

ENGINEERING
TOMORROW

Danfoss

Product and services brochure

Vickers® by Danfoss XL Series Cylinders

Exceptional performance in the world's **harshest environments**

VICKERS
by Danfoss



Vickers® by Danfoss

XL series cylinders keep the world moving

For decades, Vickers by Danfoss has engineered extra-large hydraulic cylinders for the most demanding operating conditions. From offshore oil rigs to bridges, dam gates and flood control, Vickers by Danfoss XL cylinders keep the world's critical infrastructure moving and its communities thriving.

Vickers by Danfoss cylinders are known for their unmatched quality and long-lasting reliability. Our application engineering team custom designs each cylinder, accounting for overall loading and kinematics, mounting configurations, seal system design, embedded sensor requirements, corrosion protection needs, installation, maintenance practices, and other application considerations. From design and manufacturing to installation and testing, our project management team will be there to support your project with expertise you can count on.

XL cylinder applications

Civil and energy

- Movable bridges
- Flood control
- Locks and canals
- Dam gates
- Ocean wave power

Discrete manufacturing

- Forging presses
- Press brakes
- Material handling
- Casting

Marine

- Naval vessels
- Salvage equipment
- Dredging and dump scowls
- Piling and split barges

Oil and gas

- Heave compensation
- Riser tensioner systems
- Pipe laying equipment
- Mooring systems
- BOP handling
- Cantilever skidding systems
- Cranes
- Chain jack systems

XL cylinder features

- **Maximum bore size**
1500 millimeters/60 inches
- **Maximum stroke length**
20 meters/750 inches
- **Engineered to order**
Complete cylinders and replacement components
- **Testing capabilities**
Up to 660 bar
- **Third-party certifications**
DNV, ABS, DIN, Lloyd's Register, Bureau Veritas, and others



Cylinder coatings

increase operational reliability

The right rod coating will keep your cylinders operating longer in extreme conditions. Within our comprehensive range, you will find a coating that provides the perfect balance of wear and corrosion resistance for your application. We can help you select the best coating from our portfolio or recommend a custom solution.

Piston rod coating options

- Chrome
- Nickel Chrome
- Ceramic*
- High velocity oxygen fuel (HVOF)*
- Hydroclad™ laser cladding*
- Custom coatings

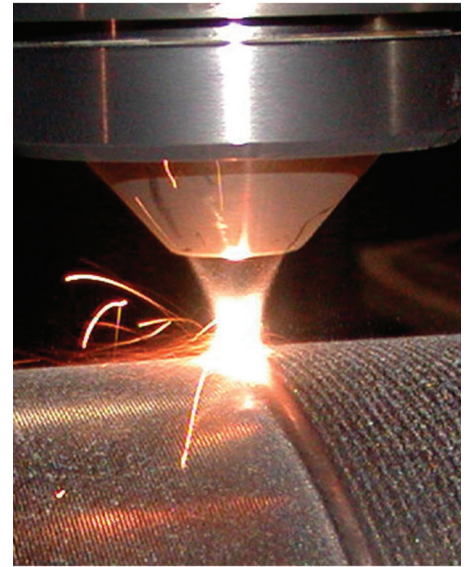
*Can be supplied in combination with Danfoss Hypos integrated stroke measurement system

Discover laser cladding

Hydroclad anti-corrosion laser cladding is a field repairable, third-party certified cylinder rod coating for the harshest operating environments. This high-performance coating extends the life of hydraulic cylinders and reduces the costs of unplanned maintenance and equipment downtime. Originally developed for hydraulic riser tensioning systems on offshore platforms, laser cladding is optimized for wear, scratch, impact, and corrosion resistance.

Did you know?

Laser cladding was the first anti-corrosion coating technology to earn joint industry project (JIP) certification from DNV.



PROCESS	COATING	DESCRIPTION
Laser cladded coatings	ABC-L1	Hydroclad™ ABC-L1 Laser cladding is a high performance, field repairable, DNV certified, cylinder rod coating for the most demanding applications and harshest operating environments. It provides uptime and reliability to enhance offshore rig/ship operating efficiency. Premier fresh and saltwater corrosion resistance designed for saltwater splash zone.
	ABC-L2	Hydroclad™ Laser cladding cylinder rod coating with excellent corrosion resistance and ductility for non-splash zone applications. <i>Also possible in combination with Hypos stroke measurement system.</i>
	ABC-L3	Hydroclad™ Laser cladding cylinder rod coating with excellent corrosion resistance and ductility for top derrick applications. <i>Also possible in combination with Hypos stroke measurement system.</i>
Ceramic and HVOF coatings	ABC-H1	Metallic HVOF sprayed coating for highly corrosive and abrasive environments. <i>Also possible in combination with Hypos stroke measurement system.</i>
	ABC-P3	Metal oxide plasma sprayed coating for abrasion and corrosion resistance in fresh and brackish water environments. <i>Also possible in combination with Hypos stroke measurement system.</i>
Galvanic coatings	ABC-G2	Galvanic nickel chromium plating with standard wear resistance and increased corrosion resistance.
	ABC-G1	Galvanic hard chromium plating with standard wear resistance and corrosion resistance.



