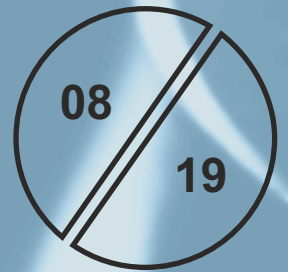
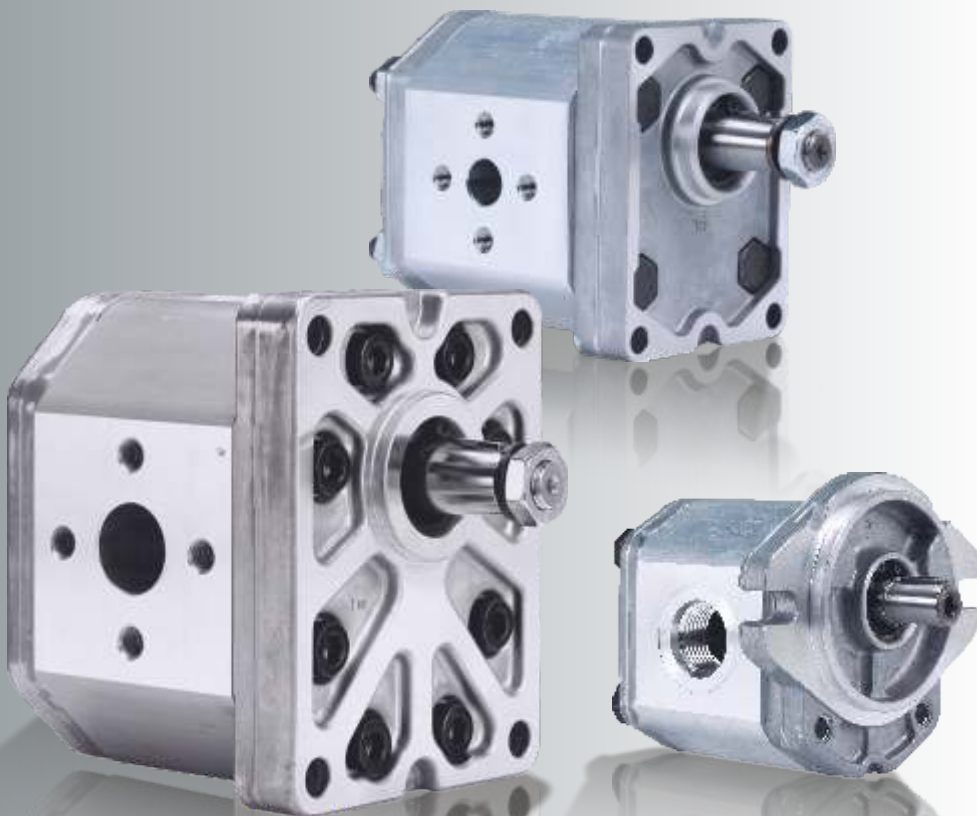


Quality Products for Mechanical
& Fluid Power



ALP Series External Gear Pumps

Groups 1, 2, 3 & 4



 **MARZOCCHI**POMPE
HIGH PRESSURE GEAR PUMPS

JB
TECHNIQUES
LIMITED

GEAR PUMPS



an excellence in engineering

www.jbj.co.uk/pumpsandmotors.html

Reduce noise levels by an average of 15 dBA.
 Including group 2, 3 and multiple pumps. The helical profile of the gears reduces pressure oscillations and vibrations produced by the pump and transmitted to the other components, reducing the noise of the hydraulic system. Axial forces induced by the helical teeth are optimally balanced in all operating conditions by the axial compensation system integrated in the pump cover. Specific compensation areas into flange and cover, insulated by special gaskets reinforced with anti-extrusion, allow for fully free axial and radial movement of the bushings, which is proportional to pump operating pressure. In this way, internal leakage is dramatically reduced, ensuring very good volumetric and mechanical pump performances, as well as proper lubrication of pump's moving parts.

Gear pump high pressure, teflon shaft seal can bear over-pressures of over 210 bar. A system of radial sealing at the shaft that can bear enormous internal over-pressures without resulting in damage. This radial sealing is particularly useful in single direction hydraulic motors when, in certain conditions of use, high over-pressures will be generated at the motor output. With bi-directional motors, the area adjacent to the seal ring of the drive-shaft is maintained at atmospheric pressure by the drainage circuit. In single-direction motors, this area is directly connected to the output so any over-pressure impacts directly on the seal ring, causing the lip to turn over or the ring to be expelled from its seat with a consequent leakage of fluid. The Teflon (P450) material adapts evenly to the texture of the machining on the shaft to guarantee a perfect seal.

Allow close coupling of hydraulic pumps directly to the flywheel / flywheel housing of diesel engines, electric and hydraulic motors.

www.jbj.co.uk/hydraulic-adaptors.html

The package consists of a bellhousing and flexible drive coupling that are fully machined to suit the pump and any driving interface; diesel or petrol engine, electric or hydraulic motor.

jbj's in-house design team and manufacturing facility provide tailored solutions for your applications at competitive prices with quick delivery.

A range of composite bell housings to accommodate electric motor flanges from 300 mm diameter to 800 mm diameter. See pages 40 to 44 of the Pump Drive Components technical specification catalogue.

A collection of different ways of connecting hydraulic pumps and motors to various driver devices.



quality products for mechanical & fluid power

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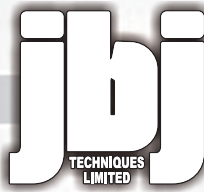




The details contained within this catalogue are reproduced in accordance with the latest information at going to press E & OE

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	Displacement	P1 Max. continuous pressure	P2 Max. intermittent pressure	P3 Maximum peak pressure	Maximum speed	Maximum drain line pressure
Group 0.25	from 0.19 to 0.64 cm ³ /rev.	190 bar	210 bar	230 bar	7000 rpm	-
0.25 RO	from 0.19 to 0.64 cm ³ /rev.	230 bar	250 bar	270 bar	7000 rpm	-
Group 0.50	from 0.50 to 1.50 cm ³ /rev.	190 bar	210 bar	230 bar	4000 to 7000 rpm	-
0.50 RO	from 0.50 to 1.25 cm ³ /rev.	230 bar	250 bar	270 bar	5000 to 7000 rpm	-
Group 1P	from 1.1 to 8 cm ³ /rev.	160 to 230 bar	190 to 250 bar	200 to 270 bar	2100 to 6000 rpm	-
Group ALP1	from 1.4 to 13.8 cm ³ /rev.	150 to 250 bar	165 to 270 bar	180 to 290 bar	1800 to 6000 rpm	-
Group ALP2	from 4.5 to 35.2 cm ³ /rev.	140 to 250 bar	155 to 270 bar	170 to 290 bar	2500 to 4000 rpm	-
Group ALP3	from 20 to 87 cm ³ /rev.	140 to 230 bar	155 to 250 bar	170 to 270 bar	2000 to 3500 rpm	-
Group ALP4	from 87 to 200 cm ³ /rev.	130 to 240 bar	140 to 260 bar	150 to 280 bar	2400 to 2800 rpm	-
Group GHP1	from 1.4 to 13.8 cm ³ /rev.	190 to 270 bar	195 to 290 bar	210 to 310 bar	1800 to 6000 rpm	-
Group GHP2	from 4.5 to 35.2 cm ³ /rev.	160 to 280 bar	175 to 295 bar	190 to 310 bar	2500 to 4000 rpm	-
Group GHP3	from 20 to 87 cm ³ /rev.	160 to 280 bar	175 to 295 bar	190 to 310 bar	2000 to 3500 rpm	-
Group ALP/GHP1 Modular	from 1.4 to 13.8 cm ³ /rev.	150 to 270 bar	165 to 290 bar	180 to 310 bar	1800 to 6000 rpm	-
Group ALP/GHP2 Modular	from 4.5 to 35.2 cm ³ /rev.	140 to 280 bar	155 to 295 bar	170 to 310 bar	2500 to 4000 rpm	-
Group ALP/GHP3 Modular	from 20 to 87 cm ³ /rev.	140 to 280 bar	155 to 295 bar	170 to 310 bar	2000 to 3500 rpm	-
Group ALP4 Modular	from 87 to 200 cm ³ /rev.	130 to 240 bar	140 to 260 bar	150 to 280 bar	2400 to 2800 rpm	-
	Displacement	P1 Max. continuous inlet pressure	PC Max. continuous outlet pressure	PP Max. peak inlet pressure	Maximum speed	Maximum drain line pressure
Group ALM1 Uni-directional	from 2.8 to 11 cm ³ /rev.	170 to 250 bar	160 to 240 bar	185 to 270 bar	2200 to 5000 rpm	-
Group ALM1 Bi-directional	from 2.8 to 11 cm ³ /rev.	170 to 250 bar	160 to 240 bar	185 to 270 bar	2200 to 5000 rpm	6 bar
Group ALM2 Uni-directional	from 4.5 to 28.2 cm ³ /rev.	170 to 250 bar	160 to 240 bar	185 to 270 bar	2500 to 4000 rpm	-
Group ALM2 Bi-directional	from 4.5 to 28.2 cm ³ /rev.	170 to 250 bar	160 to 240 bar	185 to 270 bar	2500 to 4000 rpm	6 bar
Group ALM3 Uni-directional	from 22 to 87 cm ³ /rev.	140 to 230 bar	130 to 220 bar	155 to 250 bar	2000 to 3500 rpm	-
Group ALM3 Bi-directional	from 22 to 87 cm ³ /rev.	140 to 230 bar	130 to 220 bar	155 to 250 bar	2000 to 3500 rpm	6 bar
Group GHM1 Uni-directional	from 2.8 to 11 cm ³ /rev.	200 to 270 bar	190 to 260 bar	215 to 290 bar	2200 to 5000 rpm	-
Group GHM1 Bi-directional	from 2.8 to 11 cm ³ /rev.	200 to 270 bar	190 to 260 bar	215 to 290 bar	2200 to 5000 rpm	6 bar
Group GHM2 Uni-directional	from 4.5 to 28.2 cm ³ /rev.	200 to 280 bar	190 to 270 bar	215 to 295 bar	2500 to 4000 rpm	-
Group GHM2 Bi-directional	from 4.5 to 28.2 cm ³ /rev.	200 to 280 bar	190 to 270 bar	215 to 295 bar	2500 to 4000 rpm	6 bar
Group GHM3 Uni-directional	from 22 to 87 cm ³ /rev.	160 to 280 bar	150 to 270 bar	175 to 295 bar	2000 to 3500 rpm	-
Group GHM3 Bi-directional	from 22 to 87 cm ³ /rev.	160 to 280 bar	150 to 270 bar	175 to 295 bar	2000 to 3500 rpm	6 bar
	First stage small displacement. High pressure.	Second stage large displacement. Low pressure.	Unloading valve.	Ports.	RPM range.	Flange and shafts.
Group HL	from 1.1 to 8.3 cm ³ /rev. P1 = up to 250 bar.	from 3.7 to 35.2 cm ³ /rev. (pressure set by unloading valve).	Standard setting from 30 to 50 bar, special settings on request	Common inlet. Common outlet. Side ports code FG, FA, D	1000 rpm to 3500 rpm	According to the HL pump type
	Displacement			Ports.	RPM range.	Flange and shafts.
Group ALPC/GHPC	from 1.4 to 35.2 cm ³ /rev. Max. pressure 270 bar.			Common inlet (option). Side ports code E; EP; FG; FC; FA; D (according to the pump type); Rear ports KA (only group 2)	1000 rpm to 4000 rpm	According to the HL pump type



www.jbj.co.uk/gearpumps.html



0.25 - 0.5 Series Micro Gear Pumps

Extensive range and very high performance of these pumps integrated in to micro power packs make them ideal for many applications from aerospace to marine, medical to automotive.



1P Series Gear Pumps

High production rates, performance consistency and absolute reliability ensure this a benchmark product for the hydraulic power pack market.



ALP Series Gear Pumps

This product range includes pumps of displacements (up to 200cc/rev) in a full aluminium configuration, able to withstand medium to high pressures and using different versions of flanges (European, German and SAE), porting and shafts. Mono-directional as well as reversible.



GHP Series Gear Pumps

The GHP series offer identical configurations to the ALP series and guarantees extreme reliability in very high pressure applications. Ideal for mobile applications from agricultural to construction machines as the cast iron allows more flange, cover and port options.



ALP/GHP Series Multiple Modular Gear Pumps

Modularity and flexibility are the characteristics of these pumps. They allow the assembly of pump modules of the ALP and GHP (from 0.25 to 4) enabling solutions to a wide range of application requirements.



ALM Series Gear Motors

For medium to high pressure rates the ALM series is ideal for mobile and industrial sectors. Mono-directional and bi-directional with internal and external drain available.



GHM Series Gear Motors

The GHM series offer identical configurations to the ALM series but more robust thanks to the cast iron front flange and rear cover.



High/Low 2-Pass Gear Pumps

Ideal pump for applications which require a fast approach and/or return of the actuator at low loads and slow motion of the actuator at high loads. e.g. log splitters, compactors & presses. Volumetric and mechanical efficiencies as well as low noise levels are further benefits of this range.



ALPC/GHPC Series Short Multiple Gear Pumps

For reduced axial layout. Available with both flanges and covers in aluminium or cast iron.



ELIKA®
The low noise, low pulsation helical gear pump.
Groups 2, 3, 4 and multiple pumps.



Reduces the noise level by up to 20 dBA.

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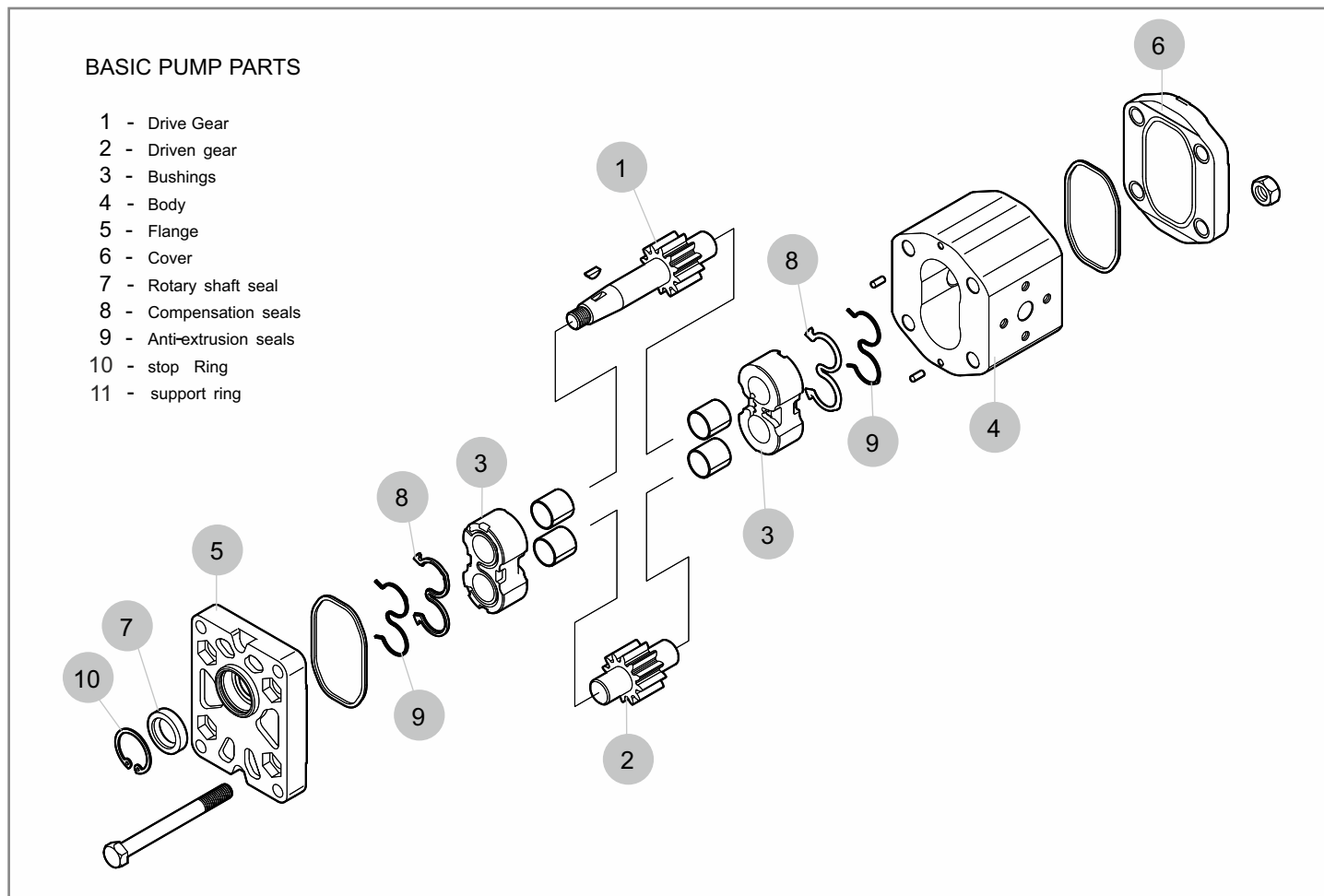


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External gear pumps are the most popular pumps used in modern hydraulic systems. They feature versatility, strength and long useful life. Their simple construction ensures limited purchase costs and servicing.

Thanks to these basic concepts, together with ever improving product design and features, research based on many years of experience, accuracy in material selection, production process followed in great detail and tests on mass-produced parts, our gear pumps have reached top quality standards. For this reason, our products can work under heavy duty operating conditions and transmit high hydraulic power. Furthermore, these hydraulic gear pumps feature good hydraulic, mechanical and volumetric efficiency, low noise level and, last but not least, compact dimensions and low weight/power ratio.

Marzocchi Pompe has further developed its own range of products with a new series of pumps named ALP where groups named ALP1, ALP2, ALP3 and ALP4 are suitable for the widest range of application, both in the industrial and the mobile sector.

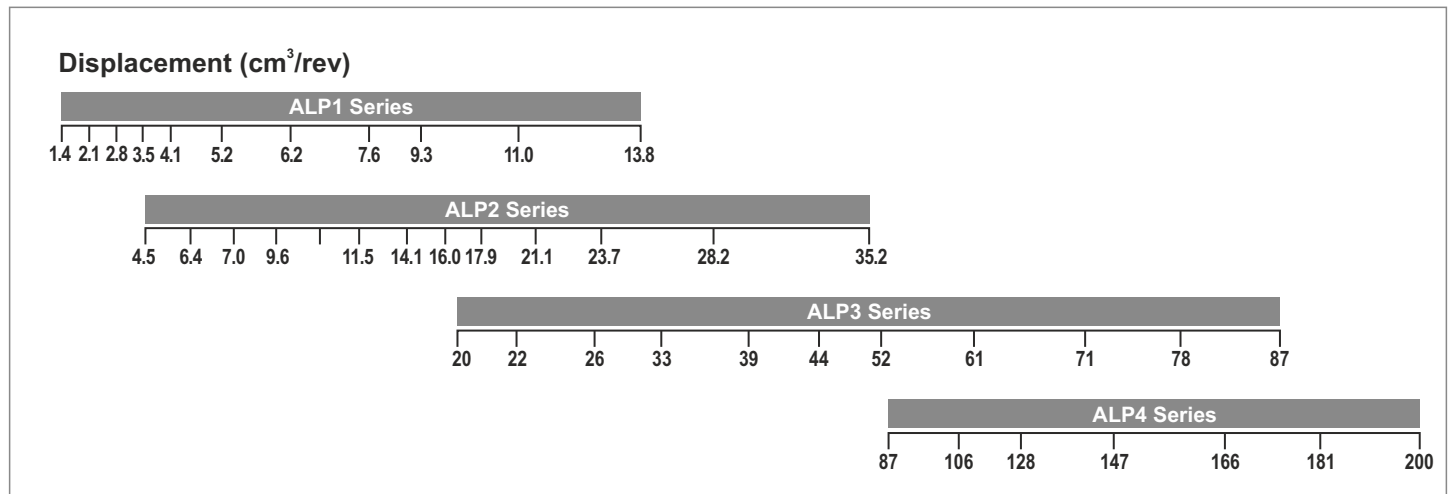
Generally these gear pumps usually consist of a gear pair supported by two aluminum bushes, a body, a securing flange and a cover. Shaft of the driving gear projecting beyond the flange mounts a twin-lip seal ring (the inner lip being a seal and the outer being a dust seal). An elastic securing ring secures the ring in place.

Pump body, flange and cover are made of special hi-resistant aluminum alloys for minimized deformation even when subject to high pressure, be it continuous or intermittent or peak pressure. The body is profiled by means of extrusion, whereas flange and cover are obtained by means of die-casting or gravity casting. Gears are made of special steel. Their manufacturing process includes case-hardening and quench hardening. Then gears are ground and fine finished so to have a high degree of surface finishing. Proper tooth profile design and geometric proportions ensure low pulsation levels and low noise levels during pump operation. Bushings are made of special low-friction and hi-resistant aluminum alloy and manufactured from die-casting. They are equipped with antifriction DU bearings (except for ALP1 pumps). Special compensation zones onto bushings, insulated by special preformed seals with anti-extrusion ring, allow fully free axial and radial movement to the bushings, which is proportional to pump operating pressure. In this way, internal dripping is dramatically reduced, thus ensuring very good pump performance (both in terms of volume and in general) and proper lubrication of pump moving parts.



Bi-directional motors.

Produced in three different groups with very good power/weight ratio and power/size ratio allowing a wide range of displacements within each group (between 1.4 and 87 cc/rev). The wide range of speeds, the excellent functionality, also when used in series, with strong counter-pressures and limited drain, give the GHP series pumps very good characteristics even starting under load. A range of flanges, shafts, inlet and pressure ports are available. Reversible pumps and pumps with independent driving systems are also available.



Special Versions

For special uses are also available:

"V" Version suitable for fluid at high temperatures.

Range between -10°C and +120°C. In the range between -10°C and +80°C maximum pressures as stated in the individual product tables are allowed; beside that figures in the 'P1' column of the tables should not be exceeded.

"VV" Version suitable for fluid at high temperatures.

Range between -10°C and +150°C with maximum pressure 20 bar

"ST" Version suitable for fluid at high or low temperature.

Range between -40°C and +120°C. In the range between -10 °C and +80°C maximum pressures as stated in the individual product table; below and beside that figures in the 'P1' column of the tables should not be exceeded.

"H" Version suitable for fluid at low temperature.

Range between -40°C and +80°C. In the range between -10 °C and +80°C maximum pressures as stated in the product table; below that figures in the 'P1' column of the tables should not be exceeded.

"TR" Version suitable for inlet pressure up to max. 6 bar absolute.

The above descriptions are to be specified in the SEAL field of the ordering code.

Contact jbj Techniques technical office for assistance in selection of correct pump for your application, telephone: +44 (0)1737 767493, email: info@jbj.co.uk



It is essential for correct running, top performance and longer life of the ALP series hydraulic gear pumps to follow the installation and running information provided in this catalogue.

Some general considerations should be made regarding the hydraulic system, in which the pump is to be fitted. Special attention should be given to hydraulic system design and assembly, especially to intake, delivery, return and drain pipes and position of system parts (valves, filters, tanks, heat exchangers and accumulators).

Proper safety devices and reliable instruments to avoid fluid turbulence and prevent air, water or foreign bodies from entering into the system are of major importance. It is also very important to equip the hydraulic system with a proper filtering unit.

Installation Notes

Before starting the system on a continuous basis, we suggest to adopt some simple precautions.

In the case of a mono-directional motor check for the direction of rotation of the pump to be consistent with the drive shaft (in case of single rotation pump).

Check for the proper alignment of pump shaft and motor shaft. It is necessary that the connection does not induce axial or radial loads.

Protect drive shaft seal during pump painting. Check if contact area between seal ring and shaft is clean: dust could cause quicker wear and leakage.

Remove all dirt, particles and all foreign bodies from flanges connecting inlet and delivery ports.

Ensure that intake and return pipes ends are always below fluid level and as far from each other as possible.

Install the pump below head if possible.

Fill the pump with fluid, and turn it by hand.

Disconnect pump drain during startup to bleed air off the circuit.

At first startup, set pressure limiting valves at min. value possible.

Avoid lower rotation speed than min. allowed with pressure higher than P1.

Do not start the system at low temperatures under load conditions or after long stops (always avoid or limit load starting for pump longer life).

Start the system for a few minutes and turn on all components; bleed air off the circuit to check its proper filling.

Check fluid level in the tank after loading all components.

At last, gradually increase pressure, continuously check fluid and moving parts temperature, check rotation speed until you reach set operating values that shall be within the limits indicated in this catalogue.

Cleaning And Filtering The System

It is widely known that most pump early failures are due to contaminated fluids. The extreme reduction of the tolerances required in the design of the pumps, and therefore their operation with minimum clearances, are heavily influenced by a fluid that is not perfectly clean. It is proved that particles circulating in the fluid act as abrasive agents, damaging the surfaces they touch and increasing the quantity of contaminant.

For this reason, ensure that system is perfectly clean during startup and keep it clean for its whole operating life.

Regular checks should be made for contamination of the oil. Preventive actions include: proper cleaning of the system during assembly, deburring, eliminating the welding scum and fluid filtering before filling up.

Starting contamination level of system fluid should not exceed class 18/15 (ref. ISO 4406). Even fresh fluids might exceed this contamination level; therefore



always pre-filter the fluid when filling up or topping up the system. Fit a proper tank; its capacity should be proportional to the volume displaced in one working minute.

Fluid contamination levels should be monitored by use of correct filter types. Two parameters tell which filter is most suitable: absolute filtering power and β filtering ratio. Low absolute filtering power and high β filtering ratio for small particles help ensuring good filtration.

It is then very important to limit not only the size of particulate, but also the number of smaller particles that pass through the filter. It goes without saying that with an operating pressure increase and according to the system sophistication degree, filtering should become more and more efficient.

The filtering system shall always ensure contamination levels not exceeding the values indicated below:

Pressure	<140 bar	140 to 210 bar	>210 bar
NAS 1638 Class	10	9	8
ISO 4406 Class	19/16	18/15	17/14
Ratio $\beta_x = 75$	25-40 μm	12-15 μm	6-12 μm

It is recommended to use a filtering system having absolute filtering capability of 5 μm or lower in the systems using sophisticated valve slaves.

Hydraulic Fluids

Use specific mineral oil based hydraulic fluids of good anti-wear, anti-foaming (rapid deaeration), antioxidant, anti-corrosion and lubricating properties. Fluids should also comply with DIN 51525 and VDMA 24317 standards and compliant with 11th stage of FZG test.

For the standard models, the temperature of the fluid should be between -10°C and +80°C.

Fluid kinematic viscosity ranges are of following:

allowed value (upon verification)	6 to 500 cSt
recommended value	10 to 100 cSt
value allowed at startup	<2000 cSt

If fluids other than the above mentioned type are used, please always indicate type of used fluid and operating conditions so that jbj Techniques technical office can advise of possible problems with compatibility or useful life of system parts.

