



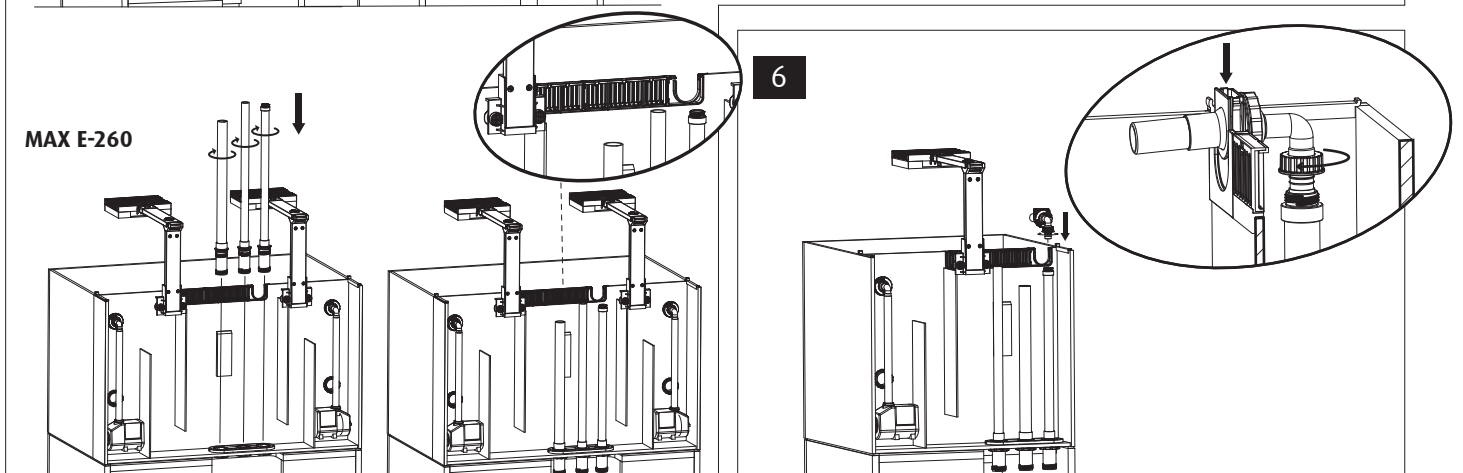
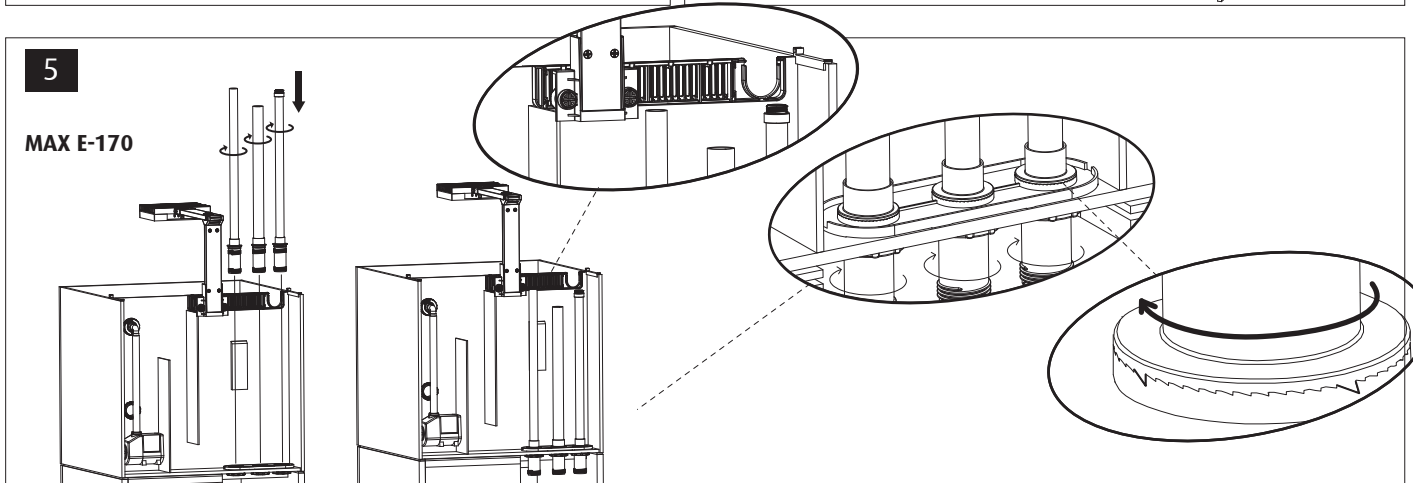
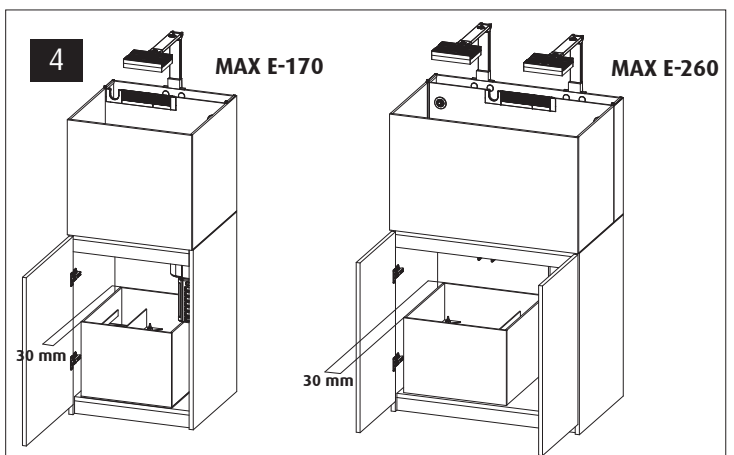
