Cyclone Separator

Installation, Operation & Maintenance Instructions





AESSEAL (MCK) Ltd.

139A Hillsborough Old Road Lisburn, N.Ireland, BT27 5QE,

Telephone: +44 (0) 28 9266 9966 Fax: +44 (0) 28 9266 9977 E-mail: MCK@aesseal.co.uk

www.aesseal.com

EN) Cyclone Separator Installation Instructions

Components

- A = Mechanical Seal B = Product Liquid Feed
- C = Cyclone Separator
- D = Clean Product (mechanical seal flush fluid) E = Dirty Product Liquid return to pumps suction



Installation & Commissioning

- Ensure that the pump is not in operation during the installation 1. of the Cyclone Separator (C).
- Install the Cyclone Separator (C) in a suitable location, which is 2. free from vibration and in close proximity to the pump.
- Securely mount the Cyclone Separator (C) directly onto suitable 3. pipe-work in an upright position. An individual Cyclone Separator (C) for each pump unit is preferred to avoid problems controlling the flush feed to each mechanical seal (A)
- Connection 1 Pipe from the Pump discharge to the Cyclone 4. Separator feed connection (B).
- Connection 2 Pipe the Mechanical Seal feed connection (D) to 5. the Mechanical Seal (A)
- Connection 3 Pipe the dirty product liquid return connection to 6 the pump suction (E).
- Start the Pump. 7.

Operation Considerations

- Solids Content Cyclone separators are designed for use on fluids with a maximum solids content of 6%, by volume.
- Specific Gravity For an effective Cyclonic separation to exist, the solids must have a Specific Gravity (SG) at least twice that of the carrier fluid.
- Particle Hardness Consideration must be given to the hardness and solubility of the solids. The solids must stay as solids and the hardness will affect the choice of the materials of construction.
- Differential Pressure The higher the differential pressure the more efficient the separation will be. Higher pressure induces a higher velocity and a higher centrifugal force. A limit of 12 bar / 174 psi is set as higher velocities give rise to increased erosion. If the differential pressure is to be greater than 12 bar / 174 psi then consideration should be given to the provision of a pressure reducing device in the supply line which will not foul.
- Viscosity The time in a Cyclone Separator is short. Viscous drag on a particle can prevent it centrifuging to the perimeter of the chamber in the time available. The Cyclone Separator must only be used with relatively low viscosity liquids.

Health & Safety

- This system has been designed for use only as a cyclone separator system for mechanical seals using a suitable non-hazardous 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.
- Pipe relief valves discharge to safe area (when fitted).
- 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 cvclic loading
- The system may get hot in operation with risk of burn injury.
- Ensure the system is completely leak free before full operation. •

Maintenance

The system should be maintained in accordance with site standards.

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Environment

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

Cyclone Separator Details

- Cyclone Separator Operating Limits :
- Maximum Pressure = 150 bar(g) / 2176 psi
- Maximum Temperature = 121°C / 250°F •
- Minimum Differential Pressure = 1.7 bar(g) / 25 psi
- Maximum Differential Pressure = 12 bar(g) / 174 psi