Inlet Pressure

Under standard working conditions, intake pipe pressure is lower than atmospheric pressure. The operating inlet pressure should range between 0.7 and 3 bars (absolute).

Min. Rotation Speed

The versatility of the ALP series pumps is seen from the wide range of rotation speeds they can be subject to: maximum values are indicated in product tables and change according to the model, while minimum values are as follows:

Group	ALP1										
Size	2	3	4	5	6	7	9	11	13	16	20
Min. Speed (rpm)	800										

Group	ALP2												
Size	6	9	10	12	13	16	20	22	25	30	34	37	40
Min. Speed (rpm)	800			600				500					

Group	ALP3										
Size	30	33	40	50	60	66	80	94	110	120	135
Min. Speed (rpm)	500						400				

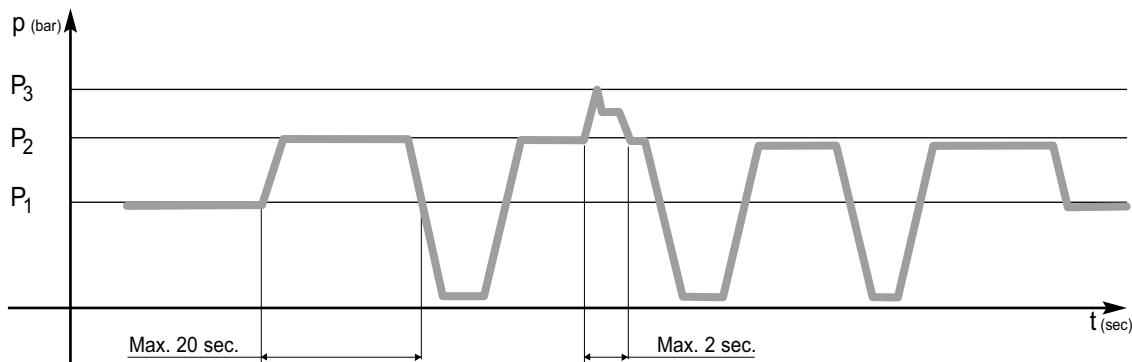
Group	ALP4						
Size	130	160	190	220	250	270	300
Min. Speed (rpm)	400						



Pressure Definition

Product tables show three max. pressure levels (P1, P2 and P3) to which each pump can be used.

- P3 = peak max pressure.
- P2 = intermittent max. pressure.
- P1 = continuous max. pressure.



Pressure diagram as a function of time. P1, P2 and P3 values can be attained only if system does not go over the following rotation speeds:

Group	ALP1										
Size	2	3	4	5	6	7	9	11	13	16	20
Speed (rpm)	4000		3500		2500					1500	

Group	ALP2													
Size	6	9	10	12	13	16	20	22	25	30	34	37	40	50
Speed (rpm)	3000			2500					2000					

Group	ALP3											
Size	30	33	40	50	60	66	80	94	110	120	135	
Speed (rpm)	2500		2000									1000

Group	ALP4						
Size	130	160	190	220	250	270	300
Speed (rpm)	2000		1500				

Please contact jbj Techniques technical department, email: info@jbj.co.uk or telephone: +44 (0)1737 767493 for system operating conditions other than indicated in the product tables.

Supply & Delivery Lines

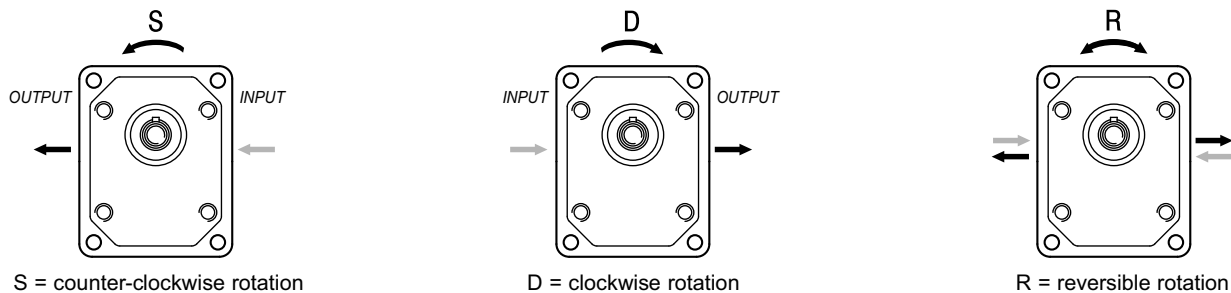
Hydraulic system pipes should show no sudden changes of direction, sharp bends and sudden differences in cross-section. They should not be too long or out of proportion. Pipe cross-section should be sized so that fluid velocity does not exceed recommended values. It is advisable to carefully consider the possible diameter reduction of the inlet or outlet pipes fitted on flange fittings. Reference values are the following:

Intake line	0.5 to 1.66 m/s
Delivery line	2 to 6 m/s
Return line	1.6 to 3 m/s



Direction of Rotation

The ALP series gear pumps are available as single rotation and bi-rotational. The direction of rotation is defined in the following way: looking at the front of the pump with the driver shaft positioned upward and sticking toward the observer, it will be a mono-directional right "D". ALP...D pump therefore with right. "D" rotation, if its rotation will be clockwise and therefore the inlet port will be on the left while the outlet port will be on the right. Vice-versa it will be a mono-directional left ALP...S therefore with left "S" rotation when looking at it from the same angle..



The bi-directional GHP series pumps, "R" have both functional characteristics of the mono-directional motors with clockwise and counterclockwise rotation.

Drive

Connect the pump to the motor using a mechanical power transmission coupling so that no radial and/or axial force is transmitted to the pump shaft during rotation, otherwise pump efficiency will dramatically drop due to early wear of inner moving parts. jbj Techniques have a wide range of suitable couplings to suit a wide range of applications and we can advise on which coupling depending on the circumstances of the application.

In case of driving through gears, pulleys or chains, the T option is recommended. This option allow radial and/or axial loads on the pump shaft.

For further details contact jbj Techniques technical office, email: info@jbj.co.uk or telephone: +44 (0)1737 767493

Frequently Used Formulas

Fluid velocity

Calculate the velocity (v) of a fluid in a pipe as follows:

$$v = Q / 6 \cdot A \text{ [m/s]}$$

Q = flow rate [litre/min]

A = inside area of pipe [cm²]

Absorbed flow rate

Calculate flow rate (Q) as follows:

$$Q = V \cdot n \cdot 10^{-3} / \text{hvol} \text{ [litre/min]}$$

V = displacement [cm³/rotation]

n = rotation speed [rotations per minute]

hvol = pump volumetric efficiency (take 0.95 as an indicative value for rotation speeds ranging between 1000 and 2000 rotations per minute)

Absorbed torque

Calculate necessary torque (M) of a pump subject to pressure differential between inlet and delivery as follows:

$$M = (V \cdot Dp) / (62.8 \cdot \text{hhm}) \text{ [Nm]}$$

V = displacement [cm³/rotation]

Dp = pressure differential [bar]

hhm = hydromechanical efficiency (take 0.80 as indicative value under cold conditions and 0.85 under working conditions).



Absorbed power

Calculate hydraulic power (P), transferred to fluid from a pump subject to a pressure differential between inlet and delivery as follows:

$$P = (Q \cdot D_p) / (600 \cdot \eta_{tot}) \text{ [kW]}$$

Q = flow rate [litre/min.]

D_p = pressure differential [bar]

η_{tot} = total pump efficiency (η_{hm} • η_{vol})

Values for η_{vol} and η_{hm} (and consequently η_{tot}) depend on pressure differential between supply and delivery, rotation speed, fluid features (temperature and viscosity) and filtering degree.

Contact jbj Techniques technical office, email: info@jbj.co.uk or telephone: +44 (0)1737 767493 for further details on efficiency. The proper values for flow rate, torque and supplied according to pressure differential, rotation speed and set test conditions, can be found on the **Performance Curve** pages.

These pumps are hydraulic machines converting mechanical power into hydraulic power. This section deals with rotary positive-displacement pumps. In this type of pump, a given volume of fluid flows from inlet to outlet at each shaft rotation (theoretical displacement). Pressure depends on delivery line resistance to fluid flow. As gear pumps only transfer fluid, they are subject to pressure generated by the circuit. Therefore, if system flow rate and motor rotation speed are known, it is easy to select the right pump displacement and its model.

The diagram indicating flow rate variations according to speed and pressure, shows that not all the theoretically available fluid is transferred from inlet to outlet because of pump internal leakage. Leakage can be greatly reduced through pressure axial compensating systems (as described at the beginning of this catalogue) but never eliminated. Leakage increases as circuit pressure increases.

A pump requires energy, just like any other hydraulic machine. Part of this power is given to the fluid to increase pressure required by the circuit, the remaining part is used to cure pump internal friction. Therefore, for proper pump operation, supplied torque shall be higher than theoretical torque.

The following diagrams show, for each single displacement, the typical required power as a function of rotation speed and pressure generated by the system and allow you to easily spot the product suitable for your application.

Once the pump flow rate has been selected, different flanges, shafts, inlet and outlet port position and type are available to suit most applications. In the product tables, the flow, shown at 1500 rpm, has been evaluated using a value of volumetric efficiency of 95%. All the drawings represent pumps with clockwise rotation. Reversing the direction of rotation also involves reversing of the suction side with the delivery side ports.



Ordering Code

ALP1	Type	Rotation	Size	Shaft*	Ports*	Seals*	Options*	Drain**
	omit	D Clockwise	2					
	A	S Counter Clockwise	3					
		R Reversible	4					
			5					
			6					
			7					
			9					
			11					
			13					
			16					
			20					

Seals

omit (T range = -10°C + 80°C)

V

...

Options

TR

...

Drain

E0 = internal drain

E1 = external drain G1/4

E2 = external drain 9/16-18 UNF***

...

(*) = to be specified if different from standard "pump type".

(**) = only for R rotation.

(***) = "E2" drain port is machined in compliance with threaded port with O-ring seal in truncated housing SAE J1926/1 (ISO 11926-1).

Thread depth 12.7 mm.

Pump Standard Types

omit = European flange + shaft T0 + ports E + standard seals.

A = flange A + shaft C1 + ports FA + standard seals.

Examples

ALP1-D-2 = clockwise rotation, 1.4 cc/rev, European flange, 1:8 tapered shaft, flanged ports E type, standard seals.

ALP1-D-2-FG-V = clockwise rotation, 1.4 cc/rev, European flange, 1:8 tapered shaft, threaded ports (FG), high temperature seals (V).

ALP1A-D-2-S1 = clockwise rotation, 1.4 cc/rev, SAE A-A2 bolt flange, splined shaft 9T (S1), threaded ports, standard seals.

ALP1-R-2-E1 = reversible pump, 1.4 cc/rev, European flange, 1:8 tapered shaft, flanged ports E type, standard seals, external drain.

The product data sheets show our standard model types. The synoptic tables for flanges, shafts and ports show all the possible configurations. For further details about the availability of each configuration please contact jbj Techniques technical office, email: info@jbj.co.uk or telephone: +44 (0)1737 767493

jbj allow close coupling of hydraulic pumps directly to the flywheel / flywheel housing of diesel engines, electric and hydraulic motors.

www.jbj.co.uk/hydraulic-adaptors.html

The package consists of a bellhousing and flexible drive coupling that are fully machined to suit the pump and any driving interface; diesel or petrol engine, electric or hydraulic motor.

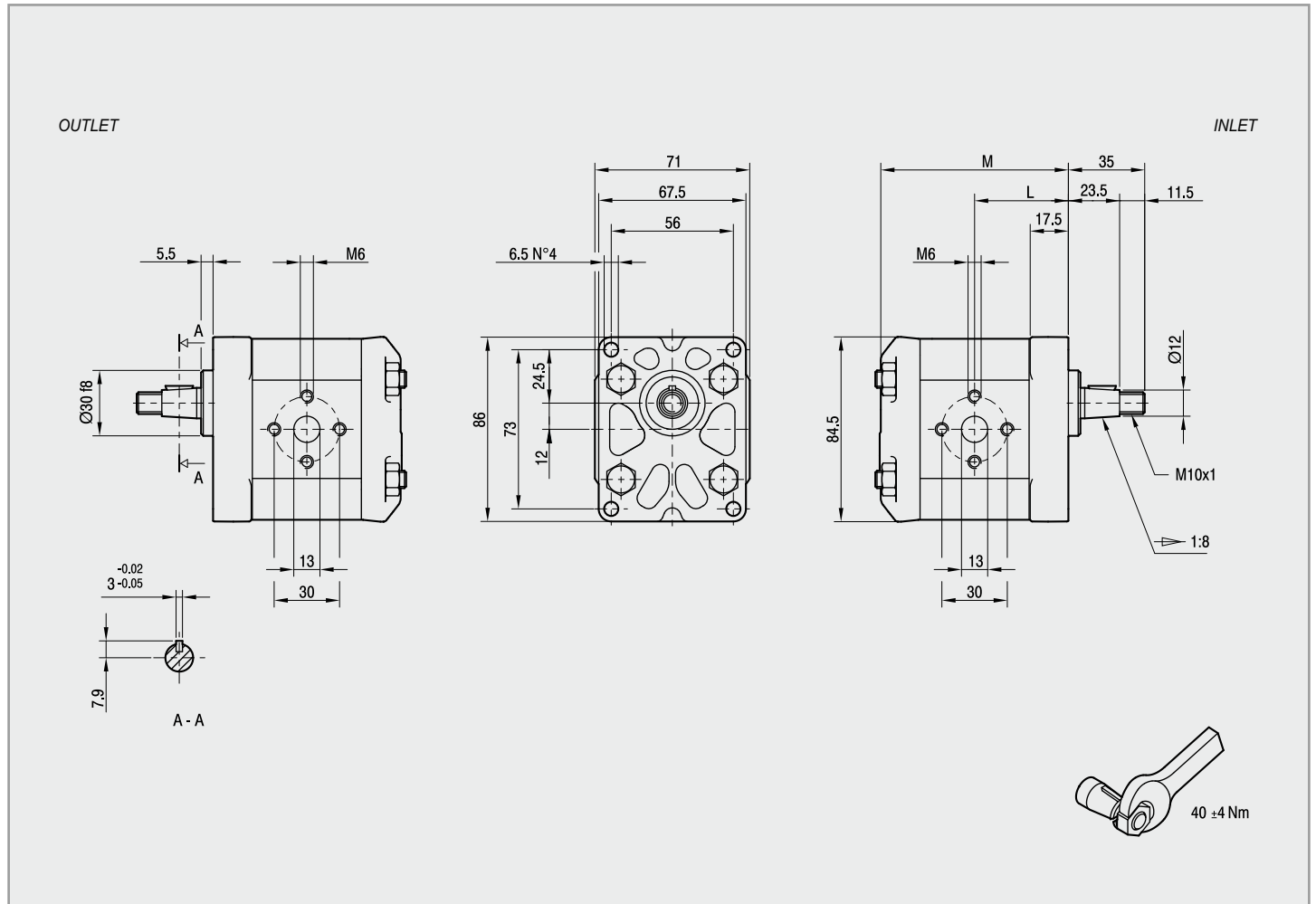
jbj's in-house design team and manufacturing facility provide tailored solutions for your applications at competitive prices with quick delivery.

A range of composite bell housings to accommodate electric motor flanges from 300 mm diameter to 800 mm diameter. See pages 40 to 44 of the Pump Drive Components technical specification catalogue.

A collection of different ways of connecting hydraulic pumps and motors to various driver devices.



Accessories supplied with the standard pump: woodruff key (code 522054), M10x1 hexagonal nut (code 523015), washer (code 523004).
Standard ports: M6 threads depth 13 mm.



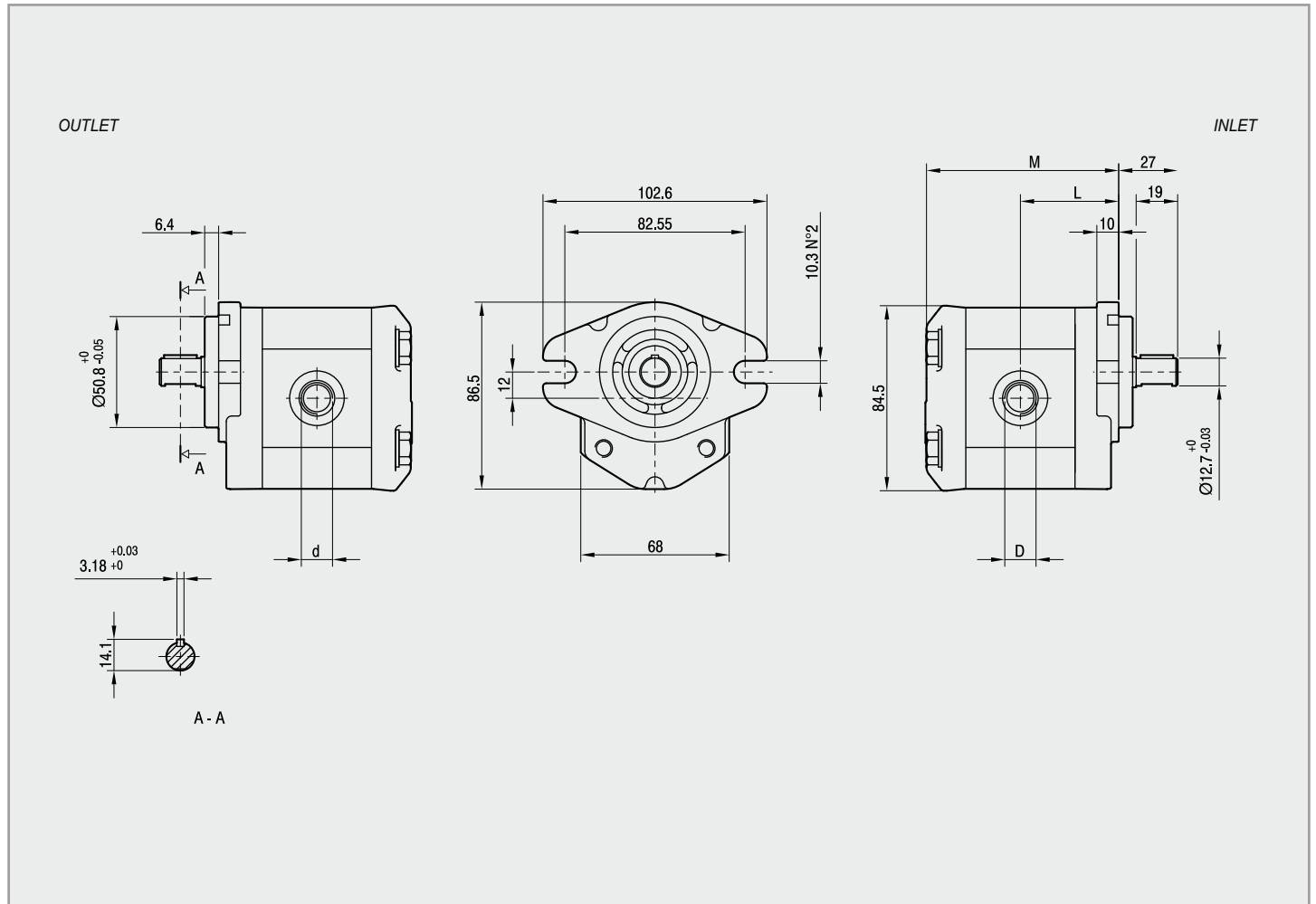
Type	Displacement cm^3/rev	Flow at 1500 rev/min litres/min	Maximum Pressure			Maximum Speed rpm	Dimensions	
			P_1 bar	P_2 bar	P_3 bar		L mm	M mm
ALP1-D-2	1.4	2.0	250	270	290	6000	40	80.5
ALP1-D-3	2.1	2.9	250	270	290	6000	41	82.5
ALP1-D-4	2.8	3.9	250	270	290	5000	42	84.5
ALP1-D-5	3.5	4.9	250	270	290	5000	43	86.5
ALP1-D-6	4.1	5.9	250	270	290	4000	44	88.5
ALP1-D-7	5.2	7.4	230	245	260	4000	45.5	91.5
ALP1-D-9	6.2	8.8	230	245	260	3800	47	94.5
ALP1-D-11	7.6	10.8	200	215	230	3200	49	98.5
ALP1-D-13	9.3	13.3	180	195	210	2600	51.5	103.5
ALP1-D-16	11.0	15.7	170	185	200	2200	54	108.5
ALP1-D-20	13.8	19.7	150	165	180	1800	58	116.5



Accessories supplied with the standard pump: key (code 522070).

Mounting flange 50-2 (A-A) in compliance with SAE J744c.

"D" and "d" standard ports are machined in compliance with threaded port with O-ring seal in truncated housing SAE J1926/1 (ISO 11926-1).
compliance with threaded port with O-ring seal in truncated housing SAE J1926/1 (ISO 11926-1).

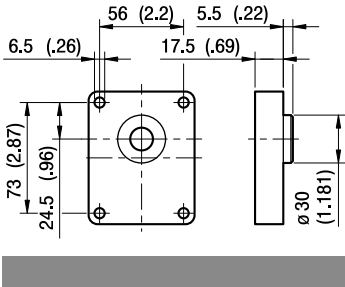


Type	Displacement cm ³ /rev	Flow at 1500 rev/min litres/mim	Maximum Pressure			Maximum Speed rpm	Dimensions			
			P ₁ bar	P ₂ bar	P ₃ bar		L mm	M mm	d	D
ALP1A-D-2	1.4	2.0	250	270	290	6000	42	82.5	9/16-18 UNF	3/4-16 UNF
ALP1A-D-3	2,1	2,9	250	270	290	6000	43	84,5	9/16-18 UNF	3/4-16 UNF
ALP1A-D-4	2,8	3,9	250	270	290	5000	44	86,5	9/16-18 UNF	3/4-16 UNF
ALP1A-D-5	3,5	4,9	250	270	290	5000	45	88,5	9/16-18 UNF	3/4-16 UNF
ALP1A-D-6	4,1	5,9	250	270	290	4000	46	90,5	9/16-18 UNF	3/4-16 UNF
ALP1A-D-7	5,2	7,4	230	245	260	3500	47,5	93,5	9/16-18 UNF	3/4-16 UNF
ALP1A-D-9	6,2	8,8	230	245	260	3000	49	96,5	9/16-18 UNF	3/4-16 UNF
ALP1A-D-11	7,6	10,8	200	215	230	3500	51	100,5	3/4-16 UNF	7/8-14 UNF
ALP1A-D-13	9,3	13,3	180	195	210	3000	53,5	105,5	3/4-16 UNF	7/8-14 UNF
ALP1A-D-16	11,0	15,7	170	185	200	2500	56	110,5	3/4-16 UNF	7/8-14 UNF
ALP1A-D-20	13,8	19,7	150	165	180	2000	60	118,5	3/4-16 UNF	7/8-14 UNF

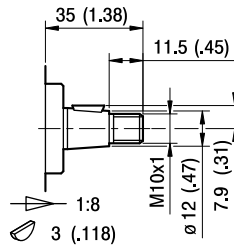


Flanges

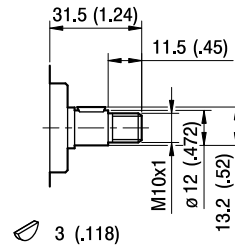
Shafts



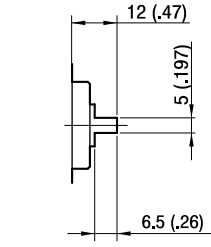
T0



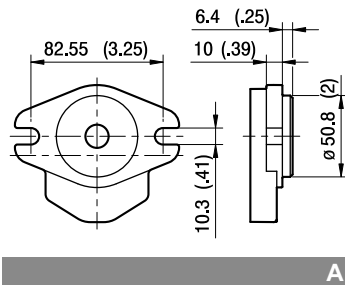
T0
Max Torque 100 Nm



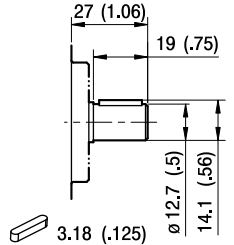
C0
Max Torque 55 Nm



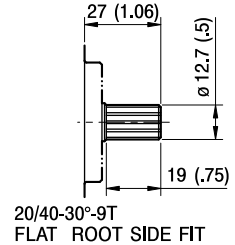
G0
Max Torque 45 Nm



A



C1
Max Torque 60 Nm



S1
Max Torque 100 Nm

jbj allow close coupling of hydraulic pumps directly to the flywheel / flywheel housing of diesel engines, electric and hydraulic motors.

www.jbj.co.uk/hydraulic-adaptors.html

The package consists of a bellhousing and flexible drive coupling that are fully machined to suit the pump and any driving interface; diesel or petrol engine, electric or hydraulic motor.

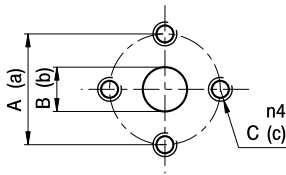
jbj's in-house design team and manufacturing facility provide tailored solutions for your applications at competitive prices with quick delivery.

A range of composite bell housings to accommodate electric motor flanges from 300 mm diameter to 800 mm diameter. See pages 40 to 44 of the Pump Drive Components technical specification catalogue.

A collection of different ways of connecting hydraulic pumps and motors to various driver devices.



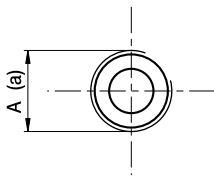
Ports



E

Type	Inlet			Outlet		
	A	B	C	a	b	c
ALP1...2 to ALP1...20	30	13	M6	30	13	M6

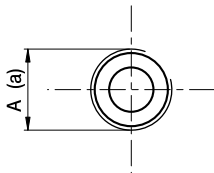
Tightening torques of the fittings screws are specified on page 60 (accessories section).



FG

Type	Inlet	Outlet
	A	a
ALP1...2 to ALP1...5	G $\frac{1}{2}$	G $\frac{3}{8}$
ALP1...6 to ALP1...20	G $\frac{1}{2}$	G $\frac{1}{2}$

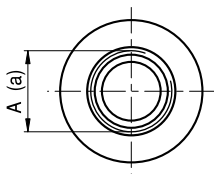
Tightening torques for G $\frac{1}{2}$ fitting: 50 Nm. Tightening torques for G $\frac{3}{8}$ fitting: 35 Nm. Please check with the fittings suppliers.



FC

Type	Inlet	Outlet
	A	a
ALP1...2 to ALP1...20	Rc $\frac{1}{2}$	Rc $\frac{1}{2}$

Tightening torques for Rc $\frac{1}{2}$ fitting: 50 Nm. Please check with the fittings suppliers.



