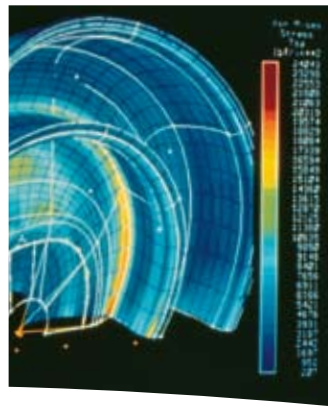




***Durco Guardian
ANSI Magnetic Drive Pump***



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 bearing single stage
- Between bearing multistage
- Vertical
- Submersible motor
- Rotary
- Reciprocating
- Nuclear
- Specialty

Product Brands of Distinction

ACEC™ Centrifugal Pumps

Aldrich® Pumps

Byron Jackson® Pumps

Cameron® Pumps

Durco® Pumps

Flowserve® Pumps

IDP® Pumps

Jeumont-Schneider™ Pumps

Niigata Worthington Pumps

Pacific® Pumps

Pleuger® Pumps

Scienco® Pumps

Sier-Bath® Rotary Pumps

TKL™ Pumps

United® Centrifugal Pumps

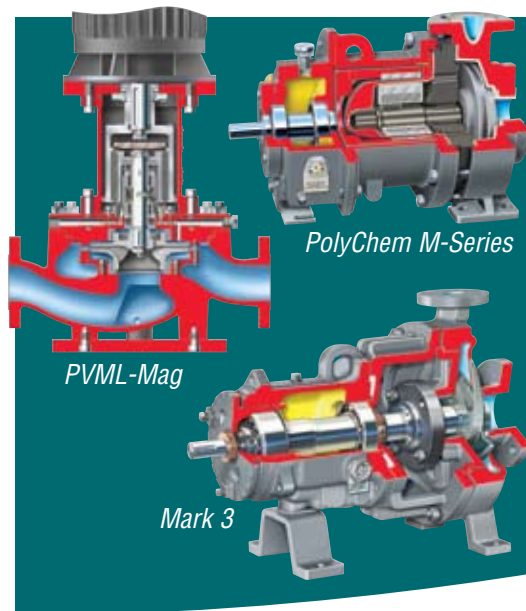
Western Land Roller® Irrigation Pumps

Wilson-Snyder® Pumps

Worthington® Pumps

Worthington Simpson® Pumps

**Durco Guardian
ANSI Magnetic
Drive Pump**



**A Leader in Sealless
Pump Technology**

Flowserve Durco Guardian sealless pump technology offers superior, leak-free performance in the most demanding services. Compliant with ANSI B73.1-2001 dimensional standards, the Guardian magnetic drive pump is designed for simplicity and reliability in even the toughest emission-free services.

Reliability and Performance

The Guardian magnetic drive pump possesses numerous reliability and performance enhancing features including:

- Rugged silicon carbide bushings and journals
- Proven Mark 3 casing and impeller
- Optimized internal lubrication path

Broad Applications

- Acid transfer
- Aquariums
- Chlor-alkali
- Corrosive services
- Difficult-to-seal liquids
- Flammable liquids
- Organic chemicals
- Polymers
- Solvents
- Toxic services
- Ultrapure liquids
- Valuable liquids
- Water treatment

