



2020 CATALOG

GROCO®
Quality Marine Products Since 1913

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E-VALVE™	FBVE, FBVEA, FBVES, FBVER FBVEN, FBVEP
Flanged Full-Flow Seacocks	SBV-P, SBV
Flanged Full-Flow Seacocks	BV, FBV
In-Line Full-Flow Ball Valves	IBV, IBV-S
Flanged Adaptors and Accessories	IBVF, IBVF-S, BB
Special Purpose Valves	PNC, CV, FV-450-X, TS-350-T
Full-Flow Fuel Valves	FV, TWV
Engine Flush Kit	SSC, SSCV
U-LUBE Grease	FOR ALL BALL VALVES



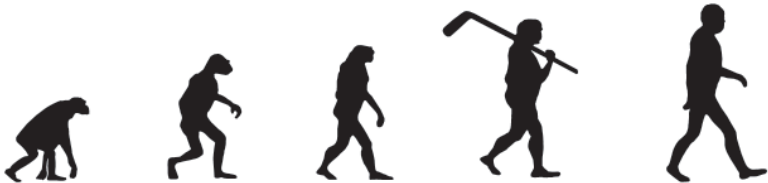
VALVES & SEACOCKS

GROCO E-VALVE™
PATENT PENDING

IT'S TIME TO EVOLVE



E-VALVE SEACOCK



CONCEPT

Equipment that is used regularly is more reliable than neglected equipment. E-Valve was developed to address the challenges of regularly "exercising" seacocks, to prevent the accumulation of nuisance marine growth, and to provide safety and convenience features never before available. E-Valve seacocks are UL listed, gearboxes are IP-67 rated and Control Modules



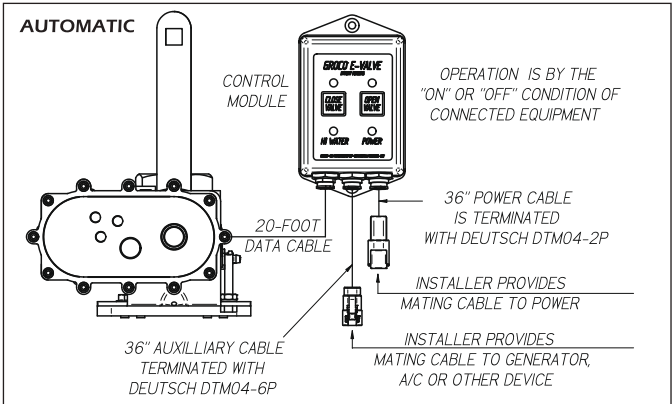
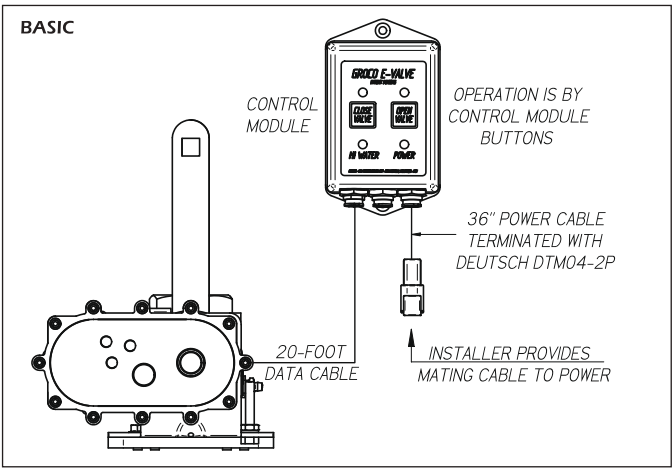
CONTROL MODULE

comply with ABYC, USCG, ISO and NMEA ignition protection standards. It's time to evolve!

How you monitor and control E-Valve is up to you. Each model includes the required cables (terminated with Deutsch DTM series connectors) and is programmed accordingly.

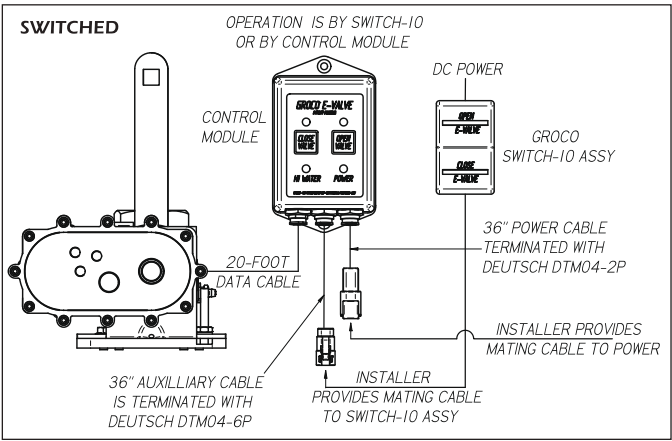
BASIC E-VALVE (FBVE SERIES)

Operation and monitoring is by the touch-pad on the Control Module. Touch the buttons to command OPEN VALVE or CLOSE VALVE. The Control Module also shows HIGH WATER alert if applicable and confirms DC power.



AUTOMATIC E-VALVE (FBVEA SERIES)

No user action is needed. E-Valve automatically opens or closes according to the ON or OFF condition of the connected equipment (generator, engine, etc.). OPEN or CLOSED valve status, HIGH WATER and DC POWER indications are shown, but the Control Module buttons do not function in Automatic mode.



SWITCHED E-VALVE (FBVES SERIES)

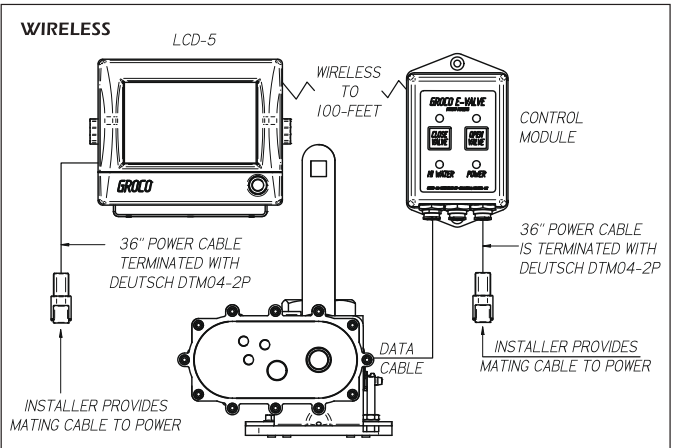
OPEN VALVE and CLOSE VALVE commands are executed by actuating helm-mounted GROCO SWITCH-10 or by touching the buttons on the Control Module. Valve status and valve operation are indicated by super-bright LEDs on the switch for day time viewing. The Control Module functions exactly the same as in Basic mode.



SWITCH-10

WIRELESS E-VALVE (FBVER SERIES)

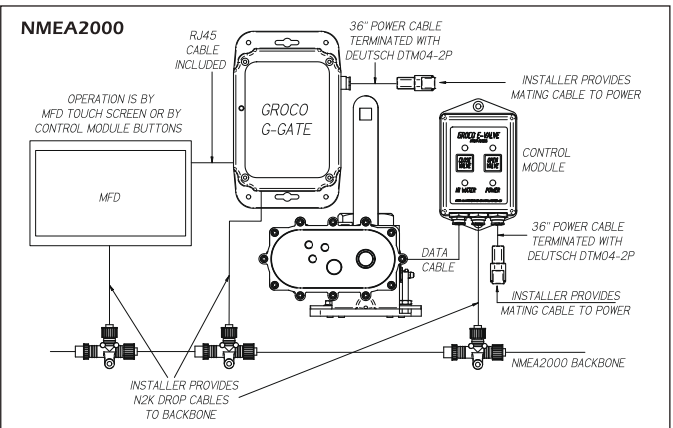
Features and functions for all of the E-Valves on your vessel are displayed on a full-color 5" LCD-5 touchscreen. Communication between LCD-5 and each E-Valve is wireless (100-feet maximum range), and graphics are shown on a vessel plan of your choosing. Valves can be named (port, starboard, generator, etc.) and be logically located on the vessel plan - exactly as they are on your boat.



Control options include OPEN VALVE, CLOSE VALVE, LOCK VALVE (for sanitation systems or equipment under repair), OPEN ALL, CLOSE ALL (for emergencies), EXERCISE ALL and SCHEDULED EXERCISE ALL.

NMEA2000 E-VALVE (FBVEN SERIES)

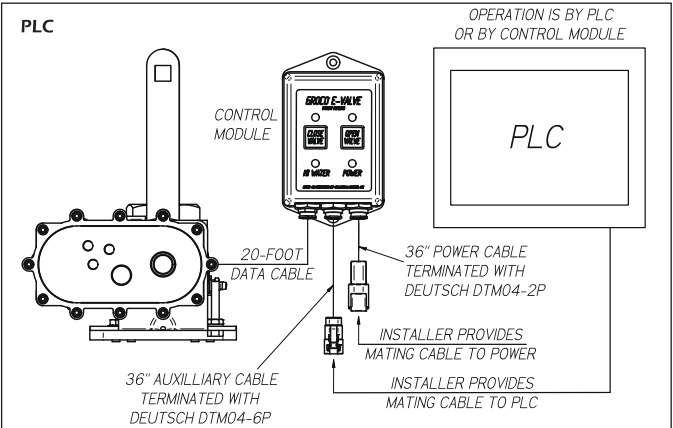
G-Gate connects to the NMEA2000 backbone, along with the MFD and all E-Valves on the vessel. Models are offered for each MFD manufacturer (G-Gate-G serves Garmin 8600 series), functioning as an application server to enable the MFD to display a graphical and control interface for up to 40 E-Valves, or other compatible devices that are also connected to the NMEA2000 bus.



G-Gate is a Garmin OneHelm "industry partner", using the vessel's NMEA2000 interface to coordinate data from multiple E-Valves (other devices are coming soon), and serve the Garmin marine network using its embedded ethernet, HTML5 and TPC/IP capability.

PLC E-VALVE (FBVEP SERIES)

E-Valve can be monitored and controlled by the switching capabilities of a PLC where a virtual panel switch or other graphics offered by the PLC can be programmed to operate E-Valve. The Control Module operates and displays exactly the same as in the Basic mode,



FULL-FLOW FLANGED SAFETY SEACOCKS
U.S. PATENT NO. 5,123,369

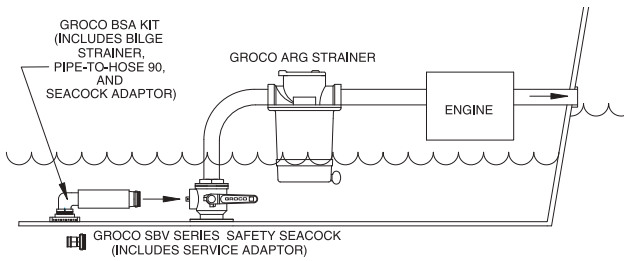
SBV SERIES



FEATURES

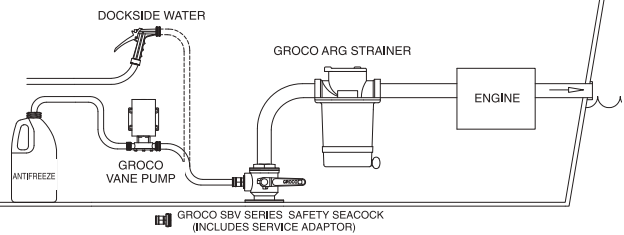
- Handle has square hole that accepts standard ratchet; helps access hard-to-reach valves, or ease actuation of hard-to-operate valves.
- Side port has a Quick-Release Plug for emergency bilge pumping, and a Service Adaptor for routine winterization and maintenance.
- Full flow.
- Serviceable while installed.
- Stainless steel ball and stem.
- Base has bonding attachment.
- PTFE seats and seals.
- Two driver ports permit handle relocation.
- Service adaptor included.

SBV FOR EMERGENCIES



Emergency bilge pumping can be accomplished by closing the SBV and removing the Quick Release Plug while the engine is running.

SBV FOR SERVICE



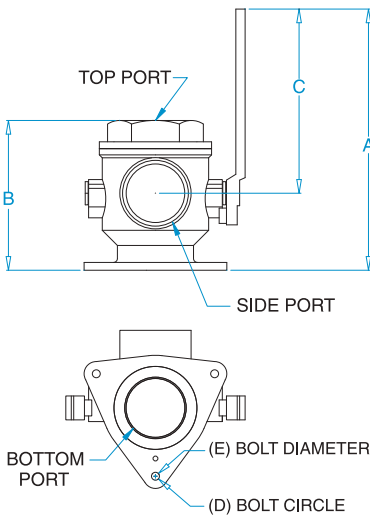
The Service Adaptor and a vane pump simplify winterization.

MODEL	THREAD BOTTOM NPS	THREAD TOP NPT	SIDE PORT	A inch	B inch	C inch	D inch	E inch	WEIGHT lb
SBV-1250	1-1/4"	1-1/4"	SBVSA-1255	7.00	4.50	3.50	3.62	5/16	5.25
SBV-1500	1-1/2"	1-1/2"	SBVSA-1505	8.00	4.63	4.13	4.50	5/16	6.43
SBV-2000	2"	2"	SBVSA-2005	8.38	5.25	5.13	5.00	3/8	11.00
SBV-2500	2-1/2"	2-1/2"	SBVSA-2505	10.31	6.75	5.88	5.88	3/8	17.00
SBV-3000	3"	3"	SBVSA-3005	13.50	7.75	6.81	7.00	3/8	28.00

* Refer to SBV-P drawing for dimension reference

SBV-P SERIES

The purpose of the photo is to get your attention; we don't really provide two handles.



FEATURES

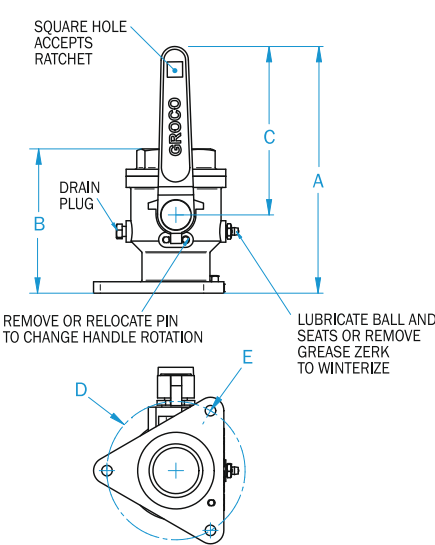
- Two driver ports permit handle relocation.
- NPT threaded side port accepts SSCV or any NPT threaded accessory.
- Handle has square hole that accepts standard ratchet; helps access hard-to-reach valves, or ease actuation of hard-to-operate valves.
- Full flow.
- Serviceable while installed.
- Stainless steel ball and stem.
- Base has bonding attachment.
- PTFE seats and seals.



MODEL	THREAD BOTTOM NPS	THREAD TOP NPT	THREAD SIDE NPT	SIDE ACCESSORY	A inch	B inch	C inch	D inch	E inch	WEIGHT lb
SBV-1250-P	1-1/4"	1-1/4"	1"	SSCV-1000	7.00	4.50	3.50	3.62	5/16	5.25
SBV-1500-P	1-1/2"	1-1/2"	1-1/4"	SSCV-1250	8.00	4.63	4.13	4.50	5/16	6.43
SBV-2000-P	2"	2"	1-1/2"	SSCV-1500	8.38	5.25	5.13	5.00	3/8	11.00
SBV-2500-P	2-1/2"	2-1/2"	2"	SSCV-2000	10.31	6.75	5.88	5.88	3/8	17.00
SBV-3000-P	3"	3"	2-1/2"	SSCV-2500	13.50	7.75	6.81	7.00	3/8	28.50
SBV-4000-P	4"	4"	3"	SSCV-3000	19.20	9.60	14.13	8.00	1/2	56.00
SBV-5000-P	5"	5"	4"	SSCV-3000	19.86	11.19	14.13	11.00	5/8	90.00

FULL-FLOW FLANGED BALL-TYPE SEACOCKS
U.S. PATENT NO. 7,000,896

- Includes a grease zerk fitting (can be used for lubrication or for draining). See page 12 for more.
- Tri-flange base and mount hole pattern provide easy retrofit when replacing other seacock brands.
- Patented selectable handle rotation.
- Handle has square hole to accept standard ratchet to help reach valves in hard-to-reach locations and ease actuation of difficult to operate valves.
- Full flow.
- Stainless steel ball and stem.
- PTFE seats and seals.
- Serviceable while installed.
- Base has bonding attachment.

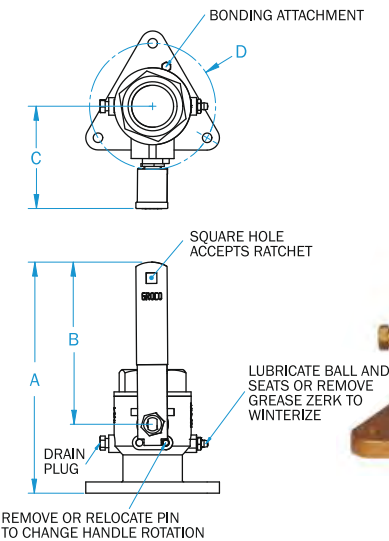


BV SERIES



MODEL	THREAD BOTTOM NPS	THREAD TOP NPT	A inch	B inch	C inch	D inch	E inch	WEIGHT lb	PKG
BV-750	3/4"	3/4"	5.75	3.50	3.8	3.12	5/16	2.3	1
BV-1000	1"	1"	6.63	4.13	4.4	3.38	5/16	3.5	1
BV-1250	1-1/4"	1-1/4"	7.00	4.50	4.4	3.62	5/16	4.6	1
BV-1500	1-1/2"	1-1/2"	8.00	4.63	5.5	4.50	5/16	6.0	1
BV-2000	2"	2"	8.38	5.25	5.5	5.00	3/8	10.0	1
BV-2500	2-1/2"	2-1/2"	10.31	6.75	6.5	5.88	3/8	13.0	1
BV-3000	3"	3"	13.50	7.75	9.5	7.00	3/8	24.0	1
BV-4000	4"	4"	19.20	9.60	14.1	8.00	1/2	52.0	1
BV-5000	5"	5"	19.90	11.20	14.1	11.00	5/8	91.0	1

- 1-1/4" sizes and larger include a grease zerk fitting (can be used for lubrication or for draining). See page 12 for more.
- Patented field reversible handle allows you to select the closed position orientation (clockwise or counter-clockwise) that best suits the installation.
- Handle has square hole to accept standard ratchet, to help reach valves in hard-to-reach locations and ease actuation of difficult to operate valves.
- Full Flow.
- Triangular base with bolt pattern to match other seacock brands makes retrofit easy.
- Stainless steel handle and hardware.
- Chrome plated solid brass ball.
- PTFE Seats and Seals.
- Bonding attachment on base.



FBV SERIES



FBVL Series
has locking mechanism

MODEL	THREAD BOTTOM NPS	THREAD TOP NPT	A inch	B inch	C inch	D inch	E inch	WEIGHT lb	PKG
FBV-750	3/4"	3/4"	6.14	3.92	2.40	3.12	5/16	1.9	2
FBV-1000*	1"	1"	6.98	4.40	2.60	3.38	5/16	2.6	2
FBV-1250	1-1/4"	1-1/4"	7.12	4.85	2.70	3.62	5/16	3.0	2
FBV-1500*	1-1/2"	1-1/2"	8.23	5.77	3.15	4.50	5/16	4.4	2
FBV-2000	2"	2"	10.14	7.53	3.54	5.00	3/8	6.2	2
FBV-2500	2-1/2"	2-1/2"	12.81	7.75	4.21	5.88	3/8	14.3	1
FBV-3000	3"	3"	14.85	9.02	6.99	7.00	3/8	23.2	1

*These sizes are available with locking handle. Order FBVL-1000 or FBVL-1500.

FULL-FLOW FLANGED IN-LINE BALL VALVES
U.S. PATENT NO. 7,000,896

IBV SERIES

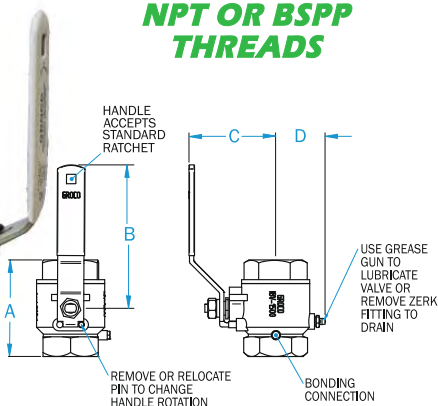
ISO-9093-1
(BSPP MODELS)



MARINE
UL
LISTED
15PR
(NPT MODELS)

IBVL Series
has locking mechanism

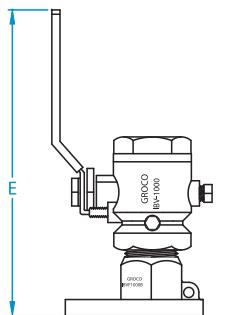
AVAILABLE WITH
NPT OR BSPP
THREADS



- 1-1/4" sizes and larger include a grease zerk fitting (can be used for lubrication or for draining). See page 12 for more.
- Patented selectable handle rotation.
- Handle has square hole to accept standard ratchet, to help reach valves in hard-to-reach locations and ease actuation of difficult to operate valves.
- 400 WOG rated.
- Full flow.
- Stainless steel handle and hardware.
- Chrome plated solid brass ball.
- PTFE seats and seals.
- Bonding attachment.
- UL listed for fuel or water.
- Fits IBVF for Seacock Application.

ANSI MODELS	BSPP MODELS	THREAD NPT/BSPP	A inch/mm	B inch/mm	C inch/mm	D inch/mm	E inch/mm	WEIGHT lb/kg
IBV-250	IBV-250 BSPP	1/4"	1.77/45.0	4.48/113.79	1.99/50.55	1.08/27.43	-	0.48/0.2
IBV-375	IBV-375 BSPP	3/8"	1.77/45.0	4.48/113.79	1.99/50.55	1.08/27.43	-	0.46/0.2
IBV-500	IBV-500 BSPP	1/2"	2.05/52.1	5.10/129.54	2.26/57.40	1.14/28.96	-	0.74/0.3
IBV-750	IBV-750 BSPP	3/4"	2.33/59.2	5.15/130.81	2.27/57.66	1.26/32.00	7.55	1.00/0.5
IBV-1000*	IBV-1000 BSPP	1"	2.79/70.9	5.93/150.62	2.48/62.99	1.47/37.34	7.58	1.70/0.8
IBV-1250	IBV-1250 BSPP	1-1/4"	3.18/80.8	6.54/166.12	2.65/67.31	1.71/43.43	8.05	2.24/1.0
IBV-1500*	IBV-1500 BSPP	1-1/2"	3.60/91.4	7.62/193.55	3.20/81.28	1.88/47.75	9.38	3.28/1.5
IBV-2000	IBV-2000 BSPP	2"	4.30/109.2	9.13/231.90	3.59/91.19	2.17/55.12	10.85	4.56/2.1
IBV-2500	IBV-2500 BSPP	2-1/2"	4.88/124.0	10.00/254.00	4.40/111.76	2.60/66.04	12.81	10.40/4.7
IBV-3000	IBV-3000 BSPP	3"	6.87/174.5	10.75/273.05	4.75/120.65	3.00/76.20	14.85	17.54/8.0
IBV-4000	IBV-4000 BSPP	4"	8.20/208.3	12.00/304.80	6.00/152.40	4.00/101.60	-	29.80/13.5

*Available with locking handle. Order IBVL-1000 or IBVL-1500.

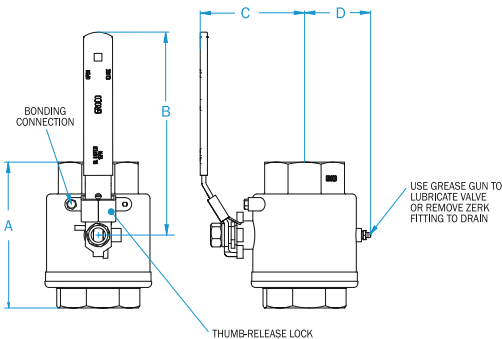


IBV MOUNTED ON IBVF

IBV-S SERIES



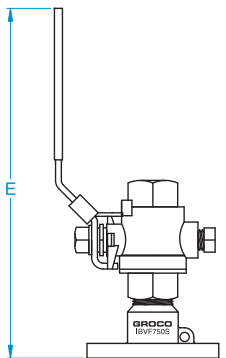
MARINE
UL
LISTED
15PR



- 1-1/4" sizes and larger include a grease zerk fitting (can be used for lubrication or for draining). See page 12 for more.
- Handle has square hole to accept standard ratchet (helps you to reach hard-to-reach valves and eases actuation of hard to operate valves).
- Thumb-release locking mechanism assures the valve remains in the position selected.
- 1000 WOG rated.
- #316 SS body. #304 SS handle and trim.
- Bonding attachment.
- PTFE seats and seals.
- UL listed for fuel or water. Full flow.
- Fits IBVF-S for Seacock Application.

MODEL	THREAD NPT	A inch	B inch	C inch	D inch	E inch	WEIGHT lb
IBV-250-S	1/4"	2.20	3.92	1.83	0.61	-	0.61
IBV-375-S	3/8"	2.20	3.92	1.83	0.61	-	0.57
IBV-500-S	1/2"	2.48	3.92	1.90	1.28	-	0.66
IBV-750-S	3/4"	2.98	4.98	2.43	1.38	8.17	1.28
IBV-1000-S	1"	3.30	4.98	2.73	1.60	8.33	1.57
IBV-1250-S	1-1/4"	3.86	6.02	3.18	1.80	9.65	2.71
IBV-1500-S	1-1/2"	4.25	6.02	3.43	2.07	9.90	3.34
IBV-2000-S	2"	4.75	7.56	3.76	2.40	11.66	5.45
IBV-2500-S	2-1/2"	6.32	9.76	4.70	2.75	15.27	10.34
IBV-3000-S	3"	7.33	9.76	5.12	4.00	15.83	21.60
IBV-4000-S	4"	8.82	12.60	6.58	-	-	-

*Sizes 3/4" - 3" include drain plug



IBV-S MOUNTED ON IBVF-S

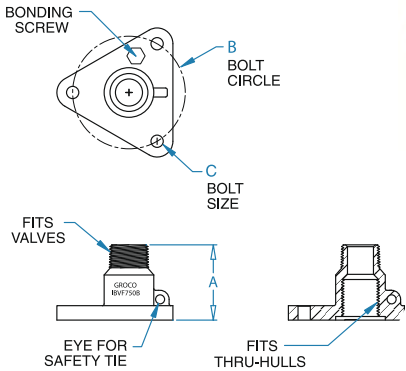
FLANGED ADAPTORS U.S. PATENT NO. 7,530,370

THE CONCEPT

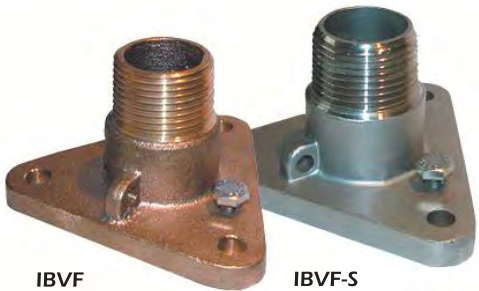
Patented IBVF Flanged Adaptors have been developed to address several common problems in the marine industry. Here's what they do:

- Eliminate dangerous thread mis-match when in-line valves are screwed onto thru hulls.
- Accepts standard thru-hulls into the base and standard in-line valves on top.
- Provides a safe and sturdy assembly when in-line valves are used as seacocks.
- For OEMs, prevents valve damage during engine or generator installation - the valve can be installed later.
- Simplifies future valve replacement.
- Bronze and #316 SS models.

