DARCOVA

Since 1904

The Original Composition Cup

RECIPROCATING PUMP COMPONENTS & GASKETS

Darcova

- Spherical Valves
- Piston Assemblies
- Pumcups
- Type H Pump Cups
- Pneumatic Pump Cups

The Dragon

- Precision Gaskets

CELEBRATING A CENTURY OF EXPERIENCE

DESIGNED & MANUFACTURED BY PRODUCERS FOR PRODUCERS

Darcova Pump Valves

The **Darcova** Pump Valve is a ball-guided spherical valve, which increases the efficiency of reciprocating pumps in all types of service. Its spherical design permits passing of more fluid per pump stroke and assures positive action. The valve provides a standard precision unit made of materials appropriate to the fluid being handled.

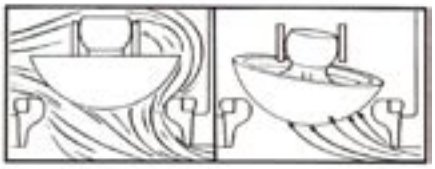
The concentric centers of the ball stem and spherical seat permit the valve to turn and oscillate freely in the stream, reducing resistance to flow. This results in perfect sealing in an infinite number of positions. Cut-away crown design and absence of springs in the upper half result in minimum weight, allowing the valve to unseat readily at low flow rates and pressures. The cup-shaped bottom half causes reverse flow to force the valve dynamically into the seat over a wide range of velocities and pressures.

The precision-machined guide assures accurate seating in all positions. The valve is leveled in the full open position by stops in the cage. This prevents cocking and provides for balanced symmetrical flow around the valve. Flow area through the cage is greater than the port area, and there are no wing guides or cross members in the port. Flow restrictions and turbulence are held to a minimum. In addition, the light weight of the stem and seat, plus the freedom from restriction, results in extra long valve life and increased pumping capacity.

The valve seat is precision lapped to fit the spherical surface of the valve. The rotation and oscillation of the valve results in a lapping action in service. This keeps the valve tight over an extended period of time and prevents build up of foreign material on the seat, which might cause leakage and subsequent channeling.

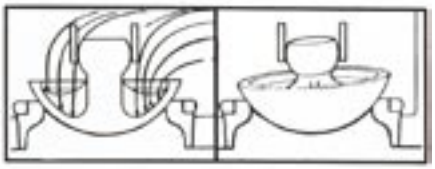
High reliability and minimum maintenance are due to the fact that **Darcova** Pump Valves have only three parts: cage, seat, and ball-guided valve.

Valve seat is available for thread or press-fit installation. Wiring eyes are included to permit interlocking of the valve cluster.



Round valve surface is streamlined and has no crossbars or ring guides in seat to cause turbulence or flow restrictions. Rotating and swinging action prevents foreign material from building up and keeps the seat and valve constantly flushed.

With each stroke of the pump, the ball-guided valve rotates and swings with the varying side pressures from the fluid in the pump.



No springs are required to force the valve to seat. The cup-like top of the valve makes it close instantly. The ball stem is a virtually frictionless guide.

Each time the valve closes in a new position, a lapping action on both valves and seat occurs. This action keeps the valve tight over an extended period of time and extends its service life considerably.

Features

- Minimum maintenance and parts replacement — only one moving part, no springs, low friction action.
- Self-cleaning — no wire drawing, impervious to scale, will not gall or stick.
- Compact and self-contained — no cumbersome guides or crossbars.
- Positive seating and self-aligning, eliminates flutter.
- No turbulence of flow restriction.
- Available in metallurgy to meet all service conditions.
- Metal-to-metal lapped valve and seat.

Applications

- *slush pumping*
- *boiler feed service*
- *well cementing*
- *chemical injection*
- *slurry handling*
- *crude oil handling*
- *water flooding*
- *steam service*
- *food service*

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Darcova Pumcups

Pumcups have been successfully applied in hydraulic and pneumatic cylinders and reciprocating pumps throughout a wide variety of industries for more than 100 years. These applications range from rugged oil well pumping operations, for which they were originally designed, to boiler feed pumps, spraying equipment, and valve regulators. Pumcups are specifically designed for piston heads, plungers and rams in reciprocating application. Made of fabric-reinforced composition and molded to precision tolerances of .005", they fit cylinder walls exactly to provide a tight seal around the entire perimeter. A full range of compositions is available to suit particular operating conditions, temperatures, pressures and media.

Pumcups insure constant sealing efficiency by virtue of their design principle, which utilizes the pressure of the fluid on the power stroke to force the lips of the cup against the wall of the cylinder, regardless of wear. Without this pressure in the return stroke, the lip is relaxed materially to reduce the load and wear on both Pumcup and cylinder.

Time consuming cutting, forming and fitting operations are eliminated with Pumcups. Because of their precision molded composition, they are easily applied and repacking time is greatly reduced.

