

2PM

Hydraulic Piston Motor - ISO



2PM Motors have the following advantages ;

- Compact Design,
- Economical Conception,
- High Power Density,
- High Efficiency,
- High Rotating Speeds,
- From 5cc to 130cc,
- High Pressure,
- Good Starting Characteristics,
- Optimized Weight and Size,
- For Use Mobile and Stationary Applications,

Other Advantages of 2PM

Interchangeable and Compatible with other ISO Bent Axis Motors,
Special Designed Pistons,
One-Piece Piston with Piston Rings,
Compact motor design and extra durable parts,
High Operational Reliability and High Starting Torque
Extra Warranty with Wide Service

40° bent axis design giving high power, small overall dimensions, optimum efficiency and economic design. Flange and shaft designed for direct mounting on the equipments. The fixed displacement bent axis motors generates a hydraulic fluid flow. It is designed for use in trucks, commercial vehicles, construction type equipments and all stationary hydraulic applications. The 2PM is a motor with rotary group in bent-axis design. Flow is proportional to drive speed and displacement.

For axial piston units with bent-axis design, the Pistons are arranged diagonally with respect to the drive shaft. The motor covers the whole displacement range 5 to 130 cm³/rev. The motor has been developed with modern styling and design to satisfy market demand as to designed new generation plate, extra parts and pistons with give high flow performance, high pressures with high efficiency and very small dimensions.

The motor is available both to DIN and SAE world standards and can be mounted either directly at the gear box or via a drive shaft. Other brand bent axis motors compatible and interchangeable with 2PM bent axis motors. Refer to the data sheet and order confirmation for the technical data, operating conditions and operating limits of the Hydraulic Piston Motors.

Ordering Code of 2PM Motors

Motor Code

Displacement (cm³)

	5	10	12	18	25	32	40	50	56	63	80	108	130
DIN 5480 SPLINED	S1 ●	●	●	●	●	●	●	●	●	●	●	●	●
	S2 —	—	—	—	●	●	●	●	●	●	●	●	●
DIN 6885 PARALLEL	K1 ●	●	●	●	●	●	●	●	●	●	●	●	●
	K2 ●	●	●	—	●	●	●	●	●	●	●	●	●

Drive Shafts

Inlet Ports A - B

Mounting Flange

A ISO 3019-2 , 4 BOLT

Sealing

N Nitrile

V Viton

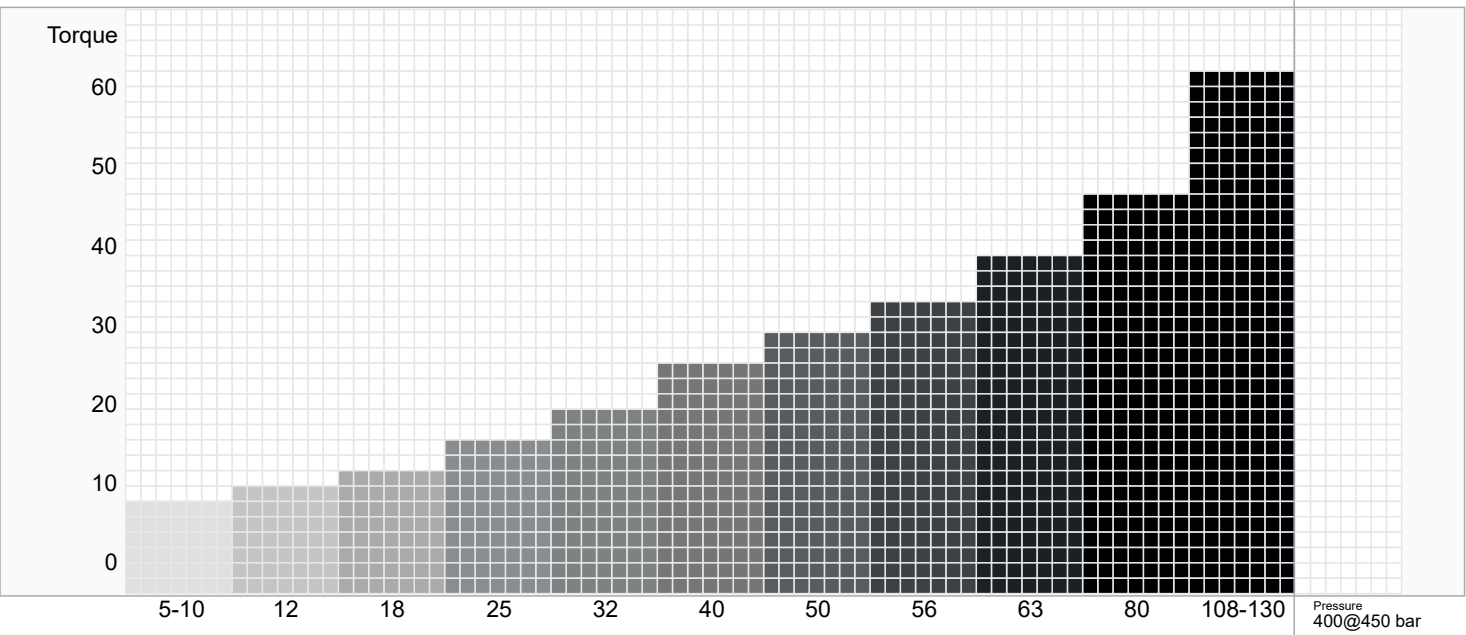
2PM Hydraulic Piston Motor - ISO, Fixed Displacement.

Technical Data

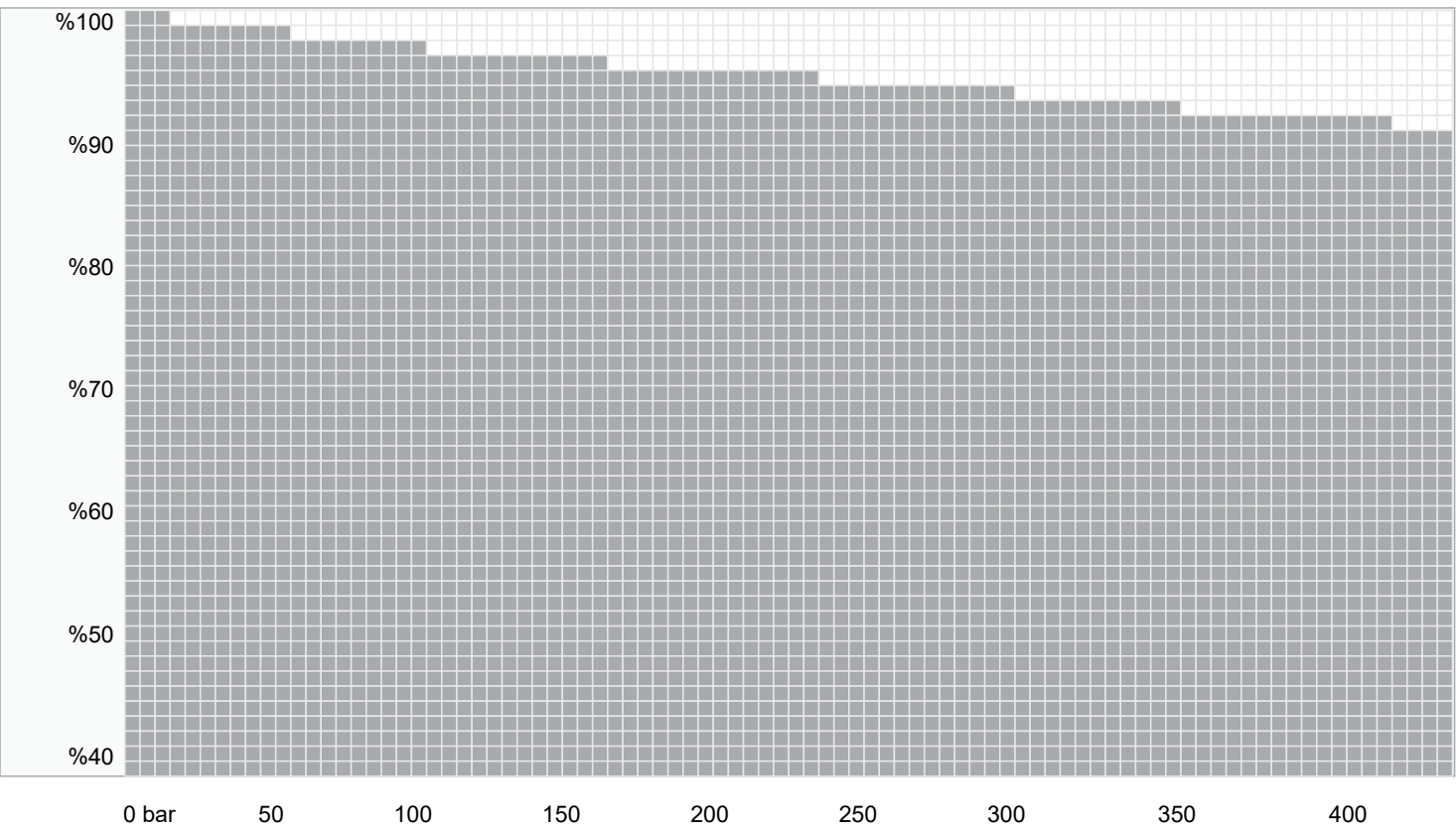
[illegible]

Performance

Compare Table of Torque

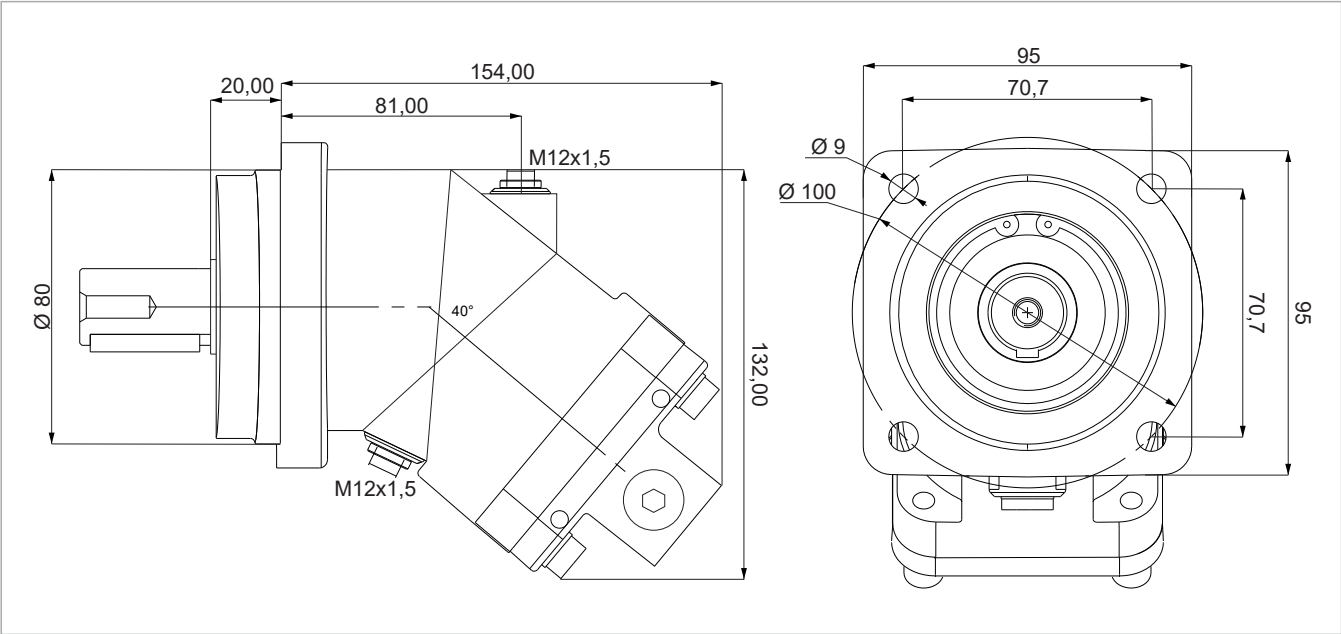


Efficiency of 2PM Motors

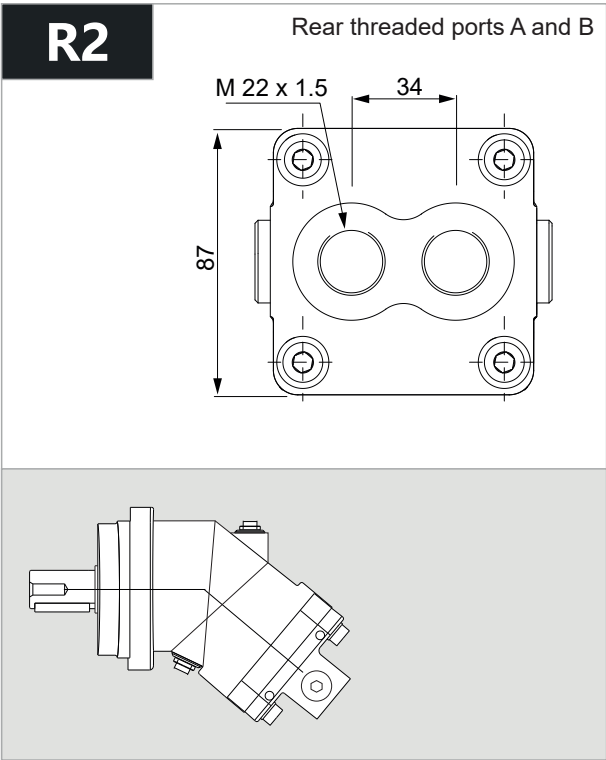
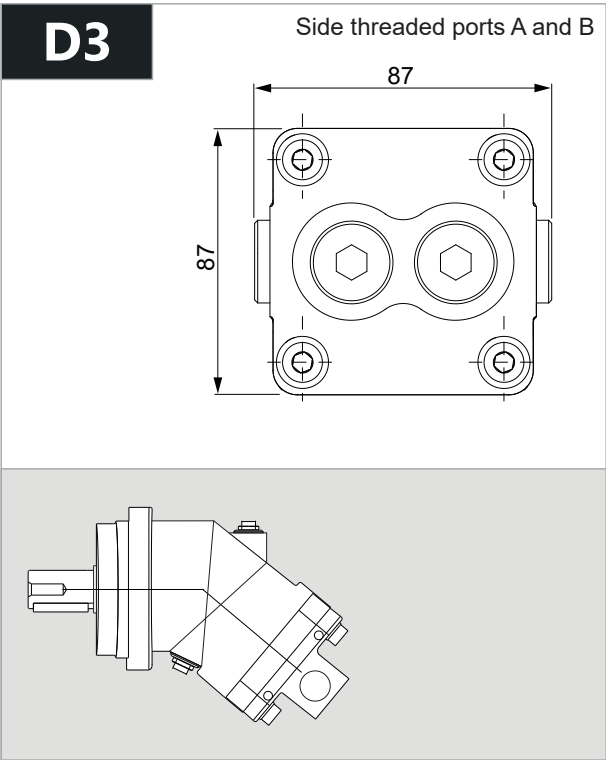


