



# HYGIENIC PRODUCT RANGE



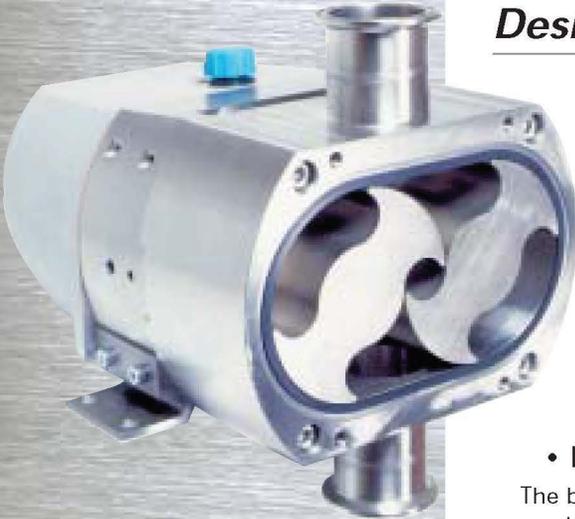
Jabsco

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# ROTARY LOBE PUMPS - ULTRA HYGIENIC

## Ultima/55 SERIES Ultra Hygienic Positive Displacement Pump

### Design Features



The ultimate hygienic rotary positive displacement pump designed without compromise to fulfil even the most critical customer demands in cleanability, steriliseability and bacterial tightness. This 316L stainless steel design uses bi-wing or 5-lobe rotor designs specifically utilised to achieve the very lowest shear rate and product degradation characteristics. The Ultima pump is an extension of Jabsco's world renowned 55 series pump which was the first pump of its kind and a virtual industry standard in the Bio-pharm arena.

- **Ultimate Hygienic Standards**

Tested and approved to the EHEDG (European Hygienic Equipment Design Group), CIP, SIP and Bacterial Tightness protocols. Full conformance to 3A Sanitary Standards 18-03 and 03-09 and utilising materials which meet the requirements of the FDA title 21, section 177.2600.

- **Cleaner by Design**

External rotor retention together with gasket type joints in place of O-rings reduce the number of potential product entrapment areas. In addition to this, the shaft seals are pulled forward fully in the product zone, all of which adds up to the ultimate in cleanability.....every time!

- **Low Product Shearing**

The bi-wing and 5 lobe rotor designs ensure high volumetric efficiency on low viscosity products resulting in low shear rates and low product damage.

- **Rugged Design**

This pump design utilises extremely large shaft diameters mounted in high specification taper roller bearings. These give maximum shaft stiffness to ensure no galling thus maintaining the pump's CIP and SIP capabilities.

### Options

- **Seals**

**Front loaded single mechanical face type seals** of hygienic design. Materials include carbon and silicon carbide.

**Low pressure flushed seals** utilise the same single mechanical seal with an additional housing. A low pressure flush liquid washes away crystallising products or liquids which 'skin over'.

**Double mechanical seals** utilising all the components from single seals. Used for hazardous, toxic, highly abrasive or sterile products.

- **Connections**

US and European standards including Tri-Clamp. All pumps available with 2 different sizes.

- **Elastomers**

USP Class VI, EPDM, Viton and PTFE product contact joints all in compounds conforming to the FDA CFR title 21 section 177.2600.

- **Other options**

Aseptic barrier end cover joints to maintain sterility of product during long cycle times.