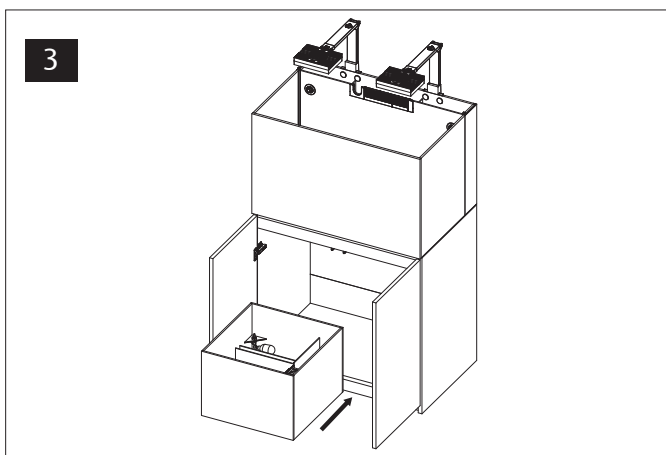
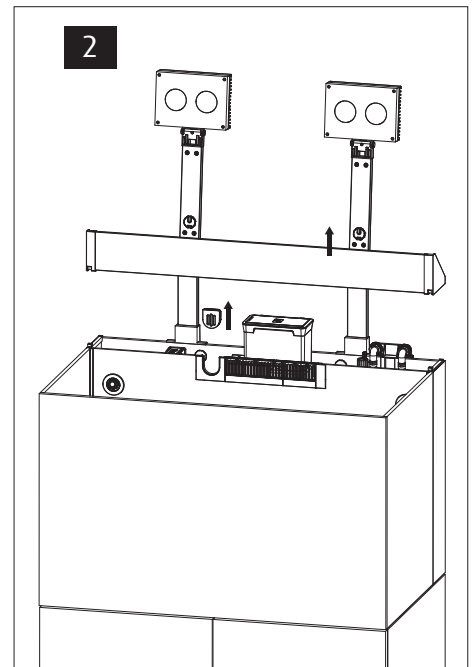
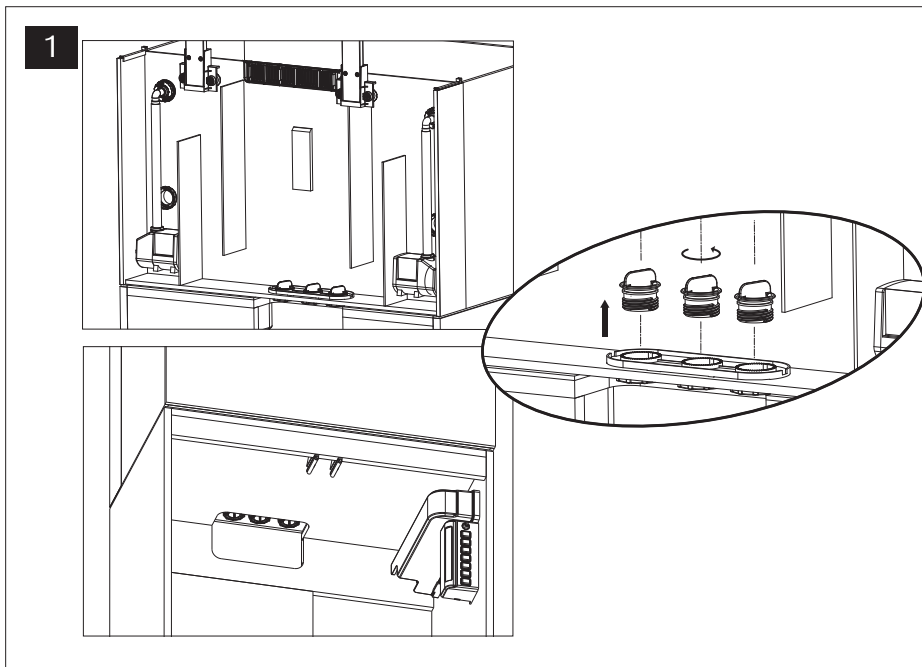
Red Sea MAX[®] E-Series

