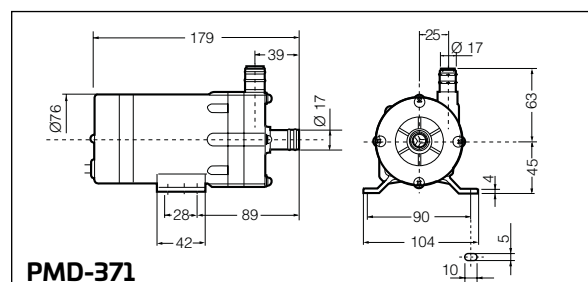
## PMD-221 – 69886 M

- Seawater centrifugal Pump
- Flow rate: 15 l/min (4.0 GPM)
- Input power: 31 W
- Max Head: 2,6 m (8.5')
- M3/4" connection
- Weight: 1,7 kg (3.75 lbs)



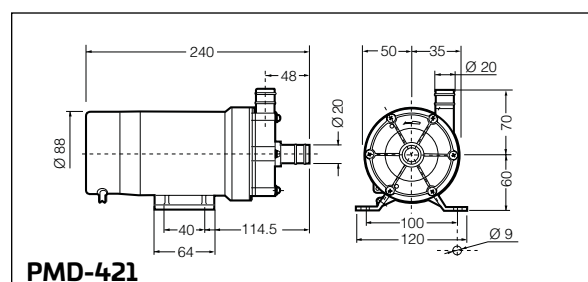
## PMD-371 – 63570 A

- Seawater centrifugal Pump
- Flow rate: 25 l/min (6.5 GPM)
- Input power: 43 W
- Max Head: 3,1 m (10.2')
- 17 mm (0.67") connection
- Weight: 1,7 kg (3.75 lbs)



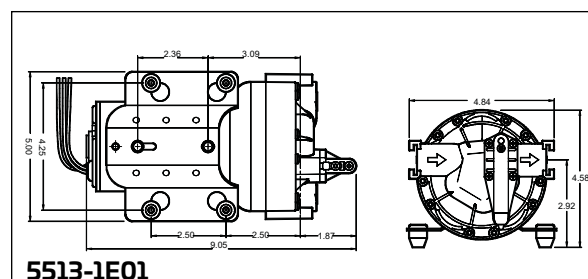
## PMD-421 – 69696 G

- Seawater Centrifugal Pump
- Flow rate: 35 l/min (9.2 GPM)
- Input power: 75 W
- Max Head: 4,0 m (13.1')
- M3/4" connection
- Weight: 3,4 kg (7.5 lbs)



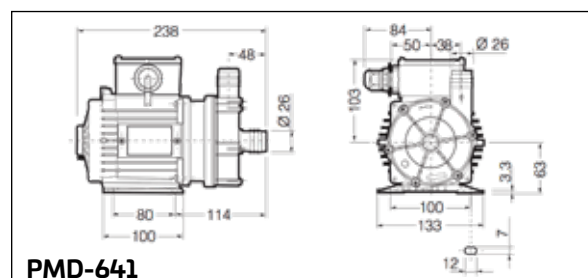
## 5513-1E01 – 63799 K

- Self priming diaphragm seawater Pump
- Flow rate: 5 - 20 l/min (1.3 - 5.3 GPM)
- Input power: 50-200 W
- Self priming up to 3,0 m (9.8')
- F1/2" connection
- Weight: 3,6 kg (7.9 lbs)



## PMD 641 – 20349 J

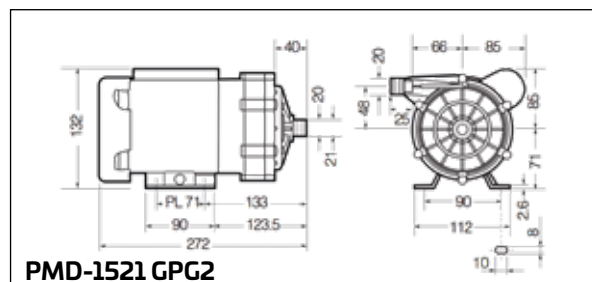
- Seawater centrifugal Pump
- Flow rate: 55 l/min @2m (20 l/min @8m)
- Input power: 155 W
- Max Head: 5,0 m (16.4')
- M1" connection
- Weight: 4,8 kg (10.6 lbs)





