

- A** = In-line filter feed connection
B = In-line filter (UV stabilized materials)
C = In-line filter output connection
D = Flow Fuse inlet connection
E = Water regulator
F = Flow Fuse block
G = Pressure gauge
H = Flow indicator and fill button
I = Auto re-set adjustment screw
J = Spare connection
K = Auxiliary fill connection
L = Pressure vessel
M = Thermal Fuse
N = Thermal Fuse adjuster cap
O = Vessel drain connection
P = Seal supply connection
Q = Supply / return pipe
R = Seal fittings
S = Mechanical seal
T = Seal return connection

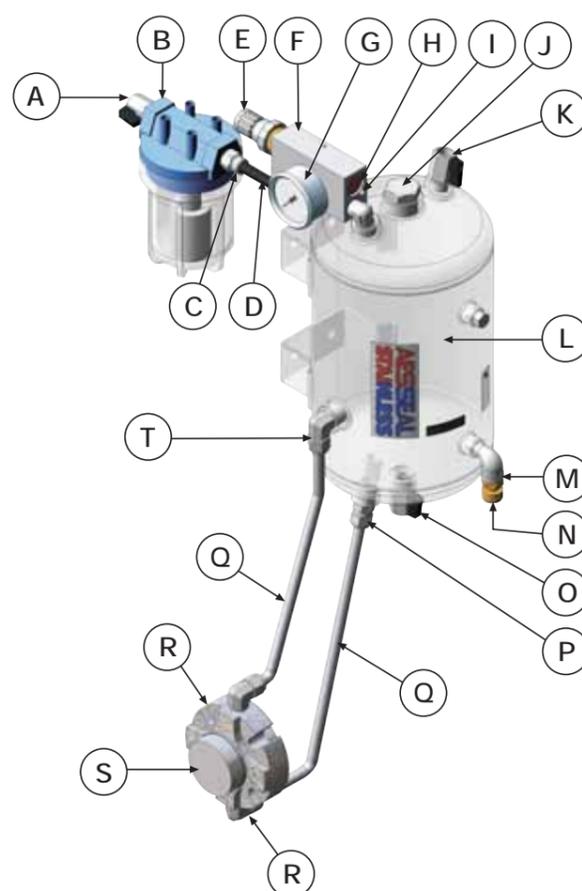


FIG 1. SWFF-TF™ Vessel Guide

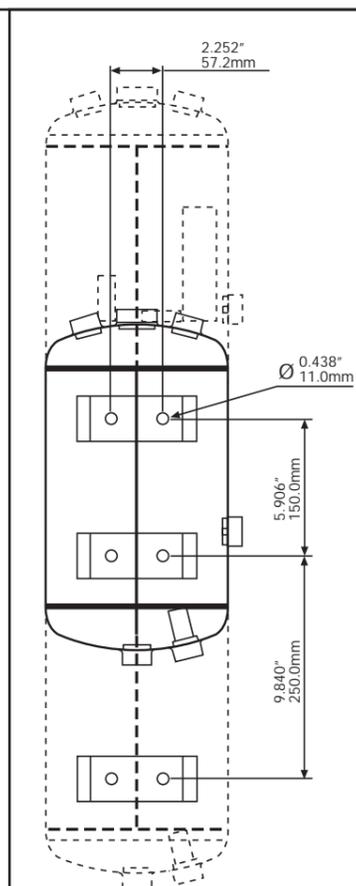


FIG 2. Mounting Guide

FIG 3: FINNED TUBING

- 1) Install the SWFF-TF™ vessel in a suitable location, which is free from vibration and in close proximity to the pump. Mount the SWFF-TF™ so it is easy to monitor and maintain.
 - 2) Install the supplied lengths of finned tubing by connecting one length to the Vessel Drain Connection (P) and the other to the seal return connection on the vessel (T) *.
 - 3) Customer to supply and connect the hard pipe from the seal to the finned tubing.
 - 4) Continue from installation / commissioning instruction 3 to install / commission the vessel correctly.
- *Finned tubing can be bent to suit the application.

FIG 4: COOLING COIL

- 1) To commission the cooling coil the end user supplies their piping and fittings.
- 2) Isolate the water supply that you intend to run to the cooling coil.
- 3) Using the piping and fittings, connect the water supply to the cooling coil inlet port on the vessel and from the cooling coil outlet port to the water supply. Turn on the water supply.

FIG 5: DIRECTION OF FLOW

- 1) When the system is first run, check the direction of flow – i.e. which pipe gets hot. The hot pipe must go to the return port on the vessel (T), or flow may cease over a short while. If the flow is the wrong way around, reverse the connections at the seal or vessel.
- 2) This is, of course, only valid where the mechanical seal ports are horizontal. If the mechanical seal ports are vertical, we would recommend that the seal be re-installed. The hot pipe must go to the seal return connection (T) on the vessel.

FIG 6: VERTICAL PUMPS

- On vertical pumps, to prevent a pocket of air being trapped in the seal upon vessel fill, it is advisable to “vent” the outboard faces. This can be achieved by gently lifting the outboard rotary from the stationary. You will see the air escape and barrier fluid appear. At this point ease the faces back to their original position.