AVAILABLE WITH
NPT OR BSPP
THREADS

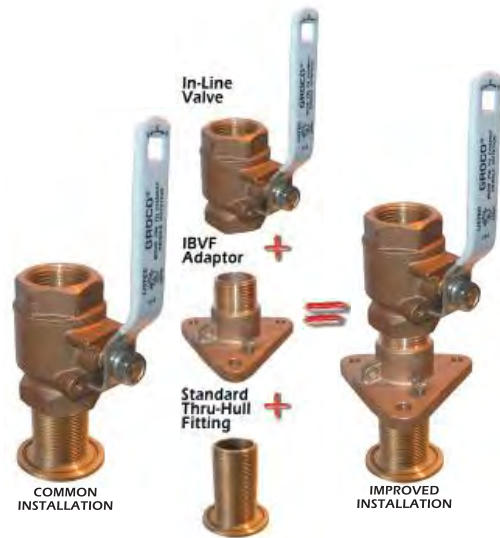


IBVF AND IBVF-S SERIES



IBVF

IBVF-S



BRONZE ANSI MODELS	#316 SS ANSI MODELS	NPT TOP THREAD	NSPM BOTTOM THREAD	BRONZE BSPP MODELS	BSPP TOP & BOTTOM THREAD	A inch	B inch	C inch	WEIGHT BRONZE lb	WEIGHT SS lb
IBVF-750	IBVF-750-S	3/4"	3/4"	IBVF-750 BSPP	3/4"	2.09	3.12	5/16"	1.05	.96
IBVF-1000	IBVF-1000-S	1"	1"	IBVF-1000 BSPP	1"	2.18	3.38	5/16"	1.07	.98
IBVF-1250	IBVF-1250-S	1-1/4"	1-1/4"	IBVF-1250 BSPP	1-1/4"	2.18	3.62	5/16"	1.20	1.10
IBVF-1500	IBVF-1500-S	1-1/2"	1-1/2"	IBVF-1500 BSPP	1-1/2"	2.18	4.50	5/16"	1.69	1.54
IBVF-2000	IBVF-2000-S	2"	2"	IBVF-2000 BSPP	2"	2.18	5.00	5/16"	2.04	1.86
IBVF-2500	IBVF-2500-S	2-1/2"	2-1/2"	IBVF-2500 BSPP	2-1/2"	3.20	5.88	3/8"	3.8	3.5
IBVF-3000	IBVF-3000-S	3"	3"	IBVF-3000 BSPP	3"	3.51	7.00	3/8"	5.8	5.3

BB SERIES - BACKING BLOCKS

THE CONCEPT

Flanged seacock installation is improved with the use of a backing block between the valve flange and the hull.

- Each size fits multiple seacock sizes.
- Press threaded inserts into the hull side of the backing block into the holes that match the seacock flange.
- Rigid 1/2" thickness provides secure installation but is flexible enough to conform to minor hull curvature.
- Will not swell or absorb moisture.

MODEL	FITS SEACOCK SIZES	BACKING BLOCK DIAMETER	INSERT THREADS
BB-1	750 AND 1000	4.29	5/16-18
BB-2	1250 AND 1500	5.38	5/16-18
BB-3	2000 AND 2500	7.13	3/8-16
BB-4	3000	9.50	3/8-16
BB-4A	4000	9.50	1/2-13
BB-5	5000	12.50	5/8-11

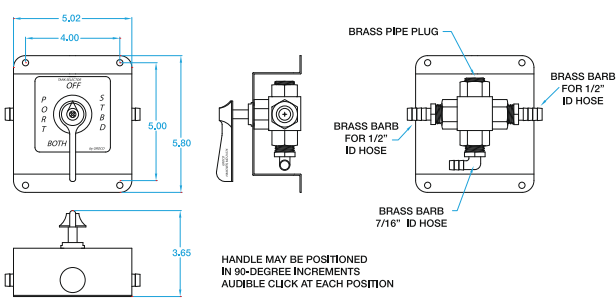


SPECIAL PURPOSE VALVES

TS-350-T - TANK SELECTOR KIT



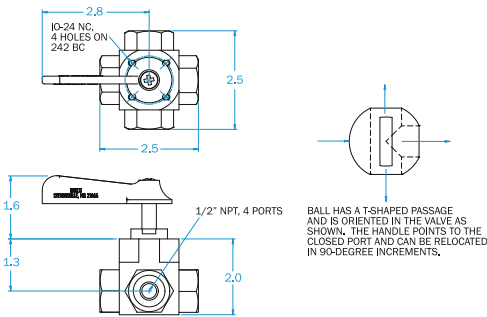
TS-350-T Tank Selector Kit utilizes FV-450-X full flow valve (see above for details) mounted on an attractive stainless steel mount bracket and plumbed with (2) 1/2" straight hose barbs and (1) 7/16" 90-degree hose barb. Two labels are provided to match your installation (port/starboard or fore/aft). Handle can be relocated in 90-degree increments to align plumbing.



FV-450-X - TANK SELECTOR VALVE



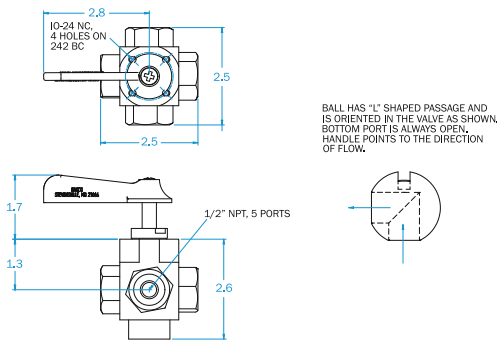
- For fuel or water.
- Four Positions: Tank-1, Tank-2, Tanks 1 & 2, Off.
- Full 1/2" flow.
- Audible "click" at each handle position.
- For thru panel mounting.
- Available separately or as part of TS-350-T Kit (above).



FV-550-L - TANK SELECTOR VALVE



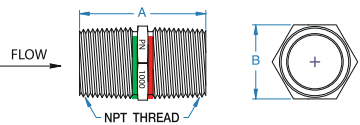
- For fuel or water.
- Bottom port is common. Select between four outlets.
- Full 1/2" flow.
- Audible "click" at each handle position.
- For thru panel mounting.



PNC SERIES - CHECK VALVE



PNC Series are made from cast bronze nipples. A check valve is placed inside to prevent back-flow in plumbing systems. The check valve imposes almost zero flow restriction, and requires less than 1/2 PSI to open. Colored bands indicate flow direction (green to red), confirmed by the permanent laminated tag. Sizes 1/2" to 2". Do not use in diesel fuel or gasoline applications.



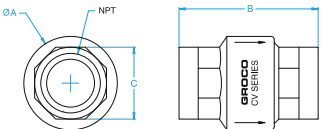
MODEL	THREAD NPT	A inch	B inch	PSI TO OPEN	WEIGHT lb	PKG
PNC-500	1/2"	1.77	0.88	.45	0.17	10
PNC-750	3/4"	1.77	1.06	.45	0.21	10
PNC-1000	1"	2.34	1.38	.45	0.33	10
PNC-1250	1-1/4"	2.51	1.75	.45	0.62	10
PNC-1500	1-1/2"	2.49	2.00	.45	0.72	6
PNC-2000	2"	2.37	2.50	.45	0.84	2

CV SERIES - CHECK VALVE



CV Series in-line check valve may be used in water or fuel systems to keep pumps primed and to prevent back-flow in pressure systems. Unique design reduces flow turbulence and restriction, thus improving pump performance.

- Cast bronze construction.
- NPT threaded ports.
- 1/2" - 2" sizes.
- Suitable for use with diesel fuel or gasoline.

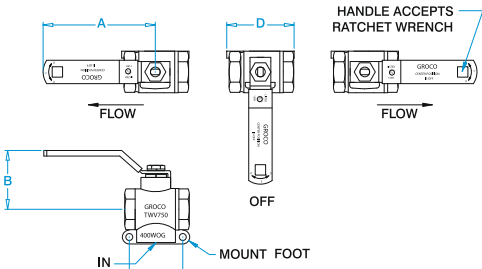


MODEL	THREAD NPT	A inch	B inch	C inch	PSI TO OPEN	WEIGHT lb	PKG
CV-50	1/2"	1.42	2.45	1.00	.33	0.4	1
CV-75	3/4"	1.65	2.58	1.20	.16	0.5	1
CV-100	1"	1.90	3.30	1.45	.19	0.8	1
CV-125	1-1/4"	2.38	3.98	1.88	.10	1.4	1
CV-150	1-1/2"	2.93	4.34	2.23	.10	2.3	1
CV-200	2"	3.63	5.00	2.75	.10	3.2	1

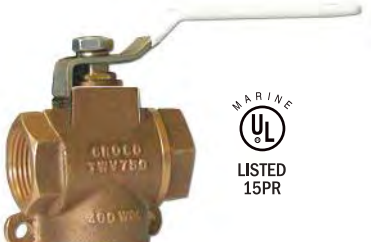
SPECIAL PURPOSE VALVES

Three-Way Valve

- 3-way valve operates logically - The handle points to the direction of flow. Center position is "off".
- Handle rotates a full 180°.
- Mount foot included.
- Full flow.
- Stainless steel handle and hardware.
- PTFE seats and seals.
- TWV-1500 size is ideal for waste systems.
- UL listed for fuel or water.



TWV SERIES

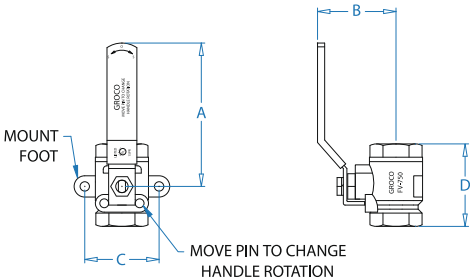


MODEL	THREAD NPT	A inch	B inch	C inch	D inch	WEIGHT lb	PKG
TWV-500	1/2"	4.10"	2.12"	1.90"	2.40"	1.08	2
TWV-750	3/4"	4.10"	2.20"	1.93"	2.44"	1.24	2
TWV-1500	1-1/2"	6.00"	3.30"	3.15"	3.95"	5.60	1

Fuel Valve

ABYC H33.9.2 states that fuel system valves must have an independent means of support. That's why regular in-line valves are not appropriate for fuel systems applications.

- Patented selectable handle rotation.
- Full flow.
- Mount foot included.
- Stainless steel handle and hardware.
- 400 WOG.
- PTFE seats and seals.
- UL listed for fuel or water.



FV SERIES

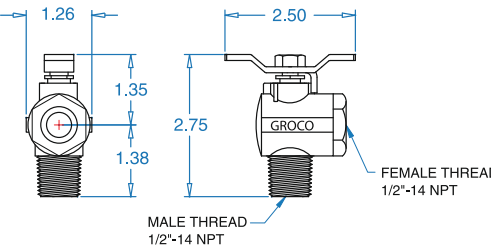
U.S. PATENT NO. 7,000,896



MODEL	THREAD NPT	A inch	B inch	C inch	D inch	WEIGHT lb	PKG
FV-250	1/4"	4.10"	2.22"	1.54"	1.77"	.52	16
FV-375	3/8"	4.10"	2.22"	1.54"	1.77"	.50	16
FV-500	1/2"	4.10"	2.20"	1.85"	2.05"	.82	16
FV-750	3/4"	4.10"	2.22"	2.10"	2.33"	1.06	10

90-Degree Fuel Valve

- Compact design.
- 90° flow path.
- 1/2" NPT male and female ports.
- Use FV-590 for fiberglass tanks.
- Use FV-590-S with aluminum or stainless steel tanks.



FV-590 SERIES



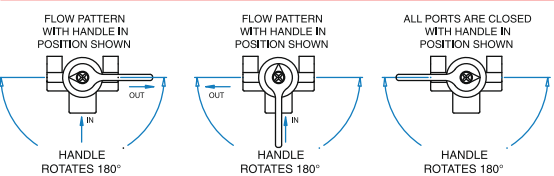
6-PORT FUEL VALVES

Six-port fuel valves are used where 2 tanks supply a single engine, and a return to each supply tank is required.

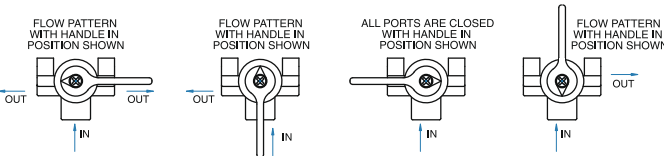
ABYC H33.9.2 states that fuel system valves must have an independent means of support, so in-line valves are not suitable for fuel system applications.

FV-65038 and FV-61075 have an "L" shaped flow pattern and 180° handle swing; FV-65038-A and FV-61075-A have a "T" shaped flow pattern and 360° handle actuation.

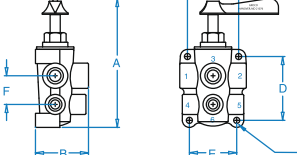
FLOW PATTERN FV-65038 AND FV-61075



FLOW PATTERN FV-65038-A AND FV-61075-A



MODELS	MAIN NPT	RETURN NPT	A inch	B inch	C inch	D inch	E inch	F inch
FV-65038	1/2"	3/8"	5.62	2.31	2.23	2.78	2.06	1.25
FV-65038-A	1/2"	3/8"	5.62	2.31	2.23	2.78	2.06	1.25
FV-61075	1"	3/4"	8.42	3.47	3.34	4.17	3.09	1.88
FV-61075-A	1"	3/4"	8.42	3.47	3.34	4.17	3.09	1.88

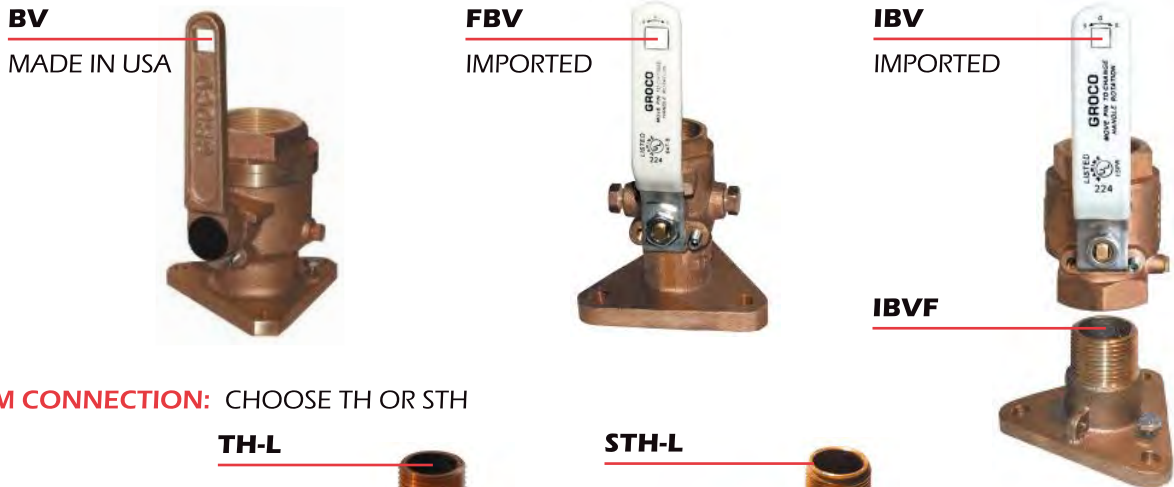


SEACOCK SYSTEMS

TOP CONNECTION: CHOOSE PTH, PTHC, PTHD, FF OR FFC CONNECTIONS






VALVE: CHOOSE BV, FBV, OR IBV



BOTTOM CONNECTION: CHOOSE TH OR STH



Series	Size Range	Valve	Top Connection	Bottom Connection	Other	EXAMPLES
632-XXXX-00	3/4" - 2-1/2"	BV	FF	STH-L		 626 SERIES
628-XXXX-00	3/4" - 3"	BV	FF	TH-L		
633-XXXX-00	3/4" - 2-1/2"	BV	FFC	STH-L		
629-XXXX-00	3/4" - 3"	BV	FFC	TH-L		
630-XXXX-00	3/4" - 2-1/2"	BV	PTH	STH-L		
626-XXXX-00	3/4" - 5"	BV	PTH	TH-L		
631-XXXX-00	3/4" - 2-1/2"	BV	PTHC	STH-L		
627-XXXX-00	3/4" - 5"	BV	PTHC	TH-L		
656-XXXX-00	3/4" - 2-1/2"	BV	PTHD	STH-L		
654-XXXX-00	3/4" - 3"	BV	PTHD	TH-L		
647-XXXX-00	3/4" - 2-1/2"	FBV	FF	STH-L		 646 SERIES
636-XXXX-00	3/4" - 3"	FBV	FF	TH-L		
648-XXXX-00	3/4" - 2-1/2"	FBV	FFC	STH-L		
637-XXXX-00	3/4" - 3"	FBV	FFC	TH-L		
645-XXXX-00	3/4" - 2-1/2"	FBV	PTH	STH-L		
634-XXXX-00	3/4" - 3"	FBV	PTH	TH-L		
646-XXXX-00	3/4" - 2-1/2"	FBV	PTHC	STH-L		
635-XXXX-00	3/4" - 3"	FBV	PTHC	TH-L		
655-XXXX-00	3/4" - 2-1/2"	FBV	PTHD	STH-L		
653-XXXX-00	3/4" - 3"	FBV	PTHD	TH-L		
661-XXXX-00	3/4" - 2-1/2"	IBV	FF	STH-L	IBVF	 658 SERIES
651-XXXX-00	3/4" - 3"	IBV	FF	TH-L	IBVF	
662-XXXX-00	3/4" - 2-1/2"	IBV	FFC	STH-L	IBVF	
652-XXXX-00	3/4" - 3"	IBV	FFC	TH-L	IBVF	
659-XXXX-00	3/4" - 2-1/2"	IBV	PTH	STH-L	IBVF	
649-XXXX-00	3/4" - 3"	IBV	PTH	TH-L	IBVF	
660-XXXX-00	3/4" - 2-1/2"	IBV	PTHC	STH-L	IBVF	
650-XXXX-00	3/4" - 3"	IBV	PTHC	TH-L	IBVF	
658-XXXX-00	3/4" - 2-1/2"	IBV	PTHD	STH-L	IBVF	
657-XXXX-00	3/4" - 3"	IBV	PTHD	TH-L	IBVF	

XXXX = Pipe Size Example: 0750 = 3/4", 2500 = 2-1/2"

ENGINE FLUSH KITS and SAFETY SEACOCK CONVERSIONS

THE CONCEPT

Add SSC to the top of any seacock to allow instant emergency bilge pumping, or to simplify winterization and cooling system flushing.

Add a GROCO® Bilge Strainer to pump out remote bilge locations.

IN AN EMERGENCY: While the connected engine is running, close the seacock and remove the quick release plug. Excess bilge water will be pumped overboard by the engine raw water pump. Add GROCO® BSA to pump out remote bilge locations.

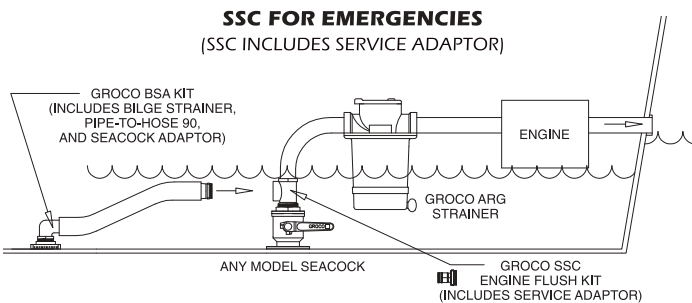
FOR WINTERIZATION: Close the seacock, remove the quick release plug and insert the service adaptor (included). Anti-freeze can be pumped into the cooling system.

FOR SYSTEM FLUSHING: Close the seacock and insert the service adaptor. Dockside water can be used to flush the cooling system with the engine running at idle speed.

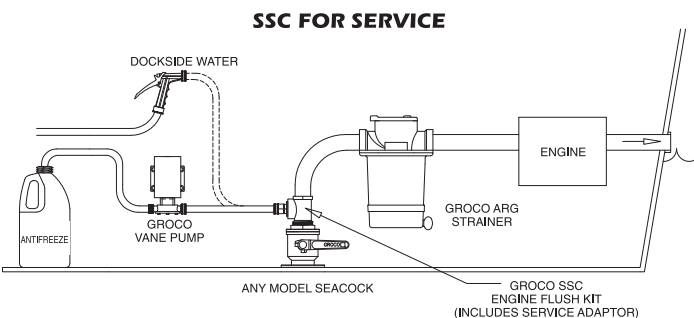
SSC SERIES



SSC Engine Flush Kit w/Service Adaptor



Emergency bilge pumping allows high bilge water to be drawn through open side port and pumped overboard through engine exhaust system.



NOTE: SSC may also be installed after the strainer, See SSCV below.

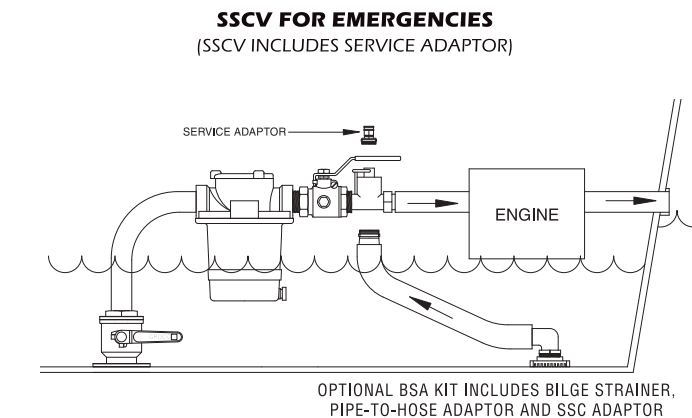
THE CONCEPT

SSCV is the SSC (above) combined with a Full Flow In-Line IBV Series ball valve, which isolates the plumbing before SSC and prevents back-flushing into the strainer or through the seacock.

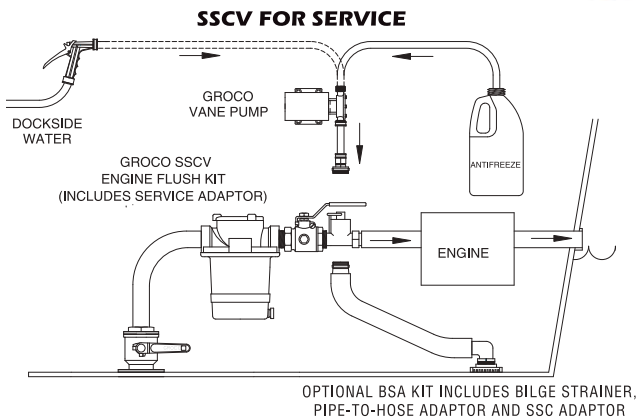
FOR WINTERIZATION: Close the seacock, remove the quick release plug and insert the service adaptor (included). Anti-freeze can be pumped into the cooling system.

FOR SYSTEM FLUSHING: Close the seacock and insert the service adaptor. Dockside water can be used to flush the cooling system with the engine running at idle speed.

SSCV SERIES



OPTIONAL BSA KIT INCLUDES BILGE STRAINER, PIPE-TO-HOSE ADAPTOR AND SSC ADAPTOR



OPTIONAL BSA KIT INCLUDES BILGE STRAINER, PIPE-TO-HOSE ADAPTOR AND SSC ADAPTOR

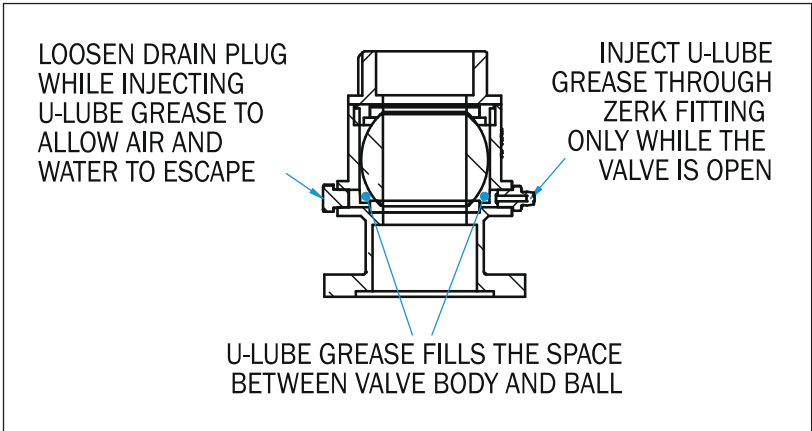
MODEL*	HOSE ID	THREAD NPT	SSC LENGTH inch	SSCV LENGTH inch	SSC WEIGHT lb	SSCV WEIGHT lb	SSC PKG	SSCV PKG
SSCV-750	3/4"	3/4"	3.90"	5.79"	.65	1.65	2	1
SSCV-1000	1"	1"	4.35"	6.56"	.90	2.66	2	1
SSCV-1250	1-1/4"	1-1/4"	4.55"	7.02"	1.05	3.29	2	1
SSCV-1500	1-1/2"	1-1/2"	4.75"	7.78"	1.45	4.76	2	1
SSCV-2000	2"	2"	5.20"	9.13"	2.20	6.98	2	1
SSCV-2500	2-1/2"	2-1/2"	5.85"	12.00"	4.80	15.20	1	1
SSCV-3000	3"	3"	6.32"	14.50"	5.50	23.25	1	1

*To order SSC only drop "V" from model number.

THE CONCEPT

Each time a marine ball valve is closed seawater is trapped between the ball and the valve body where it can stagnate and where nuisance marine growth (slime and barnacles) can begin. Regularly "exercising" ball valves helps, but is often neglected. When U-LUBE® grease is injected into a ball valve through a permanently installed zerk fitting, the space between the ball and the valve body is filled, so seawater can't enter.

U-LUBE® is a long-lasting waterproof grease specifically formulated to lubricate and help protect internal ball valve components, and to discourage nuisance marine growth.



The approximate volume of U-LUBE® grease needed for various ball valve sizes is shown below:

VALVE SIZE	1/4"	3/8"	1/2"	3/4"	1"	1-1/4"	1-1/2"	2"	2-1/2"	3"	4"	5"
OUNCES of U-LUBE	.03	.03	.04	.05	.1	.35	.7	1	2.8	7	11	16

U-LUBE® also works well in non-ball valve applications like bushings and bearings that are exposed to wet conditions. Its' tacky texture keeps it in place to resist washout and to provide long-lasting protection against wear and rust.

Raw Water Flow Monitor	SSA
Inboard Strainers	ARG, SA, SD, SE, VD
Hull Strainers	APHS, ASC, RSC, SC
Self-Clean Strainers	HYDROMATIC™
Pump-Inlet Strainer	WSB
Seacock/Strainer Combo	BVS



RAW WATER STRAINERS

WATER FLOW MONITOR

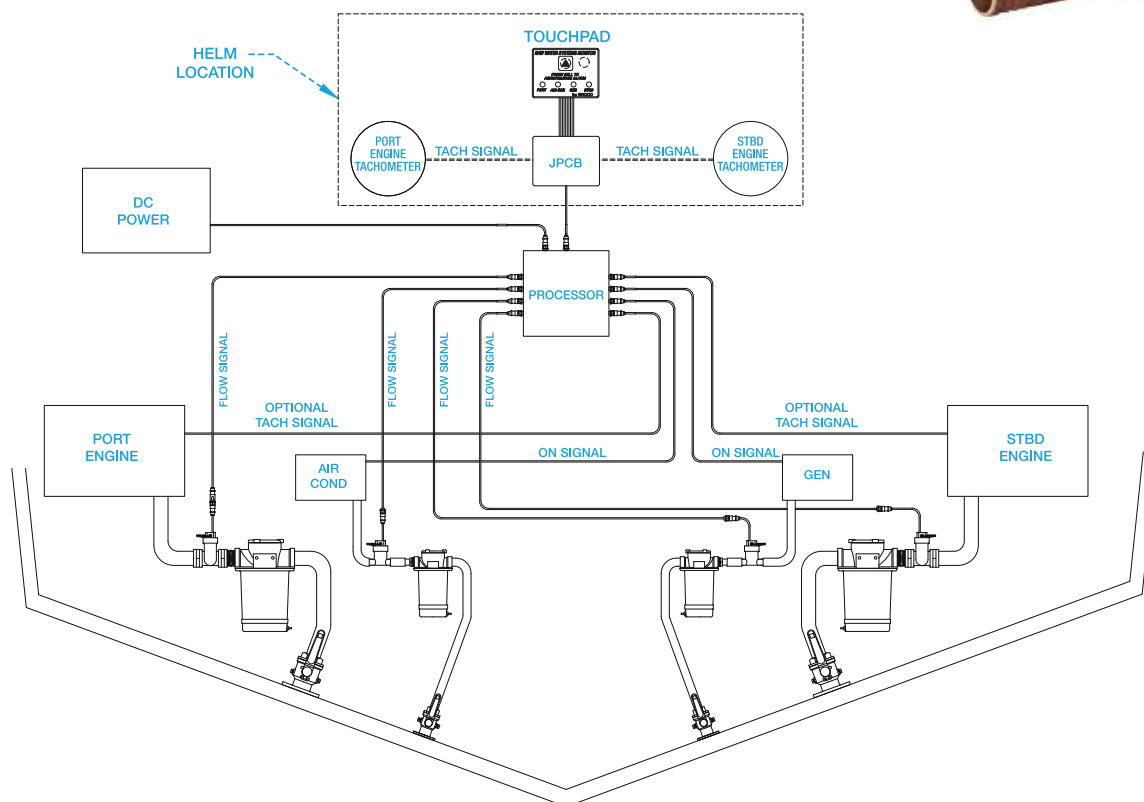
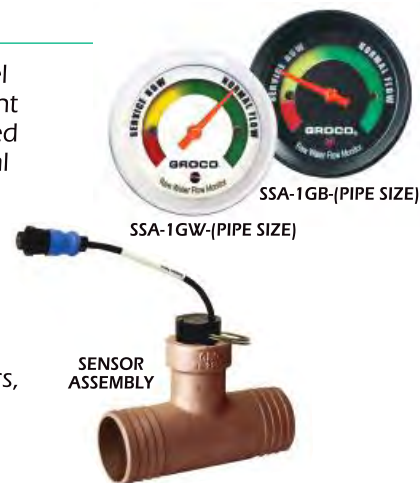
U.S. PATENT NO. 7,491,320



THE CONCEPT

SSA is a patented system that alerts the vessel operator visually and audibly to the significant reduction of raw water flow to any connected device. You are alerted faster than traditional gauges or sensors (about 7 seconds) – fast enough to allow you to react and investigate – fast enough to prevent damage BEFORE it occurs.

