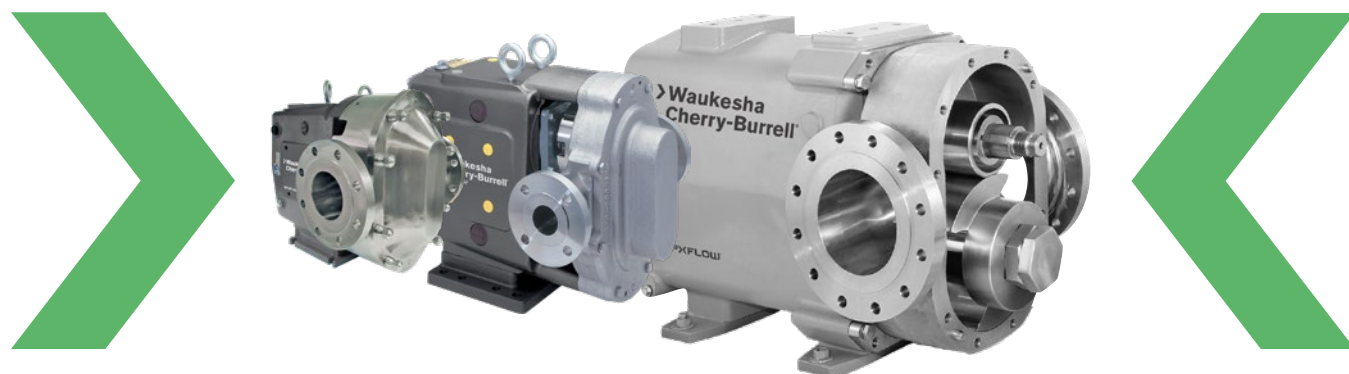


➤ Waukesha Cherry-Burrell®

UNIVERSAL® INDUSTRIAL SERIES

U2 ND, 5000 and 420/520
External Circumferential Piston Pumps



SPXFLOW®

UNIQUELY DESIGNED AND ENGINEERED SPECIFICALLY FOR THE INDUSTRIAL MARKET

Waukesha Cherry-Burrell (WCB) has been the leader in the design, manufacturing and application of external circumferential piston (ECP) style, rotary positive displacement (PD) pumps. The Universal Series offers tremendous installation flexibility with capabilities including bi-directional flow, three-way universal gear case mounting, and upper or lower shaft positioning. Heavy-duty features and construction ensure long life in the most demanding applications. Pressure ratings up to 500 psi (34.5 bar), 300°F (149°C) and clean-in-place (CIP) capabilities have earned the Universal 2 ND series pump a solid reputation as a proven performer in the industry.

Key Performance Features and Benefits

- Pumps filled with settled slurries will start without damaging pump or seals
- Will not damage shear sensitive products
- Pulsation free flow leads to lower vibration and wear to the system
- No internal rotor contact leading to longer life
- Shaft timing not critical for ease of maintenance
- No oil seepage into product zone eliminates contamination concerns

Installation Features and Benefits

- Bi-directional flow. Rotors, locked with unique washers and torqued nuts, rotate securely in either direction
- Interchangeable installation dimensions with Universal 1 and Universal Lobe PD Series pumps
- Versatile three-way mounting of gear case, including vertical alignment of ports
- Upper or lower drive shaft position



U2 ND Pumps

1" to 6" (25 to 152 mm) for pressures up to 500 psi (34.5 bar)
WCB-Designed Seals



5000 Pumps

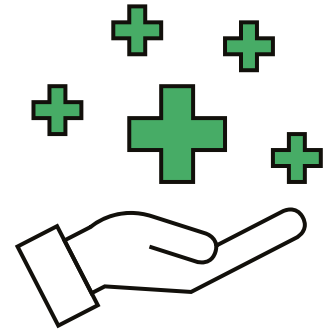
1.5" to 6" (38 to 152 mm) for pressures up to 200 psi (13.8 bar)
Third-Party Seals Options Only



420/520 UHC Pumps

6" to 8" (152 to 203 mm) for pressures up to 200 psi (13.8 bar)
High-volume capacities up to 830 GPM (187 m³/hr)

