



ALEKTON



SERIES-D TRIPLE-SCREW PUMPS

Alektion triple-screw pumps are positive-displacement, self-priming rotary pumps of advanced design and manufacture, for use in a variety of industrial and marine applications. Typical liquids handled include lubricating oils, fuel oils, hydraulic oils, viscose, molasses, paints and creams.

Triple-screw pumps combine the advantages of centrifugal and positive-displacement pumps. They can operate at high speeds, and can handle liquids having wide ranges of viscosity, even with entrained gases. The pumps can develop high pressures and have excellent suction capability and operating efficiency. Their discharge is virtually constant and pulsation-free with variations in pressure and liquid viscosity.

Alektion triple-screw pumps are very versatile and can handle liquids with as varied characteristics

as benzene and bitumen. As the pumping action of their screws is continuous, the noise and vibration levels are extremely low. They are engineered to give long trouble-free service with minimum maintenance.

Alektion triple-screw pumps are manufactured using premium quality materials matched to service requirements. Computerised design and production-control systems, and manufacture on precision CNC machinery assure consistently high quality and performance.

The pumps are of modular construction, with their internal pumping elements capable of being inspected or replaced as a cartridge without disconnecting the pipe-lines.

Upon request, pumps can be manufactured to meet the specific requirements of international inspection agencies.

Standard Mounting Arrangements



Horizontal



Vertical



Close Coupled

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Series-D Triple Screw Pumps

Specifications

Application

For handling clear viscous liquids. The liquids to be pumped must neither contain abrasive substances nor chemically attack the pump materials.

Design

The pumping elements comprise of a power-screw and two idler screws, running in a close fitting insert. Mathematically calculated profiles of the screws ensure the formation of chambers of constant volume. When the screws rotate, they move at uniform velocity axially and transfer the entrapped liquid without crushing, turbulence or pulsation.

The idler screws serve to maintain the closed chambers which pump the liquid. Because they are suitably proportioned, they are driven hydraulically by the pumped liquid, eliminating the need for timing gears. Axial hydraulic thrust is balanced by balancing drums on each screw thus relieving the bearing of thrust loads. The balancing drums of the idler screws as well as the power screw run in replaceable bushes.

The shaft seal chamber is connected internally to the inlet and the seal is therefore always subjected to inlet pressure only. With high suction lifts, a pressure control valve is provided so that the pressure in the seal chamber is maintained above atmospheric to prevent ingress of air and dry-running of the seal.

Shaft Bearing

Normally, pumps are fitted with internal anti-friction bearings, lubricated by the pumped liquid. External bearings can be provided if the pumped liquid is non-lubricating.

Shaft Seal

Shaft sealing can be accomplished by a mechanical seal or compression packing.

Pressure Relief Valves

All pumps can be supplied with built-on pressure relief valves.

The valves are designed for full-flow bypass and can be furnished with connections for the by-passed liquid to be returned by a separate line to the inlet-tank.

Materials of Construction

| | |
|-----------------------------|-------------------------------|
| Screws | : Nitrided chrome-alloy steel |
| Insert and bushes | : Bearing-grade cast iron |
| Casing | : Steel / Cast iron |
| Other wetted metallic parts | : Steel / Cast iron |
| Wetted non-metallic parts | : Rubber / Fibre |
| Non-wetted parts | : Steel / Cast iron |

General Construction

The insert, screws and balancing bushes, together with bearing and seals form a cartridge that is located inside a casing. The cartridge includes all the wearing parts and can be removed for inspection or replacement as a unit. The casing is provided with in-line flanged inlet and outlet connections.

Pumps are available with the following mounting arrangements:

| Type | Mounting arrangement |
|------|--------------------------|
| H | Horizontal, foot-mounted |
| V | Vertical, foot-mounted |
| F | Flange mounted |
| C | Close-coupled |
| S | Sump-mounted |

Normal Operating Range

| | |
|--------------------|---------------------|
| Viscosity | : 0.8 to 100000 cSt |
| Flow rate | : 5 to 10000 L/min |
| Outlet pressure | : 0 to 64 barg |
| Inlet pressure | : -1 to 6 barg |
| Liquid temperature | : -30 to 130 °C |

Pump Selection

A computer program is used to make the optimum selection which takes into account the extreme site duty conditions and liquid characteristics.

Optional Equipment

The following accessories and optional equipment can be provided:

- Pressure relief valves
- Motor stools for flange mounted designs
- Motors, engines or other prime-movers
- Couplings
- Base-plates, coupling-guards and foundation-bolts for foot-mounted arrangements

Modifications

Various special modifications are possible, some of which are as follows:

- Inlet and outlet flange sizes and orientation
- Materials of construction
- Extended operating limits
- Alternative mounting arrangements
- Special shaft sealing arrangements

Other series of pumps are available for higher duty conditions—please refer to us with details.