Installation & Commissioning

- 1) Install the SWFF-TF™ vessel in a suitable location, which is free from vibration and in close proximity to the pump (no more than 2 meters (80 inches) above and 1 meter (40 inches) from the side of the mechanical seal (S)). Mount the SWFF-TF™ so it is easy to monitor and maintain. If you are installing an SSE25™ vessel we recommend that you use the upper and lower of the 3 brackets for mounting. If your vessel has a cooling coil please refer to Figure 4 for commissioning details.
- 2) Isolate the plant water supply. Using the two lengths of tubing provided, connect the vessel from the seal supply connection (P) to the mechanical seal (S) and from the mechanical seal (S) to the seal return connection (T). It is imperative that the return line from the seal (S) to the seal return connection (T) does not sag. If installing finned tubing please refer to Figure 3.
- 3) Connect the water line to the in-line filter feed connection (A) and from the in-line filter output connection (C) to the Flow Fuse inlet connection (D). Note that the maximum input pressure of the in-line filter (B) is 8 bar / 116 psi. If the water line pressure feeding the in-line filter is above 8 bar / 116 psi we advise that you use a regulator to reduce this water pressure to below 8 bar / 116 psi before it reaches the in-line filter (B). Note that the maximum temperature the in-line filter can withstand is 50°C / 122°F.
- 4) Release the cap on the black regulator adjustment (E) and rotate it counter clockwise until all load is removed from the regulating spring.
- 5) Before filling the vessel with barrier fluid, disconnect the return pipe (Q) at the seal return connection on the vessel (T). This will allow any trapped air to escape out of the seal. If you are installing the vessel on a vertical pump please refer to Figure 6.
- 6) Turn on the plant water supply and fill the vessel by pressing and holding in the red Flow Fuse fill button (H) until barrier fluid is seen at the end of the seal return pipe (Q). When barrier fluid is seen release the red Flow Fuse fill button (H).
- 7) Re-connect the seal return pipe (Q) to the vessel seal return connection (T).
- 8) Set the relieving pressure of the Thermal Fuse (M) before setting the barrier fluid pressure. The relieving pressure of the Thermal Fuse (M) is to be set at 1 bar / 14.5 psi above the barrier fluid pressure (e.g. if the barrier fluid pressure is to be set at 4 bar / 58 psi, set the relieving pressure of the Thermal Fuse (M) at 5 bar / 72.5 psi).*
- 9) Back the Thermal Fuse adjuster cap (N) fully anti-clockwise.
- 10) Press and hold in the red Flow Fuse fill button (H) for approximately 3 minutes to fill the vessel. When the vessel is filled rotate the black Flow Fuse regulator adjustment (E) clockwise until the desired relieving pressure of the Thermal Fuse is seen on the pressure gauge (G).
- 11) Screw the Thermal Fuse adjuster cap (N) clockwise until the Thermal Fuse (M) starts to leak. At this point the relieving pressure of the Thermal Fuse (M) is set. Use the lock nut to secure the relieving pressure.
- 12) Once the relieving pressure of the Thermal Fuse (M) has been set the barrier fluid pressure can be set.
- 13) Open the drain valve (O) for 2 minutes to drain the vessel.
- 14) Repeat installation and commissioning steps 4 – 7.
- 15) Press and Hold in the red Flow Fuse fill button (H) for approximately 3 minutes to fill the vessel. When the vessel is filled rotate the black Flow Fuse regulator adjustment (E) clockwise until the desired barrier fluid pressure is seen on the pressure gauge (G). Please note that the Flow Fuse is at its optimum operating condition when the barrier fluid pressure is set a 2 bar / 30 psi above stuffing box pressure.
- 16) Once the desired pressure is shown on the pressure gauge (G) close the black regulator adjustment cap (E). Slowly release the red Flow Fuse fill button (H). The red Flow Fuse fill button should be level with the Flow Fuse casing.**
- 17) For direction of flow details please refer to Figure 5.

* Please note that the operating parameters of the Thermal Fuse are 5 - 10 bar / 72.5 - 145 psi

** Please note that the Flow Fuse has the following two operating modes:

- 1) Manual Re-Set mode – The Re-Set mode adjuster (I) will be screwed completely in. In this mode the Flow Fuse will completely shut off the plant water supply upon any seal failure.
- 2) Auto Re-Set mode – The Re-Set mode adjuster (I) will be screwed counter clockwise. In this mode the Flow Fuse will re-establish operating conditions after seal failure by allowing a small flow of water from the plant water supply back into the vessel. The amount of flow will depend on how far the Re-Set mode adjuster (I) is screwed counter clockwise. The Flow Fuse comes factory set in Auto Re-Set mode.

DECLARATION OF INCORPORATION

This Mechanical seal Support System must not be put into service until the relevant machinery into which it is incorporated has been declared to be in conformity with the provisions of the Machinery Directive.
James F McKeever, Managing Director, AESSEAL MCK Ltd.

THERMAL FUSE

- The Thermal Fuse (M) is fitted to limit any pressure build up due to excessive heat developing in the barrier fluid.
- When pressure increase is detected the Thermal Fuse will trigger and relieve the excess pressure in the vessel.
- With the Flow Fuse in Auto Re-Set mode, the pressure drop will be detected and colder water from the plant water supply will be allowed to enter the vessel and replace the warmer water lost.
- The original working pressure of the vessel will be re-established automatically with the Flow Fuse in Auto Re-Set mode.

SWFF-TF™ INSTALLATION /COMMISSIONING OPERATION & SAFETY CHECKS

- Return line from the seal (Q) to the seal return connection (T) must not sag.
- Return line from the seal (Q) to the seal return connection (T) must be warmer than the feed line from the seal supply connection (P) to the mechanical seal (S).
- Set the working pressure of the SWFF-TF™ at 2 bar / 30 psi above stuffing box pressure.
- Ensure all hoses / piping is properly connected and free from leakage.
- Following commissioning ensure that the plant water supply to the pressure vessel (L) is valved on at all times.
- Please note that the SWFF-TF™ range of systems can only regulate the water pressure available in the plant water line.

OPTIONAL EXTRA'S INSTALLATION / COMMISSIONING

- If you purchase an optional extra, please refer to the installation instructions supplied with it.

**INSTALLATION INSTRUCTIONS**

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