

Python Cooler (Dual & Single)

Installation, Operation & Maintenance Instructions



ENVIRONMENTAL TECHNOLOGY

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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).
- Pipe relief valves discharge to safe area.
- 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.
- 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, and 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.
- *For 304 SS Systems when used with a water based product the Chloride content shall not exceed 100ppm.*
- *For 316 SS Systems when used with a water based product the Chloride content should not exceed 250ppm.*



Environment

Once the system has reached the end of its life, it should be disposed of in accordance with local regulations and with due regard to the environment.

For further information please contact **AESSEAL®**

Installing & Commissioning

Typical 600lb Flanged Dual Python Arrangement

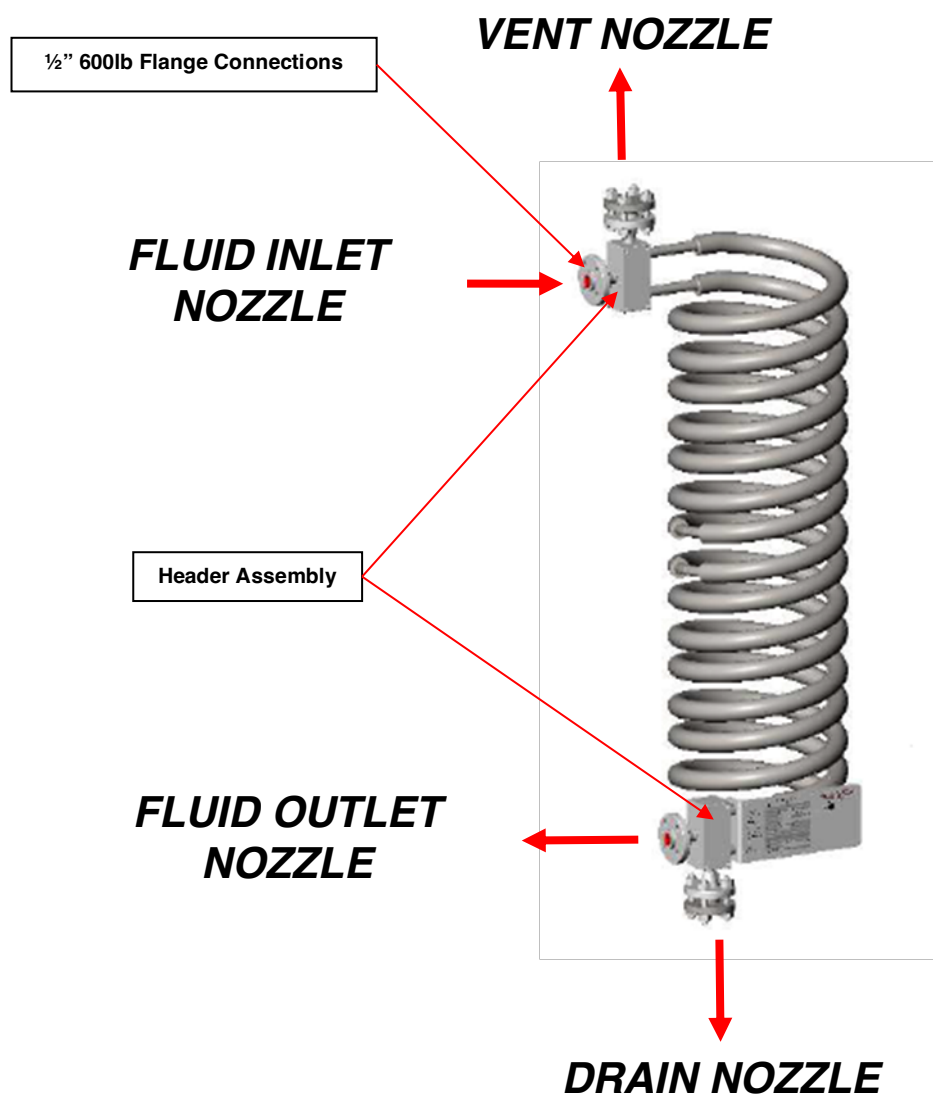


Fig.1 Typical Layout

Please also refer to the drawing contained in the document pack whilst reading these instructions!