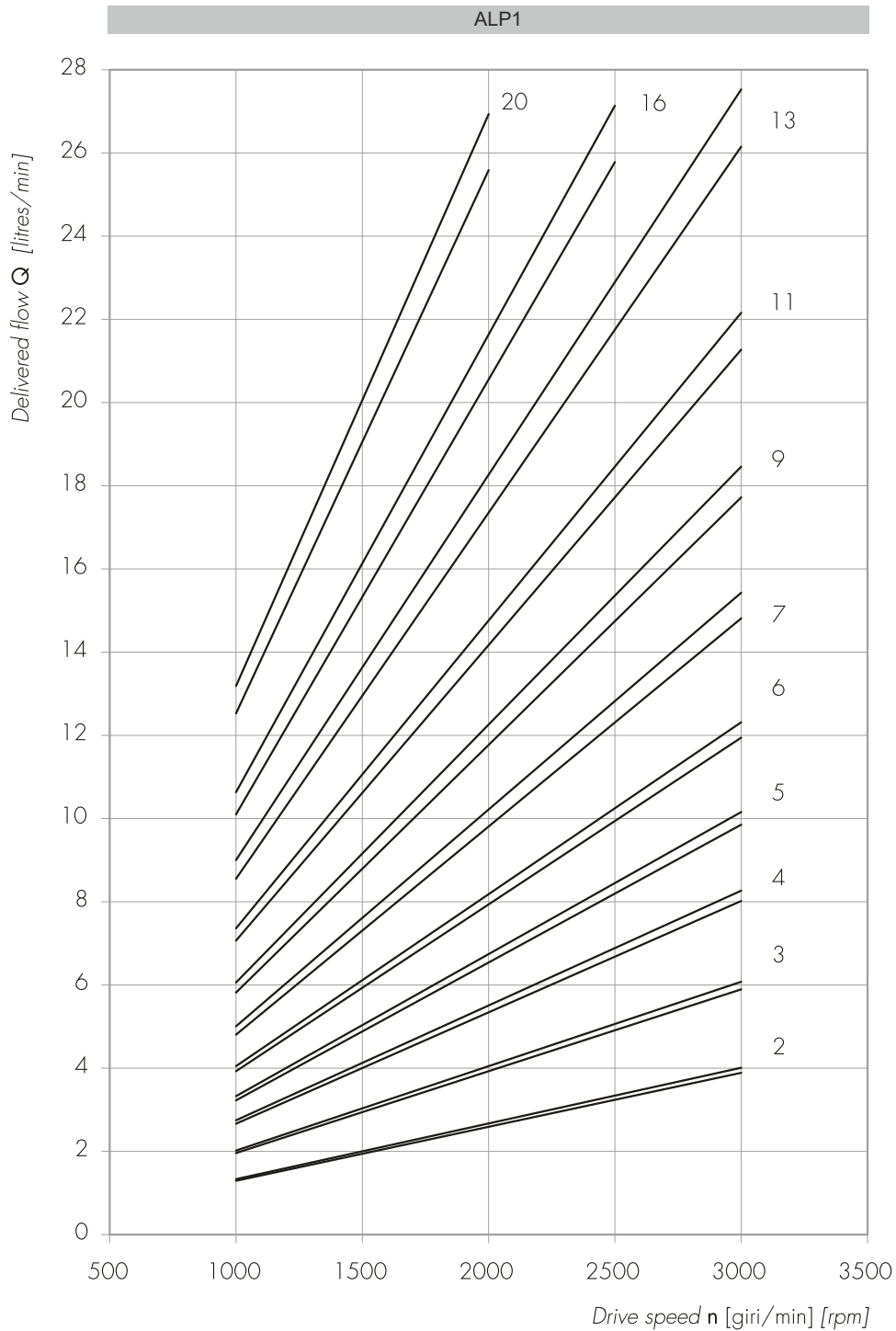
STANDARD SAE J1926/1

FA

Type	Inlet	Outlet
	A	a
ALP1...2 to ALP1...9	$\frac{3}{4}$ -16 UNF	$\frac{9}{16}$ -18 UNF
ALP1...11 to ALP1...20	$\frac{7}{8}$ -14 UNF	$\frac{3}{4}$ -16 UNF

Tightening torques for $\frac{9}{16}$ -18 UNF fitting: 30 Nm. Tightening torques for $\frac{3}{4}$ -16 UNF fitting: 60 Nm.

Tightening torques for $\frac{7}{8}$ -14 UNF fitting: 70 Nm. Please check with the fittings suppliers.

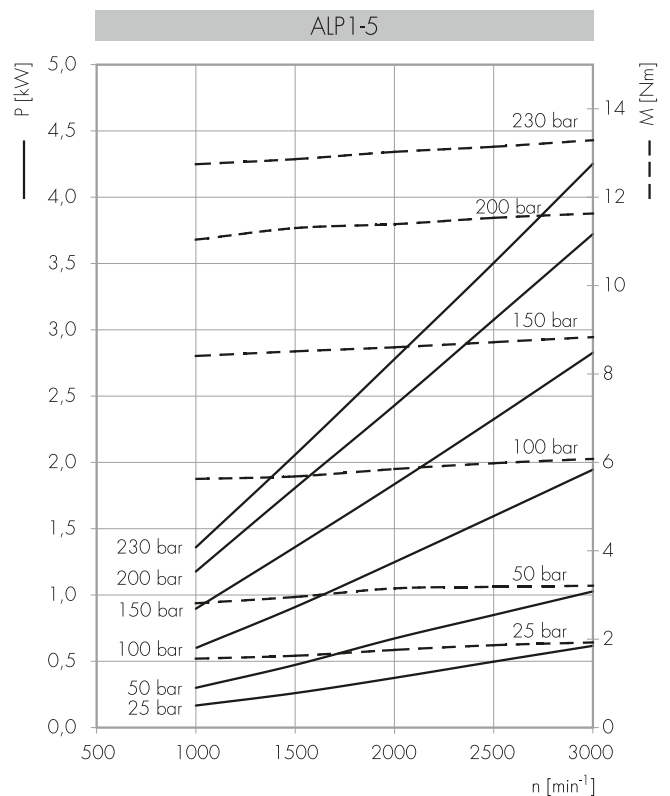
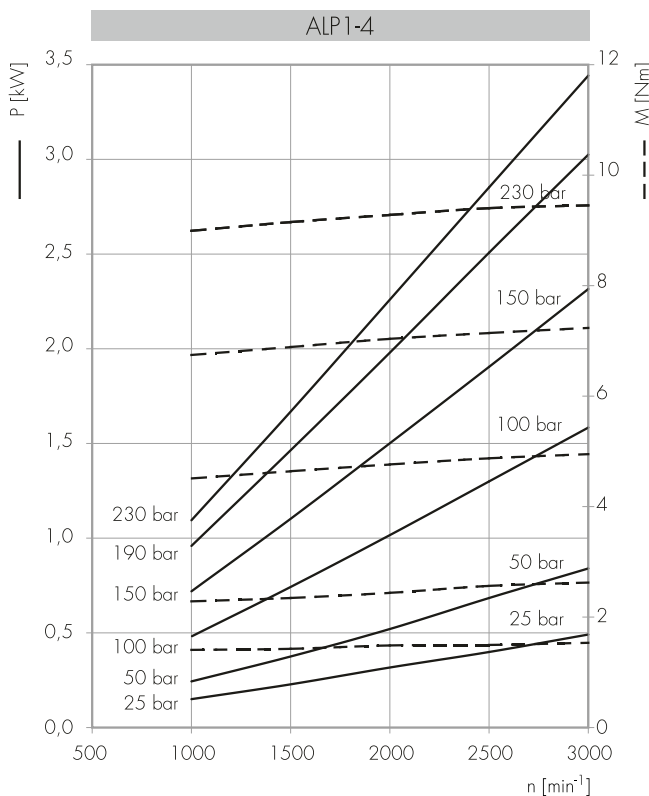
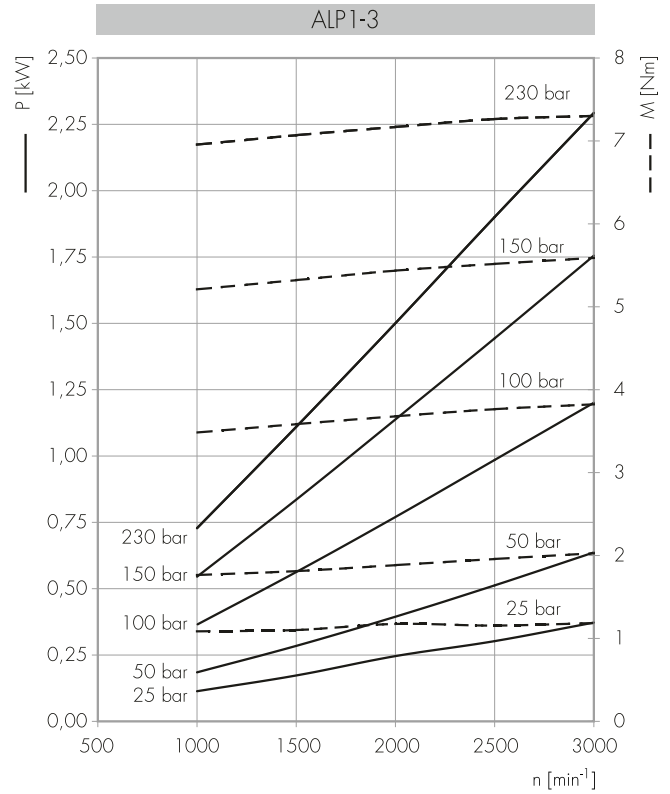
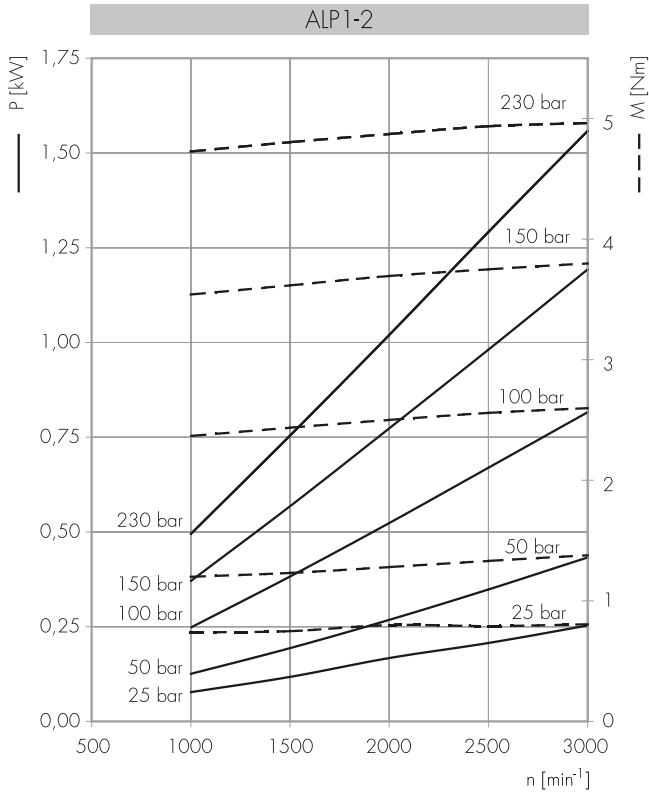


Each curve has been obtained at 50°C, using oil with viscosity 30 cSt at these pressure.

2		25-240 bar	6		25-230 bar	9		25-220 bar	11		25-180 bar	13		25-170 bar	16		25-150 bar	20		25-140 bar
3			7																	
4																				
5																				

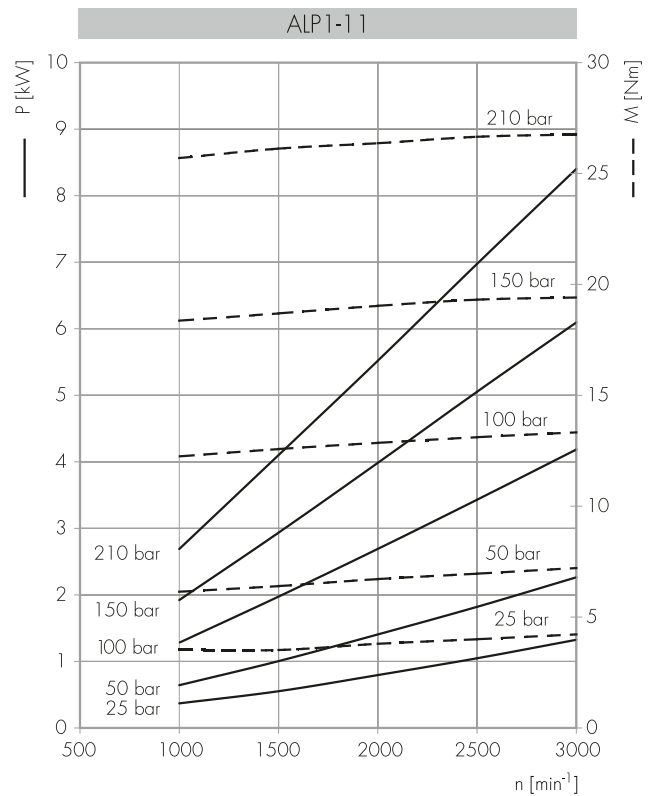
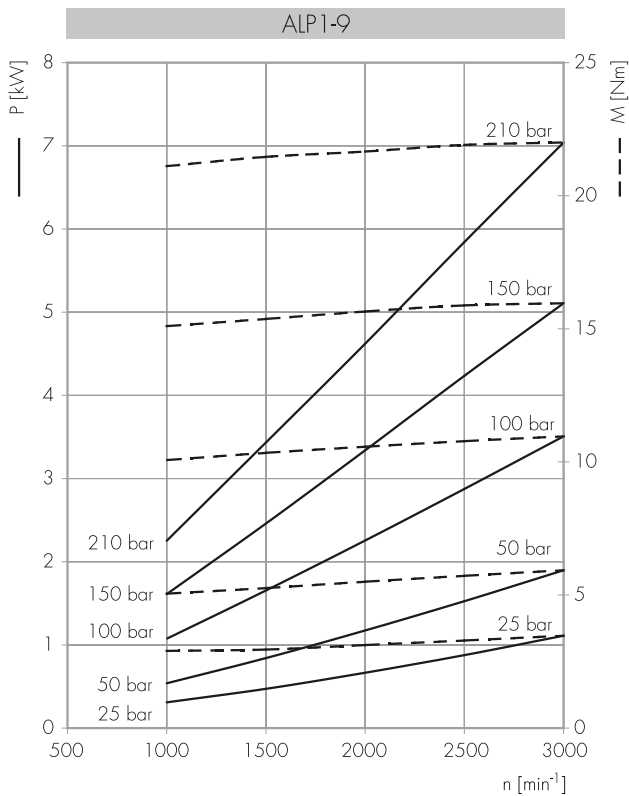
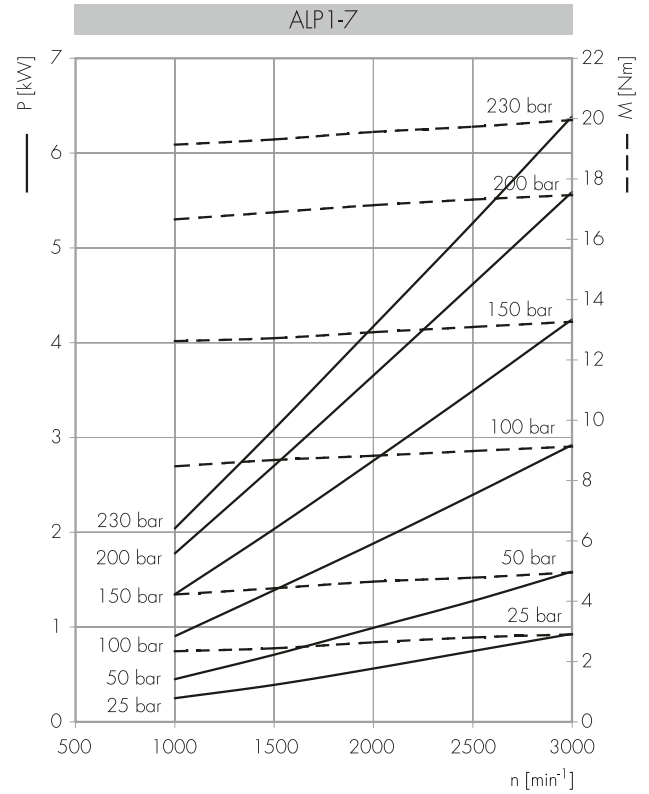
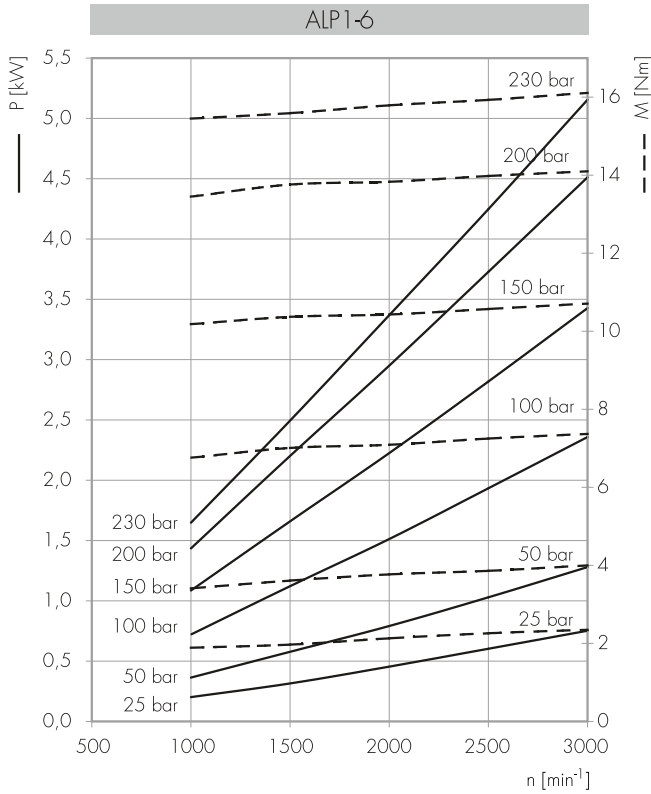


Absorbed power P [kW]. Absorbed torque M [Nm]. Drive speed n [rpm]



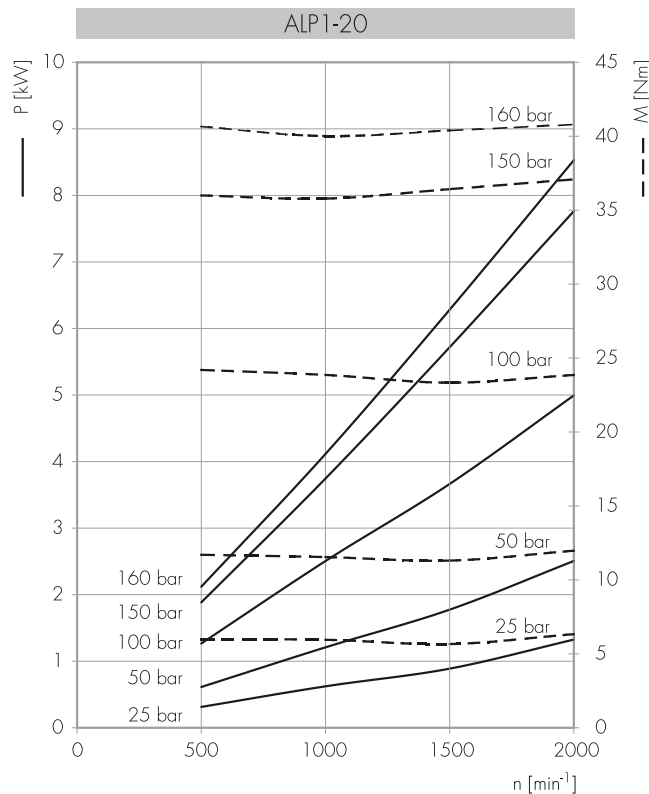
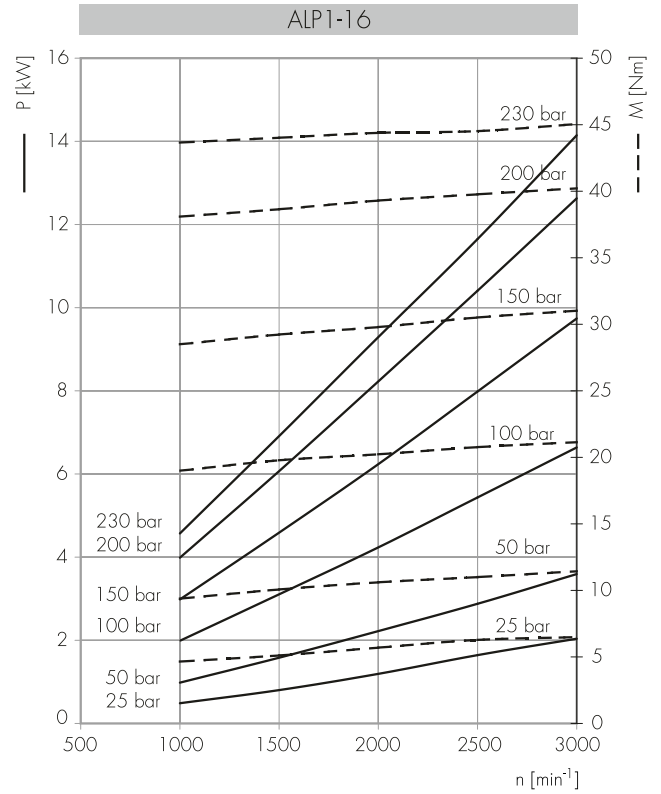
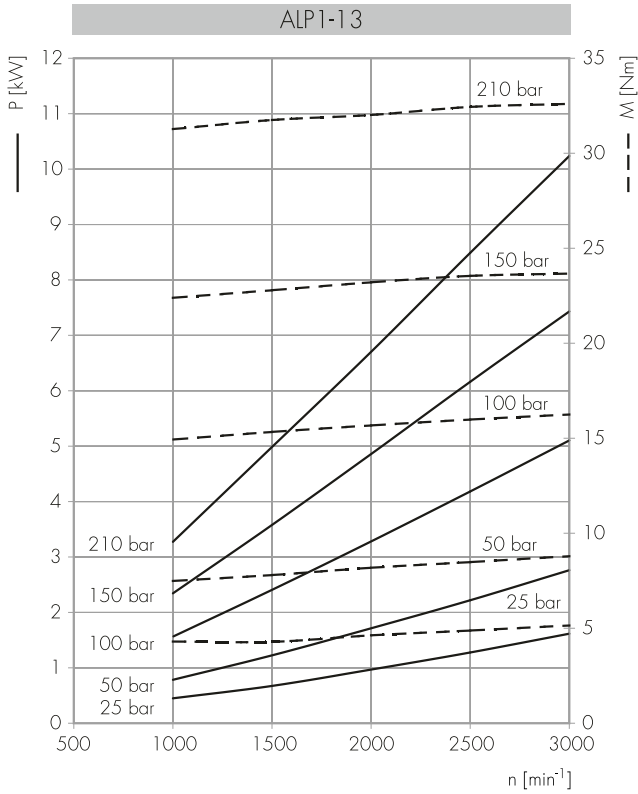


Absorbed power P [kW]. Absorbed torque M [Nm]. Drive speed n [rpm]





Absorbed power P [kW]. Absorbed torque M [Nm]. Drive speed n [rpm]





Ordering Code

ALP2	Type	Rotation	Size	Shaft*	Ports*	Seals*	Options*	Drain**
	omit	D Clockwise	6					
	A	S Counter Clockwise	9					
	BK1	R* Reversible	10					
	BK2		12					
	BK4		13					
	BK7		16					
			20					
			22					
			25					
			30					
			34					
			37					
			40					
			50					

Seals

omit (T range = -10°C + 80°C)

V

...

Options

T

VM

OR***

T

Drain

E0 = internal drain

E1 = external drain G $\frac{1}{4}$

E2 = external drain $\frac{9}{16}$ -18 UNF***

E3 = external drain G $\frac{3}{8}$ only for VM options

E4 = external drain $\frac{7}{16}$ -20 UNF***

(only for KA ports)

(*) = to be specified if different from standard "pump type".

(**) = only for R rotation.

(***) = Drain ports are machined in compliance with threaded port with O-ring seal in truncated housing SAE J1926/1 (ISO 11926-1).

(****) = Drain ports are machined in compliance with threaded port with O-ring seal in truncated housing SAE J1926/1 (ISO 11926-1)

Pump Standard Types

omit = European flange + shaft T0 + ports E + standard seals.

A = flange A + shaft C1 + ports FA + standard seals.

A3 = flange A3 + shaft C3 + ports FA + standard seals.

BK1 = flange BK1 + shaft T1 + ports D + standard seals.

BK2 = flange BK2 + shaft T2 + ports D + standard seals.

BK4 = flange BK4 + shaft T2 + ports D + standard seals.

BK7 = flange BK7 + shaft G0 + ports D + standard seals.

Examples

ALP2-D-6 = clockwise rotation, 4.5 cc/rev, European flange, 1:8 tapered shaft, flanged ports E type, standard seals

ALP2-D-6-C0 = clockwise rotation, 4.5 cc/rev, European flange, cylindrical shaft (C0), flanged ports E type, standard seals

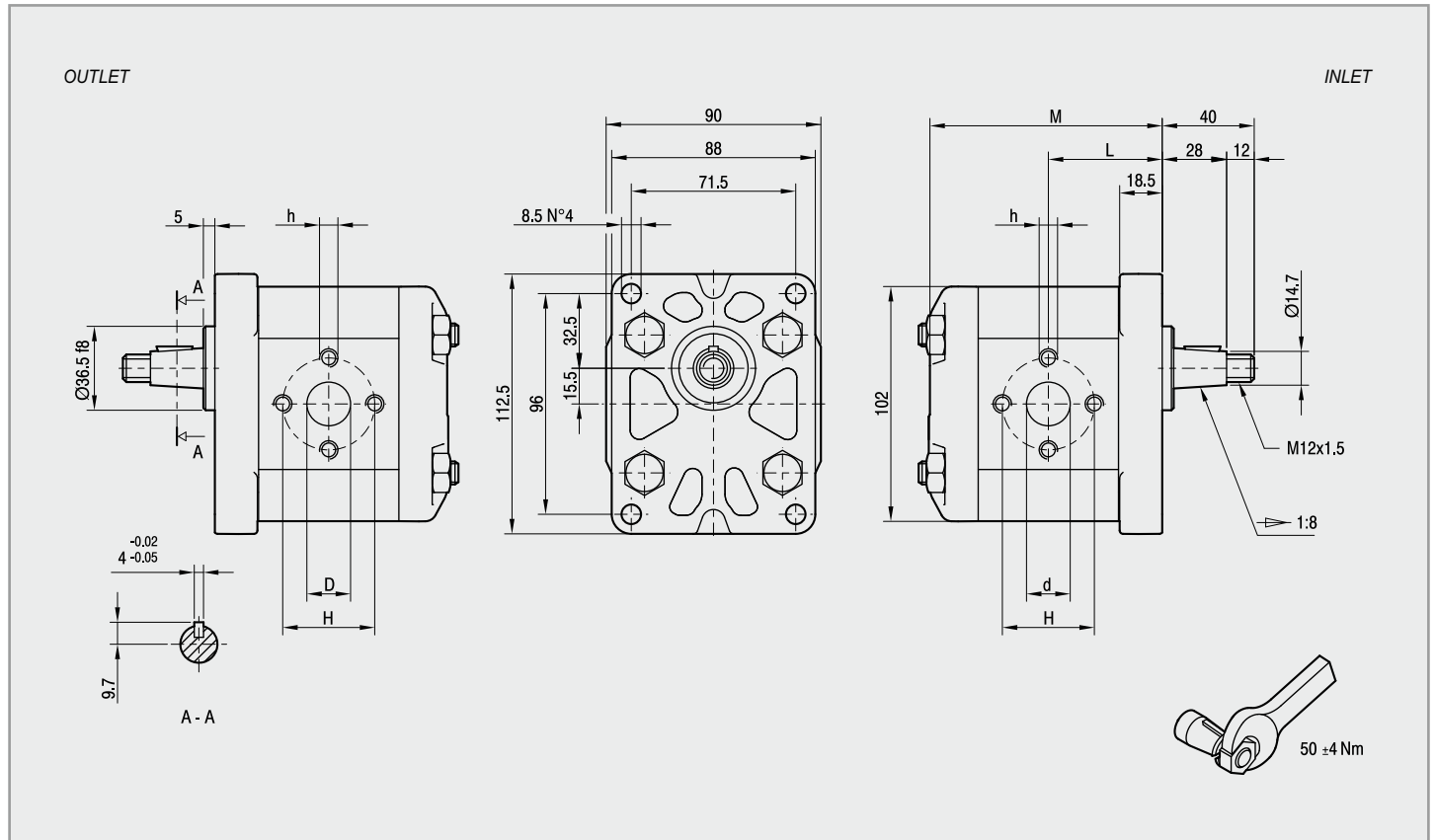
ALP2BK2-D-6-E = clockwise rotation, 4.5 cc/rev, German square flange, 1:5 tapered shaft, European flanged ports (E), standard seals

ALP2A-D-6-OR = clockwise rotation, 4.5 cc/rev, SAE A2 bolt flange, cylindrical shaft C1, threaded ports FA, standard seal, OR seal on pilot

The product data sheets show our standard model types. The synoptic tables for flanges, shafts and ports show all the possible configurations. For further details about the availability of each configuration please contact jbj Techniques technical office, email: info@jbj.co.uk or telephone: +44 (0)1737 767493



Accessories supplied with the standard pump: woodruff key (code 522057), M12x1.5 hexagonal nut (code 523016), washer (code 523005).
 Standard ports: M6 threads depth 13 mm, M8 threads depth 17 mm.
 The tapered shaft is also available with 3,2 mm key ("T3").



