

Hydrostatic Transmissions and Planetary Gear Boxes



A hydrostatic transmissions consist of a hydraulic pump and motor, typically used as the main drive system on modern construction and many other industrial equipments.

Axial piston variable displacement pumps

are of swashplate construction with variable flow capability suitable for hydrostatic transmissions with closed loop circuit. The flow rate is proportional to the pump's driven speed and displacement which in turn determined by the swashplate angle. The latter is infinitely adjustable between zero and maximum displacement. Flow direction is reversed by tilting the swashplate to the opposite direction side of the neutral or zero displacement position.

Axial piston fixed displacement motors

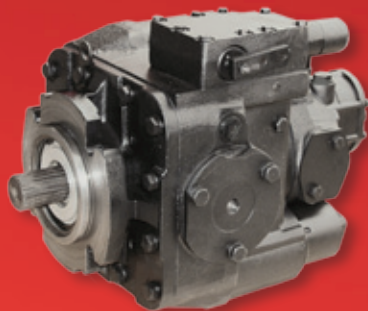
are of swashplate construction with preset displacement, and are intended for closed circuit, too. The output speed is proportional to the flow rate of the input fluid. The output torque is proportional to the differential between high and low pressure sides of the fluid circuit. The direction of motor shaft rotation depends upon which port of the fluid enters to the motor.

POWER SYSTEM FOR HEAVY DUTY APPLICATIONS (SERIE 20)

This heavy duty family offers: ■ seven sizes each of pumps and motors
■ a wide range of mechanical, hydraulic and electrical control.

AXIAL PISTON VARIABLE PUMPS

Series 20 PV Closed Loop



| | Dimensions | Frame Size | | | | | | | |
|--|----------------------|--|--------|--------|--------|--------|--------|--------|--------|
| | | PV-20 | PV-21 | PV-22 | PV-23 | PV-24 | PV-25 | PV-26 | PV-27 |
| Max displacement per revolution | cm ³ | 33,3 | 51,6 | 69,8 | 89,0 | 119,7 | 165,8 | 227,3 | 333,7 |
| Max flow | dm ³ /min | 119,94 | 159,96 | 196,14 | 230,61 | 278,94 | 348,18 | 428,59 | 557,28 |
| Displacement per revolution of the charge pump | cm ³ | 12,3 | 12,3 | 16,03 | 16,03 | 18,6 | 32,8 | 32,8 | 65,5 |
| Max pressure | MPa | 35 | | | | | | | |
| Nominal pressure | MPa | 21 | | | | | | | |
| Max pressure of control | MPa | 3,5 | | | | | | | |
| Charge pressure | MPa | 0,8 - 2,0 | | | | | | | |
| Max case pressure | MPa | max constant 0,25 ; intermittent 0,5 | | | | | | | |
| Maximum speed | min ⁻¹ | 3500 | 3150 | 2810 | 2590 | 2350 | 2100 | 1890 | 1670 |
| Minimum speed | min ⁻¹ | 500 | | | | | | | |
| Nominal speed | min ⁻¹ | 1500 | | | | | | | |
| Kinematic viscosity range of working fluid | mm ² /s | -starting -operating -optimum | | | | | | | |
| Kind of working fluid | | mineral oil | | | | | | | |
| Operating temperature | °C | -40 to +50 | | | | | | | |
| Max fluid temperature in tank | °C | 80 | | | | | | | |
| Purity of working fluid | microns | 10 µm | | | | | | | |
| Direction of shaft rotation | | clockwise (CW) or counterclockwise (CCW) | | | | | | | |
| Max swash plate angle | degrees | ±18° | | | | | | | |
| Weight | kg | 45 | 55 | 63 | 78 | 124 | 164 | 212 | 273 |

AXIAL PISTON FIXED MOTORS

Series 20 MF Closed Loop



| | Dimensions | Frame Size | | | | | | | |
|--|----------------------|--------------------------------------|--------|--------|--------|--------|--------|--------|--------|
| | | MF-20 | MF-21 | MF-22 | MF-23 | MF-24 | MF-25 | MF-26 | MF-27 |
| Max displacement per revolution | cm ³ | 33,3 | 51,6 | 69,8 | 89,0 | 119,7 | 165,8 | 227,3 | 333,7 |
| Max flow | dm ³ /min | 119,94 | 159,96 | 196,14 | 230,61 | 278,94 | 348,18 | 428,59 | 557,28 |
| Displacement per revolution of the charge pump | cm ³ | 12,3 | 12,3 | 16,03 | 16,03 | 18,6 | 32,8 | 32,8 | 65,5 |
| Max pressure | MPa | 35 | | | | | | | |
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| Max case pressure | MPa | max constant 0,25 ; intermittent 0,5 | | | | | | | |
| Maximum speed | min ⁻¹ | 3500 | 3100 | 2810 | 2590 | 2350 | 2100 | 1890 | 1670 |
| Minimum speed | min ⁻¹ | 500 | | | | | | | |
| Nominal speed | min ⁻¹ | 1500 | | | | | | | |
| Kinematic viscosity range of working fluid | mm ² /s | -starting -operating -optimum | | | | | | | |
| Kind of working fluid | | mineral oil | | | | | | | |
| Operating temperature | °C | -40 to +50 | | | | | | | |
| Max fluid temperature in tank | °C | 80 | | | | | | | |
| Purity of working fluid | microns | 10 µm | | | | | | | |
| Max swash plate angle | degrees | ±18° | | | | | | | |
| Weight | kg | 30 | 35 | 40 | 47 | 70 | 124 | 152 | 197 |