Models are offered to monitor flow to engines, generators, air conditioners, R/O systems or combinations of these consumers, and the tournament fisherman model monitors flow to multiple live wells.



SSA-4 SAMPLE INSTALLATION

HOW IT WORKS

Sensors, hose sizes 5/8" to 6", installed in each raw water line send flow data to the processor, and each device sends an "on" signal when it is operating. If flow to any of the devices falls below calibrated "normal" you are alerted audibly, and an LED identifies the device requiring maintenance or service.

In an emergency the sensor can be removed from the bronze housing to allow water to be pumped from a flooded bilge. All housings accept GROCO® SBVSA-1505 Service Adaptor for winterization or system flushing.

MODEL	MAX DEVICES CONNECTED	DEVICE DESCRIPTION	INDICATOR	NMEA2000
SSA-1GB	1	Propulsion Engine	2-5/8" Gauge, Black	N/A
SSA-1GW	1	Propulsion Engine	2-5/8" Gauge, White	N/A
SSA-3	3	1 engine, 1 generator, 1 air conditioner	Touchpad	Coming Soon
SSA-4	4	Up to 2 engines and up to 2 AC or DC pumps	Touchpad	Coming Soon
SSA-4B	4	Up to 4 AC or DC baitwell pumps	Touchpad	Coming Soon
SSA-7	7	Up to 3 Engines, up to 4 AC or DC pumps	Touchpad	Coming Soon

WATER FLOW MONITOR
U.S. PATENT NO. 7,491,320

HOW TO DESIGN YOUR SYSTEM

Step-1: Select the Touchpad. Your selection identifies how many devices you will connect and what the devices are.

Touchpad #31
Engine, AC,
Gen

Touchpad #41
Engine, Engine,
AC, Gen

Touchpad #43
4 AC or 4 DC
Pumps

Touchpad #71
Engine, Engine,
AC, AC, AC, Gen, Gen

Touchpad #72
Engine, Engine,
AC, AC, Gen, Gen,
R/O or Refrigeration

Touchpad #73
Engine, Engine,
AC, AC, AC, Gen,
R/O or Refrigeration

After Step-1: Sample System Part Number = SSA41- _ _ _ _ - _

Step-2: Select Sensor Plumbing Code from chart below to match existing plumbing (specify in alphabetic order).

Diagram showing a sensor assembly with a flexible cable and dimensions Z and Y.

SENSOR	HOSE ID	PLUMBING CODE	SENSOR	NPT	PLUMBING CODE	DIMENSIONS Y	Z
SSA-625-HH	5/8"	W	-	-	-	4.8	2.0
SSA-750-HH	3/4"	B	SSA-750-PP	3/4"	A	4.8	2.0
SSA-1000-HH	1"	D	SSA-1000-PP	1"	C	4.8	2.2
SSA-1250-HH	1-1/4"	F	SSA-1250-PP	1-1/4"	E	4.8	2.3
SSA-1500-HH	1-1/2"	H	SSA-1500-PP	1-1/2"	G	5.2	2.4
SSA-2000-HH	2"	K	SSA-2000-PP	2"	J	5.2	2.7
SSA-2500-HH	2-1/2"	M	SSA-2500-PP	2-1/2"	L	5.2	2.9
SSA-3000-HH	3"	P	SSA-3000-PP	3"	N	5.2	3.0
SSA-4000-HH	4"	R	SSA-4000-PP	4"	Q	5.2	3.6
SSA-5000-HH	5"	T	SSA-5000-PP	5"	S	-	-
SSA-6000-HH	6"	V	SSA-6000-PP	6"	U	-	-

SENSOR ASSEMBLY

After Step-2: Sample System Part Number = SSA41-B D K K - _

Step-3: Identify the source of engine(s) RPM signal.

Monitoring a propulsion engine requires an RPM signal. RPM data can be obtained from either of 3 sources, the source becomes the final number in the system part number.

- Choose suffix -1 if you will obtain RPM from a helm-mounted analog tachometer.
- Choose suffix -2 if you will obtain RPM from the signal generator on each engine.
- Choose suffix -3 if you will obtain RPM from the engine J1939 connector or ECU.

After Step 3: Completed Sample System Part Number = SSA41-B D K K - 1

Example Part Number: SSA41-B D K K - 1

Touchpad for 2 Engines, 1 AC and 1 Gen

Sensor Assembly fits 3/4" ID hose

Sensor Assembly fits 1" ID hose

Sensor Assembly fits 2" ID hose

Sensor Assembly fits 2" ID hose

RPM signal obtained from helm mounted tach

More Examples: SSA31-B B L - 2

Touchpad for 1 Engine, 1 AC and 1 Gen

Sensor Assembly fits 3/4" ID hose

Sensor Assembly fits 3/4" ID hose

Sensor Assembly fits 2-1/2" NPT

RPM signal obtained from engine tach signal gen

SSA73-B B B D D K K - 3

Touchpad for 2 Engines, 3 AC, 1 Gen and 1 RO

Sensor Assembly fits 3/4" ID hose

Sensor Assembly fits 3/4" ID hose

Sensor Assembly fits 3/4" ID hose

Sensor Assembly fits 1" ID hose

Sensor Assembly fits 1" ID hose

Sensor Assembly fits 2" ID hose

Sensor Assembly fits 2" ID hose

RPM signal obtained from J1939 connection

ARG SERIES

ARG SERIES

with magnifying cap for easy inspection

Mounting System
Allows Removal
Without Tools

Bonding Connection
on Both Sides

O-Rings Seal All
Joining Surfaces

Filter Basket Options
#304 SS (STANDARD)
Monel
Non-Metallic

One-Piece Molded
Sight Glass Eliminates
Tie Rods and Gaskets

Improved Drain Plug

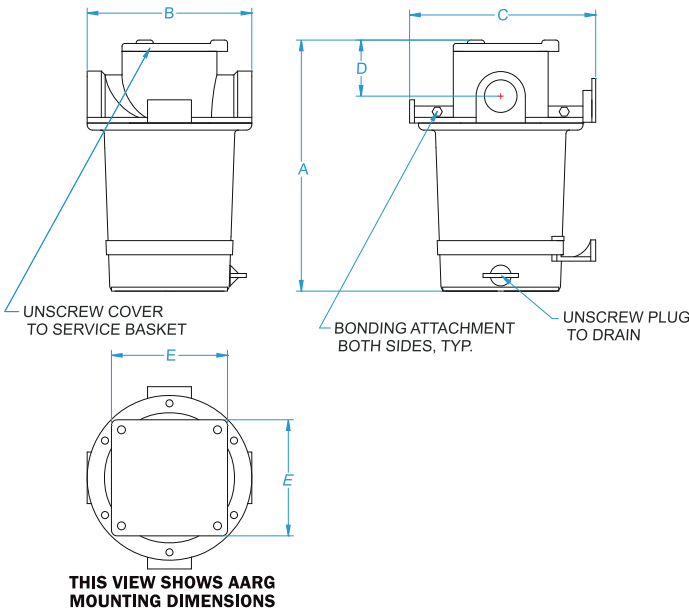
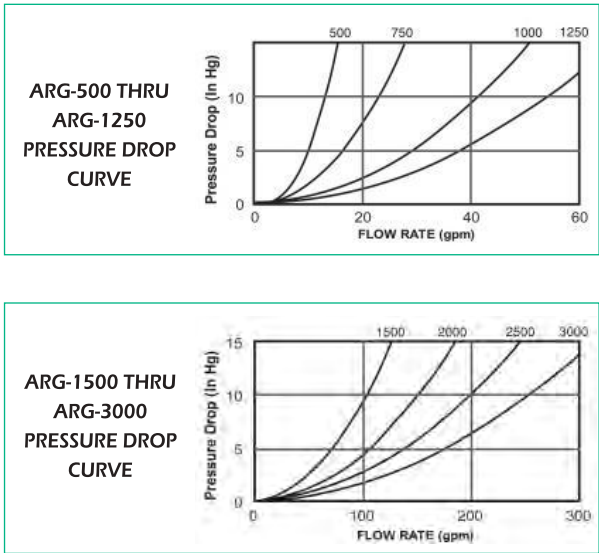
Non-Metallic Cap
Magnifies Internal
Viewing

NPT or BSPP
Threaded
Ports

Improved
Basket

NEW

Go to www.groco.net for upates, applications, an servicing information.



ARG SERIES

ARG SERIES IS NOW AVAILABLE WITH BSPP OR NPT THREADS

PLASTIC BASKET	#304 SS BASKET	MONEL BASKET	THREAD NPT/BSPP	DIMENSIONS (P-16)					RATIO	WEIGHT lbs/kg
				A inch/mm	B inch/mm	C inch/mm	D inch/mm	E inch/mm		
ARG-500-P	ARG-500-S	ARG-500	1/2"	6.4/162.6	4.5/114.3	5.3/134.6	1.5/38.1	-	54	3.5/1.6
ARG-755-P	ARG-755-S	ARG-755	3/4"	6.4/162.6	4.5/114.3	5.3/134.6	1.5/38.1	-	24	3.5/1.6
ARG-750-P	ARG-750-S	ARG-750	3/4"	8.4/213.4	4.5/114.3	5.3/134.6	1.5/38.1	-	36	3.7/1.7
ARG-1000-P	ARG-1000-S	ARG-1000	1"	9.0/228.6	5.8/147.3	6.5/165.1	2.0/50.8	-	28	5.8/2.6
ARG-1210-P	ARG-1210-S	ARG-1210	1-1/4"	9.2/233.7	5.8/147.3	6.5/165.1	2.3/58.4	-	18	6.1/2.8
ARG-1250-P	ARG-1250-S	ARG-1250	1-1/4"	10.6/269.2	5.8/147.3	6.5/165.1	2.3/58.4	-	24	6.4/2.9
ARG-1500-P	ARG-1500-S	ARG-1500	1-1/2"	11.4/289.6	7.3/185.4	7.8/198.1	2.5/63.5	-	20	9.6/4.4
ARG-2015-P	ARG-2015-S	ARG-2015	2"	12.0/304.8	7.3/185.4	7.8/198.1	2.8/71.1	-	11	11.1/5.0
ARG-2000-P	ARG-2000-S	ARG-2000	2"	14.0/355.6	7.3/185.4	7.8/198.1	2.8/71.1	-	14	12.2/5.5
ARG-2515-P	ARG-2515-S	ARG-2515	2-1/2"	12.7/322.6	7.3/185.4	7.8/198.1	3.1/78.7	-	7	13.5/6.1
ARG-2520-P	ARG-2520-S	ARG-2520	2-1/2"	14.6/370.8	7.3/185.4	7.8/198.1	3.1/78.7	-	9	13.5/6.1
ARG-2500-P	ARG-2500-S	ARG-2500	2-1/2"	17.0/431.8	7.3/185.4	7.8/198.1	3.1/78.7	-	11	14.2/6.4
ARG-3015-P	ARG-3015-S	ARG-3015	3"	13.3/337.8	7.3/185.4	7.8/198.1	3.5/88.9	-	5	15.0/6.8
ARG-3020-P	ARG-3020-S	ARG-3020	3"	15.2/386.1	7.3/185.4	7.8/198.1	3.5/88.9	-	6	15.8/7.2
ARG-3025-P	ARG-3025-S	ARG-3025	3"	17.4/442.0	7.3/185.4	7.8/198.1	3.5/88.9	-	8	16.5/7.5
ARG-3000-P	ARG-3000-S	ARG-3000	3"	19.8/502.9	7.3/185.4	7.8/198.1	3.5/88.9	-	9	17.3/7.8

MODEL ARG
BRONZE CASTINGS
CLEAR SIGHT GLASS



PLASTIC BASKET	#304 SS BASKET	MONEL BASKET	THREAD NPT	DIMENSIONS (P-16)					RATIO	WEIGHT lbs
				A inch	B inch	C inch	D inch	E inch		
ARGS-500-P	ARGS-500-S	ARGS-500	1/2"	6.4	5.5	5.3	1.5	-	54	3.2
ARGS-755-P	ARGS-755-S	ARGS-755	3/4"	6.4	4.5	5.3	1.5	-	24	3.2
ARGS-750-P	ARGS-750-S	ARGS-750	3/4"	8.4	4.5	5.3	1.5	-	36	3.4
ARGS-1000-P	ARGS-1000-S	ARGS-1000	1"	9.0	6.8	6.5	2.0	-	28	6.0
ARGS-1210-P	ARGS-1210-S	ARGS-1210	1-1/4"	9.2	5.8	6.5	2.3	-	18	6.1
ARGS-1250-P	ARGS-1250-S	ARGS-1250	1-1/4"	10.6	5.8	6.5	2.3	-	24	6.4
ARGS-1500-P	ARGS-1500-S	ARGS-1500	1-1/2"	11.4	8.3	7.8	2.5	-	20	10.0
ARGS-2015-P	ARGS-2015-S	ARGS-2015	2"	12.0	7.3	7.8	2.8	-	11	10.8
ARGS-2000-P	ARGS-2000-S	ARGS-2000	2"	14.0	7.3	7.8	2.8	-	14	11.9
ARGS-2515-P	ARGS-2515-S	ARGS-2515	2-1/2"	12.7	8.3	7.8	3.1	-	7	11.7
ARGS-2520-P	ARGS-2520-S	ARGS-2520	2-1/2"	14.6	8.3	7.8	3.1	-	9	14.0
ARGS-2500-P	ARGS-2500-S	ARGS-2500	2-1/2"	17.0	8.3	7.8	3.1	-	11	14.6
ARGS-3015-P	ARGS-3015-S	ARGS-3015	3"	13.3	7.3	7.8	3.5	-	5	14.2
ARGS-3020-P	ARGS-3020-S	ARGS-3020	3"	15.2	7.3	7.8	3.5	-	6	15.0
ARGS-3025-P	ARGS-3025-S	ARGS-3025	3"	17.4	7.3	7.8	3.5	-	8	15.7
ARGS-3000-P	ARGS-3000-S	ARGS-3000	3"	19.8	7.3	7.8	3.5	-	9	16.5

MODEL ARG-S
#316 SS CASTINGS
CLEAR SIGHT GLASS



PLASTIC BASKET	#304 SS BASKET	MONEL BASKET	THREAD NPT	DIMENSIONS (P-16)					RATIO	WEIGHT lbs
				A inch	B inch	C inch	D inch	E inch		
AARG-500-P	AARG-500-S	AARG-500	1/2"	6.4	4.5	5.3	1.5	3.3	54	6.7
AARG-755-P	AARG-755-S	AARG-755	3/4"	6.4	4.5	5.3	1.5	3.3	24	6.7
AARG-750-P	AARG-750-S	AARG-750	3/4"	8.4	4.5	5.3	1.5	3.3	36	7.7
AARG-1000-P	AARG-1000-S	AARG-1000	1"	9.0	5.8	6.5	2.0	4.1	28	10.7
AARG-1210-P	AARG-1210-S	AARG-1210	1-1/4"	9.2	5.8	6.5	2.3	4.1	18	11.0
AARG-1250-P	AARG-1250-S	AARG-1250	1-1/4"	10.6	5.8	6.5	2.3	4.1	24	13.1
AARG-1500-P	AARG-1500-S	AARG-1500	1-1/2"	11.4	7.3	7.8	2.5	5.0	20	23.5
AARG-2015-P	AARG-2015-S	AARG-2015	2"	12.0	7.3	7.8	2.8	5.0	11	25.0
AARG-2000-P	AARG-2000-S	AARG-2000	2"	14.0	7.3	7.8	2.8	5.0	14	26.8
AARG-2515-P	AARG-2515-S	AARG-2515	2-1/2"	12.7	7.3	7.8	3.1	5.0	7	27.4
AARG-2520-P	AARG-2520-S	AARG-2520	2-1/2"	14.6	7.3	7.8	3.1	5.0	9	28.1
AARG-2500-P	AARG-2500-S	AARG-2500	2-1/2"	17.0	7.3	7.8	3.1	5.0	11	32.4
AARG-3015-P	AARG-3015-S	AARG-3015	3"	13.3	7.3	7.8	3.5	5.0	5	28.9
AARG-3020-P	AARG-3020-S	AARG-3020	3"	15.2	7.3	7.8	3.5	5.0	6	30.4
AARG-3025-P	AARG-3025-S	AARG-3025	3"	17.4	7.3	7.8	3.5	5.0	8	34.8
AARG-3000-P	AARG-3000-S	AARG-3000	3"	19.8	7.3	7.8	3.5	5.0	9	36.4

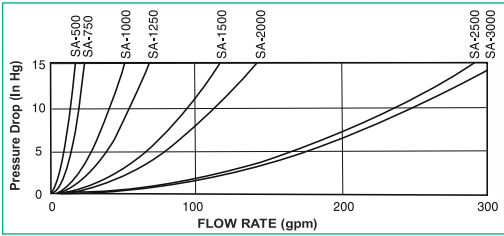
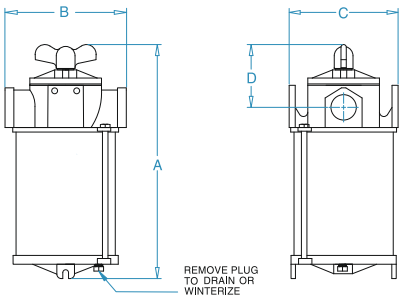
MODEL AARG
BRONZE CASTINGS
BRONZE ENCLOSURE
BRONZE CAP



SPECIFY "BSPP" AFTER THE PART NUMBER FOR BSPP THREADS, ie: ARG-750-S BSPP

SA-S SERIES

MODEL SA
BRONZE CASTINGS
CLEAR SIGHT GLASS



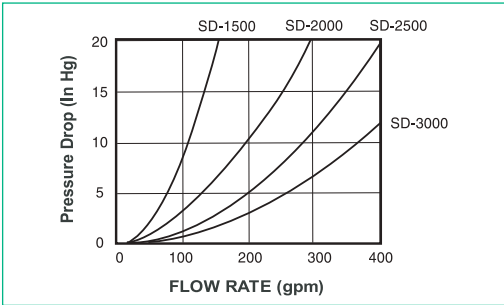
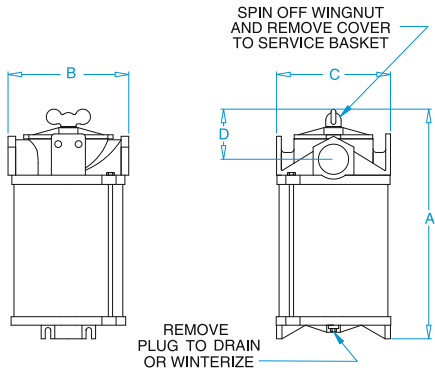
#304 SS BASKET	MONEL BASKET	THREAD NPT	A inch	B inch	C inch	D inch	RATIO	WEIGHT lb
SA-500-S	SA-500	1/2"	7.8	4.5	4.0	2.3	54	4.2
SA-750-S	SA-750	3/4"	10.0	4.5	4.0	2.3	36	4.4
SA-1000-S	SA-1000	1"	10.5	5.5	5.0	2.8	29	6.9
SA-1250-S	SA-1250	1-1/4"	12.8	5.5	5.0	2.8	25	7.7
SA-1500-S	SA-1500	1-1/2"	13.8	6.8	6.3	3.3	20	12.3
SA-2000-S	SA-2000	2"	16.5	6.8	6.3	3.5	14	16.2
SA-2500-S	SA-2500	2-1/2"	18.8	7.8	6.3	3.8	11	18.4
SA-3000-S	SA-3000	3"	21.5	7.8	6.3	4.0	9	21.3
ASA-500-S	ASA-500	1/2"	7.8	4.5	4.0	2.3	54	5.6
ASA-750-S	ASA-750	3/4"	10.0	4.5	4.0	2.3	36	6.6
ASA-1000-S	ASA-1000	1"	10.5	5.5	5.0	2.8	29	10.1
ASA-1250-S	ASA-1250	1-1/4"	12.8	5.5	5.0	2.8	25	11.9
ASA-1500-S	ASA-1500	1-1/2"	13.8	6.8	6.3	3.3	20	16.8
ASA-2000-S	ASA-2000	2"	16.5	6.8	6.3	3.5	14	21.8
ASA-2500-S	ASA-2500	2-1/2"	18.8	7.8	6.3	3.8	11	25.1
ASA-3000-S	ASA-3000	3"	21.5	7.8	6.3	4.0	9	29.4

MODEL ASA
BRONZE CASTINGS
SS ENCLOSURE



SD SERIES

MODEL SD
BRONZE CASTINGS
CLEAR SIGHT GLASS

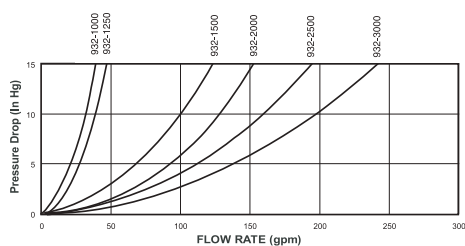


#304 SS BASKET	MONEL BASKET	THREAD NPT	A inch	B inch	C inch	D inch	RATIO	WEIGHT lb
SD-1500-S	SD-1500	1-1/2"	14.5	8.9	8.4	3.8	36	24.0
SD-2000-S	SD-2000	2"	17.0	8.9	8.4	3.6	22	26.0
SD-2500-S	SD-2500	2-1/2"	20.4	8.9	8.4	4.4	16	36.0
SD-3000-S	SD-3000	3"	22.4	8.9	8.4	4.4	13	38.0
ASD-1500-S	ASD-1500	1-1/2"	14.5	8.9	8.4	3.8	36	32.2
ASD-2000-S	ASD-2000	2"	17.0	8.9	8.4	3.6	22	36.6
ASD-2500-S	ASD-2500	2-1/2"	20.4	8.9	8.4	4.4	16	48.7
ASD-3000-S	ASD-3000	3"	22.4	8.9	8.4	4.5	13	52.8

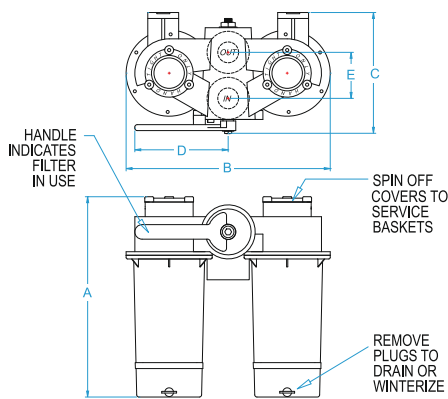
MODEL ASD
BRONZE CASTINGS
SS ENCLOSURE



VERTICAL DUPLEX WATER STRAINERS



932 Series Performance Chart (above) shows estimated pressure drop information calculated from product proto-types. Consult GROCO for up-to-date information.



#304 SS BASKET	MONEL BASKET	THREAD NPT	A inch	B inch	C inch	D inch	E inch	RATIO	WEIGHT lb
932-0500-00	932-0500-01	1/2"	-	-	-	-	-	54	11.0
932-0750-00	932-0750-01	3/4"	-	-	-	-	-	36	12.0
932-1000-00	932-1000-01	1"	9.4	13.5	6.5	3.3	2.5	28	18.5
932-1250-00	932-1250-01	1-1/4"	11.0	13.5	6.5	3.3	2.5	24	20.0
932-1500-00	932-1500-01	1-1/2"	12.8	17.2	10.2	5.1	3.9	20	52.0
932-2000-00	932-2000-01	2"	14.7	17.2	10.2	5.1	3.9	14	56.0
932-2500-00	932-2500-01	2-1/2"	20.0	17.5	12.6	5.1	5.5	11	60.0
932-3000-00	932-3000-00	3"	20.0	17.5	12.6	6.3	5.5	9	116.0
933-0500-00	933-0500-01	1/2"	-	-	-	-	-	54	14.2
933-0750-00	933-0750-01	3/4"	-	-	-	-	-	36	16.1
933-1000-00	933-1000-01	1"	9.4	13.5	6.5	3.3	2.5	28	23.4
933-1250-00	933-1250-01	1-1/4"	11.0	13.5	6.5	3.3	2.5	24	26.7
933-1500-00	933-1500-01	1-1/2"	12.8	17.2	10.2	5.1	3.9	20	65.9
933-2000-00	933-2000-01	2"	14.7	17.2	10.2	5.1	3.9	14	70.6
933-2500-00	933-2500-01	2-1/2"	20.0	17.5	12.6	5.1	5.5	11	78.3
933-3000-00	933-3000-01	3"	20.0	17.5	12.6	6.3	5.5	9	135.2

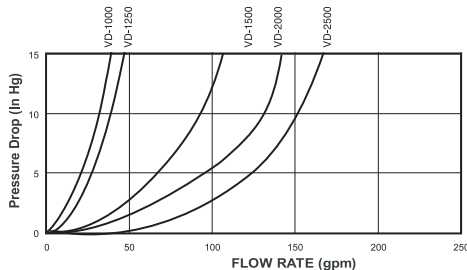
932 SERIES
BRONZE CASTINGS
CLEAR SIGHT GLASS



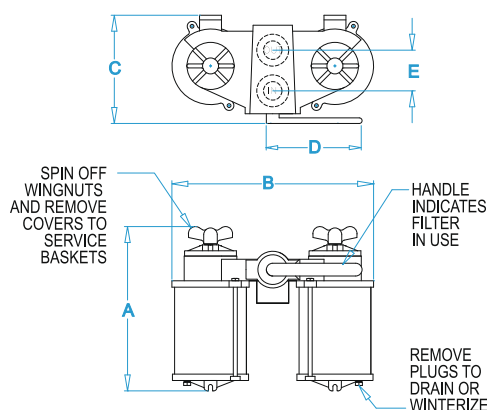
933 SERIES
BRONZE CASTINGS
BRONZE ENCLOSURES



VD-S SERIES



- Ratio means the ratio of open filter basket area to cross-sectional pipe area.
- For compliance with ABS standards add prefix "A" to specify #316 stainless steel enclosure in place of the plastic sight glass (ie: AVD-1000-S).
- Add suffix "FM" for 60-mesh fine mesh filter basket insert. Other mesh count are available by special order.