LONG LIFE FEATURES AND BENEFITS



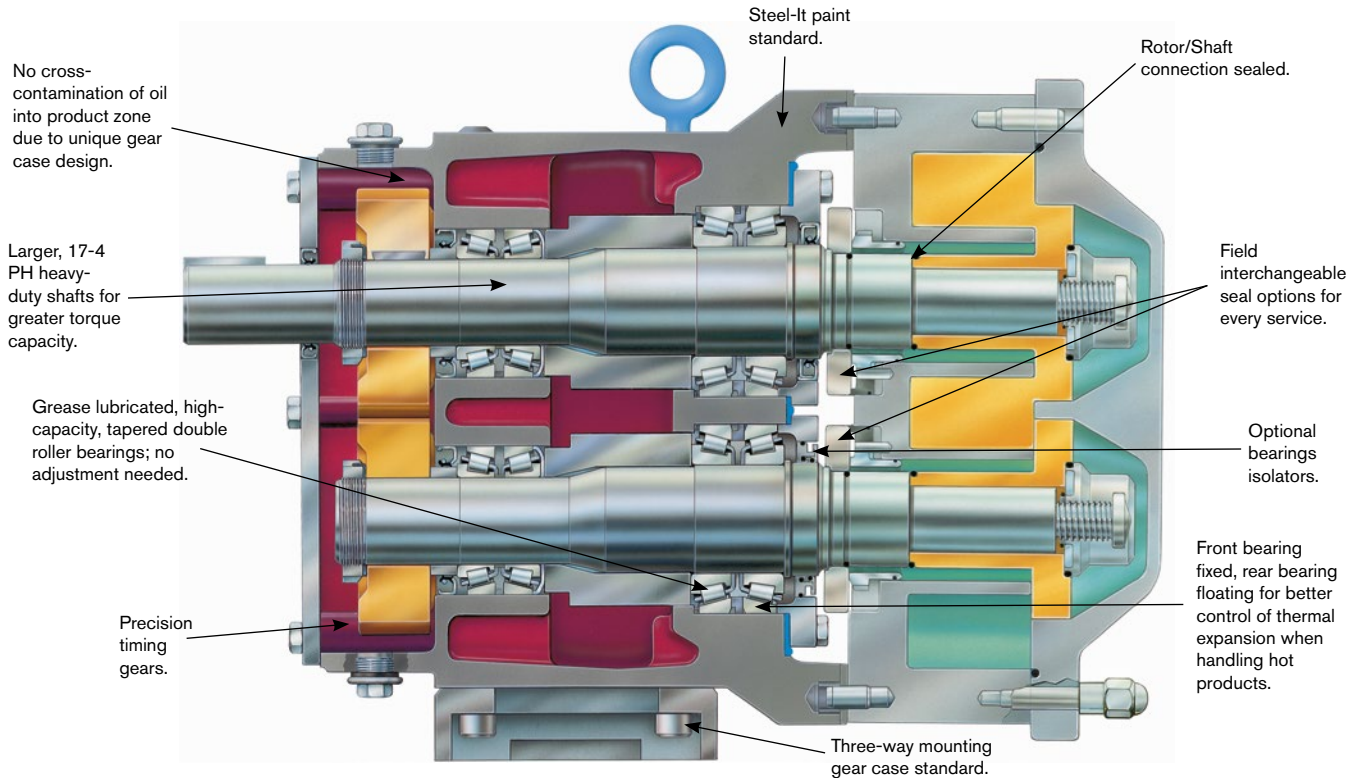
The Standard for Performance and Reliability.

WCB is a proven leader in the design, manufacture and application of ECP rotary PD pumps. WCB PD pumps are in thousands of challenging chemical and industrial applications worldwide.

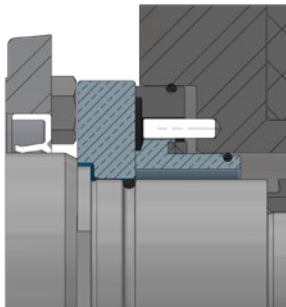
| | |
|---|--|
| + | Waukesha 88 Alloy Rotors- high Nickel content alloy with non-galling feature which allows for tight tolerances of the rotor to pump body |
| + | 316 stainless steel pump body and cover helps minimize corrosion |
| + | Pumps with water flush seals will run dry indefinitely with water |
| + | Up to 500 psi (34.5 bar) pressure capability |
| + | No bearing in product zone minimizes wear and corrosion risk |
| + | Larger diameter 17-4 PH stainless steel shafts in seal area for greater strength and stiffness. Helps eliminate vibration; extends seal life on all models |
| + | Heavy-duty bearing frame ensures shaft alignment for longer life |
| + | Double-tapered roller bearings on all models. Contribute further to precise rotor position and longer seal life |
| + | Grease lubed bearings for positive lubrication to all bearings over entire speed, temperature and pressure range |
| + | Operates up to 300°F (149°C) capacity upon application |
| + | Various mechanical seal options available to optimize life and performance |
| + | CIP capable design helps minimize corrosion |

PERFORMANCE AND LONG LIFE THROUGH ENGINEERING

U2 ND

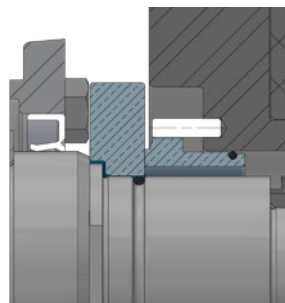


U2 ND SERIES SEAL OPTIONS



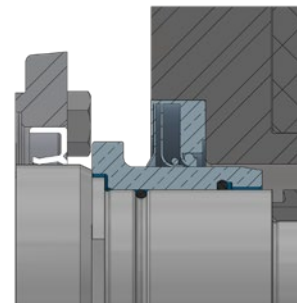
Double Concentric Mechanical Seal*

Used with flushing fluid to cool, lubricate, flush away residue. Best arrangement for severe service. Low pressure and high pressure flush double seals available.