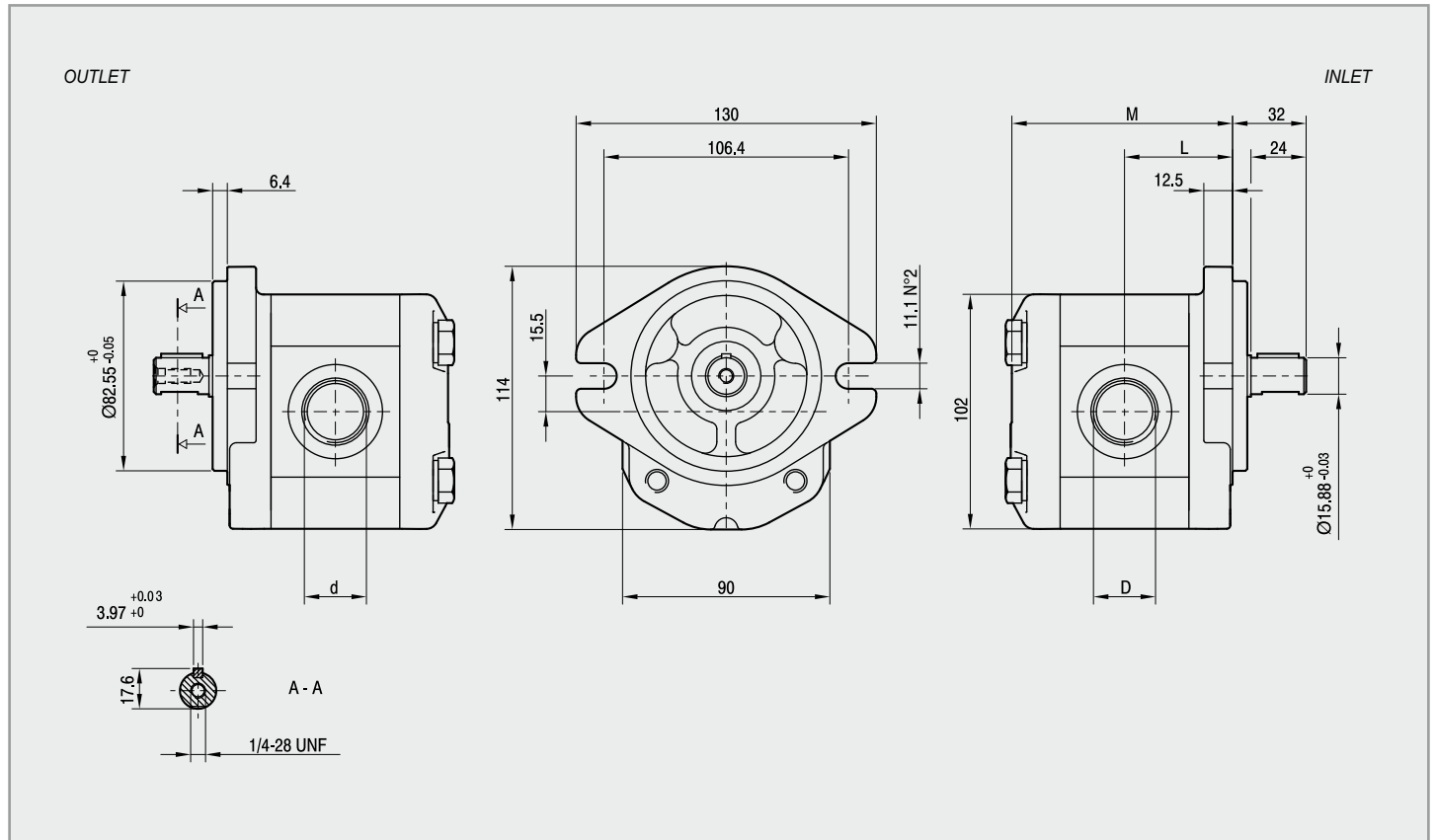
Type	Displacement cm ³ /rev	Flow at 1500 rev/min litres/min	Maximum Pressure			Maximum Speed rpm	Dimensions					
			P ₁ bar	P ₂ bar	P ₃ bar		L mm	M mm	d mm	D mm	h mm	H mm
ALP2-D-6	4.5	6.4	250	270	290	4000	45.5	93.5	13	13	M6	30
ALP2-D-9	6.4	9.1	250	270	290	4000	47	96.5	13	13	M6	30
ALP2-D-10	7.0	10.0	250	270	290	4000	47.5	97.5	13	13	M8	40
ALP2-D-12	8.3	11.8	250	270	290	3500	48.5	99.5	13	13	M8	40
ALP2-D-13	9.6	13.7	250	270	290	3000	49.5	10.5	13	13	M8	40
ALP2-D-16	11.5	16.4	230	250	270	4000	51	10.5	19	13	M8	40
ALP2-D-20	14.1	20.1	230	250	270	4000	53	108.5	19	13	M8	40
ALP2-D-22	16.0	22.8	210	225	240	4000	54.5	111.5	19	13	M8	40
ALP2-D-25	17.9	25.5	210	225	240	3600	56	114.5	19	13	M8	40
ALP2-D-30	21.1	30.1	180	195	210	3200	58.5	119.5	19	19	M8	40
ALP2-D-34	23.7	33.7	180	195	210	3000	60.5	123.5	19	19	M8	40
ALP2-D-37	25.5	36.4	170	185	200	2800	62	126.5	19	19	M8	40
ALP2-D-40	28.2	40.1	170	185	200	2500	64	130.5	19	19	M8	40
ALP2-D-50	35.2	50.2	140	155	170	2500	69.5	141.5	21	19	M8	40



Accessories supplied with the standard pump: key (code 522067).

Mounting flange 82-2 (A) in compliance with SAE J744c.

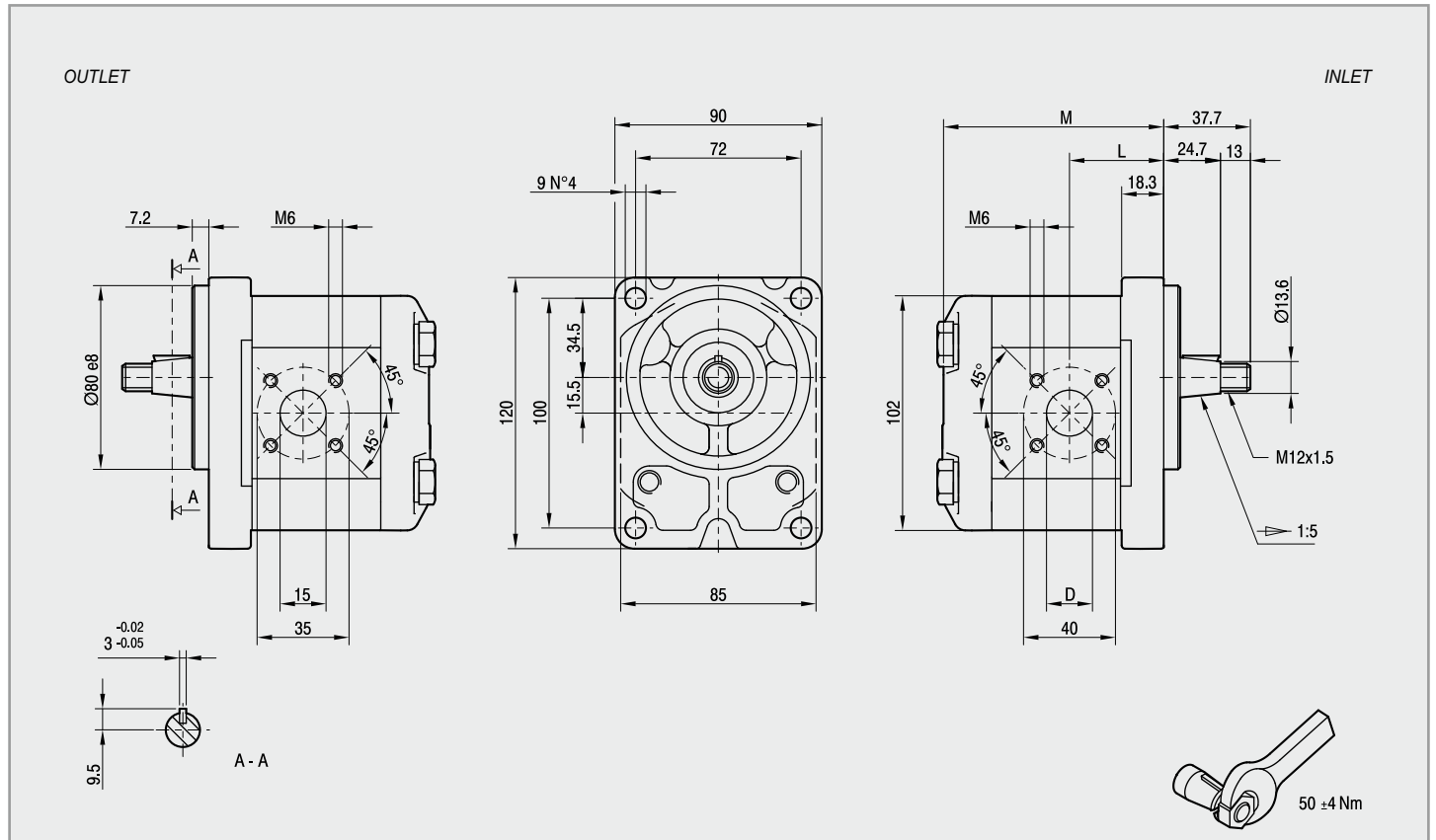
"D" and "d" standard ports are machined in compliance with threaded port with O-ring seal in truncated housing SAE J1926/1 (ISO 11926-1).



Type	Displacement cm ³ /rev	Flow at 1500 rev/min litres/mim	Maximum Pressure			Maximum Speed rpm	Dimensions			
			P ₁ bar	P ₂ bar	P ₃ bar		L mm	M mm	d	D
ALP2A-D-6	4,5	6,4	250	270	290	4000	45,5	93,5	7/8-14 UNF	1 1/16-12 UNF
ALP2A-D-9	6,4	9,1	250	270	290	4000	47	96,5	7/8-14 UNF	1 1/16-12 UNF
ALP2A-D-10	7,0	10,0	250	270	290	4000	47,5	97,5	7/8-14 UNF	1 1/16-12 UNF
ALP2A-D-12	8,3	11,8	250	270	290	4000	48,5	99,5	7/8-14 UNF	1 1/16-12 UNF
ALP2A-D-13	9,6	13,7	250	270	290	4000	49,5	101,5	7/8-14 UNF	1 1/16-12 UNF
ALP2A-D-16	11,5	16,4	230	250	270	4000	51	104,5	7/8-14 UNF	1 1/16-12 UNF
ALP2A-D-20	14,1	20,1	230	250	270	3200	53	108,5	7/8-14 UNF	1 1/16-12 UNF
ALP2A-D-22	16,0	22,8	210	225	240	2800	54,5	111,5	7/8-14 UNF	1 1/16-12 UNF
ALP2A-D-25	17,9	25,5	210	225	240	2500	56	114,5	7/8-14 UNF	1 1/16-12 UNF
ALP2A-D-30	21,1	30,1	180	195	210	2200	58,5	119,5	7/8-14 UNF	1 1/16-12 UNF
ALP2A-D-34	23,7	33,7	180	195	210	2000	60,5	123,5	7/8-14 UNF	1 1/16-12 UNF
ALP2A-D-37	25,5	36,4	170	185	200	1800	62	126,5	7/8-14 UNF	1 1/16-12 UNF
ALP2A-D-40	28,2	40,1	170	185	200	1800	64	130,5	7/8-14 UNF	1 1/16-12 UNF
ALP2A-D-50	35,2	50,2	140	155	170	2000	69,5	141,5	7/8-14 UNF	1 5/16-12 UNF



Accessories supplied with the standard pump: woodruff key (code 522055), M12x1.5 hexagonal nut (code 523016), washer (code 523005).
Standard ports: M6 threads depth 13 mm.



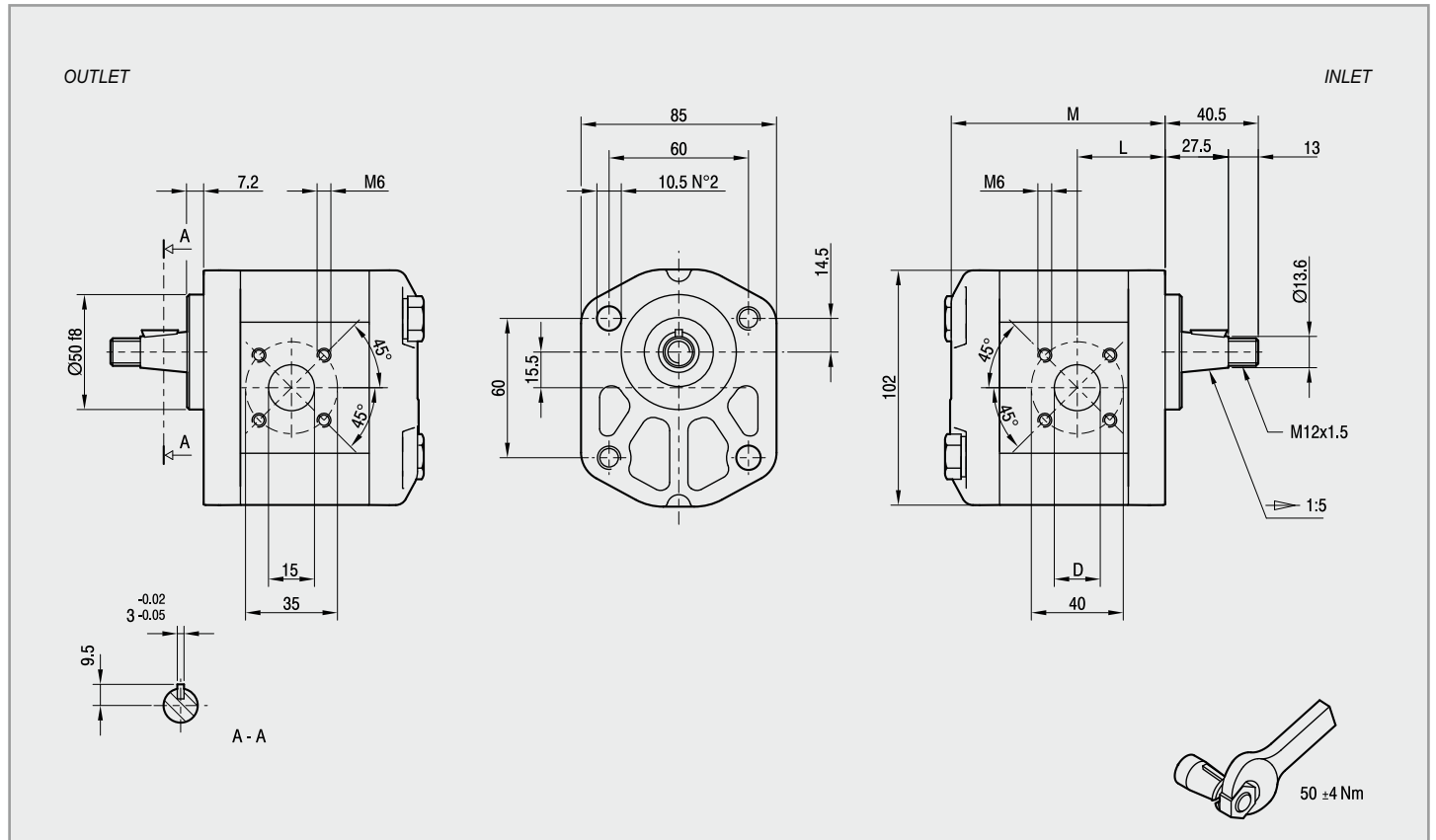
Type	Displacement cm ³ /rev	Flow at 1500 rev/min litres/mim	Maximum Pressure			Maximum Speed rpm	Dimensions		
			P ₁ bar	P ₂ bar	P ₃ bar		L mm	M mm	D mm
ALP2BK1-D-6	4.5	6,4	250	270	290	4000	39,8	93,5	15
ALP2BK1-D-9	6,4	9,1	250	270	290	4000	41	96,5	15
ALP2BK1-D-10	7,0	10,0	250	270	290	4000	47,3	97,5	15
ALP2BK1-D-12	8,3	11,8	250	270	290	4000	48,3	99,5	15
ALP2BK1-D-13	9,6	13,7	250	270	290	4000	43,1	101,5	20
ALP2BK1-D-16	11,5	16,4	230	250	270	4000	47,5	104,5	20
ALP2BK1-D-20	14,1	20,1	230	250	270	4000	47,5	108,5	20
ALP2BK1-D-22	16,0	22,8	210	225	240	4000	47,5	111,5	20
ALP2BK1-D-25	17,9	25,5	210	225	240	4000	55,8	114,5	20
ALP2BK1-D-30	21,1	30,1	180	195	210	3400	47,5	119,5	20
ALP2BK1-D-34	23,7	33,7	180	195	210	3000	55	123,5	20
ALP2BK1-D-37	25,5	36,4	170	185	200	2600	61,8	126,5	20
ALP2BK1-D-40	28,2	40,1	170	185	200	2600	63,8	130,5	20



Accessories supplied with the standard pump: woodruff key (code 522055), M12x1.5 exagonal nut (code 523016), washer (code 523005).

Standard ports: M6 threads depth 13 mm.

To mount the pump: n.2 M10 screws with a torque wrench setting fixed at 46 ± 4 Nm.

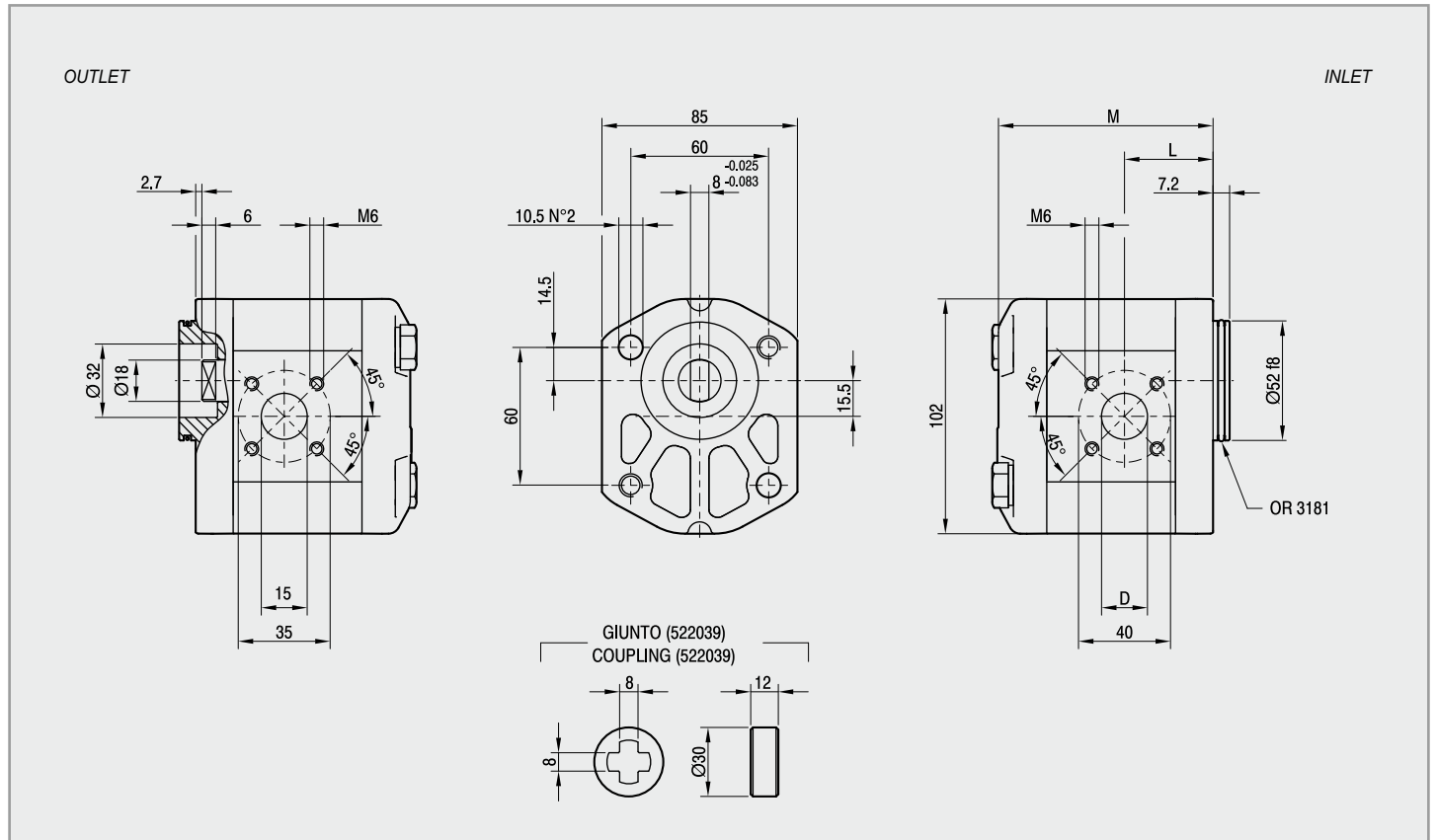


Type	Displacement cm ³ /rev	Flow at 1500 rev/min litres/mim	Maximum Pressure			Maximum Speed rpm	Dimensions		
			P ₁ bar	P ₂ bar	P ₃ bar		L mm	M mm	D mm
ALP2BK4-D-6	4.5	6.4	250	270	290	4000	37	90.5	15
ALP2BK4-D-9	6.4	9.1	250	270	290	4000	38.2	93.5	15
ALP2BK4-D-10	7.0	10.0	250	270	290	4000	44.5	94.5	15
ALP2BK4-D-12	8.3	11.8	250	270	290	4000	45.5	96.5	15
ALP2BK4-D-13	9.6	13.7	250	270	290	4000	40.3	98.5	20
ALP2BK4-D-16	11.5	16.4	230	250	270	4000	44.7	101.5	20
ALP2BK4-D-20	4.1	20.1	230	250	270	4000	44.7	105.5	20
ALP2BK4-D-22	16.0	22.8	210	225	240	4000	44.7	108.5	20
ALP2BK4-D-25	17.9	25.5	210	225	240	4000	53	111.5	20
ALP2BK4-D-30	21.1	30.1	180	195	210	3400	44.7	116.5	20
ALP2BK4-D-34	23.7	33.7	180	195	210	3000	52.2	120.5	20
ALP2BK4-D-37	25.5	36.4	170	185	200	2600	59	123.5	20
ALP2BK4-D-40	28.2	40.1	170	185	200	2600	61	127.5	20



Standard ports: M6 threads depth 13 mm.

To mount the pump: n.2 M10 screws with a torque wrench setting fixed at 46 ± 4 Nm.