Complete Plug & Play[®] Open Top Reef Systems

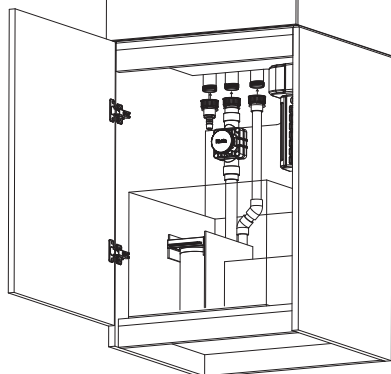
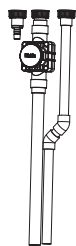
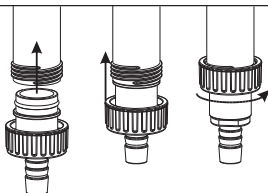
In-Cabinet Sump Upgrade Manual

Red Sea MAX[®] E-Series

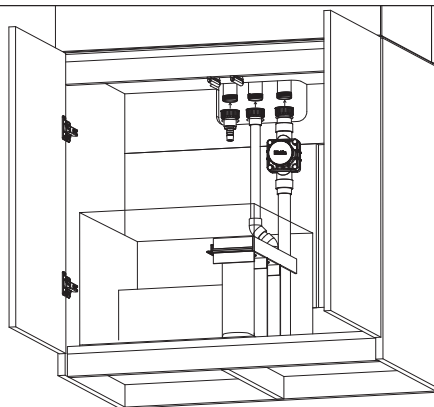
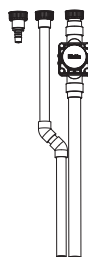
In-Cabinet Sump Upgrade Manual



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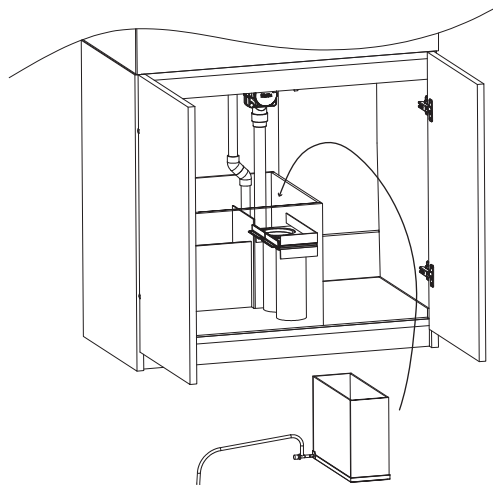


