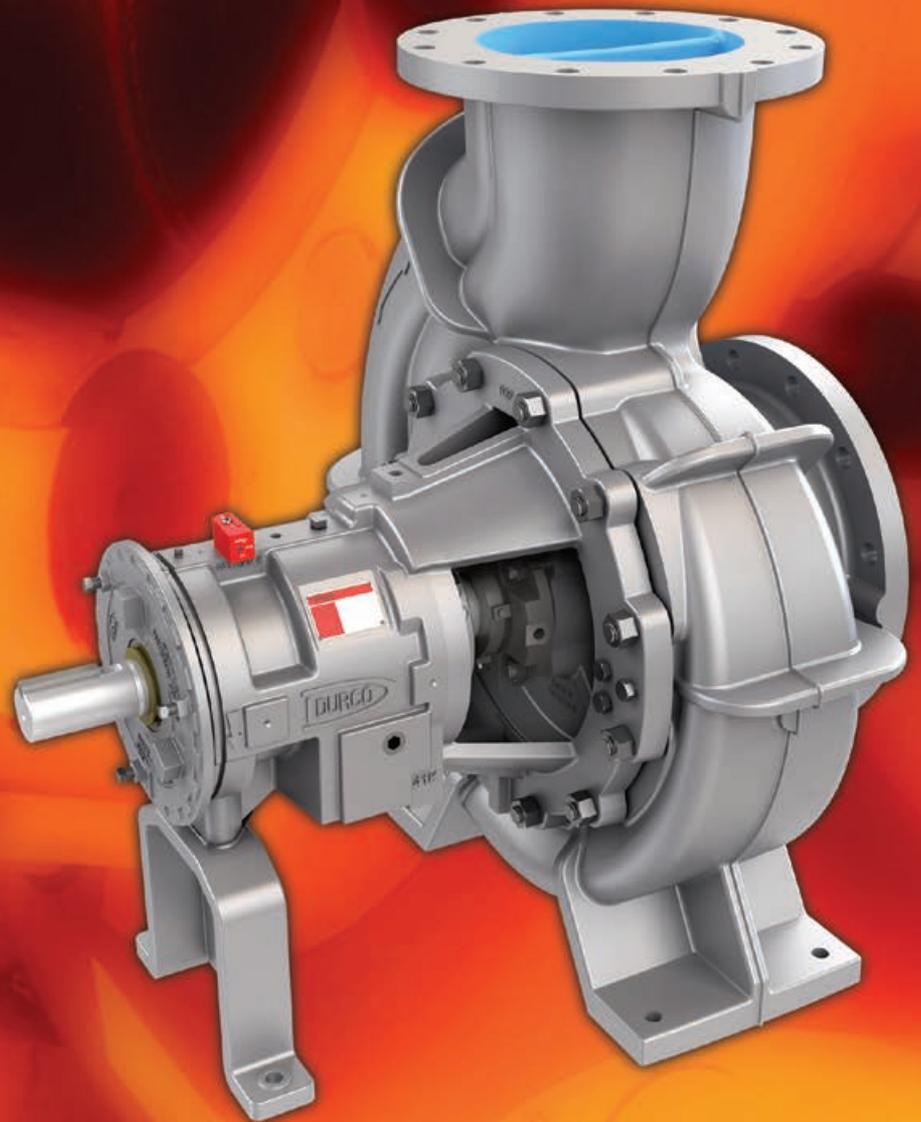
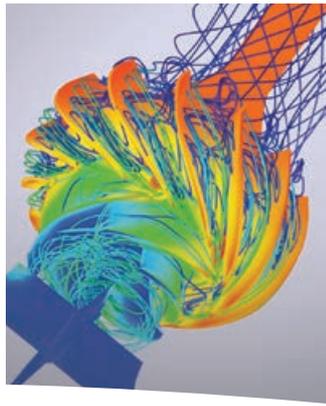




***Durco® Mark 3™ Group 4
High-Capacity Chemical Process Pump***



Experience In Motion



Pump Supplier to the World

Flowserve is the driving force in the global industrial pump marketplace. No other pump company in the world has the depth or breadth of expertise in the successful application of pre-engineered, engineered, and special purpose pumps and systems.

Life Cycle Cost Solutions

Flowserve is providing pumping solutions which permit customers to reduce total life cycle costs and improve productivity, profitability and pumping system reliability.

