



TAS Online

(Pty.) Ltd.

Pump Monitoring & Consultancy

P.O. BOX 411203
CRAIGHALL
2024
SOUTH AFRICA

TEL +27 11 325 0681
FAX +27 11 325 0488

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<http://www.tasonline.co.za>

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MAINTENANCE OF BALANCE FLOW ASSEMBLIES

Multi-stage pumps, which are balanced by bypass flow, require only $\pm 2\%$ of flow through the bypass in order to effectively balance the pump. Any flow which exceeds this can be regarded as pure wastage of electrical power, yet we have frequently encountered excessive balance flows, some as high as 20%.

TAS PumpMonitor provides pump users with the current balance flow of each pump delivered to their control room and desktop, expressed in both l/sec and costs terms. This makes it easy for the Engineer to calculate the optimum time to maintain the assembly which will depend on current electricity tariffs and cost of parts.

With rising power costs and electricity supply concerns this can constitute an easy and effective way to implement short-term, low cost energy and operational cost savings.

Further, in many circumstances, it is not necessary to replace the entire balance flow assembly. A lower cost option of replacing only the throttling sleeve and wearing bush can deliver the same benefit at about 40% of the parts cost.

There are two mechanisms in play in the balance flow assembly:

- The water, at the full delivery pressure of the pump, is forced between the wearing rings to counter the axial thrust on the shaft. The amount of wear on these rings dictates how well the pump internal components are aligned. These rings are replaced when they have worn sufficiently to result in unacceptable losses in the pump due to axial misalignment.
- The amount of water that flows through the wearing rings is controlled by the gap between the wearing sleeve on the pump shaft and the throttling bush. When new, the gap between these two components allows 1-2% of the pumps full flow to pass through.

High balance flow is thus corrected by replacing the wearing sleeve and throttling bush only. The wearing rings and the rest of the assembly need not be replaced.

When replacing the wearing rings, due to the limit switch being triggered, it is also not necessary to replace the wearing sleeve and throttling bush, unless a high flow rate is also taking place.

TAS PumpMonitor Technical Bulletins are issued to Customers as an added-value service in the interests of greater pump operating efficiency. A full library of Bulletins may be viewed at www.tasonline.co.za/TechBul