Single Mechanical Seal*

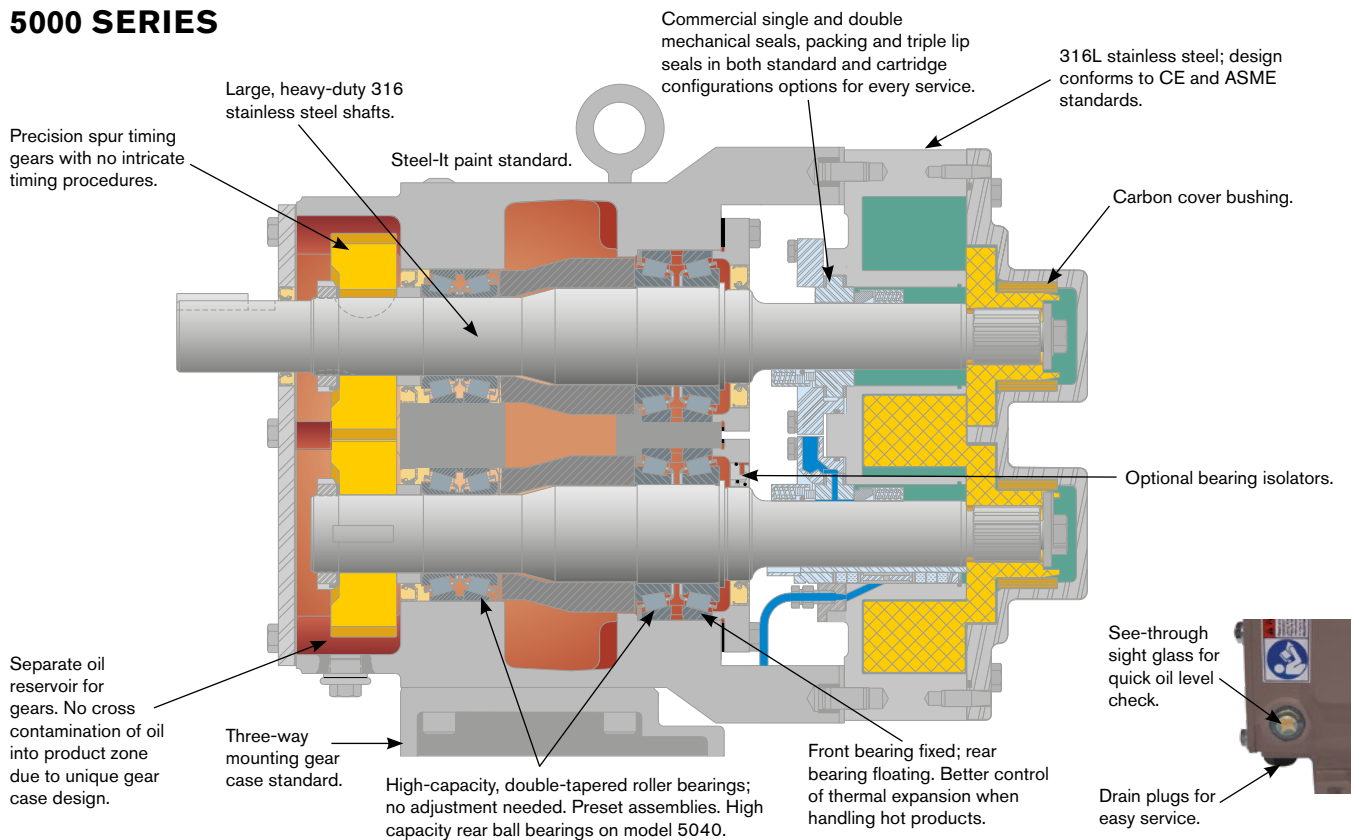
Carbon-to-ceramic faces standard. Alternate materials available for abrasive service. Standard and knife edge internal seal faces available.



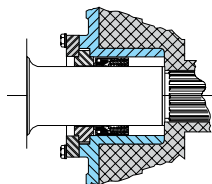
Triple Lip Seal

A chemically inert, low friction FDA seal (PTFE) that offers longer life and reliable performance.

5000 SERIES

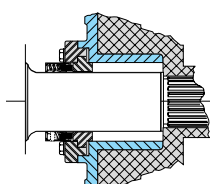


5000 SERIES SEAL OPTIONS



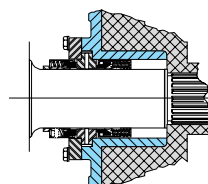
Single Inner Mechanical Seal

J. Crane Type 9 with carbon and ceramic seal faces standard. Narrow face seal with TC and SC seal faces as option. Consult factory.