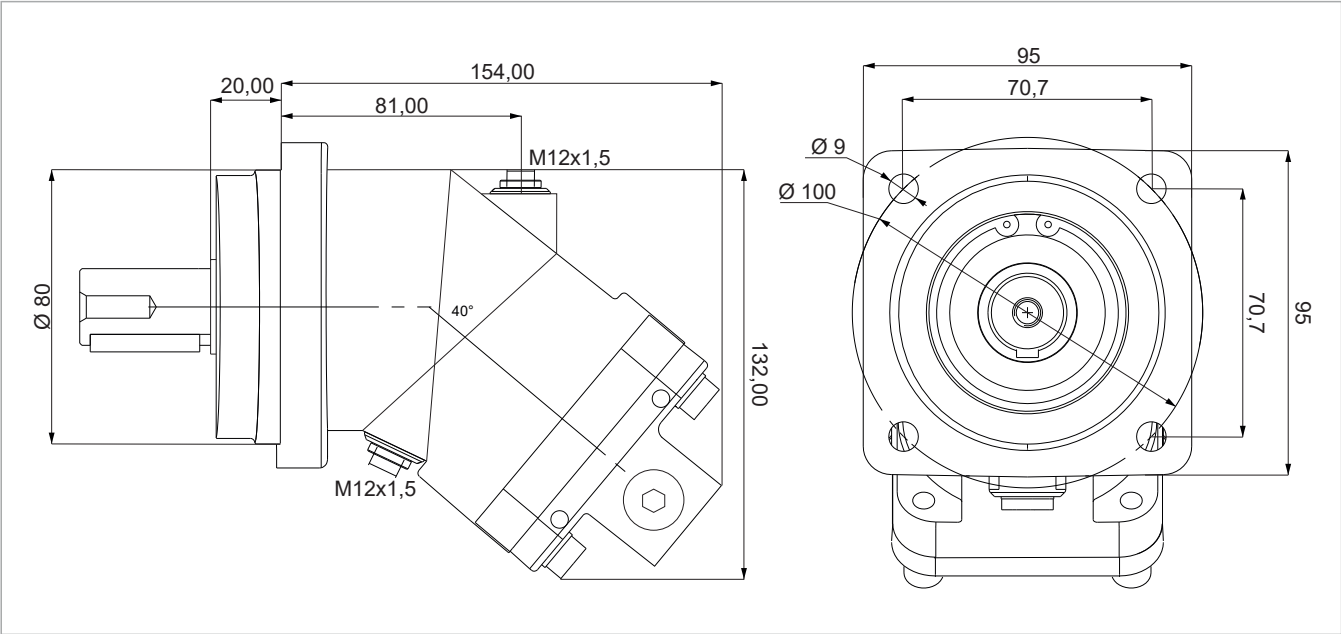
Dimensions Size;

2PM 12

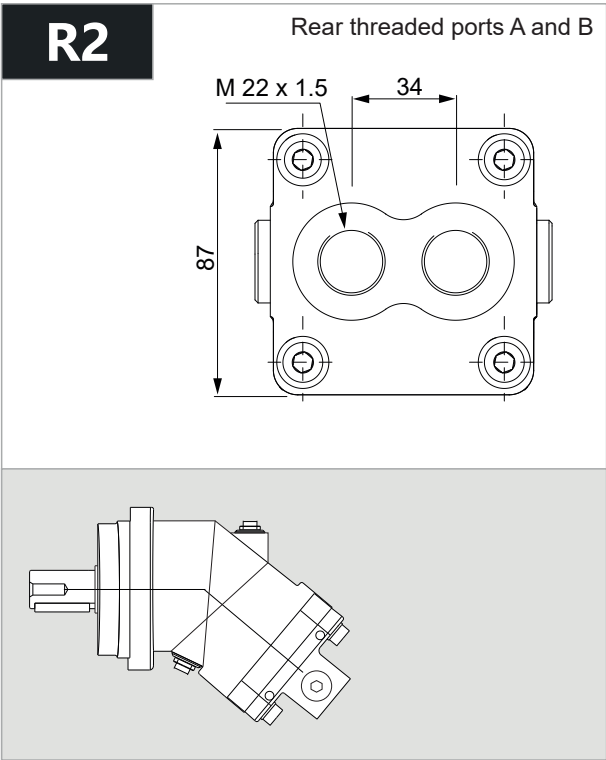
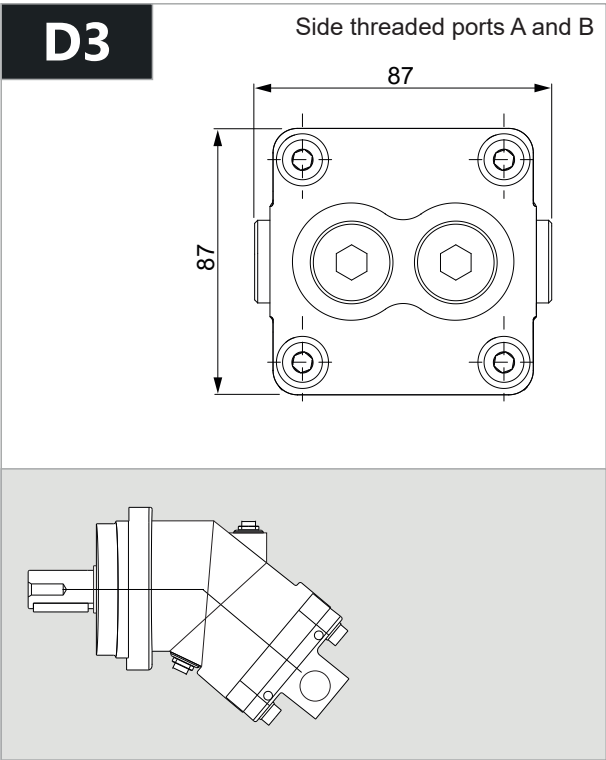


x 1000 rpm	x 1500 rpm	Max. Contin. Pump Speed	Max. Intermitt. Pump Speed	Max. Contin. Pressure	Max. Peak Pressure	Torque bar	Torque at 350 bar	Max. Flow	Weight without accessor.	Weight with accessor.	Max. Motor Temp.	Min. Motor Temp.
12,00 cc	18,00 cc	8000 rpm	8800 rpm	400 bar	450 bar	0,18 m.N/bar	66 m.N	96	6,00 kg	6,20 kg	-25°	110°



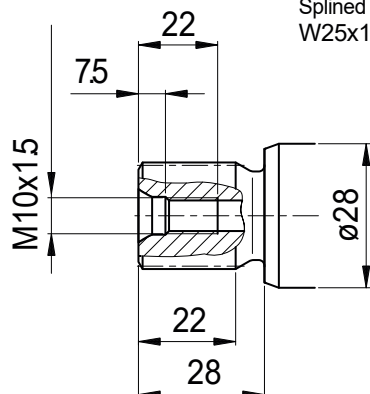


<i>x 1000 rpm</i>	<i>x 1500 rpm</i>	<i>Max. Contin. Pump Speed</i>	<i>Max. Intermit. Pump Speed</i>	<i>Max. Contin. Pressure</i>	<i>Max. Peak Pressure</i>	<i>Torque bar</i>	<i>Torque at 350 bar</i>	<i>Max. Flow</i>	<i>Weight without accessor.</i>	<i>Weight with accessor.</i>	<i>Max. Motor Temp.</i>	<i>Min. Motor Temp.</i>
18,00 cc	27,00 cc	8000 rpm	8800 rpm	400 bar	450 bar	0,28 m.N/bar	98 m.N	144	6,00 kg	6,20 kg	-25°	110°



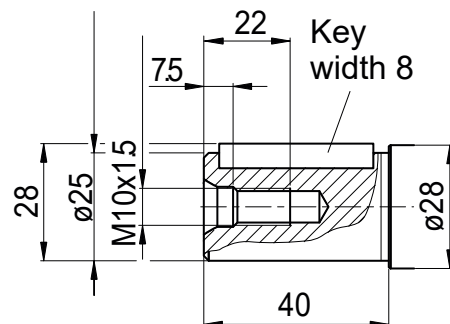
S1

Splined shaft DIN 5480
W25x1.25x18x9g



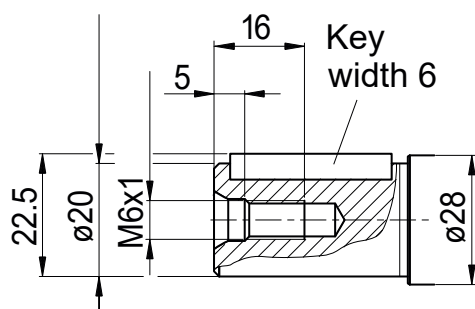
K1

Parallel keyed shaft
DIN 6885, AS8x7x32



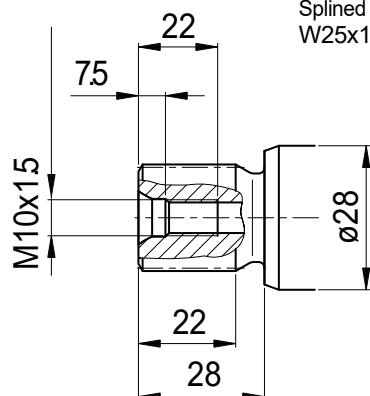
K2

Parallel keyed shaft
DIN 6885, AS6x6x32



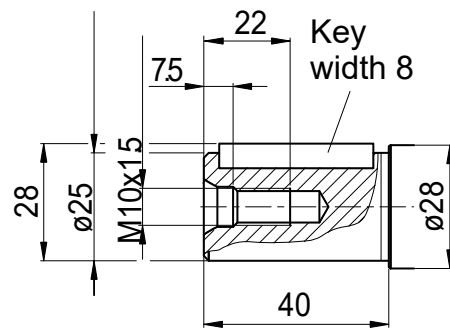
S1

Splined shaft DIN 5480
W25x1.25x18x9g

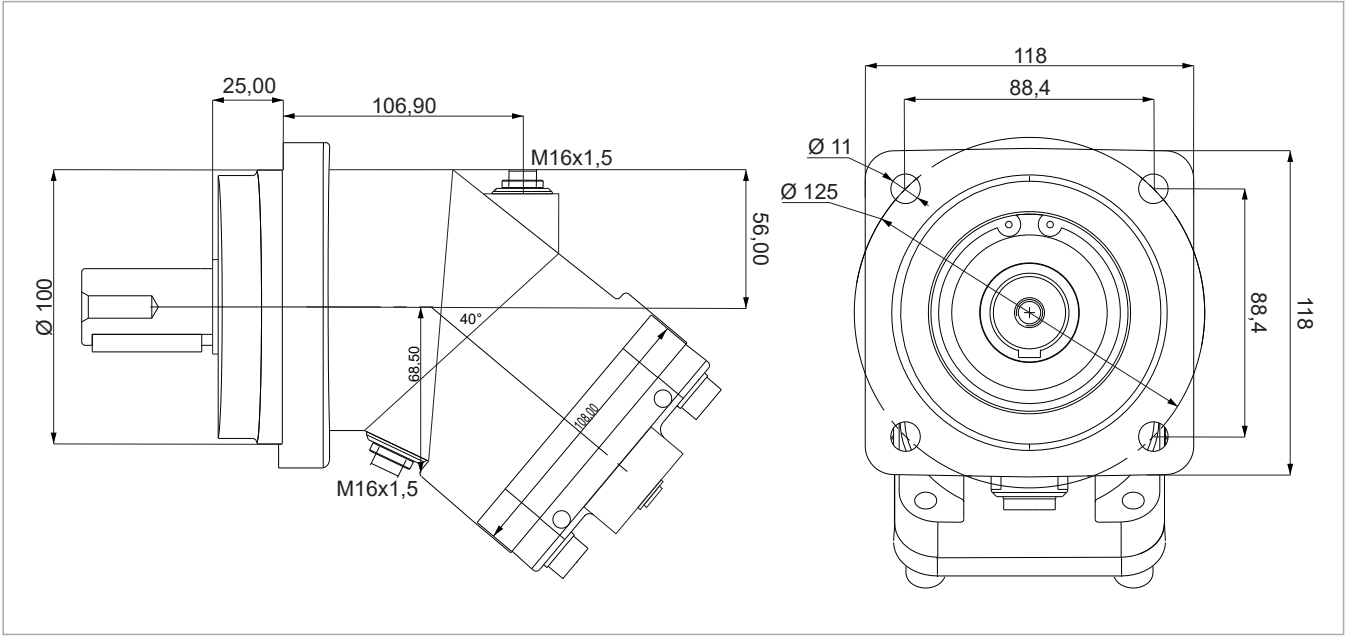


K1

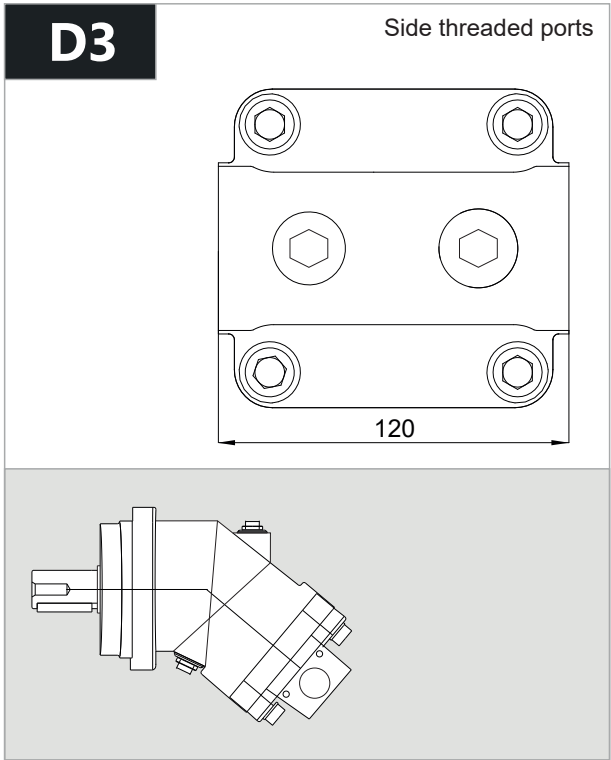
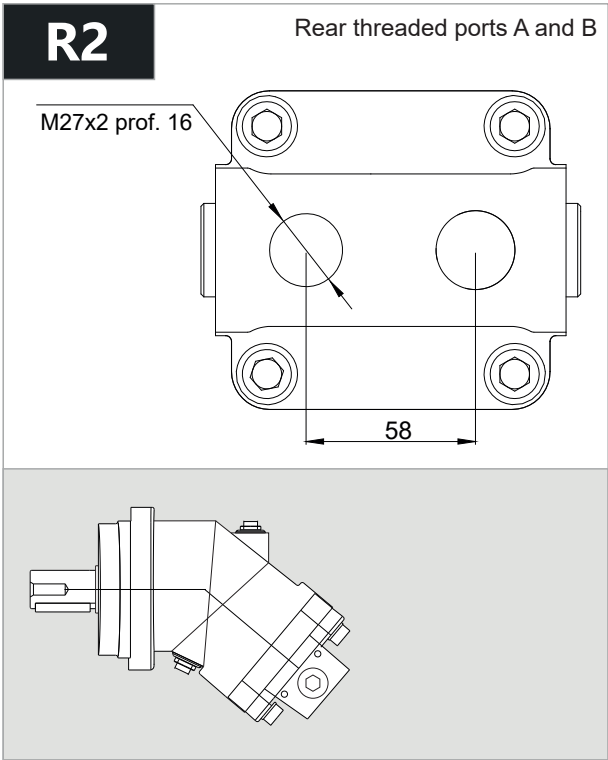
Parallel keyed shaft
DIN 6885, AS8x7x32



Dimensions Size;
2PM 25

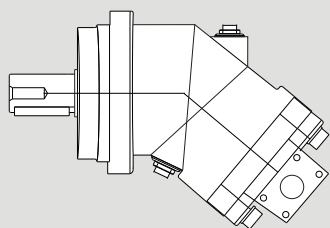
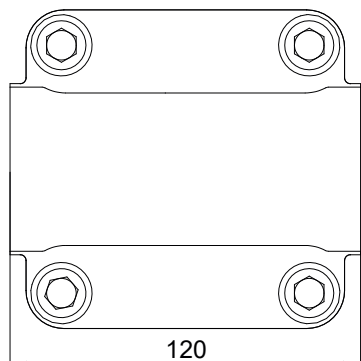