Market-Focused Customer Support

Product and industry specialists develop effective proposals and solutions directed toward market and customer preferences. They offer technical advice and assistance throughout each stage of the product life cycle, beginning with the inquiry.

Broad Product Lines

Flowserve offers a wide range of complementary pump types, from pre-engineered process pumps, to highly engineered and special purpose pumps and systems. Pumps are built to recognized global standards and customer specifications.

Pump designs include:

- Single-stage process
- Between bearings single-stage
- Between bearings multistage
- Vertical
- Submersible motor
- Positive displacement
- Nuclear
- Specialty

Product Brands of Distinction

ACEC™

Aldrich™

Byron Jackson®

Calder™ Energy Recovery Devices

Cameron™

Durco®

Flowserve®

HALBERG™

IDP®

INNOMAG®

Lawrence Pumps®

Niigata Worthington™

Pacific®

Pleuger®

Scienco™

Sier-Bath®

SIHI®

TKL™

United Centrifugal®

Western Land Roller™

Wilson-Snyder®

Worthington®

Worthington Simpson™

**Durco Mark 3 Group 4
High-Capacity Chemical
Process Pump**



**Reliable, High-Capacity
Performance**

The all new Durco Mark 3 Group 4 pump offers increased capacity with proven Durco performance and reliability along with ASME B73.1 design features. Offering flow rates to 3861 m³/h (17 000 US gpm) — well beyond ASME size limits — the Durco Mark 3 Group 4 is ideal for high-flow, high-head applications in the chemical processing and general industries.

Benefits That Impact Your Bottom Line

The Durco Mark 3 Group 4 incorporates many of the proven reliability- and performance-enhancing features of the Durco Mark 3 family of pumps.

Typical Applications

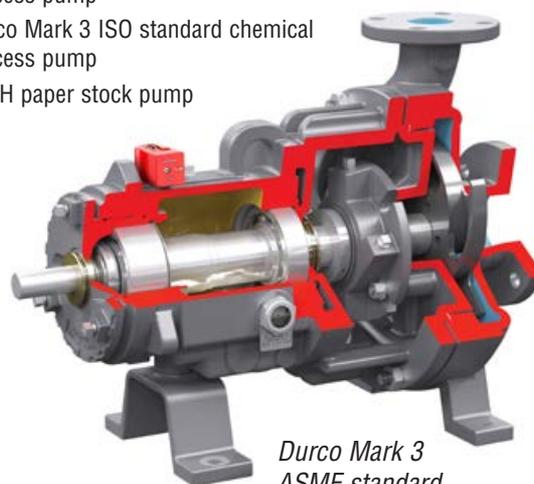
- Increased reliability and mechanical seal life due to the ideal seal environment created by the SealSentry™ seal chamber
- Renewable, high-efficiency performance over the life of the pump enabled by the reverse vane impeller with balance holes
- Fast and accurate impeller setting with the Durco external impeller adjustment mechanism
- Lower-cost predictive maintenance facilitated by two-piece power end with self-contained bearing housing and adaptor

Typical Applications

- Bulk tank transfer
- Chemical transfer
- Waste water scrubber
- Cooling tower feed
- Ethanol processing
- Light chemical slurries
- Corn wet milling
- Reverse osmosis plants
- Evaporator feed

