

CASE STORY · CROMAX 280X · PMC CYLINDERS AB

REAPING BIG BENEFITS

PMC Cylinders AB supplies hydraulic components to a major Swedish agricultural farm equipment company for key functions in its row planters. At the core of these components are piston rods manufactured from Ovako Cromax® 280X, whose consistent high quality is critical to the reliability of these farm machines.

It couldn't be easier – or more reliable. At the end of the working day, a farmer pushes a button inside his tractor's cabin and sits back as the hydraulic system on the Tempo V planter from Väderstad folds up the frame, transforming the 6.5 meter wide machine to a 3 meter wide trailer. The planter is ready for transporting on public roads.

To achieve this road-ready position, hydraulic cylinders supporting the hydraulic system have been hard at work, powering this and other key hydraulic functions on the planter. At the heart of these cylinders are the Cromax 280X bars from Ovako, which function as the cylinder's piston rods. These hard-chrome rods work under extreme stress and must be able to withstand corrosion and wear and tear and perform without fail, year after year.

Väderstad annually purchases some 28,000 of these specialized hydraulic cylinders – designed for farm machines – from PMC Cylinders AB, a leading Swedish producer of customized hydraulic cylinders. PMC Cylinders, based in southern Sweden, buys the Cromax 280X bars from Ovako, also located in Sweden.

Proximity to the mill is a big advantage because it allows for short delivery times and eliminates the need to invest in stock. But the real clincher is the quality of the hard-chrome bars, according to Peter Blomquist, supply manager for PMC Cylinders.

“Not only does the Cromax 280X bar offer excellent corrosion resistance, which is ideal for the Väderstad machines and hydraulics that are exposed to tough environment such as fertilizers, dirt, rain and so on, but they also have outstanding yield and tensile strength,” he says.

“One important area for the mobile hydraulics is low weight. The high strength of Cromax 280X is a big benefit because you can use a smaller rod that weighs less but is just as strong as a larger rod for the work it has to do,” he adds.



*Peter Blomquist,
supply manager for
PMC Cylinders AB*

The Ovako bars, which are delivered almost weekly by truck, are machined by PMC Cylinders at both ends before they are transferred to the hydraulic cylinder assembly line. PMC Cylinders' high productivity is in part due to the consistent quality of the Ovako rods from delivery to delivery, making the machining process and assembly jobs easier and more efficient.

"Our experience has been that we could always trust the values stated in the Ovako specifications," Blomquist explains.

Nevertheless, to be absolutely certain that the rods meet the most exacting demands from Väderstad, PMC Cylinders performs stringent in-house fatigue tests. The company also sends the rods to a third party laboratory for verifying corrosion resistance.

"In our opinion, the Ovako steel is one of the top few products of its kind in the world, both in terms of the melting of steel, but also the surface treatment of the chrome-plated bar. There are others in Europe that has similar quality, but the proximity of Ovako's mill in Hallstahammar provides short lead times and doesn't tie up capital," Blomquist says.

"We get a well-loaded truck in here from Hallstahammar about once a week," he adds.

For advanced, complex farm machines like the Tempo V, an advanced, multi-purpose planter, the diminutive hydraulic cylinder is likely to continue to play an outsized role.



Cromax 280X

Cromax 280X is based on a low carbon, micro-alloyed steel combining high strength with excellent weldability and machinability. The mechanical characteristics of Cromax 280X are up to 20 % higher compared to corresponding standard grades. This improvement is achieved without detriment to manufacturing properties. Cromax 280X is well adapted for induction surface hardening and can also be supplied in all different surface executions, such as Cromax C and nickel-chrome.

Key benefits are;

- Significantly higher mechanical characteristics
- Possibility to reduce cost and weight by downsizing of piston rods without loss of load-bearing capacity
- Excellent weldability and machinability

Ovako facts and figures

- A leading producer of engineering steel for customers in the bearing, transportation and engineering industries
- Products: low-alloy steels and carbon steels in the form of bars, tubes, rings and pre-components
- Locations: Ovako has ten production plants and a number of sales companies in Europe and the USA
- Net sales 2015: 834 MEUR
- Employees: 2,905

PMC Cylinders AB facts and figures

- Main customer areas: mobile, industry, energy and offshore & marine
- PMC Cylinders AB offers one of the widest ranges of hydraulic cylinders on the market, bore from Ø 25 to Ø 800 and stroke up to 15 m
- A niche product is also PMC's hydraulic side-shifters and fork spreader; also, an attachment for forklift trucks.
- All products manufactured in six production sites in south of Sweden
- Employs 220
- 2015 turnover: 39 MEUR

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