<i>x 1000 rpm</i>	<i>x 1500 rpm</i>	<i>Max. Contin. Pump Speed</i>	<i>Max. Intermit. Pump Speed</i>	<i>Max. Contin. Pressure</i>	<i>Max. Peak Pressure</i>	<i>Torque bar</i>	<i>Torque at 350 bar</i>	<i>Max. Flow</i>	<i>Weight without accessor.</i>	<i>Weight with accessor.</i>	<i>Max. Motor Temp.</i>	<i>Min. Motor Temp.</i>
25,00 cc	37,50 cc	6250 rpm	6800 rpm	400 bar	450 bar	0.40 m.N/bar	140 m.N	156	11,50 kg	11,80 kg	-25°	110°



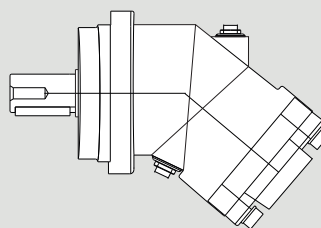
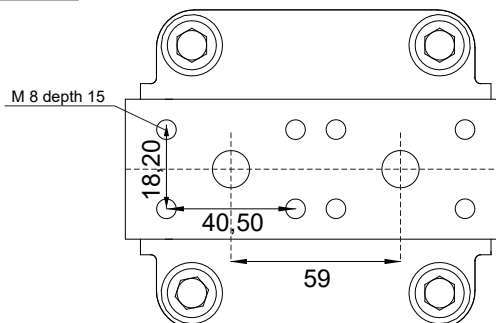
D1-D2

Side flange ports A and B
SAE 1/2" 6000 PSI



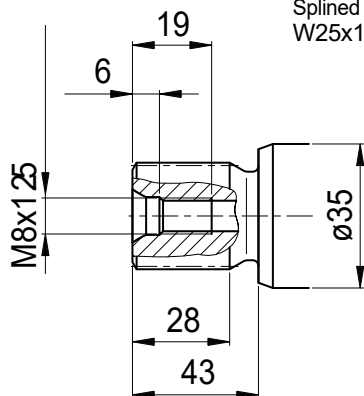
R1

Rear flange ports A and B
SAE 1/2" 6000 PSI



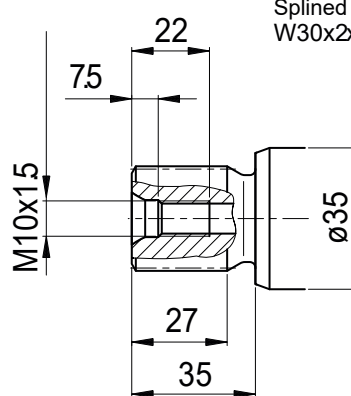
S1

Splined shaft DIN 5480
W25x1.25x18x9g



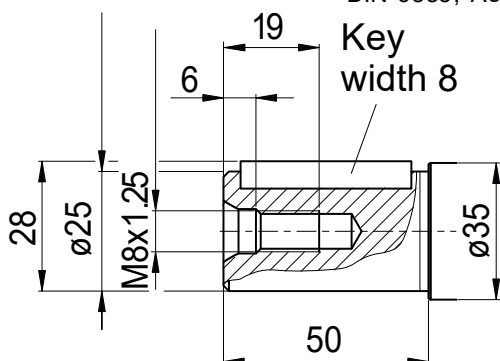
S2

Splined shaft DIN 5480
W30x2x14x9g



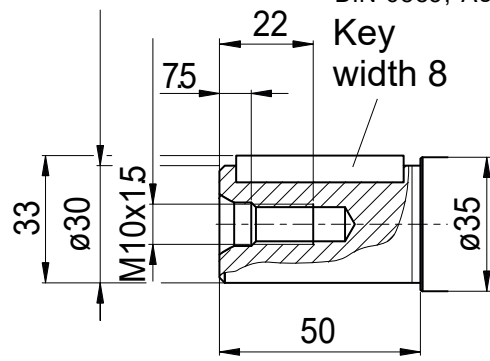
K1

Parallel keyed shaft
DIN 6885, As8x7x40

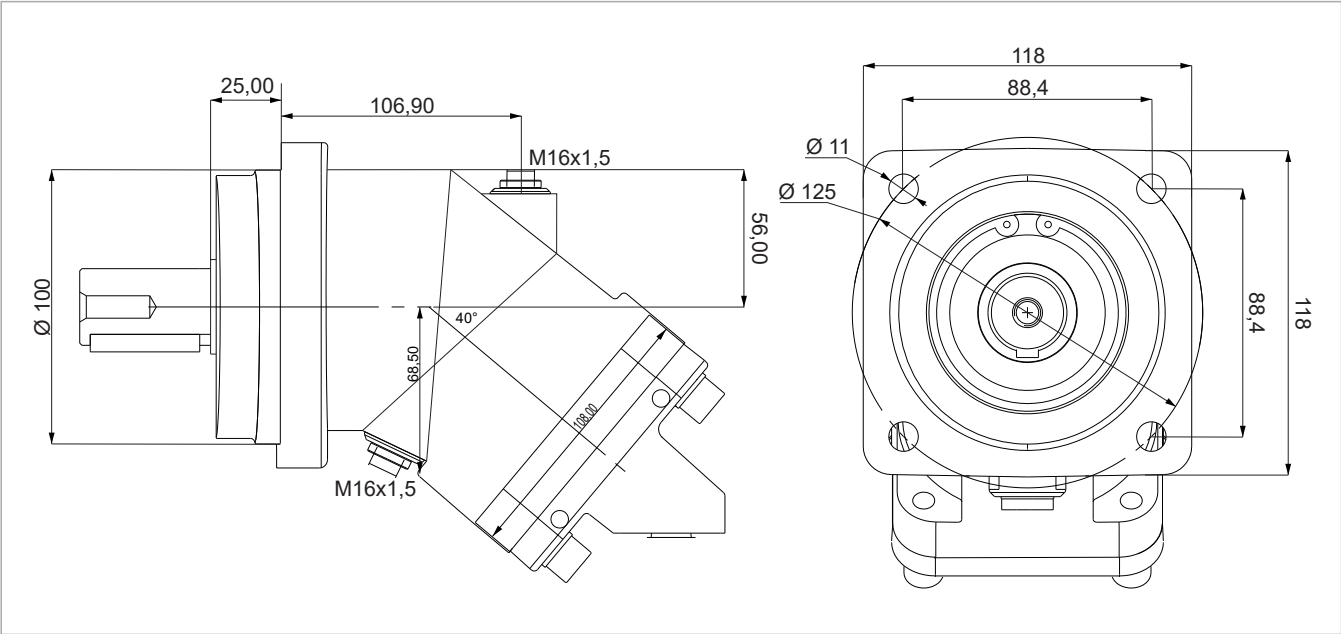


K2

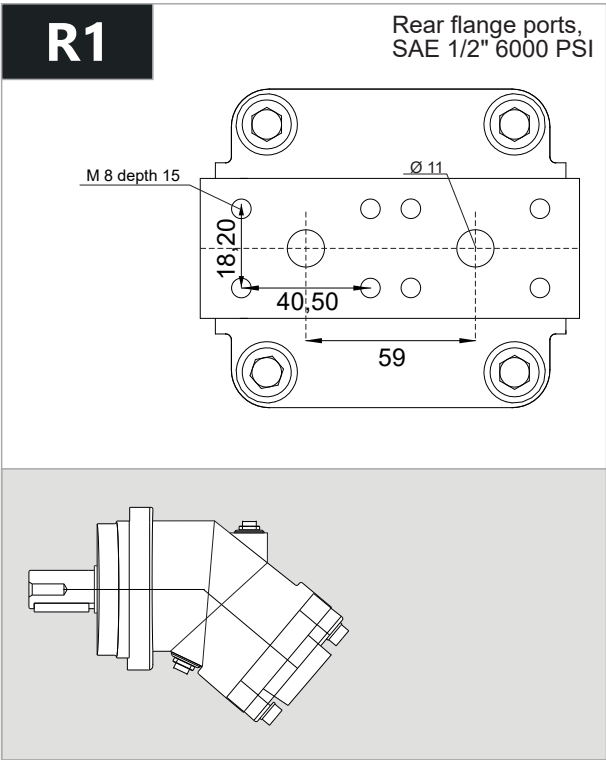
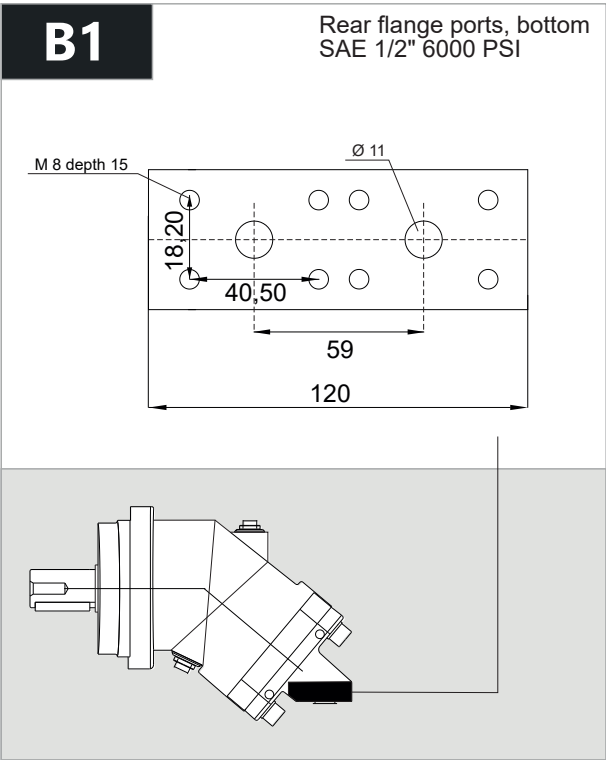
Parallel keyed shaft
DIN 6885, As8x7x40



Dimensions Size;
2PM 32

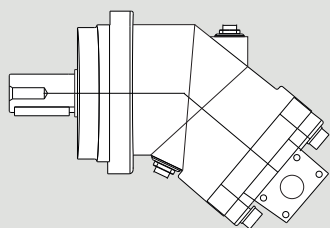
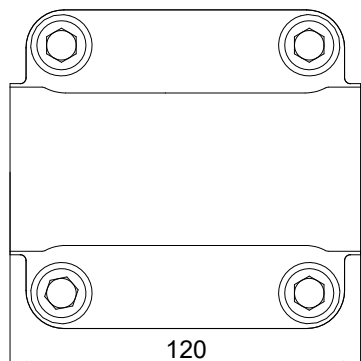


<i>x 1000 rpm</i>	<i>x 1500 rpm</i>	<i>Max. Contin. Pump Speed</i>	<i>Max. Intermit. Pump Speed</i>	<i>Max. Contin. Pressure</i>	<i>Max. Peak Pressure</i>	<i>Torque bar</i>	<i>Torque at 350 bar</i>	<i>Max. Flow</i>	<i>Weight without accessor.</i>	<i>Weight with accessor.</i>	<i>Max. Motor Temp.</i>	<i>Min. Motor Temp.</i>
32,00 cc	48,00 cc	6250 rpm	6800 rpm	400 bar	450 bar	0,51 m.N/bar	174 m.N	200	11,50 kg	11,90 kg	-25°	110°



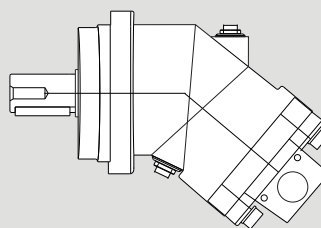
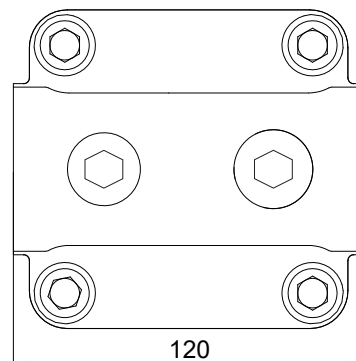
D1-D2

Side flange ports A and B
SAE 1/2" 6000 PSI



D3

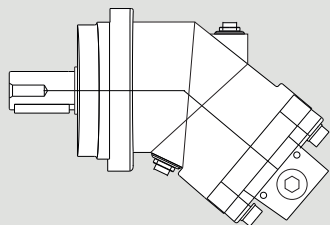
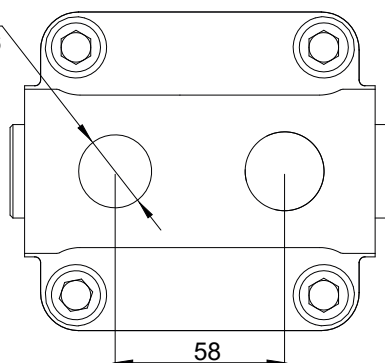
Side threaded ports A and B



R2

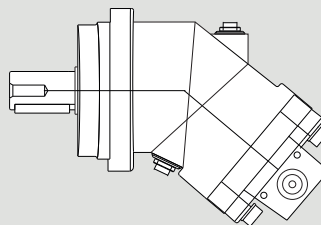
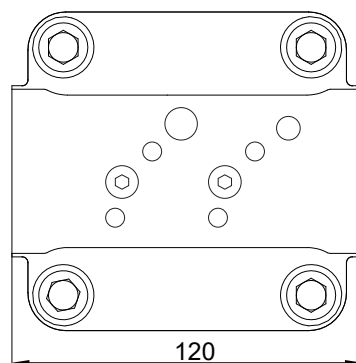
Rear threaded ports