Installing & Commissioning

Pre-Installation Checks

- The coil should be drained of all fluid before installation or relocation.
- Isolate fluid in seal loop (requiring cooling).
- If the Python cooler is to be moved and/or used on a different cooling application (e.g. change of process or barrier/buffer fluid) it is recommended that the system is flushed and cleaned.
- Prior to installation read all instructions for any other components to be used in conjunction with the Python cooler as part of the associated API plan / sealing system.
- It is recommended that the Python cooler should not be used on barrier/buffer thermosyphon systems without forced circulation from an AESSEAL PUMPPAC/FDU or Pumping Scroll/Flow Inducer, due to risk of flow stalling, leading to seal failure.
- The Python cooler unit should be mounted vertically with the header assemblies at the top and bottom of the unit.
- The Python heat exchanger units are not intended to serve as anchor points for interconnecting pipework. All pipework must be adequately supported and expansion devices fitted as necessary so that loadings are not transmitted to the inlet and outlet nozzles.
- Care must be taken with the installation to ensure that adequate and clear air paths are available for passing cooling air.
- Ensure that the environment surrounding the Python cooler is free of obstruction in all directions to passing air.

Connections

Ensure all connections are made:

Fluid Inlet Nozzle – ½" (DN15) ASME B16.5 600lb RF flange.

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Vent Nozzle (Optional) – ½" (DN15) ASME B16.5 600lb RF flange.

Drain Nozzle (Optional) – ½" (DN15) ASME B16.5 600lb RF flange.

- Install the Python unit in a suitable location, which is free from vibration.
- All flanges connected should have an appropriate for service gasket inserted between the flange faces, and secured with 4 x ½" UNC Studs and 8 x ½" UNC nuts and washers.
- Connect the line from the seal outlet carrying the fluid heated by the seal (e.g. 'BARRIER OUT') to the Fluid Inlet Nozzle.
- Connect the Fluid Outlet Nozzle to the line supplying cooled fluid to the remainder of the seal cooling loop (e.g. return to seal chamber/pump discharge/circulation tank – dependent on API plan used for the application).
- The Vent Nozzle and Drain Nozzle are supplied with fitted service gaskets, blind flanges and fasteners which are suitable for service conditions. If these connections are not required ensure these fittings are secured and sealed.
- It is recommended to monitor the system pressure statically for several hours whilst carrying out visual checks at all connection points for signs of leakage, checking any remote instrumentation used in conjunction with this system is functioning correctly.
- In accordance with local/product safety requirements and practises ensure all lines connecting the seal and system loop are primed and vented before start up of the pump and seal.
- Once satisfied that the system is pressure tight, the equipment can be run up in accordance with operating instructions.

Operation

- Monitor the seal and system for several hours, paying close attention to seal inlet and outlet temperatures, vibration, noise, visible leakage and pressure loss as detailed in AESSEAL plc general commissioning instructions.
- When the system is first run, check the direction of flow – i.e. determine the hot and cooled sides of the seal cooling loop connected to the Python cooler. The hot line should feed the Fluid Inlet Nozzle. If the flow is incorrect, reverse the connections.
- The system will need to be closely monitored for variations in pressure and temperature during the first 2 to 3 hours of operation until the equilibrium temperature is achieved.

Caution!

- All connections should be checked for leakage.
- When the system is filled and operational do not remove any blind flanges.

Operating Limits

For cooler specifications and design limits, please refer to python cooler nameplate.



NOTE: Do not exceed the stated operating limits for either the cooler or the system assembly it may be attached to, refer to the respective system or cooler nameplate.

Maintenance

- Under normal circumstances, no maintenance is necessary.
- If maintenance is required this should be carried out in accordance with site standards or local regulations.
- If the external fin tubes become dirty with trapped particles cooling performance will deteriorate. If necessary the fin tubes can be carefully cleaned externally with either compressed air or a soft brush.
- If it is necessary to clean the tubes internally use a proprietary solvent/de-scaler compatible with the circulating fluid and the coil material (316L stainless steel).

Daily

- Check and record system pressure reading and monitoring the temperatures at the inlet and outlet. Any change may be a sign of a developing problem, such as a blockage/advanced seal leakage.
- Any increase in pressure drop across the cooler, together with a reduction in cooling, indicates an obstruction of the cooler tubes.
- Check for signs of leakage from the seal, support system and pipe work.

Monthly

- Any filters (if fitted), should be inspected every month and changed if contaminated or blocked.
- If used as part of a barrier/buffer system cooling loop any discolouration of the barrier/buffer fluid or contamination of filters may be an indication of leakage of the inboard mechanical seal faces and should be investigated immediately.

Optional Extras

- If you have purchased other optional extras, please refer to the installation instructions supplied by the manufacturer.