**PMD 1521 GPG2 – 20345 A**

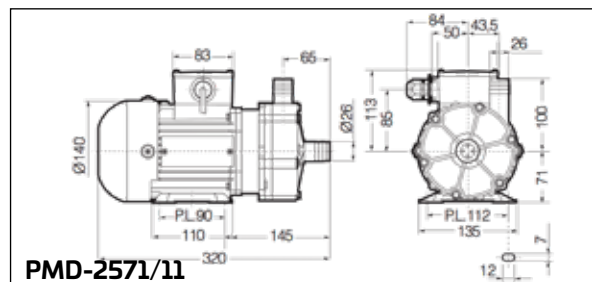
- Seawater centrifugal Pump
- Flow rate: 60 l/min @2m (35 l/min @8m)
- Input power: 230 W
- Max Head: 13,0 m (42.6')
- M3/4" connection
- Weight: 7,5 kg (16.5 lbs)



**PMD-1521 GPG2**

**PMD 2571/11 – 20472 H**

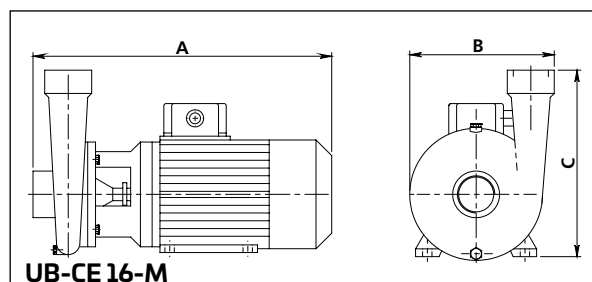
- Seawater centrifugal Pump
- Flow rate: 140 l/min @2m (90 l/min @8m)
- Input power: 400 W
- Max Head: 12.0 m (40.0')
- M1" connection
- Weight: 8 kg (17.6 lbs)



**PMD-2571/11**

**UB-CE 16-M – 67960 L**

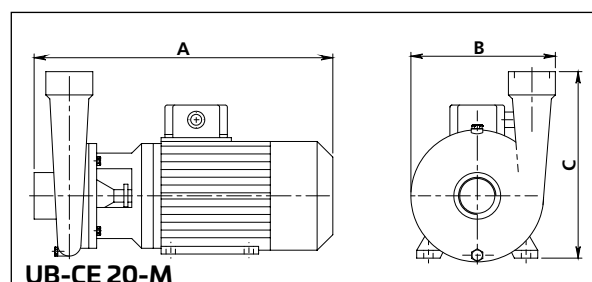
- Seawater centrifugal Pump
- Flow rate: 40 l/min @ 3 m
- Input power: 260 W
- Max Head: 7,0 m (23.0')
- F1/2" connection
- Weight: 5,6 kg (12.3 lbs)



**UB-CE 16-M**

**UB-CE 20-M – 67964 V**

- Seawater centrifugal Pump
- Flow rate: 80 l/min @ 10 m
- Input power: 600 W
- Max Head: 14,0 m (46.0')
- F1" connection
- Weight: 9,1 kg (20 lbs)



