

Taking a DIP

Merck uses SIDE Industrie's direct in-line pumping system to pump industrial wastewater, with a high pH at high temperature

SIDE Industrie, developers of direct in-line pumping solutions for 'difficult fluids', provided (via its distributor RBA in the US) a direct in-line pumping (DIP) system (model DIP11-4VVIX-1.5kW) to Merck during an expansion of their factory. The objective was twofold: to resist the high temperature and corrosive nature

Since 2003, SIDE Industrie, which provides solutions dedicated to the pumping of difficult effluents and fluids, has innovated and developed



Stéphane Dumonceaux,
general manager of SIDE Industrie

its DIP system with no wet well: the DIP System[®]. Previously, pumping required a wet well to lift or transport a fluid from one point to another. Indeed, as it is not possible to know the exact inlet water flow rate, water has traditionally been stored in a collection tank. With the DIP System[®], the fluid is lifted directly at the point of entry, without water loading or a wet well. Stéphane Dumonceaux, general manager of SIDE Industrie, explains: "For all manufacturing industries, as well as for sanitation or rainwater transportation, if we avoid having to stock the effluent before pumping, we avoid the settling of suspended materials transported by the fluid. In many cases, in industry and particularly in pharmaceutical applications, the use of the Direct In-Line Pumping system instead of a traditional collection tank, allows operators to avoid settling."

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of the fluid and to allow suspended materials to move through the system without causing blockages.

SIDE Industrie supplies its products all over the world. In 2015, the company's distributor in the US, Robert Brown Associates (RBA), won the deal and sold a DIP11-4VVIX-1.5kW to Merck to pump its industrial wastewater, with a high pH at high temperature.

Indeed, Merck was looking for a solution able to handle its industrial wastewater for injection with chemicals from wash-down, and required a non-submersible duplex pumping system that was small

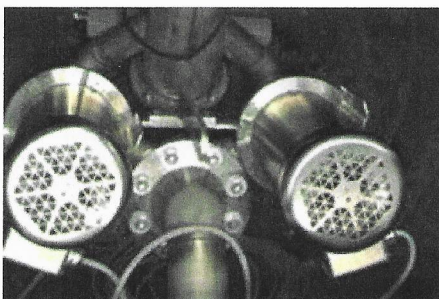


Figure 1. Stainless steel 316 DIP System[®]

enough to be hidden in a small bucket. The system also had to be made entirely from stainless steel 316 to handle chemicals with high pH and a high temperature of 180°F, and equipped with a special anti-fibrous material impeller.

Indeed, the pumping system needed to ensure the passage of suspended matters measuring up to 50mm, without causing blockages.

"One of the other additional constraints given was that all equipment must be under floor level, hidden in a small bucket: the customer wished to gain space and easy cleaning," said Stéphane Dumonceaux, general manager of SIDE Industrie. "In the fields of pharmaceuticals, cosmetics or food industry, it is necessary to eliminate bacteria or foreign materials by using cleaning surfaces as smooth as possible in order to avoid places where [bacteria] could settle. We then provided our DIP solution, fully made of stainless steel 316 and equipped with high temperature level sensor, in order to solve their problem."