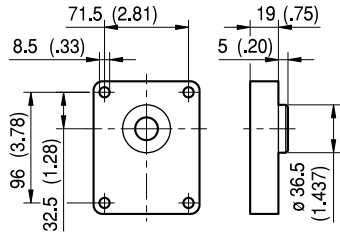


Type	Displacement cm ³ /rev	Flow at 1500 rev/min litres/mim	Maximum Pressure			Maximum Speed rpm	Dimensions		
			P ₁ bar	P ₂ bar	P ₃ bar		L mm	M mm	D mm
ALP2BK7-D-6	4.5	6.4	250	270	290	4000	37.3	91	15
ALP2BK7-D-9	6.4	9.1	250	270	290	4000	38.5	94	15
ALP2BK7-D-10	7.0	10.0	250	270	290	4000	44.8	95	15
ALP2BK7-D-12	8.3	11.8	250	270	290	4000	45.8	97	15
ALP2BK7-D-13	9.6	3.7	250	270	290	4000	40.6	99	20
ALP2BK7-D-16	11.5	16.4	230	250	270	4000	45	102	20
ALP2BK7-D-20	14.1	20.1	230	250	270	4000	45	106	20
ALP2BK7-D-22	16.0	22.8	210	225	240	4000	45	109	20
ALP2BK7-D-25	17.9	25.5	210	225	240	4000	53.3	112	20
ALP2BK7-D-30	21.1	30.1	180	195	210	3400	45	117	20
ALP2BK7-D-34	23.7	33.7	180	195	210	3000	52.5	121	20
ALP2BK7-D-37	25.5	36.4	170	185	200	2600	59.3	124	20
ALP2BK7-D-40	28.2	40.1	170	185	200	2600	61.3	128	20

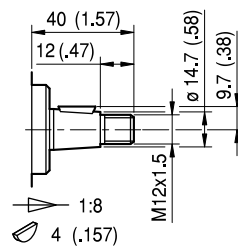


Flanges

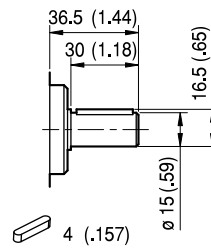
Shafts



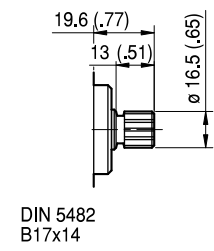
T0



C0



S0

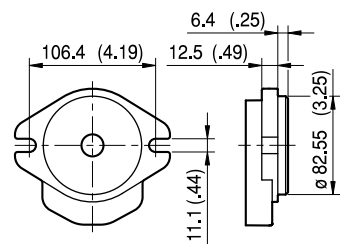


DIN 5482
B17x14

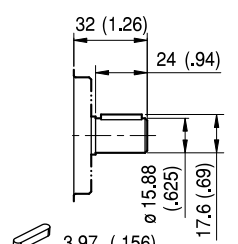
Max Torque 140 Nm

Max Torque 200 Nm

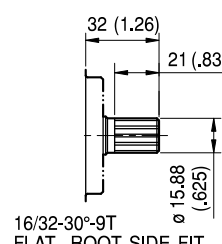
Max Torque 135 Nm



A



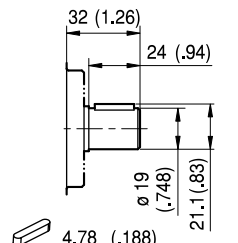
C1



S1

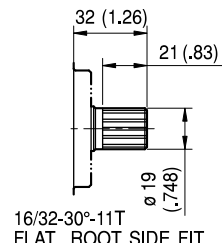
Max Torque 140 Nm

Max Torque 185 Nm



C2

Max Torque 160 Nm



S2

Max Torque 200 Nm

jbj allow close coupling of hydraulic pumps directly to the flywheel / flywheel housing of diesel engines, electric and hydraulic motors.

www.jbj.co.uk/hydraulic-adaptors.html

The package consists of a bellhousing and flexible drive coupling that are fully machined to suit the pump and any driving interface; diesel or petrol engine, electric or hydraulic motor.

jbj's in-house design team and manufacturing facility provide tailored solutions for your applications at competitive prices with quick delivery.

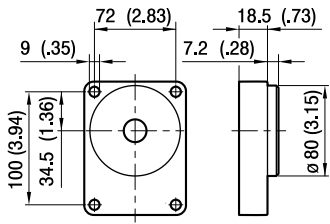
A range of composite bell housings to accommodate electric motor flanges from 300 mm diameter to 800 mm diameter. See pages 40 to 44 of the Pump Drive Components technical specification catalogue.

A collection of different ways of connecting hydraulic pumps and motors to various driver devices.

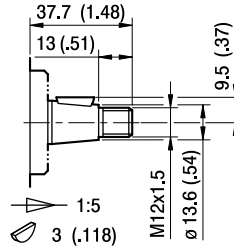


Flanges

Shafts

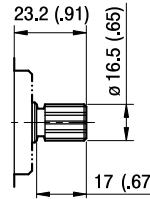


BK1



T1

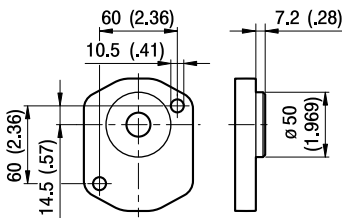
Max Torque 180 Nm



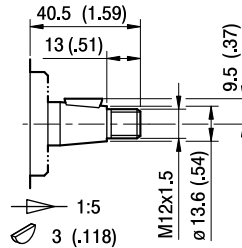
S3

DIN 5482 B17x14

Max Torque 140 Nm

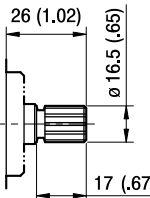


BK2



T2

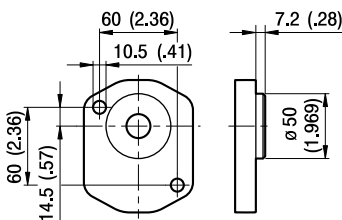
Max Torque 180 Nm



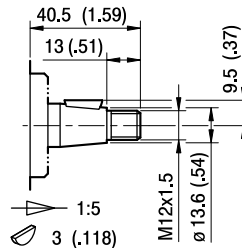
S4

DIN 5482 B17x14

Max Torque 140 Nm

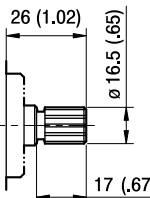


BK4



T2

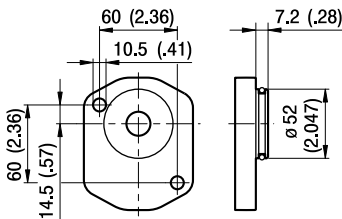
Max Torque 180 Nm



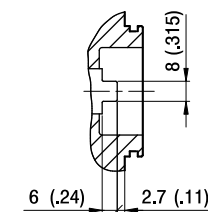
S4

DIN 5482 B17x14

Max Torque 140 Nm



BK7



G0

Max Torque 100 Nm

jbj allow close coupling of hydraulic pumps directly to the flywheel / flywheel housing of diesel engines, electric and hydraulic motors.

www.jbj.co.uk/hydraulic-adaptors.html

The package consists of a bellhousing and flexible drive coupling that are fully machined to suit the pump and any driving interface; diesel or petrol engine, electric or hydraulic motor.

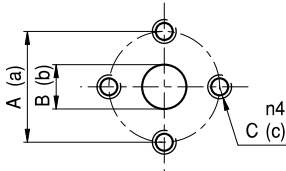
jbj's in-house design team and manufacturing facility provide tailored solutions for your applications at competitive prices with quick delivery.

A range of composite bellhousings to accommodate electric motor flanges from 300 mm diameter to 800 mm diameter. See pages 40 to 44 of the Pump Drive Components technical specification catalogue.

A collection of different ways of connecting hydraulic pumps and motors to various driver devices.



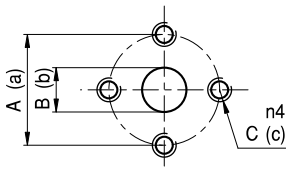
Ports



E

Type	Inlet			Outlet		
	A	B	C	A	B	C
ALP2...6 to ALP2...9	30	13	M6	30	13	M6
ALP2...10 to ALP2...13	40	13	M8	40	13	M8
ALP2...16 to ALP2...25	40	19	M8	40	13	M8
ALP2...30 to ALP2...40	40	19	M8	40	19	M8
ALP2...50	40	21	M8	40	19	M8

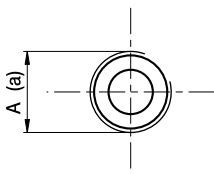
Tightening torques of the fittings screws are specified on page 60 (accessories section).



EP

Type	Inlet			Outlet		
	A	B	C	A	B	C
ALP2...6	40	13	M8	30	13	M6
ALP2...10 to ALP2...13	30	13	M6	30	13	M6
ALP2...16 to ALP2...40	40	19	M8	30	13	M6
ALP2...50	40	21	M8	30	19	M6

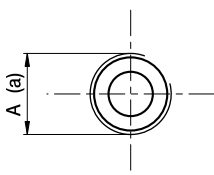
Tightening torques of the fittings screws are specified on page 60 (accessories section).



FG

Type	Inlet	Outlet
	A	a
ALP2...6 to ALP2...16	G½	G½
ALM2...20 to ALM2...40	G¾	G½

Tightening torques for G1/2 fitting: 50 Nm. Tightening torques for G¾ fitting: 60 Nm. Please check with the fittings suppliers.



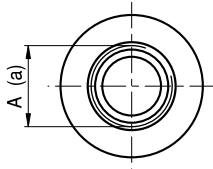
FC

Type	Inlet	Outlet
	A	a
ALP2...6 to ALP2...16	Rc½	Rc½
ALP2...20 to ALP2...40	Rc¾	Rc½

Tightening torques for Rc1/2 fitting: 50 Nm. Tightening torques for Rc¾ fitting: 60 Nm. Please check with the fittings suppliers.



Ports

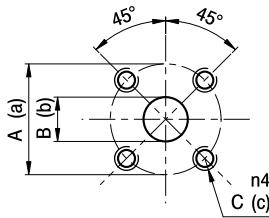


STANDARD SAE J1926/1

FA

Type	Inlet	Outlet
	A	
ALP2...6 to ALP2...40	1 1/16-12 UNF	7/8-14 UNF
ALP2...50	1 5/16-12 UNF	7/8-14 UNF

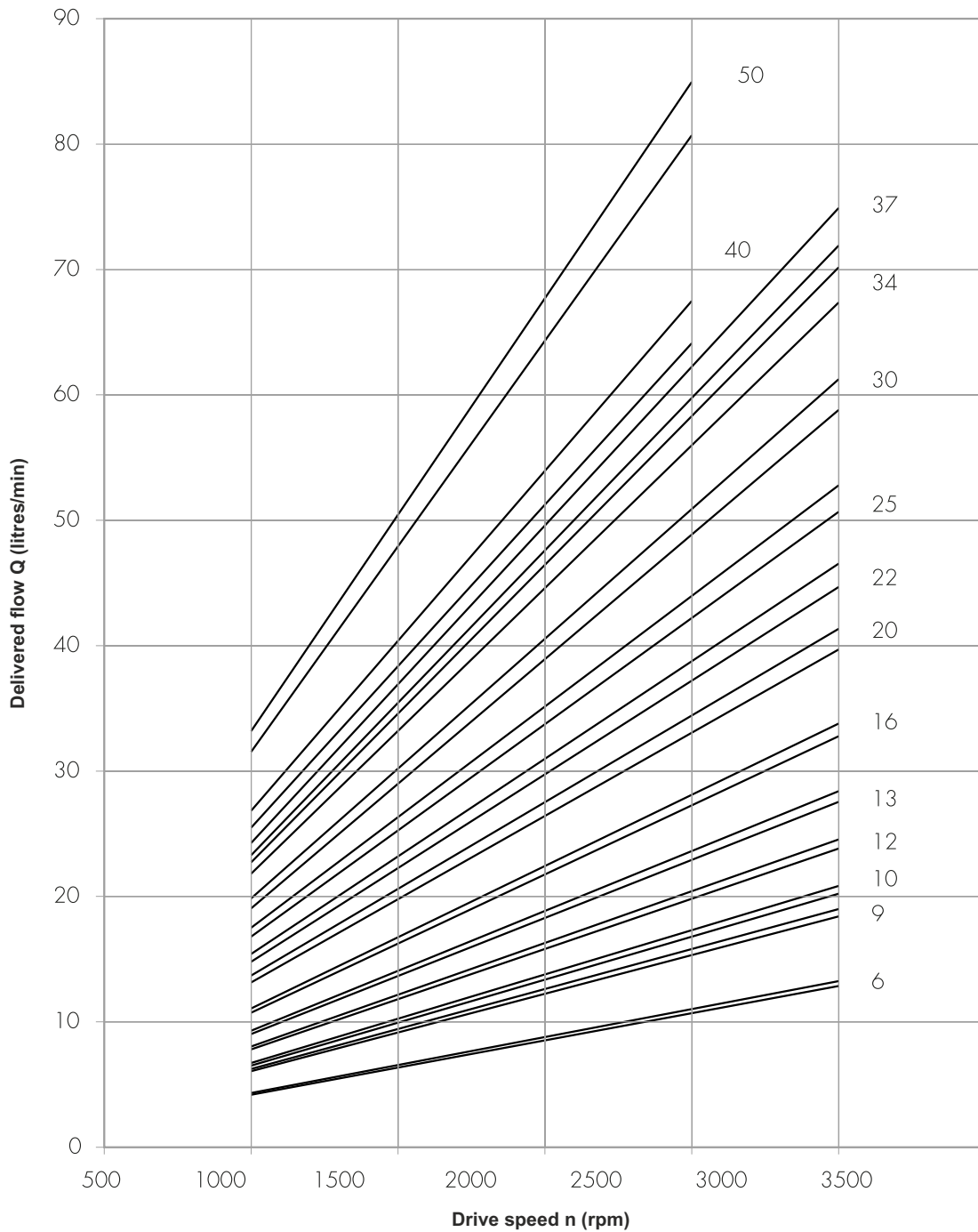
Tightening torques for 7/8-14 UNF fitting: 70 Nm. Tightening torques for 1 1/16-12 UNF fitting: 70 Nm.
 Tightening torques for 1 5/16-12 UNF fitting: 80 Nm. Please check with the fittings suppliers.



D

Type	Inlet			Outlet		
	A	B	C	A	B	C
ALP2...6 to ALP2...12	40	15	M6	35	15	M6
ALP2...13 to ALP2...40	40	20	M6	35	15	M6

Tightening torques of the fittings screws are specified on page 60 (accessories section).



Each curve has been obtained at 50°C, using oil with viscosity 30 cSt at these pressure.

6 |
 9 |— 25-250 bar
 10 |

13 |— 25-240 bar
 16 |

20 |— 25-220 bar
 22 |

25 |— 25-210 bar
 30 |— 25-190 bar

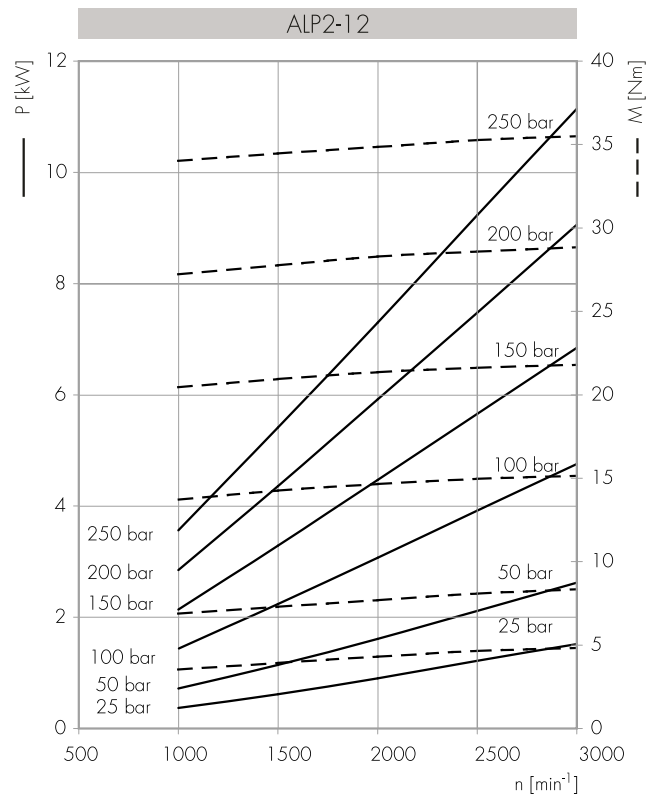
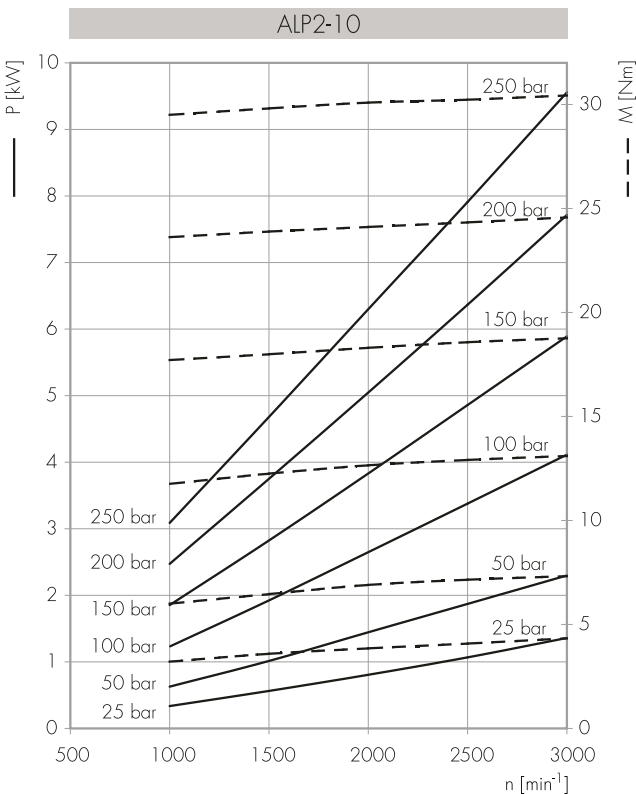
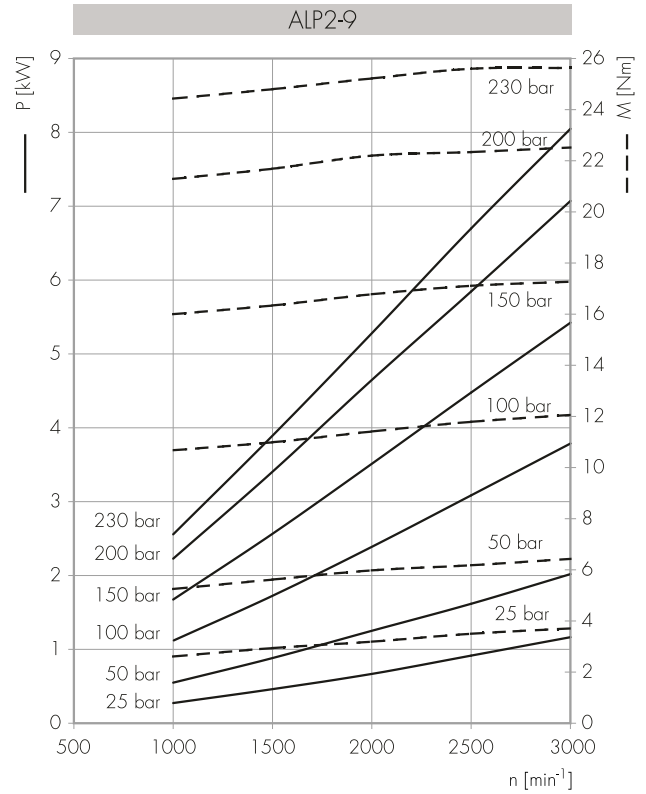
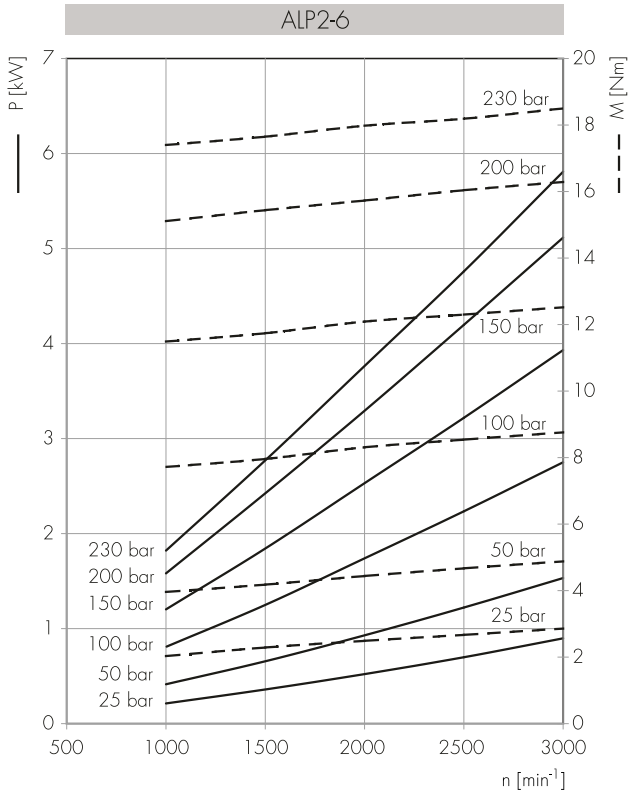
34 |— 25-170 bar

40 |— 25-160 bar

50 |— 25-130 bar

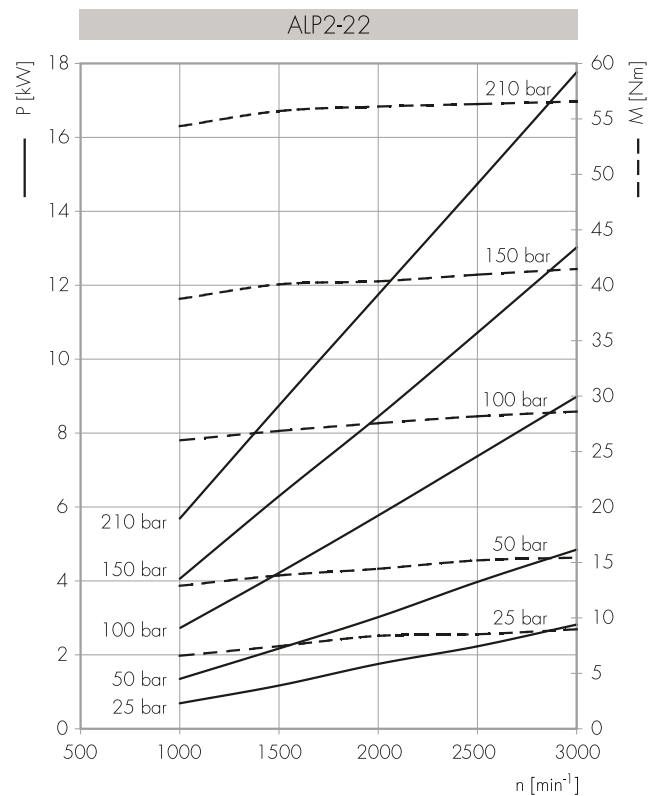
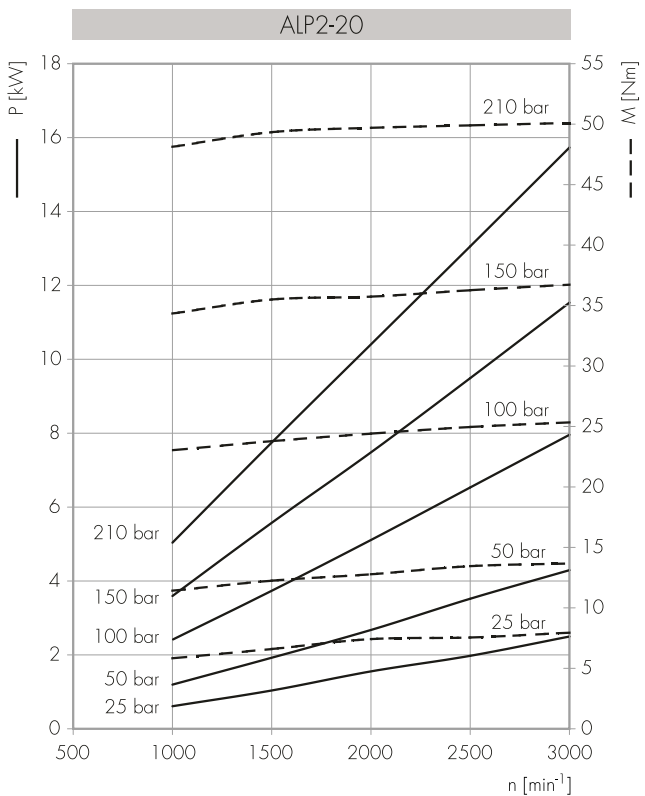
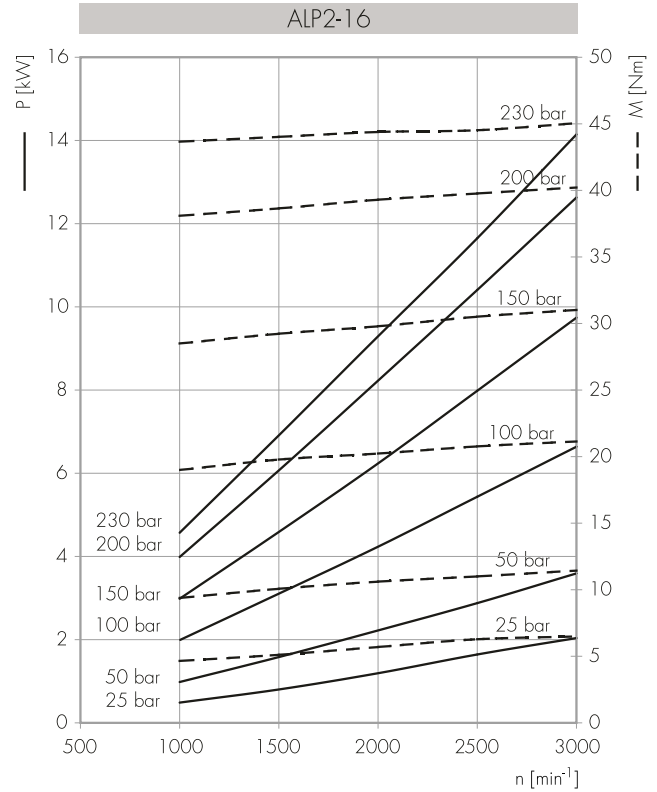
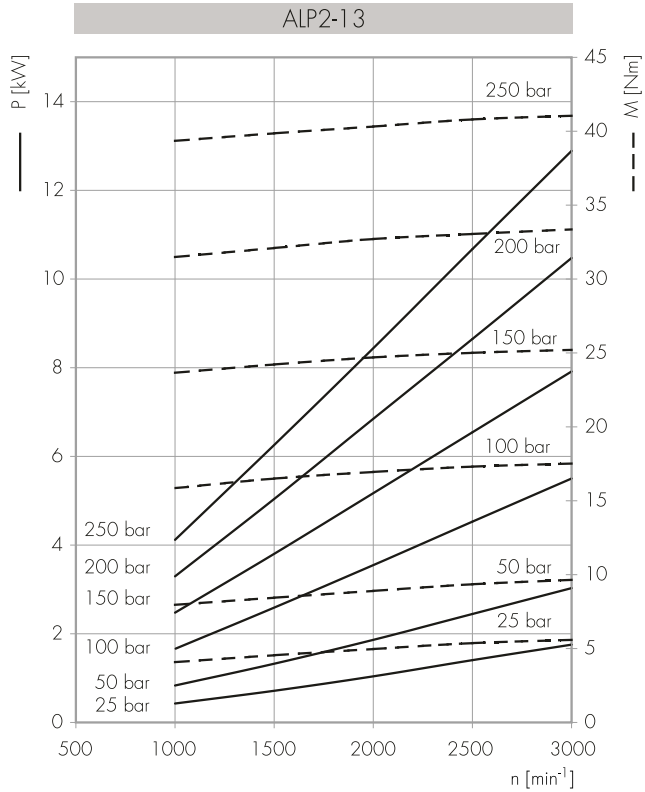


Absorbed power P [kW]. Absorbed torque M [Nm]. Drive speed n [rpm]