M27x2 prof. 16



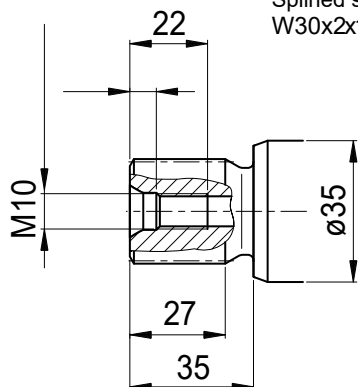
D4

Side threaded ports A and B



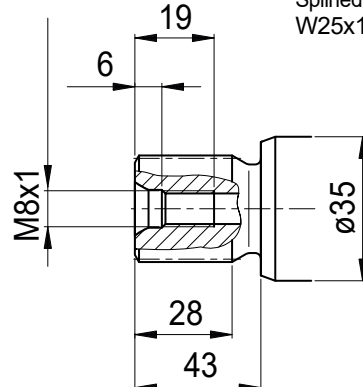
S1

Splined shaft DIN 5480
W30x2x14x9g



S2

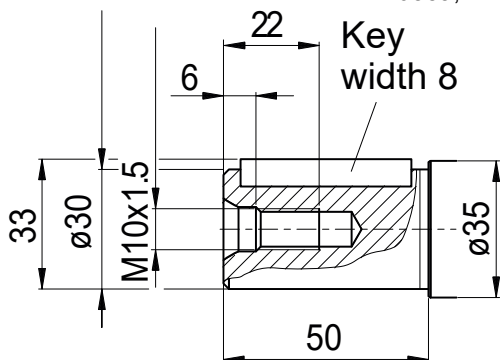
Splined shaft DIN 5480
W25x1.25x18x9g



K1

Parallel keyed shaft
DIN 6885, As8x7x40

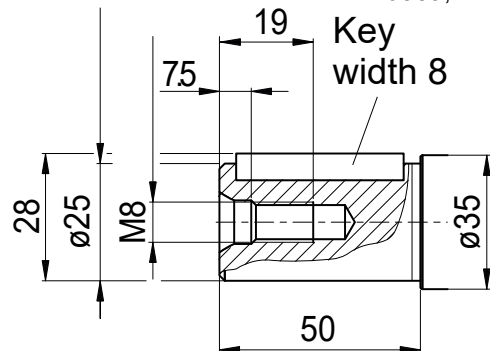
Key
width 8



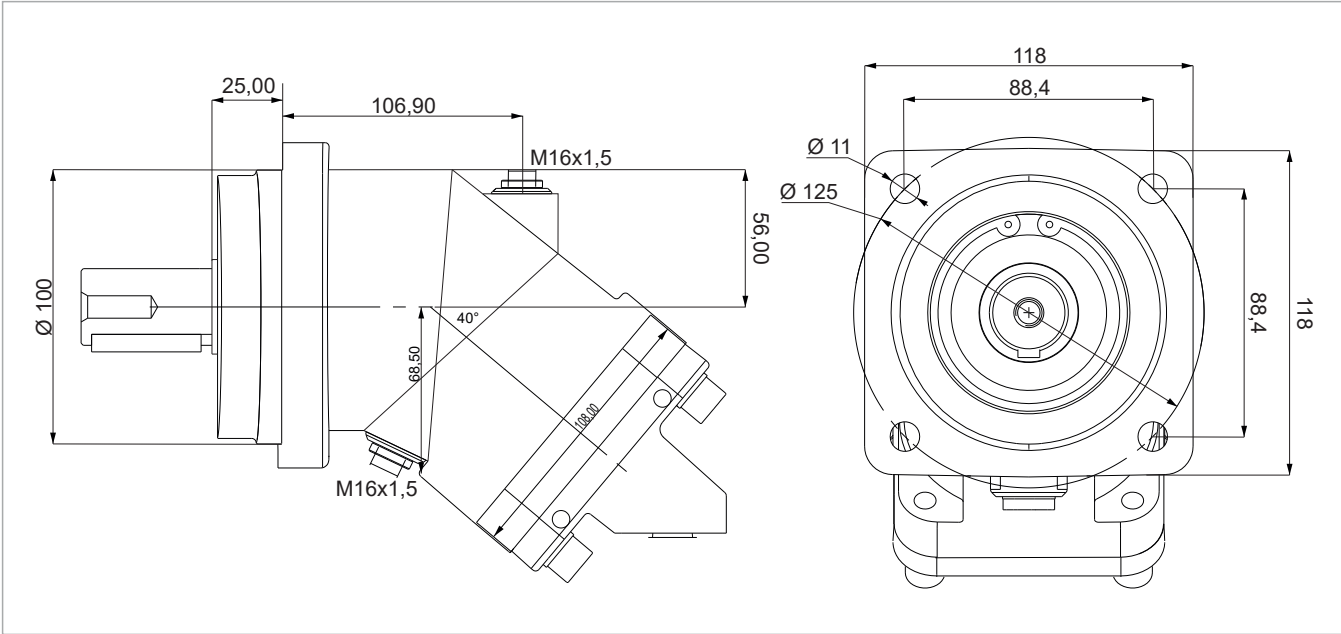
K2

Parallel keyed shaft
DIN 6885, As8x7x40

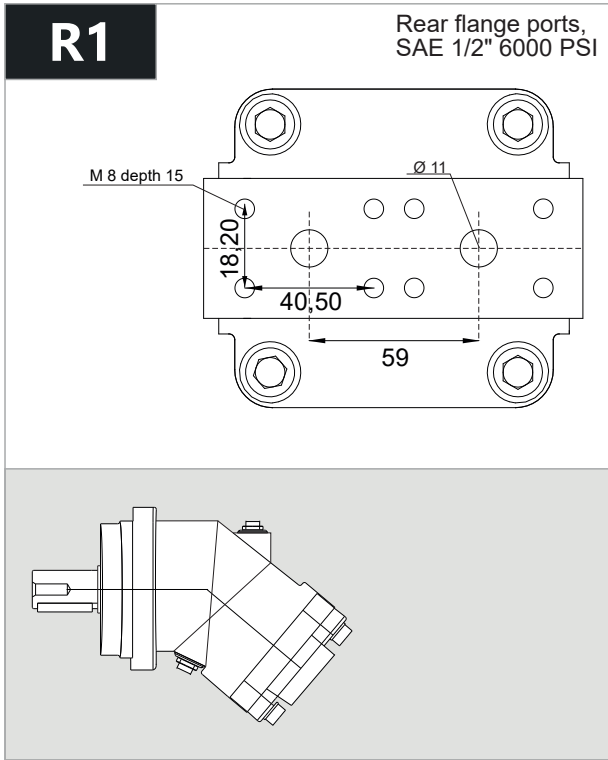
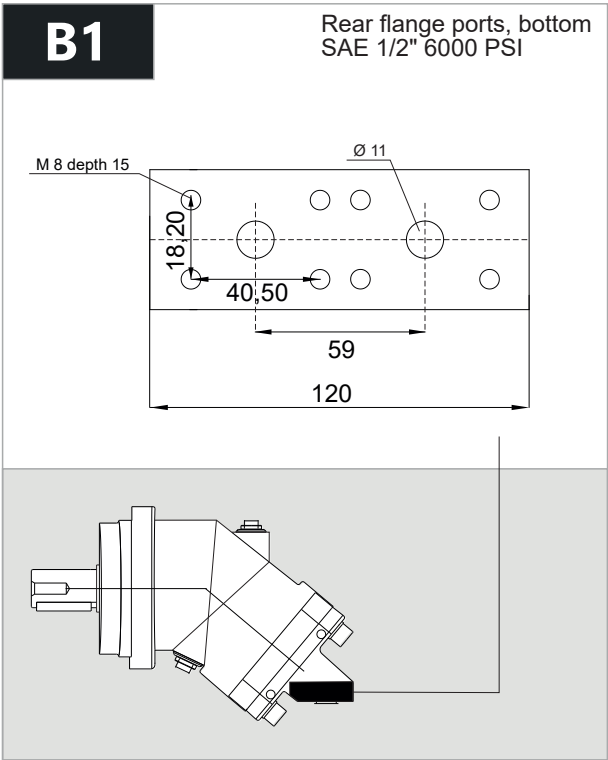
Key
width 8



Dimensions Size;
2PM 40

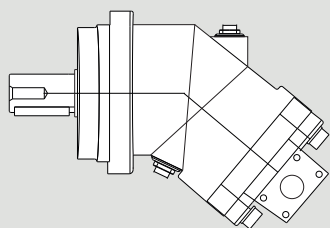
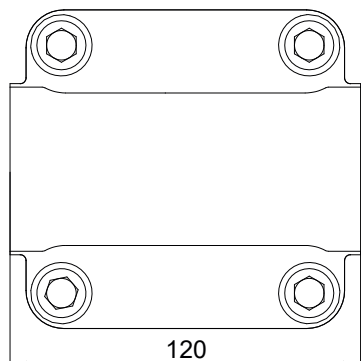


x 1000 rpm	x 1500 rpm	Max. Contin. Pump Speed	Max. Intermitt. Pump Speed	Max. Contin. Pressure	Max. Peak Pressure	Torque bar	Torque at 350 bar	Max. Flow	Weight without accessor.	Weight with accessor.	Max. Motor Temp.	Min. Motor Temp.
40,20 cc	60,30 cc	5600 rpm	6300 rpm	400 bar	450 bar	0.68 m.N/bar	228 m.N	225	11,50 kg	11,90 kg	-25°	110°



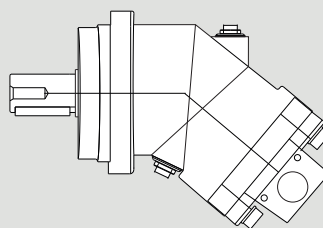
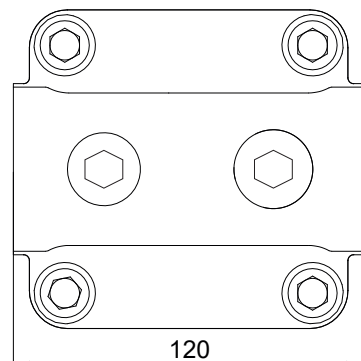
D1-D2

Side flange ports A and B
SAE 1/2" 6000 PSI



D3

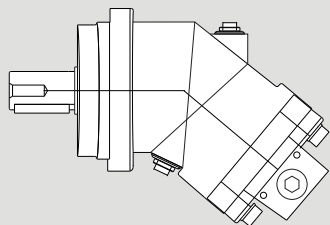
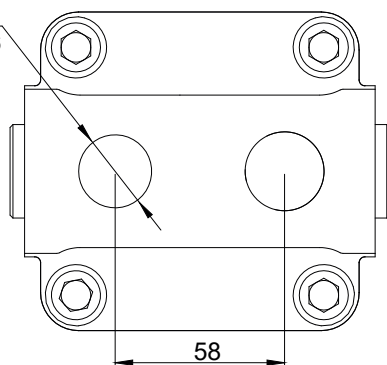
Side threaded ports A and B



R2

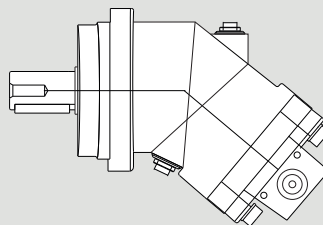
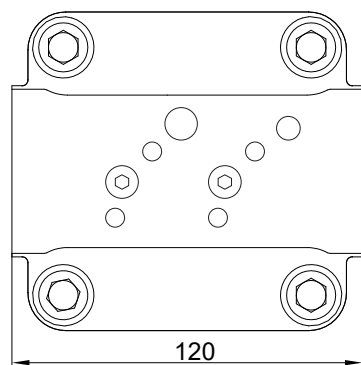
Rear threaded ports

M27x2 prof. 16



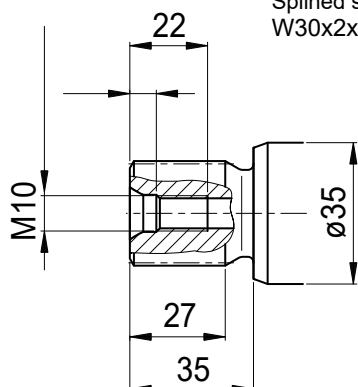
D4

Side threaded ports A and B



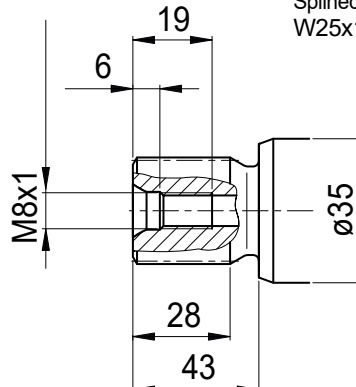
S1

Splined shaft DIN 5480
W30x2x14x9g



S2

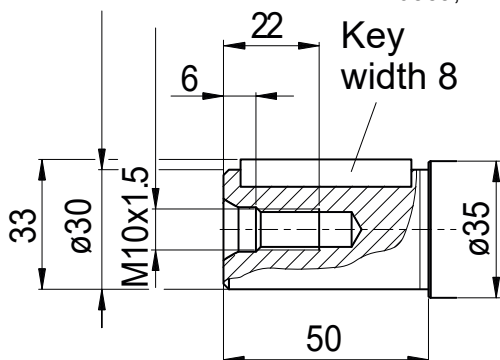
Splined shaft DIN 5480
W25x1.25x18x9g



K1

Parallel keyed shaft
DIN 6885, As8x7x40

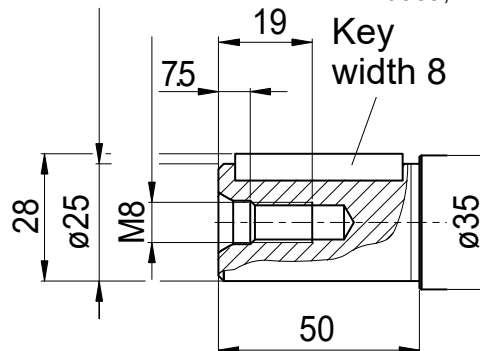
Key
width 8



K2

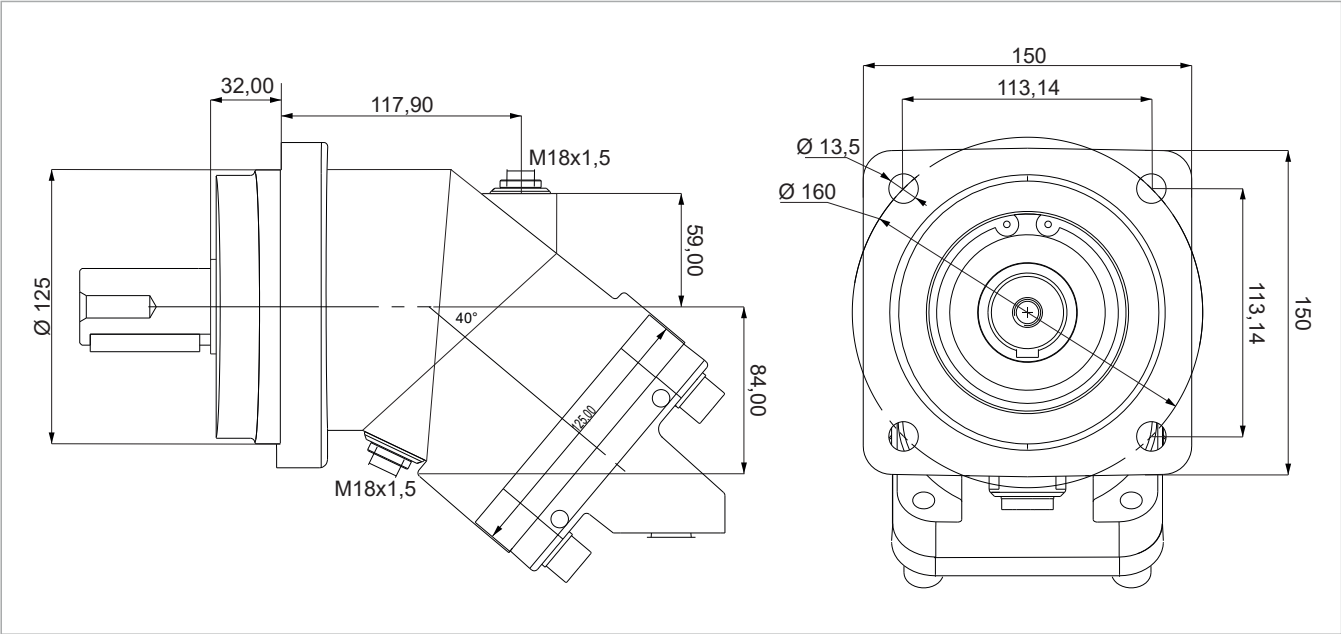
Parallel keyed shaft
DIN 6885, As8x7x40

Key
width 8

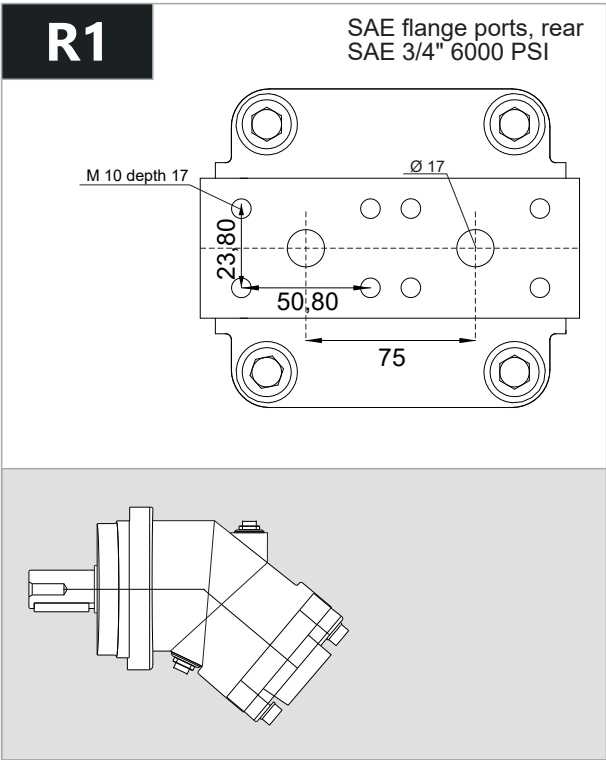
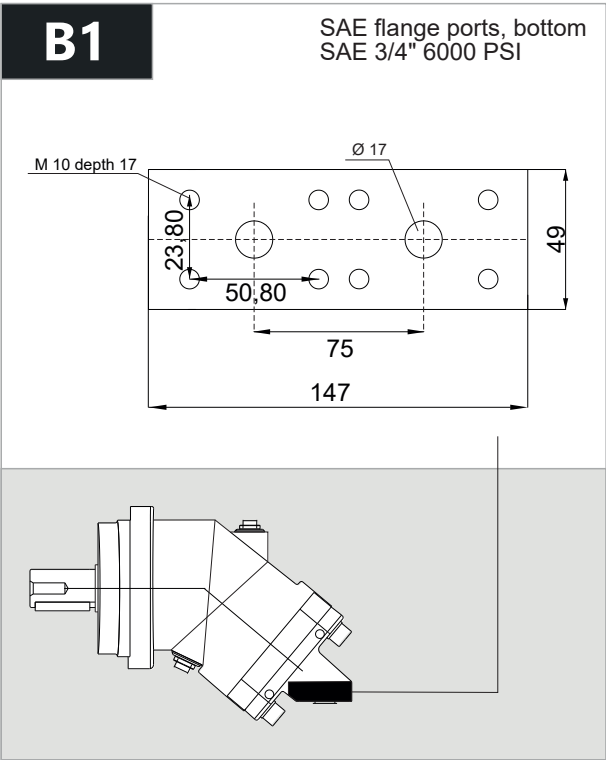


