Universal 3 Series

ROTARY POSITIVE DISPLACEMENT PUMPS

Front Loading Seal Design

Waukesha Cherry-Burrell®
A new level of sanitary performance.
Long-life engineering features.

**PRODUCT FEATURES AND BENEFITS**

**Sanitary Features**
- Front loading seal design
- CIP capable standard. Pump rotor has internal flats and will free drain with vertical ports.
- Cover is free draining in horizontal or vertical port positions.
- Rotor/shaft connection is completely sealed from product zone and reduces the risk of corrosion.
- Single mechanical seals standard. Optional double mechanical seals, o-ring and lip seals also available. Ability to switch seal types without additional machining.
- Cover seal is a profile design to improve cleanability and resist particulates from being "pinched" and trapped.
- Stainless steel gear case and bearing frame standard.
- Aseptic fittings available.
- Seal flush and steam-in-place optional.

**Long-life Features**
- Up to 500 psi (34.5 bar) pressure capability.
- Pumps rated to 300°F (149°C) as standard.
- Special rotor nut designed for extended service without loosening.
- No bearings in the product zone.
- New shafts are shorter and have larger diameter 17-4 PH shafts:
  > Reduces overhung load which improves shaft alignment and decreases seal and bearing wear for extended seal life.
  > Improves shaft strength and stiffness helping to eliminate vibration
- Heavy duty stainless steel bearing frame standard.
- Double tapered roller bearings.
- Greased lubed bearings for positive lubrication to all bearings over entire speed, temperature and pressure range.
- Body retaining screws for maintaining mechanical seal contact during inspection.
- Extended outer seal life. A wave spring, instead of an O-ring, mechanically loads the seal.
- Unique mechanical seal design utilizes 2 pin stationary seal and special design shaft for rotary seal.
Installation Features
• Bidirectional flow. Rotors, locked with torqued nuts, rotate securely in either direction. No more flow direction/shaft position specifications.
• Versatile 3-Way mounting of gear case, including vertical alignment of ports.
• Upper or lower shaft position.
• Non-galling Waukesha “88” alloy rotors standard; permits running at tighter clearances and pumping a wide range of viscosities. Stainless steel rotors also available.
• 316L stainless steel pump body and cover.
• Electro-polish of product contact surfaces, optional.

Typical product applications

Food and Beverage
Soups, Stews, Tomato Paste
Vegetables, Dressings
Chocolate, Fats & Oils
Batters, Cream Fillings
Brewery, Wort
Soft/Fruit Drinks

Dairy
Cream, Milk
Cheese Curd & Whey
Cottage Cheese
Yogurt

Pharmaceutical/Cosmetics
Pill Pastes
Syrups, Extracts, Slurries
Face Creams & Lotions
Hair Styling Gels & Liquids
Dyes & Alcohols

Chemical/Industrial
Solvents, Paints
Fuels
Resins, Polymers & Sludges
Oil & Lubricants
Soaps
Time-tested Waukesha Cherry-Burrell rotary pump; circumferential-piston operating principle

THEORY OF OPERATION

In the Waukesha Cherry-Burrell design, arc-shaped “pistons” (rotor wings) travel in annular-shaped cylinders machined in the pump body; the resulting long sealing path reduces slippage and produces a smooth flow of product without destructive pulses or pressure peaks and without valves or complex parts.

FOR LOW VISCOSITY FLUIDS
Rotors, made of Waukesha “88” alloy, can be run with close clearance to the 316L stainless steel fluid head, without galling or seizing should inadvertent pressure surges cause contact. The close clearances combined with the rotor geometry, which gives a long sealing path between the pump inlet and outlet, means low slip operation. As a result, you achieve: high efficiency, good priming ability, metering capability and good flow control.

FOR HIGH VISCOSITY FLUIDS
The large fluid cavities of the rotors, plus the large easy entry anti-cavitation ports, allow efficient pumping of high viscosity fluids, slurries or even liquids with large chunks or particles.

FOR NON-LUBRICATING AND ABRASIVE FLUIDS
The Waukesha Cherry-Burrell design has no bearing in the fluid being pumped, no sliding or rolling contact and no rotor-to-rotor contact. This produces MAXIMUM SERVICE LIFE even under severe operating conditions.
# PRODUCT SPECIFICATIONS

## UNIVERSAL 3 MODELS

<table>
<thead>
<tr>
<th>MODEL</th>
<th>DISPLACEMENT PER REVOLUTION</th>
<th>NOMINAL CAPACITY TO</th>
<th>INLET/OUTLET</th>
<th>OPTIONAL INLET/OUTLET</th>
<th>PRESSURE RANGE UP TO*</th>
<th>MAXIMUM RPM</th>
<th>APPROX SHIP WT.</th>
<th>TEMP RANGE</th>
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</table>

*Contact application engineering for higher pressure or higher temperature applications.

## SPX CONNECT APP

Scan QR codes to quickly retrieve manuals, lookup support contact information and request quotations for service or parts.

Download the SPX Connect App today!
The Waukesha Cherry-Burrell Universal 3 Series gives you...

High pressure capability, up to 500 psi/34.5 bar, for more demanding jobs.

Longer service life, resulting from a fresh engineering approach and durable high quality components.