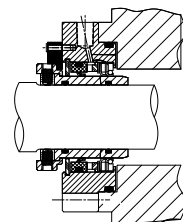
Single Outer Mechanical Seal

J. Crane Type 8B2 with carbon and ceramic seal faces standard.



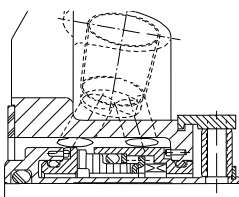
Double Mechanical Seal

Used with flushing fluid to cool, lubricate, flush away residue. Best arrangement for severe service. Combines above single inner and outer seals.



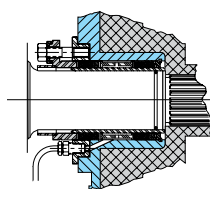
Triple Lip Seal

Available in Cartridge design. Consult factory.



Cartridge Seals

Consult factory for availability. See instruction manual 95-03012 for stuffing box dimensions.



Packing

J. Crane Style 1335 TFE impregnated braided acrylic with stainless steel sleeve standard.

Elastomer choices for O-rings:
Buna-N, Fluoroelastomer (FKM), EPDM, Silicone, Perfluoroelastomer (FFKM), PTFE Encapsulated

Mechanical seal material options:
Carbon, Ceramic, Silicon Carbide, Tungsten Carbide

TIME-TESTED WCB ROTARY PUMP; ECP OPERATING PRINCIPLE

Theory of Operation

In the WCB 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 exclusive Waukesha Alloy 88, can be run with close clearance to the 316 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 volumetric efficiency and good flow control.

For High Viscosity Fluids

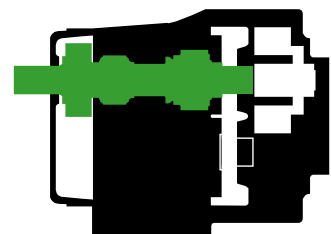
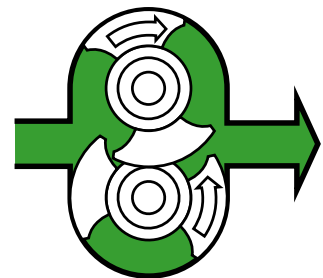
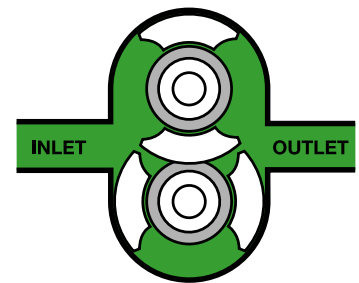
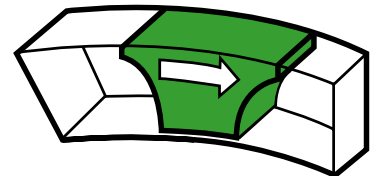
The large fluid cavities of the rotors plus the large, easy entry anti-cavitation ports, allow efficient pumping of high viscosity fluids, slurries or even liquids with large chunks or particles.

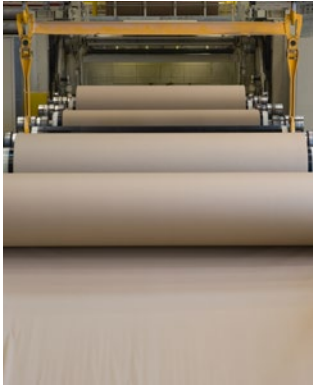
For Non-Lubricating and Abrasive Fluids

The unique WCB design has no bearings 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.

Resuspending Solids/Slurries

When slurries settle to the bottom of lobe or progressive cavity pumps, many will jam the pump upon restart. The unique shape of the Waukesha rotor will resuspend the slurry easily and with hardly a pulse.



