

SW Range

Installation, Operation & Maintenance Instructions



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EXPERIENCE THE EXCEPTIONAL



Health and Safety

- This system has been designed for use only as a barrier fluid system for mechanical seals using a suitable non-hazardous barrier fluid.
- Isolate the process and power on installation, maintenance and decommissioning (and ensure that the system pressure has been relieved before undertaking maintenance).
- The system should only be installed by competent engineering personnel.
- Electrical connections must be made in compliance with applicable legislation and / or local requirements by a competent / qualified electrician.
- If there is any risk of FIRE the system must be fitted with a suitable pressure relief device to prevent over-pressurisation.
- Pipe relief valves discharge to safe area (when fitted).
- Pressure test the complete system assembly at 1.1x maximum working pressure (duration 5 minutes) and ensure the system is completely leak free before full operation. Use leak detection spray / fluid to check for leaks on all ports and connected equipment at top of vessel.
- Do not over-pressurise the system beyond the maximum design pressure. If there is any possibility of over-pressurisation the system must be fitted with a suitable protection device.
- Do not exceed the operating limits of the system. Not designed for cyclic loading.
- The system may get hot in operation with risk of burn injury. Suitable engineering controls or guarding should be adopted where necessary. The risk from Legionella bacteria should be assessed with water barrier fluids at temperatures between 20°C to 45°C (68°F to 115°F).
- If the barrier fluid becomes contaminated it is recommended that the barrier fluid is replaced taking necessary precautions. If the contamination is potentially corrosive or damaging to the system remove from service and contact AESSEAL® for technical advice.



Environment

At end of life the barrier fluid and system should be disposed of in accordance with local regulations and with due regard to the environment.

For further information please contact AESSEAL®

Fig. 1

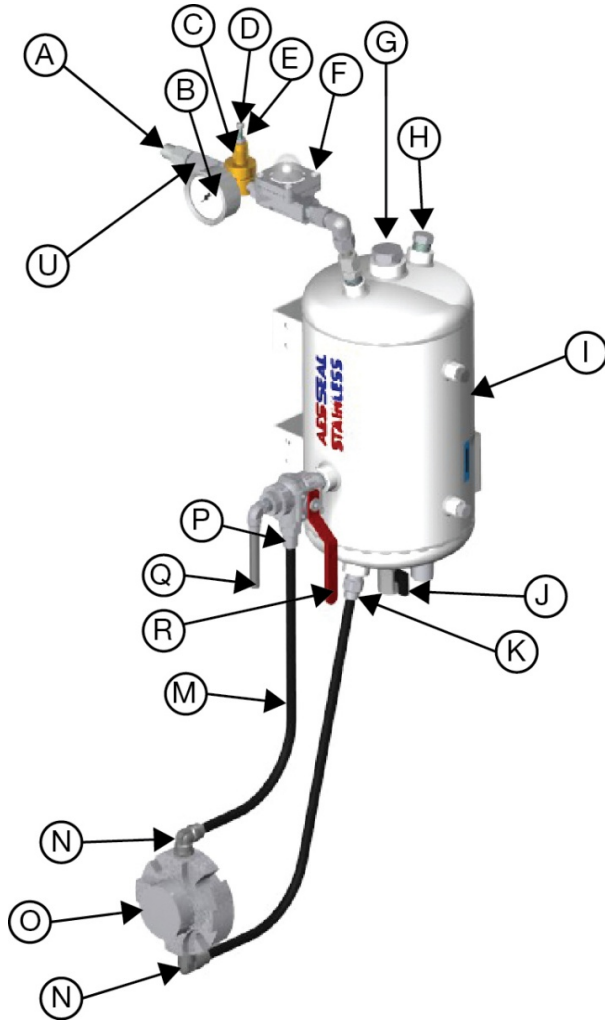
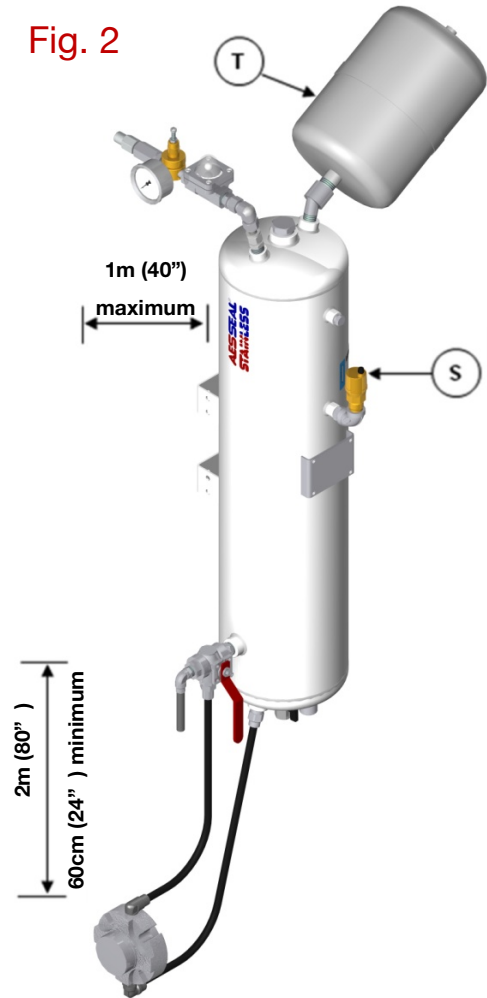


