PSM HYDRAULICS

PRODUCTION RANGE

Dear friends!

We are pleased to draw your attention to the new production catalogue of “PSM-Hydraulics” («Pnevmostroimashina» JSC , Ekaterinburg, Russia).

«Pnevmostroimashina» JSC – leading Russian machine building company with more than 95 years history, specialized in design, manufacture and sale on domestic and international markets of the following kinds of hydraulic equipment:
- fixed and variable displacement hydraulic motors and pumps;
- hydrostatic transmissions;
- pumping and motor units;
- hydraulic valve equipment;
- hydraulic drive elements.

Production activity of our enterprise is based on long-term engineering potential and constant introduction of new equipment and technologies.
All the products manufactured by our enterprise are 100 % tested on the benches and at laboratories with modern measuring and testing equipment.
The quality management system of “PSM-Hydraulics” products design and manufacture is certified by the international company Lloyds' Register Quality Assurance to the conformity of the international standard BS EN ISO 9001:2008, certificate №SPB 0006283.

The present catalogue includes technical information on the range of our main products – fixed and variable displacement axial piston hydraulic motors and pumps, hydraulic valve equipment.
You can download the catalogue and find additional information about our company on our website: www.psm-hydraulics.com.
The company reserves the right to introduce changes into the catalogue contents in future editions, in technical characteristics during update, improvement of parameters, introduction of new articles.
We have tried to present our product range in the most comprehensive and easily understandable way and we shall be glad if this catalogue will help you to apply and use our articles.
We shall appreciate your kind comments and suggestions on the present edition and on improvements of our products by tel.: +7 343 2646650, fax: +7 343 2299602 or by e-mail: trade@psmural.ru

Best regards,

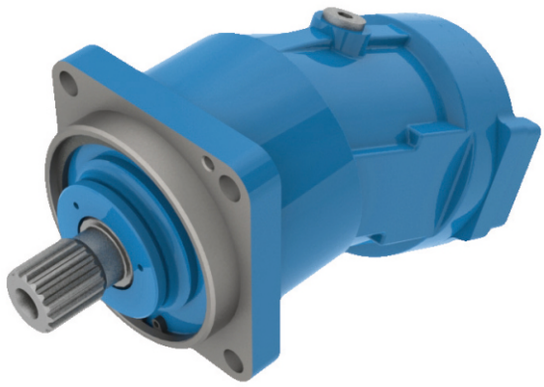
Vladimir Anisimov

General Director

Contents

310 series. Fixed displacement axial piston pumps

Purpose:
The pumps are intended for operation in stationary and mobile machines.



Working displacement: 12, 28, 56, 80, 112, 160, 250 cc/rev

Mounting dimensions: as per DIN / ISO

Max operating pressure:
continuous – 350 bar
peak – 400 bar

Design:
- fixed displacement axial piston pump, bent-axis design;
- bent-axis angle 25°- 28°;
- bimetal steel block.

Option:
- sensor of shaft rotation speed.

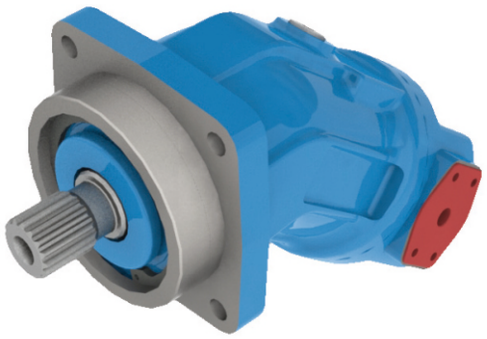
Technical parameters*:

Size range	12	28	56	80	112	160	250
Working displacement, cc/rev	11,6	28	56	80	112	160	250
Max speed of rotation, rpm	4000	3000	2500	2240	2000	1750	1500
Peak speed at P_{inlet} = 2 bar, rpm	6000	4750	3750	3350	3000	2650	2100
Feed at n_{max}, l/min	46,4	84,0	140,0	179,2	224,0	280,0	375,0
Consumed power**, kW at Δp = 250 bar at Δp = 350 bar at Δp = 400 bar	 19,3 27,0 31,0	 35,0 49,0 56,0	 58,3 81,7 93,3	 74,7 104,5 119,5	 93,3 130,7 149,3	 116,7 163,3 186,7	 156,3 218,7 250,0
Consumed torque**, Nm at Δp = 250 bar at Δp = 350 bar at Δp = 400 bar	 46,2 64,6 73,8	 111,4 156,0 178,3	 222,8 312,0 356,5	 318,3 445,6 509,3	 445,6 624,0 713,0	 636,6 891,3 1018,6	 994,7 1392,6 1591,6
Weight, kg	4	9	17	19,2	29	45	65

* the values are theoretical without consideration of efficiency coefficient
** at max speed of rotation

411 series. Fixed displacement axial piston pumps

Purpose:
The pumps are intended for operation in stationary and mobile machines.



Working displacement: 56, 107 cc/rev

Mounting dimensions: as per DIN / ISO

Max operating pressure:
continiuous – 400 bar
peak – 450 bar

Design:
- fixed displacement axial piston pump, bent-axis design with conical pistons;
- cylinders block bent-axis angle 40°;
- bimetal steel block.

