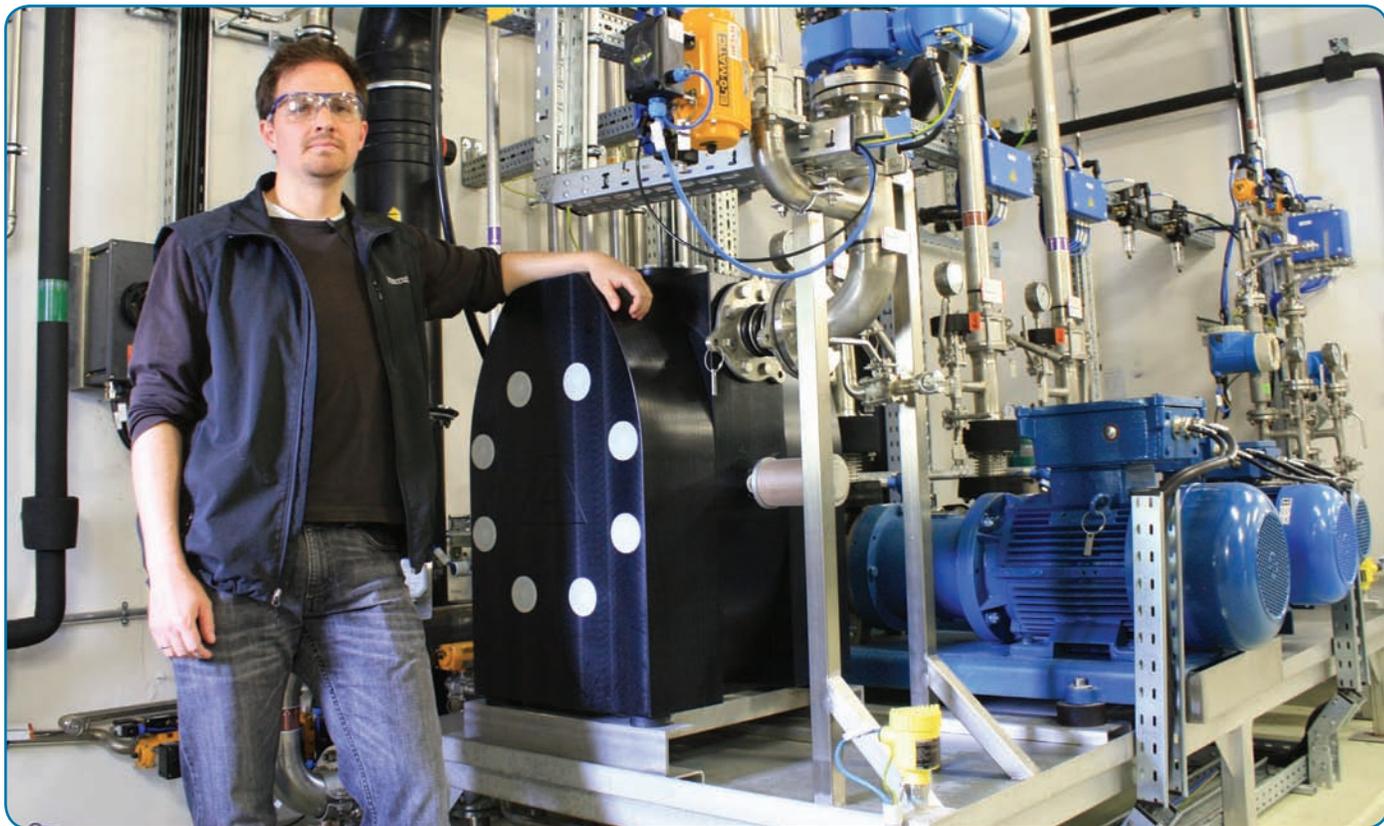


Prescribing Safe Solutions

ROCHE, ONE OF THE WORLD'S LARGEST AND MOST SIGNIFICANT PHARMACEUTICAL MANUFACTURERS, OPTIMIZES ITS CRITICAL SOLVENT-HANDLING OPERATIONS WITH ALMATEC® E-SERIES AODD PUMPS

By Harald Vogl



Florian Habeck, Assistant Tank Manager for Roche Diagnostics GmbH, gets the reliability, efficiency and safe operation when handling the oftentimes hazardous solvents used in pharmaceutical production from a high-capacity, ATEX-certified Almatec® E80 Series AODD Pump, which is affectionately known around the plant as "Big Bertha."