Fig. 2



KEY

Components

- | | |
|-------------------------------|---------------------------|
| A Water supply connection | K Seal supply connection |
| B Pressure gauge | L Finned Tube (Not Shown) |
| C Pressure regulator | M Supply / return pipe |
| D Pressure regulator screw | N Seal fittings |
| E Regulator lock nut | O Mechanical seal |
| F Flow indicator | P Seal return connection |
| G Spare connection | Q Drain connection |
| H Expansion vessel connection | R 3-way valve (SW2™ only) |
| I Pressure vessel | S Air vent valve |
| J Drain valve | T Expansion Vessel |
| | U Non-return valve |

EN Installing & Commissioning

System configuration depending on set (working) pressure :

System Type	SYSTEM SET (WORKING) PRESSURE		
	1 to 4 Barg (15-58 psig)	4 to 6 Barg (58-87 psig)	6 to 8 Barg (87-116 psig)
SSE10 Litre	As delivered	As delivered	Fit expansion vessel
SSE25 Litre	As delivered	remove air vent valve	
AES15 Litre & SSE25 HP	Up to 30 Barg max (as delivered – no air vent valve fitted)		

SW Range Installation Instructions

- For set (working) pressures between 6 & 8 barg (87 & 116 psig) attach the AESSEAL® expansion vessel (if not already fitted) to connection 'H' (refer to figure 1)*. Pre-charge expansion vessel with air to 90% of set (working) pressure (replace plastic cap).
- 25L systems only – for set (working) pressure between 4 & 6 barg (58 & 87 psig), remove the air vent valve (S) and fit the plug supplied*.
- The AES15 and SSE25 HP systems do not have an air vent valve and the set pressure can be set to the maximum detailed above.
- Where the water supply regulator arm has been supplied separate (items A to F) connect to the vessel*.
* NPT threads - use thread sealant (eg Loctite 577), do not use PTFE tape. Tighten by hand first then tighten by 2 to 3 turns with a suitable tool (do not over tighten).
- When fitted ensure that the air vent valve cap (S) is loosened adequately to allow the air to escape.
- Install the System in a suitable location which is free from vibration and within the following distances from the mechanical seal (refer to Figure 2):
 - A minimum of 60cm (24") above the mechanical seal.
 - A maximum of 2 metres (80") above and 1 metre (40 inches) to the side of the mechanical seal (O).
- Isolate the plant water supply. Connect the vessel from the supply connection (K) to the mechanical seal (O) and from the mechanical seal (O) to the seal return connection (P) using the two lengths of tubing provided. It is imperative that the return line from the seal (O) to the seal return connection (P) does not sag. If installing finned tubing (L) refer to Note 2 below (Finned tube not shown on first page).
- Rotate the pressure regulator screw (D) fully counter clockwise.
- Connect the plant water supply to the non-return valve (A).
- Before filling the vessel, disconnect the return pipe (M) at the seal return connection (P). This will allow trapped air to escape from the seal.
- Turn on the plant water supply and fill the vessel until fluid is visible at the end of the seal return pipe (M).
- Re-connect the seal return pipe (M) and fill the pressure vessel (I) until flow stops. Note when the water level in the vessel reaches the air vent valve (S - when fitted) the noise of air escaping will stop.
