



## Tie Rod Cylinders

Solutions Focus

### Eaton® Tie Rod Cylinders for Wind Turbine Blade Pitch and Brakes

Wind power turbine control is a very demanding application that requires cylinders to be extremely reliable and durable due to the nature of this continuous production process. Eaton Tie Rod Cylinders are designed to provide the performance, seal integrity and design options required for Wind Turbine Generators (WTGs).

Eaton has decades of application expertise and cylinder experience which translates to better solutions for wind power applications.



#### Tie Rod Cylinders

Eaton offers a broad range of NFPA and ISO Hydraulic, Pneumatic and Electrohydraulic cylinders. This comprehensive line features a proven design with robust materials and a smarter sealing system, for improved performance and better serviceability. This line offers virtually unlimited options.

Eaton Tie Rod Cylinders are available in a comprehensive range of standard sizes to 30 in./800 mm bore, 300 in./8 m stroke and pressure ratings to 3000 psi/210 bar. Custom products that far exceed these specifications are also available.

*Tie Rod Cylinder (left) and the LESA TT Series Actuator (right)*

#### LESA TT Series Linear Electrohydraulic Servo Actuators

The Vickers™ LESA Series TT servo actuator combines a high performance hydraulic cylinder and a control valve mounting manifold in one convenient package. Advanced, closed loop motion control is readily attainable with the simple addition of a proportional or servo valve and a precision non-contacting feedback transducer coupled with the appropriate electronic controls.

The LESA series servo actuators are designed to eliminate the need for separate hydraulic manifolds, plumbing between control valve and cylinder, transducer mounting brackets, and other complex arrangements typical of the cumbersome systems it replaces. With the option of the cast aluminum cover, a position transducer can be conveniently and safely contained within the cylinder assembly. All of this allows the LESA Series TT servo actuator to work comfortably in harsh environments that can easily damage most electric servo motors with ball screws and other types of actuators.



## Repair & Service of Hydraulic, Pneumatic Cylinders

Integration of repair & service capability with new product manufacturing translates to better repairs for your product. Because of Eaton's extensive capability, not only can we repair your cylinders quickly, we often can recommend structural improvements, improved coating technology, and access to the latest seal technology. And, all of this is covered by Eaton's solid warranty program.

## Configurator: Professional Grade Tools To Build Your Own Cylinder

ProSpec/HLSpec are on-line cylinder selection tools to streamline the specification process using sound engineering principles. Available only from Eaton, these tools provide literally billions of configurable part numbers and drawings.

## Consistent Adoption & Leadership in Industry Standards

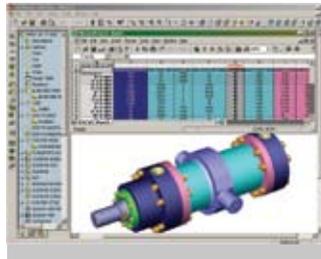
Adherence to Industry Standards separates the great from the good. Not only does Eaton consistently adopt relevant Industry Standards, but we participate in consortia to define and drive the next generation standards, to continue to push the Cylinder Industry forward. Cylinders are our business, and we are committed to contributing to the future.

## Global Service & Delivery: Quick, Close & Convenient

Quick. Close. Convenient. With Eaton, you always get the cylinders you need, when you need them. Eaton has global presence, and a global distribution network, to ensure your local needs are met. Our Express Delivery Program means we can handle your urgent requests on key products within three days, with same day breakdown service available.

## Best-In-Class Simulation & Modeling Tools

Comprehensive 3D drawing capability and finite element analysis expertise, coupled with years of experience results in improved design quality. Eaton excels at using these cutting edge tools to simulate components and assemblies in real-world applications, to assess areas like pressure loading and stress impact.

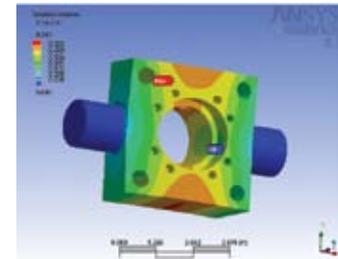


## Custom Cylinders Built to Your Specifications

Eaton engineers welcome atypical application or cylinder needs; with decades of experience, they will configure the right solutions quickly. Whether it means solving unique application problems, upgrading existing products, or designing new cylinders, we're up to the challenge.

## Decades of Experience in Application Engineering

Creativity, global availability, and experience make the perfect combination for our Application Engineering team. They are eager and willing to help you design your application, with 'Expertise you can count on.'



*Eaton's comprehensive modeling tools are used in the design process to better simulate application environments and design superior quality products.*

Eaton  
Hydraulics Operations USA  
14615 Lone Oak Road  
Eden Prairie, MN 55344  
USA  
Tel: 952-937-9800  
Fax: 952-294-7722  
www.hydraulics.eaton.com

Eaton  
Hydraulics Operations Europe  
Route de la Longeraie 7  
1110 Morges  
Switzerland  
Tel: +41 (0) 21 811 4600  
Fax: +41 (0) 21 811 4601

Eaton  
Hydraulic Operations Asia Pacific  
11th Floor Hong Kong New  
World Tower  
300 Huaihai Zhong Road  
Shanghai 200021  
China  
Tel: 86-21-6387-9988  
Fax: 86-21-6335-3912