MAX E-170

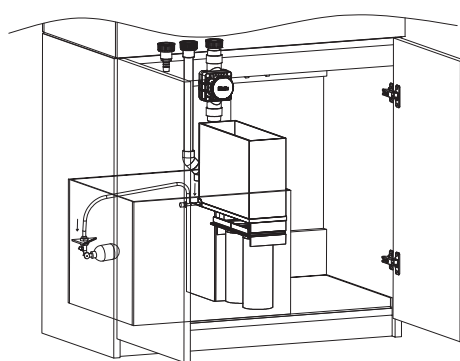
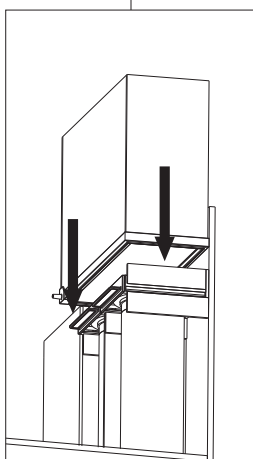


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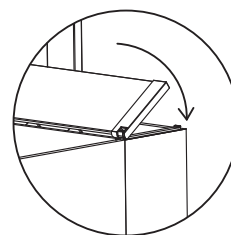
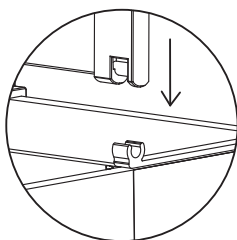
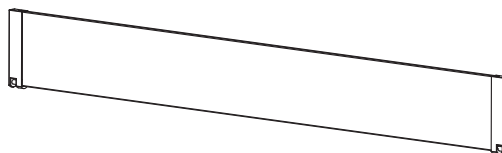
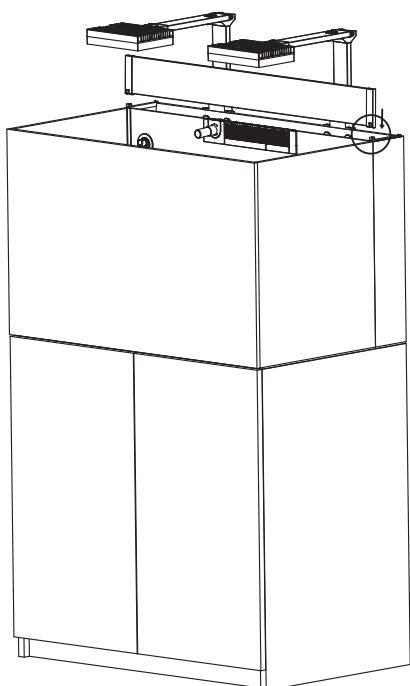
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Introduction

Congratulations on your purchase of the MAX® E-Series upgrade kit to convert the rear sump of your MAX® E-Series complete reef system to an in-cabinet sump.

This manual covers the installation and operation of the in-cabinet sump and complements the operation manual provided with your E-Series aquarium system.

Upgrade Options

- **Piping kit:** Includes flow-regulated main downpipe, a secondary overflow bypass pipe and return pipes for assembly in the multiport bulkhead.
- **Glass Sump (optional):** including Bubble trap sponge, 225 micron filter bags and Float valve for automatic top-up and RO Reservoir.
- **Rear Cover (optional):** An optional rear cover is available to replace the sump screen. This cover reduces noise from the water fall of the surface skimmer and will help in reducing evaporation.

Overview of the E-Series water management system

Pipe System

The silent-flow downpipe system includes a flow-regulated main downpipe and a secondary overflow bypass pipe.

The fine adjustment flow valve on the main downpipe enables the water level in the rear to be maintained at a constant height between the intakes of the main and bypass pipes, which ensures positive surface skimming while eliminating all noise from the water flow to the sump. An incorrect setting of the flow valve will be accompanied by the sound of the water returning to the sump and is an indication that the flow valve needs adjusting.

The multidirectional eyeball outlet on the return pipe is easily disassembled for maintenance.