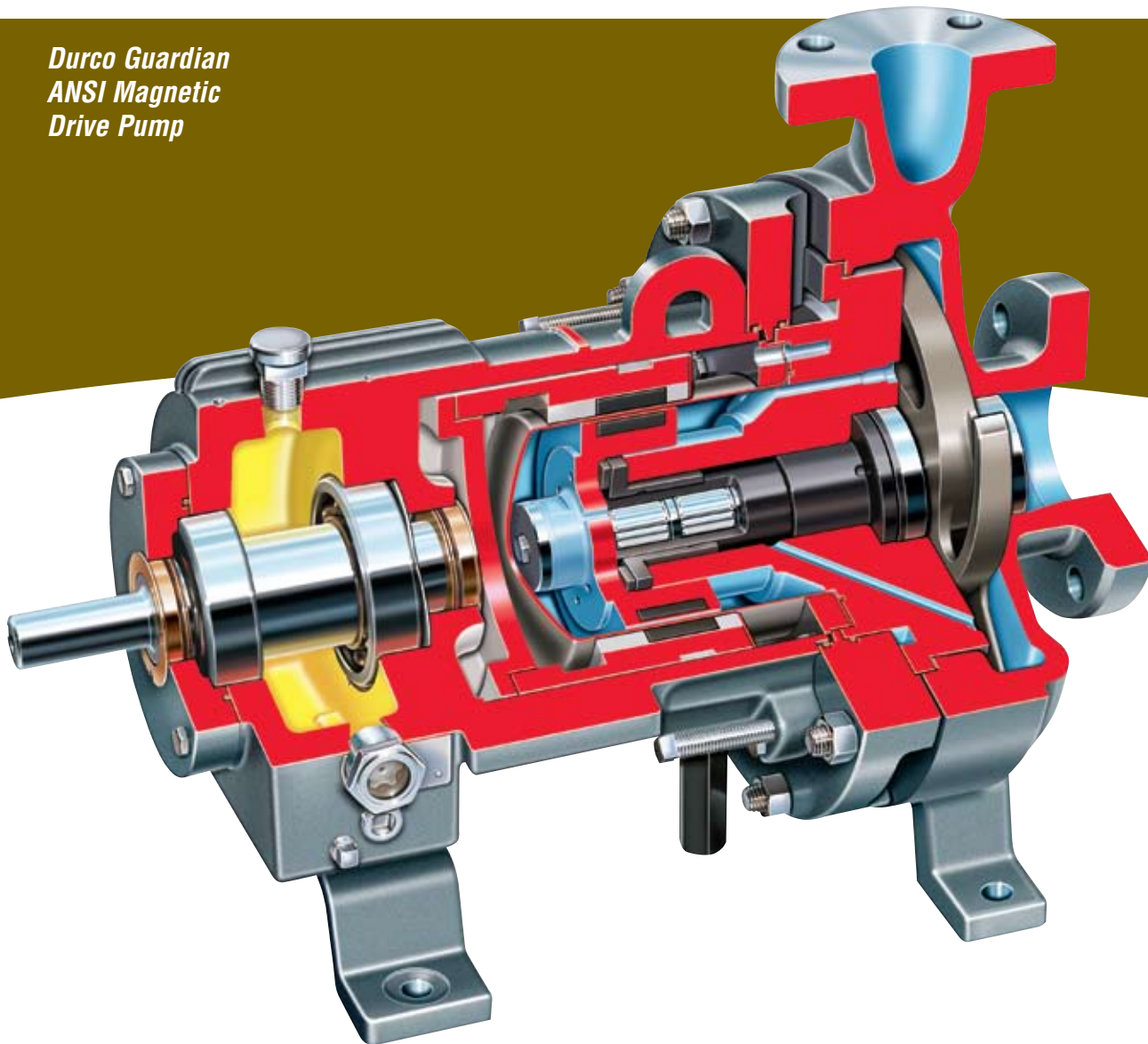
Complementary Pump Designs

In addition to the Guardian magnetic drive pump, Flowserve also can provide the following pump designs:

- Mark 3 ANSI standard, chemical process pump
- CPX ISO standard, chemical process pump
- CPXS ISO magnetic drive, chemical process pump
- PVML-Mag API vertical in-line, magnetic drive pump
- PolyChem M-Series ANSI non-metallic, magnetic drive pump
- ERP-N-Mag magnetic drive process pump



*Durco Guardian
ANSI Magnetic
Drive Pump*



The Flowserve Durco Guardian is a horizontal, magnetic drive pump designed for simplicity and reliability in emission-free services. It is compliant with ANSI B73.1-2001 dimensional standards, ANSI B73.3-2003 sealless pump standards and HI 5.1-5.6 1992 standards.

Available in 18 sizes, the Guardian uses the same casing and reverse vane impeller as the Flowserve Durco Mark 3 ANSI standard pump. This interchangeability of wet end parts provides consistent hydraulic performance and allows pumps to easily be converted from sealed to sealless configurations.

Operating Parameters

- Flows to 375 m³/h (1650 gpm)
- Heads to 215 m (700 ft)
- Pressures to 24 bar (350 psi)
- Temperatures to 290°C (550°F)
- Motor sizes to 93 kW (125 hp) at 60 Hz

Exclusive Reverse Vane Impeller provides constant inner bearing lubrication, predictable thrust characteristics and lowest average NPSHR

