Duralon® Cylinder Rod Bearings

DURALON® CYLINDER ROD BEARINGS

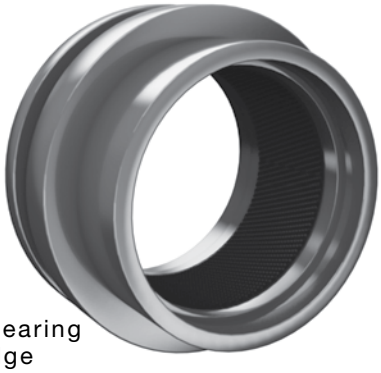
The high-tech Duralon rod bearing is supplied as standard on all Hanna Series 2H and 3L hydraulic cylinders. This state-of-the art bearing has proven to be superior to all other bearing materials in countless cylinder applications. Here's why:

The useful life of any hydraulic cylinder is determined by the performance of the piston rod bearing. It is responsible for true alignment of the piston to the cylinder bore, and must carry the forces generated by both external and internally-generated eccentric loads.

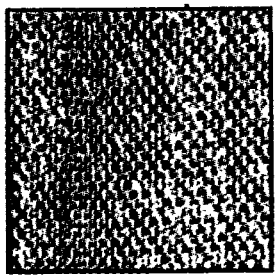
Traditional bronze or cast iron bearings require constant lubrication to help minimize friction and resultant wear. Once the cylinder rod bearing begins to wear, the piston moves off true center of the cylinder bore, thus shortening cylinder life. Additionally, the wear pattern accelerates, causing deterioration in the piston rod wiper, letting contaminants into the cylinder and in the piston rod seal, thereby causing fluid leakage.

Hanna has solved this critical design problem with the unique, non-metallic Duralon bearing. An exact combination of woven Teflon and Dacron fibers bonded to a fiberglass shell, Duralon bearings are capable of sustaining much higher compressive loads than either bronze or cast iron. In addition, Duralon bearings have an extremely low coefficient of friction, and require no lubrication to the bearing surface.

As a result, cylinders with Duralon bearings are ideal for use in heavy-duty applications, and servo systems requiring minimal actuator friction. Because of the low coefficient of friction, very little heat generation occurs, thereby prolonging both bearing and seal life.



Duralon Rod Bearing in steel cartridge



Enlarged view of Duralon

Duralon bearings are compatible with most known fluids, including water, water glycols, standard petroleum-based fluids, phosphate esters and water/oil, oil/water fluids. They can operate in environments ranging from -65°F to +325°F.

DURALON VS. COMPETITIVE BEARING MATERIALS

COMPARISON OF NON-LUBRICATED BEARINGS AND THEIR OPERATING LIMITS	LOAD CAPACITY (PSI)
Porous Bronze] *MOST CYLINDER*	4500
Porous Iron] *MANUFACTURERS*	8000
Reinforced Teflon®	2500
Duralon Bearing*	60,000

*Not to be used for design purposes

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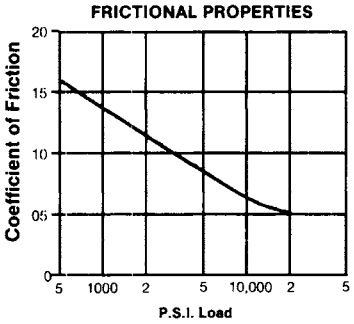
Nylon, Teflon and Dacron are Trademarks of DuPont Company



The low friction characteristic of the Duralon bearing is due to the Teflon fabric liner. Increased loading, at constant speed, results in a marked decrease in the coefficient of friction.

COMPARISON OF FRICTION PROPERTIES OF JOURNAL BEARING MATERIALS

	COEFFICIENT	SLIP STICK
Steel-on-Steel	.50	Yes
Bronze-on-Steel	35	Yes
Aluminum Bronze-on-Steel	45	Yes
Sintered Bronze-on-Steel (Mineral Oil)	13	No
Bronze-on-Steel (Mineral Oil)	16	No
Copper Film Deposited on Steel	30	Yes
Teflon®-on-Steel	.04	No
Duralon®-on-Steel	05- 16	No

Visit our website at www.hannacylinders.com

You can visit Hanna in cyberspace at the website shown above. This site presents a wealth of information about Hanna, starting with a complete history of our company, dating back to the early 1900s.

In addition, the site enables you to quickly and easily order any or all of our catalogs. What's more, our HannaCAD programs can be downloaded from the site so they are immediately available to you.

The website also presents current news about Hanna with our On-Line Hot-Line. This section is updated periodically, as current news warrants.

And, there's a section that includes some of the most frequently asked questions that are posed.

Furthermore, you can contact our factory direct for information or a cylinder quotation. Our on-line Cylinder Application Checklist is there to help you provide us with the data we need to prepare an accurate, complete quotation. Finally, the website enables you to easily find the Hanna Fluid Power distributor nearest you.

Come see us soon.