Technical parameters*:

Size range	56	107
Working displacement, cc/rev	56	107
Max speed of rotation, rpm	2000	1600
Peak speed at P_{inlet} = 2 bar, rpm	3750	3000
Feed at n_{max}, l/min	112,0	171,2
Consumed power**, kW		
at Δp = 250 bar	46,7	71,3
at Δp = 350 bar	65,3	99,9
at Δp = 400 bar	74,7	114,1
at Δp = 450 bar	84,0	128,4
Consumed torque**, Nm		
at Δp = 250 bar	222,8	425,7
at Δp = 350 bar	312,0	596,1
at Δp = 400 bar	356,5	681,2
at Δp = 450 bar	401,1	766,3
Weight, kg	17	29

* the values are theoretical without consideration of efficiency coefficient
** at max speed of rotation

411.K series. Fixed displacement axial piston pumps

Purpose:
The pumps are intended for operation in stationary and mobile applications.

Working displacement: 56, 107 cc/rev

Mounting dimensions: as per DIN / ISO 14

Max operating pressure:
continuous – 350 bar
peak – 400 bar

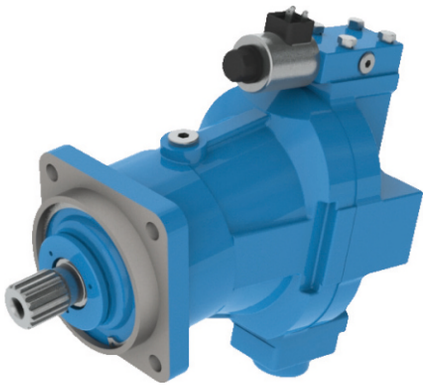
Design:
- fixed displacement axial piston bent-axis pump with conical bearings;
- cylinders block bent-axis angle 40°;
- bimetal steel block.

Technical parameters*:

Size range	56	107
Working displacement, cc/rev	56	107
Max speed of rotation, rpm	2000	1600
Peak speed of rotation at P_{inlet} = 2 bar, rpm	3750	3000
Feed at n_{max}, l/min	112,0	171,0
Consumed power**, kW at Δp = 250 bar at Δp = 350 bar at Δp = 400 bar	 46,7 65,3 74,7	 71,3 100,1 114,2
Consumed torque**, Nm at Δp = 250 bar at Δp = 350 bar at Δp = 400 bar	 222,8 312,0 356,5	 425,7 596,0 681,3
Weight, kg	17	23

* the values are theoretical without consideration of efficiency coefficient
** at max speed of rotation

313 series. Variable displacement axial piston pumps



Purpose:
The pumps are intended for operation in open circuits of stationary and mobile machines.

Working displacement: 12, 28, 55, 56, 80, 107, 112, 160, 250 cc/rev

Mounting dimensions: as per DIN / ISO

Max operating pressure:
continuous – 350 bar
peak – 400 bar

Design:
- variable displacement axial piston pump, bent-axis design for open circuits;
- cylinders block bent-axis angle 25°- 28°;
- bimetal steel block.

Types of regulators:
- proportional;
- «LS»;
- constant pressure;
- constant power;
- operating from external action.

Types of control:
- hydraulic control proportional;
- hydraulic control direct;
- mechanical;
- electric control proportional (12, 24 V);
- electric control discrete (12, 24 V).

Option:
- sensor of shaft rotation speed.

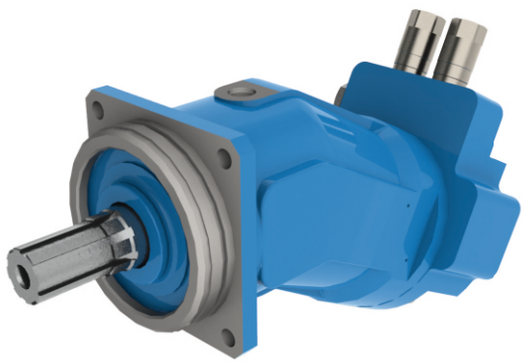
Technical parameters*:

Size range	12	28	55	56	80	107	112	160	250
Working displacement, cc/rev	11,6	28	55	56	80	107	112	160	250
Max speed of rotation, rpm	4000	3000	2500	2500	2240	2000	2000	1750	1500
Peak speed of rotation at P_{inlet} = 2 bar, rpm	6000	4750	3750	3750	3350	3000	3000	2650	2100
Feed at n_{max}, l/min	46,4	84,0	137,5	140,0	179,2	214,0	224,0	280,0	375,0
Consumed power**, kW									
at Δp = 250 bar	19,3	35,0	57,3	58,3	74,7	89,2	93,3	116,7	156,3
at Δp = 350 bar	27,1	49,0	80,2	81,7	104,5	124,8	130,7	163,3	218,8
at Δp = 400 bar	31,0	56,0	91,7	93,3	119,5	142,7	149,3	186,7	250,0
Consumed torque**, Nm									
at Δp = 250 bar	46,2	111,4	219,0	222,8	318,3	425,7	445,6	636,6	994,7
at Δp = 350 bar	64,6	156,0	306,4	312,0	445,6	596,0	624,0	891,3	1392,6
at Δp = 400 bar	73,8	178,3	350,1	356,5	509,3	681,2	713,0	1018,6	1591,6
Weight, kg	9	15,5	24	22	24,5	40	37,5	55	85

* the values are theoretical without consideration of efficiency coefficient
** at max speed of rotation

210.4.250. Fixed displacement axial piston motor-pumps

Purpose:
Hydraulic motor-pumps are intended for operation in open and closed circuits of stationary and mobile applications.



