

ITT Goulds Pumps O-Head Eliminates Excessive Vibration in Power Plant's Pumps

A US based electric company supplies power to over 300,000 customers. Owing to aging infrastructure, their circulation pumps began to experience vibration issues. This situation has been completely rectified by fitting the pumps with the ITT Goulds Pumps O-Head.

The Problem

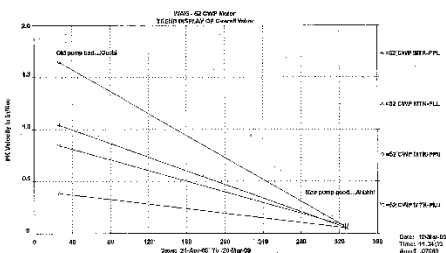
The company's three power plants are approaching 50 years of age and cracks have occurred in the pumps' concrete foundations. In addition, over time seawater corrosion has reduced the wall thickness of the turning elbows, causing their resonance frequency to move closer to the running speed of the pumps. These two factors combined to create excessive vibration, which caused repeated premature mechanical seal failures and bearing wear.

The Solution

It was determined that improved isolation between the discharge flange and the motor mounting would solve the problem. This is precisely what the patented Goulds Pumps O-Head is designed to achieve. With a traditional head design, any deflection at the discharge flange creates an even larger deflection at the seal housing and motor mounting flange. The O-Head, on the other hand, uses four separate legs to support the motor, which allows the discharge flange to move without affecting bearing alignment. Over the last 10 years, 12 pumps at the electric company have been fitted with the O-Head and a dramatic reduction in vibration has resulted in each of them. Eight more pumps are due to be upgraded next.

The Benefits

The O-Head is ideal for very high flow, very low pressure applications with discharge sizes of 18-32" where vibration is an issue. This is most often caused by excessive or variable loads applied to the discharge flange. The O-Head is available both in new pumps and as retrofits. The Goulds Pumps OC-Head, which includes an additional isolation element between the head and upper bearing area, is recommended for discharge sizes above 32". In either case, converting to them results in smoother-running pumps with greatly increased mean time between failure (MTBF), thus avoiding costly repairs and downtime.



This diagram from the electric company clearly shows the reduction in vibration after changing to the Goulds Pumps O-Head.

By mounting the motor on four legs, the O-Head effectively decouples the turning elbow from the motor.