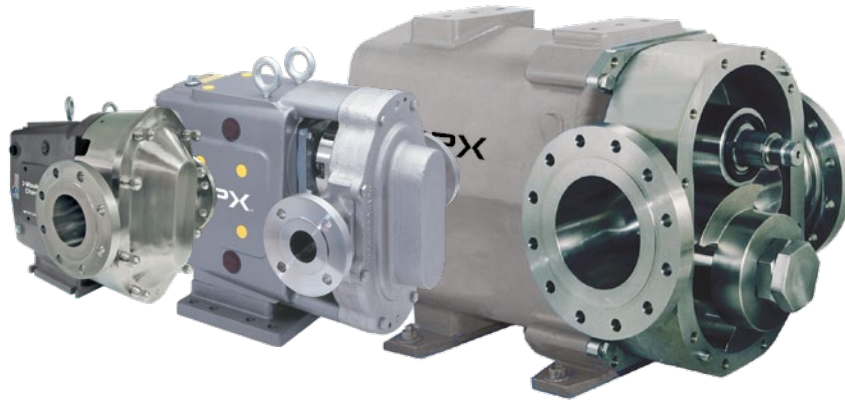


Typical Product Applications

- Acids
- Adhesives
- Alkalines
- Coatings
- Corn Wet Milling
- Defoamers
- Detergents
- Emulsions
- Glue
- Grease
- Ink
- Lacquer
- Latex
- Oils & Lubricants
- Paints
- Paper Coatings
- Polymers
- Pulp & Paper Slurry
- Resins
- Retention Aids
- Sealants
- Silicone Emulsions
- Sludges
- Slurries
- Soaps
- Solvents
- Specialty Chemicals
- Starch

PRODUCT DIMENSIONS

NEW LEVELS OF PERFORMANCE



The series covers a range of nominal flow rates from 2 to 830 GPM (0.5 to 189 m³/hr).

| MODEL | DISPLACEMENT PER REVOLUTION | | NORMAL CAPACITY TO | | INLET/OUTLET | | PRESSURE RANGE** | | MAXIMUM RPM*** | APPLICABLE WEIGHTS | |
|-----------|-----------------------------------|-------|-----------------------|-------|--------------|-----|---------------------|-------|-------------------|-----------------------|------|
| | GAL. | LITER | GPM | M³/HR | IN | MM | PSI | BAR | | LBS | KGS |
| U2 ND-006 | .0082 | .031 | 8 | 1.8 | 1" | 25 | 300 | 20.7 | 1000 | 55 | 25 |
| U2 ND-015 | .014 | .054 | 11 | 2.5 | 1.5" | 38 | 250 | 17.2 | 800 | 60 | 27 |
| U2 ND-018 | .029 | .110 | 20 | 4.5 | 1.5" | 38 | 200 | 13.8 | 700 | 60 | 27 |
| U2 ND-030 | .060 | .227 | 36 | 8.2 | 1.5" | 38 | 250 | 17.2 | 600 | 120 | 54 |
| U2 ND-040 | .076 | .228 | 46 | 10.4 | 2" | 51 | 150 | 10.50 | 600 | 120 | 54 |
| U2 ND-045 | .098 | .371 | 58 | 13.2 | 2" | 51 | 450 | 31.0 | 600 | 120 | 54 |
| U2 ND-060 | .153 | .579 | 90 | 20.4 | 2.5" | 64 | 300 | 20.7 | 600 | 270 | 122 |
| U2 ND-130 | .253 | .958 | 150 | 34.1 | 3" | 76 | 200 | 13.8 | 600 | 300 | 136 |
| U2 ND-180 | .380 | 1.438 | 230 | 52.2 | 3" | 76 | 450 | 31.0 | 600 | 505 | 229 |
| U2 ND-210 | .502 | 1.900 | 300 | 68.1 | 4" | 102 | 500 | 34.5 | 600 | 505 | 229 |
| U2 ND-220 | .521 | 1.972 | 310 | 70.4 | 4" | 102 | 300 | 20.7 | 600 | 505 | 229 |
| U2 ND-320 | .752 | 2.847 | 450 | 102 | 6" | 152 | 300 | 20.7 | 600 | 850 | 386 |
| U2 ND-370 | 1.099 | 4.160 | 660 | 150 | 6" | 152 | 200 | 13.8 | 600 | 1000 | 454 |
| 420 UHC | 1.619 | 6.13 | 648 | 147 | 6" | 152 | 200 | 13.8 | 400 | 2595 | 1177 |
| 520 UHC | 2.375 | 8.99 | 830 | 187 | 8" | 203 | 150 | 10.3 | 350 | 2905 | 1317 |
| 5040 | .060 | 0.227 | 36 | 8.2 | 1.5" | 38 | 200 | 13.8 | 600 | 135 | 61 |
| 5050 | .153 | 0.579 | 90 | 20.4 | 2" | 51 | 200 | 13.8 | 600 | 275 | 125 |
| 5060 | .254 | 0.961 | 150 | 34.1 | 2.5" | 64 | 200 | 13.8 | 600 | 285 | 129 |
| 5070 | .440 | 1.666 | 260 | 59.1 | 4" | 102 | 200 | 13.8 | 600 | 575 | 261 |
| 5080 | .754 | 2.854 | 450 | 102 | 6" | 152 | 200 | 13.8 | 600 | 940 | 426 |

Temperature Range for all models ranges from -40°F/C to 300°F (149°C)