Working displacement: 250 cc/rev

Mounting dimensions:
210.4.250.00.06 - full analogue of 1MH250/160
210.4.250.00.A6 - full analogue of MH250/160

Max operating pressure:
continuous – 160 bar
peak – 350 bar

Design:
- fixed displacement axial piston bent-axis motor-pump;
- bimetal steel block.

Option:
- relief valve.

Technical parameters*:

Parameter	Pump	Motor
Working displacement, cc/rev	250	250
Speed of rotation, rpm / Feed (flow), l/min - min - nominal - max - max, at P_{inlet} = 8 bar - limiting, at P_{inlet} = 2 bar	 400 960 - 1500 2100	 50 960 2100 - -
- Pressure, MPa - rated - max operating	 16 35	 16 35
- Consumed power/effective, kW - nominal - max	 64 306	 64 306
- Driven torqe/effective, Nm - nominal - max	 663 1450	 599 1337
- Weight, kg	76,5	76,5

* the values are theoretical without consideration of efficiency coefficient
** at max speed of rotation

416 series. Variable displacement axial piston pumps

Purpose:
The pumps are intended for operation in close circuits of stationary and mobile machines.

Working displacement: 71, 90, 112, 125 cc/rev

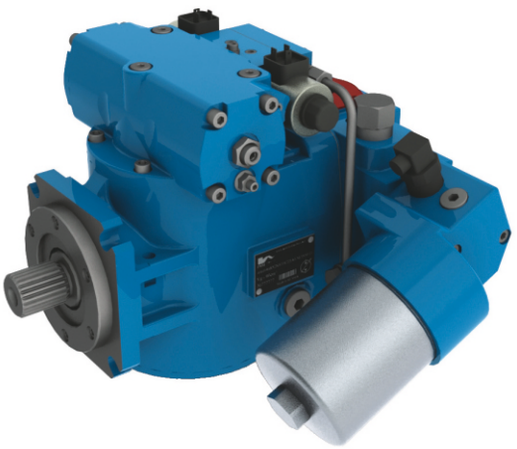
Mounting dimensions: as per SAE / DIN / ISO

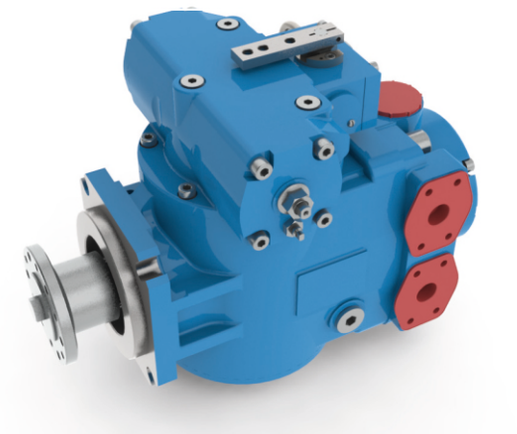
Max operating pressure:
continiuous – 400 bar
peak – 450 bar

Design:
- variable displacement axial piston pump, swashplate design;
- swashplate angle 20°;
- bimetal steel block.

Types of control:
- proportional servo control;
- proportional hydraulic control;
- proportional electric control;
- discrete electric control.

Options:
- tandem: 9 versions;
- filtration.





Technical parameters*:

Size range	71	90	112	125
Working displacement, cc/rev	71	90	112	125
Nominal speed of rotation, rpm	2000	2000	1500	1500
Max speed of rotation, rpm	3050	3050	3000	3000
Peak speed of rotation at P_{inlet} = 2 bar, rpm	3300	3300	3200	3200
Feed at n_{max}, l/min	216,6	274,5	330,0	375,0
Consumed power, kW at Δp = 250 bar, Q_{nom} at Δp = 400 bar, Q_{max} at Δp = 450 bar, Q_{peak}	 60,4 146,3 177,8	 76,3 185,0 224,9	 70,0 222,5 266,7	 79,4 252,5 302,7
Consumed torque**, Nm at Δp = 250 bar, Q_{nom} at Δp = 400 bar, Q_{max} at Δp = 450 bar, Q_{peak}	 288,6 458,1 514,6	 364,2 579,1 650,7	 445,8 708,4 796,0	 505,5 803,9 903,3
Weight, kg	67	67	67	80

* the values are theoretical without consideration of efficiency coefficient

406 series. Fixed displacement axial piston motors

406.0 series

Purpose:
Hydraulic motors are intended for operation in close circuits of stationary and mobile machines.

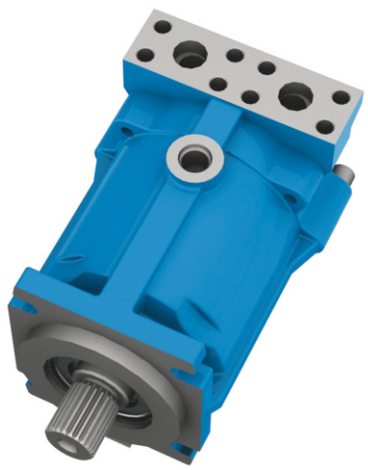
Working displacement: 71, 90, 100, 112, 125 cc/rev

Mounting dimensions: as per SAE / DIN / ISO

Max operating pressure:
continiuous – 400 bar
peak – 450 bar

Max operating pressure:
for hydraulic motors with 100 and 112 cc\rev:
continuous – 350 bar
peak – 400 bar

406.1 series



Design:
- fixed displacement axial piston motor, swashplate design;
- bimetal steel block;
– 406.0 series - working ports are located on opposite sides;
– 406.1 - working ports are located on one side.

