

TROUBLE SHOOTING MECHANICAL SEALS

IMPROVING PLANT RELIABILITY WITH EXTENDED SEAL LIFE



PU-5302B: Gould3196MTi Sodium Hydroxide 32%



PU-5302B: Replaced to use John Crane Seal with Plan62 instead of RO Seal (Flowserve)

How to improve mechanical seal life?

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A major chemical company in Bangkok has very short seal life time of around 2 months only with Flowserve seal type RO.



Flowserve RO Seal (Pusher Seal)

We recommended replace to use John Crane Metal Bellow Seal type 680 instead also designed Gland Plate with bushing for Plan62. This pump since installed seal type 680 on July 2020 last year was running well till now.



John Crane 680 Metal Bellow (Non Pusher Seal)

Application Data:

Pump: Gould3196MTi 3x4-8 (Nickel)
 Liquid: NaOH 32%
 Temperature: 90 deg C
 Total Develop Head: 45m
 Flow rate: 75 m3/hr
 Speed: 2900 rpm

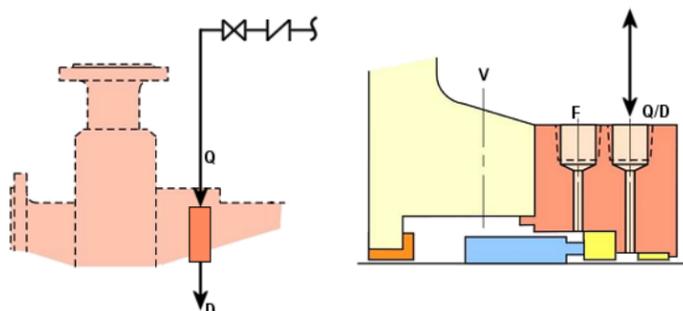
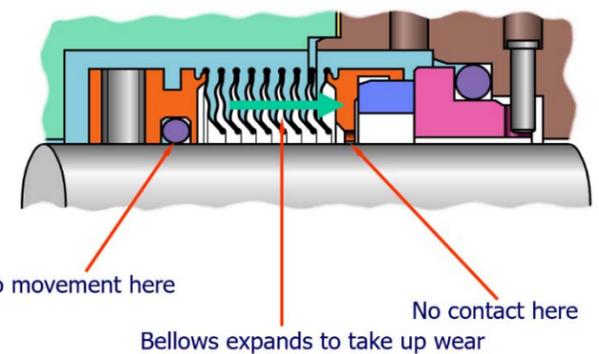
Seal: John Crane type 680 size 1.750 inch
 Material: Silicon / Silicon / FFKM / Alloy 20

Problem solving...

Flowserve RO is "Pusher Seal" has problem of Sodium Hydroxide can change state as it moves across the inter-face film, e.g., solidify, crystallise, dynamic (O-ring) seal starts to 'hang up' on these deposits. As the primary ring wears it is unable to follow-up to keep the faces together. Leakage will gradually increase, deposits build up, and eventually leakage becomes prematurely unacceptable as the faces are held in the open position.



John Crane 680 is "Non Pusher Seal" The tail end of the bellows is held tight to the shaft forming a static (O-ring) seal. The other end of the bellows "floats" above the shaft and pushes against the primary ring. The flexibility of the bellows type 680 allows for seal face wear and for shaft misalignment better than Flowserve RO seal and eliminated seal hang up problem for Sodium Hydroxide application. However, for this application required install seal plan 62 with clean water quenching too.



Exterior source providing a quench, such as low-pressure steam, gas or water.