Dimensions Size;

2PM 50

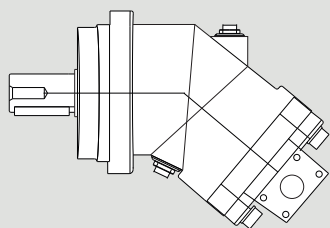
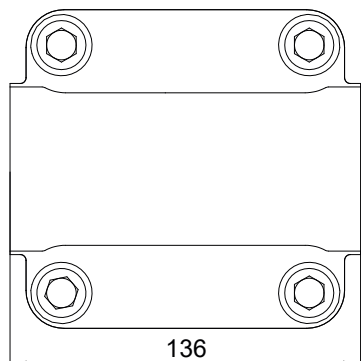


<i>x 1000 rpm</i>	<i>x 1500 rpm</i>	<i>Max. Contin. Pump Speed</i>	<i>Max. Intermit. Pump Speed</i>	<i>Max. Contin. Pressure</i>	<i>Max. Peak Pressure</i>	<i>Torque bar</i>	<i>Torque at 350 bar</i>	<i>Max. Flow</i>	<i>Weight without accessor.</i>	<i>Weight with accessor.</i>	<i>Max. Motor Temp.</i>	<i>Min. Motor Temp.</i>
50,00 cc	75,00 cc	5000 rpm	5500 rpm	400 bar	450 bar	0.80 m.N/bar	280 m.N	250	17,50 kg	18,00 kg	-25°	110°



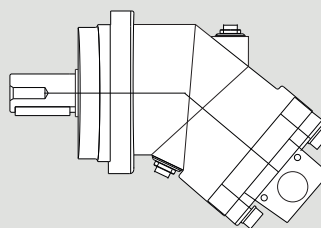
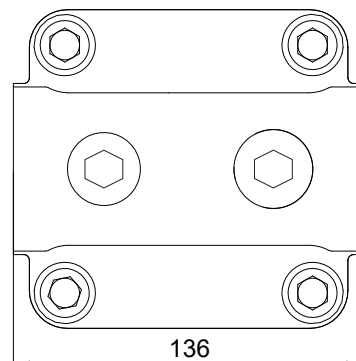
D1-D2

SAE flange ports, side A and B
SAE 3/4" 6000 PSI



D3

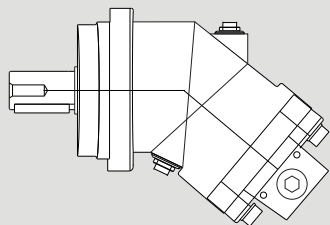
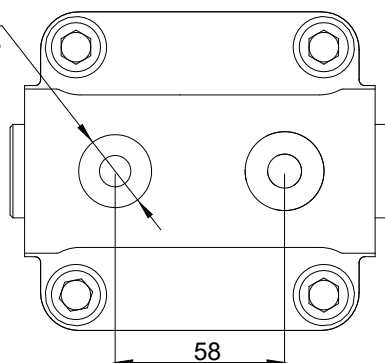
Side threaded ports A and B



R2

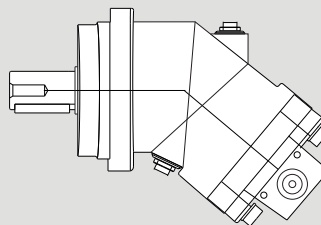
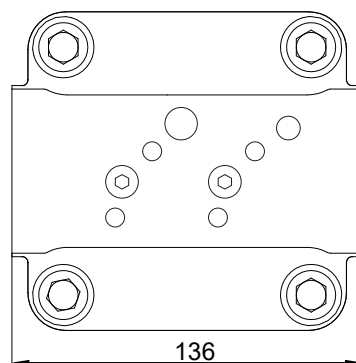
Rear threaded ports

M33x2 prof. 18



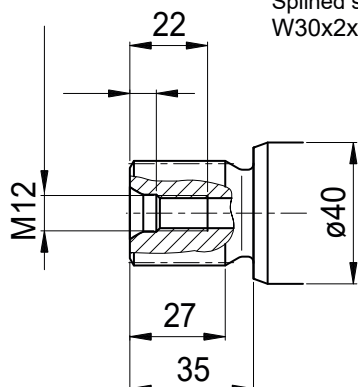
D4

Side threaded ports A and B



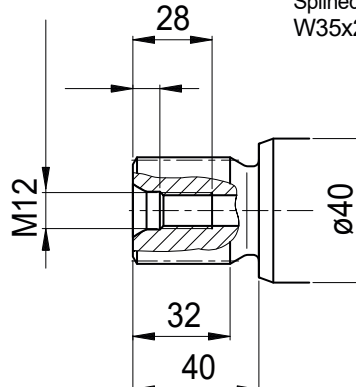
S1

Splined shaft DIN 5480
W30x2x14x9g



S2

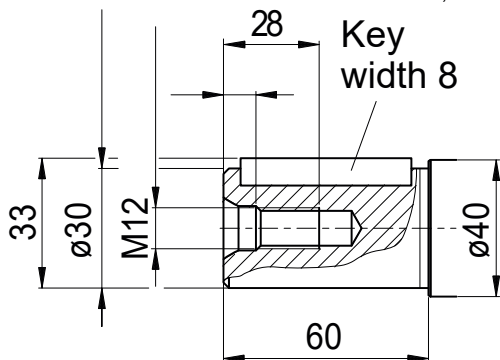
Splined shaft DIN 5480
W35x2x16x9g



K1

Parallel keyed shaft
DIN 6885, As8x7x50

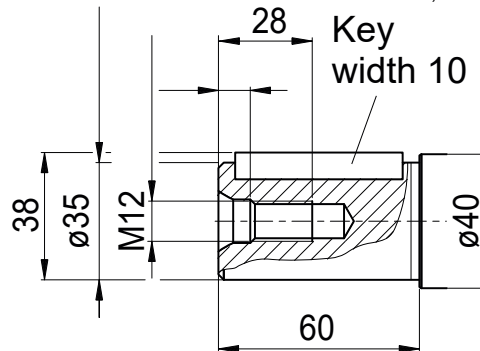
Key
width 8



K2

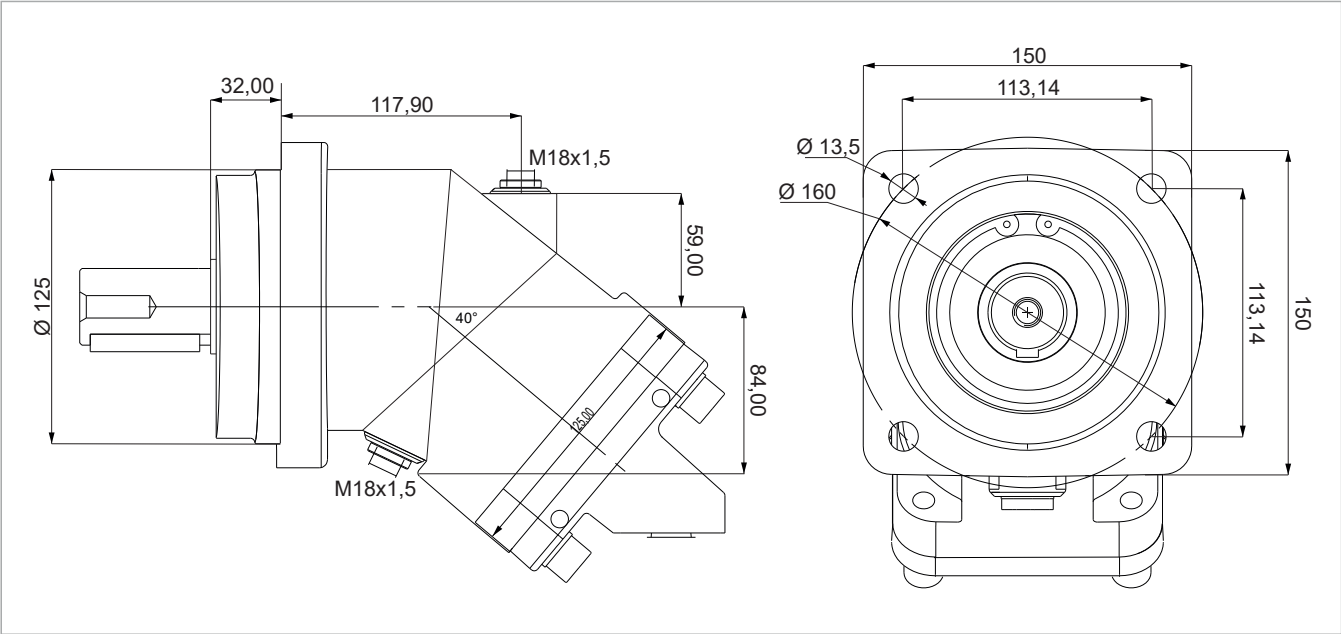
Parallel keyed shaft
DIN 6885, As10x8x50

Key
width 10

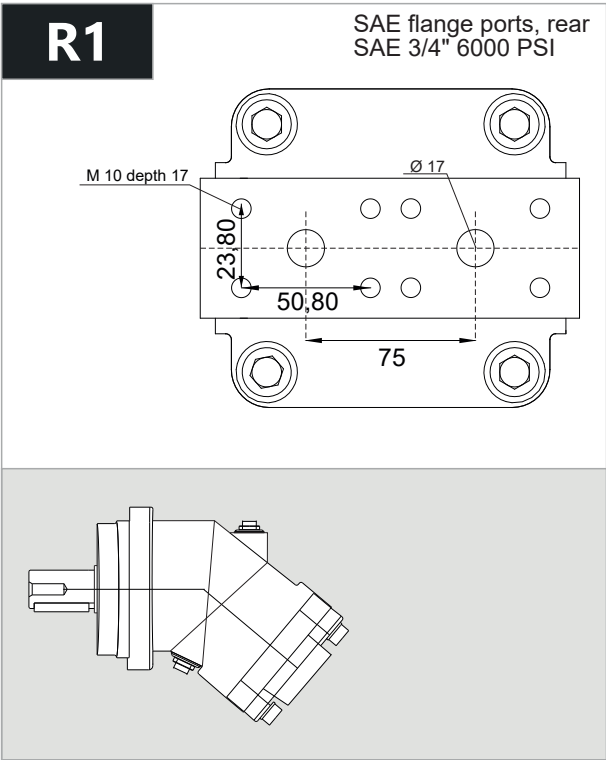
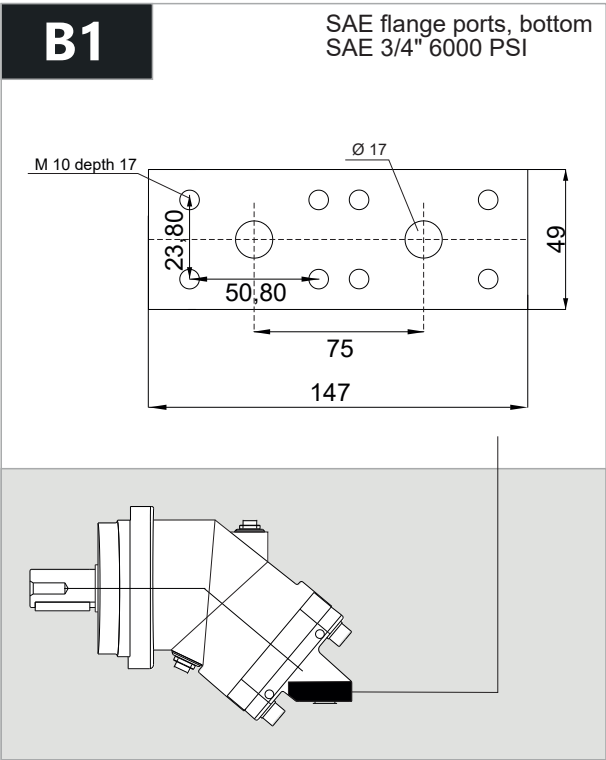


Dimensions Size;

2PM 63

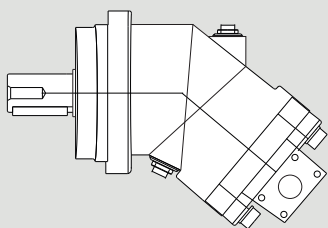
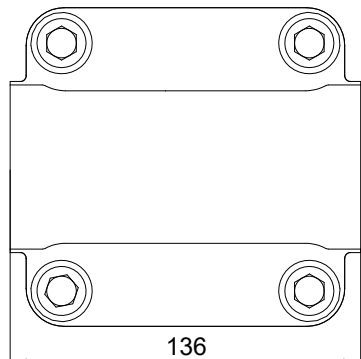


x 1000 rpm	x 1500 rpm	Max. Contin. Pump Speed	Max. Intermit. Pump Speed	Max. Contin. Pressure	Max. Peak Pressure	Torque bar	Torque at 350 bar	Max. Flow	Weight without accessor.	Weight with accessor.	Max. Motor Temp.	Min. Motor Temp.
63,00 cc	94,50 cc	5000 rpm	5500 rpm	400 bar	450 bar	1,00 m.N/bar	350 m.N	315	18,00 kg	18,50 kg	-25°	110°



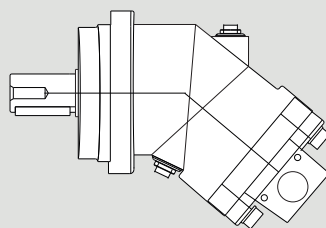
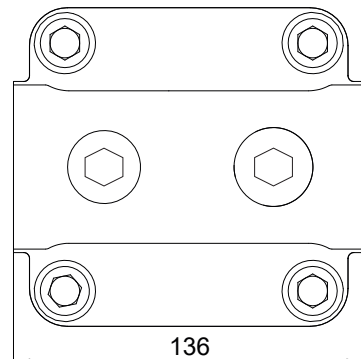
D1-D2

SAE flange ports, side A and B
SAE 3/4" 6000 PSI



D3

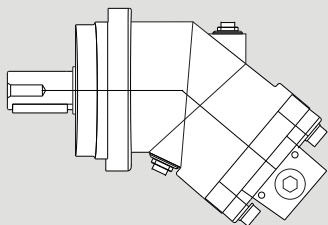
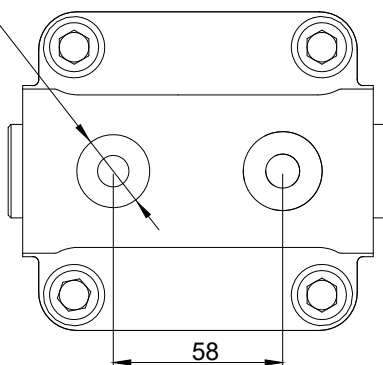
Side threaded ports A and B