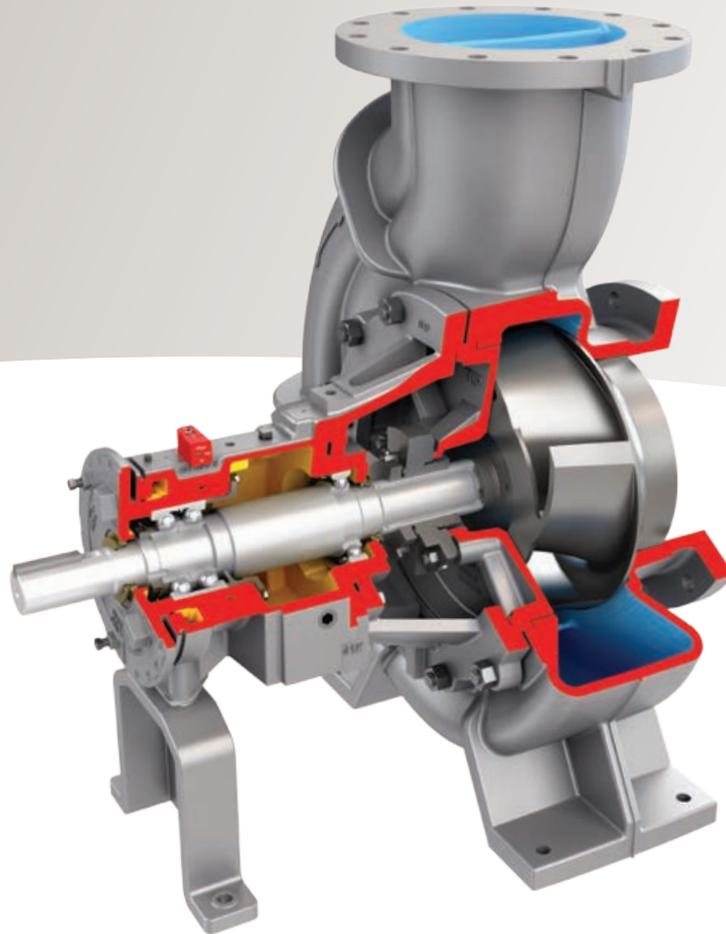
Complementary Pump Designs

- Durco Mark 3 ASME standard chemical process pump
- Durco Mark 3 ISO standard chemical process pump
- FRBH paper stock pump



Durco Mark 3
ASME standard

Durco Mark 3 Group 4
High-Capacity Chemical
Process Pump



The Durco Mark 3 Group 4 is designed for maximum reliability and efficiency in demanding high-capacity applications.

Operating Parameters

- Flows to 3861 m³/h (17 000 gpm)
- Heads to 125 m (410 ft)
- Discharge pressures to 19 bar (275 psi)
- Temperatures from -73°C to 204°C (-100°F to 400°F); ductile iron: -29°C to 204°C (-20°F to 400°F)

13 Sizes Available

The expanded hydraulic range of the Durco Mark 3 Group 4 comprises 13 sizes on two bearing frame platforms:

- | | |
|---------------|---------------|
| • 41K12x10-16 | • 42K10x8-19 |
| • 41K14x14-16 | • 42K16x16-19 |
| • 41K8x4-19 | • 42K12x8-22 |
| • 41K8x6-19 | • 42K12x10-22 |
| • 41K10x6-19 | • 42K12x12-22 |
| • 41K12x10-19 | • 42K12x14-22 |
| • 41K14x12-19 | |

Features and Benefits

Reverse vane impeller is the only impeller design that offers **repeatable pump performance** throughout the life of the pump. Open impellers available.

Durco SealSentry seal chambers feature flow modifiers that **extend seal life** by providing self-flushing capability.

Standard sealed bearing housing with labyrinth seals **keep lubricant in and contaminants out**.

Two-piece power end design with self-contained bearing housing **reduces maintenance costs** and **facilitates predictive maintenance**.

Heavy-duty radial and thrust bearings are selected for **long life and reliability**.

External micrometer impeller adjustment accurately sets impeller clearance in 20 seconds, **simplifying maintenance**.

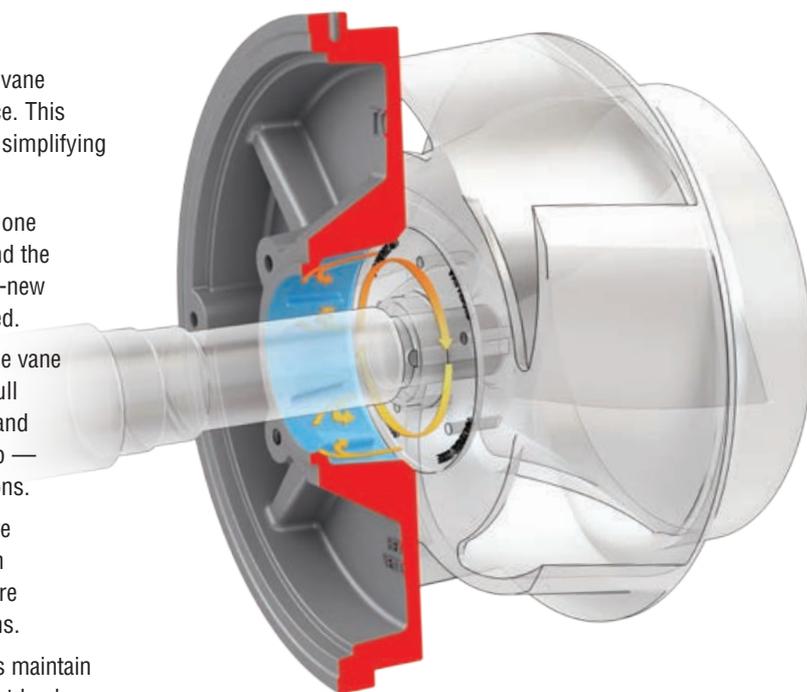
Rugged shaft and bearing design **extends bearing life** and reduces shaft deflection and vibration.