Options:
- flushing block;
- relieve valve;
- sensor of shaft rotation speed.

Technical parameters*:

Size range	71	90	100	112	125
Working displacement, cc/rev	71	90	100	112	125
Nominal speed of rotation, rpm	2000	2000	2000	1500	1500
Max speed of rotation, rpm	3050	3050	3050	3000	3000
Peak speed of rotation, rpm	3300	3300	3300	3200	3200
Feed at n_{max}, l/min	216,6	274,5	305,0	330,0	375,0
Power, kW at Δp = 250 bar at Δp = 400 bar at Δp = 450 bar	 59,2 144,4 175,7	 75,0 183,0 222,8	 83,3 203,3 247,5	 68,8 220,0 264,0	 78,1 250,0 300,0
Torque, Nm at Δp = 250 bar at Δp = 400 bar at Δp = 450 bar	 282,5 452,0 508,5	 358,1 573,0 644,6	 39739 636,6	 437,7 700,3	 497,4 795,8 895,3
Weight, kg 406.0 series 406.1 series	 40 28	 40 28	 40 28	 40 28	 48 -

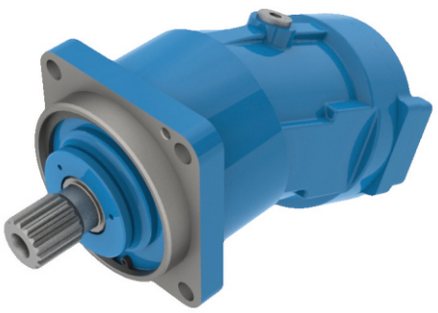
* the values are theoretical without consideration of efficiency coefficient

310 series. Fixed displacement axial piston motors

Purpose:
Hydraulic motors are intended for operation in open and close circuits of stationary and mobile machines.

Working displacement: 12, 28, 56, 80, 112, 160, 250 cc/rev

Mounting dimensions: as per DIN / ISO



Max operating pressure:
continuous – 350 bar
peak – 400 bar

Design:
- fixed displacement axial piston bent-axis hydraulic motor;
- cylinders block bent-axis angle 25°- 28°;
- bimetal steel block.

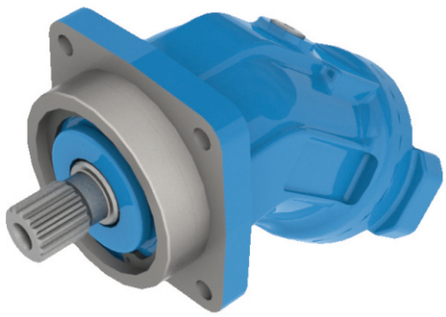
Options:
- flushing block;
- relief valve;
- sensor of shaft rotation speed.

Technical parameters*:

Size range	12	28	56	80	112	160	250
Working displacement, cc/rev	11,6	28	56	80	112	160	250
Max speed of rotation, rpm	2400	1920	1800	1500	1200	1200	960
Peak speed of rotation, rpm	6000	4750	3750	3350	3000	2650	2100
Flow at n_{max}, l/min	27,8	53,8	100,8	120,0	134,4	192,0	240,0
Power**, kW at Δp = 250 bar at Δp = 350 bar at Δp = 400 bar	 11,6 16,2 18,6	 22,4 31,4 35,8	 42,0 58,9 67,2	 50,0 70,0 80,0	 56,0 78,4 89,6	 80,0 112,0 128,0	 100,0 140,0 160,0
Torque**, Nm at Δp = 250 bar at Δp = 350 bar at Δp = 400 bar	 46,2 64,6 73,8	 111,4 156,0 178,3	 222,8 312,0 356,5	 318,3 445,6 509,3	 445,6 623,9 713,0	 636,6 891,3 1018,6	 994,7 1392,6 1591,6
Weight, kg	4	9	17	19,2	29	45	65

* the values are theoretical without consideration of efficiency coefficient
** at max speed of rotation

410 series. Fixed displacement axial piston motors

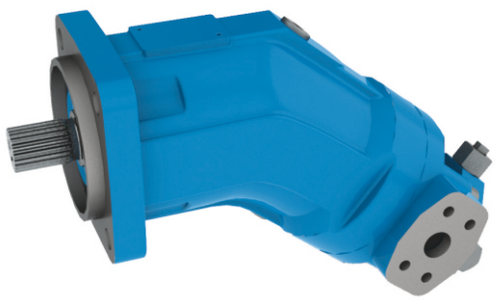


Purpose:
Hydraulic motors are intended for operation in open and close circuits of stationary and mobile machines.

Working displacement: 56, 107 cc/rev

Mounting dimensions: as per DIN / ISO

Max operating pressure:
continiuous – 400 bar
peak – 450 bar



Design:
- fixed displacement axial piston motor, bent-axis design with conical pistons;
- bent-axis angle 40°;
- bimetal steel block;
- for hydraulic motor 410.2.107 - mounting flange as per SAE C, diameter 127 mm.

Options:
- flushing valve;
- speed valve;
- relieve valve;
- by pass valve;
- feed valve;
- sensor of shaft rotation speed.