Established in 1896—the same year the first modern Olympics were held—by banker and pharmacist Fritz Hoffmann-La Roche, the eponymously named F. Hoffmann-La Roche Ltd. company, today known simply as "Roche," was among the first to recognize that the industrial manufacture of standardized medicines would be a major advance in the fight against disease.

His vision was definitely prescient and after many years of Olympian effort, by 2013 Basel, Switzerland-based Roche had grown to compile revenues of 46.8 billion Swiss francs (\$52.5 billion USD). By revenue and reputation, Roche is also recognized as the world's fifth-largest pharmaceutical company with operations strategically located around the globe, from the United States to Ireland and Pakistan to Germany.

Roche's operations are divided into two core businesses: Pharmaceuticals and Diagnostics. The Roche Diagnostics GmbH facility in Penzberg, Germany, located about 50 kilometers (31 miles) south of Munich, is unique within the Roche system in that it is home to both pharmaceutical and diagnostics operations. This makes it one of the largest biotechnology research centers in Europe and also the only Roche facility that is engaged in the research, development and production for both

QUICK FACTS

Company: Roche Diagnostics GmbH

Location: Penzberg, Germany

Market: Pharmaceuticals

Challenge: Required an economic, ecological, efficient and ergonomic pump to transfer dangerous solvents

Solution: Almatec E-Series AODD Pumps



Founded in 1896, Roche has grown into the world's fifth-largest pharmaceutical manufacturer, with the Roche Diagnostics research facility one of Europe's most important.

its Diagnostics and Pharmaceutical divisions. The facility is the scene for the production of the active ingredients that are used in almost all of the important pharmaceuticals and reagents that Roche manufactures.

Confronting Danger

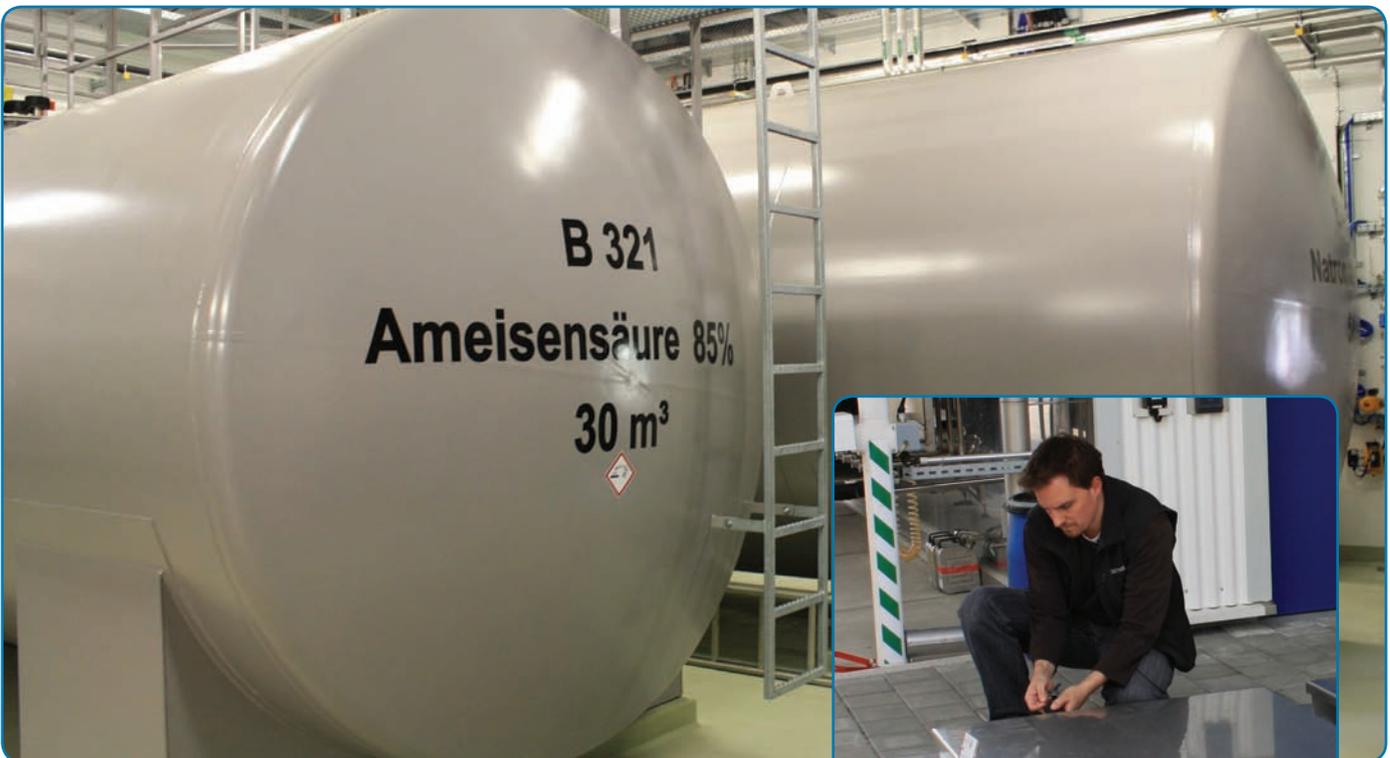
The Penzberg facility has been in operation for 40 years, employs more than 5,100 people and features about 60 buildings. Large volumes of raw ingredients and finished

