

ANTICO

non metallic pumps



Double Mechanical Seals - the solution for Organic Compounds

Why Double Mechanical Seals?

ANTICO KNS Series - lined pumps are used for pumping liquids posing environmental and health hazards typically used in chemical and pharmaceutical industries. In such applications, conventional single mechanical seals are not recommended since liquids handled are highly toxic, hazardous and are at elevated temperatures.

In such services, double mechanical seals with a pressurised thermosyphon pot circulating a barrier fluid are used. The barrier fluid recirculates through the seal by heat convection generated as the pump shaft rotates through the seal. The barrier fluid in the pot is forced into the seal through the bottom line as the hot barrier fluid leaves the seal through the top line back into the pot. This arrangement will allow the seal to vent and ensure that the passages are full of fluid.

The pot has a cooling coil which needs to be connected to chilled water allowing barrier fluid to cool before re-entering the seal. The pot is pressurised with the help of an inert gas like nitrogen. Our pump seal design has a built-in pumping ring to enhance convection. This pumping arrangement is very necessary whenever oil is used as the barrier fluid because of oil's low specific heat and poor conductivity. Water is one of the best barrier fluid because of its high specific heat and good conductivity.

There are several advantages of using double seal over the single seal arrangement. The thermosyphon pot feeding the double seal is maintained at higher pressure than the stuffing box so if either seal fails, the barrier fluid would leak instead of the pumped fluid. Single seal failures allow pumped fluids to leak out in the atmosphere. Double seals can have five times the life of a single seal in severe environments. Also, the metal inner seal parts are never exposed to the process media so; toxic, hazardous and corrosive liquids are easily sealed without a need for expensive metallurgy.

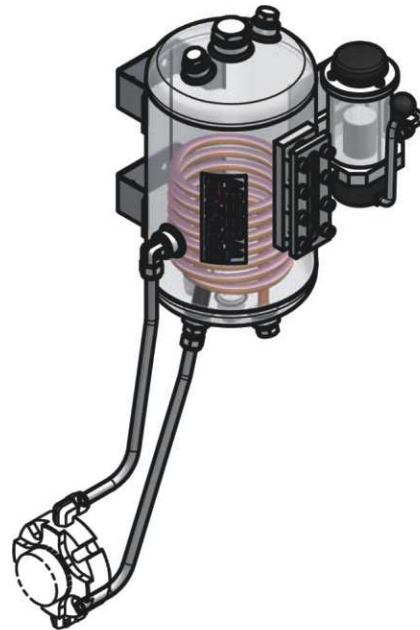
The following will give an idea of approximate leakage rate for various sealing arrangements:

Gland Packing	>1000 ppm
Single Mechanical Seal	10 - 1000 ppm
Double Mechanical Seal	<10 ppm
Sealless	0 ppm

Seal Type	ROTT
Make	Flowserve
Inboard Seal	SiC / SiC
Outboard Seal	SiC / Carbon
Shaft Packing	PTFE / FFKM
Thermosyphon Pot / Cooling coil	SS316



Flowserve double ROTT seal



API Plan 53 -
pressurised thermosyphon pot



Anticorrosive Equipment Pvt Ltd

15, Hind Service Industries, 2nd Floor,
Off V. S. Road, Shivaji Park, Mumbai - 400 028, India
Phone : +91 22 2446 6496, 2446 8340, 2445 3501
Fax : +91 22 2444 9271
info@anticopumps.co.in www.anticopumps.co.in