Technical parameters*:

Size range	56	107
Working displacement, cc/rev	56	107
Max speed of rotation, rpm	5000	4000
Peak speed of rotation, rpm	5500	4400
Flow at n_{max}, l/min	280,0	428,0
Power**, kW at Δp = 250 bar at Δp = 350 bar at Δp = 400 bar at Δp = 450 bar	 116,7 163,3 186,7 210,0	 178,3 249,7 285,3 321,0
Torque**, Nm at Δp = 250 bar at Δp = 350 bar at Δp = 400 bar at Δp = 450 bar	 222,8 312,0 356,5 401,1	 425,7 596,0 681,2 766,3
Weight, kg	17	29

* the values are theoretical without consideration of efficiency coefficient
** at max speed of rotation

410.1 series. Fixed displacement cartridge type axial piston motors

Purpose:
Hydraulic motors are intended for operation in open and close circuits of stationary and mobile applications.

Working displacement: 56, 107 cc/rev

Mounting dimensions: as per DIN / ISO

Max operating pressure:
continiuous – 400 bar
peak – 450 bar

Design:
- axial piston bent-axis hydraulic units with conical pistons;
- cylinders block bent-axis angle 40°;
- bimetal steel block.

Options:
- flushing valve;
- speed valve;
- relief valve;
- by-pass valve;
- feed valve;
- sensor of shaft rotation speed.

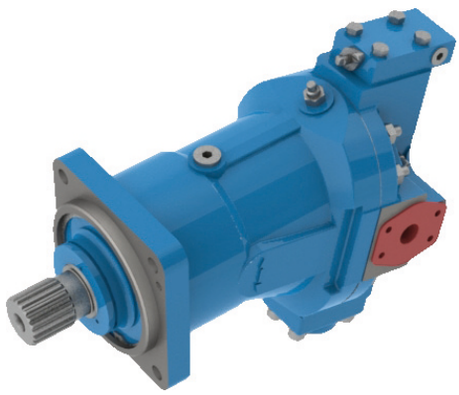
Technical parameters*:

Size range	56	107
Working displacement, cc/rev	56	107
Max speed of rotation, rpm	5000	4000
Peak speed of rotation, rpm	5500	4400
Flow at n_{max}, l/min	280,0	428,0
Power**, kW at Δp = 250 bar at Δp = 350 bar at Δp = 400 bar at Δp = 450 bar	 116,7 163,3 186,7 210,0	 178,3 249,7 285,3 321,0
Torque**, Nm at Δp = 250 bar at Δp = 350 bar at Δp = 400 bar at Δp = 450 bar	 222,8 312,0 356,5 401,1	 425,7 596,0 681,2 766,3
Weight, kg	17	29

* the values are theoretical without consideration of efficiency coefficient
** at max speed of rotation

303 series. Variable displacement axial piston motors

Purpose:
Hydraulic motors are intended for operation in open and close circuits of stationary and mobile applications.



Working displacement: 12, 28, 55, 56, 80, 107, 112, 160, 250 cc/rev

Mounting dimensions: as per DIN / ISO

Max operating pressure:
continuous – 350 bar
peak – 400 bar

Design:
- variable displacement axial piston motor, bent-axis design;
- bent-axis angle 25°- 28°;
- bimetal steel block.

Options:
- flushing block;
- relieve valve;
- sensor of shaft rotation speed.

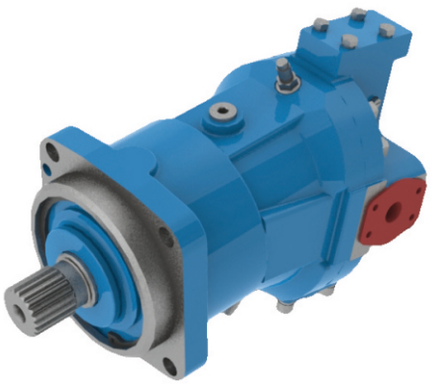
Technical parameters*:

Size range	12	28	55	56	80	107	112	160
Working displacement, cc/rev	11,6	28	55	56	80	107	112	160
Nominal speed of rotation, rpm	2400	1920	1800	1800	1500	1200	1200	1200
Max speed of rotation, at V_g = max, rpm	6000	4750	3750	3750	3350	3000	3000	2650
Peak speed of rotation, rpm	7500	6250	5000	5000	4500	4000	4000	3500
Flow at n_{max}, l/min	69,6	133,0	206,2	210,0	268,0	321,0	336,0	424,0
Power**, kW at Δp = 250 bar at Δp = 350 bar at Δp = 400 bar	 29,0 40,6 46,4	 55,4 77,6 88,7	 86,0 120,3 137,5	 87,5 122,5 140,0	 111,7 156,3 178,7	 133,7 187,3 214,0	 140,0 196,0 224,0	 176,7 247,3 282,7
Torque**, Nm at Δp = 250 bar at Δp = 350 bar at Δp = 400 bar	 46,1 64,6 73,8	 111,4 156,0 178,3	 218,8 306,4 350,1	 222,8 312,0 356,5	 318,3 445,6 509,3	 425,7 596,0 681,2	 445,6 624,0 713,0	 636,6 891,3 1018,6
Weight, kg	6	15,5	24	22	24,5	40	38	55

* the values are theoretical without consideration of efficiency coefficient
** at max speed of rotation

403 series. Variable displacement axial piston motors

Purpose:
Hydraulic motors are intended for operation in open and close circuits of stationary and mobile applications.