pharmaceutical products are constantly on the move. One of the most critical types of these fluids are the solvents that are used in the pharmaceutical-production process.

“Roche Diagnostics produces lots of medicines and is a very big pharmaceutical factory,” said Florian Habeck, Assistant Tank Manager at Roche Diagnostics. “We must have solvents in order to produce our products. We buy the solvents from manufacturers and after using them for production we send the used solvents to underground storage tanks.”

Specifically, Roche has four underground tanks where the used solvents are transferred. These tanks are quite large, with storage capacities ranging from 60 to 100 cubic meters (15,800 to 26,400 gallons). The tanks are monitored and controlled from a computer station that gives the operator real-time information concerning, for example, liquid level and overflow or leakage warnings.

“We can look at all of the waste-solvent tanks, the underground tanks, and the system shows us all of the warnings, from the level of the tanks or when we have to order a tank truck for disposal,” said Habeck. “When a tank needs to be emptied, the tank truck uses a hose for the disposal of the waste solvent. The dangerous part is when we hook the hose onto the truck and begin pumping the waste solvent.”



The underground tanks used to store used solvents at the Roche Diagnostics facility range in size from 60 to 100 cubic meters (15,800 to 26,400 gallons) and can be accessed from the surface by Florian Habeck, the plant's Assistant Tank Manager.



Roche Diagnostics' used-solvent storage tanks are monitored from a dedicated on-site computer room that gives the operator real-time information regarding liquid levels and potential alarm conditions.

Indeed, many of the solvents that Roche uses in its production process are classified as hazardous or dangerous chemicals and must be handled per the ATEX requirements of European Union directive 94/9/EG regarding the use and disposal of potentially explosive liquids.

The Solution

The unique characteristics of Roche's solvent-handling operation—high-volume transfer of potentially dangerous chemicals—requires a pump that can perform the task reliably, efficiently and safely, for both the environment and site personnel. Since the late 1980s, Roche has relied on plastic air-operated double-diaphragm (AODD) pump technology from Almatec®, Kamp-Lintfort, Germany—part of Dover Corporation's Pump Solutions Group (PSG®), Oakbrook Terrace, IL, USA—to conduct solvent transfer in the safest and most efficient manner possible.