**UB-CE 20-M**

**MULTI-UNITS PUMP SWITCH**

- Pump Relay 61566 Z - from four to six units

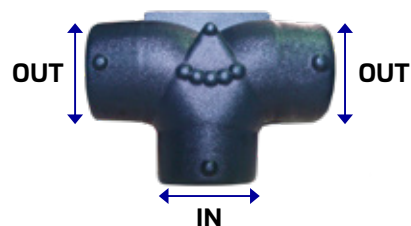
**23988 M**

Retrofit kit with remotable temperature sensor and 10 m cable



## AIR DIVIDERS T (HOSE TO HOSE DIVIDERS)

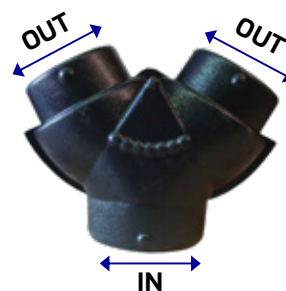
Ø IN mm (")	Ø OUT/OUT mm (")	PART No.
100 (4)	80/80 (3/3)	63902 Z
100 (4)	100/100 (4/4)	62225 B
125 (5)	100/100 (4/4)	62226 D
125 (5)	125/100 (5/4)	63904 D
125 (5)	125/125 (5/5)	63905 F
150 (6)	100/100 (4/4)	63107 A
150 (6)	125/100 (5/4)	63906 H
150 (6)	125/125 (5/5)	62227 F
150 (6)	150/125 (6/5)	63907 K
150 (6)	150/150 (6/6)	63908 M



Divider T

## AIR DIVIDERS Y (HOSE TO HOSE DIVIDERS)

Ø IN mm (")	Ø OUT/OUT mm (")	PART No.
100 (4)	100/100 (4/4)	62876 W
125 (5)	100/100 (4/4)	62220 R
125 (5)	125/100 (5/4)	62221 T
125 (5)	125/125 (5/5)	63910 Y
150 (6)	100/100 (4/4)	62222 V
150 (6)	125/100 (5/4)	62223 X
150 (6)	125/125 (5/5)	62224 Z
150 (6)	150/100 (6/4)	61344 O



Divider Y

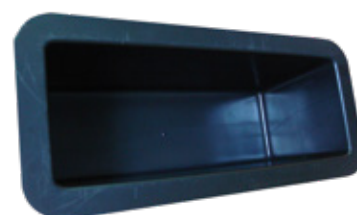
## FITTINGS FOR TRANSITION BOXES

Ø HOSE mm (")	ROUND HOSE RING	OVAL HOSE RING
80 (3)	61651 P	-
100 (4)	62204 T	62206 X
125 (5)	62205 V	62207 Z
150 (6)	63912 C	62208 B
200 (8)	-	61319 P



## TRANSITION BOXES (WITHOUT FITTINGS)

Transition boxes (without fittings)	
69534 D	TB-04x04 mm 100x100
62216 A	TB-06x04 mm 150x100
62217 C	TB-08x04 mm 200x100
62531 J	TB-08x06 mm 200x150
62555 Z	TB-08x08 mm 200x200
62218 E	TB-10x04 mm 250x100
62576 H	TB-10x06 mm 250x150
62219 G	TB-10x08 mm 250x200
61331 J	TB-12x04 mm 300x100
63918 R	TB-16x04 mm 400x100



20645 N - Bend 90° outlet - 125 mm



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**FLOW TRANSITION BOXES (WITH HOSE CONNECTIONS)****VELAIR****Ring back (straight)**

64252 R	TB-04x04-04OB mm 100x100 c/ racc. back mm 100
64253 T	TB-06x04-04OB mm 150x100 c/ racc. back mm 100
64254 V	TB-08x04-04OB mm 200x100 c/ racc. back mm 100
64255 X	TB-08x04-05OB mm 200x100 c/ racc. back mm 125
64256 Z	TB-10x04-05OB mm 250x100 c/ racc. back mm 125

**Ring side (long side)**

64257 B	TB-08x04-04OS mm 200x100 c/ racc. long side mm 100
64258 D	TB-08x04-05OS mm 200x100 c/ racc. long side mm 125
64259 F	TB-10x04-04OS mm 250x100 c/ racc. long side mm 100
64260 P	TB-10x04-05OS mm 250x100 c/ racc. long side mm 125
61336 O	TB-12x04-06OS mm 300x100 c/ racc. long side mm 150

**Ring end (short side)**

64261 S	TB-04x04-04RE mm 100x100 c/ racc. short side mm 100
64262 U	TB-06x04-04RE mm 150x100 c/ racc. short side mm 100
64263 W	TB-08x04-04RE mm 200x100 c/ racc. short side mm 100
64264 Y	TB-10x04-04RE mm 250x100 c/ racc. short side mm 100
64265 A	TB-10x06-05RE mm 250x150 c/ racc. short side mm 125

