

DRAIN MASTER SVT BALLAST VALVE UPGRADE OR REPLACEMENT - MARINE APPLICATION

The latest innovation from Drain Master, Smart Valve Technology (SVT) Ballast Valves feature a custom designed on-board controller which feeds 12VDC directly to the valve motor eliminating power loss regardless of the distance from the operator switch. The dedicated controller maintains control of motor timing and direction and drives the valve to a 'safe' closed position at power up. Operator switch features 2 LED lights - green when the valve is closed, red when the valve is open! Two Solid State position sensors give totally accurate gate position. The controller has 2 ports so an additional operator switch is a breeze to add and running the small RJ-11 interface cable is easier than ever.

PLEASE, KEEP THESE INSTRUCTIONS FOR FUTURE REFERENCE

WHAT YOU WILL NEED TO DO THIS INSTALLATION:

- Basic Mechanical / Electrical knowledge
- 7/16" wrench/socket, Torque Driver
- Drain Master SVT Ballast Valve kit, includes:
Valve with SVT controller with 2 pin male connector for 12VDC power, matching 2 pin female connector with pigtail for 12 VDC power source connection, operator switch, 20 Ft of RJ 11 cable, seals, nuts, bolts, Dow 111 lubricant & instructions.

OTHER ITEMS YOU MAY NEED (Not Included in the kit)

- P-Clips, Tie wraps, Sheathing, wires for 12 V DC supply



SPECIAL NOTES:

- Make sure you have good access to the manual override.
- Installation is simple and can be accomplished in a short time.
- The valve must be installed vertically (see how to install figure in step 8)
- PLEASE DO NOT OPERATE the SVT ballast valve prior to installation on the boat. The gate has a sharp edge and the motor is powerful and very fast. YOU COULD GET HURT. You assume liability for your actions.
- Valve comes supplied with 1/8" Allen wrench to operate manual override – located on back of valve
- Do not use any other lubricant than the DOW 111 provided in the kit.
- Please follow installation instructions carefully.
- Do not place fingers in running area of valve.

DM SVT BALLAST VALVE INSTALL INSTRUCTIONS

BOAT OWNERS/OEMS: Follow these steps for upgrading or replacing existing/pre-installed valve/s to the DM SVT Ballast Valve system.

OEMS: These steps provide a basis for 1st time designing-in DM SVT ballast valve system – Drain Master will support OEM specific requirements or customization to help you attain the most optimum design configuration.

Step 1: Important- the boat must be out of the water with all ballast tanks empty.

These steps assume the following optimal pre-conditions – please perform a confirmatory visual check

- a) Existing plumbing and fittings have been installed with the valve oriented vertically and the motor on top.
- b) A rubber coupling should be present between valve male spigot/ flange and the plumbing.
(Note: A male spigot has the same OD as the plumbing it is connecting to)

Step 2: Remove the four bolts holding the valve.

Loosen the clamp on the rubber coupling on the plumbing side ONLY. Leave the clamp tight on the valve spigot / flange - there is no need to loosen it, unless the rubber coupling or the spigot/ flange require replacement.

Step 3: Slide the rubber coupling back on to the plumbing. The spigot/flange will move with the coupling and separate from the valve. Create enough space and then remove the valve.

Step 4: Carefully remove the 2 seals from the flange inner surface – one from each side of the valve – taking care not to nick or damage the flange lips / seal surfaces.

New seals are provided with the SVT ballast valve and are the only ones to be used with it.

Step 5: Clean both flange lips, in and around the seal seating surface and inspect for any damage. Replace if required.

Step 6: Make sure SVT Ballast valve is in the closed position before proceeding to next steps.

(Valve is shipped with the gate closed – if required use the manual override to bring it to closed position)

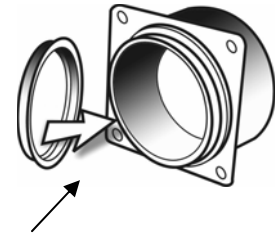
Remove caution card from gate area on new valve.