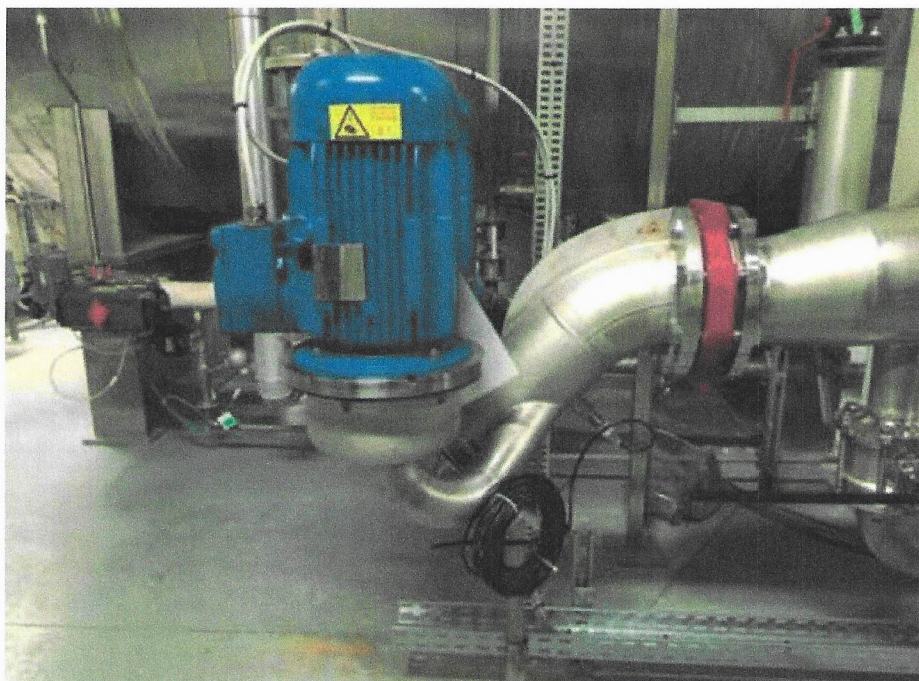


Figure 2. The DIP System[®] can be equipped with the DIPCut[®] impeller for fluid loaded with fibrous waste. The installation shown is at Merial, a specialised animal health company

The DIPCut® impeller

In 2012, SIDE Industrie designed a special impeller dedicated to a small DIP system with low flow loaded with fibrous waste: DIPCut®. The product is a patented impeller that becomes a 'shredder' when it changes rotation direction. DIPCut® combines the advantages of the conical Vortex impeller when pumping



The DIPCut® impeller

sand, gases or large solid wastes with the shredding function, cutting long fibrous materials into shreds.

room, it is easy to maintain, and does not require any product retention.

Customer support

The DIP Systeme® is delivered either with its Advanced Level Control (ALC) panel to be assembled in a customer configuration, or in a complete cabinet. Each frequency converter is connected to its motor unit and communicates with the other. Speed variation and simplified control levels on the same panel allow regulation in all configurations. Since 2012, all DIP systems have been equipped with a dedicated self-monitoring system called OmniDIP®. OmniDIP® is a supervisory control and data acquisition (SCADA) system built with remote control and management in mind, based on M2M communication. It automatically and continuously checks all the processes through 230 parameters per pump in order to guarantee optimal operations for as long as possible, as well as to avoid the unnecessary intervention of a technician.

All information is displayed and available for the user and factory service through a web interface; wherever the system is located, if anything particular is detected, a technician will contact and guide the user through the process. Thanks to the remote control OmniDIP® system, the DIP Systeme® solution offers intervention comfort, safety and long-term cost and energy savings. ■

For more information:

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Successful results

RBA, which has done much business with the local Merck facility, delivered the DIP system to the client. The advantages were numerous, including a decrease in pump blockage risks and maintenance operations. Maintenance of the DIP system is simple and easy, thanks to its main sectioning valve fitted as standard for shutting off the water inlet, as well as pieces standardisation and easy access to moving parts.

Dumonceaux continues: "Most of the time, traditional pumping stations are equipped with submersible pumps installed in a wet well. With the DIP system, the installation is dry and clean, so accessible at all times. This also allows users in pharmaceutical and cosmetics industries to avoid immersing a pump in aggressive, corrosive fluids. The DIP Systeme® pumps are systematically made of stainless steel, with various grades of stainless steel available, enabling them to comply with material quality required in industry in order to avoid chemical attacks on pumps, corruptions, or even abrasion. The Direct In-Line Pumping system allows the transport of materials in fluid, even abrasive ones, by causing much less erosion of the component parts of the pump."

"The Direct In-Line Pumping system allows the transport of materials in fluid, even abrasive ones, by causing much less erosion of the component parts of the pump"

acid, suspended materials, or other environmentally hazardous materials.

The DIP Systeme® also brings operational benefits as the energy used in the transport of fluid is automatically and permanently adapted to the incoming flow. Dumonceaux states: "The DIP Systeme® is driven, as standard, by variable speed drives. Operation is no longer based on 'all-or-nothing' pumping but on continuous modulated pumping directly from the effluent inlet. This generally translates into a global energy saving of 15-30%." However, the main advantage of the DIP Systeme® for the pharmaceutical industry is undoubtedly cleanliness: the system can be installed directly on the floor or in a machine

System advantages

The DIP Systeme® has numerous advantages. First of all, it is compact. In most cases it is far smaller than the installation of a retention volume. Inevitably, it offers civil engineering cost reduction. Another advantage is the absence of a collection tank, absence of gas emanation and absence of collection tank maintenance: no more cleaning of the tank is required. The system is able to adapt to different fluids as the fluid is channelled and pumped directly from



Figure 3. The DIP Systeme® online management interface