**Insulated, flexible duct (aluminum/glass wool)**

67112 P	Air hose Ø int. mm 100
69139 X	Air hose Ø int. mm 125
67113 S	Air hose Ø int. mm 150
20471 F	mm 50 reinforced aluminium tape

**Not insulated, flexible duct (aluminum/ripstop polyester)**

23985 F	Air hose Ø int. mm 80 for 75 mm round grill applications
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**ROUND GRILLS****Round plastic supply grills**

62209 D	mm 100 (4") round damper vent, black
62210 M	mm 100 (4") round damper vent, white
69615 D	mm 75 (3") round damper vent, white
69428 E	mm 100 (4") round grill, white (not closeable)
69616 F	mm 100/75 (4"/3") round adapter
20648 V	mm 125/100 (5"/4") round adapter





**Anodized aluminum return air grills**

69490 K	mm 250x150
69422 S	mm 300x200
61380 Z	mm 300x300
69423 U	mm 400x250
61381 A	mm 400x400
66706 R	mm 600x150

**Teak return air grills (with air filter)**

69494 U	mm 250x150
69497 A	mm 300x200
69498 C	mm 400x250

**White aluminum return air grills (with air filter)\***

20864 B	mm 250x150
69605 A	mm 300x200
20865 D	mm 400x250

\*Black aluminum models are also available

**Anodized aluminum supply air grills**

20652 K	mm 297x53
20651 H	mm 475x55
69466 N	mm 100x100
69022 Z	mm 150x100
69023 B	mm 200x100
63074 M	mm 200x200
69021 X	mm 250x100
69421 P	mm 250x150
21319 E	mm 300x100

**Teak supply air grills**

64195 F	mm 100x100
64534 B	mm 150x100
64535 D	mm 200x100
64536 F	mm 200x150
61652 S	mm 250x100
61653 U	mm 250x150
64361 W	mm 250x250
22187 V	mm 300x100





**Teak supply damper vents (closeable)**

69492 P	mm 100x100
69493 S	mm 200x100
69910 F	mm 250x100
69506 Y	mm 250x150



**White aluminum supply air grills**

69914 P	mm 100x100
69915 S	mm 200x100
69916 U	mm 250x100
22791 L	mm 300x100



**Black aluminum supply air grills**

20881 B	mm 200x100
69630 Z	mm 250x100
69631 B	mm 400x100



**White aluminum supply damper vents (closeable)**

69533 B	mm 100x100
69917 W	mm 200x100
69918 Y	mm 250x100



**Seawater circuit kit (nickel plated brass)**

**Seacock, on/off valve, water strainer, hose fittings, through hull included**

69475 P	1/2" through hull kit
69488 Z	1" through hull kit
69532 Z	Ø int. 16 mm transparent reinforced hose - per meter
69645 N	Ø int. 20 mm transparent reinforced hose - per meter
20346 C	3 outlet manifold 3/4"M x 3/4"F with valve - 1/2"M connectors - Ø int. 16 mm



# wallas<sup>®</sup>



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HEATERS, STOVES AND OVENS



Wallas® diesel heaters are a good system, extremely easy to install, to heat boats up to 15 m (50 ft). The sound level equals to the level of whispering in the library, thanks to the laminar burning combustion.

The sound of burning cannot be heard from the exhaust pipe and the boat next to yours can enjoy the silence as well.

The power consumption is the lowest compared to its competitors and enable you to keep your boat warm, even with small battery capacity. To ensure the highest quality, every single Wallas® product is manually tested before delivery.