Working displacement: 107 cc/rev

Mounting dimensions: as per DIN / ISO

Max operating pressure:
continuous – 400 bar
peak – 450 bar

Design:
- variable displacement axial piston bent-axis motor with conical pistons;
- cylinders block bent-axis angle 25°;
- bimetal steel block.

Options:
- loop flushing valve;
- relieve valve;
- sensor of shaft rotation speed.

Technical parameters*:

Size range	107
Working displacement, cc/rev	107
Max speed of rotation, at V_g = max, rpm	3550
Max speed of rotation, at V_g = 68 cc, rpm	5600
Peak speed of rotation, at V_g = 0 cc, rpm	6300
Flow at n_{max}, l/min	380
Power**, kW at Δp = 250 bar at Δp = 350 bar at Δp = 400 bar at Δp = 450 bar	 158,3 221,6 253,2 284,9
Torque**, Nm at Δp = 250 bar at Δp = 350 bar at Δp = 400 bar at Δp = 450 bar	 425,7 596,0 681,2 766,3
Weight, kg	45

* the values are theoretical without consideration of efficiency coefficient
** at max speed of rotation

403.1 series. Variable displacement cartridge type axial piston motors

Purpose:
Hydraulic motors are intended for operation in open and close circuits of stationary and mobile applications.

Working displacement: 107 cc/rev

Mounting dimensions: as per DIN / ISO

Max operating pressure:
continuous – 400 bar
peak – 450 bar

Design:
- variable displacement axial piston bent-axis hydraulic motors with conical bearings;
- bent-axis angle 25°;
- bimetal steel block.

Options:
- loop flushing valve;
- relieve valve;
- sensor of shaft rotation speed.

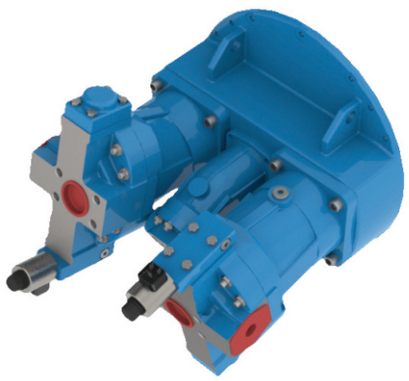
Technical parameters*:

Size range	107
Working displacement, cc/rev	107
Max speed of rotation, at V_g = max, rpm	3550
Max speed of rotation, at V_g = 68 cc, rpm	5600
Peak speed of rotation, at V_g = 0 cc, rpm	6300
Flow at n_{max}, l/min	380
Power**, kW at Δp = 250 bar at Δp = 350 bar at Δp = 400 bar at Δp = 450 bar	 158,3 221,6 253,2 284,9
Torque**, Nm at Δp = 250 bar at Δp = 350 bar at Δp = 400 bar at Δp = 450 bar	 425,7 596,0 681,2 766,3
Weight, kg	45

* the values are theoretical without consideration of efficiency coefficient
** at max speed of rotation

Integrated pumping units

Purpose:
Integrated pump units are intended for operation in open circuits of stationary and mobile applications.



Mounting dimensions:
- flange as per SAE/DIN/ISO;
- with various mounting flanges (on consumer request);
- without flange;
- torsion shaft, spline shaft, flange shaft.

Design:
- modular principle of assembly;
- number of flows (number of installed pumps) is from 1 to 6;
- mounted pumps:
    - fixed displacement, 310, 411 series;
    - variable displacement, 313, 416 series;
    - gear type, gear type with two or three flows.

Functions:
- all functions of the mounted pumps series.

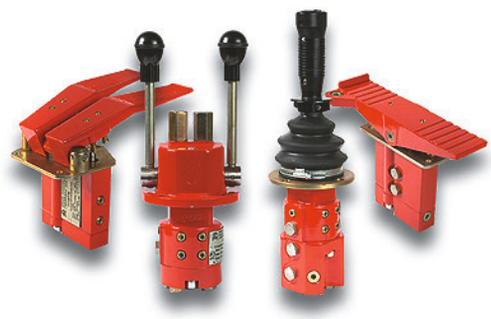
On request:
- sensor of main shaft rotation speed.

Technical parameters:

Pumping units with fixed displacement pumps	233...28	233...55 233...56	223...80	233...107 233...112		233...160	263...160
Pumping units with variable displacement pumps	333...28	333...55 333...56	333...80	333...107 333...112	353...112	333...160	363...160
Consumed torque range, Nm	85...240	115...370	350...440	200...700	330...1250	280...1040	560...2160
Consumed power range, kW	20...54	27...85	55...105	45...160	95...465	65...240	130...500
Shaft rotation speed, rpm - nominal - max	 1320 2160	 1800 2400	 1500 2280	 1500 2100	 1500 2100	 1500 2100	 1500 2100
Weight, kg	40	74	88	110	224	155	440

Control blocks

Purpose:
Control blocks are intended for remote control of hydraulic system components of mobile and stationary applications.



Design:
- single-axis and double-axis;
- with one or two handles;
- with one or two pedals.

Functions:
- up to 5 buttons of discrete electric control;
- with additional block of shuttle valve;
- with stick hold.