Back pull-out design **reduces maintenance costs** by allowing the rotating element to be removed without removing the casing, piping or motor.

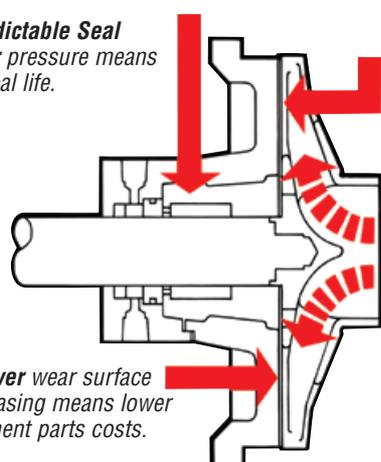
Reverse Vane Impeller Lowers Total Cost of Pump Ownership

The new Mark 3 Group 4 pump features a reverse vane impeller for outstanding efficiency and performance. This exclusive Durco design also reduces downtime by simplifying maintenance and extending bearing and seal life.

- **Repeatable efficient performance** — With only one critical running tolerance (between the impeller and the rear cover), the reverse vane impeller assures like-new efficiency and performance each time it's adjusted.
- **Fast and accurate impeller setting** — The reverse vane impeller is the only impeller design that takes full advantage of the back pull-out feature. Impeller and mechanical seal settings can be done in the shop — on the bench — instead of adverse field conditions.
- **Lower repair and replacement costs** — Abrasive wear is on the machinable rear cover, rather than the more expensive casing. Furthermore, there are no costly sideplates, which can provide leak paths.
- **Prolonged seal and bearing life** — Balance holes maintain low, predictable seal chamber pressure and thrust loads.



Low Predictable Seal Chamber pressure means longer seal life.



Rear Cover wear surface versus casing means lower replacement parts costs.

Clearance is set to the rear cover in the shop — not to the casing which is left in the piping.

Increase Pump Reliability With SealSentry Seal Chambers

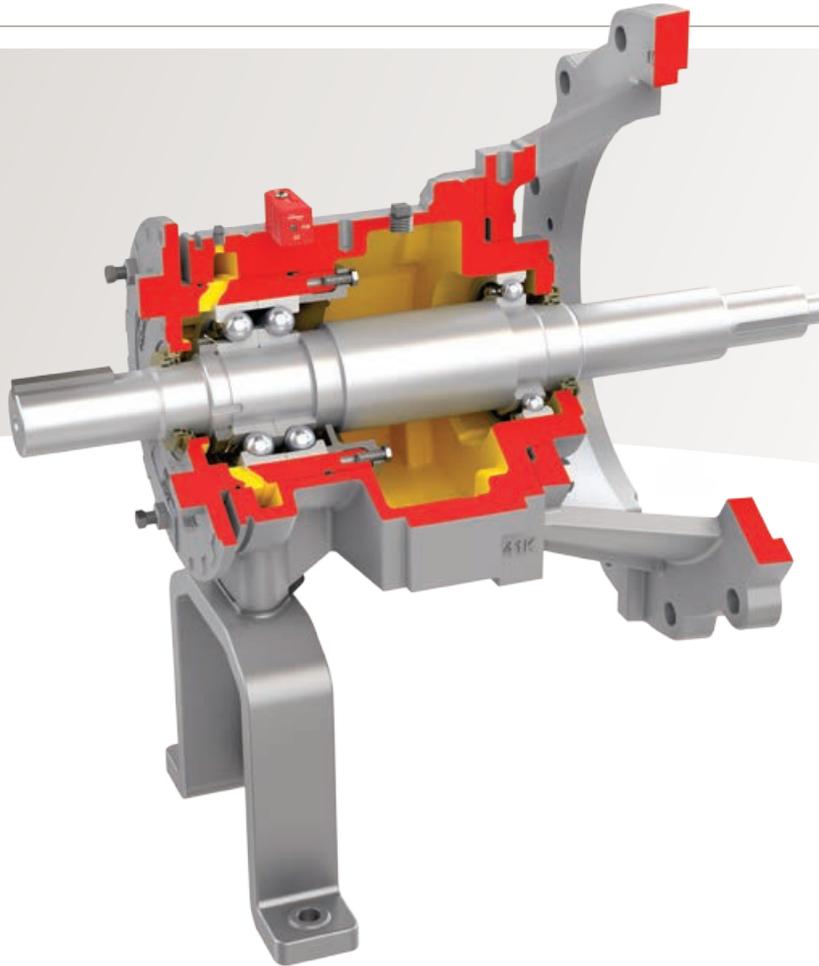
The new Durco Mark 3 Group 4 pump incorporates proven Durco SealSentry seal chamber technology that increases pump reliability while reducing operating costs. Flow modifiers induce flow within the seal chamber to effectively remove solids, vapors and heat away from the seal. The result is a much more seal-friendly environment that enables:

- Improved seal performance, reliability and life
- Reduced seal maintenance and repair costs
- The use of less costly seals and eliminates the need for external seal flush plans

Reliability-Enhancing Construction

- Precision machined, metal-to-metal, inter-connecting faces at the casing, seal chamber, adapter, and bearing housing provide reliable sealing and optimum concentricity.
- Robust, solid shaft ensures less than 0.05 mm (0.002 in) deflection at the seal face and low L₃/D₄ ratio, thereby extending mechanical seal life.

Power End



Durco ANSI 3A Reliability

The Durco Mark 3 Group 4 power end incorporates all the proven reliability-, maintenance- and performance-enhancing features of the Durco ANSI 3A power end. These mitigate the risk of mechanical failure under even the harshest operating conditions.

- Double-row angular contact outboard and single-row, deep groove inboard bearings provide excellent axial and radial load support.
- External micrometer adjustment mechanism enables accurate impeller clearance setting in 20 seconds, restoring pump efficiency.
- Rugged two-piece bearing housing design features a separate adaptor and a self-contained bearing housing that greatly simplify maintenance and assembly operations.
- Metal-to-metal construction assures a true running and concentric shaft, extending bearing and mechanical seal life.
- Flowserve Bearing Gard non-wearing bearing isolators
- IPS Beacon vibration and temperature monitor
- Oil fill port sealed with NPT plug
- Magnetic drain plug
- Oil splash lubrication standard; optional greased and oil mist

Lower Inventory Costs

With only two sizes, the power end also offers a high degree of interchangeability that makes it ideal for predictive maintenance programs and helps to lower inventory carrying costs. A fleet of pumps can be kept in high working order, with only a few spare bearing housings rotated among them.

IPS Beacon 2 Improves Pump Reliability and Availability

All new Durco Mark 3 Group 4 pumps incorporate the IPS Beacon 2 power end condition monitor. Mounted on top of the bearing housing, the IPS Beacon 2 continuously monitors the bearings and provides a visual signal that a current or past alert condition has occurred. LEDs indicate when thrust bearing temperature or vibration levels exceed set-point limits.