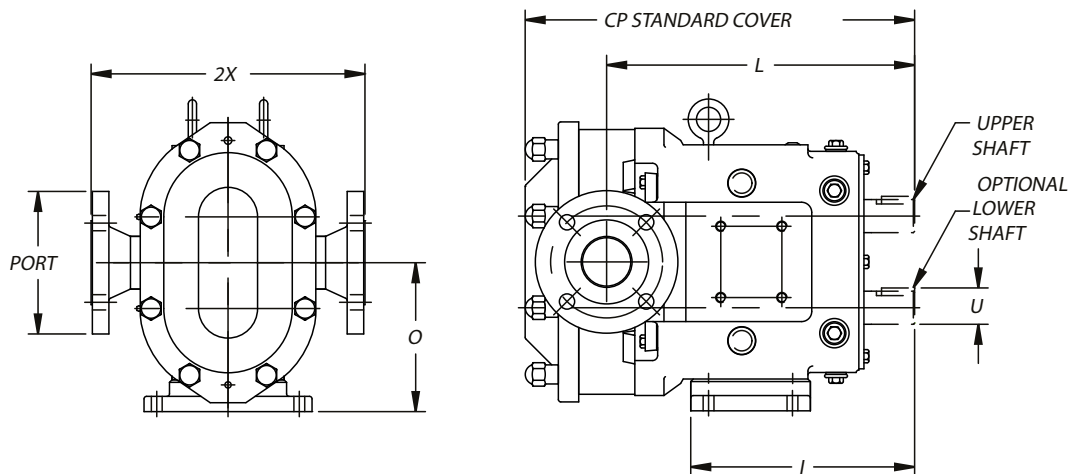
* Optional Inlet and Outlet available for 5040 2", 5050 2.5" and 5060 3"