AXIAL PISTON VARIABLE MOTORS MV we delivery MV-20, MV-22, MV-23

Series 20 Closed loop

PLANETARY GEAR BOXES GTN-PM

are used for direct drives of truck mounted concrete mixers with the drum capacity from 6 to 18 m³. Drum is directly mounted to the driving flange of the gearbox which is transmitting torque moment from hydraulic motor and supports its front part.

Gear Boxes GTN-PM are available: ■ with water pump drive
■ without water pump drive

PLANETARY GEAR BOXES

SERIES GTN-PM



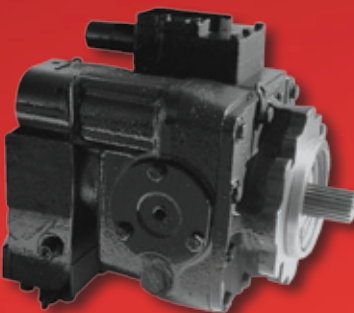
| MODEL | GTN PM-S1 | GTN PM-61 | GTN PM-71 | GTN PM-80 |
|-----------------------|----------------------|-------------------|------------------------|-------------------------|
| Design | In-line | In-line | In-line | In-line |
| Gear ratio | 1:100 | 1:100 | 1:115 | 1:40 |
| Max. output torque | 51 000 Nm | 61 000 Nm | 71 000 Nm | 82 000 Nm |
| Oil capacity | 6 Liters | 6 Liters | 8 Liters | 8 Liters |
| Max. input speed | 1 800rpm | 1 800rpm | 2 500rpm | 2 600rpm |
| Weight | 250 kg | 260 kg | 265 kg | 294 kg |
| Overall length | 380 mm | 380 mm | 380 mm | 623 mm |
| Drum size application | 6 - 9 m ³ | 10 m ³ | 10 - 12 m ³ | Up to 18 m ³ |

AXIAL PISTON VARIABLE PUMPS

PV – short version

Closed loop

PVK-20, PVK-22, PVK-23



| | Symbol | Dimensions | Frame Size | | |
|---------------------------------------|----------------------|----------------------|------------|---|--------|
| | | | PVK-20 | PVK-22 | PVK-23 |
| Displacement | max V _g | cm ³ | 31.3 | 69.8 | 89 |
| Speed | max n _{max} | rpm | 3800 | 3200 | 2900 |
| | min n _{min} | rpm | 500 | 520 | 500 |
| Rate of flow | max Q _{max} | dm ³ /min | 125.5 | 223.4 | 258.1 |
| Pressure | not p | MPa | | 35 | |
| | max p _{max} | MPa | | 42 | |
| Output | max P _{max} | kW | 44.7 | 73.3 | 93.5 |
| Torque moment | max M _{max} | Nm | 227.7 | 445.9 | 595.2 |
| Swash plate angle | α _{max} | (°) | | ±18 | |
| Direction of shaft rotation | | | | clockwise (CW) or counterclockwise (CCW) | |
| Case pressure | | MPa | | 0.25-continuous 0.5 peak intermittent | |
| Control pressure | | MPa | | 1.3 to 1.5 | |
| Weight | m | kg | 45 | 64 | 85 |
| | continuous SAE A | | | 75 | |
| Torque for auxiliary output | continuous SAE B | | | 175 | |
| | continuous SAE B-B | | | 225 | |
| | maximal SAE A | Nm | | 107 | |
| | maximal SAE B | | | 250 | |
| Torque for 2nd section of tandem pump | maximal SAE B-B | | | 320 | |
| | continuous maximal | Nm | | 225 | 320 |

TANDEM AXIAL VARIABLE PUMPS

Series PV

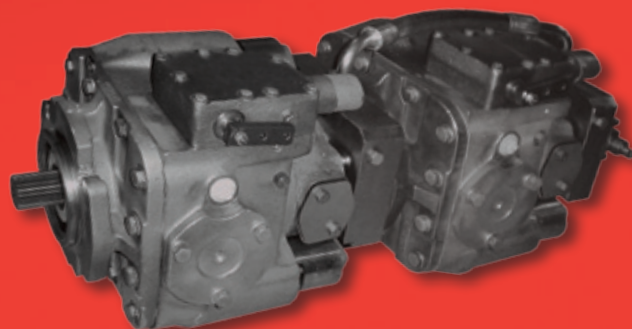
Closed loop

PV-22 + PV-22 140 kg

PV-23 + PV-23 170 kg

See all technical details

on Axial Piston Variable Pumps – Short Version PVK



Some of Applications



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