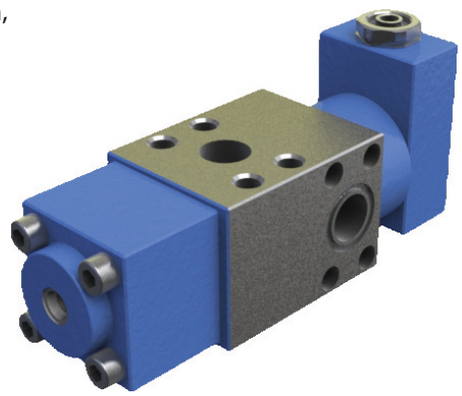
Technical parameters:

Size range	220BHE 220BHM	221BH	230BFM	231BFM
Input pressure, MPa - nominal - max	3 5			
Output pressure, MPa - min - max	0,65±0,15 1,9±0,2			
Max drain pressure, MPa	0,3			
Max voltage, V	36			
Max current, A	4			
Weight, kg	3,5	4,2	3,2	3,3

* the values are given for versions with major set of functions

Brake hydraulic valve ГКТ.1.16

Purpose:
Brake hydraulic valve is intended for application in hydraulic system of winch, for boom lifting and telescoping in hydraulic systems of mobile cranes, for maintaining the adjusted speed of executive devices driven with external force, for protection of hydraulic drive against exceeding pressure, and for fixation of executive devices location.



Design:
- adjustable hydraulic throttle with check valve.

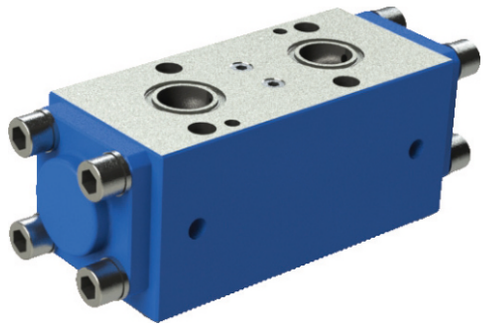
Functions:
- relieve valve is installed on request.

Technical parameters:

Size range	ГКТ.1.16-00 ГКТ.1.16-02	ГКТ.1.16-01 ГКТ.1.16-03
Nominal bore, mm	16	
Input pressure, MPa - nominal - max	 25 40	
Control pressure, MPa - min - max working - max allowed	 2 5 40	
Working fluid flow, l/min: - nominal - max	 160 200	
Internal leak proofness (max internal leakage), cm^3/min, not more than		
Relieve valve adjustment range, MPa	9...40	
Check valve opening pressure, MPa not more than	0,2	
Weight, kg	8,5	6,8

Counter balance valve ГКП.0.25

Purpose:
Counter balance valve is intended for maintaining the constant (adjusted) speed of hydraulic motor shaft rotation under the influence of cocurrent load in the circuits of hydraulic systems.



Design:
- adjustable valve spool with built-in check valves.

Technical parameters:

Size range	ГКП.0.25
Nominal bore, mm	25
Input pressure, MPa - nominal - max	 25 40
Working fluid flow, l/min: - nominal - max	 220 300
Weight, kg	9,3

Relieve valve of direct action

У462.8…5, У462.8…7, P100.000 types

Purpose:
Relieve hydraulic valves is intended for the protection of fluid power drives against exceeding pressure.
Relieve hydraulic valves is the valves of direct action of plug-in design for mounting in panels, in housings of by-pass blocks and individual housings.

Technical parameters:

Size range	У462.8…5	У462.8…7	P100.000
Nominal bore, mm	16	25	16
Working fluid flow, at kinematic viscosity 30...35mm²/s, l/min: - min - nominal - max	 3 63 120	 5 250 400	 3 63 120
Input pressure, Mpa - min - nominal - max	 5 20 35		
Pressure adjustment range, MPa	от 5 до 35		
Max exceeding of adjustment pressure at instant increase of input pressure from 0 to P_{nom} for 0,06 s, % of adjustment pressure	20		
Internal leakproofness at < 0,75 $P_{adjust.}$, l/min	0		
Adjustment pressure change at flow change from min to nominal for pressure range: -from 50 to 100 MPa, % -from 100 to 350 MPa, %	 20 10		
Weight, kg, not more than - У462.8...5 - У462.8...5.1, У462.8…5.4, У462.8…5.5 - У462.8...5.2, У462.8...5.3 - У462.8...7.0 - У462.8...7.1, У462.8...7.3, У462.8...7.4 - У462.8...7.2 - P100.000	 0,6 2,5 4,5	 1,1 4,5 7,5	 0,61

Relieve valve of indirect action

510.20, 510.32, КПП-4, КПП-5, КПП-4.1, КПП-5.1 types

Purpose:
Relieve hydraulic valve is intended for the protection of fluid power drives against exceeding pressure.
Relieve hydraulic valve is the valve of indirect action of plug-in design for mounting in panels, in housings of by-pass blocks and individual housings.

Technical parameters:

Size range	510.20	КПП-4 КПП-4.1	510.32	КПП-5 КПП-5.1
Nominal bore, mm	20		32	
Working fluid flow at kinematic viscosity 30...35mm²/s, l/min: - min - nominal - max	250 400 10		400 600 20	
Input pressure, Mpa - min - nominal - max	1 40 50			
Pressure adjustment range, MPa	from 1 to 50			
Max allowed adjustment pressure change at flow change from nominal to min, MPa	2		1	
Max exceeding of nominal pressure of adjustment at instant pressure increase, MPa	2,5			
Max internal leakage at nominal pressure, l/min	0,14		0,20	
Weight, kg	0,30		0,64	

Check-relieve valve

ОПК-16, ОПК-20 types

Purpose:
Check relieve valves is intended for protection against exceeding pressure in one direction and free flow of fluid in another direction, and are mounted in hydraulic line of reversible hydraulic machines.