** Contact Application Engineering for higher pressure or higher temperature applications

*** Actual Max RPM is fluid dependent based on testing at SPX FLOW Test Lab

PRODUCT DIMENSIONS

U2 ND

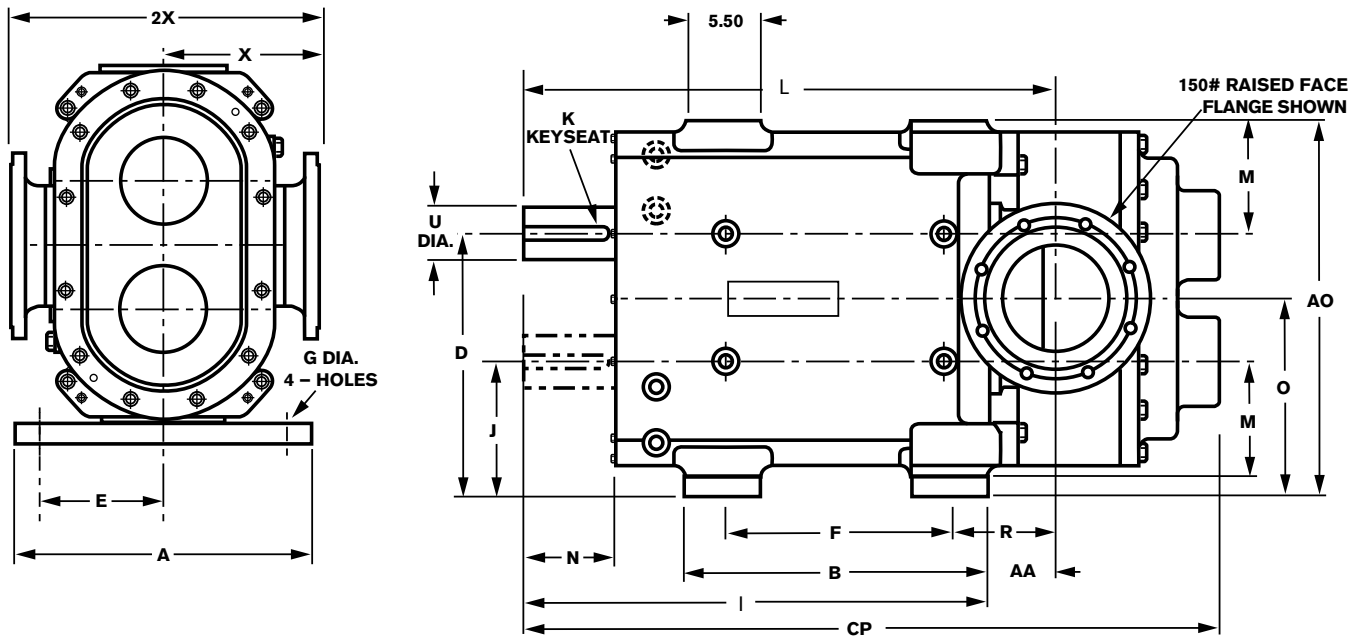


| MODEL | | CP | I | L | O | PORT SIZE | U +.000 -.001 | 2X | CP4 | APPLICABLE WEIGHTS | |
|-----------|----|-------|-------|-------|-------|------------|---------------------|-------|-------|--------------------|-----|
| | | | | | | | | | | LBS | KGS |
| 006-U2 ND | in | 11.71 | 7.66 | 9.61 | 4.21 | 1" | .875 | 6.97 | 14.92 | 55 | 25 |
| | mm | 297 | 194 | 244 | 107 | -- | 22.23 | 177 | 379 | 60 | 27 |
| 015-U2 ND | in | 11.71 | 7.66 | 9.61 | 4.21 | 1-1/2" | .875 | 6.97 | 14.92 | 60 | 27 |
| | mm | 297 | 194 | 244 | 107 | -- | 22.23 | 177 | 379 | 120 | 54 |
| 018-U2 ND | in | 12.37 | 7.66 | 10.48 | 4.21 | 1-1/2" | .875 | 6.97 | 15.58 | 120 | 54 |
| | mm | 314 | 194 | 266 | 107 | -- | 22.23 | 177 | 396 | 120 | 54 |
| 030-U2 ND | in | 14.49 | 8.83 | 11.61 | 5.21 | 1-1/2" | 1.250 | 8.50 | 17.58 | 270 | 122 |
| | mm | 368 | 224 | 295 | 132 | -- | 31.75 | 216 | 447 | 300 | 136 |
| 040-U2 ND | in | 14.87 | 8.83 | 11.77 | 5.21 | 2" | 1.25 | 8.62 | 14.87 | 505 | 229 |
| | mm | 378 | 224 | 305 | 132 | ----- | 31.75 | 219 | 378 | 505 | 229 |
| 045-U2 ND | in | 18.59 | 10.99 | 14.86 | 7.31 | 2" | 1.625 | 10.75 | 22.28 | 505 | 229 |
| | mm | 472 | 279 | 377 | 186 | -- | 41.28 | 273 | 566 | 850 | 386 |
| 060-U2 ND | in | 19.14 | 10.99 | 15.14 | 7.31 | 2-1/2" | 1.625 | 10.75 | 22.83 | 1000 | 454 |
| | mm | 486 | 279 | 385 | 186 | -- | 41.28 | 273 | 580 | 55 | 25 |
| 130-U2 ND | in | 20.15 | 10.99 | 15.77 | 7.312 | 3" | 1.625 | 10.75 | 23.84 | 60 | 27 |
| | mm | 512 | 279 | 401 | 186 | -- | 41.28 | 276 | 606 | 60 | 27 |
| 180-U2 ND | in | 23.26 | 14.80 | 18.25 | 9.38 | 3" | 2.000 | 13.06 | 28.51 | 120 | 54 |
| | mm | 591 | 376 | 464 | 238 | -- | 50.80 | 332 | 724 | 120 | 54 |
| 210-U2 ND | in | 27.08 | 17.80 | 21.24 | 10.38 | 4" | 2.375 | 14.73 | 27.08 | 120 | 54 |
| | mm | 688 | 452 | 539 | 264 | ----- | 60.45 | 374 | 688 | 270 | 122 |
| 220-U2 ND | in | 24.00 | 14.80 | 18.49 | 9.38 | 4" | 2.000 | 13.25 | 29.25 | 300 | 136 |
| | mm | 610 | 376 | 470 | 238 | -- | 50.80 | 337 | 743 | 505 | 229 |
| 320-U2 ND | in | 27.66 | 17.80 | 21.63 | 10.38 | 6 150# FLG | 2.375 | 16.00 | 27.66 | 505 | 229 |
| | mm | 703 | 452 | 549 | 264 | -- | 60.45 | 406 | 703 | 505 | 229 |
| 370-U2 ND | in | 29.16 | 17.80 | 22.32 | 10.38 | 6 150# FLG | 2.38 | 17.00 | 29.16 | 850 | 386 |
| | mm | 741 | 452 | 567 | 264 | --- | 60.5 | 432 | 741 | 1000 | 454 |

* Listed capacity and maximum rpm for intermittent duty only.
Consult WCB technical services for recommendations on your pumping requirements.