Sump /ATO (optional)

Water from the flow-regulated main downpipe and the secondary overflow bypass pipe enter a compact reception chamber in the sump that is also suitable for housing chemical media such as carbon.

The water then flows through the 225 micron filter before entering the constant-height main reactor or skimmer chamber. If the filter bags are not cleaned frequently enough and become blocked, the water will bypass the filter bags without affecting the overall operation of the sump.

A bubble trap labyrinth with coarse foam separates the reactor chamber from the pump compartment to prevent bubbles from the skimmer being returned to the aquarium.

Any loss of water due to evaporation will cause a drop in the water level in the pump compartment of the sump which will be compensated by the ATO system.

Maintaining a constant water height in the pump compartment (with the ATO) is essential for the stability of the entire water management system by ensuring a constant head pressure on the intake of the main pump. The reservoir contains water for approximately 3 days of evaporation and should be kept topped up at all times.

It is recommended to use a return pump with a flow of at least 2700 lph.

Technical Data				
Model	Sump Total Volume	Sump Working Volume	Total System volume with Sump	Skimmer Chamber Dimensions
MAX® E-170	85L – 22gal	41L – 11gal	200L – 53gal	30 x 32cm 11.8" x 12.6"
MAX® E-260	95L – 25gal	46L – 12gal	288L – 76gal	35 x 32cm 13.8" x 12.6"

Installation

WARNING: If you are not experienced in the installation of aquarium systems, seek suitably qualified assistance.

Before adding the sump to the cabinet it is recommended to seal the join between the walls and the base of the cabinet with a silicone sealant.

Please refer to the accompanying graphic manual as directed below.

Note: Before performing the upgrade prepare new seawater according to the sump working volume (see table above) plus 6% to compensate for the higher water level in the rear sump.

1. Switch off all of the components at the power center.
2. Remove the Rear Sump Screen and the grill from the return outlet port.
3. Inspect the plugged multiport bulkhead from the cabinet side while the cabinet is still empty to better understand the construction.
4. Unplug the skimmer pump and remove the skimmer from the rear sump.
5. Make sure that the cabinet doors are correctly aligned (review the instructions in the cabinet assembly manual). Once the sump is in position it will not be possible to make adjustments to the lower hinge without moving the sump. Insert the sump into position in the cabinet, see the graphic manual for the exact position. **Do not** put the RO reservoir in position or add any other additional equipment to the sump until instructed.
6. Syphon aquarium water **from** the skimmer chamber of the rear sump down into the empty sump until the **skimmer chamber is dry** and remove any remaining water with a cloth.
7. The water in the main tank will drop to between 9cm (3.5") and 16.5cm (6.5") below the normal water height. There is more than enough room in the sump to take all of the water that will drain from the tank.
8. Remove the 3 plugs from the multiport bulkhead by either unscrewing by hand from the top of the tank or by using an open pair of pliers from the cabinet side. Any residual water in the skimmer chamber will flow through the open bulkhead.
9. Thread the 3 top pipes into the multiport bulkhead as shown in the graphic manual. Make sure that the O-rings are in position on the connectors before assembly. To ensure correct assembly, firmly hold the threaded connectors from inside the cabinet and tighten well by hand. Do not use tools. Avoid unscrewing the pipes from the multiport bulkhead once assembled as the locking mechanism that prevents counter-rotation will be less effective.
10. Insert the return outlet assembly into the outlet port and return pipe and tighten the securing nut.
11. Connect the main downpipe and secondary overflow bypass pipe to the connectors of the top pipes as shown in the graphic manual. Make sure that the O-rings are in position on the connectors before assembly.
12. Using the flexible hose provided attach your return pump to the return pump connector making sure that all joins are secure and if necessary add a hose clip. Place the return pump into the return pump chamber in the sump and attach to the connector of the return pipe.
13. After assembly check that the pipes are vertical and the securing nut is holding the pipe in position. Do not use tools and do not overtighten.
14. Check that the outlet nozzles of the return pipe and the circulation pumps are pointed downwards.