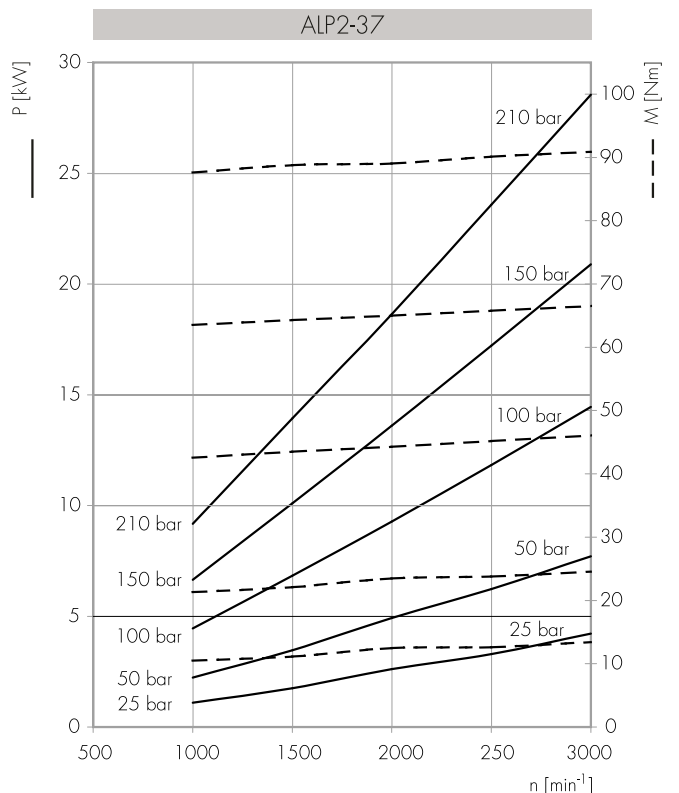
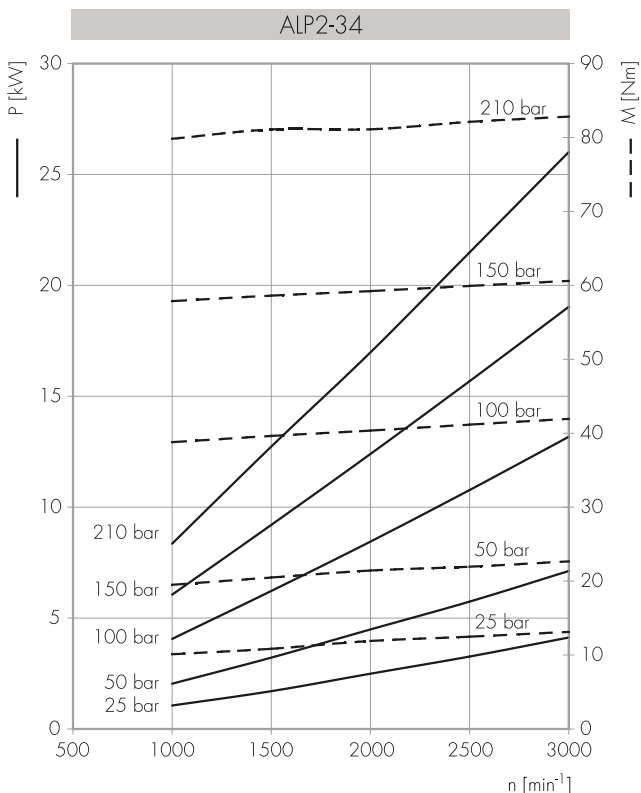
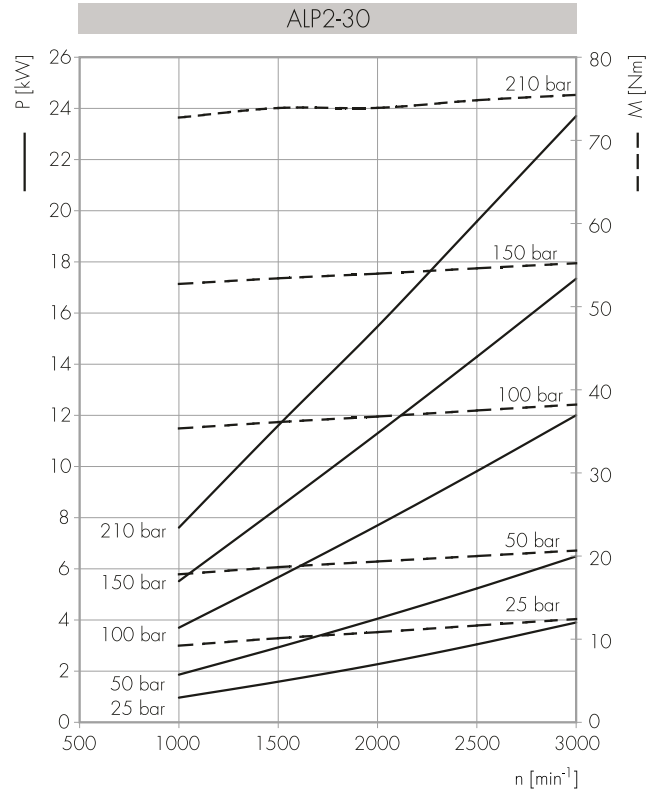
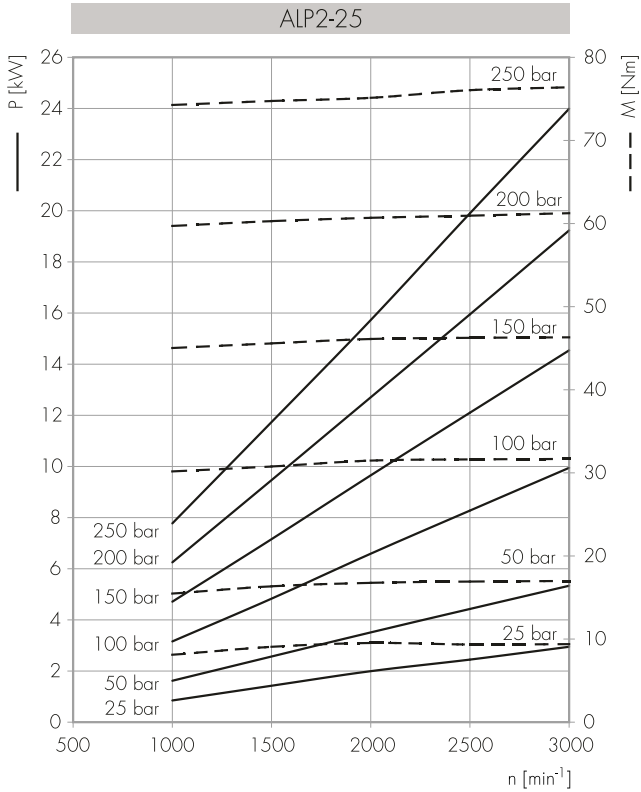


Absorbed power P [kW]. Absorbed torque M [Nm]. Drive speed n [rpm]



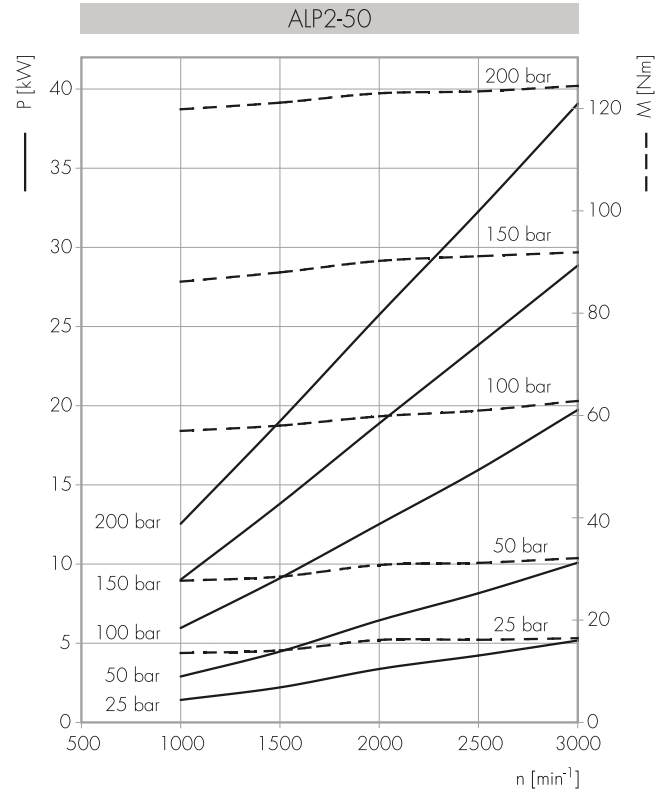
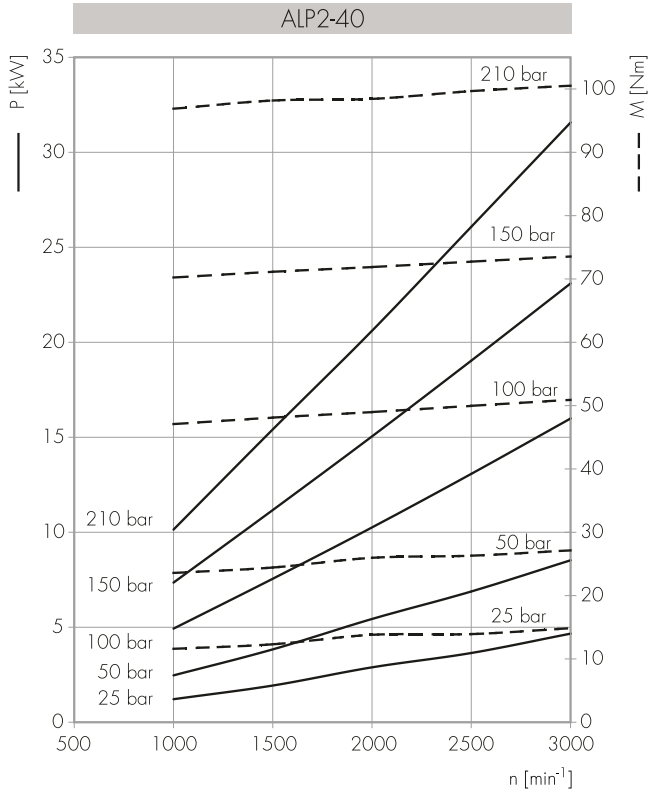


Absorbed power P [kW]. Absorbed torque M [Nm]. Drive speed n [rpm]





Absorbed power P [kW]. Absorbed torque M [Nm]. Drive speed n [rpm]





Ordering Code

ALP3	Type	Rotation	Size	Shaft*	Ports*	Seals*	Options*	Drain**
	omit	D Clockwise	30					
	A	S Counter Clockwise	33					
		R Reversible	40					
			50					
			60					
			66					
			80					
			94					
			110					
			120					
			135					

Seals
omit (T range = -10°C + 80°C)
V
...

Options
TR
...

Drain
E0 = internal drain
E1 = external drain G3/8
E2 = drain 3/4-16 UNF ***
E3 = drain G1/4
E4 = drain 9/16-18 UNF ***

(*) = to be specified if different from standard "motor type"
(**) = only for R rotation
(***) = Drain ports are machined in compliance with threaded port with O-ring seal in truncated housing SAE J1926/1 (ISO 11926-1).

Pump Standard Types

omit = European flange + shaft T0 + ports E + standard seals
A = flange A + shaft C1 + ports A + standard seals

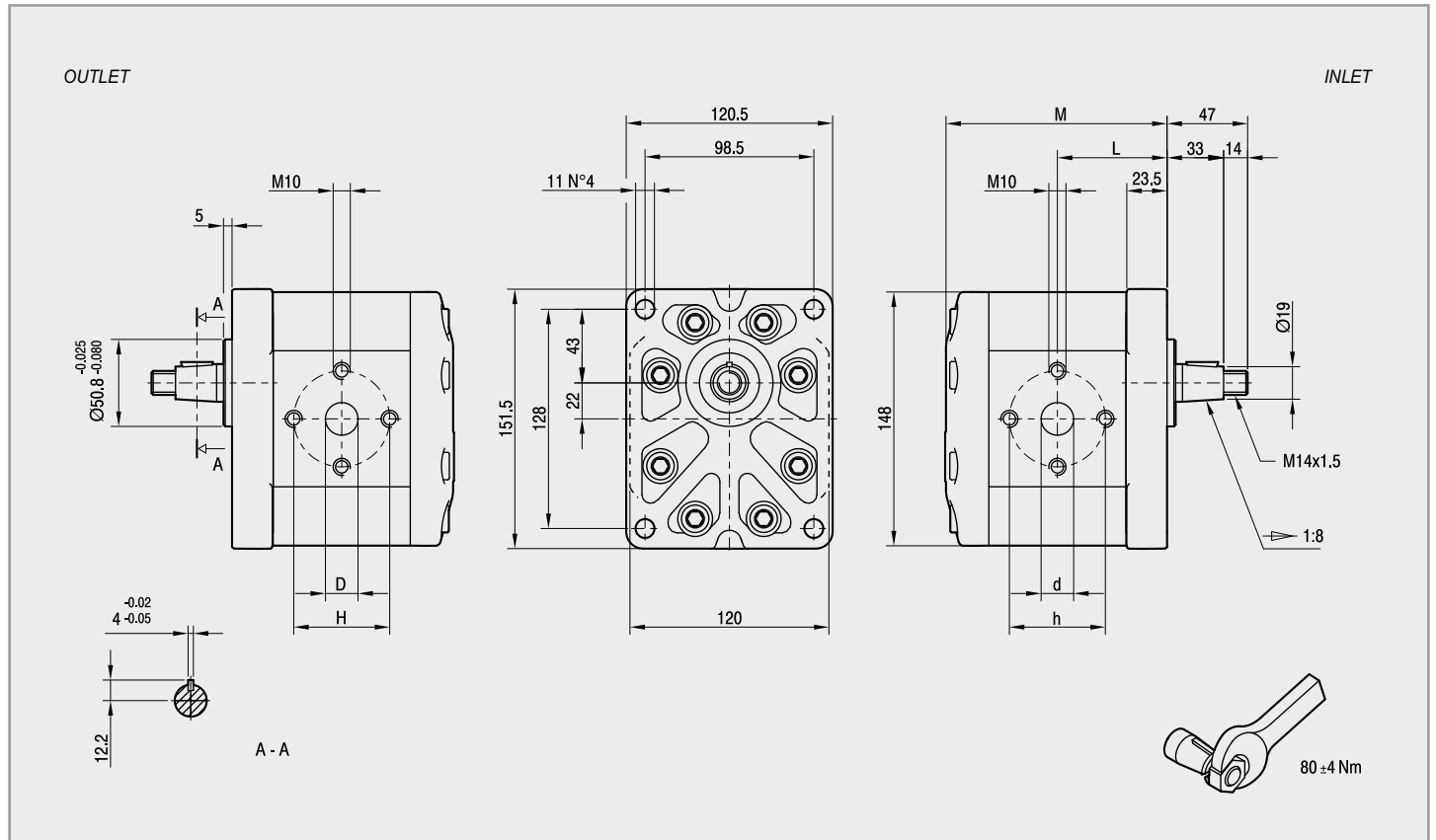
Examples

ALP3-D-30 = clockwise rotation, 20 cc/rev, European flange, 1:8 tapered shaft, flanged ports E type, standard seals.
ALP3-D-30-C0 = clockwise rotation, 20 cc/rev, European flange, cylindrical shaft (C0), flanged ports E type, standard seals.
ALP3A-D-30-E = clockwise rotation, 20 cc/rev, SAE B 2 bolt flange, cylindrical shaft, European flanged ports (E), standard seals.

The product data sheets show our standard model types. The synoptic tables for flanges, shafts and ports show all the possible configurations. For further details about the availability of each configuration please contact jbj Techniques technical office, email: info@jbj.co.uk or telephone: +44 (0)1737 767493



Accessories supplied with the standard pump: woodruff key (code 522058), M14x1.5 exagonal nut (code 523017), washer (code 523006).
Standard ports: M10 threads depth 19 mm.

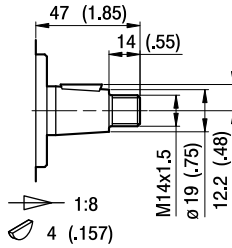
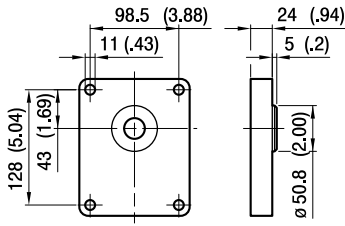


Type	Displacement cm ³ /rev	Flow at 1500 rev/min litres/min	Maximum Pressure			Maximum Speed rpm	Dimensions					
			P ₁ bar	P ₂ bar	P ₃ bar		L mm	M mm	d mm	D mm	h mm	H mm
ALP3-D-30	20	29	230	250	270	3500	64	129.5	27	19	56	56
ALP3-D-33	22	31	230	250	270	3500	64.5	130.5	27	19	56	56
ALP3-D-40	26	37	230	250	270	3000	66	133.5	27	19	56	56
ALP3-D-50	33	48	230	250	270	3000	68.5	138.5	27	19	56	56
ALP3-D-60	39	56	220	240	260	3000	70.5	142.5	27	19	56	56
ALP3-D-66	44	62	210	230	250	2800	72	145.5	27	27	51	51
ALP3-D-80	52	74	200	215	230	2400	75	151.5	27	27	56	56
ALP3-D-94	61	87	190	205	220	2800	78	157.5	33	27	62	51
ALP3-D-110	71	101	170	185	200	2500	81.5	164.5	33	27	62	51
ALP3-D-120	78	112	160	175	190	2300	84	169.5	33	27	62	51
ALP3-D-135	87	124	140	155	170	2000	87	175.5	33	27	62	51

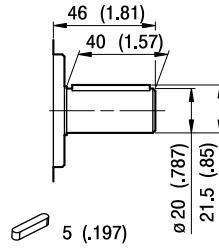


Flanges

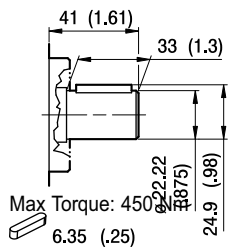
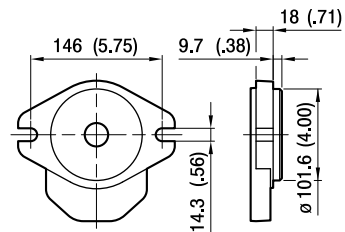
Shafts



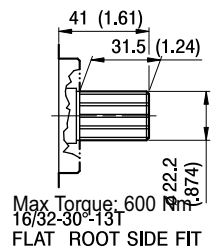
Max Torque: 300 Nm



Max Torque: 350 Nm



Max Torque: 450 Nm



Max Torque: 600 Nm

16/32-30-13T
FLAT ROOT SIDE FIT

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www.jbj.co.uk/hydraulic-adaptors.html

The package consists of a bellhousing and flexible drive coupling that are fully machined to suit the pump and any driving interface; diesel or petrol engine, electric or hydraulic motor.

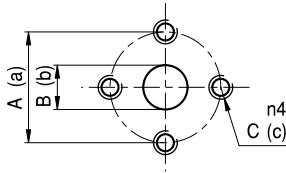
jbj's in-house design team and manufacturing facility provide tailored solutions for your applications at competitive prices with quick delivery.

A range of composite bell housings to accommodate electric motor flanges from 300 mm diameter to 800 mm diameter. See pages 40 to 44 of the Pump Drive Components technical specification catalogue.

A collection of different ways of connecting hydraulic pumps and motors to various driver devices.



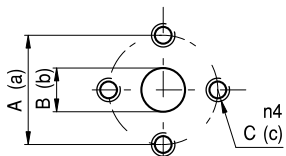
Ports



E

TYPE	INLET			OUTLET		
	A	B	C	a	b	c
ALP3...30 to ALP3...60	56	27	M10	56	19	M10
ALP3...66	51	27	M10	51	27	M10
ALP3...80	56	27	M10	56	27	M10
ALP3...94 to ALP3...135	62	33	M10	51	27	M10

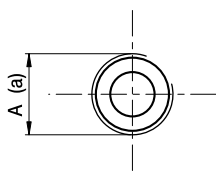
Tightening torques of the fittings screws are specified on pages 56 and 57 (accessories section).



EP

TYPE	INLET			OUTLET		
	A	B	C	a	b	c
ALP3...30 to ALP3...33	40	19	M8	40	19	M8
ALP3...40 to ALP3...80	51	27	M10	40	19	M8

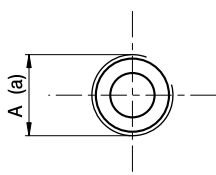
Tightening torques of the fittings screws are specified on pages 56 and 57 (accessories section).



FG

TYPE	INLET	OUTLET
	A	a
ALP3...30 to ALP3...33	G $\frac{3}{4}$	G $\frac{3}{4}$
ALP3...40 to ALP3...60	G1	G $\frac{3}{4}$
ALP3...66 to ALP3...94	G1 $\frac{1}{4}$	G1
ALP3...110 to ALP3...135	G1 $\frac{1}{2}$	G1 $\frac{1}{4}$

Tightening torques for G $\frac{3}{4}$ fitting: 60 Nm. Tightening torques for G1 fitting: 70 Nm. Tightening torques for G1 $\frac{1}{4}$ fitting: 80 Nm. Tightening torques for G1 $\frac{1}{2}$ fitting: 90 Nm. Please check with the fittings suppliers.



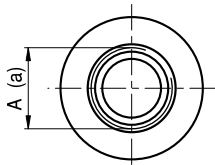
FC

TYPE	INLET	OUTLET
	A	a
ALP3...30 to ALP3...33	Rc $\frac{3}{4}$	Rc $\frac{3}{4}$
ALP3...40 to ALP3...60	Rc1	Rc $\frac{3}{4}$
ALP3...66 to ALP3...94	Rc1 $\frac{1}{4}$	Rc1
ALP3...110 to ALP3...135	Rc1 $\frac{1}{2}$	Rc1 $\frac{1}{4}$

Tightening torques for Rc $\frac{3}{4}$ fitting: 60 Nm. Tightening torques for Rc1 fitting: 70 Nm. Tightening torques for Rc1 $\frac{1}{4}$ fitting: 80 Nm. Tightening torques for Rc1 $\frac{1}{2}$ fitting: 90 Nm. Please check with the fittings suppliers.



Ports

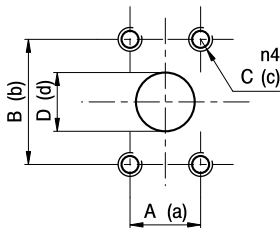


STANDARD SAE J1926/1

FA

TYPE	INLET	OUTLET
	A	a
ALP3...30 to ALP3...50	1 5/16-12 UNF	1 1/16-12 UNF
ALP3...60 to ALP3...80	1 5/8-12 UNF	1 1/16-12 UNF
ALP3...94 to ALP3...135	1 7/8-12 UNF	1 5/16-12 UNF

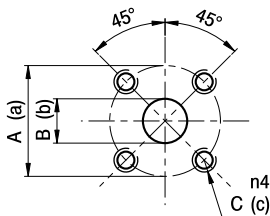
Tightening torques for 1 1/16-12 UNF fitting: 70 Nm. Tightening torques for 1 5/16-12 UNF fitting: 80 Nm. Tightening torques for 1 5/8-12 UNF fitting: 80 Nm. Tightening torques for 1 7/8-12 UNF fitting: 80 Nm. Please check with the fittings suppliers.



A

TYPE	INLET				OUTLET			
	A	B	C	D	a	b	c	d
ALP3...30 to ALP3...80	26.19	52.37	3/8-16 UNC	27	22.23	47.63	3/8-16 UNC	19
ALP3...94 to ALP3...135	30.2	58.7	7/16-14 UNC	33	26.19	52.37	3/8-16 UNC	27

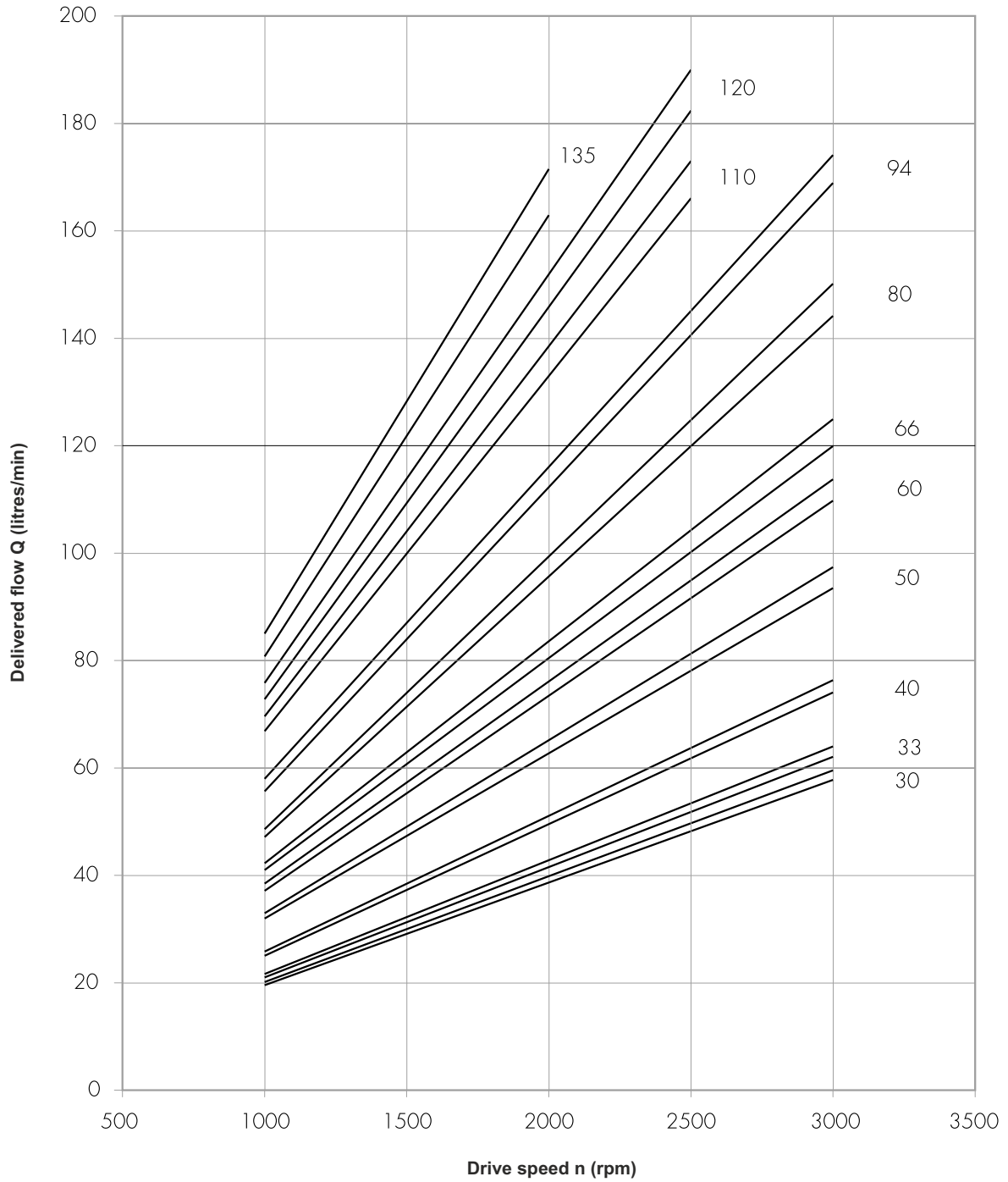
Tightening torques of the fittings screws are specified on pages 56 and 57 (accessories section).