- The pressure regulator screw (D) can now be adjusted clockwise to achieve the desired barrier fluid set pressure on the pressure gauge (B). Please note that the pressure of the barrier fluid must be 1 bar / 14.5 psi above the stuffing box pressure.
- When the desired pressure has been reached close the regulator lock nut (E).
- If your vessel has a cooling coil refer to Note 1 for commissioning details for the cooling coil.
- If you have purchased finned tubing refer to Note 2 for commissioning details.
- After commissioning, ensure that the plant water supply is maintained at all times.
- During normal operation the flow indicator (F) will indicate if there is a problem with the seal. If a problem arises the ball inside the indicator will become visible. This ball should not be seen during normal operation.

Note 1: Cooling Coil

Connect the water supply to one of the cooling coil ports, inlet or outlet can be used, once the inlet has been connected, pipe the outlet to drain. Turn the cooling coil water supply on.

Note 2: Finned Tubing

- Install the supplied lengths of finned tubing (L) by connecting it to the seal supply connection (K) and seal return connection (P)

2. The end user supplies and connects the hard pipe from the seal (O) to the finned tubing (L).

Note 3: Direction of Flow

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 (P), or flow may cease. If the flow is incorrect, reverse the connections at the seal or vessel.

Optional Extra's Installation/ Commissioning

If you have purchased an optional extra please refer to the installation instructions supplied with it.

Maintenance

The system should be maintained in accordance with site standards.

- **Daily** - Check for leaks and barrier fluid pressure & temperature.
- **Annually** - Check and examine the system for leaks and deterioration. Check expansion vessel pre-charge pressure (when fitted).
- **5 years** - Complete a full internal and external inspection of the vessel and all system component parts.
- **10 years** - The system / vessel should be subjected to a complete and thorough examination, including the undertaking of a full system hydrostatic proof pressure integrity test by a suitably qualified and competent person*. AESSEAL® recommends this should form part of the written scheme of examination as per the PSSR 2000 regulations.

** AESSEAL® offers a full examination, integrity testing and refurbishment service (or, where necessary, a replacement system / vessel), to ensure continued optimum and safe system performance*

System Design Limits :

- Maximum Pressure (SSE10 / SSE25) : 10 barg / 145 psig (minimum 1 barg / 15 psig)
- Maximum Pressure (AES15 / SSE25 HP) : 30 barg / 435 psig (minimum 1 barg / 15 psig)
- Maximum Temperature = 80°C / 176°F (with suitably rated piping / hosing*)
- Minimum Temperature = 0°C / 32°F

** SSE10 and SSE25 minimum piping / hosing specification 10 Bar / 145 psi at 80°C/176°F (min temperature 0°C / 32°F)*

** AES15 / SSE25 HP minimum piping / hosing specification 30 Bar / 435 psi at 80°C/176°F (min temperature 0°C / 32°F)*

Vessel Maximum Volume :

- SSE10 = 10 litres / 2.64 gal (US)
- SSE25 = 25 litres / 6.60 gal (US)
- AES15 = 15 litres / 3.96 gal (US)

Vessel Design Code :

ASME VIII Div.1

Complies with Pressure Equipment Directive (2014/68/EU) & Pressure Equipment (Safety) Regulations 2016