Typical Services

- Acids
- Air
- Alkalis
- Anhydrous Ammonia
- Boiler Feed Water
- Cement Slurry
- Dairy Products
- Food Products
- Formaldehyde
- Gas, Natural & LP
- Gasoline
- Glycols
- Light Hydrocarbons
- Nitrogen
- Oil, Crude
- Oil, Refined
- Oxygen
- Salt Water
- Varnish
- Water

Exclusive fabric coatings improve sealing efficiency, increase resistance to abrasion and extend service life.

The natural characteristics of the exclusive composition remain constant even under sudden and severe temperature changes. Unlike most other packing, Pumcups maintain their dimensional stability. They are homogeneous and chemically stable as well, and are resistant to both abrasion and corrosion. Their low coefficient of expansion makes them ideal for outdoor installation where most packing should dry and shrink. They also provide superior performance in intermittent or seasonal service.

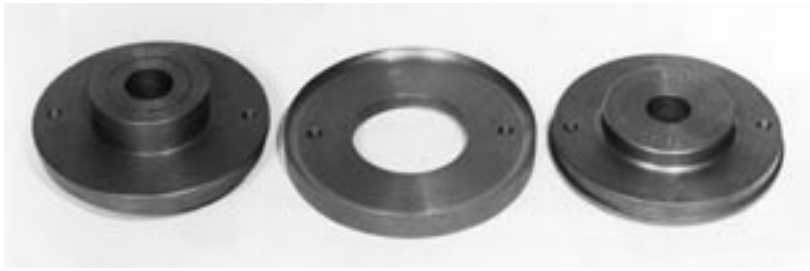
Standard Materials

Series 100 is considered the standard Pumcup texture and is made of cotton composition.
Series 200 should be used in more adverse conditions and is made of polyester composition.
Pneumatic-type Pumcups are used in cylinders and are constructed of a polyester composition.

Special Materials

Polyester composition material is available for longer service and superior performance in standard Pumcups.
Leather Pumcups can be used for drinking water and various other applications.
Other materials available upon request.
For pressures in excess of 1000-psi, please consult The Dragon Engineering Department.
See our website for sizes: www.darcovainc.com.

Darcova Piston Assemblies



Darcova Piston Assemblies are designed and manufactured for maximum pumping efficiency and proper support for the **Darcova** Pumcups. They permit the pressure to operate with the full use of the cup principle and force the wall of the cup outward against the cylinder. Every **Darcova** piston is a precision machined casting consisting of three parts: the body, the spacer and the follower.

Darcova Piston Assemblies can be adapted to all types of equipment and are available in bronze, steel or iron, ranging in size from 1 1/2" to 18". Stainless steel, aluminum and other corrosion resistant metals can be furnished for corrosive services.

Ordering Information — **Darcova** offers a complete line of replacement pistons for all types and makes of reciprocating pumps. Piston specifications and drawings are on file for a wide variety of pump manufacturers, including those below. If the pump manufacturer you need is not on the list, please contact us.

Alton	Canton Hughes	Furness Brothers	Karnak	National Stream	Tulsa
American- Marsh	Columbus	Gardiner-Denver	Knowles	National Transit	Union Steam
American Petroleum	Darcova	Gaso	Laidlow-Dunn-Gordon	Novo	Vogt
American Well & Pros.	Darling Brothers	G.J. Roberts	Lattner	Oliver	Wagener
Austin	Davidson	Gould	Locomotive Feed Water	Oil Well	Warren
Barnhart-Davis	Dawson-Downey	Granger	Lucey Bull Dog	Oklahoma	Wayne
Barr	Dean Brothers	Guild & Garrison	McDougall	Platt.	Weinman
Bawden	Deane	Hagan Corporation	McGowan	Pratt Imperial	Wheatley
Best	Deming	Halliburton	Manestee	Prescott	Wheeler
Blake	Dow	Hanlon	Mason Damper	Scranton	Wheeler-Tappen
Blake-Fitchburg	Epping-Carpenter	Hanna	Mason Neilan	Smart-Turner	Wheland
	Fairbanks-Morse	Heintz	Matt Foss	Snow	Whiting
Blakeslee	Ford Motor Company	Herron	Meed	Southwark	Whiteman
Buffalo	Foster	Hill	Myers	Titusville	Wier
Cameron	Foster-Wheeler	Hooker	National	Tomkins-Johnson	Worthington
Canada Foundry	French Cake Former	J.G. Pulling	National Ideal	Triumph	Young & Locke

The Dragon Precision Gaskets

The Dragon Manufacturing's Gasket Shop maintains extensive fabricating facilities for the production of all die-cut gaskets. Our state-of-the-art equipment has complete in-house capabilities for custom tooling to your requirements.

THE DRAGON

REV 0505

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