Step 7: You are now ready to install the SVT Ballast valve.

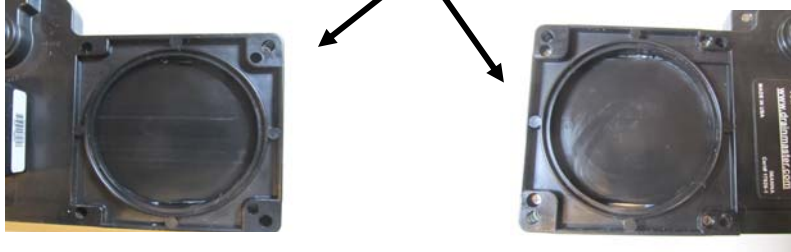
IMPORTANT! Use only the seals provided in the SVT Ballast valve kit

Place the seals over the flange lips, one on each side of the valve.

DO NOT KEEP SEALS ON VALVE ***** **VERY IMPORTANT STEP*******

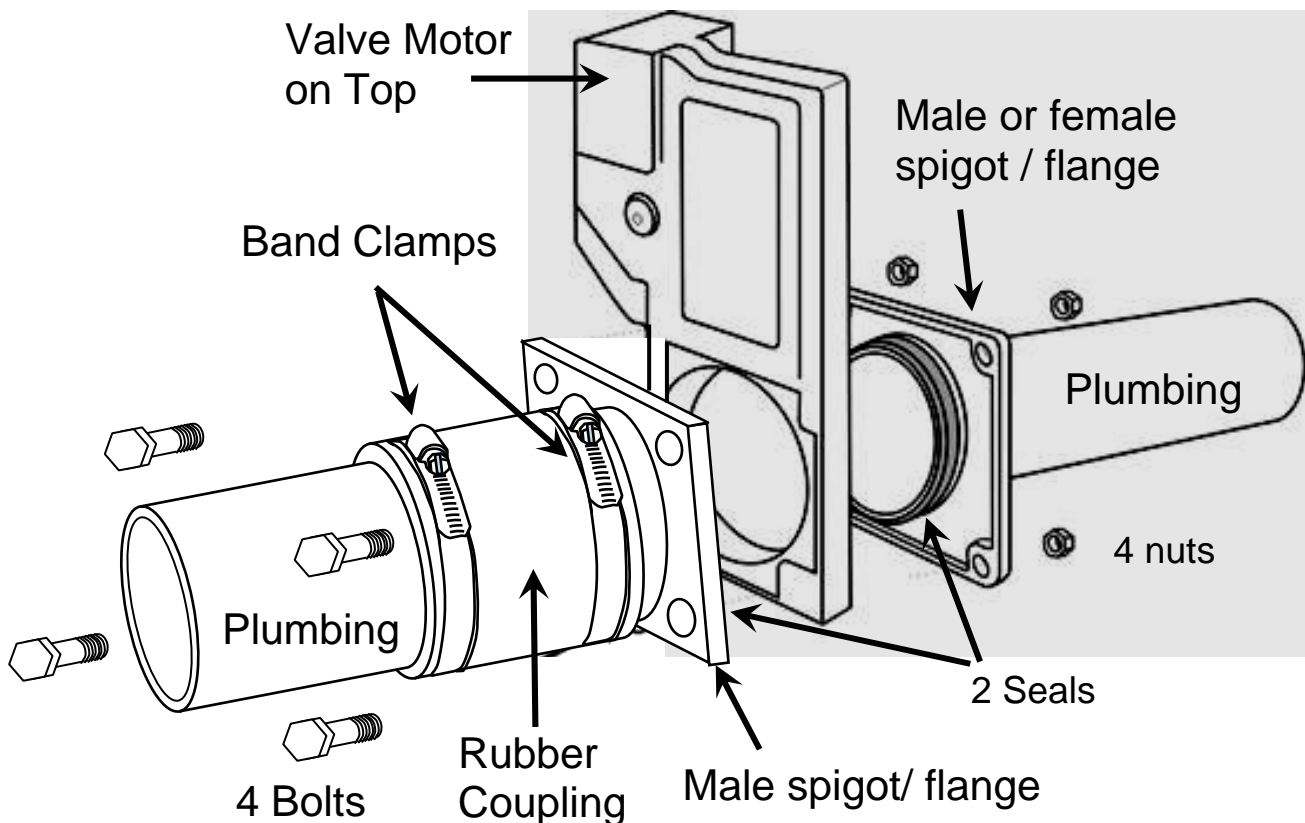


Apply supplied lubricant (Dow 111) to both sides of gate.
Do this with gate closed and apply to entire surface on both sides.



Step 8: With the spigot / flange separated as in step 3, insert Drain Master SVT Ballast valve **with gate closed** making sure the seals stay in their correct position **on the flanges** as emphasized in step 7. Rotate the valve to align the four bolt holes with the flange holes. Slide the rubber coupling with the spigot /flange back into position, rotating if necessary, so all the bolt holes line up. The valve should now be sandwiched vertically and snug between the flanges.

INSTALL ORIENTATION: Maintain the vertical position with the motor up as shown



Step 9: Install the four bolts and hand tighten the nuts. Use a 7/16" socket and a torque wrench to tighten the nuts down evenly, ¼ turn at a time, using a criss-cross pattern. The tightening spec is 20 inch lbs., please be careful not to over tighten. As a generic guideline 2 turns beyond finger tight will result in exceeding 20 inch lbs. – tightening beyond that risks stressing and /or cracking of the plastic components.

Finally tighten the band clamp/s on the rubber coupling to the torque specified by the coupling manufacturer. (Example: 60 inch lbs. for Fernco 3 inch x 3 inch coupling PN P1056- 33)

Step 10 OPERATOR SWITCH INSTALLATION – Refer to the attached companion document DM 85- SVT Switch and RJ 11 wire Mounting Instructions

- 10.1. Remove your existing switch – a special tool may be required. The 4 pin connector / wiring used with the previous switch/valve will NOT be used with the SVT Ballast valve system and may be removed completely where feasible. Alternatively tape off the connector and /or tie wrap it to the wiring harness and label it 'DO NOT USE'.