#304 SS BASKET	MONEL BASKET	THREAD NPT	A inch	B inch	C inch	D inch	E inch	RATIO	WEIGHT lb
VD-1000-S	VD-1000	1"	10.0	13.0	6.8	3.5	3.3	30	22.0
VD-1250-S	VD-1250	1-1/4"	12.0	13.0	6.8	3.5	3.3	25	21.0
VD-1500-S	VD-1500	1-1/2"	14.5	16.0	8.0	6.5	6.5	19	46.0
VD-2000-S	VD-2000	2"	16.5	16.0	8.0	6.5	6.5	14	47.0
VD-2500-S	VD-2500	2-1/2"	17.5	17.5	8.0	7.8	7.8	11	54.0
AVD-1000-S	AVD-1000	1"	10.0	13.0	6.8	3.5	3.3	30	31.5
AVD-1250-S	AVD-1250	1-1/4"	12.0	13.0	6.8	3.5	3.3	25	33.7
AVD-1500-S	AVD-1500	1-1/2"	14.5	16.0	8.0	6.5	6.5	19	63.3
AVD-2000-S	AVD-2000	2"	16.5	16.0	8.0	6.5	6.5	14	68.5
AVD-2500-S	AVD-2500	2-1/2"	17.5	17.5	8.0	7.8	7.8	11	79.8

MODEL VD
BRONZE CASTINGS
CLEAR SIGHT GLASS

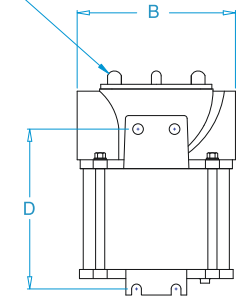
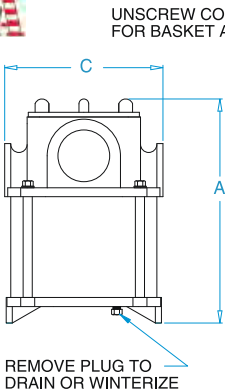


MODEL AVD
BRONZE CASTINGS
SS ENCLOSURES

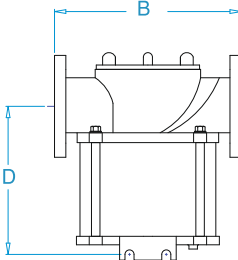
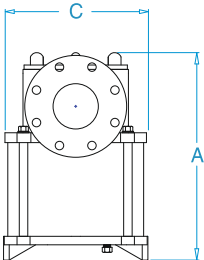


SE SERIES LARGE ENGINE STRAINERS

MODEL SE
WITH NPT THREADED PORTS
(4" ONLY)

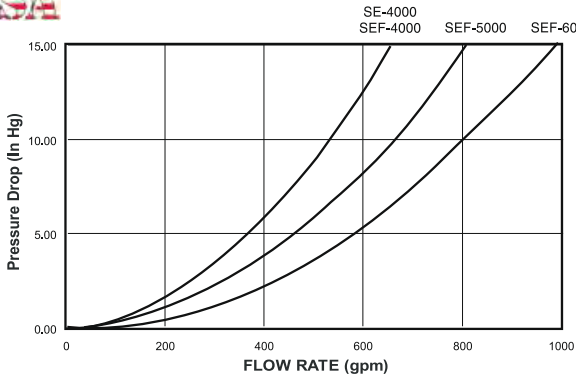


MODEL SEF
WITH FLANGED PORTS
4", 5", 6"



FLANGES ON SEF SERIES STRAINERS
MATCH ANSI B16.5 - 1996 CLASS 150

MODEL ASEF
WITH BRONZE
ENCLOSURE,
4", 5", 6"



FEATURES

- For high-powered engines with 4", 5" or 6" intake.
- Cap and basket have replaceable zinc anode protection.
- Low restriction for maximum cooling water flow.
- No inside tie rods.
- Cover unscrews for easy filter basket cleaning.
- O-rings seal all mating surfaces.
- All models can be converted to HYDROMATIC™ (self-cleaning) operation.
- Improved cylindrical filter basket.
- #304-SS basket is standard with .077" holes (.125" and .188" hole sizes are optional).
- Monel basket is optional.
- Bronze flange adaptors are available for connecting pipe or hose to flanged strainers.

FLANGE ADAPTORS F-SERIES

The installation of GROCO® SEF or HSEF series strainers (or any other flanged equipment) can be simplified with the use of our bronze flange adaptors.



F-Series adaptors match standard strainer flanges while permitting the use of NPT threaded pipe connection or a pipe-to-hose adaptor for hose connection.

4" (F-4000), 5" (F-5000) and 6" (F-6000) flange adaptors are available.

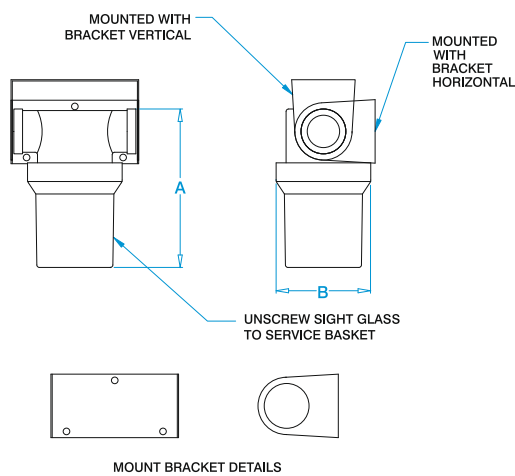
#304 SS BASKET	MONEL BASKET	PORTS	A inch	B inch	C inch	D inch	RATIO	WEIGHT lb
SE-4000	SE-4000-M	4" NPT	18.4	13.0	13.0	13.1	10.0	97.0
ASE-4000	ASE-4000-M	4" NPT	18.4	13.0	13.0	13.1	10.0	123.6
SEF-4000	SEF-4000-M	4" FLANGE	18.4	16.5	12.5	13.1	10.0	118.0
SEF-5000	SEF-5000-M	5" FLANGE	18.4	16.5	12.5	13.5	8.1	134.0
SEF-6000	SEF-6000-M	6" FLANGE	18.4	16.5	12.5	13.9	6.7	147.0
ASEF-4000	ASEF-4000-M	4" FLANGE	18.4	16.5	12.5	13.1	10.0	144.6
ASEF-5000	ASEF-5000-M	5" FLANGE	18.4	16.5	12.5	13.5	8.1	160.6
ASEF-6000	ASEF-6000-M	6" FLANGE	18.4	16.5	12.5	13.9	6.7	173.6

- #304 stainless steel filter baskets are standard issue.
- Filter baskets have .077" (2mm) holes.
- Add suffix "FM" for 60-mesh fine-mesh filter basket insert. Other mesh counts are available by special order.
- For ABS compliance add prefix "A" to specify bronze enclosure instead of the plastic sight glass. (ie: ASEF-6000).

WSB SERIES

FEATURES

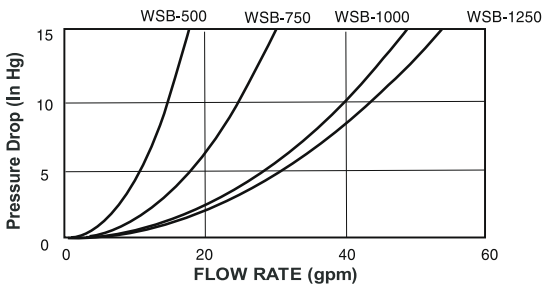
- Protect fresh water pumps from debris.
- White nylon strainer head and clear plastic sight glass. Glass unscrews for filter basket cleaning.
- Mount bracket included.
- Use WSB for fresh-water systems (#304 SS basket).
- Use WSB-P for salt-water or continuous duty AC or genset.



WSB SERIES
#304 SS BASKET

WSB-P SERIES
NON-METALLIC BASKET

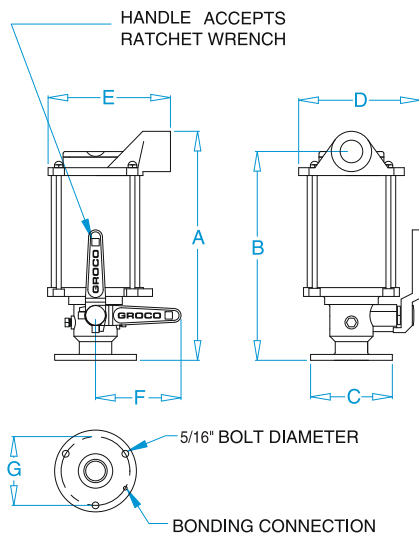
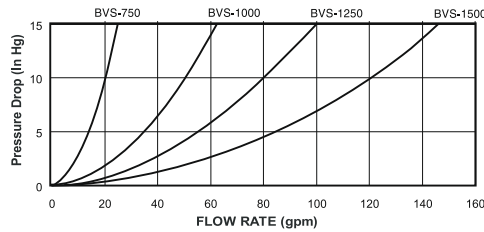
40-MESH #304 SS	NON- METALLIC	THREAD NPT	A inch	B inch	WEIGHT lb	PKG
WSB-500	WSB-500-P	1/2"	5.00	2.90	.38	4
WSB-750	WSB-750-P	3/4"	5.00	2.90	.40	4
WSB-1000	WSB-1000-P	1"	6.25	4.00	.90	6
WSB-1250	WSB-1250-P	1-1/4"	7.00	4.00	1.10	6



BVS SERIES - BALL VALVE / STRAINER COMBINATION

FEATURES

- Square hole in handle accepts standard ratchet.
- Space saving design with strainer and integral seacock.
- Just one component to install and just one bilge location to access for winterization and maintenance.
- No inside tie rods.
- Full flow ball valve with stainless steel ball and stem.
- Strainer has screw on/off cap.
- #304 stainless steel filter basket.



BVS SERIES

MODEL	THREAD BOTTOM NPS	THREAD TOP NPT	A inch	B inch	C inch	D inch	E inch	F inch	G inch	WEIGHT lb	RATIO*	PKG
BVS-750	3/4"	3/4"	10.75	10.13	3.05	5.38	4.75	3.83	2.50	6.75#	33:1	1
BVS-1000	1"	1"	11.25	10.25	4.13	6.50	6.25	4.35	3.50	11.33#	27:1	1
BVS-1250	1-1/4"	1-1/4"	14.88	14.00	4.13	6.50	6.25	4.35	3.50	11.75#	26:1	1
BVS-1500	1-1/2"	1-1/2"	15.00	13.75	5.25	8.00	8.00	5.50	4.50	16.75#	19:1	1

- "Ratio" means the ratio of open filter basket area to cross-sectional pipe area.
- Filter baskets have .077" (2mm) holes.
- Add suffix "FM" for 60-mesh fine-mesh filter basket insert. Other mesh counts are available by special order.

HYDROMATIC™ SELF-CLEANING STRAINERS

U.S. PATENT NO. 5,830,366

THE CONCEPT

As raw water strainers do their job, filter baskets become clogged with debris and flow to the connected device is reduced, resulting in the need for system shut-down for cleaning and maintenance. HYDROMATIC™ strainers eliminate untimely shut-downs and maintenance by



conducting a periodic 30-second self-cleaning cycle (the user selects how often) with its powerful internal macerator. Debris is macerated and pumped overboard without shutting down the connected device.

FEATURES COMMON TO ALL HYDROMATIC MODELS

- A 30-second cleaning cycle is automatically performed at user-selected intervals.
- Optional interface with SSA system (see page 15) initiates cleaning cycle when flow is reduced, independent of the pre-set cleaning interval.
- The "Purge" option over-rides the selected cleaning interval and performs a one-time 30-second cleaning cycle.
- Powerful macerator grinds debris and discharges overboard below the waterline.
- "Ignition Protected" motors for DC models.
- AC models available in various HP and Phase options – 115VAC, 60Hz, 1-phase is standard.
- 970 and HSE models function as a sea chest to provide filtered water to multiple devices.
- Installation can be horizontal or vertical (flooded inlet required).
- HSE models are available with a bronze enclosure in place of clear sight glass. Specify AHSEF-(pipe size)-(voltage).



911-1000
Provides filtered water to a single device and has 1" NPT ports for Water In, Water Out and Debris Out.



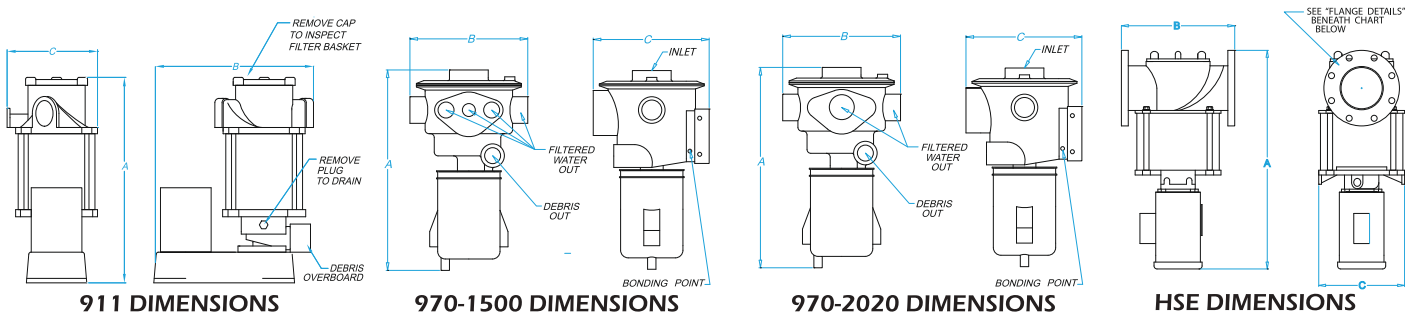
970-1500
Provides filtered water to multiple devices, and has a 1-1/2" NPT inlet port with multiple 1/2", 3/4" and 1" ports for connecting devices. Debris is pumped out through a 3/4" NPT port.



970-2020
Provides filtered water to a single 1-1/2" or 2" device. Debris is pumped out through a 3/4" NPT port.



HSE
Provides filtered water to 4", 5" or 6" device, or may be used as a sea chest to provide filtered water to multiple smaller devices. Debris is pumped out through a 1" NPT port.

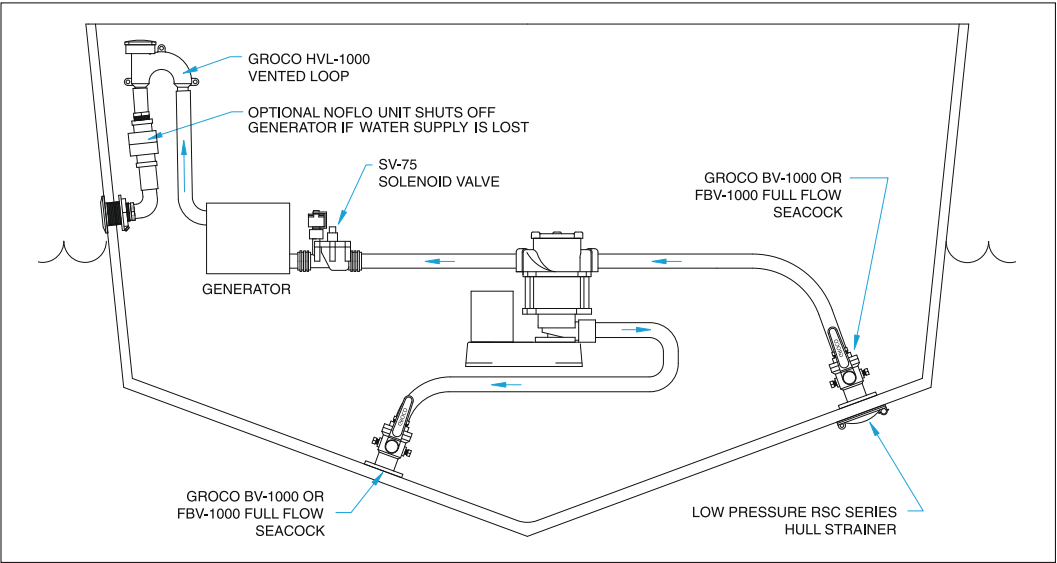


MODEL	INLET	OUTLET	DEBRIS DISCHARGE	A	B	C	RATIO	WEIGHT
911-1000	1" NPT	1" NPT	1" NPT	11.5	9.2	5.3	21:1	15
970-1500	1-1/2" NPT	(1) 1/2", (2) 3/4", (2) 1"	3/4" NPT	13.2	6.9	7.6	11:1	30
970-1515	1-1/2" NPT	1-1/2" NPT	3/4" NPT	13.2	6.9	7.6	11:1	30
970-2020	2" NPT	2" NPT	3/4" NPT	14.7	6.9	7.6	9:1	31
HSE-4000	4" NPT	4" NPT	1" NPT	31.7	13.0	13.0	10:1	123
HSEF-4000	4" FLANGE	4" FLANGE	1" NPT	31.7	16.5	12.5	10:1	144
HSEF-5000	5" FLANGE	5" FLANGE	1" NPT	31.7	16.5	12.5	8.1:1	160
HSEF-6000	6" FLANGE	6" FLANGE	1" NPT	31.7	16.5	12.5	6.7:1	173

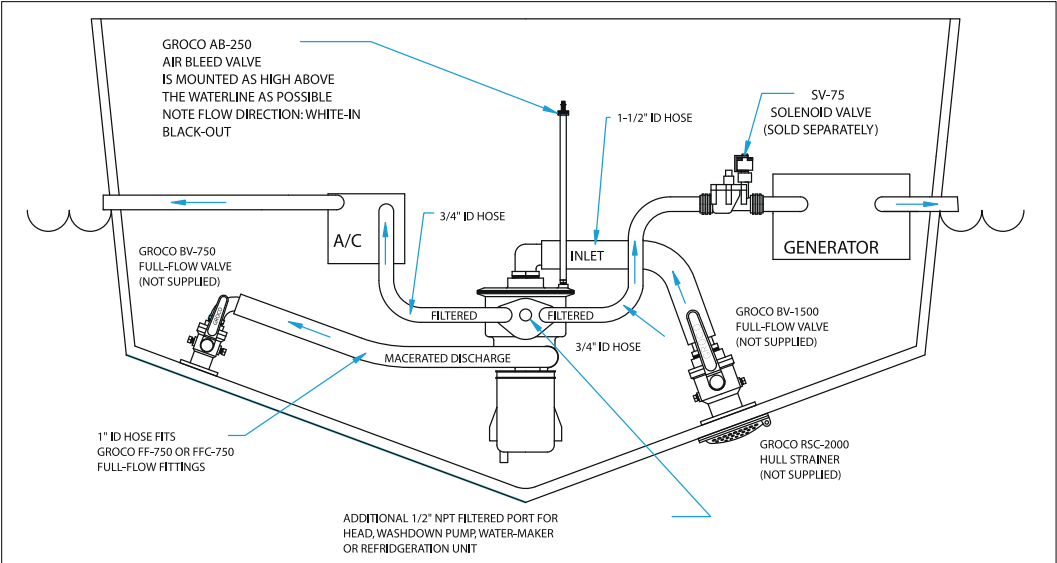
FLANGE DETAILS: HSEF-4000 = 9.0" DIA., (8) .750 DIA. HOLES ON 7.5 BC
HSEF-6000 = 11.0" DIA., (8) .875 DIA. HOLES ON 9.5 BC
HSEF-5000 = 10.0" DIA., (8) .875 DIA. HOLES ON 8.5 BC

HYDROMATIC™ SELF CLEANING STRAINERS

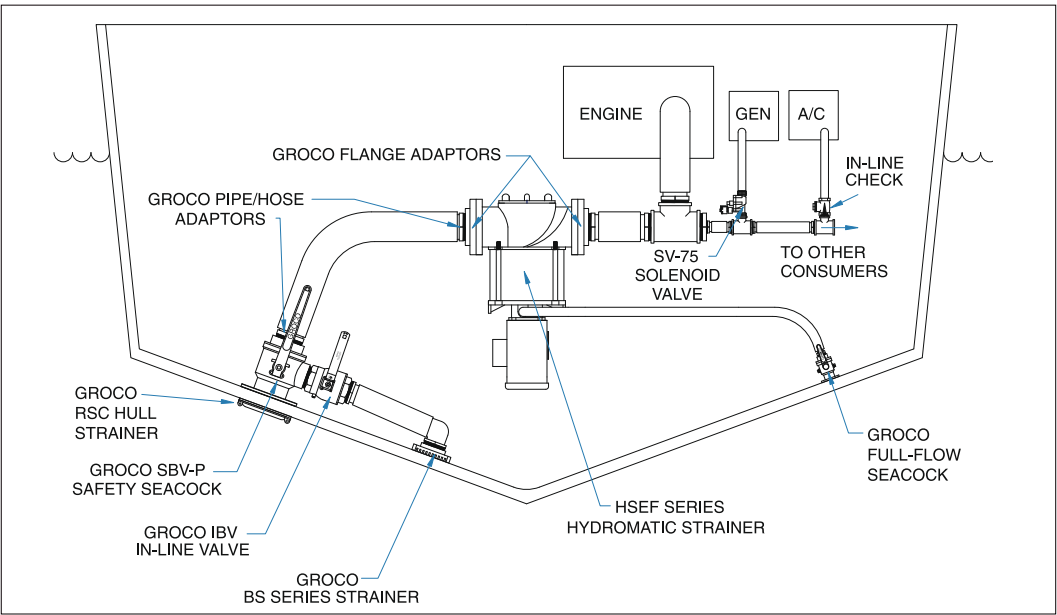
U.S. PATENT NO. 5,830,366



911 SAMPLE INSTALLATION



970 SAMPLE INSTALLATION



HSE SAMPLE INSTALLATION

HULL STRAINERS WITH ACCESS DOORS
U.S. PATENT NO. 6,009,823

THE CONCEPT

Access to the thru-hull fitting and seacock beneath GROCO® hull strainers is made easy with the patented access door design. Now there is no need to remove the entire strainer to clear nuisance marine growth.

APHS SERIES - PERFORATED HULL STRAINER

USA

APHS BRONZE

APHS ALUMINUM

REMOVE BOLTS TO REPLACE SCREEN

TO OPEN DOOR REMOVE RING AND CLEVIS PIN

DOOR HINGES FROM THIS POINT TO ALLOW ACCESS TO THRU-HULL FITTING

Aluminum models may be welded or screwed to aluminum hulls.

MODEL	MODEL	MODEL	MAX	A	B	C	SCREWS	PKG	Ratio of Open Area to Pipe Size									
PERF DIA.	PERF DIA.	PERF DIA.	T-HULL	inch	inch	inch			1/2"	3/4"	1"	1-1/4"	1-1/2"	2"	2-1/2"	3"	4"	
.077"	.125"	.188"																
APHS-1250-1	APHS-1250-2	APHS-1250-3	1-1/4"	7.00	3.38	1.50	4 #10	4	18.1	8.1	4.5	2.9	-	-	-	-	-	
APHS-2000-1	APHS-2000-2	APHS-2000-3	2"	10.25	4.38	1.63	5 #10	4	51.2	22.8	12.8	8.2	5.7	3.2	-	-	-	
APHS-3000-1	APHS-3000-2	APHS-3000-3	3"	15.38	6.00	2.00	5 #10	2	119.3	53.0	29.8	19.1	13.3	7.5	4.7	3.3	-	
APHS-6000-1	APHS-6000-2	APHS-6000-2	4"	20.25	11.00	4.00	9 #12	2	288.8	128.3	367.8	46.2	32.1	18.1	11.6	8.0	4.5	

Dimensions and ratios for aluminum models are identical to bronze models. Add suffix AL for aluminum models, i.e., APHS-1250-(X) AL (X = Perf Designator).

ASC SERIES - SLOTTED HULL STRAINER

USA

ASC BRONZE

ASC ALUMINUM

DOOR HINGES AT THIS POINT TO ALLOW ACCESS TO THRU-HULL FITTING

TO OPEN DOOR REMOVE RING AND CLEVIS PIN

Aluminum models may be welded or screwed to aluminum hulls.

BRONZE MODEL	ALUMINUM MODEL	MAX T-HULL	A	B	C	SCREWS	PKG	Ratio of Open Area to Pipe Size									
			inch	inch	inch			1/2"	3/4"	1"	1-1/4"	1-1/2"	2"	2-1/2"	3"	4"	
ASC-1250	ASC-1250-AL	1-1/4"	7.00	3.38	1.50	4 #10	4	26.5	11.8	6.6	4.3	-	-	-	-	-	
ASC-2000	ASC-2000-AL	2"	10.25	4.38	1.63	5 #10	4	61.1	27.2	15.3	9.8	6.8	3.8	-	-	-	
ASC-3000	ASC-3000-AL	3"	15.38	6.00	2.00	5 #10	2	129.1	57.4	32.3	20.7	14.4	8.1	5.2	3.6	-	
ASC-6000	ASC-6000-AL	4"	20.25	11.00	4.00	9 #12	2	324.5	144.2	81.1	51.9	36.1	20.3	13.0	9.0	5.1	

Dimensions and ratios for aluminum models are identical to bronze models. Add suffix -AL for aluminum models.

RSC SERIES - ROUND HULL STRAINER

USA

RSC ALUMINUM

RSC-2500-L

REMOVE RING AND CLEVIS PIN TO OPEN DOOR

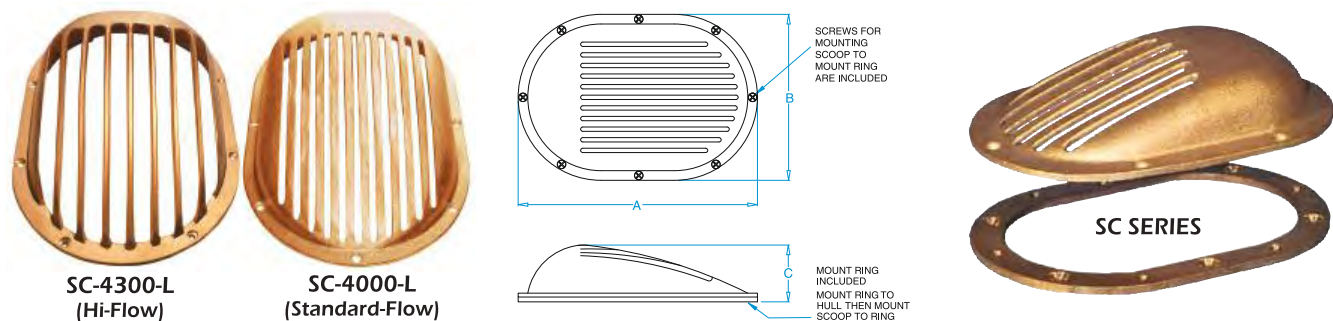
DOOR HINGES FROM THIS POINT

Aluminum models may be welded or screwed to aluminum hulls.

BRONZE MODEL	ALUMINUM MODEL	MAX T-HULL	A	B	C	SCREWS	PKG	Ratio of Open Area to Pipe Size									
			inch	inch	inch			1/2"	3/4"	1"	1-1/4"	1-1/2"	2"	2-1/2"	3"	4"	
RSC-1000	RSC-1000 AL	1"	3.63	0.56	-	4 #10	4	5.8	2.6	1.4	-	-	-	-	-	-	
RSC-2000	RSC-2000 AL	2"	5.20	0.83	-	4 #10	4	15.0	6.7	3.8	2.4	1.7	0.9	-	-	-	
RSC-2500-L		2.5"	5.60	1.00	-	6 #10	4	161:1	10.6:1	6.0:1	3.8:1	2.6:1	-	-	-	-	
RSC-4000	RSC-4000 AL	4"	9.00	1.30	-	4 #10	2	46.7	20.8	11.7	7.5	5.2	2.9	1.9	1.3	0.7	

Dimensions and ratios for aluminum models are identical to bronze models. Add suffix -AL for aluminum models. RSC-2500-L does not have an access door.

SC SERIES - SLOTTED STRAINER WITH MOUNT RING



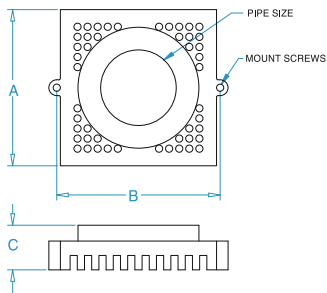
SC Series provides course primary filtration. SC hi-flow sizes (shaded versions below) provide greater flow and less restriction. SC-4300 is available now; smaller sizes available soon. All models are available with or without the mount ring.

BRONZE LESS RING	BRONZE WITH RING	ALUMINUM LESS RING	ALUMINUM WITH RING	MAX T-HULL	A inch	B inch	C inch	SCREWS	PKG	Ratio of Open Area to Pipe Size								
										1/2"	3/4"	1"	1-1/4"	1-1/2"	2"	2-1/2"	3"	4"
SC-1000-L	SC-1000	SC-1000-L AL	SC-1000 AL	1"	5.25	3.62	1.25	6 #10	2	13.4	6.0	3.3	-	-	-	-	-	-
SC-1075-L	SC-1075	-	-	1"	5.25	3.62	1.25	6 #10	2	-	-	-	-	-	-	-	-	-
SC-1500-L	SC-1500	SC-1500-L AL	SC-1500 AL	1-1/2"	6.82	4.70	1.50	6 #10	2	20.2	9.0	5.0	3.2	2.2	-	-	-	-
SC-1512-L	SC-1512	-	-	1-1/2"	6.82	4.70	1.50	6 #10	2	-	-	-	-	-	-	-	-	-
SC-2500-L	SC-2500	SC-2500-L AL	SC-2500 AL	2-1/2"	8.50	6.00	2.00	6 #10	2	36.0	16.0	9.0	5.8	4.0	2.2	1.4	-	-
SC-2520-L	SC-2520	-	-	2-1/2"	8.50	6.00	2.00	6 #10	2	-	-	-	-	-	-	-	-	-
-	-	SC-4000-L AL	SC-4000 AL	4"	12.50	8.62	2.75	8 #10	2	109.0	48.4	27.2	17.4	12.1	6.8	4.4	3.0	1.7
SC-4300-L	SC-4300	-	-	4"	12.50	8.62	2.75	8 #10	2	176.0	78.2	43.9	28.2	19.6	11.0	7.0	4.9	2.8

Dimensions and ratios for aluminum models are identical to bronze models.