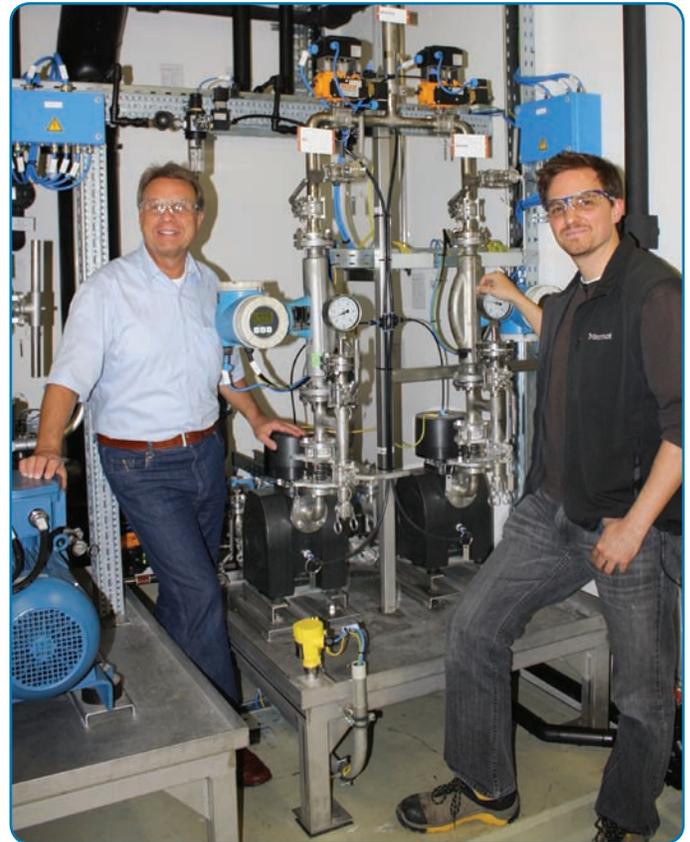
"At this site, we've used Almatec pumps for more than 25 years," said Habeck. "The pumps are very reliable, that's the main reason why we've used them for 25 years, and we also like that the pump is self-priming, it's dry-run safe and that we can pump liquids with particles in them. The pumps also produce a smooth flow, so nothing happens to the liquid and nothing happens to the pump."

From the beginning, Roche had used Almatec A-Series AODD Pumps for its solvent-transfer applications, but when a new hall for the production operations involving solvents was built in 2013, the company decided to upgrade to the new E-Series AODD Pump from Almatec. The E-Series pumps are a direct replacement for the A-Series models and earned their name because they are designed to be economic, ecological, efficient and ergonomic in their operation. So, in October 2013, an

E80 model and several E25 models were installed and began handling Roche's numerous solvents.

The E-Series pumps ideally meet Roche's solvent-handling needs because they feature solid-block construction with abrasion-resistant polyethylene (PE) and polytetrafluoroethylene (PTFE/Teflon®) materials. The PE conductive and PTFE conductive models meet all ATEX requirements, meaning that they are suitable for use when pumping hazardous and dangerous materials. The pumps utilize stainless-steel ring technology—eliminating the need for mechanical seals—to increase protection from leaks through consistent compression around the ring's exterior. The E-Series pumps also feature Almatec's exclusive PERSWING P® air control system, which offers superior efficiency when comparing flow rates and air consumption needed with competitive brands.

The E80 pump—affectionately known to Roche personnel as "Big Bertha"—has a maximum flow rate of 48 m³/hr (12,600 gph). Since the piping runs, at 4-5 meters (13-16 feet), that connect the storage tanks to the truck-loading area are quite long, the E80 pump's suction line is outfitted with a pulsation damper, which allows the pump to produce a virtually uniform flow. The result is a pump that satisfies all of the criteria that Roche has for pumping used solvents.



Florian Habeck, right, Assistant Tank Manager for Roche Diagnostics, has been extremely pleased with the solvent-handling performance of the Almatec® E25 Series AODD Pumps that were recommended by Harald Vogl, left, Regional Sales Manager for Almatec.