**Warranty:** 3 years.



**22GB**



**30GB**



**50 Spartan Air**

## TECHNICAL SPECIFICATIONS:

MODEL	22GB	30GB	50 Spartan Air
Part No.	22750 W	22095 P	22751 Y
Fuel	Diesel	Diesel	Diesel
Power (W)	1000-2500	1000-3200	1400-4500
Operating voltage (V)	12	12	12
Fuel consumption (l/h)	0,1-0,25	0,1-0,33	0,16-0,46
Electricity consumption (A)	0,7-1,2	1,0-2,0	0,7-4,5
Heat min-max air flow (m³/h)	51-79	61-103	102-227
Dimensions W x D x H mm (")	424x140x278 (16.7x5.5x10.9)	424x140x278 (16.7x5.5x10.9)	424x165x307 (16.7x6.5x12.1)
Weight kg (lbs)	10 (22)	10 (22)	15 (33.1)



## HEATER CONTROL PANEL AND REMOTE CONTROL SYSTEM



CONTROL PANEL



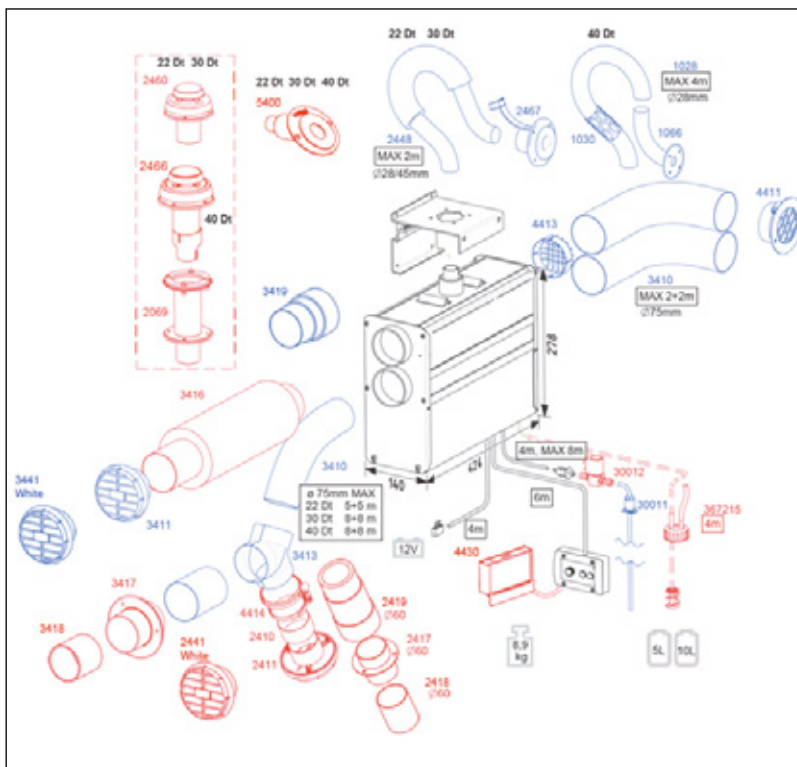
REMOTE CONTROL

### Elegant control panel features:

- Smooth PI-controlled thermostat adjustment
- Manual temperature adjusting
- Two-step air boost function
- Automatic shutdown in case of temperature increase
- Protection of accidental start and stop
- Recessed mounting

The **Wallas® Remote Control** allows you to turn on and shut down the heater remotely, so you may heat up your boat from your home, at the desired temperature. You may use a Smartphone, a tablet or a pc to manage the heating of your boat.

The Remote Control displays temperature in C° and F° and shows battery voltage in order to know, in real-time, the battery charge status.



### ACCESSORIES:

A wide range of accessories are available for the installation. The heater box includes: heater, control panel, mounting bracket, 4 m of the fuel hose, fuel filter, 4 m power cable and the fuse box with fuse. You need to order separately drainpipe and air ducting components.