BS SERIES - BILGE STRAINER

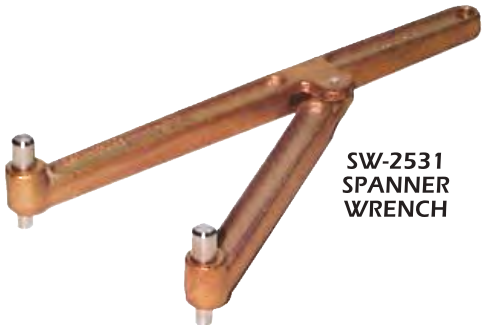
- Use for preventing large debris in the bilge area from entering bilge pumps.
- Ideal for use with GROCO® SBV-P series Safety Seacock with side port.
- Threaded NPT for use with straight or 90° pipe to hose adaptors.

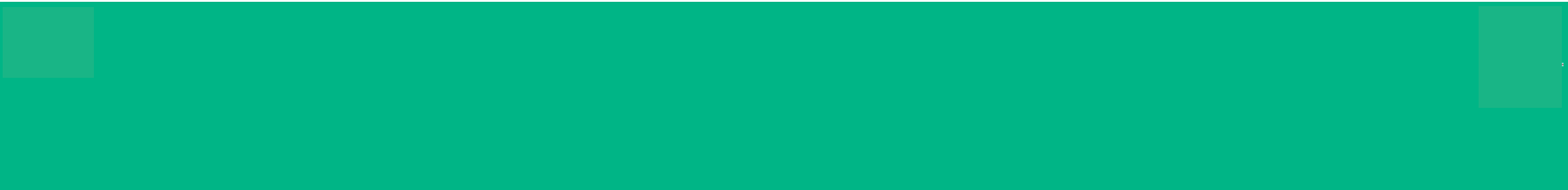


MODEL	THREAD NPT	A inch	B inch	C inch	USE WITH SBV-P MODEL	PKG
BS-750	3/4"	1.88"	2.13"	2.00"	-	1
BS-1000	1"	1.88"	2.13"	2.00"	SBV-1250-P	1
BS-1250	1-1/4"	3.40"	3.63"	2.00"	SBV-1500-P	1
BS-1500	1-1/2"	3.40"	3.63"	2.00"	SBV-2000-P	1
BS-2000	2"	5.25"	3.63"	2.00"	SBV-2500-P	1
BS-2500	2-1/2"	5.25"	3.63"	2.00"	SBV-3000-P	1
BS-3000	3"	5.25"	3.63"	2.00"	SBV-4000-P	1

SW-2531 SPANNER WRENCH/DECK PLATE KEY

- Among the features of ARG, SS, SD and BVS series strainers are provisions on the strainer cap for the use of a spanner wrench to loosen the cap before or after maintenance. Hand-tight is a sufficient seal for GROCO® strainers with threaded caps, but some boaters may prefer to "snug" the cover beyond hand-tight. NOTE: Do not use SW-2531 to tighten non-metallic caps.
- Cast bronze with stainless steel pins to fit 1/4" and 5/16" holes.
- Opens to service deck plates or strainer caps with key holes up to 7" apart.
- Hangs conveniently near the strainer(s) location.





Pipe-to-Hose Adaptors	PTH, PTHC, FF, FFC, PTH-S, PTHC-S, PTHD
Thru-Hull Connections	HTH, HTH-S, HTHC-S, TH-CS, TH-W, TH-S, THXL
Special Purpose Fittings	FTH, PN, PNC, STH, HSSTH HSTH, HSTHXL, TH, TH-S
Special Purpose Thru-Hull Pieces	THT-530, TD, TD-S
Special Purpose Tail Pieces	TP, TPC
Raw Water Manifolds	RWM

FITTINGS

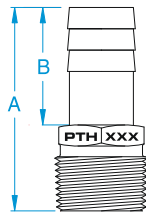


STAINLESS STEEL AND BRONZE FITTINGS

PTH SERIES, NPT THREAD, STANDARD FLOW



MARINE
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DO NOT USE
IN POTABLE
WATER SYSTEMS

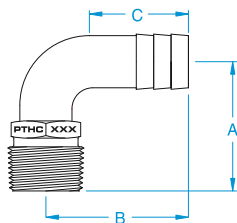


MODEL NO.	THREAD NPT	HOSE ID inch	A inch	B inch	WEIGHT lb	PKG
PTH-500	1/2"	1/2"	2.39	1.38	.17	10
PTH-5062	1/2"	1/2" or 5/8"	2.70	1.80	.18	10
PTH-750	3/4"	3/4"	2.39	1.38	.20	10
PTH-1000	1"	1"	2.48	1.38	.26	10
PTH-1125	1-1/4"	1-1/8"	2.48	1.38	.58	10
PTH-1250	1-1/4"	1-1/4"	2.65	1.55	.60	10
PTH-1500	1-1/2"	1-1/2"	3.00	1.90	.75	10
PTH-2000	2"	2"	3.00	1.90	1.05	1
PTH-2500	2-1/2"	2-1/2"	4.00	2.00	1.75	1
PTH-3000	3"	3"	4.00	2.00	2.58	1
PTH-3000-L	3"	3"	5.00	3.00	2.95	1
PTH-4000	4"	4"	4.25	2.00	3.50	1
PTH-5000	5"	5"	4.25	2.00	5.10	1

PTHC SERIES, NPT THREAD, STANDARD FLOW



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WATER SYSTEMS

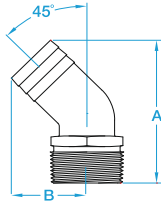


MODEL NO.	THREAD NPT	HOSE ID inch	A inch	B inch	C inch	WEIGHT lb	PKG
PTHC-5062	1/2"	1/2" or 5/8"	1.90	2.00	1.56	.22	10
PTHC-750	3/4"	3/4"	1.86	2.05	1.43	.29	10
PTHC-1000	1"	1"	2.34	2.40	1.63	.54	10
PTHC-1125	1-1/4"	1-1/8"	2.37	2.44	1.75	.78	5
PTHC-1250	1-1/4"	1-1/4"	2.44	2.53	1.38	.80	5
PTHC-1500	1-1/2"	1-1/2"	2.50	2.50	2.25	1.12	5
PTHC-2000	2"	2"	2.88	3.10	2.25	1.58	1
PTHC-2500	2-1/2"	2-1/2"	3.83	3.35	2.10	2.40	1
PTHC-3000	3"	3"	4.20	3.55	2.00	3.85	1
PTHC-4000	4"	4"	5.05	5.25	2.85	5.90	1
PTHC-5000	5"	5"	5.5	6.20	3.30	9.70	1

PTHD SERIES, NPT THREAD, STANDARD FLOW



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WATER SYSTEMS

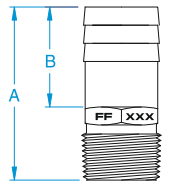


MODEL NO.	THREAD NPT	HOSE ID inch	A inch	B inch	WEIGHT lb	PKG
PTHD-750	3/4"	3/4"	2.98	1.58	.25	10
PTHD-1000	1"	1"	3.15	1.63	.36	10
PTHD-1250	1-1/4"	1-1/4"	3.34	1.68	.56	10
PTHD-1500	1-1/2"	1-1/2"	3.73	1.99	.82	5
PTHD-2000	2"	2"	4.12	2.36	1.15	5
PTHD-2500	2-1/2"	2-1/2"	5.68	2.66	1.96	1
PTHD-3000	3"	3"	6.03	3.06	2.61	1

FF SERIES, NPT THREAD, FULL FLOW



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DO NOT USE
IN POTABLE
WATER SYSTEMS

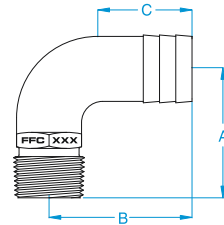


MODEL NO.	THREAD NPT	HOSE ID inch	A inch	B inch	WEIGHT lb	PKG
FF-500	1/2"	3/4"	2.28	1.38	.20	10
FF-750	3/4"	1"	2.39	1.38	.25	10
FF-1000	1"	1-1/4"	2.48	1.38	.32	10
FF-1125	1"	1-1/8"	2.48	1.38	.34	10
FF-1250	1-1/4"	1-1/2"	2.65	1.55	.64	10
FF-1500	1-1/2"	1-3/4"	3.00	1.90	.70	10
FF-2000	2"	2-1/4"	2.89	1.75	.96	10
FF-2500	2-1/2"	2-3/4"	3.47	2.00	1.45	1
FF-3000	3"	3-1/2"	3.61	2.00	2.60	1

FFC SERIES, NPT THREAD, FULL FLOW



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IN POTABLE
WATER SYSTEMS

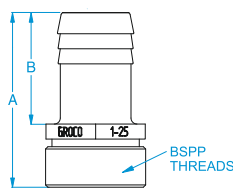


MODEL NO.	THREAD NPT	HOSE ID inch	A inch	B inch	C inch	WEIGHT lb	PKG
FFC-500	1/2"	3/4"	2.06	2.25	1.38	.32	10
FFC-750	3/4"	1"	2.00	2.20	1.45	.46	10
FFC-1000	1"	1-1/4"	2.70	3.00	1.63	.72	5
FFC-1125	1"	1-1/8"	2.38	2.44	1.75	.90	5
FFC-1250	1-1/4"	1-1/2"	3.60	3.43	1.38	1.18	5
FFC-1500	1-1/2"	1-3/4"	4.25	4.40	1.78	1.45	5
FFC-2000	2"	2-1/4"	5.40	5.15	1.85	2.30	1
FFC-2500	2-1/2"	2-3/4"	6.55	6.00	2.00	4.30	1
FFC-3000	3"	3-1/2"	8.25	6.93	2.10	8.20	1

PTH SERIES, BSPP THREAD, STANDARD FLOW



ISO 9093-1
CERTIFIED
DO NOT USE
IN POTABLE
WATER SYSTEMS

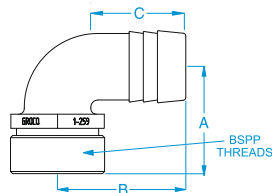


MODEL NO.	THREAD BSPP	HOSE ID mm	A mm	B mm	C mm	WEIGHT kg	PKG
PTH-12PD12	G 1/2"	12	47.0	31.0	-	0.04	10
PTH-34PD20	G 3/4"	20	54.0	37.0	-	0.08	10
PTH-1PD25	G 1"	25	58.0	37.0	-	0.12	10
PTH-114PD32	G 1-1/4"	32	67.0	43.0	-	0.21	10
PTH-112PD40	G 1-1/2"	40	75.0	48.0	-	0.31	10
PTH-2PD50	G 2"	50	87.0	55.0	-	0.55	1
PTH-212PD60	G 2-1/2"	60	95.0	60.0	-	0.76	1
PTH-3PD75	G 3"	75	90.7	51.1	-	1.06	1
PTH-4PD100	G 4"	100	96.0	50.8	-	1.59	1

PTHC SERIES, BSPP THREAD, STANDARD FLOW



ISO 9093-1
CERTIFIED
DO NOT USE
IN POTABLE
WATER SYSTEMS



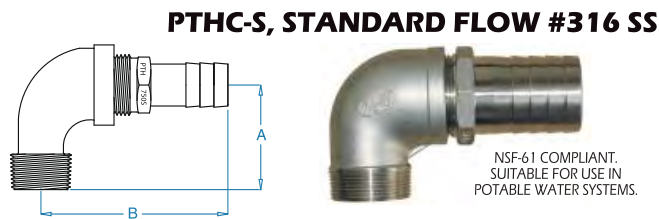
MODEL NO.	THREAD BSPP	HOSE ID mm	A mm	B mm	C mm	WEIGHT kg	PKG
PTHC-12PD12	G 1/2"	12	30.5	37.8	31.0	0.05	10
PTHC-34PD20	G 3/4"	20	32.5	48.8	37.0	0.10	10
PTHC-1PD25	G 1"	25	37.8	45.3	45.3	0.15	10
PTHC-114PD32	G 1-1/4"	32	57.0	60.8	43.0	0.30	5
PTHC-112PD40	G 1-1/2"	40	58.1	69.8	48.0	0.43	5
PTHC-2PD50	G 2"	50	67.0	81.5	81.5	0.76	1
PTHC-212PD60	G 2-1/2"	60	71.8	91.5	91.5	1.00	1
PTHC-3PD75	G 3"	75	100.9	89.0	89.0	1.52	1
PTHC-4PD100	G 4"	100	128.3	133.4	133.4	2.68	1

STAINLESS STEEL AND BRONZE THRU-HULL FITTINGS

MODEL NO.	THREAD NPT	HOSE ID inch	A inch	B inch	WEIGHT lb	PKG
PTH-750-S	3/4"	3/4"	2.56	1.50	.26	1
PTH-1000-S	1"	1"	2.95	1.70	.41	1
PTH-1250-S	1-1/4"	1-1/4"	3.35	2.10	.57	1
PTH-1500-S	1-1/2"	1-1/2"	3.54	2.20	.77	1
PTH-2000-S	2"	2"	3.94	2.60	1.29	1
PTH-2500-S	2-1/2"	2-1/2"	4.73	2.80	2.30	1
PTH-3000-S	3"	3"	5.12	3.20	3.12	1



MODEL NO.	THREAD NPT	HOSE ID inch	A inch	B inch	WEIGHT lb	PKG
PTHC-750-S	3/4"	3/4"	1.31	2.97	.51	1
PTHC-1000-S	1"	1"	1.50	3.40	.79	1
PTHC-1250-S	1-1/4"	1-1/4"	1.75	4.00	1.20	1
PTHC-1500-S	1-1/2"	1-1/2"	1.93	4.40	1.62	1
PTHC-2000-S	2"	2"	2.25	5.00	2.61	1
PTHC-2500-S	2-1/2"	2-1/2"	2.68	6.25	4.69	1
PTHC-3000-S	3"	3"	3.06	7.00	6.50	1



AVAILABLE WITH BSPP OR NPS THREADS

THREAD BRONZE NPS	THREAD BRONZE BSPP	THREAD #316 SS NPS	THREAD NPS/BSPP	A inch/mm	B inch/mm	C inch/mm	WEIGHT* lb/kg	PKG
TH-500-W	TH-50-W	TH-500-WS	1/2"	2.20/55.9	.30/7.62	1.70/43.18	0.40/0.18	10
TH-750-W	TH-75-W	TH-750-WS	3/4"	2.20/55.9	.30/7.62	1.90/48.26	0.50/0.23	10
TH-1000-W	TH-100-W	TH-1000-WS	1"	2.85/72.4	.30/7.62	2.32/58.93	0.70/0.32	10
TH-1250-W	TH-125-W	TH-1250-WS	1-1/4"	2.90/73.7	.30/7.62	2.62/66.55	1.20/0.54	12
TH-1500-W	TH-150-W	TH-1500-WS	1-1/2"	3.15/80.0	.30/7.62	2.89/73.41	1.50/0.68	12
TH-2000-W	TH-200-W	TH-2000-WS	2"	3.90/99.1	.30/7.62	3.33/84.58	1.90/0.86	1
TH-2500-W	TH-250-W	TH-2500-WS	2-1/2"	3.56/90.4	.42/10.67	4.40/111.76	3.80/1.72	1
TH-3000-W	TH-300-W	TH-3000-WS	3"	4.00/101.6	.42/10.67	5.50/139.70	6.00/2.72	1
TH-4000-W	TH-400-W	-	4"	5.31/134.9	.56/10.67	7.00/177.80	13.20/5.99	1
TH-5000-W	-	-	5"	5.34	.57	8.18	18.50	1

Suffix "W" includes nut. Suffix "L" does not include nut.

TH, STANDARD LENGTH THRU-HULLS BRONZE AND SS

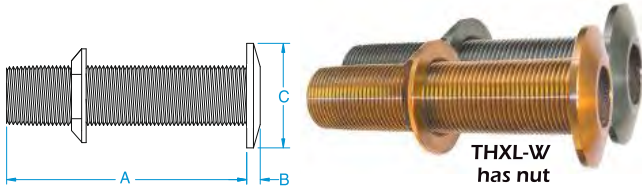


For installations where hull thickness dictates the use of a longer fitting.

BRONZE	#316 SS	THREAD NPS	A inch	B inch	C inch	WEIGHT* lb	PKG
THXL-750-W	THXL-750-WS	3/4"	5.33	0.30	1.90	0.75	10
THXL-1000-W	THXL-1000-WS	1"	5.33	0.30	2.32	1.00	1
THXL-1250-W	THXL-1250-WS	1-1/4"	5.45	0.30	2.62	1.75	1
THXL-1500-W	THXL-1500-WS	1-1/2"	5.45	0.30	2.89	2.12	1
THXL-2000-W	THXL-2000-WS	2"	5.58	0.30	3.34	2.52	1

Suffix "W" includes nut. Suffix "L" does not include nut.

THXL, EXTRA-LENGTH THRU-HULLS BRONZE



BRONZE	#316 SS	THREAD NPS	HOSE ID inch	A inch	B inch	C inch	D* inch	E inch	WEIGHT BRONZE/SS lb	PKG
HTH-500	HTH-500-S	1/2"	1/2"	2.7	0.3	1.7	1.1	1.3	0.4/0.4	10
HTH-625	HTH-625-S	3/4"	5/8"	2.7	0.3	1.9	1.1	1.3	0.5/0.4	10
HTH-750	HTH-750-S	3/4"	3/4"	2.7	0.3	1.9	1.2	1.3	0.6/0.6	10
HTH-1000	HTH-1000-S	1"	1"	2.8	0.3	2.3	1.2	1.3	0.9/0.8	10
HTH-1125	HTH-1125-S	1"	1-1/8"	2.8	0.3	2.3	1.2	1.3	1.1/1.0	10
HTH-1250	HTH-1250-S	1-1/4"	1-1/4"	2.8	0.3	2.6	1.1	1.3	1.2/1.1	12
HTH-1500	HTH-1500-S	1-1/2"	1-1/2"	2.8	0.3	2.9	1.1	1.3	1.5/1.3	12
HTH-2000	HTH-2000-S	2"	2"	2.8	0.3	3.3	1.1	1.3	2.0/1.8	4

*Maximum hull thickness.

HTH, HOSE THRU-HULLS BRONZE AND SS



MODEL NO.	THREAD NPS	A inch	B inch	C inch	WEIGHT* lb	PKG
FTH-500-W	1/2"	2.31	.30	1.75	.38	10
FTH-750-W	3/4"	2.31	.30	2.00	.50	10
FTH-1000-W	1"	2.56	.30	2.32	.88	10
FTH-1250-W	1-1/4"	3.31	.30	2.93	1.38	12
FTH-1500-W	1-1/2"	3.50	.30	3.20	2.00	12
FTH-2000-W	2"	3.56	.35	3.90	2.75	1
FTH-2500-W	2-1/2"	3.56	.42	4.40	3.75	1
FTH-3000-W	3"	5.00	.42	5.50	6.00	1
FTH-4000-W	4"	5.31	.56	7.00	13.20	1
FTH-5000-W	5"	5.34	.57	8.18	18.50	1

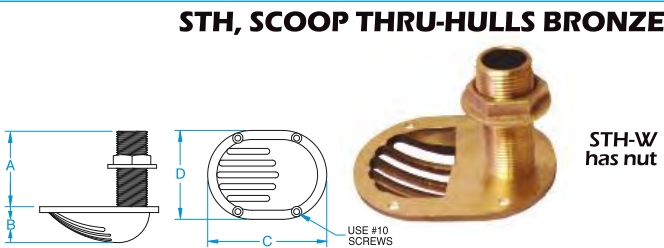
Suffix "W" includes nut. Suffix "L" does not include nut.



AVAILABLE WITH BSPP OR NPS THREADS

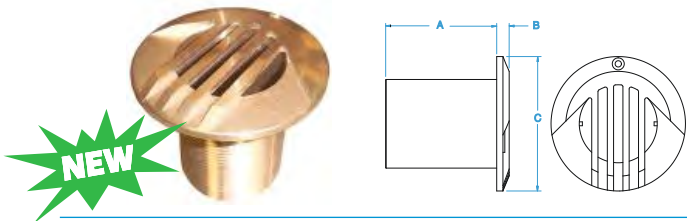
THREAD NPS	THREAD BSPP	THREAD NPS/BSPP	A inch/mm	B inch/mm	C inch/mm	D inch/mm	WEIGHT lb/kg	PKG
STH-500-W	STH-50-W	1/2"	2.20/55.88	1.05/26.67	3.28/83.31	2.55/64.77	.70/0.4	1
STH-750-W	STH-75-W	3/4"	2.20/55.88	1.05/26.67	4.00/101.60	3.05/77.47	.95/0.5	1
STH-1000-W	STH-100-W	1"	2.85/72.39	1.05/26.67	4.00/101.60	3.05/77.47	1.25/0.6	1
STH-1250-W	STH-125-W	1-1/4"	2.90/73.66	1.20/30.48	4.30/109.22	3.35/85.09	1.75/0.8	1
STH-1500-W	STH-150-W	1-1/2"	3.15/80.01	1.30/33.02	4.83/122.68	3.50/88.90	2.25/1.0	1
STH-2000-W	STH-200-W	2"	3.60/91.44	1.50/38.10	5.75/146.05	4.00/101.60	3.50/1.6	1
STH-2500-W	STH-250-W	2-1/2"	3.20/81.28	2.25/57.15	7.85/199.39	5.85/148.59	5.50/2.5	1

Suffix "W" includes nut. Suffix "L" does not include nut.



SPECIAL PURPOSE FITTINGS

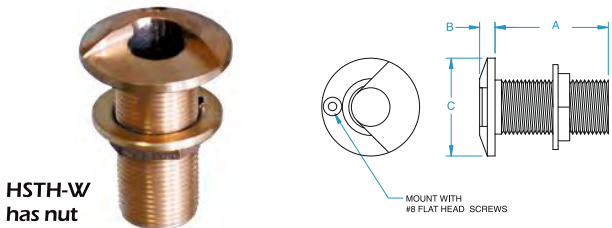
HSSLTH, HIGH SPEED THRU HULL BRONZE



HSSLTH MODELS	THREAD NPSM	A inch	B inch	C inch	PKG
HSSLTH-750-W	3/4"	2.20	0.30	1.90	1
HSSLTH-1000-W	1"	2.85	0.30	2.32	1
HSSLTH-1250-W	1-1/4"	2.90	0.30	2.62	1
HSSLTH-1500-W	1-1/2"	3.15	0.30	2.89	1
HSSLTH-2000-W	2"	3.60	0.30	3.33	1
HSSLTH-2500-W	2-1/2"	3.56	0.42	4.40	1

Suffix "W" includes nut. Suffix "L" does not include nut.

HSTH, HIGH SPEED EXTRA LENGTH AND STANDARD LENGTH THRU HULL BRONZE



HSTH MODELS	HSTHXL MODELS	THREAD NPSM	A inch	HSTHXL A inch	B inch	C inch	PKG
HSTH-750-W	HSTHXL-750-W	3/4"	2.20	5.33	0.30	1.90	10
HSTH-1000-W	HSTHXL-1000-W	1"	2.85	5.33	0.30	2.32	10
HSTH-1250-W	HSTHXL-1250-W	1-1/4"	2.90	5.45	0.30	2.62	12
HSTH-1500-W	HSTHXL-1500-W	1-1/2"	3.15	5.45	0.30	2.89	12
HSTH-2000-W	HSTHXL-2000-W	2"	3.60	5.58	0.30	3.33	1
HSTH-2500-W	-	2-1/2"	3.56	-	0.42	4.40	1
HSTH-3000-W	-	3"	5.00	-	0.42	5.50	1

Suffix "W" includes nut. Suffix "L" does not include nut.

TH, THRU-HULL LOCK NUTS BRONZE AND #316 SS



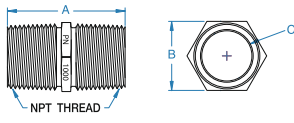
BRONZE	#316 SS	THREAD NPS	A inch	B inch	C inch	WEIGHT lb	PKG
TH-501	TH-501-S	1/2"	1.50	.33	1.13	.05	25
TH-751	TH-751-S	3/4"	1.65	.33	1.30	.04	25
TH-1001	TH-1001-S	1"	2.08	.33	1.55	.11	25
TH-1251	TH-1251-S	1-1/4"	2.50	.45	1.95	.21	25
TH-1501	TH-1501-S	1-1/2"	2.90	.45	2.28	.32	25
TH-2001	TH-2001-S	2"	3.50	.45	2.75	.54	10
TH-2501	TH-2501-S	2-1/2"	4.72	.70	3.46	1.00	10
TH-3001	TH-3001-S	3"	5.45	.70	4.13	1.45	10
TH-4001	-	4"	7.13	.70	6.00	3.61	1
TH-5001	-	5"	8.18	.70	6.50	-	-

PN, PIPE-NIPPLES BRONZE



PN Series cast bronze pipe nipples provide exact alloy compatibility for making inter-connections between numerous marine components such as seacocks, strainers and check valves.

- Cast-in wrench flat simplifies installation and removal
- Full flow
- 1/2"- 4" pipe sizes



MODEL	THREAD NPT	A inch	B inch	C inch	WEIGHT lb	PKG
PN-500	1/2"	1.77	0.88	0.50	0.15	10
PN-750	3/4"	1.77	1.06	0.75	0.19	10
PN-1000	1"	2.34	1.38	1.00	0.31	10
PN-1250	1-1/4"	2.51	1.75	1.25	0.60	10
PN-1500	1-1/2"	2.49	2.00	1.50	0.69	6
PN-2000	2"	2.37	2.50	2.00	0.79	2
PN-2500	2-1/2"	3.41	3.00	2.50	1.24	1
PN-3000	3"	3.53	3.63	3.00	2.25	1
PN-4000	4"	3.53	4.73	4.00	3.20	1

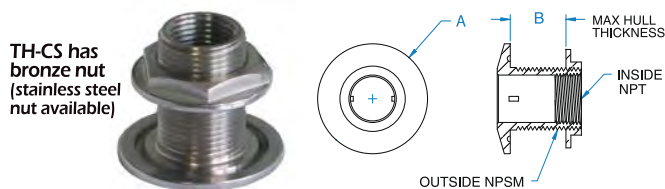
PNC, PIPE NIPPLES WITH CHECK VALVE BRONZE



PNC Series are made from PN series cast bronze nipples. A check valve is placed inside to prevent back-flow in plumbing systems. The check valve imposes almost zero flow restriction, and requires less than 1/2 PSI to open. Colored bands indicate flow direction (green to red), confirmed by the permanent laminated tag. Sizes 1/2" to 2". Do not use in diesel fuel or gasoline applications. Refer to PN Series above for dimensions drawing.

MODEL	THREAD NPT	A inch	B inch	PSI TO OPEN	WEIGHT lb	PKG
PNC-500	1/2"	1.77	0.88	.45	0.17	10
PNC-750	3/4"	1.77	1.06	.45	0.21	10
PNC-1000	1"	2.34	1.38	.45	0.33	10
PNC-1250	1-1/4"	2.51	1.75	.45	0.62	10
PNC-1500	1-1/2"	2.49	2.00	.45	0.72	6
PNC-2000	2"	2.37	2.50	.45	0.84	2

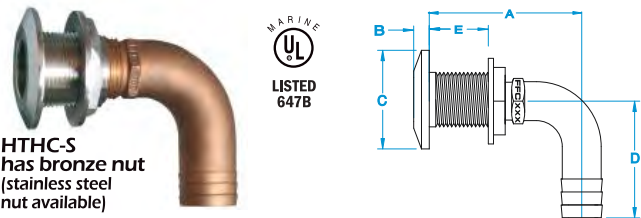
TH-CS, BULK-HEAD FITTING #316 SS



Create your own above-waterline plumbing connection. #316 SS thru-hull fitting is threaded NPT inside.