Check relieve hydraulic valve includes relieve valve and check valve.

Technical parameters:

Size range	ОПК-16	ОПК-20
Nominal bore, mm	16	20
Working fluid flow at kinematic viscosity 30...35mm²/s, l/min: - min - nominal - max	 3 63 120	 8 160 250
Input pressure, Mpa - min - nominal - max	5 20 35	
Pressure adjustment range, MPa	from 5 to 35	
Internal leakproofness at < 0,75 $P_{adjust.}$, l/min	0	
Weight, kg, not more than	0,40	0,75

Check hydraulic valves

4121.20.90, 530.25 types

Purpose:
Check hydraulic valves is intended for free flow of working fluid only in one direction, allowing the fluid to pass in inverse direction only in case the valve has an orifice hole in valve, also intended for working fluid flow restriction in hydraulic systems of road, construction and municipal machines.

Technical parameters:

Size range	4121.20.90 4121.20.90-6	4121.20.90-1 4121.20.90-2 4121.20.90-3 4121.20.90-4 4121.20.90-5	530.25
Nominal bore, mm	10	16	25
Working fluid flow at kinematic viscosity 30...35mm²/s, l/min: - nominal - max	 16 63	 80 125	 320 360
Input pressure, Mpa - min - nominal - max	0,5 25 32		0,1 40 50
Opening pressure, MPa, not more than	-	0,05	0,1
Internal leakproofness (max internal leakage) at nominal pressure, l/min - 4121.20.90 - 4121.20.90-1 - 4121.20.90-2 - 4121.20.90-3 - 4121.20.90-4 - 4121.20.90-5 - 4121.20.90-6	0,008 0,008 10 15 13 23 0,008		0
Pressure change, MPa - at nominal flow of working fluid - at max flow of working fluid	 0,043 0,138	 0,16 0,31	 0,8
Weight, kg, not more than	0,8	0,8	0,29

Single-sided pilot-operated valve

ГЗО.12.00, ГЗО.12.01, 541.08, 541.12 types

Purpose:
Single-sided pilot-operated valve is intended for providing free flow of working fluid in forward direction,
and at control pressure feed - in backward direction in hydraulic systems of construction, road and minucipal vehicles.

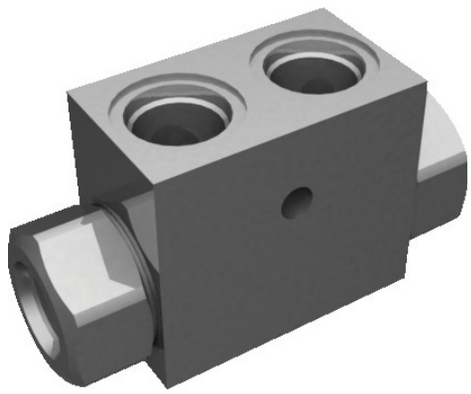
Technical parameters:

Size range	541.08	541.12	ГЗО.12.00 / ГЗО.12.01
Nominal bore, mm	8	12	12
Input pressure, Mpa - nominal - max	 25 35	 25 35	 20 35
Control pressure, MPa - max	 10	 13	 7
Check valve opening pressure, MPa	0,06±0,015	0,06±0,015	0,03±0,01
Area ratio of control piston and valve seat	3,3	2,5	5
Volume of control chamber, cc	1	2	5,5
Working fluid flow, l/min: - nominal - max	 16 25	 63 125	 80 100
Internal leakproofness (max internal leakage) at nominal pressure, cc/min - in main hydraulic line - in control hydraulic line	 0 50	 0 100	 0 50
Weight, kg	0,7	2,8	1,25

Double-sided pilot-operated valve

ГЗД.12.00 and ГЗД.12.01 types

Purpose:
Double-sided pilot-operated valve is intended for providing free flow of working fluid in one direction and closing in backward direction in case of absence of control action, and for allowing the flow in both directions in case of control action in hydraulic systems of construction, road and municipal vehicles.



Technical parameters:

Size range	ГЗД.12.00 / ГЗД.12.01
Nominal bore, mm	12
Input pressure, Mpa - nominal - max	 20 35
Control pressure, Mpa - nominal - max	 5 7
Check valve opening pressure, MPa	0,03±0,01
Area ratio of control piston and valve seat	5
Volume of control chamber, cc	5,5
Working fluid flow, l/min: - nominal - max	 80 100
Internal leakproofness (max internal leakage) at nominal pressure, cc/min - in main hydraulic line - in control hydraulic line	 0 50
Weight, kg	1,25/2,45

«Pnevmostroimashina» JSC

8 E, 1st km, Sibirsky trakt, Ekaterinburg, Russia, P.C. 620100
Tel.: +7 343 229-9544, fax: +7 343 2646699

www.psm-hydraulics.com
e-mail: psm@psm-hydraulics.com

International Trade Director:
Azat ABDRAKHMANOV
Tel.: +7 343 2612075
Fax: +7 343 2646666
E-mail: 152499@mail.ru

Chief Designer:
Pavel DAVYDKIN
Tel./fax: +7 343 2299227
E-mail: DavidkinPV@psmural.ru

Head of consumers relations dept:
Vladimir ELIZAROV
Tel.: +7 343 2299420
E-mail: ElizarovVA@psmural.ru

Ekaterinburg, 2013