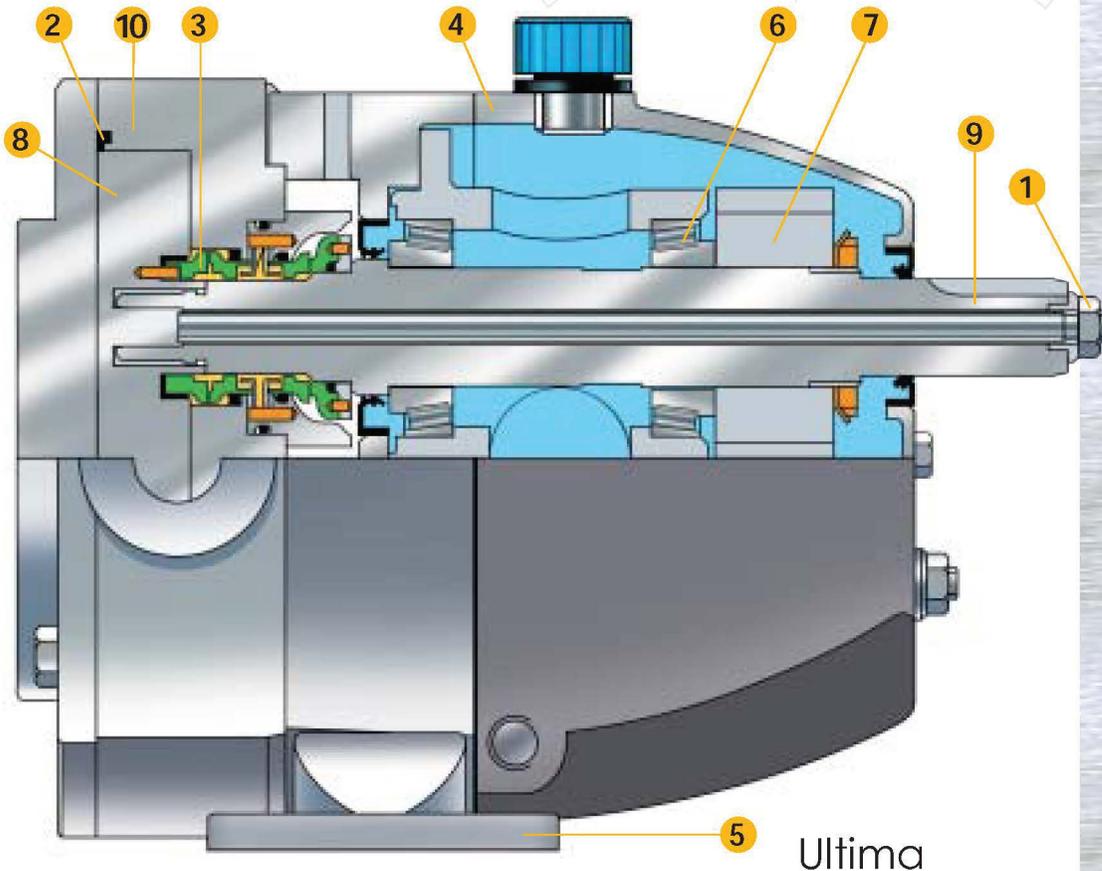
Electropolish or high polish internal surfaces to 0.5µm Ra (240grit) for minimised cell damage and maximised cleanability.



|  | 55 Series                   |                              |                              | Ultima                         |                                |                                |                                 |                              |                            |
|--|-----------------------------|------------------------------|------------------------------|--------------------------------|--------------------------------|--------------------------------|---------------------------------|------------------------------|----------------------------|
| Pump Model                                     | 55210                       | 55320                        | 55420                        | LU42                           | LU44                           | LU52                           | LU54                            | LU62                         | LU64                       |
| Port Size (mm)<br>(inch)                       | 12.5<br>1/2                 | 19<br>3/4                    | 25<br>1                      | 25 or 38<br>1 or 1 1/2         | 38 or 50<br>1 1/2 or 2         | 38 or 50<br>1 1/2 or 2         | 50 or 76<br>2 or 3              | 63 or 76<br>2, 2 1/2 or 3    | 76 or 100<br>3 or 4        |
| Displacement (litre)<br>(100 revs)<br>(US gal) | 1<br>0.26                   | 2.9<br>0.77                  | 6.7<br>1.77                  | 12.3<br>3.25                   | 20.4<br>5.39                   | 26.5<br>7.00                   | 45.5<br>12.02                   | 64<br>16.90                  | 95<br>25.10                |
| Max Flow (litre)<br>(per min)<br>(US gal)      | 16<br>4.2                   | 44<br>11.6                   | 67<br>17.7                   | 123<br>32.5                    | 204<br>53.9                    | 254<br>70.0                    | 437<br>120.2                    | 461<br>121.8                 | 684<br>180.7               |
| Max Pressure (bar)<br>(psi)                    | 14<br>203                   | 20<br>290                    | 20<br>290                    | 15<br>217                      | 8<br>116                       | 15<br>217                      | 8<br>116                        | 15<br>217                    | 8<br>116                   |
| Max Speed (RPM)                                | 1500                        | 1500                         | 1000                         | 1000                           | 1000                           | 1000                           | 1000                            | 720                          | 720                        |
| Size LxBxH (mm)<br>(inch)                      | 191x114x135<br>7.5x4.5x5.25 | 264x145x168<br>10.5x5.75x6.5 | 302x168x191<br>11.75x6.5x7.5 | 285x223x182<br>10.75x8.75x7.75 | 301x223x182<br>11.75x8.75x7.75 | 386x249x208<br>15.25x9.75x8.25 | 414x259x213<br>16.25x10.25x8.25 | 463x328x249<br>18.25x13x9.75 | 492x328x254<br>19.25x13x10 |
| Bareshaft Weight (kg)<br>(lbs)                 | 8<br>18                     | 19<br>42                     | 26<br>57                     | 23<br>51                       | 25<br>55                       | 38<br>84                       | 41<br>90                        | 70<br>154                    | 75<br>165                  |
| Temp (°C)<br>(°F)                              | -30 to 140<br>-22 to 284    |                              |                              |                                |                                |                                |                                 |                              |                            |
| Viscosity (cP)                                 | 1 to 1 million              |                              |                              |                                |                                |                                |                                 |                              |                            |