MODEL	A inch	B inch	THREAD OUTSIDE NPS	THREAD INSIDE NPT	WEIGHT lb	PKG
TH-750-CS	1.90	1.2	3/4"	1/2"	.36	1
TH-1000-CS	2.32	1.2	1"	3/4"	.51	1
TH-1250-CS	2.62	1.2	1-1/4"	1"	.79	1
TH-1500-CS	2.89	1.2	1-1/2"	1-1/4"	.85	1
TH-2000-CS	3.33	1.2	2"	1-1/2"	1.53	1

HTHC-S, 90° HOSE THRU-HULLS #316 SS



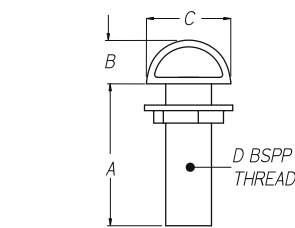
MODEL	THREAD NPS	HOSE ID	A inch	B inch	C inch	D inch	E* inch	WEIGHT lb	PKG
HTHC-750-S	3/4"	3/4"	2.71	.30	1.90	2.25	1.25	.56	1
HTHC-1000-S	1"	1"	2.75	.30	2.32	2.20	1.25	.81	1
HTHC-1250-S	1-1/4"	1-1/4"	2.75	.30	2.62	3.03	1.25	1.06	1
HTHC-1500-S	1-1/2"	1-1/2"	4.70	.30	2.89	3.40	1.25	1.31	1
HTHC-2000-S	2"	1-3/4"	5.40	.30	3.33	3.65	1.25	2.00	1

*Maximum hull thickness.

METRIC FITTINGS

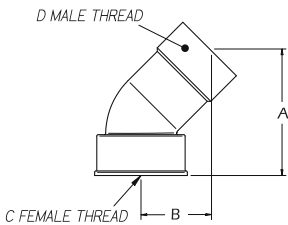
SC-W, CHROMED SCUPPER

Model	A	B	C	D
SC-50-W	2.56	0.79	1.52	G 1/2" BSPP
SC-75-W	2.56	0.83	1.73	G 3/4" BSPP
SC-100-W	2.82	1.00	1.99	G 1" BSPP
SC-125-W	3.15	1.14	2.24	G 1-1/4" BSPP
SC-150-W	3.35	1.28	2.54	G 1-1/2" BSPP
SC-200-W	1.89	1.58	3.10	G 2" BSPP



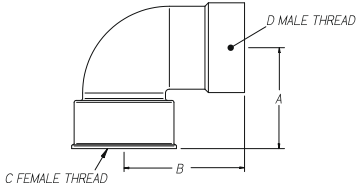
SLG-45, 45-DEGREE STREET ELL

Model	A	B	C	D
SL-G3445	1.97	0.88	G 3/4" BSPP	G 3/4" BSPP
SL-G11445	2.76	1.50	G 1-1/4" BSPP	G 1-1/4" BSPP



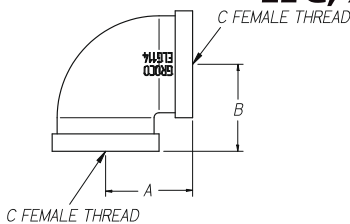
SLG-90, 90-DEGREE STREET ELL

Model	A	B	C	D
SL-G1290	1.10	1.34	G 1/2" BSPP	G 1/2" BSPP
SL-G3490	1.18	1.58	G 3/4" BSPP	G 3/4" BSPP
SL-G190	1.81	1.77	G 1" BSPP	G 1" BSPP
SL-G11490	2.24	2.17	G 1-1/4" BSPP	G 1-1/4" BSPP
SL-G11290	2.28	2.28	G 1-1/2" BSPP	G 1-1/2" BSPP
SL-G290	2.64	3.15	G 2" BSPP	G 2" BSPP



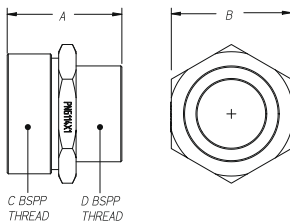
EL-G, 90 DEGREE ELBOW

MODEL	A	B	C
EL-G114	1.75	1.75	G 1-1/4" BSPP



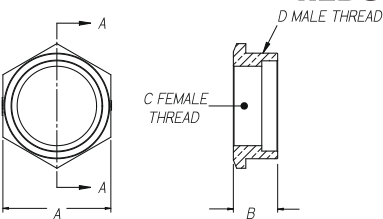
PNG, NIPPLE

Model	A	B	C	D
PN-G12	1.77	0.88	G 1/2" BSPP	G 1/2" BSPP
PN-G34	1.77	1.06	G 3/4" BSPP	G 3/4" BSPP
PN-G34X12	1.15	1.04	G 3/4" BSPP	G 1/2" BSPP
PN-G1	2.12	1.38	G 1" BSPP	G 1" BSPP
PN-G114	1.84	1.78	G 1-1/4" BSPP	G 1-1/4" BSPP
PN-G114X1	1.58	1.65	G 1-1/4" BSPP	G 1" BSPP



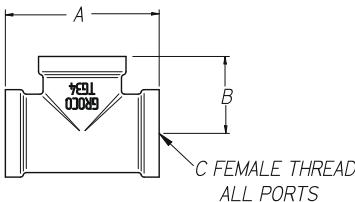
REDUCING BUSHING

Model	A	B	C	D
G-12X38	0.94	0.86	G 3/8" BSPP	G 1/2" BSPP
G-34X12	0.99	1.04	G 1/2" BSPP	G 3/4" BSPP
G-1X34	0.88	1.32	G 3/4" BSPP	G 1" BSPP
G-114X34	0.96	1.65	G 3/4" BSPP	G 1-1/4" BSPP
G-112X1	0.97	1.97	G 1" BSPP	G 1-1/2" BSPP
G-2X114	0.99	2.40	G 1-1/4" BSPP	G 2" BSPP
G-2X112	0.99	2.40	G 1-1/2" BSPP	G 2" BSPP






TEE

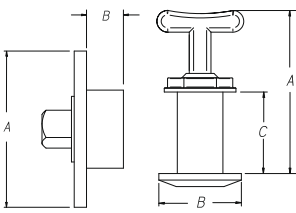
Model	A	B	C
T-G12	1.96	0.98	G 1/2" BSPP
T-G34	2.55	1.28	G 3/4" BSPP
T-G1	2.88	1.44	G 1" BSPP
T-G114	3.55	1.78	G 1-1/4" BSPP



SCUPPERS AND SPECIAL PURPOSE FITTINGS

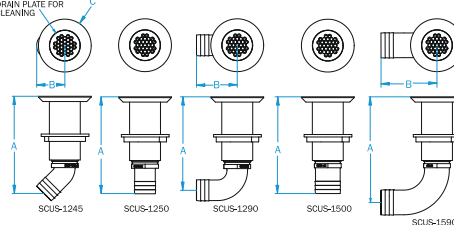

GARBOARD DRAINS





Garboard Drain Model	A	B	MAX Hull Thickness C
TD-500	0.47	1.00	-
TD-500-T	0.47	1.00	-
TD-TD-750-L	3.80	1.90	1.88

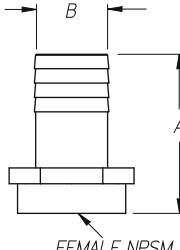

SCUS SERIES



Scuppers are installed flush with the deck and have a removeable drain. 1-1/4" and 1-1/2" ID hose connections are offered in straight, 45° and 90° orientation

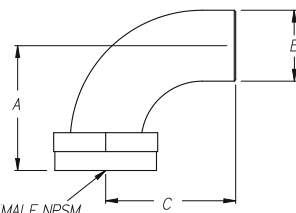

POLISHED SS	A inch	B inch	C inch	HOSE ID
SCUS-1245	5.9	1.7	3.2	1-1/4"
SCUS-1250	5.9	-	3.2	1-1/4"
SCUS-1290	5.7	2.5	3.2	1-1/4"
SCUS-1500	5.9	-	3.2	1-1/2"
SCUS-1590	6.4	3.4	3.2	1-1/2"

TP SERIES - STRAIGHT BRONZE TAIL PIECE



MODEL	A	B	C	THREADS
TPT-5062	2.16	5/8"	-	1/2" NPT
TPT-5075	2.16	3/4"	-	1/2" NPT
TPT-625	2.16	5/8"	-	3/4" NPT
TPT-750	2.16	3/4"	-	3/4" NPT
TPT-1075	2.13	3/4"	-	1" NPT
TP-750	2.13	3/4"	-	3/4" NPS
TP-1000	2.13	1"	-	1" NPS
TP-1250	2.75	1-1/4"	-	1-1/4" NPS
TP-1500	2.75	1-1/2"	-	1-1/2" NPS
TP-2000	2.50	2"	-	2" NPS
TP-2500	2.50	2-1/2"	-	2-1/2" NPS

TPC SERIES - 90° BRONZE TAIL PIECE

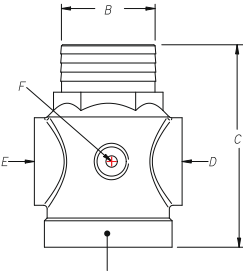



TPC Series 90° tail pieces are comprised of two pieces. The swivel may be rotated in any direction to facilitate ease of hook-up; then the nut is tightened.

MODEL	A	B	C	THREADS
TPC-1000	2.75	1"	2.38	-
TPC-1250	2.50	1-1/4"	2.38	-
TPC-1500	3.75	1-1/2"	2.75	-
TPC-2000	3.75	2"	3.63	-
TPC-2500	4.50	2-1/2"	4.50	-


RWM SERIES - RAW WATER MANIFOLD

U.S. PATENT NO. 622,713,381



Model	A	B	C	D	E	F
RWM-1250	1-1/4" NPT	1"	3.75	1/2" NPT	1/2" NPT	1/4" NPT
RWM-1500	1-1/2" NPT	1-1/4"	4.13	3/4" NPT	3/4" NPT	1/4" NPT
RWM-1500-1	1-1/2" NPT	1-1/4"	4.13	1/2" NPT	1" NPT	1/4" NPT
RWM-2000	2" NPT	1-1/2"	2.00	3/4" NPT	3/4" NPT	1/4" NPT
RWM-2000-1	2" NPT	1-1/2"	2.00	3/4" NPT	1" NPT	1/4" NPT
RWM-2500	2-1/2" NPT	2"	5.00	3/4" NPT	1" NPT	1/4" NPT
RWM-3000	3" NPT	2-1/2"	5.50	1" NPT	1-1/4" NPT	1/4" NPT

THT-530 THRU-HULL FITTING INSTALLATION TOOL



THT-530 fits GROCO Thru-hull Fitting Sizes from 1/2" through 3"

NOT FOR REMOVAL OF OLD THRU-HULL FITTINGS

THE CONCEPT

THT-530 simplifies the installation of thru-hull fittings. Slide the thru-hull fitting, flanged end first, over the tool. Tie a length of monofilament to the eye and place it into the already-cut hole in the hull of the boat. Apply caulking to the flange of the fitting, and pull the fitting through the hole and against the hull from inside the boat. Thread the mono-filament through the locknut or seacock. With the fitting pulled firmly against the hull the locknut or the seacock may be screwed onto the fitting.

Utility Use, Fuel Transfer, Oil Change Kits	GEAR PUMPS
Utility Use and Deck Wash Kits	VANE PUMPS
Marine & Automotive	CENTRIFUGAL PUMPS
Rotary Pumps & Kits	ROTARY PUMPS
Pumps & Accessories	BILGE PUMP ACCESSORIES



Oil Change Systems

U-LUBE™ OIL CHANGE SYSTEMS

*Powerful Gearpump Delivers Nearly Twice The Flow
Of Competitive Models*

G-3

Cover
Conceals
Pump and
Circuitry

Touch Pad
Control

Resettable
Overcurrent
Protection
and Dry-Run
Protection

MADE
IN THE
USA

Bronze
Manifold

*Plumbing Schematic and
Maintenance Log Included
with All Versions*

G-6



Same Features as G3.
G-4 and G-5 utilize the G-6 Enclosure,
leaving room for expansion.
(See Page 35)

*Oil Pan Adaptors Are Available To Fit
All Common Marine Engines*

Go to www.groco.net for updates, applications, and servicing information.

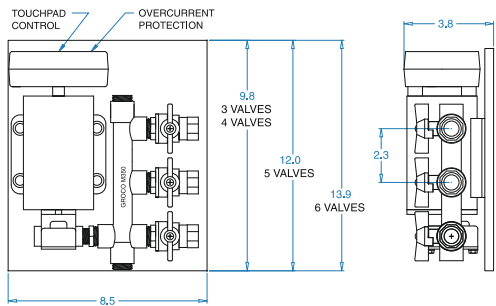
U-LUBE™ OIL CHANGE SYSTEMS

At the heart of the GROCO® U-LUBE™ System is a powerful gear pump that delivers an honest 3-plus GPM. All models have dry-run protection, touchpad control, a plumbing schematic to tell you what hose goes where, and a handy maintenance log. Choose the model with the number of valves you need that fits the available space. A complete assortment of oil pan adaptors, related fittings and valves are offered to complete your installation.

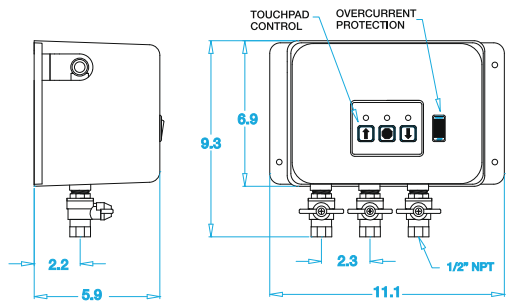
An optional safety circuit can be provided to disable the pump if any of the connected engines is operating. Contact GROCO for details.



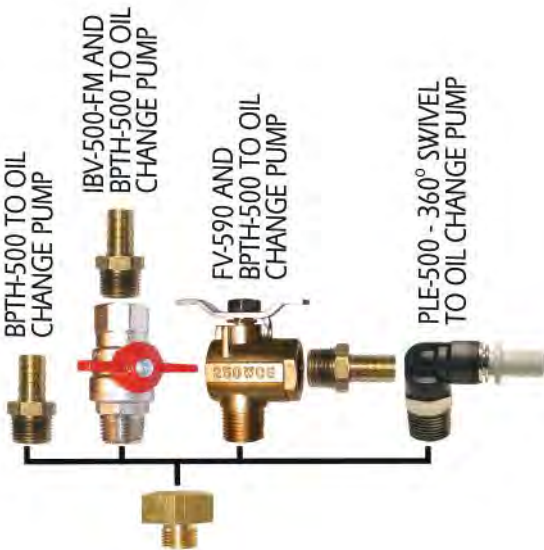
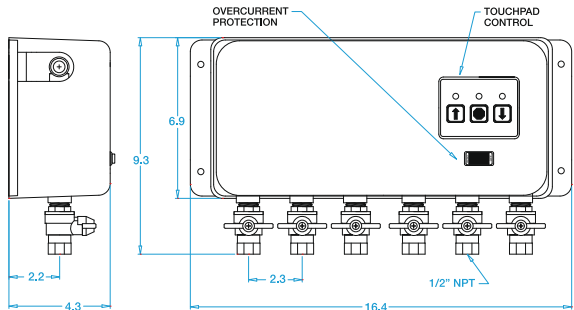
GHSN is not covered and may be ordered with any number of valves. Touch-pad control and over-current protection are mounted behind the pump and motor.



G-3 is covered (except for the valves), for a clean engine room appearance, and offers a compact mount footprint. Touch-pad control and over-current protection are cover-mounted.



G-4, G-5, and G-6 are covered (except for the valves), and offer a slim mount footprint. Touch-pad control and over-current protection are cover-mounted.

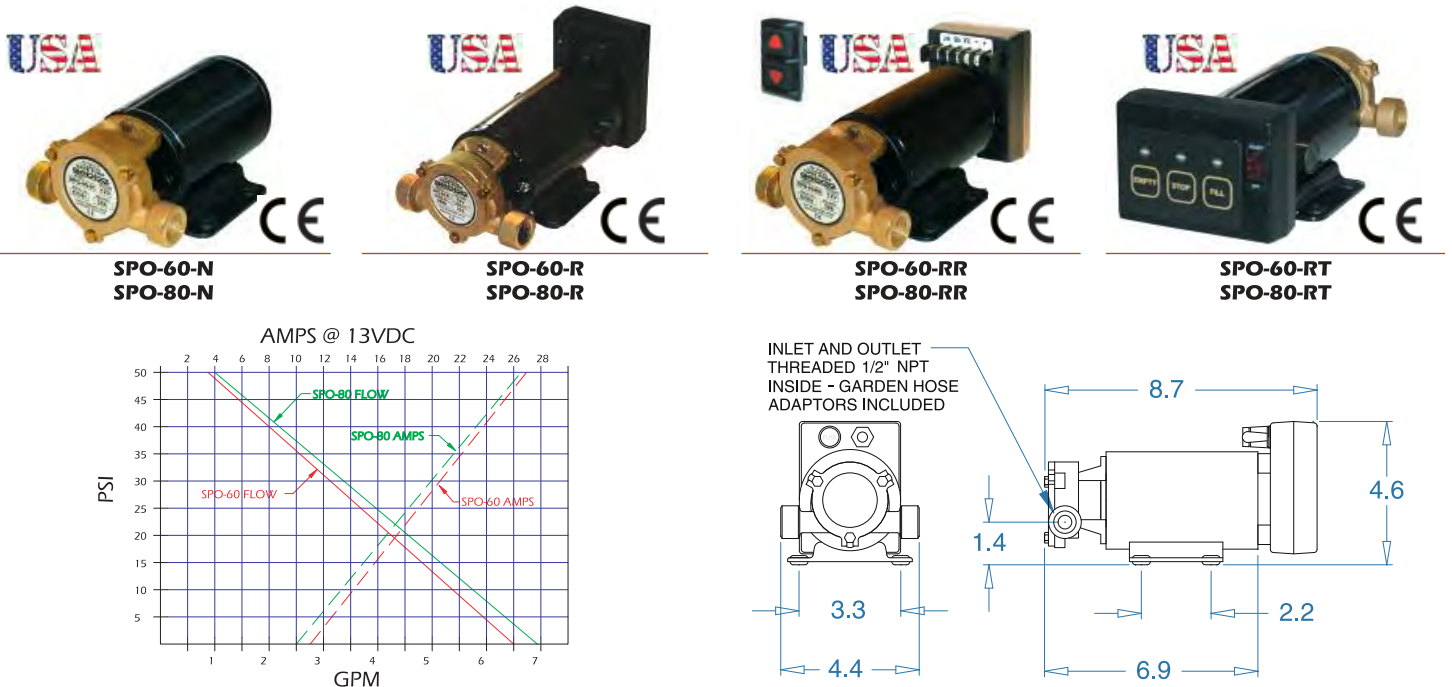


NOTE: OPD fittings replace the engine oil pan drain plug and provide a 1/2" NPT connection to complete and simplify the oil change system installation.

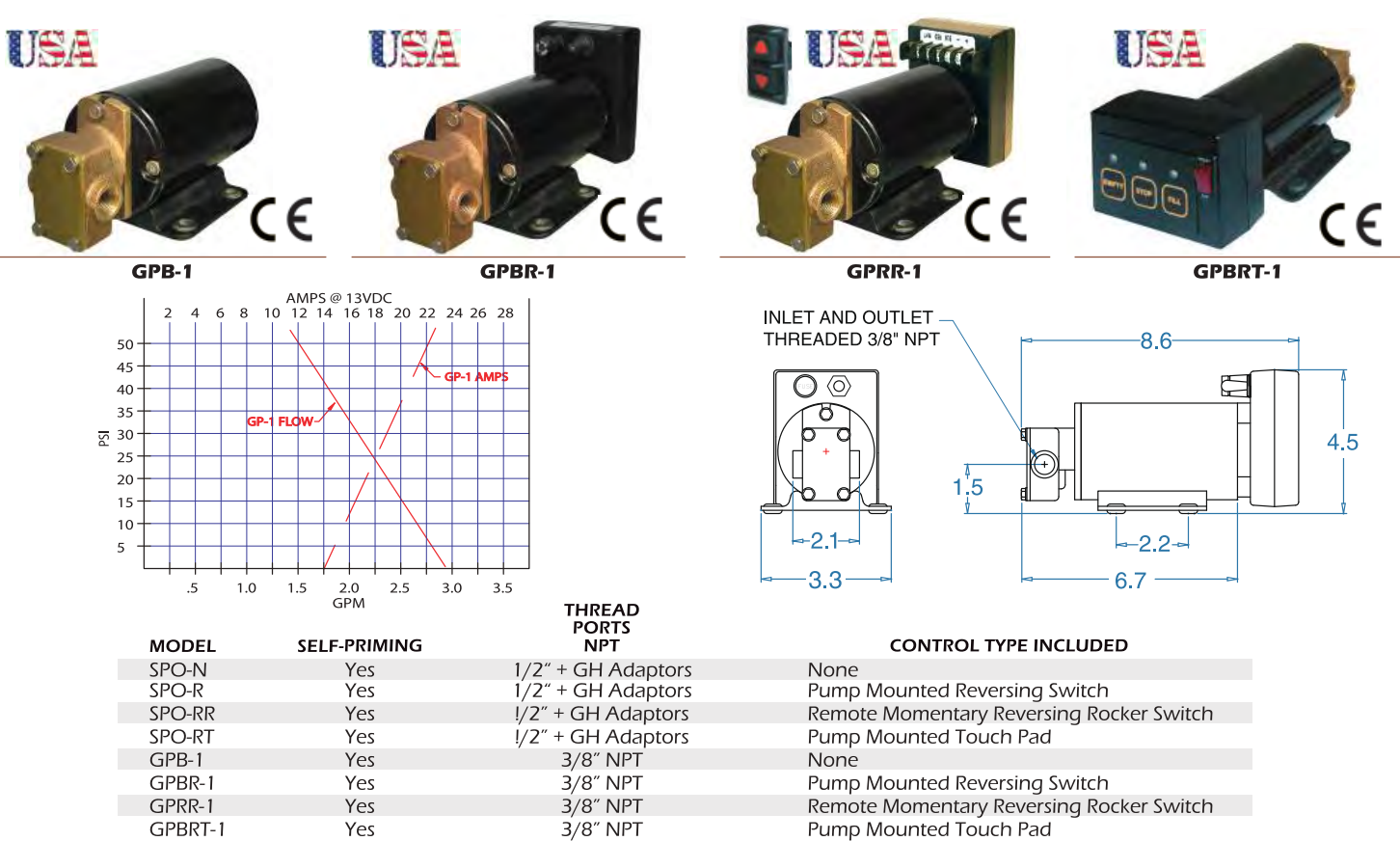
ADAPTOR #	OIL PAN THREAD	ADAPTOR #	OIL PAN THREAD
OPD-1	3/4"-16 UNF	OPD-10	1/2"-12 UNF
OPD-2	7/8"-14 UNF	OPD-11	M18 X 1.50
OPD-3	7/8"-18 UNF	OPD-12	M22 X 1.50
OPD-4	3/4"-14 NPT	OPD-13	M24 X 2.00
OPD-5	1"-11.5 NPT	OPD-14	M25 X 1.50
OPD-6	1"-18 UNS	OPD-15	M26 X 1.50
OPD-7	1-1/16"-12 UNF	OPD-16	M27 X 2.00
OPD-8	1-1/8"-12 UNF	OPD-17	M30 X 1.50
OPD-9	1-5/16"-12 UNF	OPD-18	M30 x 2.00

POSITIVE DISPLACEMENT PUMPS **GPB SERIES and SPO SERIES**

GROCO® Vane Pumps are self-priming, are instantly reversible, and are capable of operation in either direction. Relatively high flow (more than gear pumps) makes them suitable for general purpose duties such as deck-wash, bilge pumping (filtered inlet), fuel transfer, ballast transfer, and oil change. All models have an ignition protected motor, #316 stainless steel shaft, and are available in models that provide reversing (R), remote reversing (RR), and reversing with touchpad (RT) control options. SPO-80 Series Vane Pumps have a more powerful motor and are better suited for long run-time or head pressure greater than 20 PSI.



GROCO® Gear Pumps are self-priming, are instantly reversible, and are capable of operation in either direction. Relatively low flow (less than vane pumps) makes them suitable for duties such as deck-wash, fuel transfer, ballast transfer, and oil change. All models have an ignition protected motor, #316 stainless steel shaft, and are available in models that provide reversing (R), remote reversing (RR), and reversing with touchpad (RT) control options.



TRANSFER KITS / DECK WASH KITS

350 SERIES, C-60 and C80

350 SERIES TRANSFER KITS

THE CONCEPT

Boats with multiple fuel or water tanks occasionally have the need to transfer from one tank to another. Common problems with such a system have been siphoning of the transferred fluid back to the original tank, and loss of pump prime. GROCO® 350 Series Transfer Kits utilize check valves to address both problems, so once the fluid is where you want it, it stays where you want it.

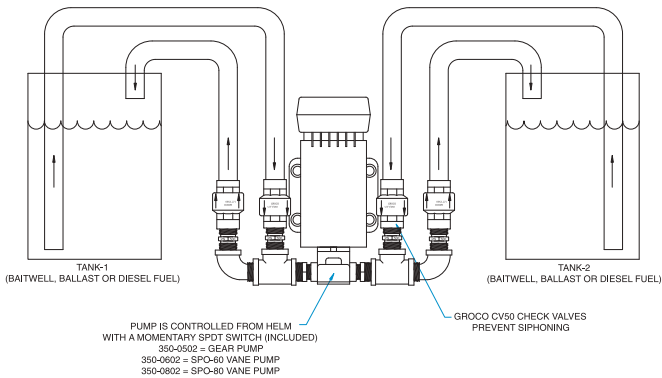
System control is commanded easily from the helm with the switching system provided.

One-way and two-way systems are offered, powered by your choice of GROCO® GP-1 Gear Pump, SPO-60 Vane Pump or SPO-80 Vane Pump. Refer to Page 36 for performance data.

Mount board included.

MODEL	DESCRIPTION	PLUMBING THREAD NPT
350-0501-XX	1-WAY GEAR PUMP TRANSFER KIT	1/2"
350-0502-XX	2-WAY GEAR PUMP TRANSFER KIT	1/2"
350-0601-XX	1-WAY VANE PUMP TRANSFER KIT	1/2"
350-0602-XX	2-WAY VANE PUMP TRANSFER KIT	1/2"
350-0801-XX	1-WAY VANE PUMP TRANSFER KIT	1/2"
350-0802-XX	2-WAY VANE PUMP TRANSFER KIT	1/2"

*XX = VOLTAGE



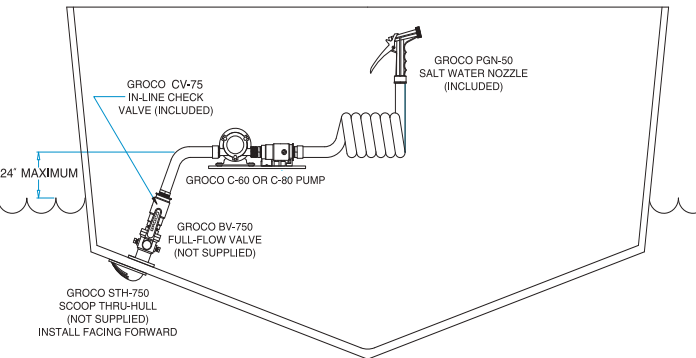
C60 - C80 DECK WASH KITS

THE CONCEPT

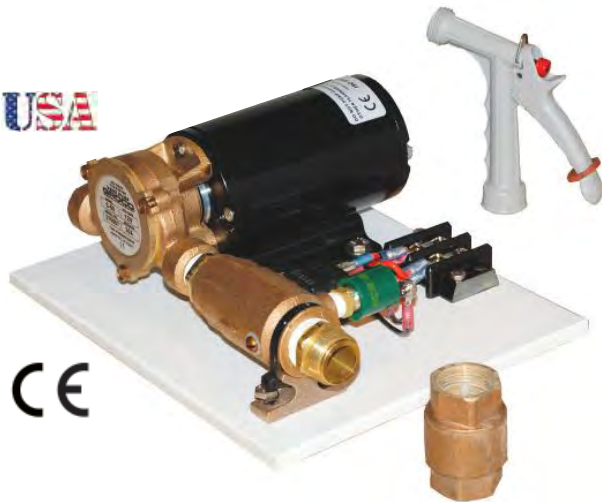
GROCO® C-60 and C-80 deck wash kits deliver flow and pressure on demand for tough anchor wash and deck wash jobs. Vane pumps provide greater performance than diaphragm or flexible impeller pumps.

