



KelairPumps

PumpAction..... Issue 63 Aug 09

Case Study

Sandpiper pump in pine wood process at paper mill

Sales Engineer Chandan Patwardhan (VIC)

A major pulp and paper mill in Victoria was using a 1½” Sandpiper pump with Aluminium wetted materials, Nitrile diaphragm check valves and painted Aluminium non-wetted parts.

The pump was used in extraction of cooking pine wood chips which is a proprietary process, and was located in a sump in a bunded area, where intrinsically-safe tools are required.

Previously, the pump was used to pump turpentine-based residue called pinene, and was the recommended pump for this duty. Pinene consists of alpha pinene, beta pinene and delta pinene. It is a natural vegetable-based turpentine.



Due to an internal extraction-related problem, white liquor was introduced into the process which consists of sodium carbonate, sodium sulphide and sodium hydroxide. It also contains small amounts of suspended solids, mostly in the form of calcium carbonate (lime mud).

This product attacked the suction and discharge manifolds of the pump and seriously corroded the material, giving it a honeycomb image.

Kelair’s engineer offered a solution by way of a Sandpiper 1½” pump, compatible with white liquor and turpentine, with wetted parts in Stainless Steel, diaphragm / check valves



in PTFE Neoprene / PTFE-G, valve seat in PTFE-T and non-wetted parts Y, painted Aluminium with Stainless Steel hardware.

The pump could be installed with the existing pipework and required no changes, saving the customer from amending the process as well as the obvious economic benefits.

The Sandpiper pump was purchased and is expected to be in operation soon.

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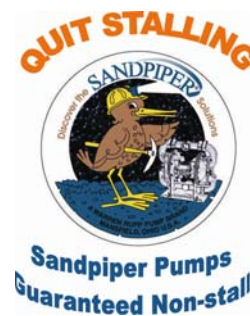
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Sandpiper Features and Benefits

- Non-stalling guarantee
- Cross-drilled technology, to eliminate stalling
- ESADS (Externally Serviceable Air Distribution System), allowing repair of pump without removing from pipeline
- Fully-bolted design provides a positive seal and reduces the incidence of leaks
- Lubrication-free, eliminates requirement for lubricators, reducing initial cost and maintenance cost

Case Study

Containerised pump stations service remote mine site

Sales Engineer Michael Charnley (WA)

A new mine site in Western Australia had a requirement for four separate pump packages and the client requested Kelair to tender for the application.

The first two packages were for process water supply. The pumps would have to provide a constant discharge pres-



sure across a very wide flow range to accommodate the varying needs of the site. The larger of the two packages is required to deliver between 1 litre/sec, and over 90 litres/sec.

Kelair used a bank of Lowara SV multistage pumps of varying sizes mounted in parallel onto a self-contained skid,



fitted with Lowara Hydrovar variable frequency drives. The Hydrovars communicate with each other electronically to maintain a constant discharge pressure in the system and adjust the speed of the pumps, as well as how many pumps operate at any one time, to ensure the pressure remains within the parameters set.

The second two packages were fire protection pumps built to Australian standards but with some special provision for process requirements, which is often needed on mine sites, differentiating these installations from the requirements in a normal building environment.

In consultation with the client it was suggested the pumps be packaged into containers with one fire pump and one pressure-boosting set in each container. Each set of pumps services a particular area of the mine site. In doing this Kelair was able to eliminate the client's need to construct housing for the pumps on a remote site.

Special requirements include:

- Extra doors for service access to pumps
- Internal walls to separate each service and the controls



- Air-conditioning of the controls' area to maintain an operating temperature that would not affect the operation of the electronics in very high ambient temperatures
- Sturdy flooring
- Full venting and exhaust arrangements within the containers



- Lighting and general power outlets throughout each container
- A lifting system within the containers to allow removal of the major components if required.

Kelair's experience in this type of work ensured that the layout of the containers facilitated access for safe and easy commissioning and service .

Case Study

Pulsafeeder pumps mete out suitable doses to treat boiler water

Sales Engineer Alex Calodoukas (NSW)

Kelair Pumps has just designed and built three chemical dosing stations for a project in Western Australia.

Each station has six reliable Pulsafeeder chemical dosing pumps that deliver various treatment chemicals at various pressures to treat boiler water at the customer's power plant. All pipework and valving is in 316 stainless steel.



Kelair Pumps has built many dosing stations over the years. Each has its own particular requirements. Some require polyethylene chemical holding tanks, some are single-storey, others are two-storey (for tank filling).

The base frame and tank supports may be built from 316SS or from galvanised, epoxy-painted steel according to the customer's preference.

Each pumping system, however, will have its common features. Apart from the dosing pumps (low pressure and high pressure pumps up to 300 Bar maximum pressure), each system will have its own pressure relief valve fitted as a safety feature installed on a return line (to suction). Pressure gauges are typically a standard item, as are pulsation dampeners.

Variable speed drives are housed in the control panel, enabling up to 1,000:1 'turndown'. The panel itself can be built to IP66 rating. Its construction is from 316SS sheeting.

The panel also contains start/stop push buttons for pumps, emergency stop, indicator lights run/fail/low, alarm bell and provisions to accept 4-20mA signals for remote operation by control room personnel.

Optional features such as calibration columns may be fitted. Level gauges may be fitted to tanks, with low level alarm, and low level automatic pump cut-off. Pressure transmitters are also an optional extra.

Kelair Pumps can accommodate the requirements of all our chemical dosing station customers.

Perhaps plastic piping is required on your next project? Kelair can fabricate accordingly. Perhaps instead of dosing pumps, you require fuel feed pumps (low or high pressure). Kelair can fabricate accordingly. Let us know your requirements, and allow us to fabricate a pumping system for your next project.

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