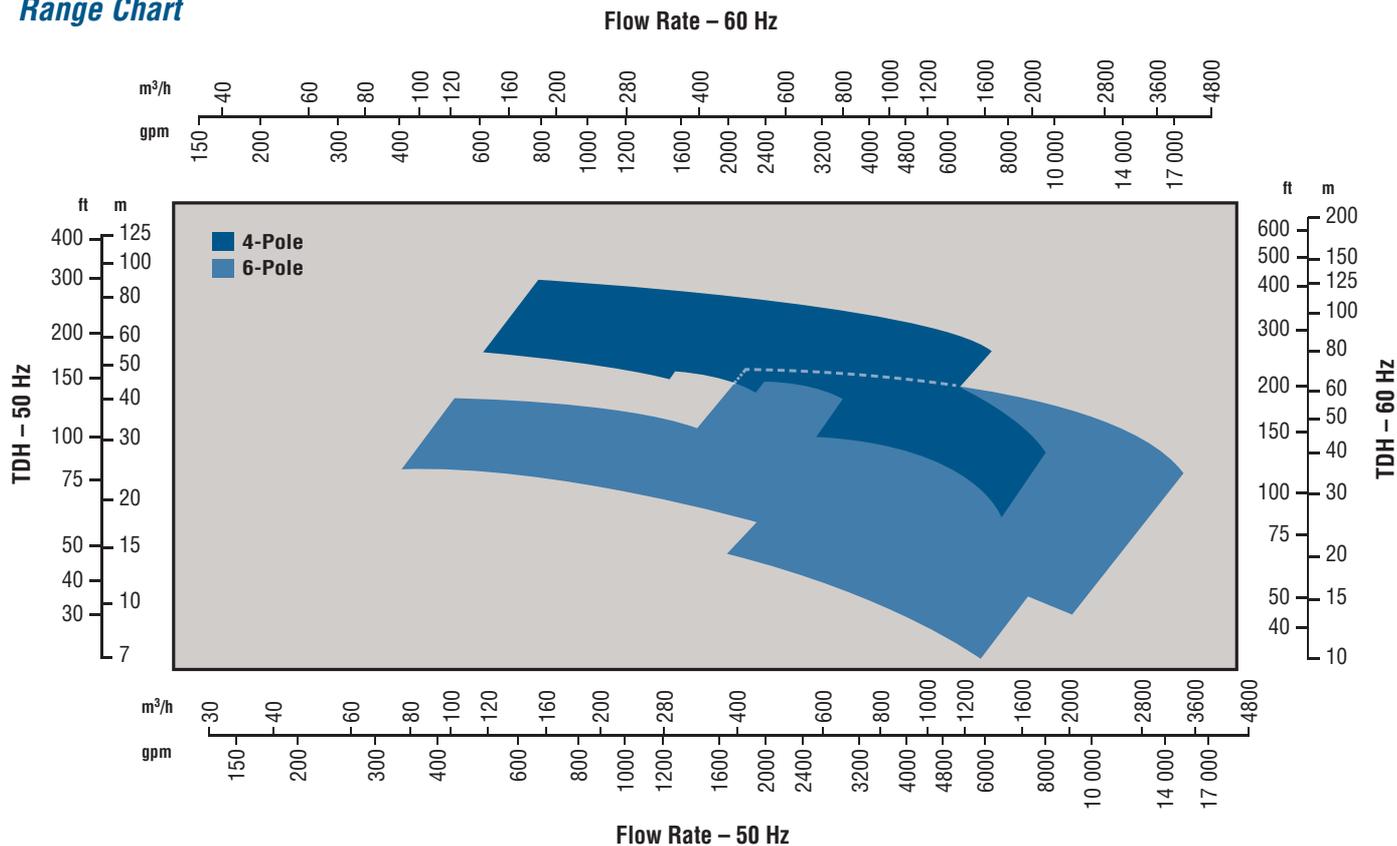


Options and Technical Data

Materials of Construction

Component	Ductile Iron		316SS		CD4M-Duplex		Alloy 20	
	Material	Class	Material	Class	Material	Class	Material	Class
Casing	Ductile Iron	ASTM 395 Gr 60-40-18	316 SS	ASTM A744 Gr CF-8M	CD4MCuN	ASTM A995 Gr 1B (CD4MCuN)	Alloy 20	ASTM A744 Gr CN-7M
Cover								
Impeller								
Shaft Sleeve	316 SS	A276 Type 316	316 SS	A276 Type 316	CD4M - Duplex	A276 S32205	Alloy 20	B437 N08020
Sleeved Shaft	Carbon Steel	4140BC Steel	Carbon Steel	4140BC Steel	Carbon Steel	4140BC Steel	Carbon Steel	4140BC Steel
Solid Shaft	Duplex	A276 S32205	Duplex	A276 S32205	Duplex	A276 S32205	N/A	N/A
Impeller Nut	Duplex	A276 S32205	Duplex	A276 S32205	Duplex	A276 S32205	Alloy 20	B437 N08020
Bearing Housing	Cast Iron	ASTM A48 Class 25B	Cast Iron	ASTM A48 Class 25B	Cast Iron	ASTM A48 Class 25B	Cast Iron	ASTM A48 Class 25B
Bearing House Adaptor								
Bearing Carrier								
Rear Foot								

Range Chart





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