FEATURES

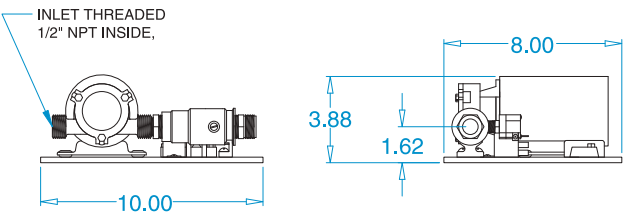
- Saltwater nozzle is included.
- Up to 6.5GPM (C-60) or 7.5GPM (C-80) in the 20-40 PSI pressure range.
- "Ignition Protected" Permanent magnet ball bearing motor has #316 SS shaft.
- Continuous duty shaft seal.
- C-80 has replaceable motor brushes.



C-60 AND C-80 SAMPLE INSTALLATION



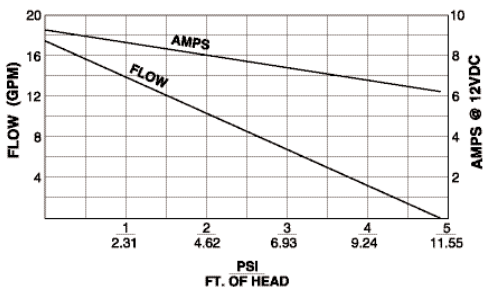
C-60 AND C-80 DECK WASH KITS come complete with Spray Nozzle (PGN-50) and Check Valve (CV-75)



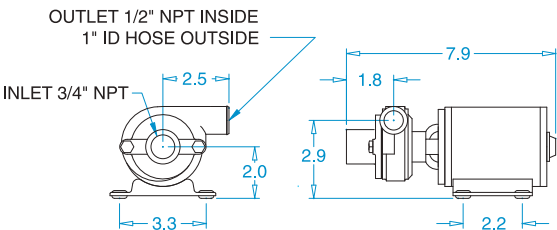
C-60 AND C-80 DIMENSIONS

CENTRIFUGALS MARINE - OVERVIEW

Centrifugals are silent running pumps that are simple to service and operate, and will handle small solids without pump damage. They provide high GPM flow but relatively low pressure. Years of trouble-free service can be expected without servicing filters or check valves. Centrifugals will not self-prime; a flooded inlet is required.

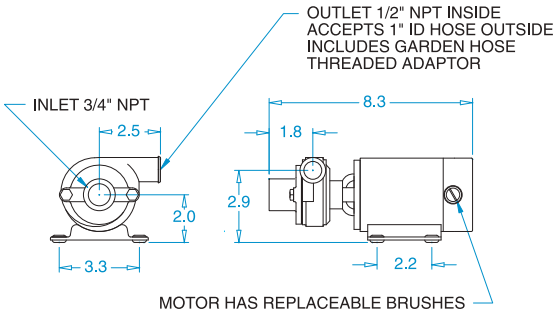


CP-20



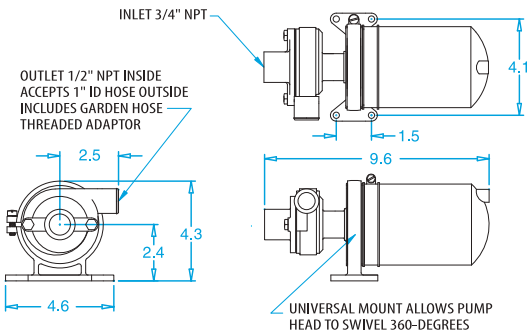
- 17 GPM flow is ideal for baitwell circulation or any onboard pumping job that needs high GPM flow but relatively low pressure.
- Inlet is threaded 3/4" NPT.
- Discharge is threaded 1/2" NPT inside. Garden hose adaptor is included.
- Motor is "Ignition Protected" and has a #316SS shaft.
- Continuous duty mechanical shaft seal.

CP-30



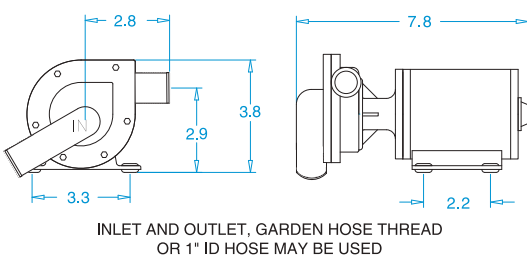
- CP-30 is identical to CP-20 except that it offers externally replaceable motor brushes.
- No-rust plastic base.
- Inlet is threaded 3/4" NPT.
- Discharge is threaded 1/2" NPT inside. Garden hose adaptor is included.
- Continuous-duty shaft seal and "Ignition Protection" motor with #316 SS shaft.

CP-20-S AND CP-30-S



- Universal mount bracket allows 360° pump rotation.
- Combines CP-20 performance with full submersibility.
- Inlet is threaded 3/4" NPT.
- Discharge is threaded 1/2" NPT inside. Garden hose adaptor is included.
- "Ignition Protected" ball bearing motor.

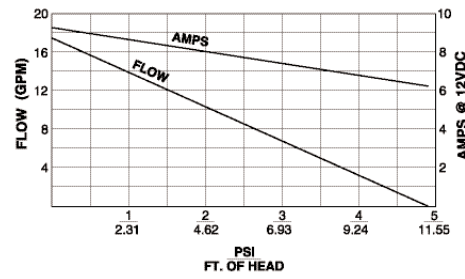
CB-10



- Combines CP-20 performance with a light weight non-metallic pump.
- No-rust plastic base.
- Inlet and outlet are threaded for garden hose or for 1" ID hose.
- Continuous-duty "Ignition Protection" motor with #316 SS shaft.
- Continuous-duty shaft seal.

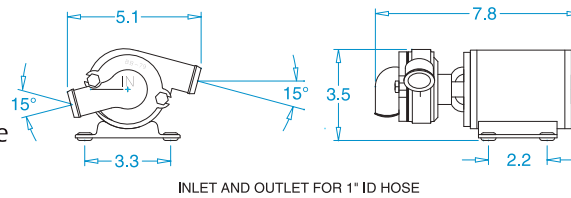
CENTRIFUGALS INDUSTRIAL AND AUTOMOTIVE - OVERVIEW

Centrifugals are silent running and easy to service. Long-life motor brushes are used for anticipated continuous-duty operation. Construction is suitable for non-explosive chemical environments such as engine coolant circulation, typically a 50/50 mixture of ethylene glycol and water at temperatures as high as 200° F.



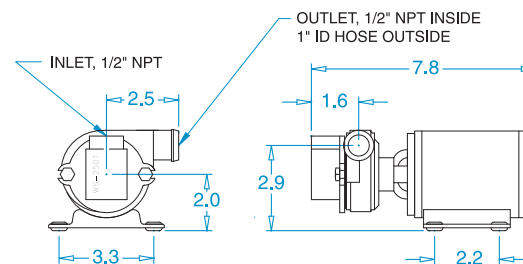
CP-20-BB AND CP-30 BB

- Inlet and outlet for 1" ID hose.
- Bronze construction.
- #400 Series SS motor shaft.
- Continuous-duty face seal.
- Angled inlet and outlet for 1" ID hose keep hoses low to the floor.
- "Ignition Protected" ball bearing motor.
- Metal Base.



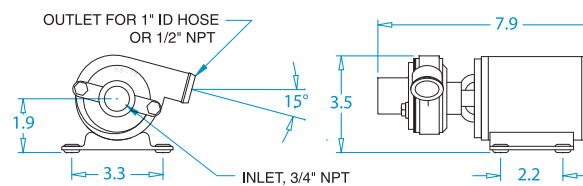
CP-20-BBWA

- Bronze construction.
- #400 Series SS motor shaft.
- Continuous-duty face seal.
- Inlet and outlet are 1/2" NPT.
- "Ignition Protected" ball bearing motor.
- Metal Base.



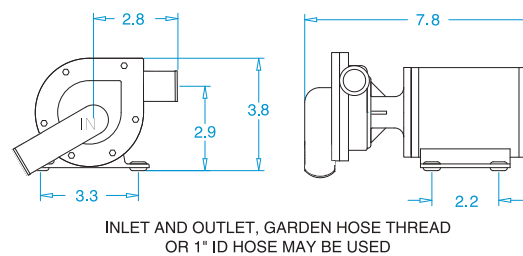
CP-20-BBC

- Bronze construction.
- #400 Series SS motor shaft.
- Continuous-duty face seal.
- Inlet is 3/4" NPT; outlet is 1" ID hose barb.
- "Ignition Protected" ball bearing motor.
- Metal Base.



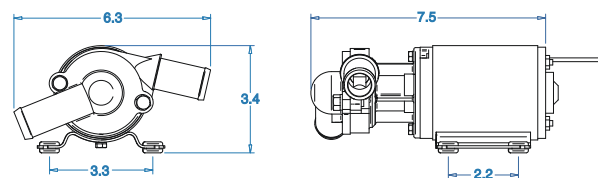
200-0006

- Non-corroding plastic pump housing.
- #400 Series SS motor shaft.
- Continuous-duty face seal.
- Inlet and outlet for 1" ID hose.
- Metal Base.



200-0025-00

- Inlet and outlet for 1" ID hose.
- Bronze construction.
- #400 Series SS motor shaft.
- Continuous-duty face seal.
- Angled inlet and outlet for 1" ID hose keep hoses low to the floor.
- "Ignition Protected" ball bearing motor.
- Metal Base.



P-9000 and P-9000-1 ROTORY PUMPS



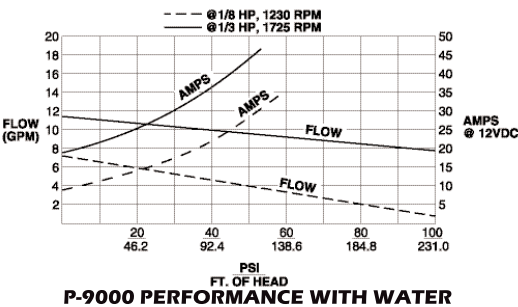
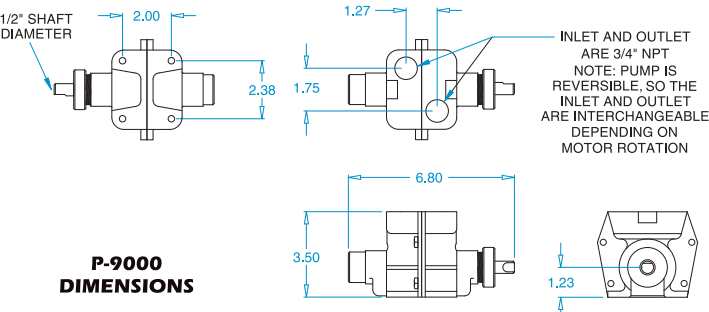
P-9000 OR P-9000-1 PUMPS

THE CONCEPT

Complies with NSF-61 low-lead standard.

Improved pump design has screw-on seal end cap. P-9000 and P-9000-1 are two-stage self-priming positive displacement pumps. Their construction (bronze, stainless steel, Teflon® and Delrin®) makes them suitable for pumping nearly any non-flammable and non-explosive fluid with low solids content. (Use a GROCO® WSB series strainer if solids are likely to be encountered in the fluid being pumped). External drive is required (1750 RPM max) either direct or with pulley and belt.

The difference between P-9000 and P-9000-1 is the impeller and cam design. P-9000 is for applications where occasional dry running may be encountered. P-9000-1 is for lower GPM, higher PSI applications when dry running is not likely.



ROTORY PUMP KITS

THE CONCEPT

PJRW and PSRW are comprised of a P-9000 pump and a drive motor, and must be turned on and off by the user, usually with a foot switch or a toggle switch located near the pump. The most common application is for high pressure anchor washdown. No controls, plumbing or dry running protection is included, thus these are the responsibility of the user. Performance is shown in the "P-9000 Performance With Water" graph.

PSRO OR PSRW



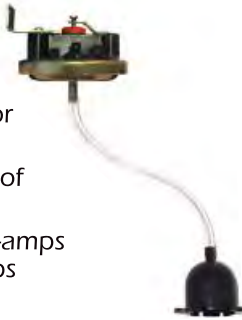
PSRO is comprised of a P-9000-1 pump and a drive motor that includes a reversing switch to change the direction of flow. Oil change and fuel transfer are the most common applications. No plumbing or dry running protection is included, thus these are the responsibility of the user. Performance may be calculated from the "P-9000 Performance With Water" graph; P-9000-1 GPM flow will be approximately 75% of P-9000 flow while 50% greater PSI pressure may be achieved.

MODEL	USE FOR	BREAKER	LENGTH	WIDTH	HEIGHT	WEIGHT	PKG	COMMENT
PJRW 12V	Deck Wash	30-amp	8.50"	8.25"	4.50"	13.0#	1	Uses P-9000
PJRW 24V	Deck Wash	15-amp	8.50"	8.25"	4.50"	13.0#	1	Uses P-9000
PSRO 12V	Oil Change	50-amp	20.50"	5.50"	8.25"	37.0#	1	Uses P-9000-1
PSRO 24V	Oil Change	30-amp	20.50"	5.50"	8.25"	37.0#	1	Uses P-9000-1
PSRO 115VAC	Oil Change	10-amp	20.50"	5.50"	8.25"	37.0#	1	Uses P-9000-1
PSRW 12V	Deck Wash	50-amp	20.50"	5.50"	8.25"	37.0#	1	Uses P-9000
PSRW 24V	Deck Wash	30-amp	20.50"	5.50"	8.25"	37.0#	1	Uses P-9000
PSRW 115VAC	Deck Wash	10-amp	20.50"	5.50"	8.25"	37.0#	1	Uses P-9000

PUMP ACCESSORIES

AS-100 BILGE PUMP SWITCH

- Switch turns bilge pump off and on by sensing changes in pressure (caused by rising or falling bilge water level) in its air tube. No floats to stick or fill with water.
- Approximate levels are "ON" at 2-3/4" of bilge level and "OFF" at 1".
- Use with a pump that draws up to 10-amps running continuously or up to 20-amps running intermittently.



PGN-50 SALT WATER NOZZLE

- The original - the nozzle from which all others are copied.
- Non-corroding plastic nozzle with stainless steel return spring will outlast ordinary hardware store nozzles.
- PGN-50 is standard equipment with C-60 and C-80 deck wash kits.



Large Yacht Pressure System	PARAGON™ Senior (PSR)
Large Yacht Parallel Pressure System	PARALLELAGON™ (PAR)
Mid-Size Yacht Pressure Systems	PARAGON™ Junior (PJR) PARAGON™ Junior with 1-Gallon Tank (PJR-A) PARAGON™ Junior with Integral Tank (PJR-B) WSG-1
Dry-Tank Protection System for Pumps	NOFLO™

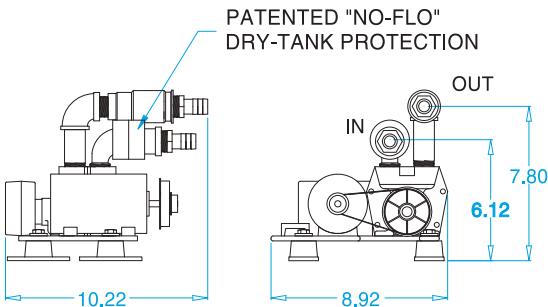


WATER PRESSURE

WATER PRESSURE SYSTEMS

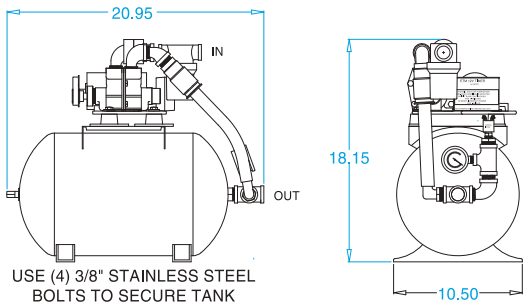
MODEL	YACHT SIZE	PRESSURE RANGE	MAX GPM	CE	INCLUDES PRESSURE TANK	SELF PRIMING	BREAKER
PJR-A	Up to 50'	20-40	7.0	Yes	1-Gallon	Yes	30 @ 12V
PJR-B	Up to 50'	20-40	7.0	Yes	2-Gallon	Yes	30 @ 12V
PSR (DC)	Over 50'	30-50	11.0	Yes	Order Separately	Yes	50 @ 12V
PSR (AC)	Over 50'	30-50	11.0	No	Order Separately	Yes	10 @ 115V

PJR-A SERIES



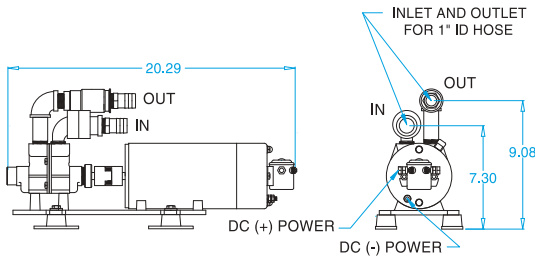
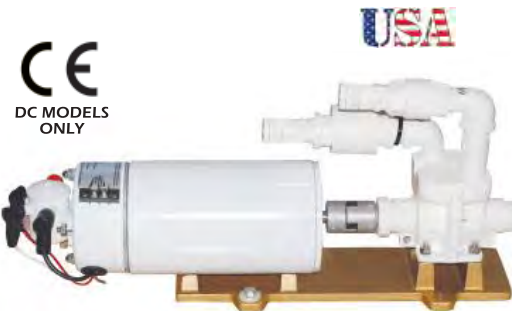
- Complies with NSF-61 low-lead standard.
- Compact and powerful 2-stage rotary pump.
- Pressure gauge and inlet strainer included.
- Patented NOFLO™ Dry-run protection.
- Includes PST-1.
- Order Model PJR for pump without the tank.
NOTE: Tank is required for water pressure system application.

PJR-B SERIES



- Complies with NSF-61 low-lead standard.
- Compact and powerful 2-stage rotary pump is tank-mounted, so installation is easy.
- Pressure gauge and inlet strainer included.
- Patented NOFLO™ Dry-run protection.

PSR SERIES



- Complies with NSF-61 low-lead standard.
- Powerful 2-stage rotary pump.
- AC models available.
- Pressure gauge and inlet strainer included.
- Patented NOFLO™ Dry-run protection.
- Order PST-2, 3, 4 or 5 tank separately.

PARALLELAGON™ PARALLEL PUMPS SYSTEM FOR LARGE YACHTS

THE CONCEPT

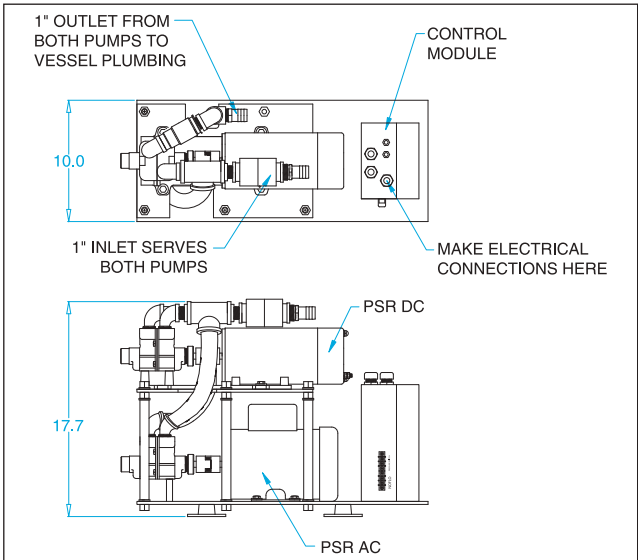
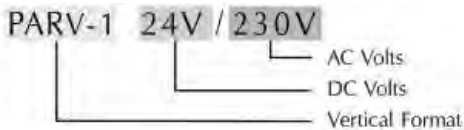
Big yachts demand big performance and require on-line back-up for all systems, plus the versatility to provide the conveniences of home, whether they are underway or at berth. PARALLELAGON™ answers the call with the first parallel pumps system, complete with a solid-state control system and patented NOFLO™ dry run protection.

Depending on the voltage present, either an AC pump or a DC pump provides uninterrupted operation, without actuating valves, switches or circuit breakers, and regardless of the available voltage. If AC power is present, the AC pump operates; if AC power is not present, the DC pump operates. The system control determines which voltage is present, and which pump to operate.

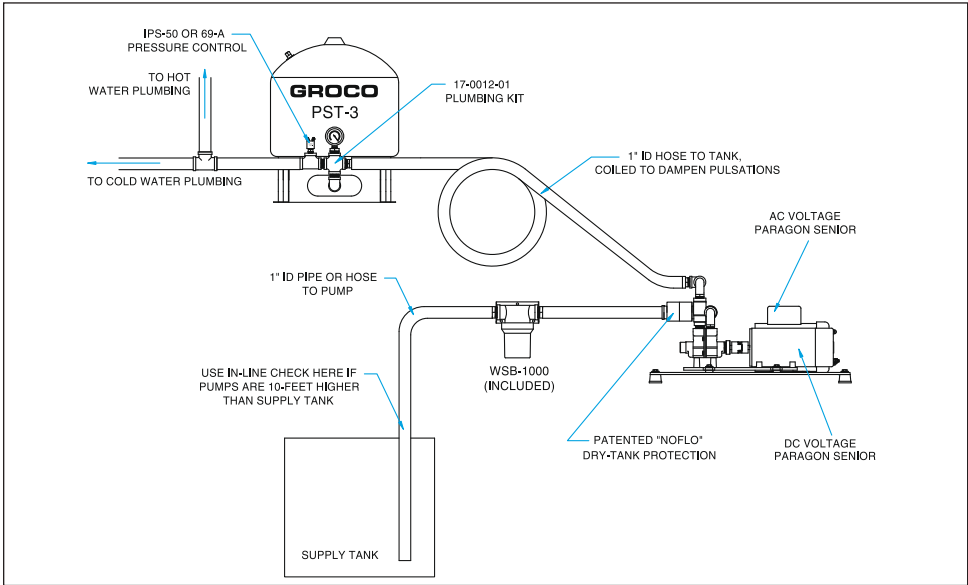
FEATURES

- Complies with NSF-61 low-lead standard.
- One “ignition protected” pressure control operates both pumps.
- Patented NOFLO™ dry-run protection system protects both pumps.
- Simplified plumbing - one inlet and one outlet connects PARALLELAGON™ to the vessel water system.
- Inlet strainer and oil-filled pressure gauge are included.
- Available with any combination of:
 - DC 12V, 24V
 - AC 115V, 230V, 50 Hz or 60 Hz

HOW TO ORDER



PARALLELAGON™ VERTICAL DIMENSIONS



PARALLELAGON™ SAMPLE INSTALL

PST SERIES - PRESSURE STORAGE TANKS

THE CONCEPT

A pneumatic pressure charge, matched to the pump cut on pressure prevents waterlogging by separating the air charge from system water pressure with a rubber bladder. The result is smooth pressure delivery, even temperature mix in showers, and reduced pump cycling. Tanks may be mounted in any position, and anywhere in the cold water plumbing after the pump. PST tanks may be used for fresh or salt water. Mount hardware is included. PST-6 has a pump stand for mounting PJR, WSC-60 or WSC-80 pump.

MODEL	DIAMETER	LENGTH	MOUNTING	VOLUME	30/50 DRAW/DOWN	THREADS NPT
PST-1	8.0"	13.0"	Straps	2.0	0.5 gallon	3/4"
PST-2	11.0"	15.0"	Straps	4.4	1.4 gallons	3/4"
PST-3A	15.0"	19.0"	Stand	10.3	3.2 gallons	3/4"
PST-4	15.0"	24.0"	Stand	14.0	4.3 gallons	3/4"
PST-5	15.0"	32.0"	Stand	20.0	6.2 gallons	3/4"
PST-6	11.0"	19.0"	Feet	5.3	1.7 gallons	3/4"

PST-1 AND PST-2



NOFLO™ DRY-TANK PROTECTION FOR PUMPS

U.S. PATENT NO. 654,752,982



THE CONCEPT

Most pumps depend on the water being pumped for seal lubrication and impeller protection, and pressure pumps are controlled by a pressure switch that relies on the presence of water to deliver flow and pressure. When an interruption to the supply of water occurs, none of these functions work as intended, and if left undetected the pump is likely to run continuously, resulting in drained batteries, pump damage, or both.

Standard equipment on PARAGON™ Junior, PARAGON™ Senior and PARALLELAGON™ pumps, NOFLO™ is a patented system designed to recognize an interruption to the flow of water to your pump of greater than 30-seconds duration, and to safely shut off the pump. There are no moving parts or probes into the water path, and NOFLO™ works with any pump type (centrifugal, vane, rotary, etc.), or any pump material (bronze, stainless steel, plastic, etc.).

MODEL	THREADS NPT	ON-OFF CONTROL
NOFLO-7500	3/4"	Any NC Pressure Switch or Toggle Switch
NOFLO-1000	1"	Any NC Pressure Switch or Toggle Switch

HOW IT WORKS

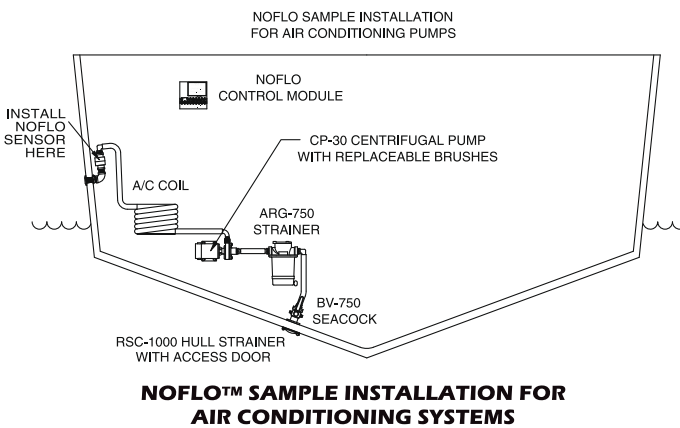
The conductivity of water is utilized to recognize the presence or absence of water. The control translates the information received from the NOFLO™ sensor, and either permits the pump to run, or disables it.

In the event of a shutdown, pump operation is not automatically re-started, but may be resumed only after the cause for the interruption of flow has been resolved, and the control reset by briefly interrupting power at the breaker panel.

The NOFLO™ control module operates on any DC input from 12V to 32V, and has an internal relay that will provide power to a DC pump motor (20 amps max@12VDC). AC pumps require an additional relay or solenoid.

NOFLO™ may be used with or without external pump control (pressure switch or on-off switch).

Maximum water temperature is 240° F.



Holding Tank Odor Neutralization	SWEETTANK®
Type-I MSDs	THERMOPURE-2®
Type-III MSDs	HOLDING TANK SYSTEMS
Macerator Pumps	155 SERIES
Deluxe Toilet	K-H
Compact Toilet	HF-B
Holding Tank Level Monitor	TLM
Vented Loops	HVL, PVL

SWEETTANK®



TOILETS & SANITATION

SWEETTANK® ODOR NEUTRALIZATION SYSTEM

U.S. PATENT NO. 670,293,882



THE CONCEPT

The SWEETTANK® concept has been developed to stop odors in yacht and RV holding tanks without the use of chemicals or filters. SWEETTANK® is standard equipment on THERMOPURE-2® Type-I MSD (see Page 47), in GROCO® Type-III MSD (see Page 48), and is offered in several retrofit kits to fit existing holding tanks.

HOW IT WORKS

Aerobic and anaerobic bacteria coexist naturally in raw sewage, but it is the anaerobic bacteria that produce undesirable odors. By inducing a constant flow of air into the holding tank through a submerged aeration tube, SWEETTANK® produces an oxygen-rich environment in which the anaerobic bacteria cannot thrive, thus eliminating unpleasant odors. The heart of the SWEETTANK® system is a compact module that operates continuously to deliver air to the holding tank using less than 3-watts of DC power. For yachts where AC power is always available, an AC powered SWEETTANK® module is offered.

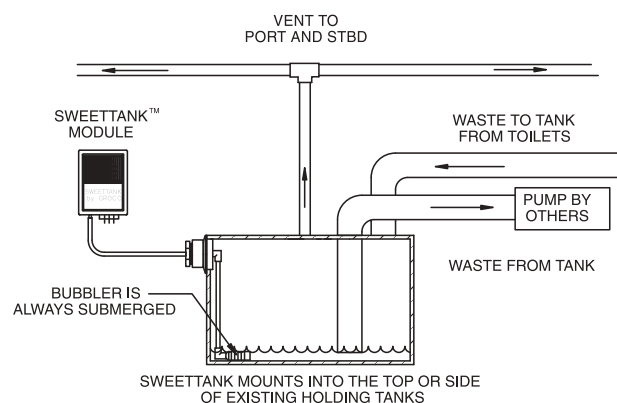
INSTALLATION

- SWEETTANK® screws into a 1-1/2" NPT threaded fitting in the top or side of the tank.
- If the tank has no 1-1/2" NPT opening, aeration equipment is installed into a 2-1/2" hole cut in the tank top or side. All mounting hardware is included.
- STK-18 fits tanks up to 18" deep. Contact GROCO® for installation in tanks deeper than 18".