HULL LEAD-THROUGH - 69228 W



DECK LEAD-THROUGH - 69227 U



WARM AIR VENTILATION

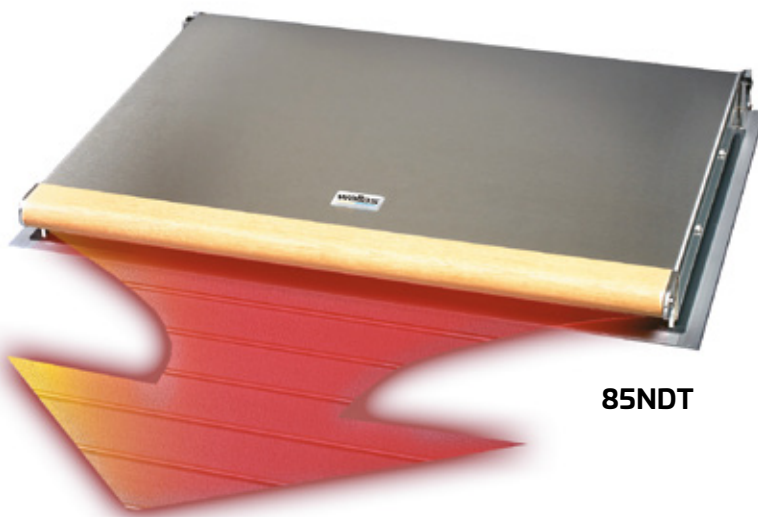
The Wallas® stove heaters are perfect for marine applications. They do not run on gas, so you do not need gas bottles on board and they do not require current generators to be electrically powered. Under the elegant hob, there is a diesel burner powered by engine fuel tank. The Wallas stoves aspire the combustion air from the cabin and carry the exhaust gases outside. Thanks to this feature, the cool air is forced to enter by creating a positive effect of washing with fresh air recycling, which reduces the humidity inside the boat and the mold growing.

## Main advantages:

- Safe. No exposed flame means safety and no moisture added to the cabin. Non-explosive fuel.
- No humidity. Combustion gases are diverted outside.
- Easy cleaning thanks to the smooth glass-ceramic hob.
- With heat blower lid, you can transform your stove into a 2kW cabin heater.



85DT



85NDT



85DP



88DU

## DIESEL STOVE HEATERS



**85DT**



**85DP**



**88DU**



**Nordic DT**  
(85 DT + cover 270)

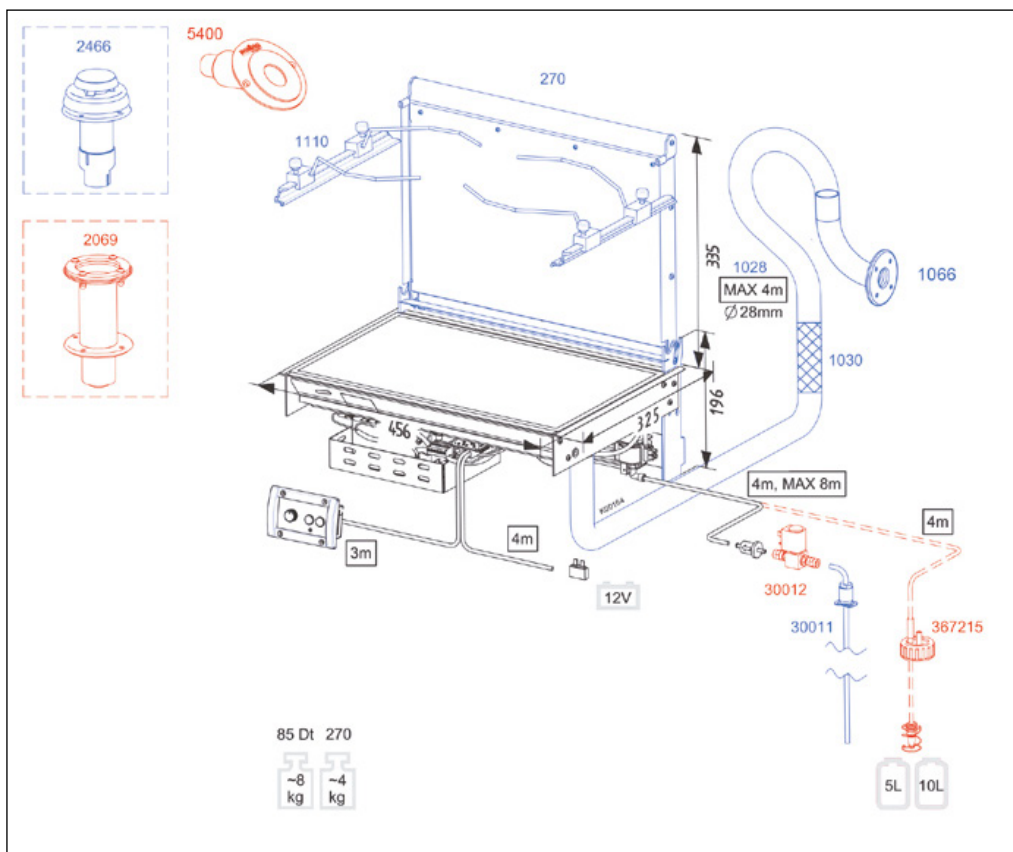
### TECHNICAL SPECIFICATIONS:

