



KelairPumps

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Case Study

Viking pumps vital in high suction pressure on light oil duty

Sales Engineer Alex Calodoukas (NSW)

One of Kelair's customers uses a Viking pump on a light oil duty. The significant difference with this duty compared to many others is the very high suction pressure, typically around 20 Bar.

The Viking 4076 series is an internal gear pump, and is well suited to pumping viscous products. Ductile Iron is the standard pump casing material. This range has a differential pressure capability of 17 Bar, as listed on the documentation. The particular customer has a differential pressure of typically around 5 Bar, so meeting that requirement was easy. When the customer advised the suction pressure was to be over 20 Bar, we had to consult the Viking factory.

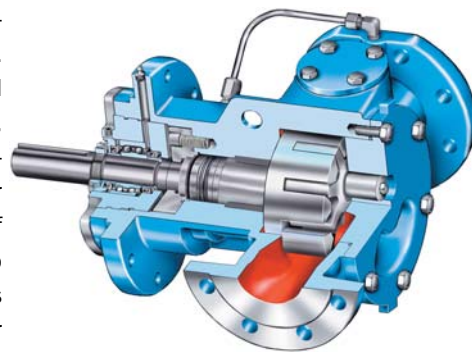
Viking advised:

"The 30 Bar.g maximum working pressure should not be a problem. In addition, you will need to offer a balanced mechanical seal."

The balanced mechanical seal is required for high suction pressures over 15 Bar (and also for all petroleum industry centrifugal pump standards). The type of seal reduces the otherwise high seal face pressure, thereby extending the life of the mechanical seal.

These Viking pumps are flanged

(at the pump shaft) for close-coupling. A bell housing or flange adapter is available from the Viking factory to couple the pump directly to the motor. A foot support is optional, in case the preference is for long-coupling (with non-spacer coupling and coupling guard, mounted on a base plate). In this instance, the pumps are to be skid-mounted, so close-coupling is ideal. The advantage



of close-coupling is that it holds the pump/motor alignment without the need to re-align after "jolting" when the pump skid has been moved.

The 4076 series of Viking pumps are termed "motor speed" pumps. That means they have the capability of being close-coupled if required, directly to 8-Pole (720rpm), 6-Pole (950rpm), and 4-Pole (1450rpm) motors. As the fluids being pumped by gear pumps are often viscous liquids, the pump suction and discharge ports need to be quite large and well designed to minimise NPSH requirements. (Otherwise, in an effort to reduce NPSH requirements, many other

gear pumps would generally operate more slowly at 500 rpm or less on the more viscous products. That means having to use a bigger, sometimes more expensive pump and gearbox). Viking has done a great job there, as the NPSH requirements even on heavy-grade gear oils (1,000 to 2,000 cSt) is quite low at only a few metres, even at 950rpm. With correctly-sized suction lines, these pumps can move even viscous

fluids at quite a flowrate. (Bear in mind, there will always be a requirement for bigger pumps running at even slower speeds, from 50rpm to 350rpm to get NPSH as low as possible on viscous liquids, as pump suction conditions are not always ideal).

Internal pressure relief valves are standard on Viking pumps to help protect the entire pumping system from overpressure. All positive displacement (PD) pump types should have some sort of pressure relief built into the discharge line in case of blockage. All PD pumps will continue to pump, even if pumping accidentally against a closed head. That means huge pressure spikes until some form of pressure relief. And Viking has that safety feature built in.

Kelair's customer has been using this Viking pump range on light oils, at high suction pressures, for many years now with much success.

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Case Study

Pioneer self-priming pumps pair up in wastewater pit

Sales Engineer Myro Bratkovic (QLD)

A prominent Central Queensland meat works was looking to upgrade and improve the handling of a wastewater stream from their rendering plant. Hot waste water used to be handled by an end-suction centrifugal pump that was located down inside a concrete pit.

The problem with the old installation was that whilst the wastewater was piped directly into the pump suction, the pump set was itself installed in the bottom of a large concrete pit. Whenever there was a significant monsoonal downpour (as there regularly is during the summer months in the tropics) the pit would fill, regularly drowning the pump and motor.

It was also an OH&S issue for maintenance staff as the pit is classed as a confined space.

Myro Bratkovic from Kelair's Mackay branch office was asked to look at supply-

ing surface-mounted pumps to alleviate the problem. A pair of Pioneer 'P3' (80mm) self-priming pump sets were offered as a solution to the abattoir's problem. The Pioneer pumps were recommended not only because of their self-priming capabilities, in this case a 2.5m lift, but also their ability to handle solids up to 2.5" (63.5mm) without blocking.

By implementing surface-mounted pumps, the top of the pit could be covered with a grate and there would be no reason for any personnel to enter the pit.

Kelair received an order for two pumps. These were installed and commissioned late in 2008, just in time for the annual 'wet'.

The customer is extremely pleased with the operation and performance of the Pioneer pumps and has recently taken delivery of another Pioneer pump, this time a 50mm model for use in another area of their operation.



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