PRODUCT DIMENSIONS

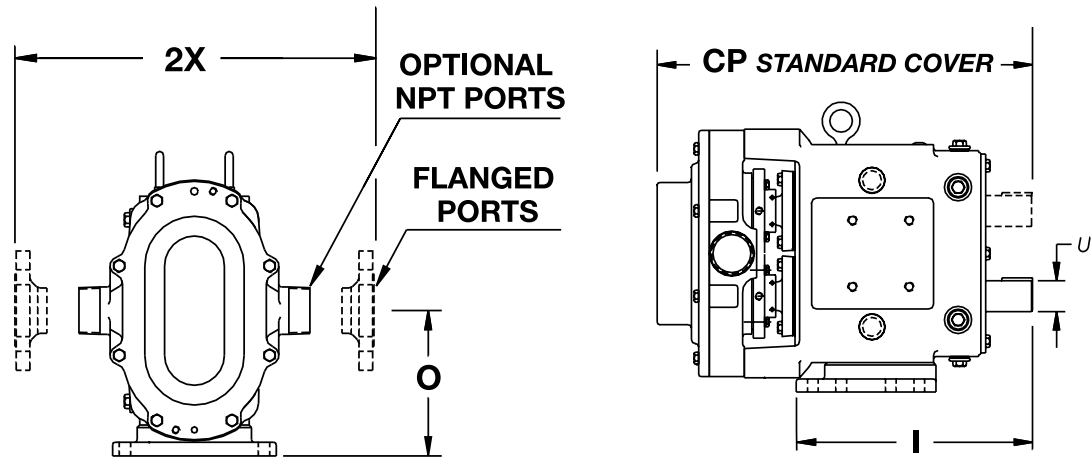
420/520 UHC



| MODEL | | A | AA | AO | B | CP | D | E | F | G | I | APPLICABLE WEIGHTS | |
|---------|----|-------|------|-------|-------|-------|-------|------|-------|------|-------|--------------------|------|
| | | | | | | | | | | | | LBS | KGS |
| 420-UHC | in | 21.00 | 5.60 | 27.25 | 22.00 | 49.60 | 18.75 | 9.00 | 16.50 | 1.06 | 33.60 | 2595 | 1177 |
| | mm | 533 | 142 | 692 | 559 | 1260 | 476 | 229 | 419 | 27 | 853 | | |
| 520-UHC | in | 21.00 | 5.95 | 27.25 | 22.00 | 51.47 | 18.75 | 9.00 | 16.50 | 1.06 | 33.60 | 2905 | 1317 |
| | mm | 533 | 151 | 692 | 559 | 1307 | 476 | 229 | 419 | 27 | 853 | | |

| MODEL | | J | K | L | M | N | O | R | U | X | 2X | FLANGE SIZE |
|---------|----|------|------|-------|------|------|-------|------|-------|-------|-------|-------------|
| 420-UHC | in | 9.75 | 1.00 | 39.19 | 8.50 | 6.04 | 14.25 | 8.35 | 3.875 | 11.25 | 22.50 | ANSI 6" |
| | mm | 248 | 25 | 995 | 216 | 153 | 362 | 212 | 98 | 286 | 572 | 152 |
| 520-UHC | in | 9.75 | 1.00 | 39.55 | 8.50 | 6.04 | 14.25 | 8.70 | 3.875 | 11.25 | 22.50 | ANSI 8" |
| | mm | 248 | 25 | 1005 | 216 | 153 | 362 | 221 | 98 | 286 | 572 | 203 |

5000 SERIES



| MODEL | | CP | I | O | PORT SIZE | U +.000 -.001 | 2X | APPLICABLE WEIGHTS | |
|-------|----|-------|-------|-------|----------------------|---------------------|-------|--------------------|-----|
| | | | | | | | | LBS | KGS |
| 5040 | in | 16.52 | 8.83 | 5.21 | 1-1/2" - 150# Flange | 1.250 | 11.91 | 100 | 45 |
| | mm | 419 | 224 | 132 | -- | 31.75 | 303 | | |
| 5050 | in | 19.83 | 12.49 | 7.31 | 2" - 150# Flange | 1.625 | 13.25 | 240 | 109 |
| | mm | 504 | 317 | 186 | -- | 41.28 | 337 | | |
| 5060 | in | 20.78 | 12.49 | 7.31 | 2-1/2" - 150# Flange | 1.625 | 13.50 | 245 | 111 |
| | mm | 528 | 317 | 186 | -- | 41.28 | 343 | | |
| 5070 | in | 26.31 | 15.29 | 9.38 | 4" - 150# Flange | 2.000 | 14.75 | 475 | 215 |
| | mm | 668 | 388 | 238 | -- | 50.80 | 375 | | |
| 5080 | in | 30.17 | 17.80 | 10.38 | 6" - 150# Flange | 2.375 | 16.00 | 810 | 367 |
| | mm | 766 | 452 | 264 | -- | 60.33 | 406 | | |

>Waukesha Cherry-Burrell®

DRIVE OPTION

Close coupled Tru-Fit® pump mounted on epoxy-painted base.

Features

No shaft alignment necessary. No coupling guard required

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

- NEMA or IEC frame motors available. Right angle reducer also available for additional space savings
- 1/2 through 60 horsepower drive options available
- Horizontal or vertical porting

SPXFLOW®

SPX FLOW, Inc. reserves the right to incorporate our latest design and material changes without notice or obligation. Design features, materials of construction and dimensional data, as described in this bulletin, are provided for your information only and should not be relied upon unless confirmed in writing. Please contact your local sales representative for product availability in your region. The green ">" is a trademark of SPX FLOW, Inc.

For more information, visit www.spxflow.com.