Duty Range

| Size | Displacement ml/rev | Inlet mm | Outlet mm |
|---------|---------------------|----------|-----------|
| 120-200 | 3.6 | 20 | 15 |
| 120-240 | 4.3 | 20 | 15 |
| 120-280 | 5.0 | 20 | 15 |
| 120-320 | 5.7 | 20 | 15 |
| 120-360 | 6.4 | 20 | 15 |
| 120-400 | 7.2 | 20 | 15 |
| 135-225 | 5.1 | 32 | 25 |
| 135-270 | 6.1 | 32 | 25 |
| 135-315 | 7.1 | 32 | 25 |
| 135-360 | 8.2 | 32 | 25 |
| 135-405 | 9.2 | 32 | 25 |
| 135-450 | 10.2 | 32 | 25 |
| 150-250 | 7.0 | 32 | 25 |
| 150-300 | 8.4 | 32 | 25 |
| 150-350 | 9.8 | 32 | 25 |
| 150-400 | 11.2 | 32 | 25 |
| 150-450 | 12.6 | 32 | 25 |
| 150-500 | 14.0 | 32 | 25 |
| 165-275 | 9.3 | 32 | 25 |
| 165-330 | 11.2 | 32 | 25 |
| 165-385 | 13.0 | 32 | 25 |
| 165-440 | 14.9 | 32 | 25 |
| 165-495 | 16.8 | 32 | 25 |
| 165-550 | 18.6 | 32 | 25 |
| 189-315 | 14.0 | 50 | 40 |
| 189-378 | 16.8 | 50 | 40 |
| 189-441 | 19.6 | 50 | 40 |
| 189-504 | 22.4 | 50 | 40 |
| 189-567 | 25.2 | 50 | 40 |
| 189-630 | 28.0 | 50 | 40 |
| 210-350 | 19.2 | 50 | 40 |
| 210-420 | 23.0 | 50 | 40 |
| 210-490 | 26.9 | 50 | 40 |
| 210-560 | 30.7 | 50 | 40 |
| 210-630 | 34.5 | 50 | 40 |
| 210-700 | 38.4 | 50 | 40 |
| 240-400 | 28.6 | 50 | 40 |
| 240-480 | 34.4 | 50 | 40 |

| Size | Displacement ml/rev | Inlet mm | Outlet mm |
|----------|---------------------|----------|-----------|
| 240-560 | 40.1 | 50 | 40 |
| 240-640 | 45.8 | 50 | 40 |
| 240-720 | 51.6 | 50 | 40 |
| 240-800 | 57.3 | 50 | 40 |
| 270-450 | 40.8 | 80 | 65 |
| 270-540 | 48.9 | 80 | 65 |
| 270-630 | 57.1 | 80 | 65 |
| 270-720 | 65.2 | 80 | 65 |
| 270-810 | 73.4 | 80 | 65 |
| 270-900 | 81.6 | 80 | 65 |
| 300-500 | 55.9 | 80 | 65 |
| 300-600 | 67.1 | 80 | 65 |
| 300-700 | 78.3 | 80 | 65 |
| 300-800 | 89.5 | 80 | 65 |
| 300-900 | 101 | 80 | 65 |
| 300-1000 | 112 | 80 | 65 |
| 330-550 | 74.5 | 80 | 65 |
| 330-660 | 89.3 | 80 | 65 |
| 330-770 | 104 | 80 | 65 |
| 330-880 | 119 | 80 | 65 |
| 330-990 | 134 | 80 | 65 |
| 330-1100 | 149 | 80 | 65 |
| 375-625 | 109 | 125 | 100 |
| 375-750 | 131 | 125 | 100 |
| 375-875 | 153 | 125 | 100 |
| 375-1000 | 175 | 125 | 100 |
| 375-1125 | 197 | 125 | 100 |
| 375-1250 | 219 | 125 | 100 |
| 420-700 | 153 | 125 | 100 |
| 420-840 | 184 | 125 | 100 |
| 420-980 | 215 | 125 | 100 |
| 420-1120 | 246 | 125 | 100 |
| 420-1260 | 276 | 125 | 100 |
| 420-1400 | 307 | 125 | 100 |
| 480-800 | 229 | 125 | 100 |
| 480-960 | 275 | 125 | 100 |
| 480-1120 | 321 | 125 | 100 |
| 480-1280 | 367 | 125 | 100 |

| Size | Displacement ml/rev | Inlet mm | Outlet mm |
|----------|---------------------|----------|-----------|
| 480-1440 | 412 | 125 | 100 |
| 480-1600 | 458 | 125 | 100 |
| 540-900 | 326 | 200 | 150 |
| 540-1080 | 391 | 200 | 150 |
| 540-1260 | 457 | 200 | 150 |
| 540-1440 | 522 | 200 | 150 |
| 540-1620 | 587 | 200 | 150 |
| 540-1800 | 652 | 200 | 150 |
| 600-1000 | 448 | 200 | 150 |
| 600-1200 | 537 | 200 | 150 |
| 600-1400 | 627 | 200 | 150 |
| 600-1600 | 716 | 200 | 150 |
| 600-1800 | 806 | 200 | 150 |
| 600-2000 | 895 | 200 | 150 |
| 660-1100 | 596 | 200 | 150 |
| 660-1320 | 715 | 200 | 150 |
| 660-1540 | 834 | 200 | 150 |
| 660-1760 | 953 | 200 | 150 |
| 660-1980 | 1072 | 200 | 150 |
| 660-2200 | 1191 | 200 | 150 |
| 750-1250 | 874 | 300 | 250 |
| 750-1500 | 1049 | 300 | 250 |
| 750-1750 | 1224 | 300 | 250 |
| 750-2000 | 1399 | 300 | 250 |
| 750-2250 | 1573 | 300 | 250 |
| 750-2500 | 1748 | 300 | 250 |
| 840-1400 | 1228 | 300 | 250 |
| 840-1680 | 1474 | 300 | 250 |
| 840-1960 | 1719 | 300 | 250 |
| 840-2240 | 1965 | 300 | 250 |
| 840-2520 | 2210 | 300 | 250 |
| 840-2800 | 2456 | 300 | 250 |
| 960-1600 | 1833 | 300 | 250 |
| 960-1920 | 2200 | 300 | 250 |
| 960-2240 | 2566 | 300 | 250 |
| 960-2560 | 2933 | 300 | 250 |
| 960-2880 | 3299 | 300 | 250 |
| 960-3200 | 3666 | 300 | 250 |



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