R2

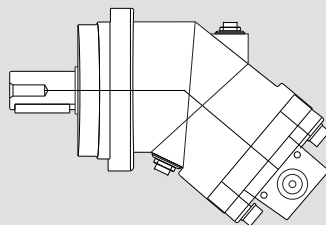
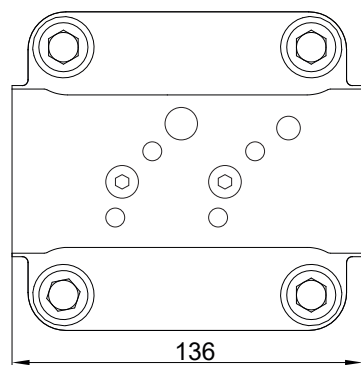
Rear threaded ports

M33x2 prof. 18



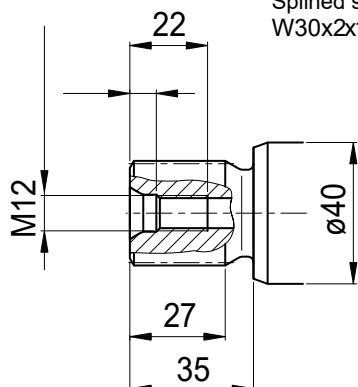
D4

Side threaded ports A and B



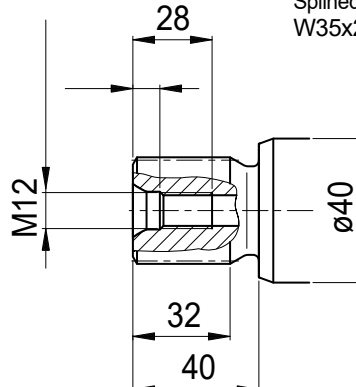
S1

Splined shaft DIN 5480
W30x2x14x9g



S2

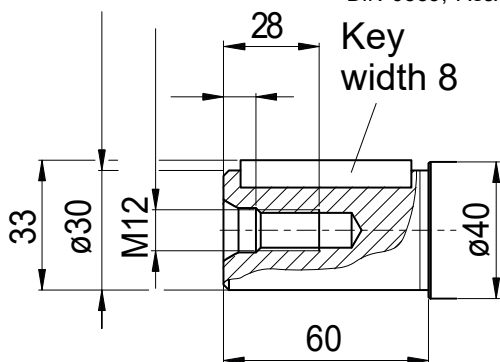
Splined shaft DIN 5480
W35x2x16x9g



K1

Parallel keyed shaft
DIN 6885, As8x7x50

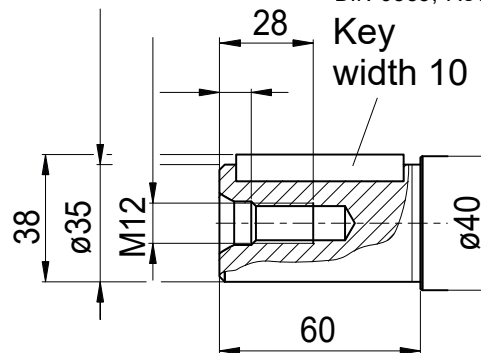
Key
width 8



K2

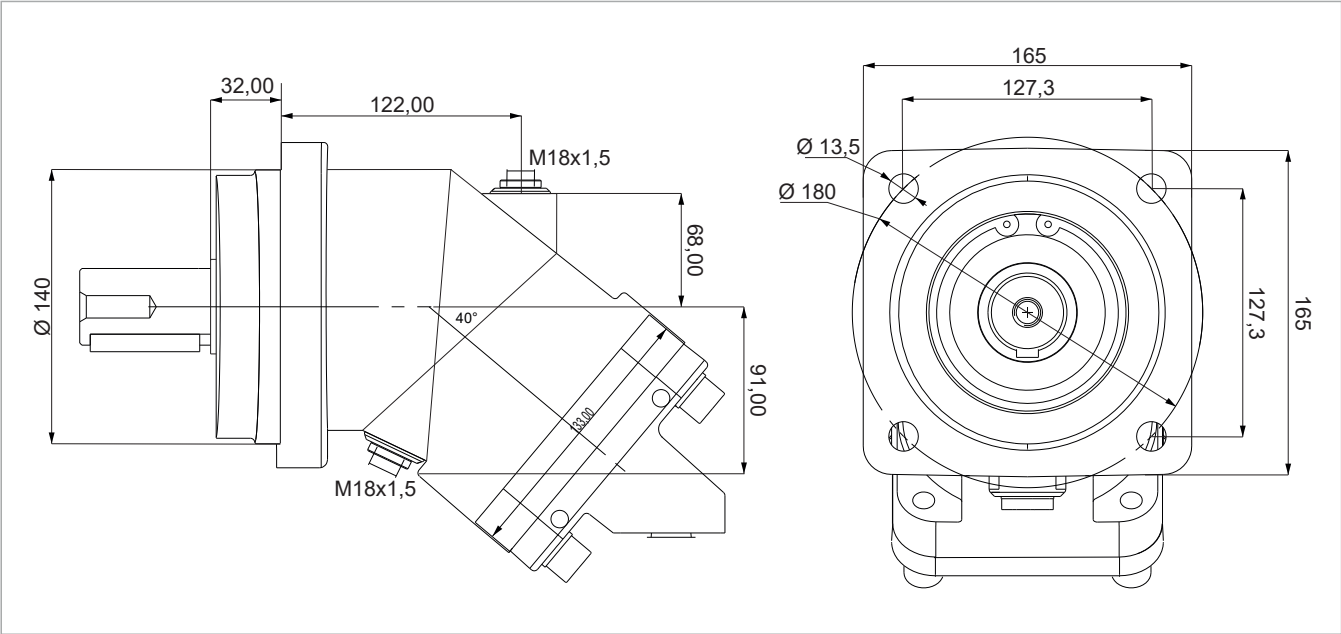
Parallel keyed shaft
DIN 6885, As10x8x50

Key
width 10

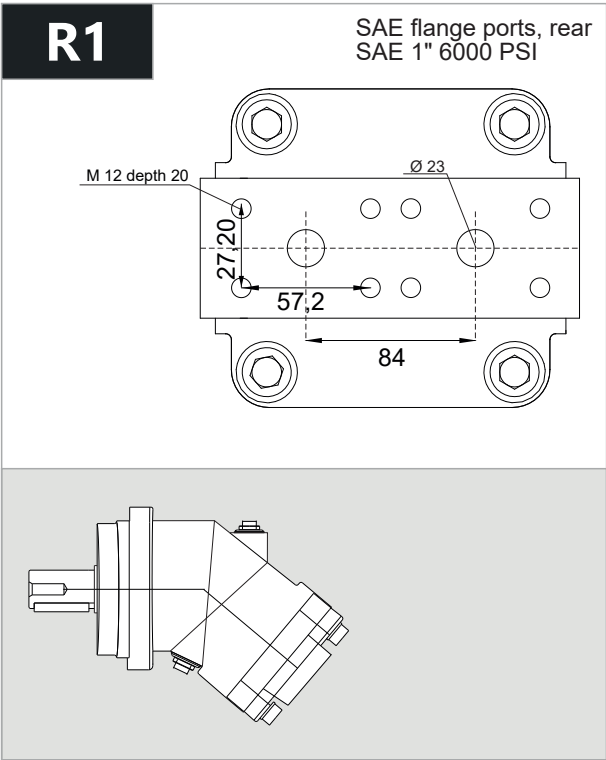
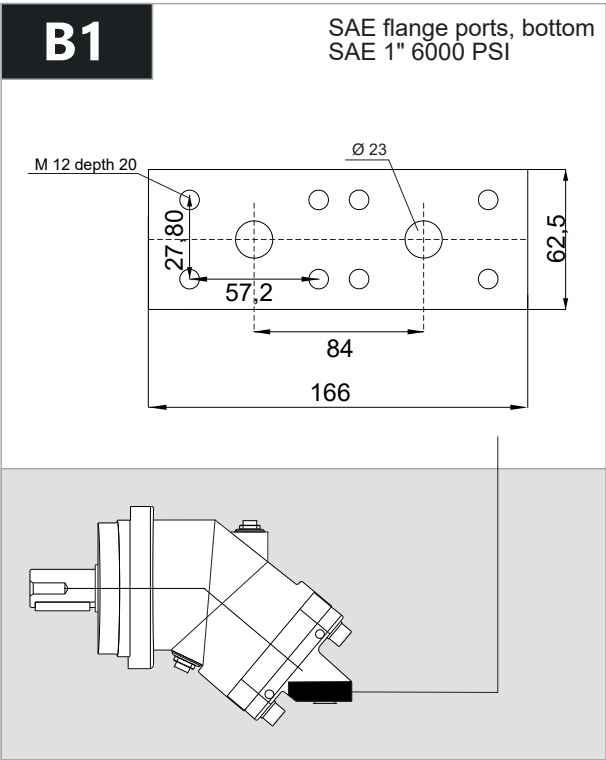


Dimensions Size;

2PM 80

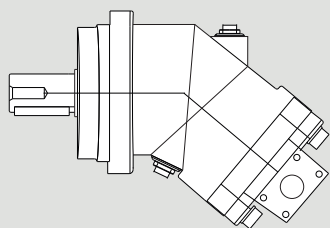
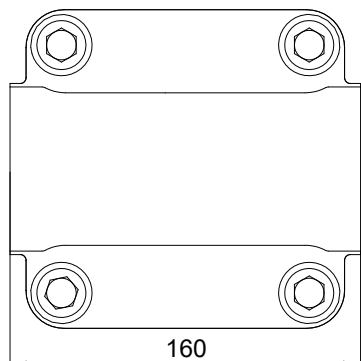


<i>x 1000 rpm</i>	<i>x 1500 rpm</i>	<i>Max. Contin. Pump Speed</i>	<i>Max. Intermit. Pump Speed</i>	<i>Max. Contin. Pressure</i>	<i>Max. Peak Pressure</i>	<i>Torque bar</i>	<i>Torque at 350 bar</i>	<i>Max. Flow</i>	<i>Weight without accessor.</i>	<i>Weight with accessor.</i>	<i>Max. Motor Temp.</i>	<i>Min. Motor Temp.</i>
80,00 cc	120,00 cc	4400 rpm	4900 rpm	400 bar	450 bar	1,28 m.N/bar	440 m.N	352	22,00 kg	22,50 kg	-25°	110°



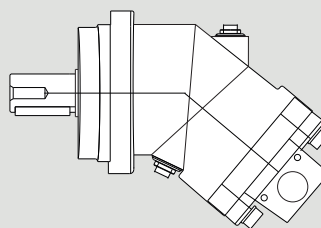
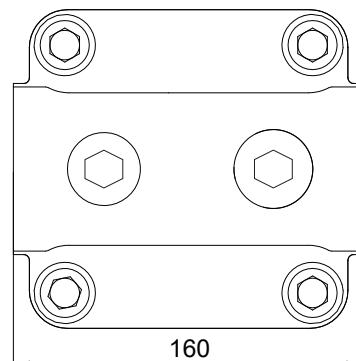
D1-D2

SAE flange ports, side
SAE 1" 6000 PSI



D3

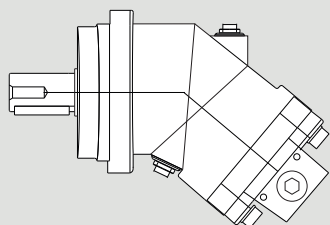
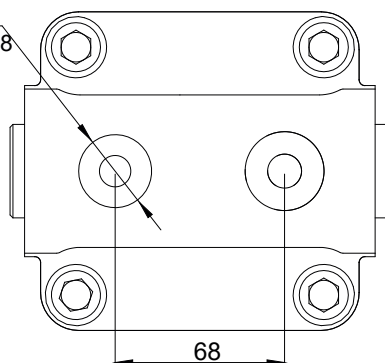
Side threaded ports



R2

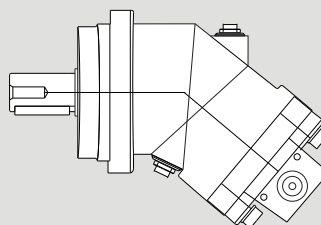
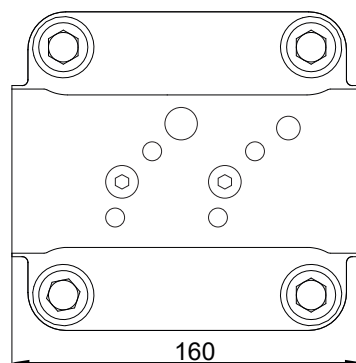
Rear threaded ports

M33x2 depth 18



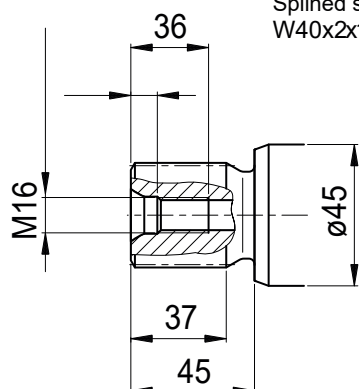
D4

Side threaded ports



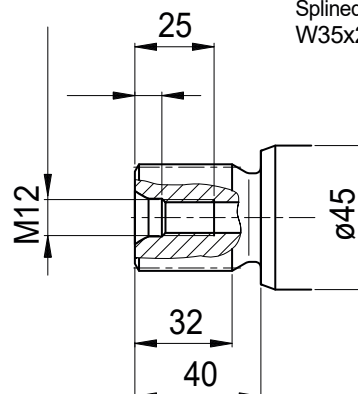
S1

Splined shaft DIN 5480
W40x2x18x9g



S2

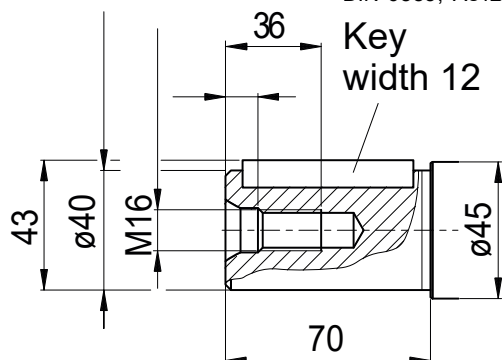
Splined shaft DIN 5480
W35x2x16x9g

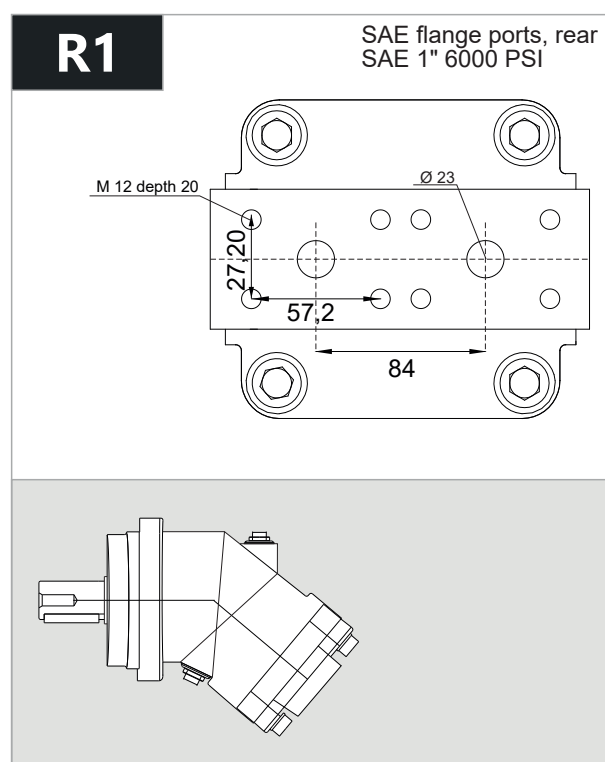
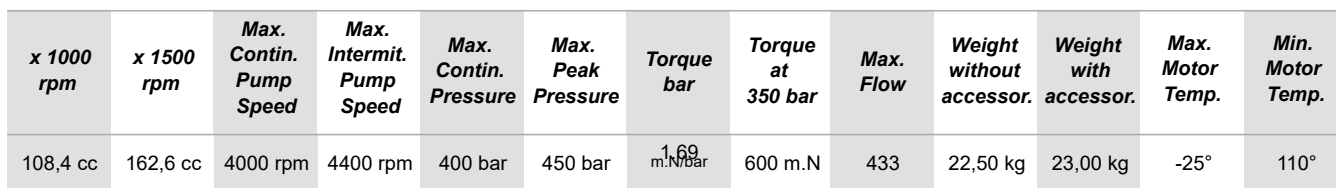