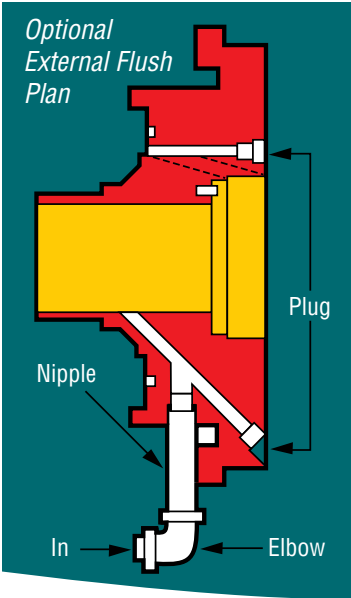
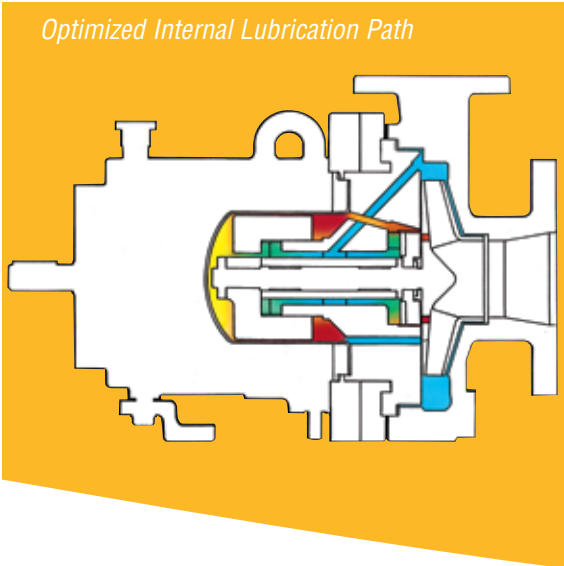
Hastelloy® C-276 Containment Shell provides excellent corrosion resistance and meets Section VIII of the ASME Pressure Vessel Code

Samarium Cobalt Rare Earth Magnets in synchronous drive design eliminate slippage and permit high temperature application

Silicon Carbide Bushings and Journals resist wear and corrosion. Optional materials are available for special application needs

Precise Running Clearances protect the containment shell from potential damage

Jackbolts offer added safety and facilitate maintenance



Optimized Internal Lubrication Path for Superior Cooling and Performance

The Durco Guardian magnetic drive pump features a highly engineered internal lubrication path designed to deliver superior cooling and efficient pump performance. By introducing the coolest possible fluid to the bushings and journals, the Guardian achieves optimum lubrication, cooling and performance.

First, high pressure process fluid is introduced to the silicon carbide bushings and journals via injection ports near the impeller discharge. Spiral and radial grooves on the bushings facilitate proper lubrication of the components. Then pressure forces the fluid into the gap between the inner magnet and the containment shell, where it dissipates heat generated by eddy currents. Finally, fluid enters the lower pressure region behind the impeller via return ports.

High Temperature Design

The Guardian is capable of handling service temperatures to 550°F (290°C). Stationary silicon carbide bushings are cartridge mounted using tolerance rings to compensate for thermal expansion. O-rings protect tolerance rings from corrosion. Cartridges are pre-assembled at the factory and slip-fit into the bearing holder.



Available External Flush Plan

An external flush plan is available with the Guardian to extend the pump's application range. By introducing a clean, compatible flush fluid or a filtered bypass flush into the containment shell area, the Guardian can handle otherwise difficult process conditions.

Standard and Contained Back Pull-Out

The Guardian offers end users the convenience and safety of standard and contained back pull-out.

- Standard back pull-out facilitates general maintenance and inspection. The casing stays in-line and the piping connections remain intact.
- Contained back pull-out facilitates drive end maintenance. The process fluid remains fully confined, thereby eliminating the need to drain or purge the pump. Furthermore, maintenance personnel are safe from exposure to potentially harmful process fluids.

Standard Back Pull-Out



Contained Back Pull-Out



Options and Technical Data



Guardian Close-Coupled Pump



KW941 Pump Power Monitor



Instrumentation Options

- Fiber-optic leak detection
- Containment shell temperature probe
- Process temperature probe
- Pressure transducers
- Flow switches
- Vibration probes

Other Options

- Close-coupled configuration
- Self-priming configuration
- Labyrinth oil seals
- KW941 Pump Power Monitor