“We use the E80 to pump the waste solvent from the underground tanks to the tank truck,” explained Habeck. “The truck has a capacity of 25 m³ (6,600 gallon) and we want to fill the tank very quickly. That’s why we bought this big pump, so we can do it in a short amount of time. It’s all about efficiency, and we have this pump because it is very efficient.”

Indeed, with its maximum flow rate of 48 m³/hr, the E80 pump is able to fill a standard tank truck with a 25-cubic-meter capacity in around 30 minutes.

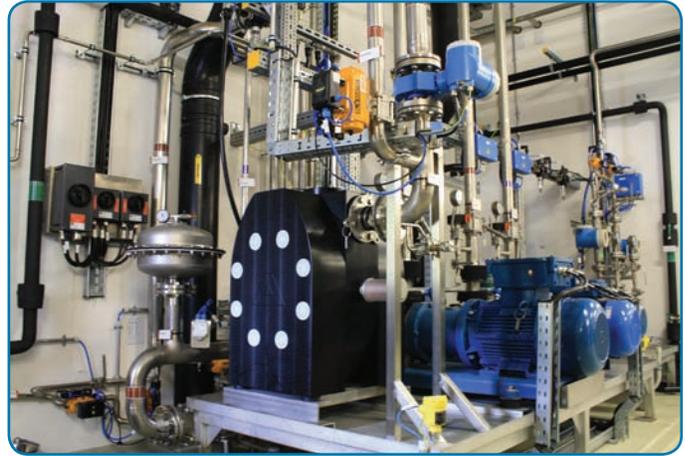
The smaller E25 pumps, with their maximum flow rates of 8 m³/hr (2,100 gph), and which feature the ET pulsation damper, are used to transfer certain classes of used solvents to Roche’s in-house recycling area, where they are treated before they are transferred to a wastewater-disposal facility.

Roche also benefits from the simple maintenance that the E-Series pumps require—in the rare instances when they do need maintenance.

“One of the benefits of the Almatec pumps is that they are very easy to work on,” said Habeck. “We’ll have local technicians come in to perform maintenance and they like the Almatec pumps because the maintenance is very easy to perform.”

Conclusion

Nearly 120 years ago, Fritz Hoffmann-La Roche had the foresight and wisdom to recognize the potential that the global pharmaceutical industry held, and combined with a certain doggedness and determination, his vision has now become one of the world’s most important and successful pharmaceutical manufacturers. That ingrained vision and wisdom manifested itself nearly a century later when Roche made the decision to standardize on Almatec AODD pump technology for solvent-handling operations at its landmark Roche Diagnostics GmbH facility. The result is a partnership that Roche has come to value unconditionally.



With a maximum flow rate of 48 m³/hr, the Almatec® E80 Series AODD Pump meets Roche Diagnostics’ need for a pump that can safely fill a 25 m³ (6,600 gallon) tank truck with used solvents in the shortest time possible, in this case around 30 minutes.

“Safety and efficiency are the two most important aspects here at the Roche Diagnostics site, and that’s why we choose the Almatec pump,” said Habeck. “We have a long relationship and the E-Series pump is the next step in our relationship with Almatec. I think that the E-Series pumps are very safe and reliable, and they are one thing that I never have to worry about.”

About the Author:

Harald Vogl is a Regional Sales Manager for Almatec®, and Pump Solutions Group (PSG®). He can be reached at Harald.Vogl@psgdover.com or +49 89 638990-05. Based in Kamp-Lintfort, Germany, Almatec is one of the world’s leading manufacturers of air-operated double-diaphragm (AODD) pumps and is an operating company within Dover Corporation’s Pump Solutions Group (PSG®), Oakbrook Terrace, IL, USA. PSG is comprised of several of the world’s leading pump brands, including Abaque®, Almatec®, Blackmer®, Ebsray®, Finder, Griswold™, Neptune™, Maag, Mouvex®, Quattroflow™ and Wilden®. You can find more information on Almatec at www.almatec.de and on PSG at www.psgdover.com.



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