K1

Parallel keyed shaft
DIN 6885, As12x8x56

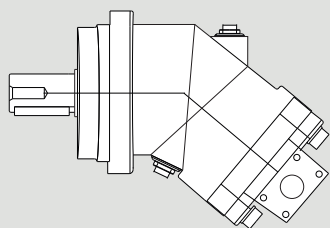
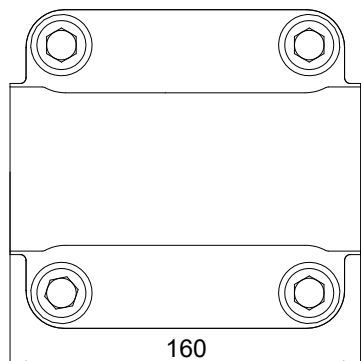
Key
width 12





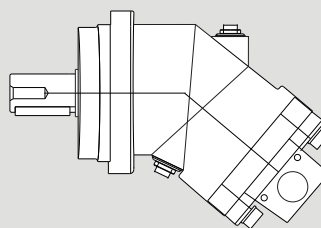
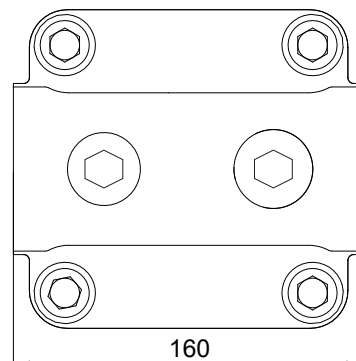
D1-D2

SAE flange ports, side
SAE 1" 6000 PSI



D3

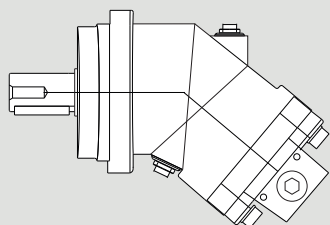
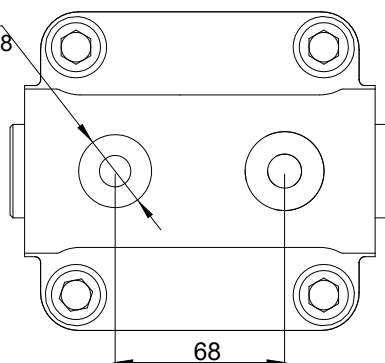
Side threaded ports



R2

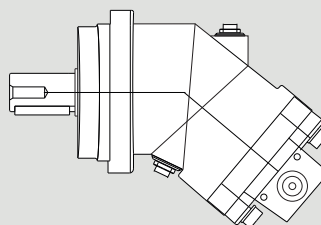
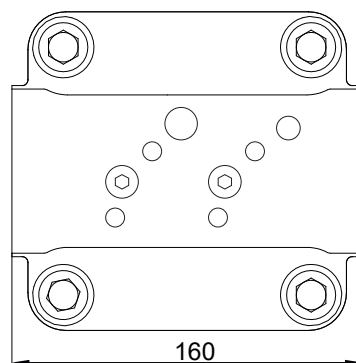
Rear threaded ports

M33x2 depth 18



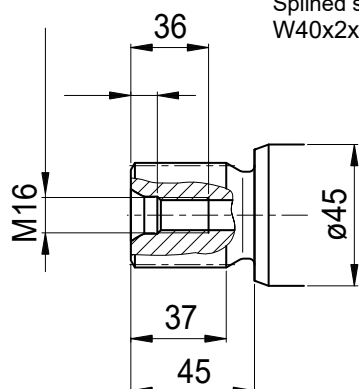
D4

Side threaded ports



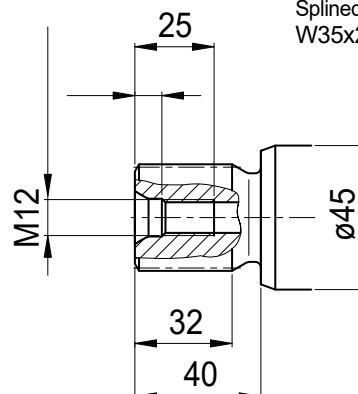
S1

Splined shaft DIN 5480
W40x2x18x9g



S2

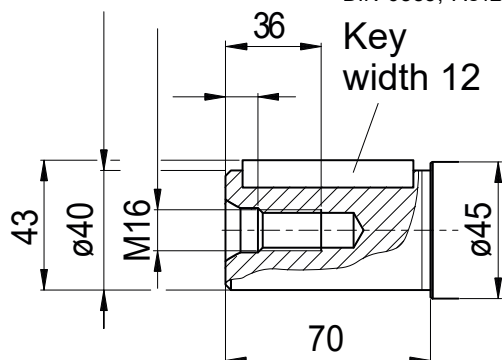
Splined shaft DIN 5480
W35x2x16x9g



K1

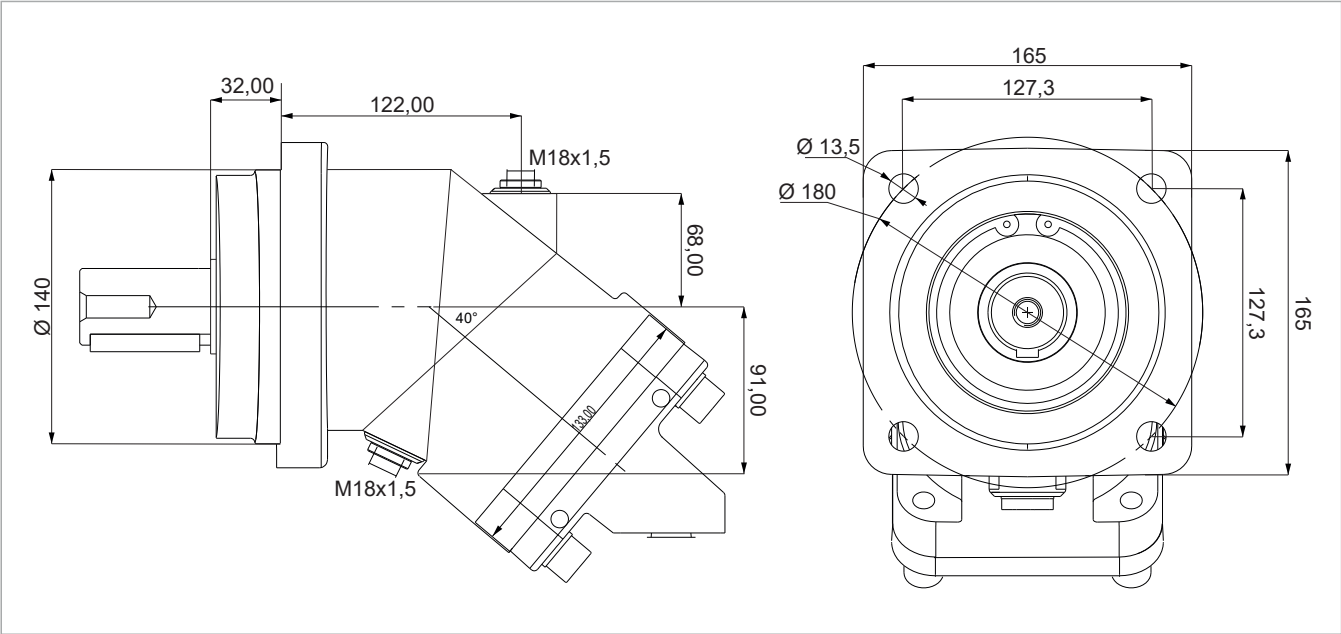
Parallel keyed shaft
DIN 6885, As12x8x56

Key
width 12

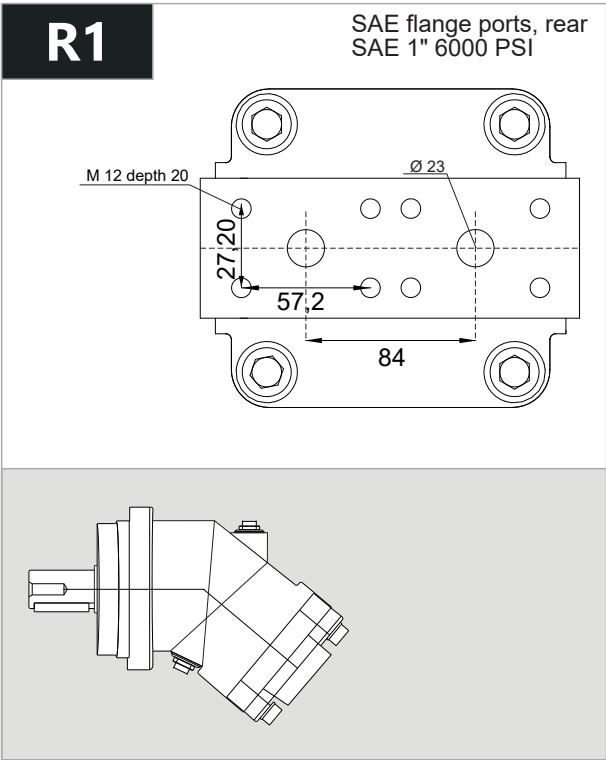
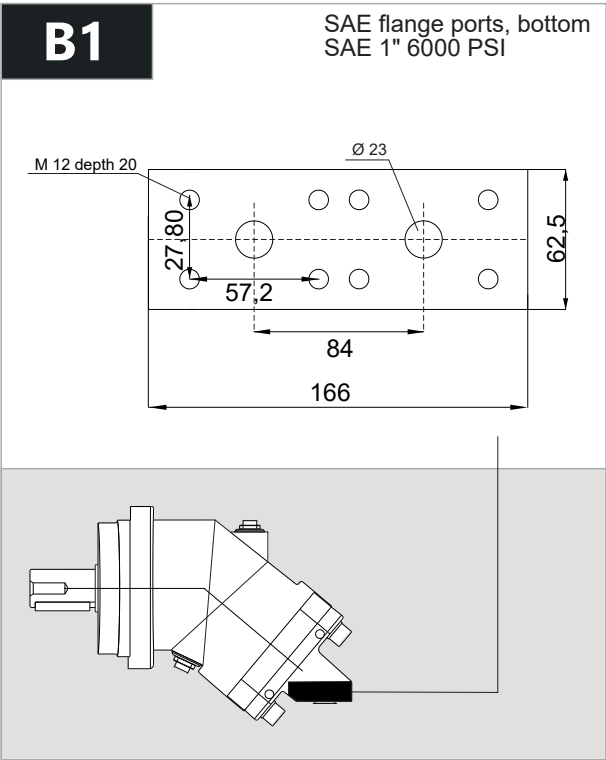


Dimensions Size;

2PM 130

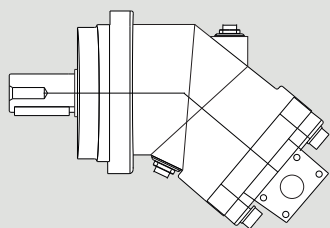
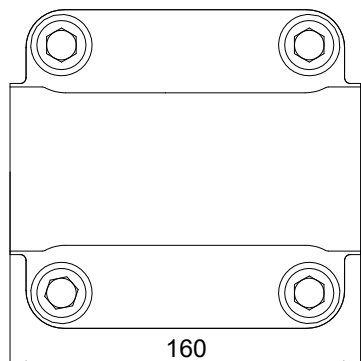


<i>x 1000 rpm</i>	<i>x 1500 rpm</i>	<i>Max. Contin. Pump Speed</i>	<i>Max. Intermit. Pump Speed</i>	<i>Max. Contin. Pressure</i>	<i>Max. Peak Pressure</i>	<i>Torque bar</i>	<i>Torque at 350 bar</i>	<i>Max. Flow</i>	<i>Weight without accessor.</i>	<i>Weight with accessor.</i>	<i>Max. Motor Temp.</i>	<i>Min. Motor Temp.</i>
130,0 cc	195,0 cc	3400 rpm	4400 rpm	400 bar	450 bar	2.10 m.N/bar	710 m.N	442	35,00 kg	35,50 kg	-25°	110°



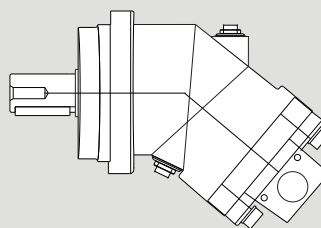
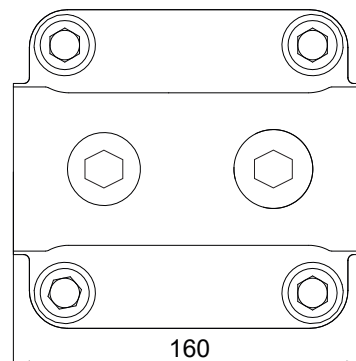
D1-D2

SAE flange ports, side
SAE 1" 6000 PSI



D3

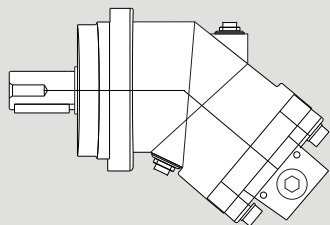
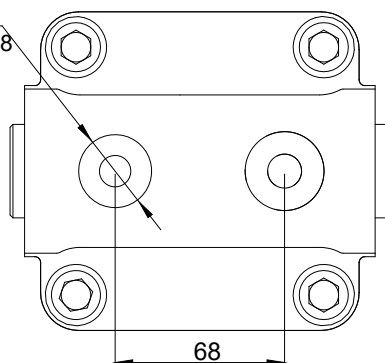
Side threaded ports



R2

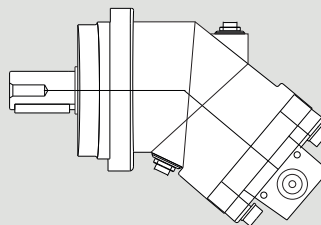
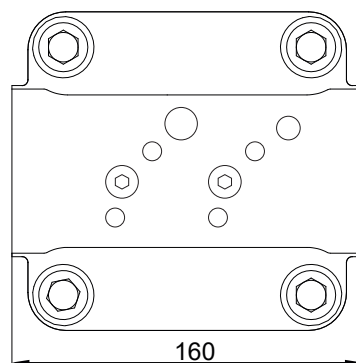
Rear threaded ports

