

70-bar Seal-less Pumps Outlast Piston Pumps on Food Tanker Cleaning

Seven years ago, Worcester (UK) based food transport and storage specialists Atchison Topeka opened a new computer-controlled automatic cleaning facility for its fleet of 40 food-product dedicated road tankers. Replacing a previous installation, in which a low pressure/high volume system was used for both internal and external cleaning, the new facility incorporated motorised automatic tankwash units to perform the critical task of cleaning inside the tanks. It was an immediate success: cleaning became more effective and reliable, water usage was reduced, and turn-round times were cut - so that more than twice as many tankers could be handled each day.

Only one major problem threatened to spoil the picture. Piston pumps delivering high-pressure hot water to the spray heads repeatedly broke down. Seals and other vulnerable components continually had to be replaced. Inside a year, Atchison Topeka scrapped the unsatisfactory pumps, replacing them with new piston pumps from another manufacturer. However, recalls operations director Andy Hartwell: "The new pumps cavitated so much that the vibration nearly shook the building down".



One of three Spraying Systems automatic tankwash units is lowered into working position at Atchison Topeka. The Hydra-Cell G35 seal-less pumps feeding these units with hot liquid at 70 bar pressure are still in daily use after six years service

It was the company's founder and managing director, John Chandler, who found the solution - almost by chance - during a visit to France. At a busy tanker servicing depot near Rouen he spotted a battery of high pressure pumps serving a multi-bay tank cleaning installation.

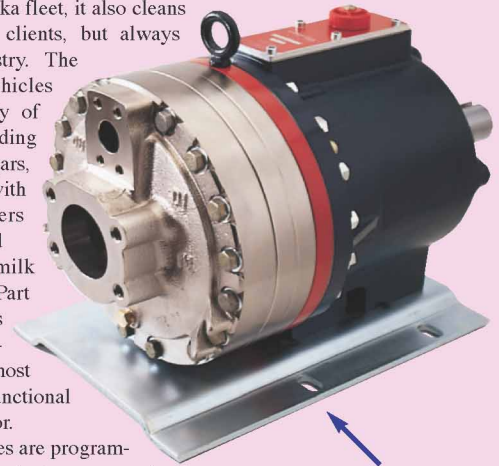
They were pumps of an unfamiliar type, the Wanner Hydra-Cell: seal-less units in which the pumping action is provided by pressure-balanced hydraulically actuated diaphragms. Their quiet performance and good report from the French depot management led him on his return to contact UK distributor CT Technical Products, now part of Roxspur Measurement & Control.

Hydra-Cell pumps are manufactured in a range of flow capacities up to 128 l/min, with pressure capability of 70 bar or higher, depending on the model chosen. Common to all models are seal-less design, energy efficiency (80% plus) and linearity in terms of flow and pressure. Flow is precisely proportional to pump speed and is not affected by changes in pressure. There is a wide choice of pump head materials and elastomers to suit many different applications.

For Atchison Topeka, CT recommended the Hydra-Cell G35 model, with materials specification (such as high-temperature Buna diaphragms and hardened stainless steel valves and seats) to suit the particular system requirements of the internal tank cleaning operation. The G35 has a maximum flow of 128 l/min and is rated for continuous operation at 83 bar. Two of these pumps are used to deliver high temperature water at 70 bar pressure to three Spraying Systems automatic wash units.

After 6 years the original Hydra-Cell pumps are still in daily use. Maintenance requirements have been modest and the pumps have performed equally well with hot detergent solutions and with very hot water alone.

The Worcester facility not only handles 'home-base' cleaning of the Atchison Topeka fleet, it also cleans tankers for outside clients, but always within the food industry. The company's own vehicles carry a wide variety of food products including chocolate, jam, sugars, milk and glucose, with some of the tankers designed for solid product such as milk powder and flour. Part of the fleet is dedicated to single-product work, but most tankers are multi-functional within the food sector.



Wanner Hydra-Cell G35 seal-less pump

Tank washing routines are programmable - different products may need longer or shorter times, for example - but the average facility throughput is 10 vehicles each day.

While the automatic washers clean inside the tankers, the outside is washed by high-pressure spray gun. For this purpose, a third Hydra-Cell pump, model G25, delivers detergent solution at 70 bar pressure and is also used to feed a pipe cleaning attachment.

Though not qualified for hygienic duties, Hydra-Cell pumps are widely used in the food industry because of their seal-less design, high pressure capability and ability to handle particulates, abrasives, corrosives and hot liquids. Process products pumped include cocoa mass, liquid chocolate, lecithin, liquid nougat, sugar solutions, soft-drink concentrates and palm oil and salt mixtures. They are also extensively used in cleaning applications, pumping hot or cold (sometimes recycled) water at pressure to feed CIP systems and hand-held washdown guns from ring mains.

ATEX Approval

Following completion of the ATEX conformity assessment procedure, involving a risk analysis and evaluation, Wanner Hydra-Cell pumps have been awarded their ATEX Certification.

Wanner worked with a third party, an ATEX Certification Body (ExCB), to obtain approval for installations above ground, where an explosive atmosphere is likely to occur. Specifically, Hydra-Cell pumps are classified in Group II, Category 2 (Zone 1) for both gases and dust. Temperature classification is T4 135°C, permitting a maximum process temperature of 90°C.

Hydra-Cell pumps, characterised by seal-less design with hydraulically balanced diaphragms performing the pumping action, are manufactured in flow ranges from 0.1 l/min up to 128 l/min and pressure capabilities (depending on model) up to 170 bar.

For ATEX compliant installations, the pumps will carry appropriate markings of conformity; they can only be installed with an oil-level monitor unit to ensure lubricating liquid is always present in the drive end of the pump. An ATEX approved monitoring device is available from Wanner and can be supplied with the pump.

i

Wanner International Ltd
8/9 Fleet Business Park
Church Crookham,
Hants GU52 8BF
England

Tel: +44 (0) 1252 816847

Fax: +44 (0) 1252 629242

Email: sales@wannerint.com