15. Pour approximately 3 liters of seawater into the skimmer chamber of the rear sump to ensure that all of the pipe joints are watertight. Check for leaks inside the cabinet.
16. Remove the black sponge from above the circulation pump/s and replace the closed grill plugs with the open grill plugs that are supplied with the pipe kit.
17. Open the main flow valve (rotate anti-clockwise) to maximum.
18. Plug the return pump into one of the auxiliary outlets on the power center.
19. Place the RO reservoir in position, connect the outlet to the float valve and fill with RO water but close the flow valve on the outlet of the reservoir.

WARNING: Overfilling the sump with equipment may cause a flood in the event of an interruption of electric power.

20. Install your protein skimmer and any other equipment that will be in the sump. Please note that at this point the water height in the sump is still much higher than normal.
21. Add approximately 40 liters (10 gallons) of new seawater to the aquarium.
22. Switch on the return pump, the circulation pumps and any equipment you have added to the sump. Add more water as required to maintain 15cm/6" of water in the return pump compartment.
23. Allow the system to run for a few minutes and adjust the flow valve (as described below) so that the water level in the rear sump is between the main downpipe and the overflow bypass and there is no noise. Add/remove water to/from the system and adjust the flow valve until the water levels in the system stabilize.

Main downpipe valve adjustment

To raise the water level in the rear sump, rotate the valve clockwise.

To lower the water level in the rear sump, rotate the valve anti-clockwise.

The main downpipe flow valve provides a very fine control of the flow rate however after making adjustments it takes the system a few minutes to stabilize at the new setting.

Once you have established the approximate setting for the valve make very small adjustments and wait for a few minutes each time. It may take a number of occasional adjustments to reach a stable level. When set properly this system removes all of the noise of water flowing down to the sump.

ATO:

On initial set-up, wait until the saltwater system is stable before using the ATO.

Disconnect the top-up flow valve from the float valve and slowly open the flow valve until the top-up water drips at a rate of approximately 1 drop per second. Reconnect the flow valve to the float valve.

Adjust the angle of the float so that the valve is closed when the water level is above the inlet of the pump but below the top of the bubble trap.

NOTE: It is recommended to close the valve on the outlet of the reservoir whenever doing maintenance in the sump.

Power-out test:

After completing the upgrade and after adding any new equipment to the sump, make any adjustments necessary to the main valve to stabilize the system and perform a "power-out" test to check that water does not rise above the rim of the sump.

MSK 900 Protein Skimmer:

The MSK900 protein skimmer is designed specifically for a rear sump application with a high water level.

The MSK900 will operate with full reef spec performance if used inside the in-cabinet sump however there will be excessive noise due to the approximately 20cm 8" of height difference between the skimmer outlet and the water level in the skimmer chamber. Attaching sponge to the side of the skimmer will effectively cancel the noise.

Maintenance

For continuous smooth operation of the water management system make regular checks of the following:

Water level in the rear sump - adjust the flow valve as required.

Water level in the reservoir - top up with RO water as required.

Water level in the sump, check that the top-up float valve is operating correctly.

Micron Filter Bags - check that water is flowing through the bags and replace as required.

Surface skimmer combs - remove any deposits that reduce water flow.

Pump outlet nozzle - check for blockages and build-up of algae.

Micron Filter bags

It is recommended to have at least 3 sets of filter bags.

There are a few options for cleaning the filter bags:

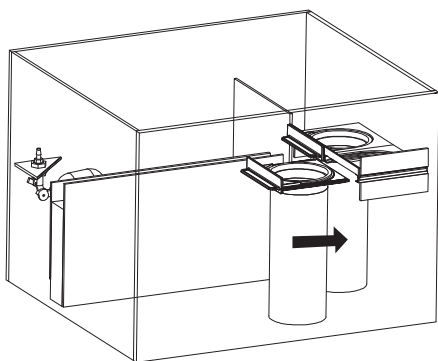
Quick and effective - Spray the outside of the bags with a powerful water jet such as a garden hose to back-flush the detritus from the felt.

More thorough - soak the bags in bleach or diluted vinegar for 24 hours prior to spraying as above. Rinse well to remove all chemicals before returning to sump.