## Construction Details

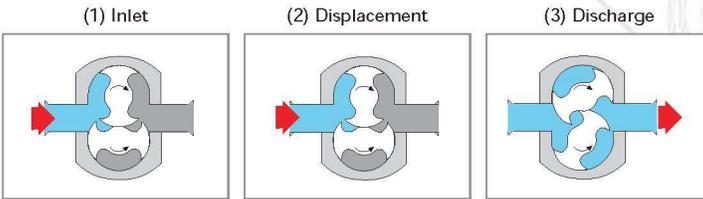


- 1 External rotor retainers prevent build up of stagnant product, by removing the need for end cover recesses and O-ring crevices entirely.
- 2 Gasket type joints eliminate the uncertainty of O-rings in terms of cleanliness.
- 3 Front mounted shaft seals allow for easy replacement and full accessibility of CIP liquids.
- 4 Rugged, stainless steel bearing pedestal and housing allow for maximum hygiene (epoxy coated cast iron with stainless steel option on 55 series).
- 5 Removable feet allow quick change for pump mounting in the ideal orientation.
- 6 High specification taper roller bearings give over one million hours life on a typical duty.
- 7 Precision cut gears yield high load capability and ease of maintenance or replacement.
- 8 Fully interchangeable bi-wing rotors can be fitted without the need to re-time thus reducing downtime and allows pump to cope with a higher level of abuse and larger solids.
- 9 Heavy duty shafts for maximum rigidity and minimum galling due to low deflections.
- 10 Low carbon 316L pump head with welded ports for reduced carbide precipitation, increased corrosion resistance and minimal carbon 'pull-out'.

# PRINCIPLES OF OPERATION

## Rotary Lobe Pumps

### 3 Bi-wing Rotor

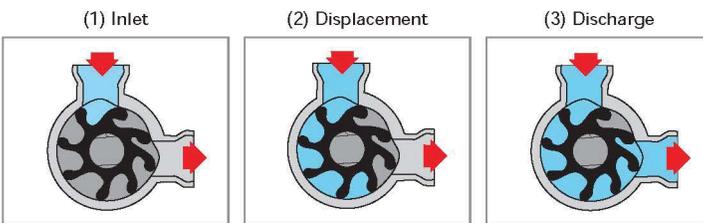


Every Jabsco Lobe Pump is a true positive displacement rotary lobe pump. During operation, fluid is smoothly drawn into the pump.

Fluid is carried around the outside of the rotors to be positively discharged at a steady flow rate by two centre-rotating rotors.

This action, combined with the absence of rubbing contact between the rotors or casing, is capable of handling fluid reliably, cleanly and without degradation.

## Flexible Impeller Pumps



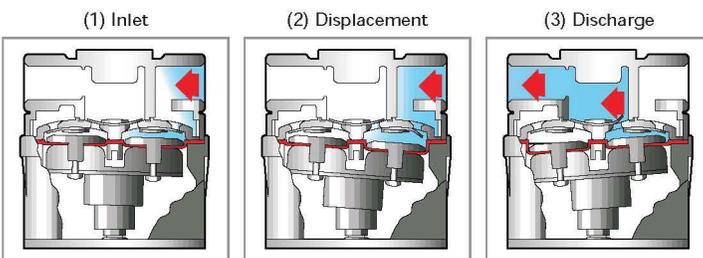
On start-up, air in the inlet pipe is displaced and liquid is drawn into pump.

The liquid is then carried through to be discharged at a steady flow rate.

This action combines gentle pumping with true dry priming capability.

## Diaphragm Pumps

### Motor Driven



Self-priming design allows pumps to create suction to draw fluid into pump without manual priming.

Fluid enters inlet port and is drawn through inlet check valve when piston moves away from the check valve.

As piston moves toward the check valve assembly, the fluid is forced through the outlet check valve and out of the pump.

# APPLICATIONS



## Pharmaceutical Industry

Nutraceutical  
Cell slurries  
Buffer solutions  
Bio-products

## Health Care Industry

Cosmetics  
Creams  
Lotions  
Dietary products

## Food Process Industry

Bakery  
Beverage  
Brewery  
Dairy  
Meat  
Canning  
Confectionery

## Chemical Industry

Household products  
Strong acids  
Emulsions  
Polymers  
Paper coating  
Water treatment

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