M33x2 depth 18



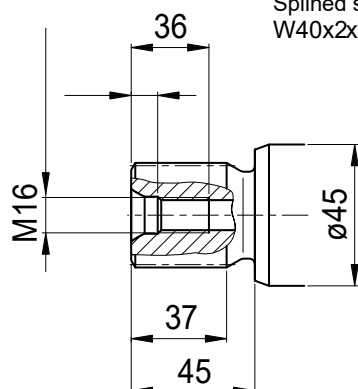
D4

Side threaded ports



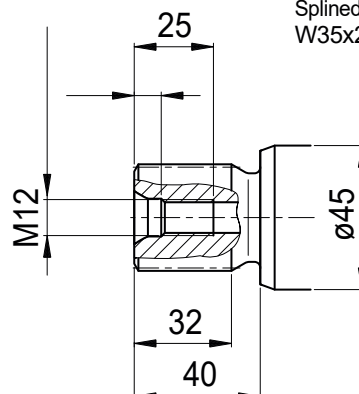
S1

Splined shaft DIN 5480
W40x2x18x9g



S2

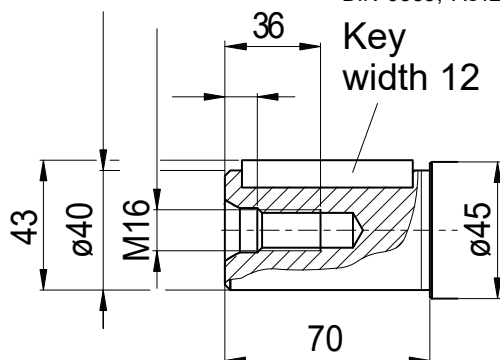
Splined shaft DIN 5480
W35x2x16x9g



K1

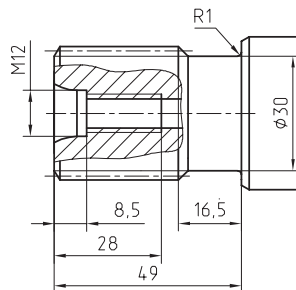
Parallel keyed shaft
DIN 6885, As12x8x56

Key
width 12

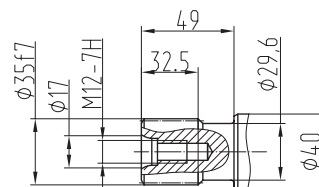


Special Shaft Drive

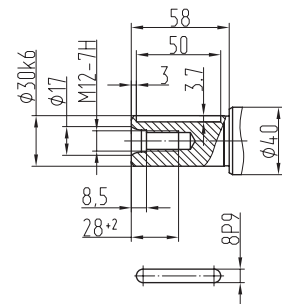
Splined shaft
35x7x2x9g GOST 6033-80



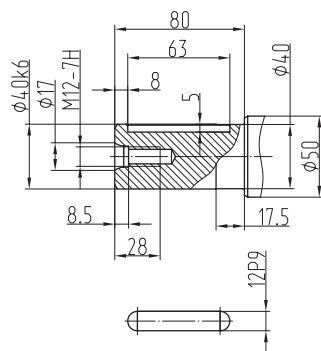
35x7x2x9g ГOCT6033



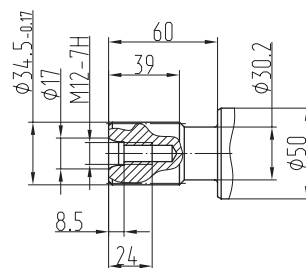
Parallel keyed shafts



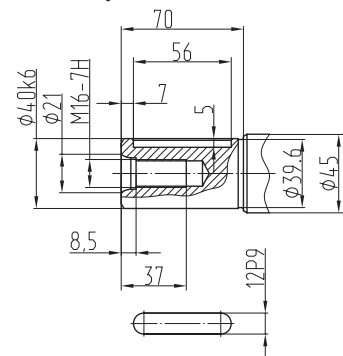
Parallel keyed shafts



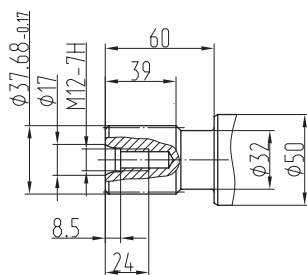
1 3/8" 21T 16/32DP ANSI B92



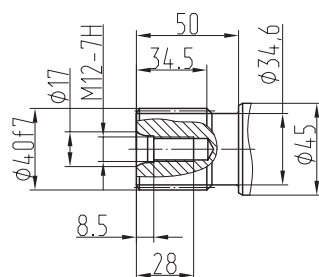
Parallel keyed shafts



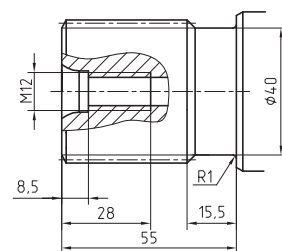
1 1/2" 23T 16/32DP ANSI B92



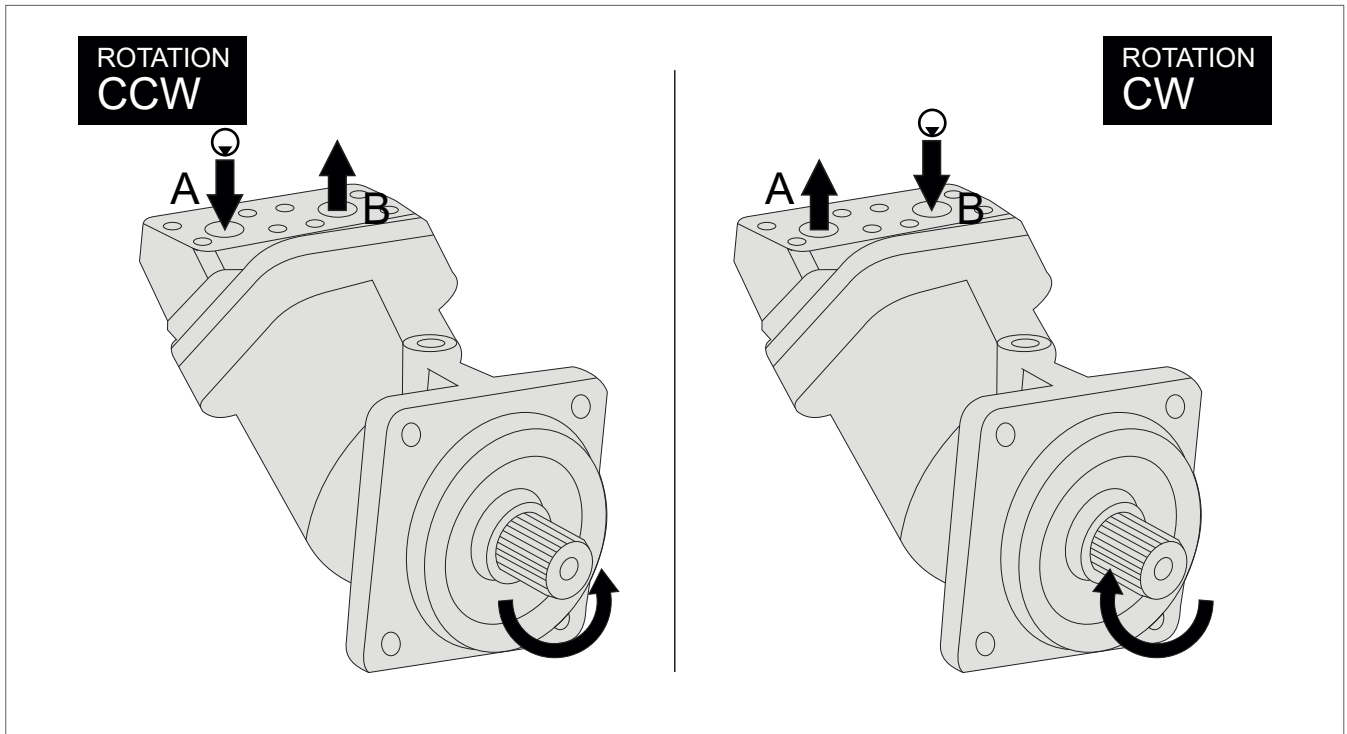
40x7x2x9g GOST6033



45xh8x2x9g GOST 6033-80



Direction of Rotation



Quick Calculation

Flow rate

$$Q = \frac{s \times n V}{1000 \eta_v} \text{ (lpm)}$$

TorquePowerSpeed

$$M = \frac{s \Delta p V \eta_{mh}}{63} \text{ (Nm)}$$

$$P = \frac{\frac{\text{Nm}^2}{60000} \times n M}{9549} = \frac{p Q \eta_t}{600} \text{ (kw)}$$

$$n = \frac{1000 Q \eta_v}{V_s} \text{ (rpm)}$$

V_s = Displacement (ccm/rev.)

Δp = Diff. pressure (bar)

n = Speed (rpm)

Q = Flow (lpm)

η_v = Volumetric efficiency

η_{mh} = Mechanical-hydraulic efficiency

η_t = Total efficiency ($\eta_t = \eta_v \times \eta_{mh}$)

Address all questions regarding spare parts to your responsible Our Service Partner or the technical service department of the manufacture's plant / factory for the 2PM Bent Axis Motors.

ÇELEBİ HİDROCEL OTOM. SAN. TİC. LTD. ŞTİ.

Fevzicakmak Mh. Aslım Cd. Kobisan San. Sit. H Blok No: 67J 42050 Karatay – Konya / TURKEY

Phone : +90 (332) 345 13 70 - +90 (332) 345 13 71

hidrocel@hidrocel.com.tr

Installation

POSITION

2PM Motors can be operate any position.

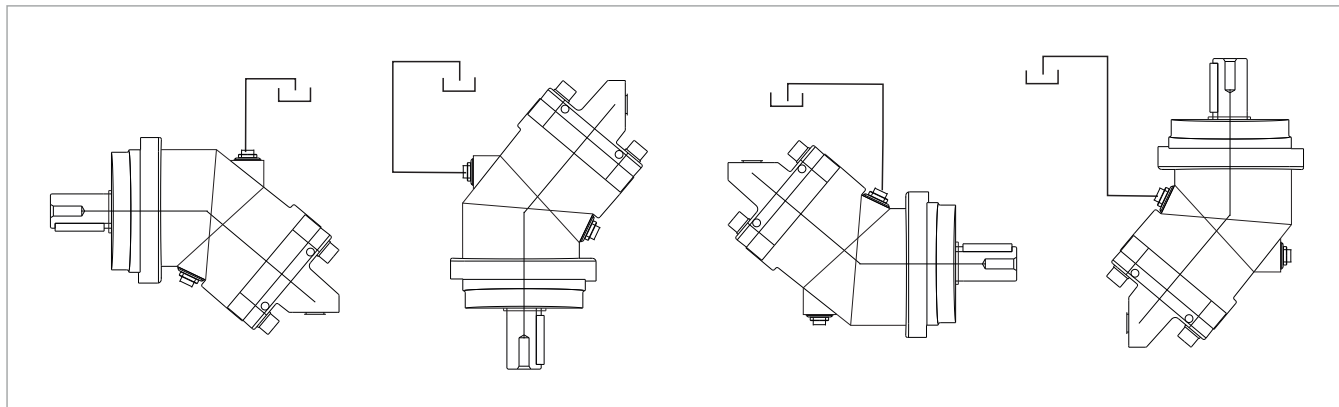
DIRECTION OF ROTATION

2PM Motors can be operate in both directions of rotation.

Before of Installation operation, the motor must be filled with hydraulic fluid and air bled.

INSTALLATION POSITION

See following examples.

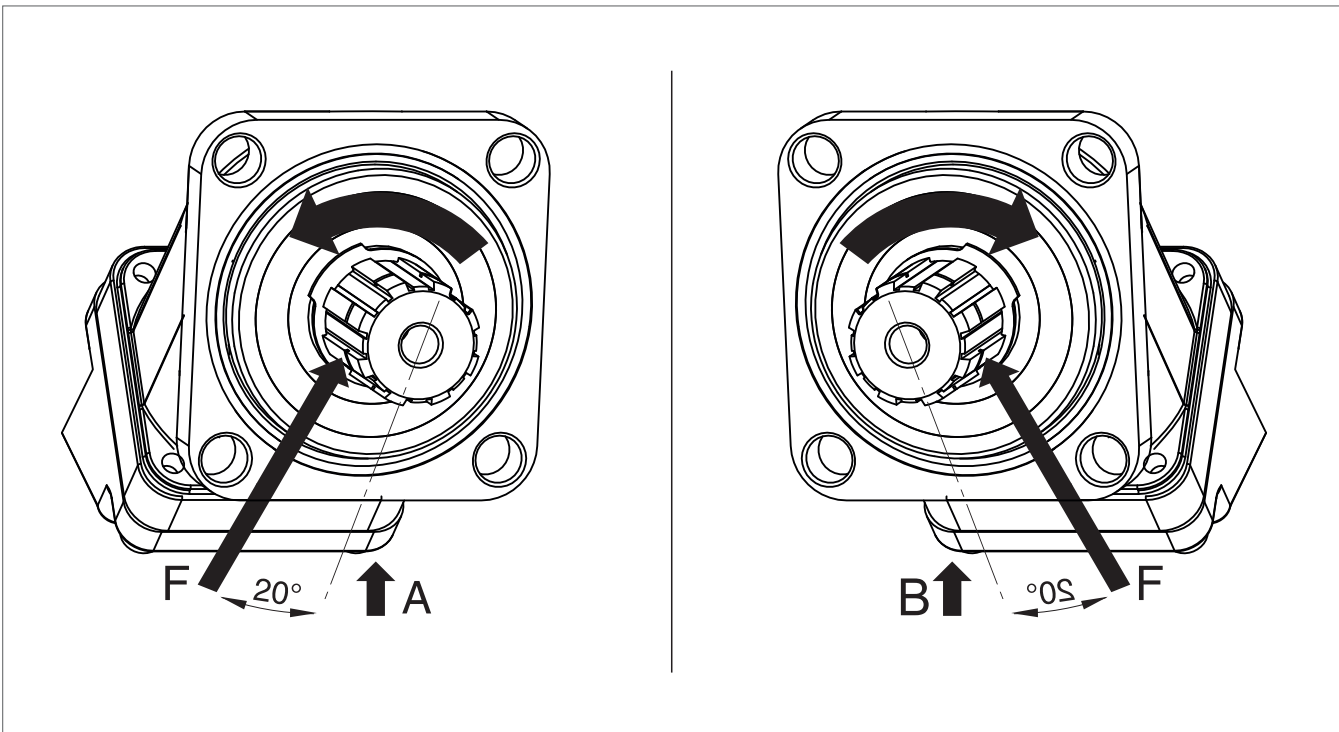


HYDRAULIC FLUID

Recommended ;

Generally : between 15 and 200 cSt.

Maximum : between 5 and 1600 cSt.



FOR USE;

Available via e-mail on request or each motor is supplied via Starting datasheet.

For detailed information about 2PM Bent Axis Motors, please contact with Technical Department !!!

Complete Product Range

		Piston Pumps	Piston Motors
DIN	DIN 5462 / ISO 14 8x32x35 8x32x36 DIN 6885		
		2PBA	2PBM
ISO	ISO 3019-2 (4 BOLTS) DIN 5480 -W25,30,35,40,45 DIN 6885 -Ø20,25,30,35,40,45		
		2PS	2PM
SAE	SAE B2 C4 - SAE D SAE J498b SAE J 744		
		2PE	2PEM

Contact

ÇELEBİ HİDROCEL OTOM. SAN. TİC. LTD. ŞTİ.

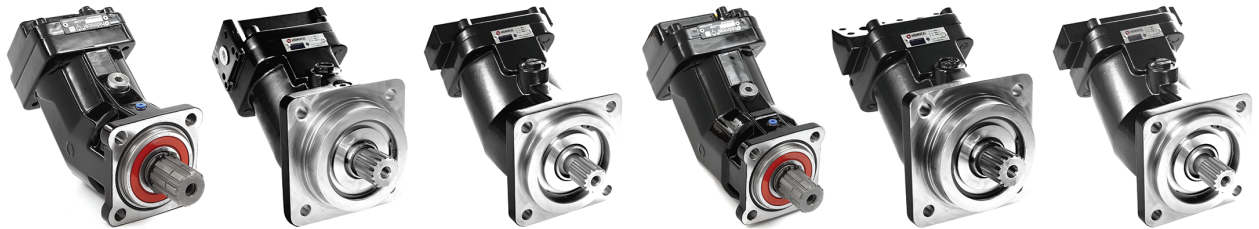
Fevzicakmak Mh. Aslım Cd. Kobisan San. Sit. H Blok No: 67J
42050 Karatay – Konya / TURKEY

Phone : +90 (332) 345 13 70

+90 (332) 345 13 71

Fax : +90 (332) 345 13 72

hidrocel@hidrocel.com.tr



www.hidrocel.com.tr