D

TYPE	INLET			OUTLET		
	A	B	C	a	b	c
ALP3...30 to ALP3...80	55	27	M8	55	19	M8

Tightening torques of the fittings screws are specified on pages 56 and 57 (accessories section).



Each curve has been obtained at 50°C, using oil with viscosity 30 cSt at these pressures.

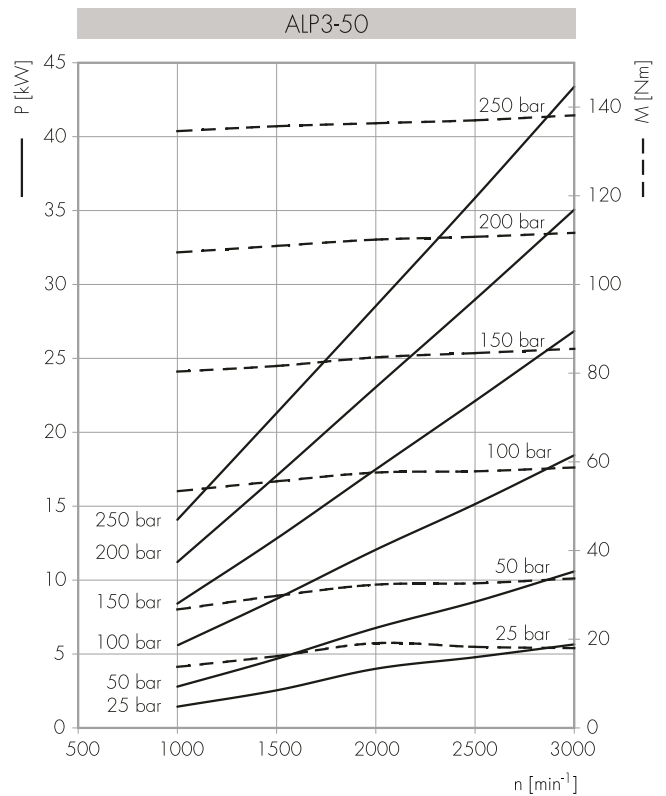
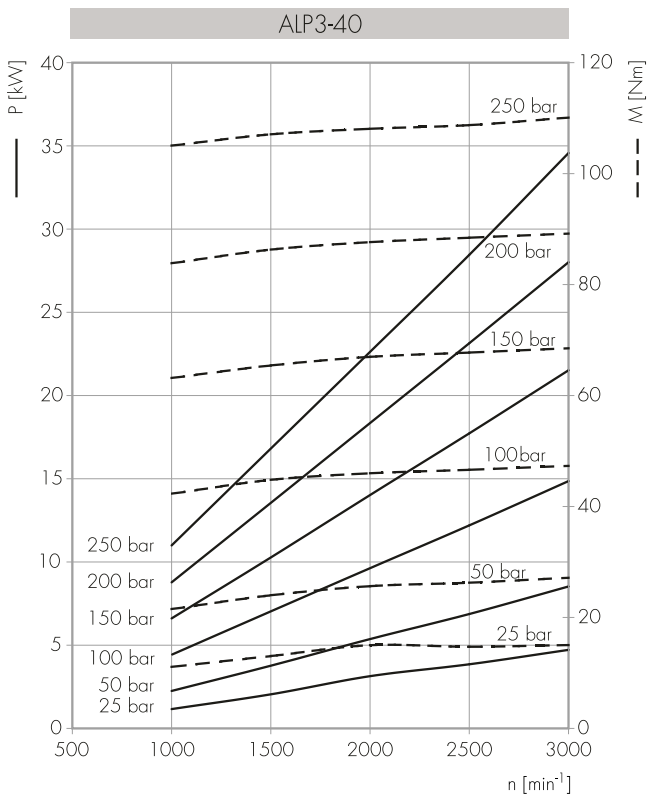
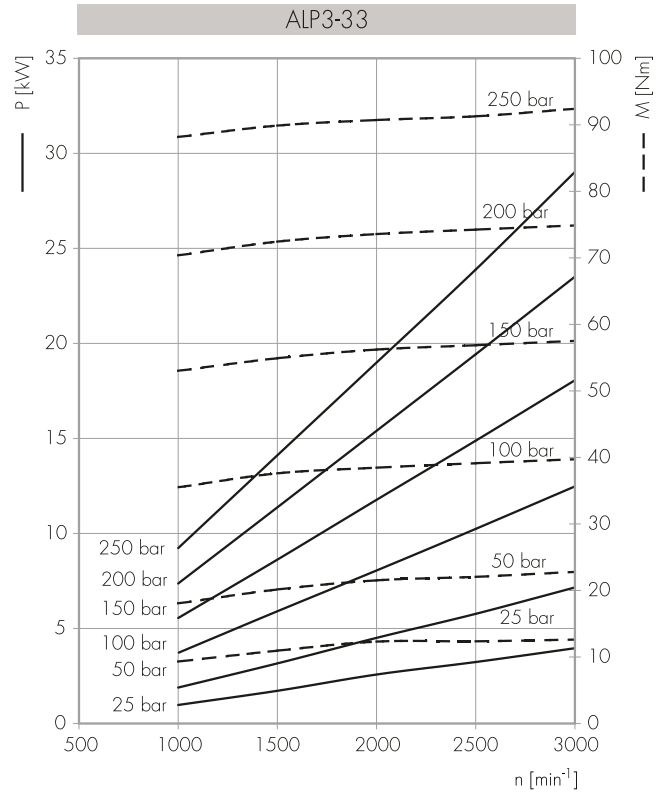
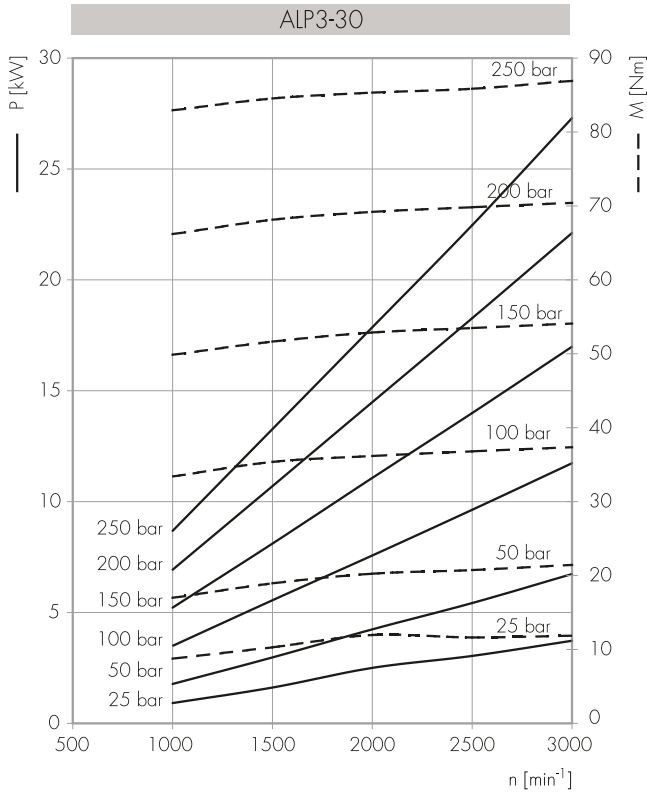
30 |
 33 |— 25-250 bar
 40 |
 50 |
 60 |— 25-240 bar
 66 |

80 |— 25-220 bar
 94 |— 25-200 bar

110 |— 25-180 bar
 120 |— 25-170 bar
 135 |— 25-150 bar

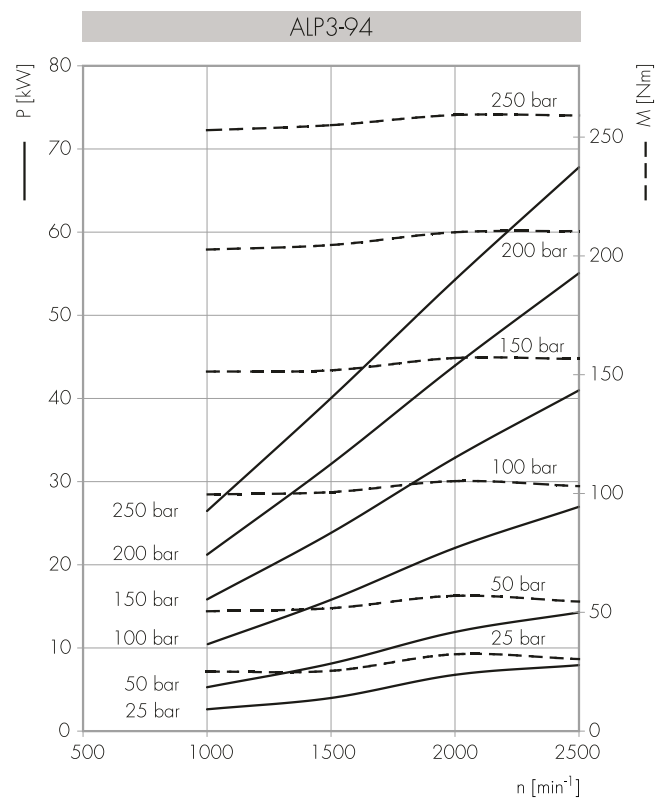
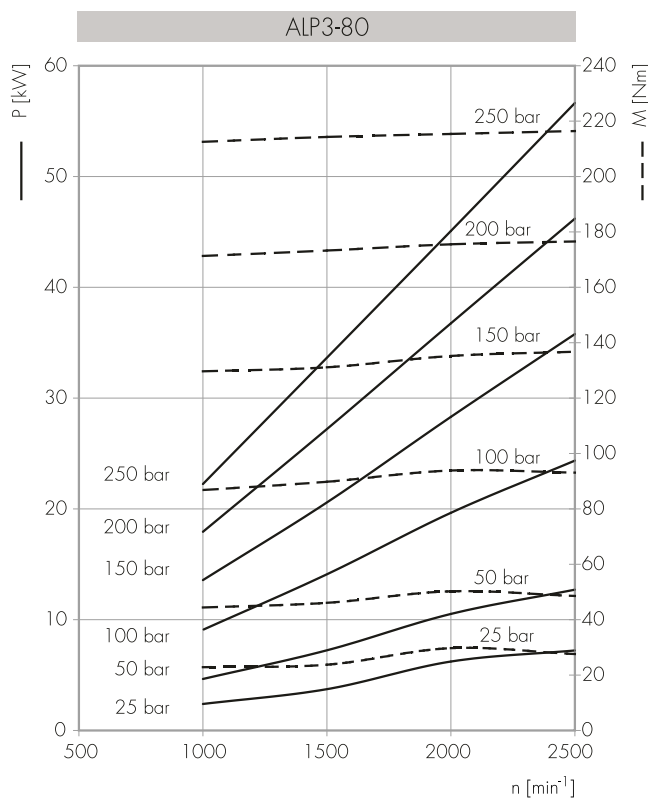
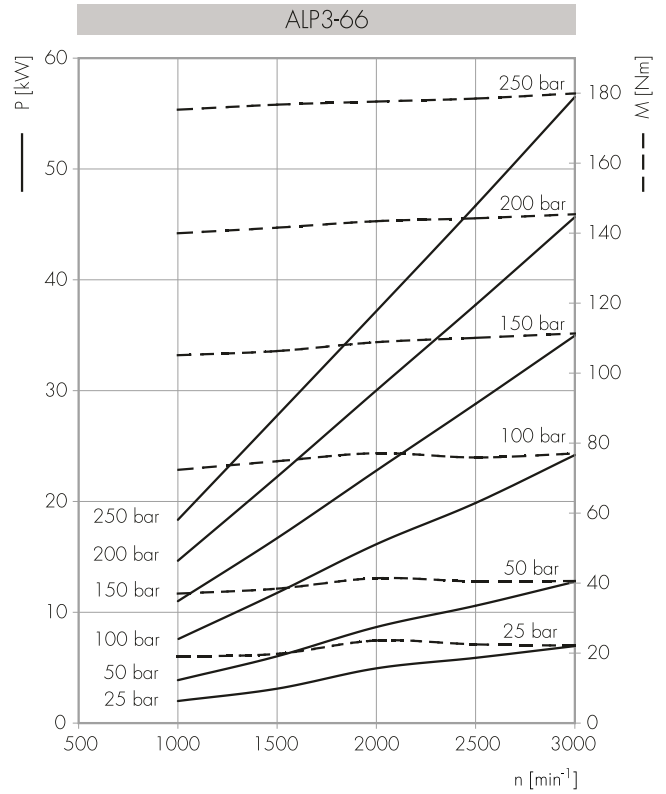
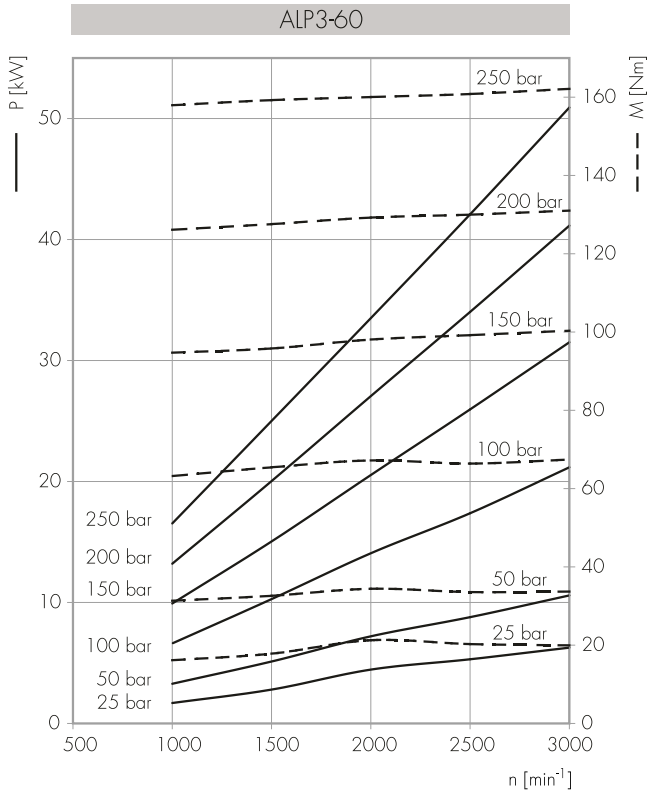


Absorbed power P [kW]. Absorbed torque M [Nm]. Drive speed n [rpm]



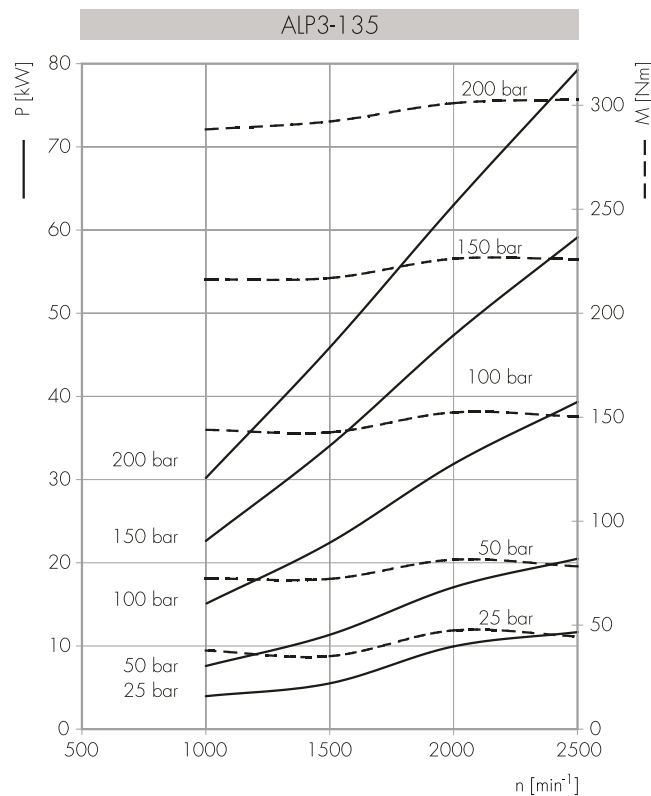
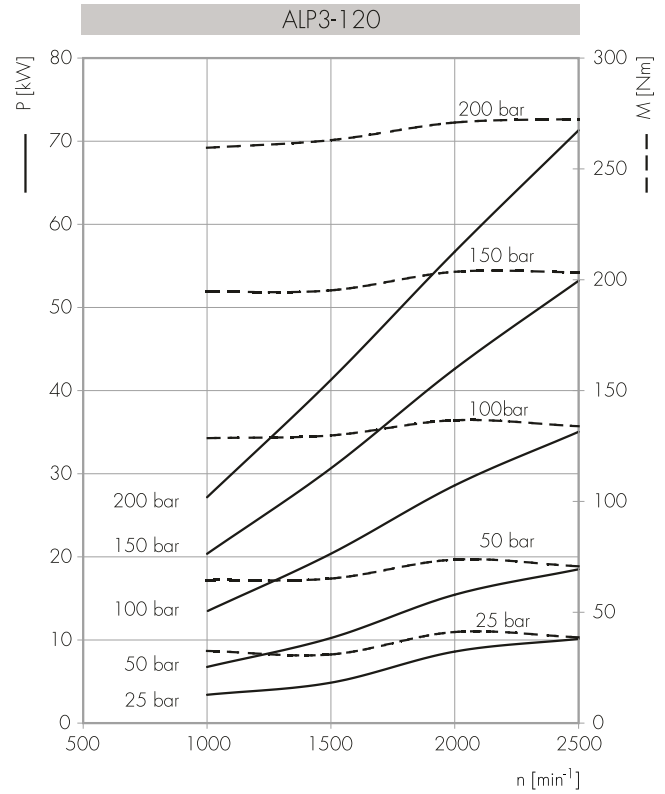
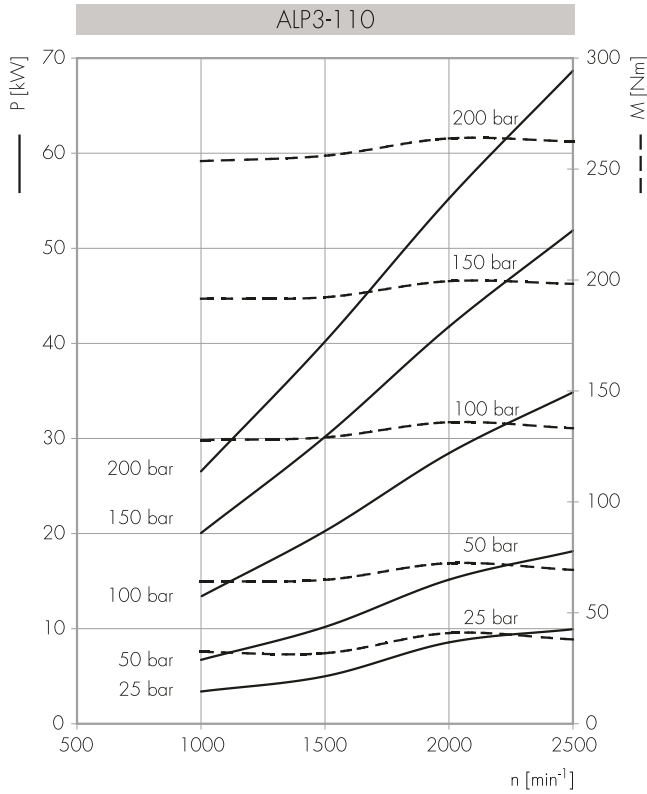


Absorbed power P [kW]. Absorbed torque M [Nm]. Drive speed n [rpm]



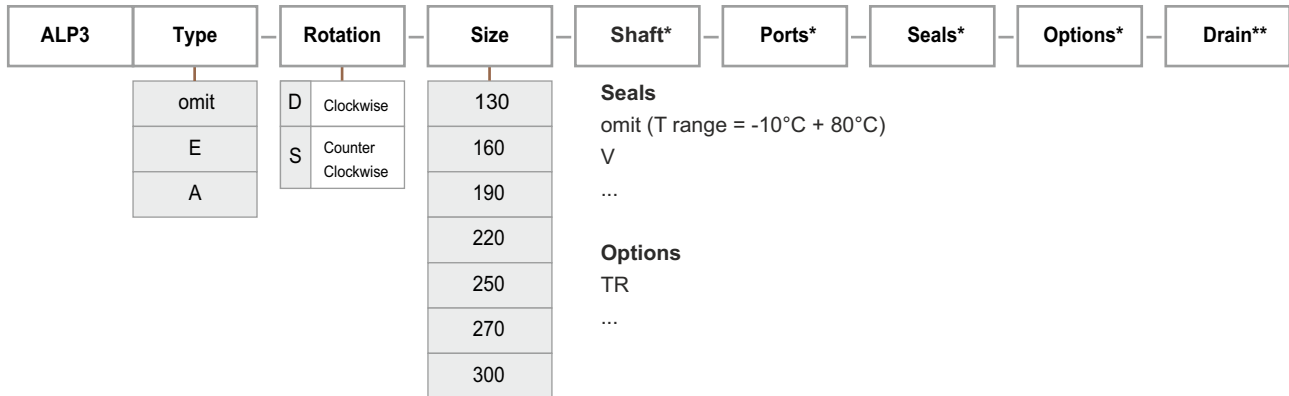


Absorbed power P [kW]. Absorbed torque M [Nm]. Drive speed n [rpm]





Ordering Code



Seals
omit (T range = -10°C + 80°C)
V
...

Options
TR
...

(*) = to be specified if different from standard "motor type"

(**) = only for R rotation

(***) = Drain ports are machined in compliance with threaded port with O-ring seal in truncated housing SAE J1926/1 (ISO 11926-1).

Pump Standard Types

omit = European flange + shaft T0 + ports E + standard seals

E = flange E + shaft C0 + ports A + standard seal

A = flange A + shaft C1 + ports A + standard seal

Examples

ALP4-D-190 = clockwise rotation, 128 cm³/rev, european flange, 1:8 tapered shaft, flanged ports E types, standard seals.

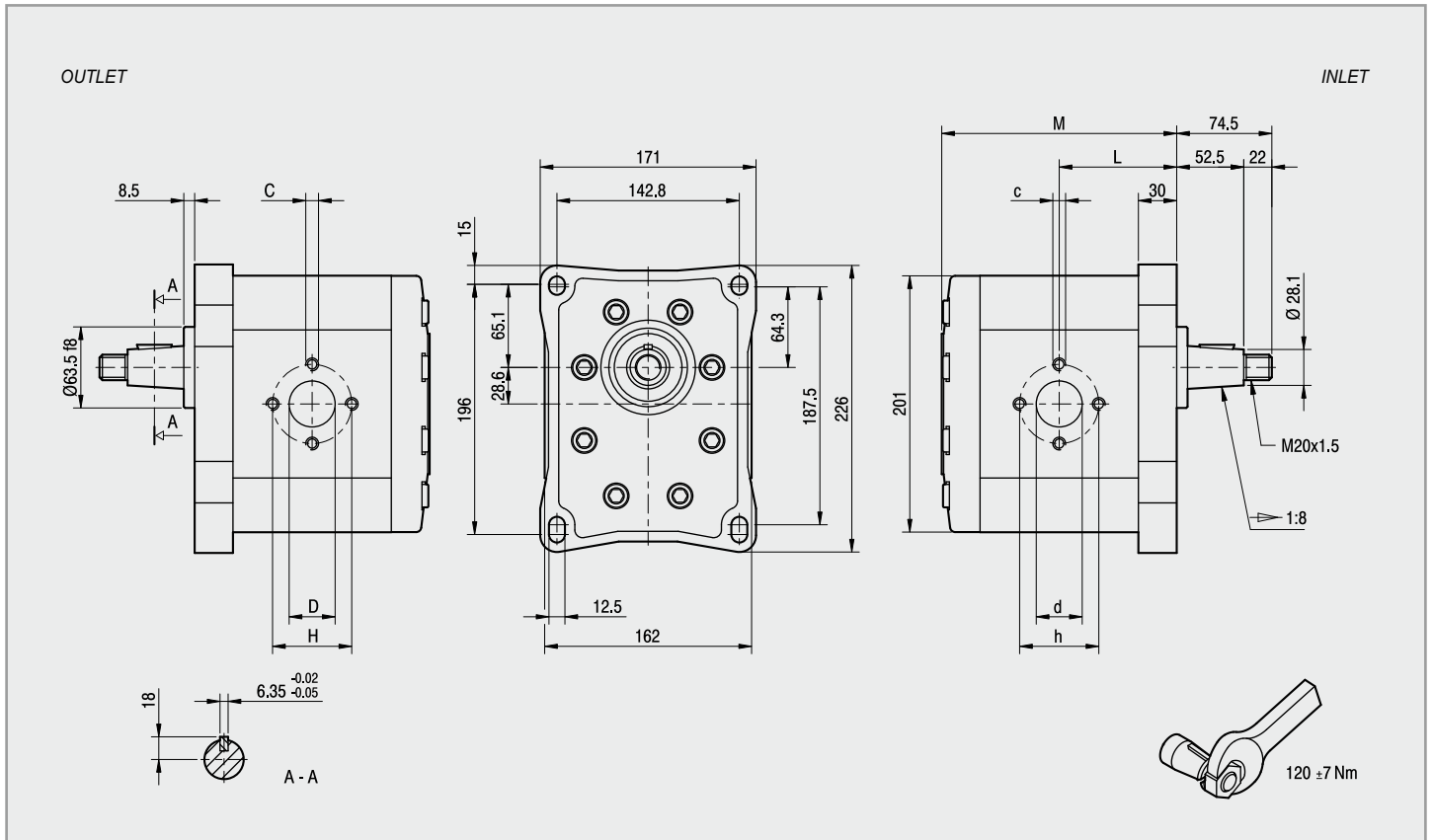
ALP4-D-190-S0 = clockwise rotation, 128 cm³/rev, european flange, 1:8 splined shaft (S0), flanged ports E types, standard seals.

ALP4A-D-190 = clockwise rotation, 128 cm³/rev, SAE C 6 bolts flange, cylindrical shaft, flanged ports A types, standard seals.

The product data sheets show our standard model types. The synoptic tables for flanges, shafts and ports show all the possible configurations. For further details about the availability of each configuration please contact jbj Techniques technical office, email: info@jbj.co.uk or telephone: +44 (0)1737 767493



Accessories supplied with the standard pump: woodruff key (code 522263), M20x1.5 exagonal nut (code 523019), washer (code 523008).
Standard ports: M10 and M12 threads depth 21 mm.