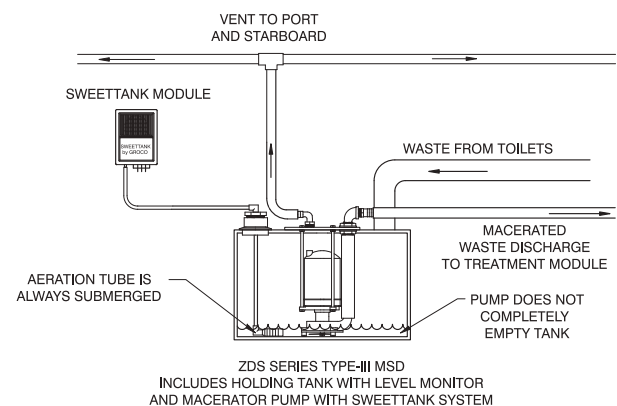
OPTIONS

There are two ways in which to employ the SWEETTANK® concept:

1. Install SWEETTANK® into the top or the side of any rigid holding tank. STK-18 fits tanks up to 18" deep. Models are available for deeper tanks (call GROCO® MSD Technical Service).



2. Install a complete ZDS Series Type-III MSD. ZDS includes the holding tank, level monitor, macerator/discharge pump and SWEETTANK® (see Page 48).



TYPE-I WASTE TREATMENT SYSTEM WITH SWEETTANK®

THE CONCEPT

THERMOPURE-2® is a USCG Certified (Certification #159.015/983/0) Type-I MSD for use aboard non-commercial uninspected vessels less than 65-feet in length. Treatment is accomplished by pumping macerated waste through a chamber where low-level heat is introduced to eliminate bacteria. No chemicals or additives are required, treatment is equally efficient in fresh, brackish or salt-water, and thanks to SWEETTANK® the system is completely odor-free.

THERMOPURE-2® is compact and modular, so installation is simplified. The system works with all toilet systems, with multiple toilets flushing simultaneously, and with remote holding tanks. Treatment capacity is 15-gallons per 8-hour day (45 gallons in 24 hours).

TO CONVERT EXISTING HOLDING TANKS

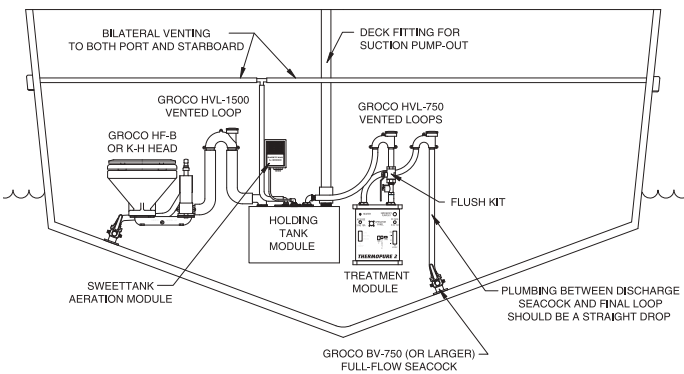
Existing holding tank systems can be upgraded to USCG Certification compliance by adding a THERMOPURE-2® Conversion Kit, which includes the macerator pump, SWEETTANK® Odor Neutralizer, level monitor, and the treatment chamber.

To order a THERMOPURE-2® Conversion Kit, specify the depth (top outside to bottom inside) of your holding tank, plus AC and DC voltages required.

CONVERSION KIT MODELS

MODELS	DESCRIPTION	BREAKERS	
		DC	AC
152-1211-XX*	12VDC and 115VAC	15	15
152-2411-XX*	24VDC and 115VAC	10	15
152-1222-XX*	12VDC and 220VAC	15	10
152-2422-XX*	24VDC and 220VAC	10	10

*XX MEANS HOLDING TANK DEPTH

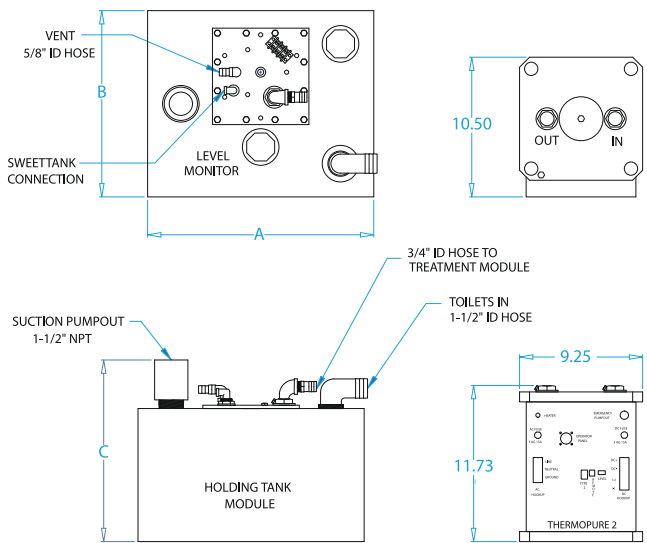


TP-210 SAMPLE INSTALLATION



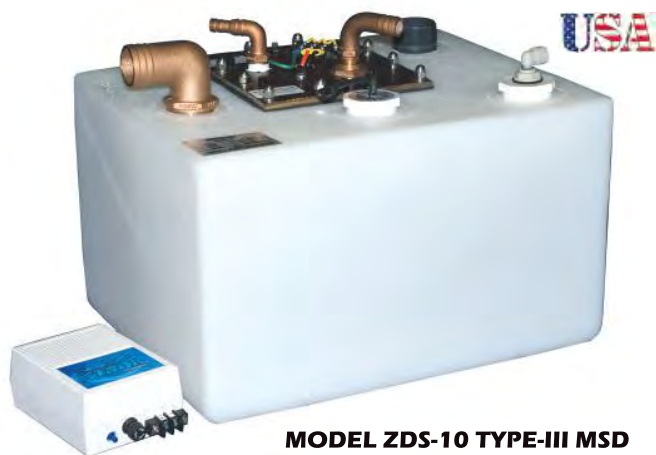
THERMOPURE-2® MODELS

MODELS	HOLDING TANK CAPACITY	BREAKERS		A inch	B inch	C inch
		DC	AC			
TP-210 12V/115V	10	15	15	17.0	14.0	13.7
TP-210 24V/115V	10	10	15	17.0	14.0	13.7
TP-210 12V/230V	10	15	10	17.0	14.0	13.7
TP-210 24V/230V	10	10	10	17.0	14.0	13.7
TP-215 12V/115V	15	15	15	24.0	14.0	13.7
TP-215 24V/115V	15	10	15	24.0	14.0	13.7
TP-215 12V/230V	15	15	10	24.0	14.0	13.7
TP-215 24V/230V	15	10	10	24.0	14.0	13.7
TP-220 12V/115V	20	15	15	28.3	14.0	15.0
TP-220 24V/115V	20	10	15	28.3	14.0	15.0
TP-220 12V/230V	20	15	10	28.3	14.0	15.0
TP-220 24V/230V	20	10	10	28.3	14.0	15.0
TP-230 12V/115V	30	15	15	28.0	23.0	15.0
TP-230 24V/115V	30	10	15	28.0	23.0	15.0
TP-230 12V/230V	30	15	10	28.0	23.0	15.0
TP-230 24V/230V	30	10	10	28.0	23.0	15.0



TP-210 DIMENSIONS

WASTE HOLDING SYSTEM: TYPE-III MSD
MODEL ZDS SERIES WITH SWEETTANK®



MODEL ZDS-10 TYPE-III MSD

IMPORTANT NOTE: It is illegal to discharge untreated waste directly overboard in most places. Consult local regulations before doing so. Discharge restrictions change with geographic location.

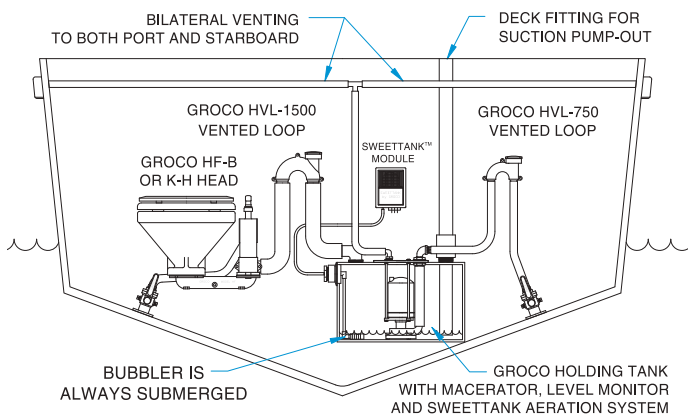
THE CONCEPT

A Type-III MSD may be used aboard any vessel regardless of size or geographic location. The system receives waste from one or more toilets and retains it for disposal at a dockside or marina pump-out facility, or the contents may be pumped directly overboard where legal to do so.

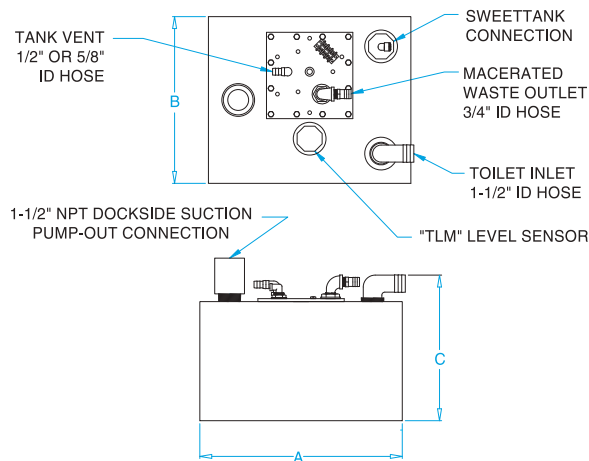
Available in many sizes and shapes, but stocked in four standard sizes, GROCO® Type-III MSD systems come complete with a TLM series level monitor and a powerful (17 GPM) macerator/discharge pump located inside the tank.

ZDS Models include SWEETTANK® which keeps the holding tank odor-free at all times, without the use of chemicals or filters. SWEETTANK® can be added to older ZDS models.

All tanks include an oversized vent to aid with high-capacity dockside pumpout.



SAMPLE INSTALLATION



DIMENSIONS

MODELS	BREAKER	A inch	B inch	C inch	TOILET-IN	PLUMBING PUMP-OUT	VENT
ZDS-10 12V	15	17.0	14.0	13.7	1-1/2" ID hose	3/4" ID hose	1/2" or 5/8" ID hose
ZDS-10 24V	10	17.0	14.0	13.7	1-1/2" ID hose	3/4" ID hose	1/2" or 5/8" ID hose
ZDS-15 12V	15	24.0	14.0	13.7	1-1/2" ID hose	3/4" ID hose	1/2" or 5/8" ID hose
ZDS-15 24V	10	24.0	14.0	13.7	1-1/2" ID hose	3/4" ID hose	1/2" or 5/8" ID hose
ZDS-20 12V	15	28.3	14.5	15.0	1-1/2" ID hose	3/4" ID hose	1/2" or 5/8" ID hose
ZDS-20 24V	10	28.3	14.5	15.0	1-1/2" ID hose	3/4" ID hose	1/2" or 5/8" ID hose
ZDS-30 12V	15	28.0	23.0	15.0	1-1/2" ID hose	3/4" ID hose	1/2" or 5/8" ID hose
ZDS-30 24V	10	28.0	23.0	15.0	1-1/2" ID hose	3/4" ID hose	1/2" or 5/8" ID hose

WASTE MACERATOR PUMPS

THE CONCEPT

155 Series waste macerator pumps make fast work (17 GPM) of holding tank pump-out. Sizes are available to fit any rigid holding tank (36" maximum depth, 1" inch increments), and since waste is macerated BEFORE it leaves the tank, smaller hose and overboard seacock (3/4") may be used in the discharge line.

NOTE: New pump installations require GROCO® #MP Hardware (tank hardware kit), ordered separately.

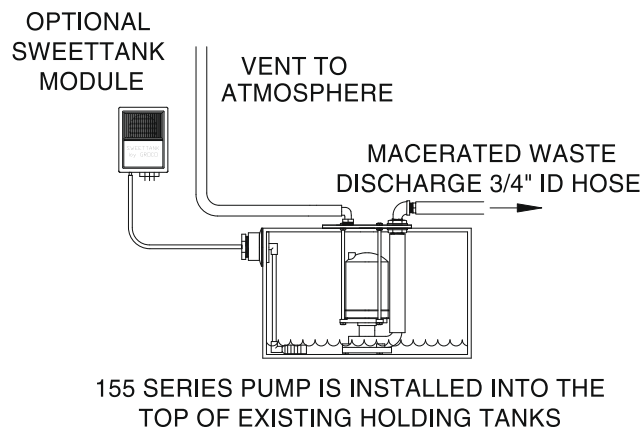
HOW TO ORDER

- Determine tank depth in inches, as measured from the top outside to the bottom inside.
- Order 155-61XX-YY
(XX = tank depth)
(YY = voltage)

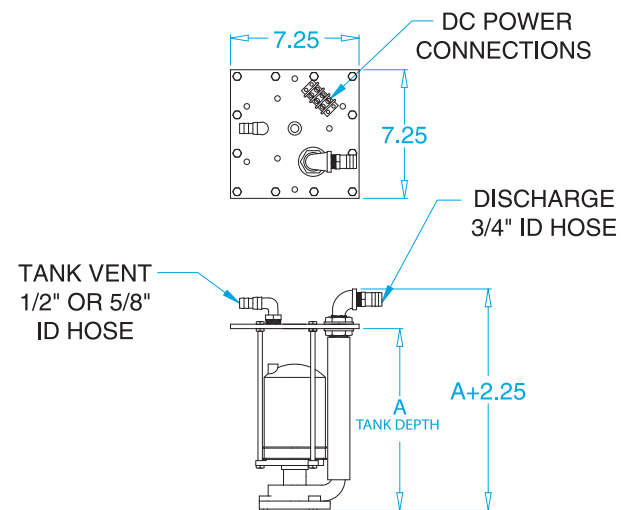
SERVICE NOTE: 155 Series will fit the same mounting used for discontinued MPT or MPS series macerator pumps.



MODEL 155 MACERATOR PUMP



SAMPLE INSTALLATION



NOTE: FITTINGS ON PUMP FLANGE HAVE BEEN RELOCATED FOR CLARITY

DIMENSIONS

K SERIES - HAND OR ELECTRIC TOILETS

MODEL K-H ELECTRIC

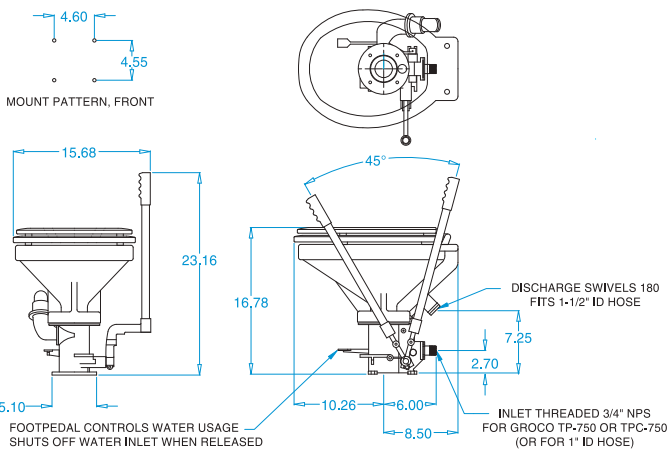


MODEL K-H



- House-size bowl.
- 3" piston pump mechanism.
- Adjustable flow up to 4 GPM.
- All bronze pump.
- Electric or hand operated models are available.
- Electric models operate by touch of a button and are quickly converted to hand operation by removing one easily accessible bolt.
- For installation above or below the waterline; footpedal water control allows the desired amount of flush water to be used and automatically shuts the water inlet off when the foot pedal is released. No valves to close or handwheels to turn.

NUMBER TO ORDER BY	OPERATION	WEIGHT lb	COLOR
K-H	Hand	44	White
K-H 12V, 24V	Hand/Elec.	53	White



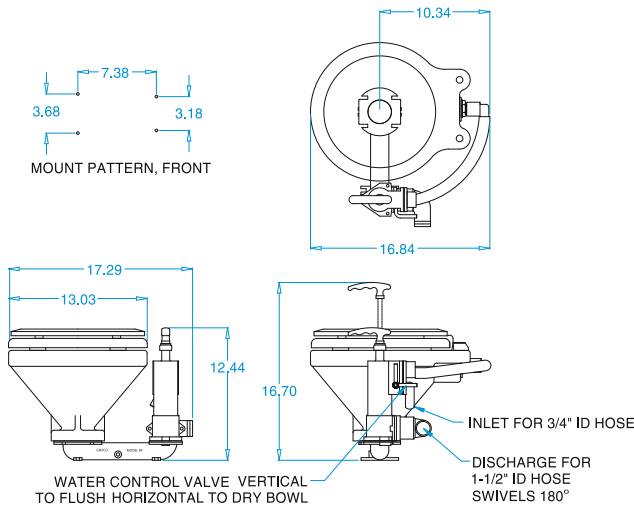
HF SERIES - HAND OPERATED TOILETS

MODEL HF-B



Save money by ordering 100-0001-00, the "SOME ASSEMBLY REQUIRED" version of our popular top-quality compact toilet. Assembly takes about ten minutes and requires just a flat-blade screw driver and a 7/16" open-end wrench. Order HF-B for an already assembled model.

- Sturdy bronze base for rough water use.
- T-Handle for ease of operation.
- High-efficiency valve system uses minimal flush water.
- Weighs 32 pounds.



WASTE HOLDING TANK LEVEL MONITORS

THE CONCEPT

TLM Series uses simple and reliable technology (floats) to indicate tank level in fresh water or waste holding tanks.

FEATURES

- The gasketed indicator panel is suitable for wet locations such as combination shower/head compartments. The sending unit screws into any 1-1/2" NPT threaded tank-top opening.
- If there is no 1-1/2" NPT opening available, TLM can be installed into a 2-1/2" hole cut into the tank top. Installation hardware is included.
- Level indications are 1/4 full and 3/4 full.
- A 20-amp momentary switch is provided to activate a macerator pump.
- Standard model (TLM-10) is for use in tanks 10" to 12" deep. Custom lengths are available.

Specify TLM-XX (XX = tank depth in inches).

For 12V, 24V, or 32V DC systems.



TLM LEVEL MONITOR

Includes Indicator Panel, Wire Harness and Tank Sender

HVL AND PVL SERIES - VENTED LOOPS

THE CONCEPT

- Allows air to enter to break siphon, but does not permit air and odors to escape! Cap is threaded 1/2" NPT to accept a barb fitting if you wish to vent overboard.
- Overboard venting is required if PVL or HVL series is used in an exhaust system.
- HVL and PVL series vented loops assure clog-free anti-siphon protection for sanitation or engine exhaust systems. The oversized vent valve can easily be removed for inspection or cleaning without tools. Mount Hardware is included.

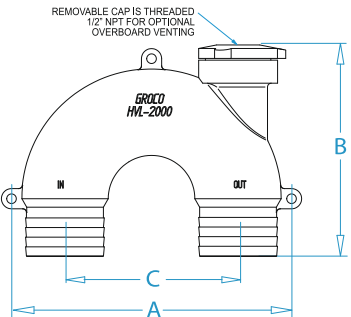


MODEL HVL IS FOR HOSE CONNECTIONS



MODEL PVL IS FOR PIPE CONNECTIONS

MODEL	HOSE ID inch	MODEL	THREAD NPT	A inch	B inch	C inch
HVL-500	1/2"	PVL-500	1/2"	4.75	4.3	3.0
HVL-750	3/4"	-	-	4.75	4.3	3.0
HVL-1000	1"	PVL-1000	1"	4.75	4.3	3.0
HVL-1500	1-1/2"	PVL-1500	1-1/2"	6.7	4.8	4.0
HVL-2000	2"	PVL-2000	2"	7.3	5.4	4.5





RV SERIES
MARINE AND INDUSTRIAL HEAT EXCHANGERS

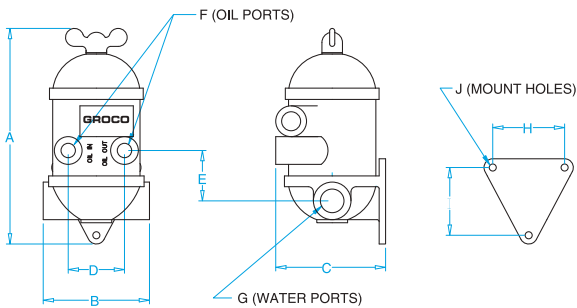


RV SERIES
OIL COOLERS

THE CONCEPT

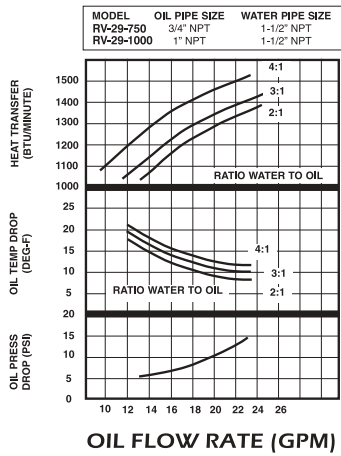
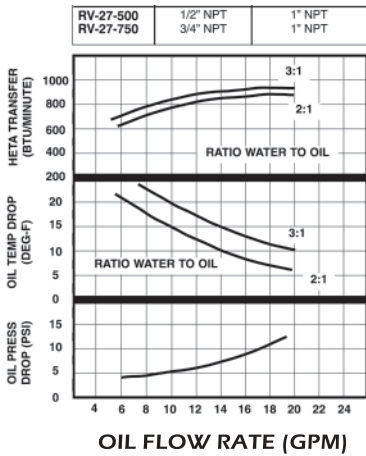
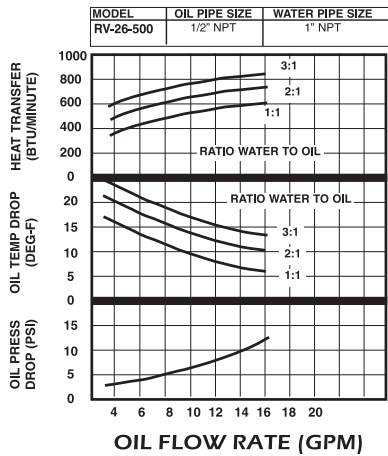
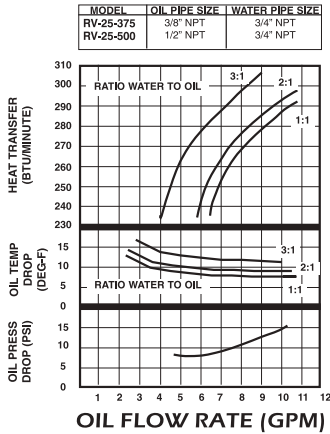
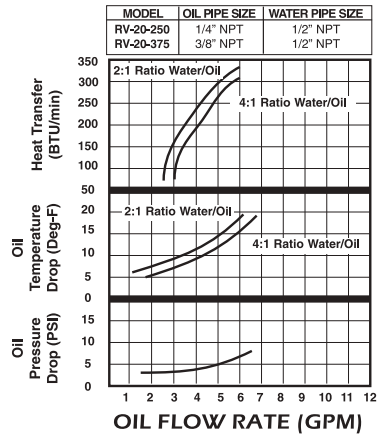
Since the 1930's GROCO® has manufactured heat exchangers (oil coolers) for the most demanding military, marine and industrial customers. Cast bronze construction and universal mounting (body may be rotated to simplify plumbing) make these the finest heat exchangers available.

At engine start-up a built-in bypass system allows cold oil to flow past the heat exchanger until operating temperature is reached. The full flow of oil is then directed between the cooling tubes.



BODY MAY BE ROTATED 360-DEGREES

MODEL	(OIL)					(WATER)					WEIGHT lb	AREA sq inch	PKG
	A inch	B inch	C inch	D inch	E inch	F NPT	G NPT	H inch	I inch	J inch			
RV-20-250	6.13	3.38	2.38	1.69	1.63	1/4	1/2	-	-	.88	5.0	305	1
RV-20-375	6.13	3.38	2.38	1.69	1.63	3/8	1/2	-	-	.88	5.0	305	1
RV-25-375	8.00	4.38	3.41	1.75	1.31	3/8	3/4	-	-	1.13	6.5	415	1
RV-25-500	8.00	4.38	3.41	1.75	1.31	1/2	3/4	-	-	1.13	6.5	415	1
RV-26-500	10.50	5.13	5.44	2.75	2.44	1/2	1	1.81	1.44	2.69	17.0	433	1
RV-27-500	12.00	5.13	5.44	2.75	2.44	1/2	1	1.81	1.44	2.69	20.0	561	1
RV-27-750	12.00	5.13	5.44	2.75	2.44	3/4	1	1.81	1.44	2.69	20.0	561	1
RV-29-750	14.50	7.13	7.44	3.50	2.81	3/4	1-1/2	2.31	2.69	3.88	35.0	1164	1
RV-29-1000	14.50	7.13	7.44	3.50	2.81	1	1-1/2	2.31	2.69	3.88	35.0	1164	1



WIRE SIZE INFORMATION

This table allows for a 3% voltage drop,
and will help you to select the minimum safe wire size to use
for proper and efficient use and operation of
GROCO® motorized equipment.

HOW TO USE CHARTS

1 From the individual product instructions packed with the product, determine the fuse or circuit breaker size required. Locate the fuse or circuit breaker size in the left-hand column of the chart below.

2 Determine the distance away from the power source to where the powered equipment will be installed. Double this number and find the total distance across the top line of the chart below.

3 Read down and then across to the required fuse or circuit breaker size required. At the intersection of the horizontal and vertical selections you have made will be the minimum wire size to use. It is permissible to use heavier gauge wire.

FOR 12V-DC SYSTEMS

Fuse or Breaker	Feet of wire from power source to motor AND BACK TO POWER SOURCE																		
	10	15	20	25	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170
5	18	16	14	12	12	10	10	10	8	8	8	6	6	6	6	6	6	6	6
10	14	12	10	10	10	8	6	6	6	6	4	4	4	4	2	2	2	2	2
15	12	10	10	8	8	6	6	6	4	4	2	2	2	2	2	1	1	1	1
20	10	10	8	6	6	6	4	4	2	2	2	2	1	1	1	0	0	0	2/0
25	10	8	6	6	6	4	4	2	2	2	1	1	0	0	0	2/0	2/0	2/0	3/0
30	10	8	6	6	4	4	2	2	1	1	0	0	0	2/0	2/0	3/0	3/0	3/0	3/0
40	8	6	6	4	4	2	2	1	0	0	2/0	2/0	3/0	3/0	3/0	4/0	4/0	4/0	4/0
50	6	6	4	4	2	2	1	0	2/0	2/0	3/0	3/0	4/0	4/0	4/0				

FOR 24V-DC SYSTEMS

Fuse or Breaker	Feet of wire from power source to motor AND BACK TO POWER SOURCE																		
	10	15	20	25	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170
5	18	18	18	16	16	14	12	12	12	10	10	10	10	10	8	8	8	8	8
10	18	16	14	12	12	10	10	10	8	8	8	6	6	6	6	6	6	6	6
15	16	14	12	12	10	10	8	8	6	6	6	6	6	4	4	4	4	4	2
20	14	12	10	10	10	8	6	6	6	6	4	4	4	4	2	2	2	2	2
25	12	12	10	10	8	6	6	6	4	4	4	4	2	2	2	2	2	2	1
30	12	10	10	8	8	6	6	4	4	4	2	2	2	2	2	1	1	1	1

FOR 32V-DC SYSTEMS

Fuse or Breaker	Feet of wire from power source to motor AND BACK TO POWER SOURCE																		
	10	15	20	25	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170
5	18	18	18	18	16	16	14	14	12	12	12	12	10	10	10	10	10	10	8
10	18	16	16	14	14	12	12	10	10	10	8	8	8	8	8	6	6	6	6
15	16	14	14	12	12	10	10	8	8	8	6	6	6	6	6	6	6	4	4
20	16	14	12	12	10	10	8	8	6	6	6	6	4	4	4	4	4	4	2

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