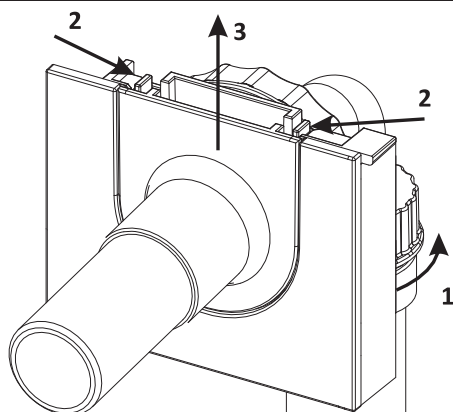
The filter bags can also be put in a cold wash in a washing machine with regular detergent or with vinegar (may require approval from a higher authority).

MAINTENANCE

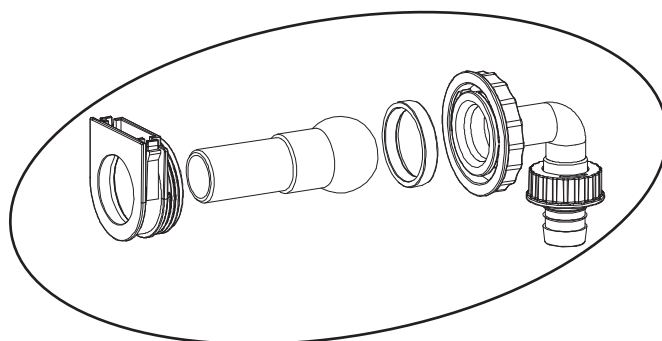
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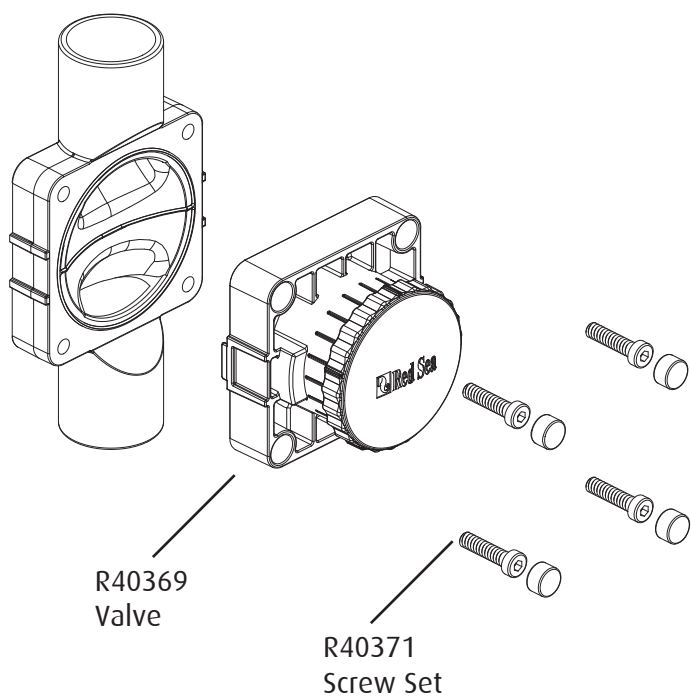


R42188 Outlet Assembly

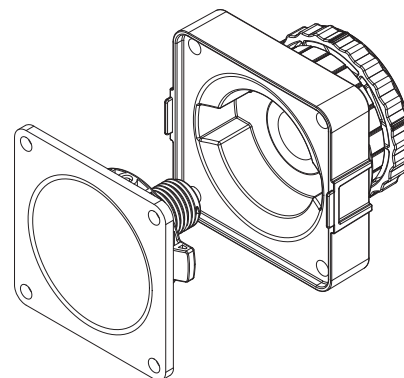


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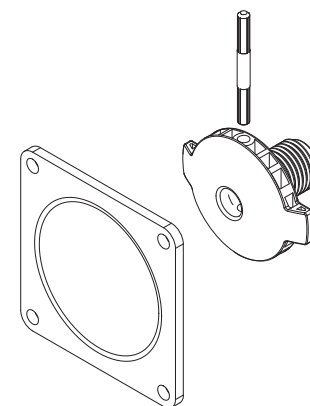
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