- 10.2. The SVT switch is IP 66 / 67 compliant for marine applications and comes with 20 feet of RJ-11 controller interface cable. The cable simply plugs into the SVT switch and into the valve controller located on the valve body.
- 10.3. SVT switch panel cutout opening conforms to industry standard and the SVT switch will normally be a drop-in fit with no panel modifications needed. If a new cutout or revised switch layout is needed document DM 85 provides cutout dimensions, maximum allowable panel thickness and layout guidelines.
- 10.4. SVT Ballast valve system makes daisy chain operation feasible and convenient – multiple valves may be operated from one switch. Refer to wiring diagram in DM 85.

10.5. **IMPORTANT: CONNECTING to 12 V Source.**

- Run a set of fresh wires for the 12 V DC power to the valve. Previous wires / connectors are not compatible with the SVT and will not be used.
- The System is supplied with a 2 pin pigtail to interface with the valve to make the system "plug and play". The pigtail should be connected according to the color code below to a good 12 VDC source such as a marine lead acid battery.

Black lead on valve / connector pigtail – connect to positive (+) 12VDC only
Green lead on valve / connector pigtail – connect to negative (ground).

CAUTION: It is very important to observe correct polarity when connecting the included pigtail.

*Reverse polarity connection can cause damage that will NOT be covered by warranty.
The 12 V connectors are polarized, once connected correctly they will maintain polarity.*

- Direct battery connection is fine or optionally you can connect to a spare / unused 30 Amp fused 12 V output on the Boat DC distribution panel if available. Label it 'SVT Ballast Valves'. The latter approach has the advantage of disabling the system when the 12 V DC master switch is turned off.