Piston accumulators

Piston accumulators improve hydraulic system efficiency

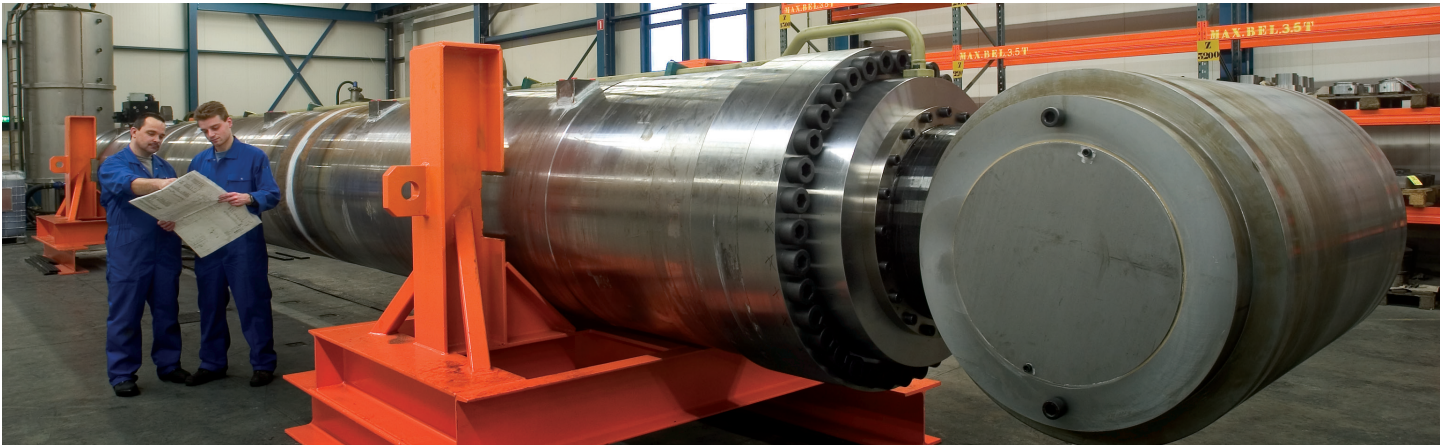
Danfoss engineers and manufactures custom hydraulic piston accumulators that can improve energy efficiency and reaction time in hydraulic circuits. Accumulators maintain pressure and reduce pressure peaks; dampen shock, vibration and pulsations; and store and recapture energy. With high operating reliability and long service life, you can count on our accumulators to meet the demands of your application.

**Extended temperature ratings and custom sensor options available upon request

Hydraulic piston accumulator features

- **Minimum bore size**
300 millimeters/12 inches
- **Minimum volume**
200 liters
- **Maximum stroke length**
20 meters/750 inches
- **Temperature range****
-10 °C to 70 °C/15 °F to 150 °F
- **Coating options**
Inside chrome plating, inside chemical nickel plating
- **Position sensors****
End position, full-stroke measurement system
- **Certifications**
PED, ASME, DNV, Lloyd's Register, and others

Vickers by Danfoss



XL cylinder services maximize system uptime

When your cylinders are not working as they should be, time is of the essence. That is why our certified service technicians are available anytime and anywhere you need them. Whether evaluating performance or inspecting damage, our global repair team will quickly assess the condition of your cylinders and recommend the best solution.

We do not just fix worn or broken parts. Drawing on a world-class suite of tools and decades of application know-how, we will determine why a cylinder failed, predict future failure and design a solution to prevent a recurrence.



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Local resources for global operations

Danfoss provides local engineering, project management, service, repair, and support where and when you need it. Our XL cylinders and piston accumulators are manufactured in ISO-certified facilities to ensure consistency in quality and environmental practices.

Plant locations

- **Eindhoven, The Netherlands**
Certifications: ISO 9001:2015, ISO 14001
Products: Cylinders and Accumulators
- **Jackson, Michigan, U.S.**
Certifications: ISO 9001:2015, ISO 14001
Products: Cylinders and Servos
- **Pune, India**
Certifications: ISO 9001:2015, ISO 14001, GreenCo Gold
Products: Cylinders, Power Units, Pumps, Motors, Valves, Steering Control Units, Hoses and Fittings

XL cylinder services

- Cylinder installation
- Cylinder inspection and maintenance by certified service engineers
- Piston rod coating analysis, including condition check and ECP testing
- Upgrade and refurbishment of any brand cylinder
- Recommissioning and recertification
- Spare-part management
- Damage assessment
- Fluid analysis

Any information, including, but not limited to information on selection of product, its application or use, product design, weight, dimensions, capacity or any other technical data in product manuals, catalogues descriptions, advertisements, etc. and whether made available in writing, orally, electronically, online or via download, shall be considered informative, and is only binding if and to the extent, explicit reference is made in a quotation or order confirmation. Danfoss cannot accept any responsibility for possible errors in catalogues, brochures, videos and other material. Danfoss reserves the right to alter its products without notice. This also applies to products ordered but not delivered provided that such alterations can be made without changes to form, fit or function of the product. All trademarks in this material are property of Danfoss A/S or Danfoss group companies. Danfoss and the Danfoss logo are trademarks of Danfoss A/S. All rights reserved.