MODEL	85DT	85DP	88DU	Nordic DT (85DT+270)
Part No.	69377 P	69378 S	69379 U	69380 C
Fuel	Diesel	Diesel	Diesel	Diesel
Power	900 - 1900W	900 - 1900W	900 - 1900W	900 - 1900W
Operating voltage	12 V	12 V	12 V	12 V
Fuel consumption	0,09 - 0,19 l/h	0,09 - 0,19 l/h	0,09 - 0,19 l/h	0,09 - 0,19 l/h
Electricity consumption	0,35 A	0,35 A	0,9 A	0,85 A
Dimensions W x D x H mm (")	456x325x159 (17.9x12.8x6.3)	475x370x162 (18.7x14.6x6.4)	466x316x172 (18.3x14.6x6.8)	456x325x196 (17.9x12.8x7.7)
Weight kg (lbs)	8 (17.6)	10 (22.0)	9 (19.8)	12 (26.5)

### ACCESSORIES:

A large range of accessories is available for installation. In addition to components for the exhaust line (thru-hull for bulkhead, deck or transom), you may install other useful accessories such as the vented cover to transform the stove into a heater (for 85DT and 85DP models) and pot holders, pivoting brackets, etc.

#### 85NDT, 85 DT + 270

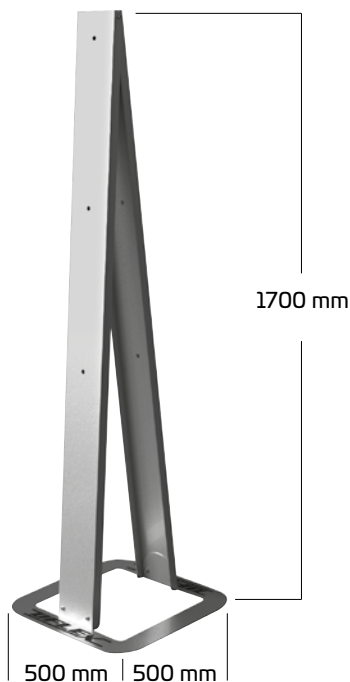


## **ULTRAFLEX® E UFLEX®**

### **MARKETING ITEMS**

#### **ULTRAFLEX WHEELS DISPLAY**

**67436 T** - Fashionable dismountable display in light gray painted metal.



#### **UFLEX and ULTRAFLEX ADHESIVE LABELS:**

Printed on transparent vinyl

**UFLEX** - 65360 Z

Dimensions: 450 x 130 mm (17.71" x 5.12")

**ULTRAFLEX** - 65359 R

Dimensions: 300 x 130 (11.81" x 5.12")



#### **UFLEX FLAG - 65226 V**

Dimensions: 150 x 225 cm (4.92' x 7.38')

UFLEX flags are made of high resistance nylon, with anti-tears double hem, strengthening side sheathing and fixing line.

The logo is printed on both sides and they are resistant to sunwear and washing.



**65226 V**

#### **UFLEX SHIRT:**

Size S - 65355 G

Size M - 65356 J

Size L - 65357 L

Size XL - 65358 N



#### **UFLEX CAP - 69145 S**

Heavy cotton with adjustable back strip







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