Note: A wiring diagram is also available on our website at www.drainmastermarine.com under Product Specs in the black bar across top of page.

Step 11: Perform a mechanical and electrical visual inspection in readiness for testing the SVT Ballast valve.

Step 12: System Testing

Dry test: Perform this test with the boat still out of the water.

Power up the system – the valve detects power-up and attempts homing to the closed position – some noise may be heard from the valve – this is normal at power up. The green LED will light up confirming 'safe' closed position.

Push the switch - the valve should open in less than 1 second (typically 0.6 – 0.7 second) and the red LED lights.

Push again and the valve will close. Each press of the switch alternates the valve between the two positions. During power-up and during valve movement switch inputs are ignored.

The position detection uses solid state, contact less technology and provides very reliable status of the valve position.

Test it a few times to ensure proper operation.

Active (wet) test: Perform this test ONLY upon satisfactory completion of the Dry test.

Ensure the SVT ballast valve is **closed; green LED is lighted**, then lower the boat into the water. Check for any leaks. Next press the switch, open the valve/s and commence tank filling. As the tank fills recheck for leaks around the installed SVT valve and related plumbing and fittings. When the desired tank fill has been attained, press the switch to close the valve and ensure there are no leaks.

Operation:

Congratulations on your purchase of a quality product from Drain Master! You new Drain Master SVT Ballast valve is extremely easy to use. After installation and testing has been completed according to the instructions you are ready to enjoy your boat out on the water.

If you have questions or need help with an install, please call us toll free.

DRAIN MASTER
877-787-8833
www.drainmaster.com

NEW FEATURES

- Pinions and worm are now made in Switzerland from 303 Stainless Steel.
- Double Sided manual override with hex head. **Allen Wrench is provided with the valve – secured on the back of the valve.** Make sure you install your valve with easy access to the manual override.
- Should you ever lose power, you can open/close the valve manually. Just locate the provided 1/8" Allen wrench on the back of the valve, insert wrench in the hex head opening, the words open/close with directional arrows will show you which way is open and which way is closed. **There will be resistance when turning as you are overriding a safety clutch.** Turn until shaft stops. When convenient, check and correct electrical problems. (A stripped override caused by excessive use is not covered under warranty.)

We are always here to answer questions,
please call us at 1 877 787 8833 Toll Free or email us info@drainmastermarine.com

DRAIN MASTER WARRANTY

What is covered and for how long

Congratulations on your purchase of a quality product from Drain Master. We are confident that our product will perform and therefore warrant to you, as the original purchaser, for a period of 1 year from the date of original purchase, that your new product will be free of mechanical and electrical defects in material and workmanship.

What Drain Master Will Do & How to Get Service

If your product is covered by warranty, we will replace your new product (you pay shipping costs), which will be your exclusive remedy under this warranty. **Proof of purchase is required.**

Drain Master Shall not be liable for any special, incidental, indirect or consequential damages whatsoever (including, without limitation, labor or installation charges, damages for loss of business profits, business interruption or any other pecuniary loss) arising out of the use of or inability to use the product. You may return the product to your retailer or directly to Drain Master. If the retailer is unable to authorize an exchange of the product, please call us toll free for a return authorization number and shipping instructions. Items returned without an RMA # will be refused at the point of delivery.

Send To: Drain Master, 400 Park Center Drive Ste 6, Hollister, CA 95023

Please be aware that use of the product on improper voltage or current, use contrary to operating instructions, or disassembly, repair, or alterations by any person other than a reputable RV service station may render your product warranty void.

How Your State's Law May Apply

Some states do not allow limitations on how long an implied warranty lasts or the exclusion or limitation of incidental or consequential damages, so the above limitation may not apply to you. This warranty gives you specific legal rights, and you may also have other rights, which vary from state to state or province to province.