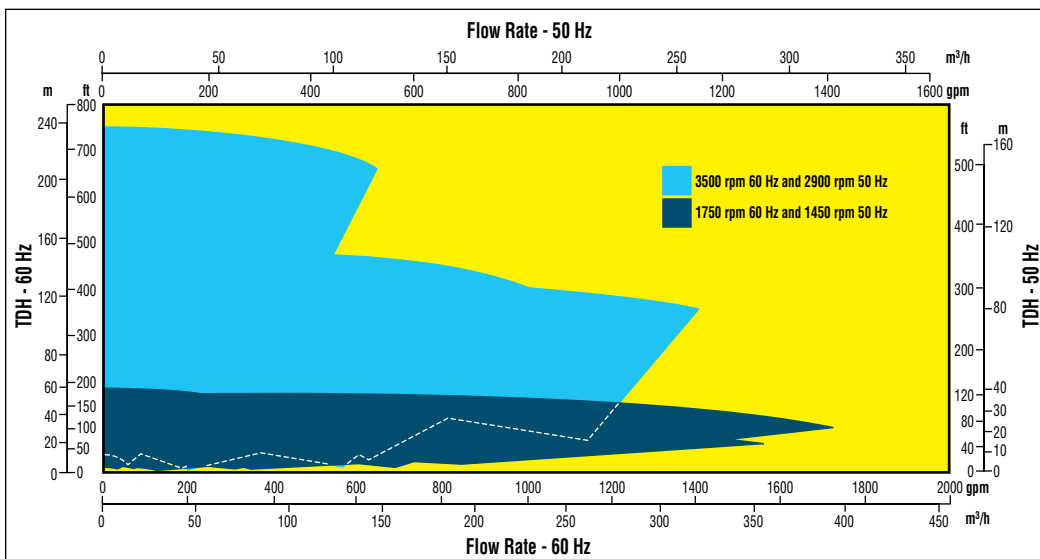
Materials of Construction

The Guardian is available in a wide range of materials to suit application needs. The accompanying chart lists the most common materials of construction.

Guardian ANSI Alloy Code	Specification
D4 (316SS)	ASTM A744, Gr. CF-8M
D20 (Alloy 20)	ASTM A744, Gr. CN-7M
DC3 (Hastelloy C)	ASTM A494, Gr. CW-6M

Alternate materials of construction such as titanium and Hastelloy B-2 can be supplied for special application needs.

Guardian Range Chart



**Global Service
and Technical
Support**



Life Cycle Cost Solutions

Typically, 90% of the total life cycle cost (LCC) of a pumping system is accumulated after the equipment is purchased and installed. Flowserve has developed a comprehensive suite of solutions aimed at providing customers with unprecedented value and cost savings throughout the life span of the pumping system. These solutions account for every facet of life cycle cost, including:

Capital Expenses

- Initial purchase
- Installation

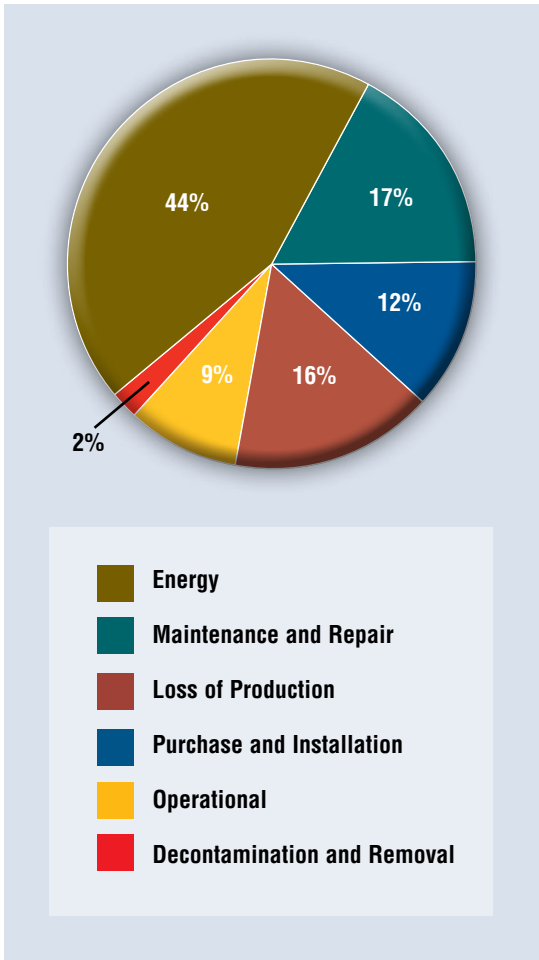
Operating Expenses

- Energy consumption
- Maintenance
- Production losses
- Environmental
- Inventory
- Operating
- Removal

Innovative Life Cycle Cost Solutions

- New Pump Selection
- Turnkey Engineering and Field Service
- Energy Management
- Pump Availability
- Proactive Maintenance
- Inventory Management

Typical Pump Life Cycle Costs¹



¹ While exact values may differ, these percentages are consistent with those published by leading pump manufacturers and end users, as well as industry associations and government agencies worldwide.



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Bulletin PS-10-14c (E) Printed in USA. June 2008. © Flowserve Corporation

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