

Case Study: Healthcare Diagnostic System Manufacturer



ENQUIRY

Castle Pumps Ltd received an interesting enquiry from a new customer who makes electronic diagnostic machines for use by healthcare professionals, for a chemical transfer pump used in their manufacturing facility. The customer was due to have four new cleaning tanks installed, which would each hold 35 litres of a cleaning solution; a flammable blend of water-based organic solvents. This cleaning fluid is used to clean inks off their printing screens, which is sprayed onto the screens as they are turned by a pneumatic motor and runs off back into the tank. On a monthly basis, this cleaning solution needs to be emptied from the tank and replenished with clean fluid, as throughout the month a certain level of ink residue can build up at the bottom of the tank that has been washed off the screens.

The customer was currently using a peristaltic pump to empty the existing tanks but were finding it difficult as the tanks being quite deep meant they were leaning in over them to drop and retrieve the suction hose. This was something they wanted to avoid if possible.

KEY CHALLENGES

1. Safely handle the flammable solvents
2. Able to handle the sludge-like ink residue
3. Suitable for emptying tanks



EQUIPMENT SUPPLIED

Flux F430 Barrel Pump

Fluid	Organic solvent-based washing fluid with ink residue
Motor	F416 Compressed Air c/w ball valve for speed adjustment
Immersion	1500mm
Connections	DN 25, G 1 ¼
Body	AISI 316
Shaft	AISI 316
Impeller	ETFE
Motor	EX II 2G Ex h IIC T6 Gb
Pump	Ex II 1/2 G IIB T4

SOLUTION

Given the difficulties the customer was experiencing with their existing pump, our first objective was to solve the problem of having to lean into the tank. We have an established relationship with barrel pump manufacturer Flux, whose range includes many models for drum, IBC and tank emptying, and knew that they would be able to offer something suitable. From their range, we selected an F430 chemical drum pump with a 1500mm stainless steel shaft, ideal for fitting into the tank, and compatible with the corrosive nature of the solvents in the cleaning solution as detailed in the MSDS sheet supplied by the customer. This particular model of chemical pump is also designed to handle abrasives such as the ink residue present with minimal wear and is ideal for applications with medium changes. This is a huge benefit given that the used cleaning fluid's viscosity can alter as the tank gets emptier and contains more of the inky sludge at the bottom.

Given that the customer already had compressed air on-site feeding the wash tanks, we specified the chemical pump with a pneumatic motor as opposed to an electric motor. To enable the safe handling of the flammable solvents, both the motor and pump supplied are certified as ATEX for use in hazardous applications.

As these Flux pumps are imperative to the efficient running of their process, we recommended that the customer also ordered a maintenance kit comprising the spare parts to ensure they had them ready on-site when required.