The right seal, for countless applications, plus interchangeability when needed

Metal rotor: Waukesha “88” non-galling alloy, for close running clearance.

Design conforms, to 3-A, ISO 9001:2015
Seal Options

**Single Mechanical Seal***

**Double Concentric Mechanical Seal***
Used with flushing fluid to cool, lubricate, flush away residue. Best arrangement for severe service.

**Single and Double O-ring Seal**
Waukesha Cherry-Burrell’s traditional general purpose seal. Low cost and easy to service. Suitable for low pressure applications. 100 psi, 7 bar

**Elastomer choices for O-rings:**
- Fluoroelastomer (FKM)
- EPDM
- Perfluoroelastomer (FFKM)

**Mechanical seal material options:**
- Carbon
- Silicon Carbide
- Tungsten Carbide
**STANDARD & OPTIONAL FEATURES**

**PORTS**

**Standard:** Sanitary clamp type connections

Available in a variety of styles including S-Line, I-Line and Q-Line

Bevel Seat Available

Optional European Types; DIN, SMS, RJT

Optional Aseptic Ports

Male NPT and 150 lb. flanges optional on Models 006 through 220 size. 150 lb. flanges standard on Model 320.

**ROTORS**

**Standard:** Twin Wing

Suitable for most applications.

**Rotor Clearance**

- Standard for most applications up to 300°F (149°C).
- Low viscosity clearance rotors optional for applications up to 200°F (93°C).
- Contact application engineering for other rotor clearance options.

**O-RINGS**

**Standard:** Fluoroelastomer FKM

Fluoroelastomer (FKM), EPDM, Per Fluoroelastomer (FFKM)

**COVER & GEARCASE**

**Standard:** Stainless steel 17-4 shafts, top shaft position, stainless steel bearing retainers, shaft completely sealed from product zone.

**Options:**

- Lower shaft position
- Bearing isolators
- Pedestal shims for side mounted pumps. Left hand shaft position is standard
- Right hand shaft is positioned on side mounted gearcase
SHAFT POSITION

Top Shaft Position
Standard

Lower Shaft Position
Optional

MOUNTING

Flat plate, epoxy painted, with adjustable feet,
SS coupling guard, and Lovejoy or Woods coupling standard.

Features:
• No shaft alignment necessary. No coupling guard required.
• Special base design enhances cleanability.
• Reduces overall length of complete unit by an average of 20-25%.
• Average of 20-25 gear ratios available per horsepower.
• Separate oil sump for gear reducer and timing gears.

Options:
• 304 SS polished plate base with adjustable feet.
• Portable base with rubber wheels.
• SS tubular bases.

BASES AND DRIVES

Stainless steel tubular base with adjustable feet and stainless steel guard and coupling standard.

Options:
• 304 SS plate.
• Flat epoxy plate.
• Portable base.

TRU-FIT®

Close coupled Tru-Fit® pump mounted on stainless steel base with stainless steel adaptors standard.

Features:
• No shaft alignment necessary. No coupling guard required.
• Special base design enhances cleanability.
• Reduces overall length of complete unit by an average of 20-25%.
• Average of 20-25 gear ratios available per horsepower.
• Separate oil sump for gear reducer and timing gears.

Options:
• 304 SS polished plate base.
• NEMA or IEC frames available. Right angle reducer also available for additional space savings.
• 1/2 through 60 horsepower drive options available.
• Horizontal or vertical porting.
**DIMENSIONAL DATA**

![Diagram of model dimensions]

**NOTE:** Dimension "2X" applies for Bevel Seat, "S"-Clamp, "Q"-Clamp, 15I and 14I fittings (except 320-U3) .

**NOTE:** Dimensions are for guidance purposes only. Contact your SPX FLOW Representative if more detailed measurements are needed.

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<th>O</th>
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<th>R*</th>
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"R" dimension shown for customers converting from a U1/U2 pump to a U3 pump. All other dimensions are the same between U1/U2/U3.

NOTE: Dimensions are for guidance purposes only. Contact your SPX FLOW Representative if more detailed measurements are needed.
### Dimensions affected by motor frame size

**NOTE:** Dimensions are for guidance purposes only. Contact your SPX FLOW Representative if more detailed measurements are needed.
When it is time to replace ...

SPX FLOW offers a Pumps for Life™ program on Universal 3 models

Pumps for Life™ Program
Contact your Waukesha Cherry Burrell distributor to learn more about the Pumps for Life™ program and how to make sure your pumps qualify.

SPX FLOW Certified Pump Repair Centers
- Local distributors with factory trained and certified service technicians.
- Quick local response.
- Genuine WCB parts.
- Flexible repair programs to meet your needs.
- Local warranty support.

SPX FLOW Universal 3 Pump Warranty
Seller warrants its products to be free from defects in materials and workmanship for a period of two (2) years from the date of shipment. This warranty shall not apply to products which require repair or replacement due to normal wear and tear or to products which are subjected to accident, misuse or improper maintenance. This warranty extends only to the original buyer. Products manufactured by others but furnished by seller are exempted from this warranty and are limited to the original manufacturer's warranty.

Based in Charlotte, North Carolina, SPX FLOW, Inc. (NYSE: FLOW) is a multi-industry manufacturing leader. For more information, please visit www.spxflow.com

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