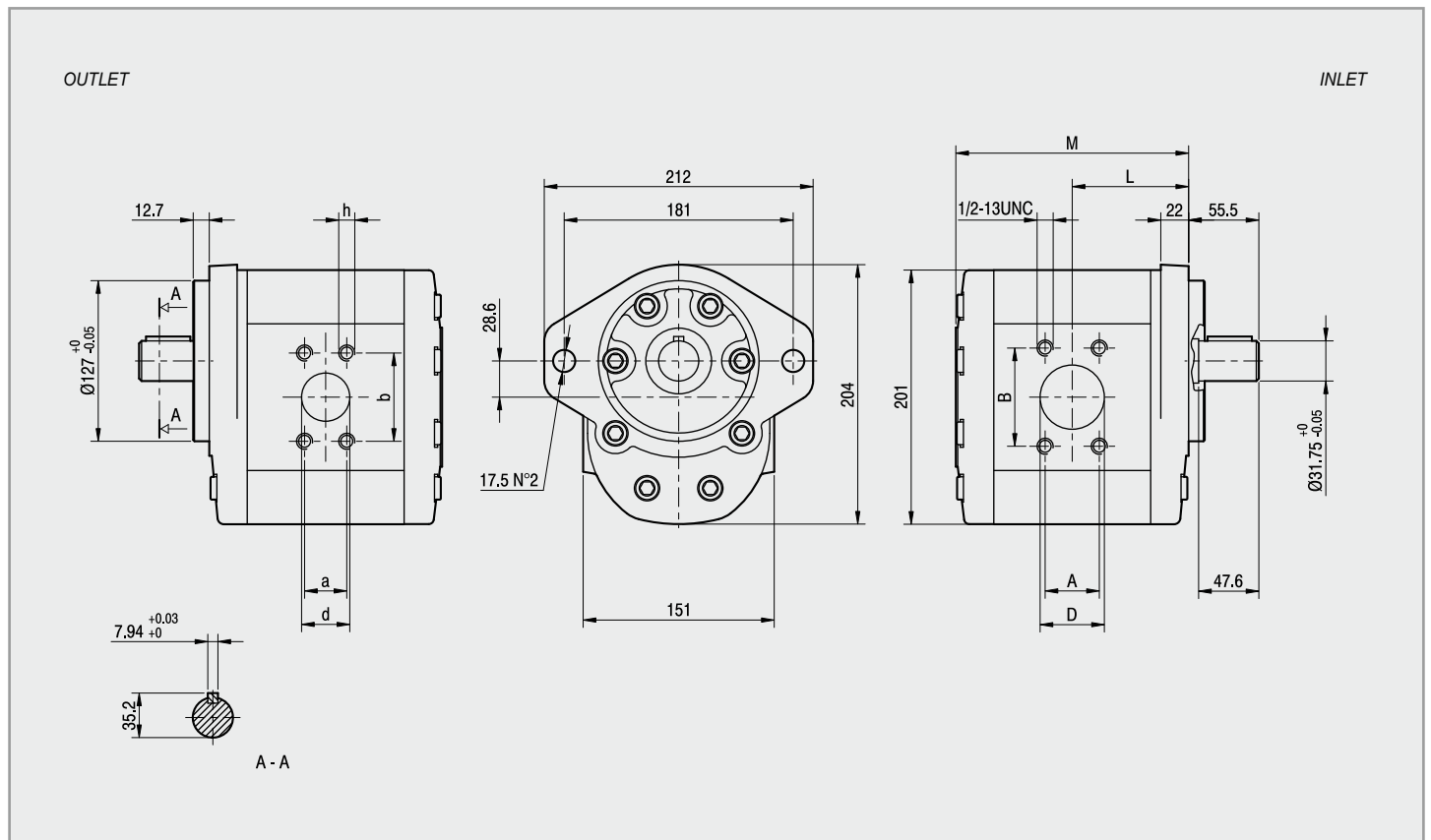
Type	Displacement cm ³ /rev	Flow at 1500 rev/min litres/min	Maximum Pressure			Maximum Speed rpm	Dimensions							
			P ₁ bar	P ₂ bar	P ₃ bar		L mm	M mm	c	C	d mm	D mm	h mm	H mm
ALP4-D-130	87	124	240	260	280	2800	92	184	M10	M10	36	0	62	56
ALP4-D-160	106	151	200	220	240	2300	96	192	M10	M10	36	30	62	56
ALP4-D-190	128	182	180	200	220	2500	100,5	201	M12	M10	45	36	72,5	62
ALP4-D-220	147	209	170	190	210	2200	104,5	209	M12	M10	45	36	72,5	62
ALP4-D-250	166	237	160	170	190	2000	108,5	217	M12	M10	45	36	72,5	62
ALP4-D-270	181	258	140	150	170	2400	111,5	223	M12	M12	56	45	92	72,5
ALP4-D-300	200	285	130	140	150	2400	115,5	231	M12	M12	56	45	92	72,5



Accessories supplied with the standard pump: key (code 522262)

Mounting flange 127-2 (C) in compliance with SAE J744c.

Standard ports: 1/16-14 UNC threads depth 25 mm, 1/2-13 UNC threads depth 25 mm.



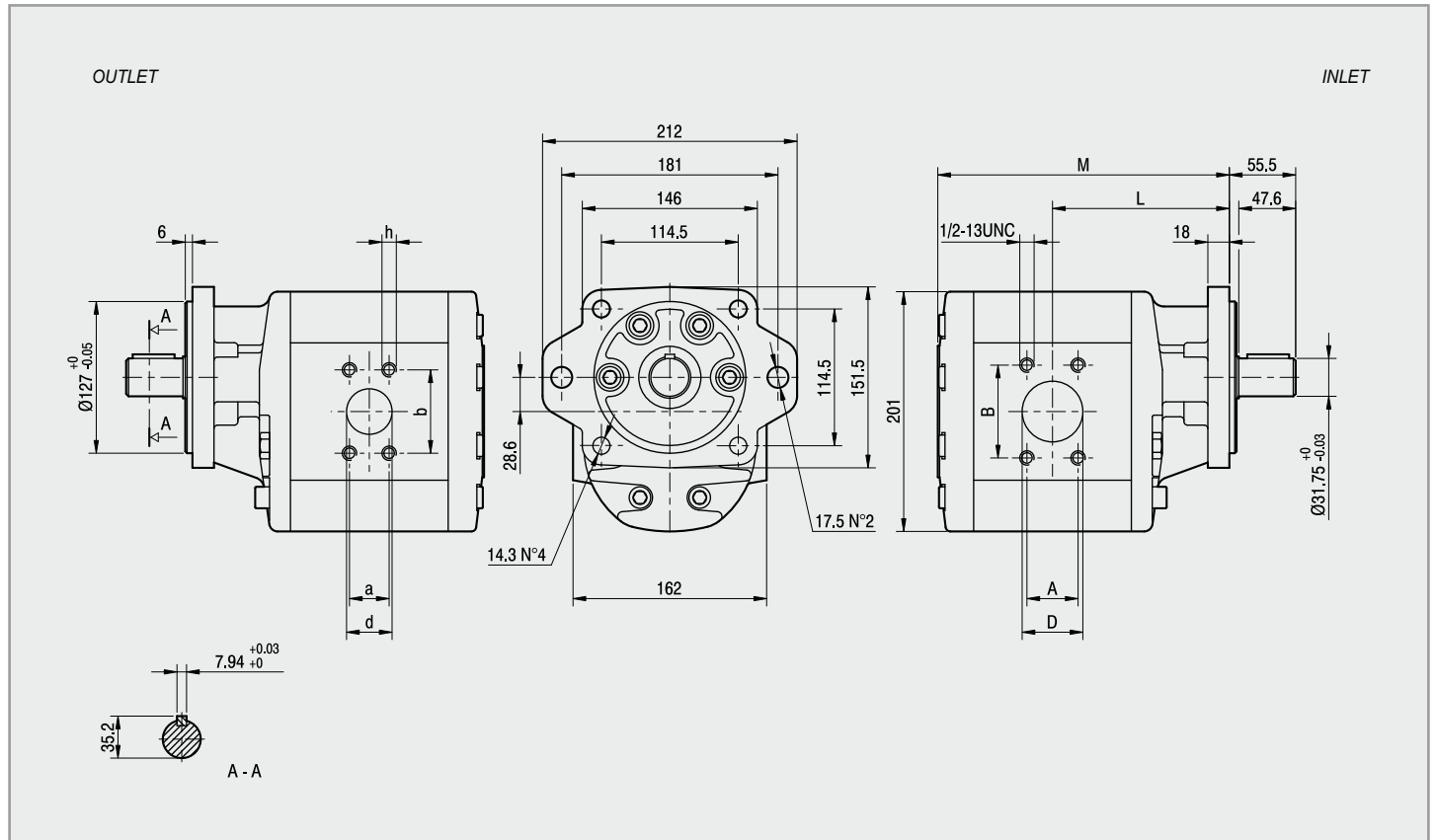
Type	Displacement cm ³ /rev	Flow at 1500 rev/min litres/min	Maximum Pressure			Maximum Speed rpm	Dimensions								
			P ₁ bar	P ₂ bar	P ₃ bar		L mm	M mm	A mm	B mm	D mm	a mm	b mm	d mm	h UNC
ALP4E-D-130	87	124	240	260	280	2800	92	184	35.7	69.8	38	30.2	58.7	31.5	1/16
ALP4E-D-160	106	151	200	220	240	2300	96	192	42.8	77.7	51	35.7	69.8	38	1/2
ALP4E-D-190	128	182	180	200	220	2500	100.5	201	42.8	77.7	51	35.7	69.8	38	1/2
ALP4E-D-220	147	209	170	190	210	2200	104.5	209	42.8	77.7	51	35.7	69.8	38	1/2
ALP4E-D-250	166	237	160	170	190	2000	108.5	217	42.8	77.7	51	35.7	69.8	38	1/2
ALP4E-D-270	181	258	140	150	170	2400	111.5	223	42.8	77.7	51	35.7	69.8	38	1/2
ALP4E-D-300	200	285	130	140	150	2400	115.5	231	42.8	77.7	51	35.7	69.8	38	1/2



Accessories supplied with the standard pump: key (code 522262)

Mounting flange 127-2 (C) in compliance with SAE J744c.

Standard ports: 1/16-14 UNC threads depth 25 mm, 1/2-13 UNC threads depth 25 mm.

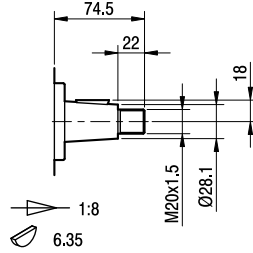
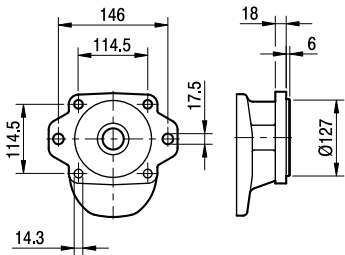
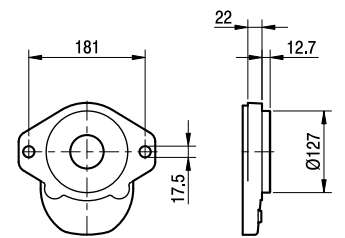
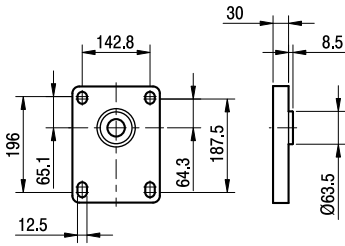


Type	Displacement cm ³ /rev	Flow at 1500 rev/min litres/min	Maximum Pressure			Maximum Speed rpm	Dimensions								
			P ₁ bar	P ₂ bar	P ₃ bar		L mm	M mm	A mm	B mm	D mm	a mm	b mm	d mm	h UNC
ALP4A-D-130	87	124	240	260	280	2800	144	236	35.7	69.8	38	30.2	58.7	31.5	1/16
ALP4A-D-160	106	151	200	220	240	2300	148	244	42.8	77.7	51	35.7	69.8	38	1/2
ALP4A-D-190	128	182	180	200	220	2500	152.5	253	42.8	77.7	51	35.7	69.8	38	1/2
ALP4A-D-220	147	209	170	190	210	2200	156.5	261	42.8	77.7	51	35.7	69.8	38	1/2
ALP4A-D-250	166	237	160	170	190	2000	160.5	269	42.8	77.7	51	35.7	69.8	38	1/2
ALP4A-D-270	181	258	140	150	170	2400	163.5	275	42.8	77.7	51	35.7	69.8	38	1/2
ALP4A-D-300	200	285	130	140	150	2400	167.5	283	42.8	77.7	51	35.7	69.8	8	1/2

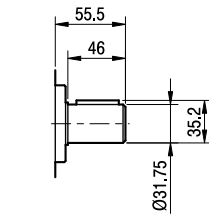


Flanges

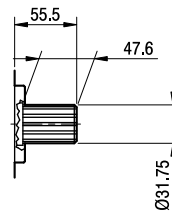
Shafts



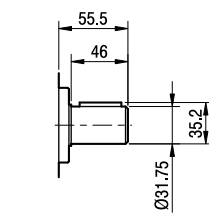
T0
Max Torque 550 Nm



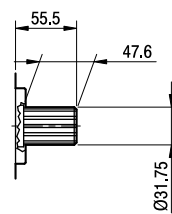
7.94
C0
Max Torque 450 Nm



12/24-30°-14T
FLAT ROOT SIDE FIT
S1
Max Torque 900 Nm



7.94
C0
Max Torque 450 Nm



12/24-30°-14T
FLAT ROOT SIDE FIT
S1
Max Torque 900 Nm

jbj allow close coupling of hydraulic pumps directly to the flywheel / flywheel housing of diesel engines, electric and hydraulic motors.

www.jbj.co.uk/hydraulic-adaptors.html

The package consists of a bellhousing and flexible drive coupling that are fully machined to suit the pump and any driving interface; diesel or petrol engine, electric or hydraulic motor.

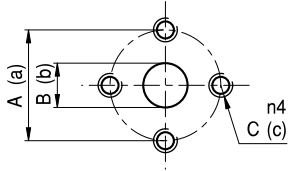
jbj's in-house design team and manufacturing facility provide tailored solutions for your applications at competitive prices with quick delivery.

A range of composite bell housings to accommodate electric motor flanges from 300 mm diameter to 800 mm diameter. See pages 40 to 44 of the Pump Drive Components technical specification catalogue.

A collection of different ways of connecting hydraulic pumps and motors to various driver devices.

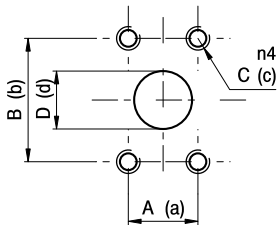


Ports



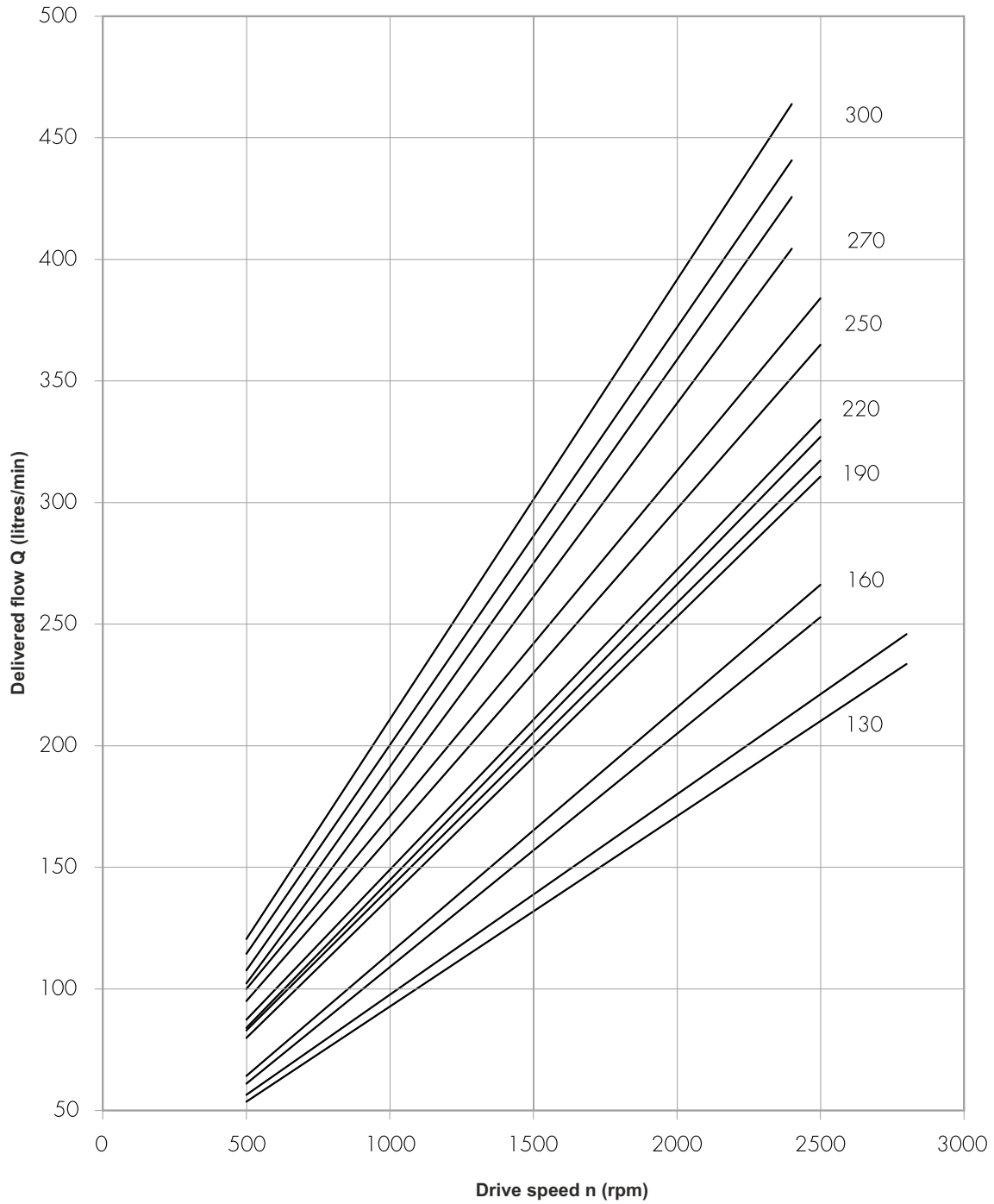
E

TYPE	INLET			OUTLET		
	A	B	C	a	b	c
ALP4 ... 130 to ALP4 ... 160	62	36	M10	56	30	M10
ALP4 ... 190 to ALP4 ... 250	72.5	45	M12	62	36	M10
ALP4 ... 270 to ALP4 ... 300	92	56	M12	72.5	45	M12



A

TYPE	INLET				OUTLET			
	A	B	C	D	a	b	c	d
ALP4 ... 130	35.7	69.8	½-13 UNC	38	30.2	58.7	¼-14 UNC	31.5
ALP4 ... 160 to ALP4 ... 300	42.8	77.7	½-13 UNC	51	35.7	69.8	½-13 UNC	38



Each curve has been obtained at 50°C, using oil with viscosity 30 cSt at these pressures.

130 |— 50-240 bar

190 |— 50-180 bar
220 |— 50-180 bar

270 |— 50-150 bar

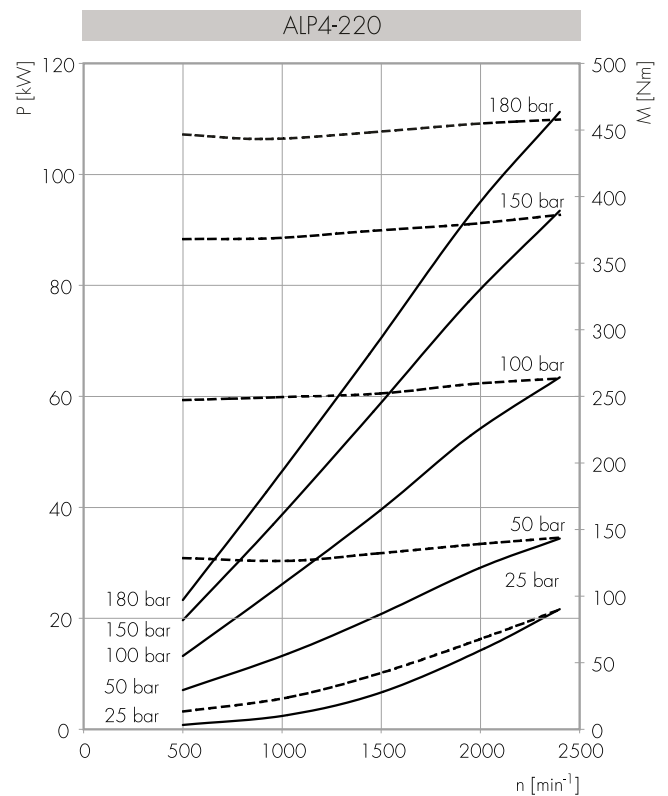
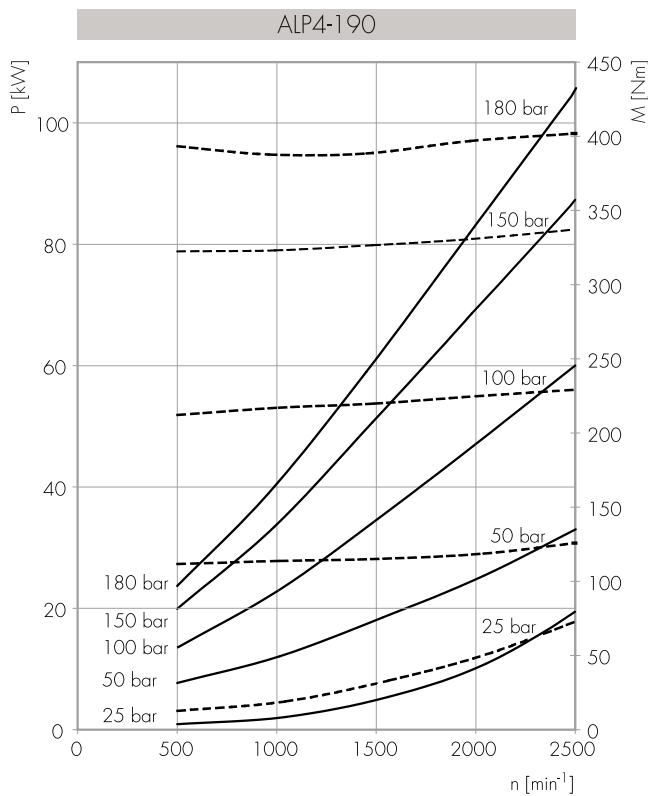
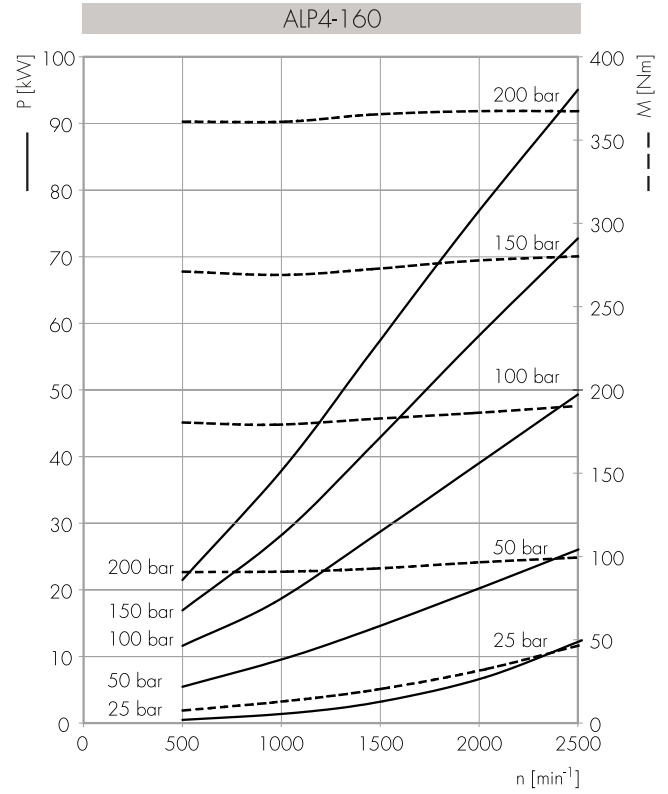
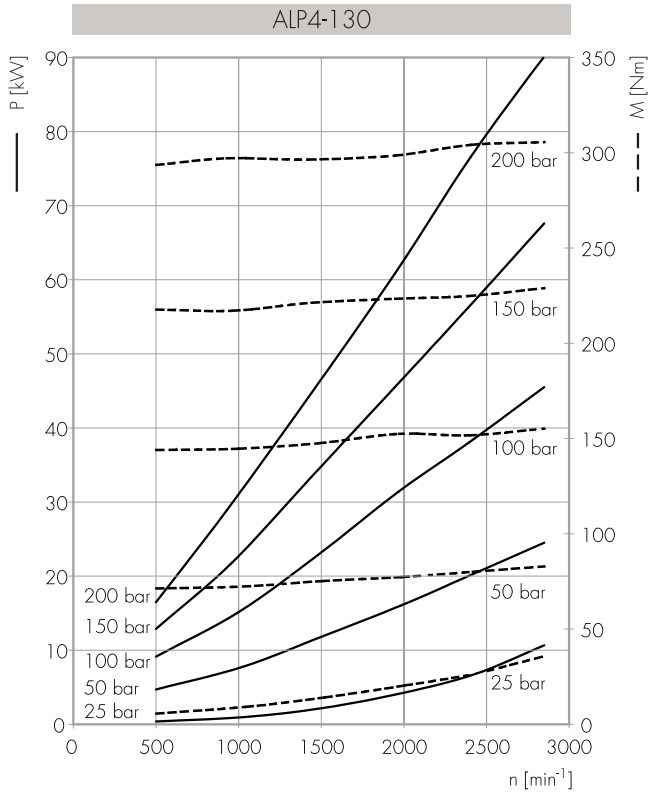
160 |— 50-220 bar

250 |— 50-170 bar

300 |— 50-130 bar

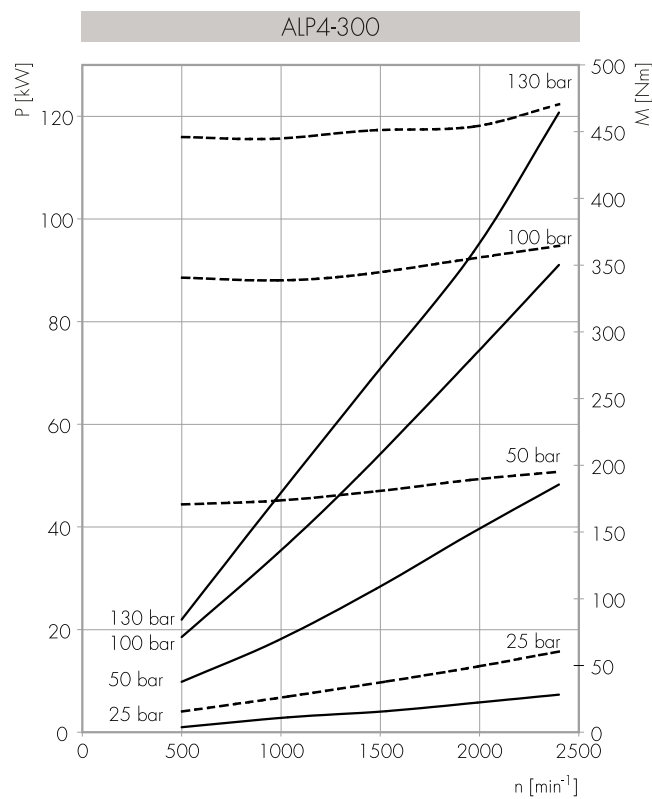
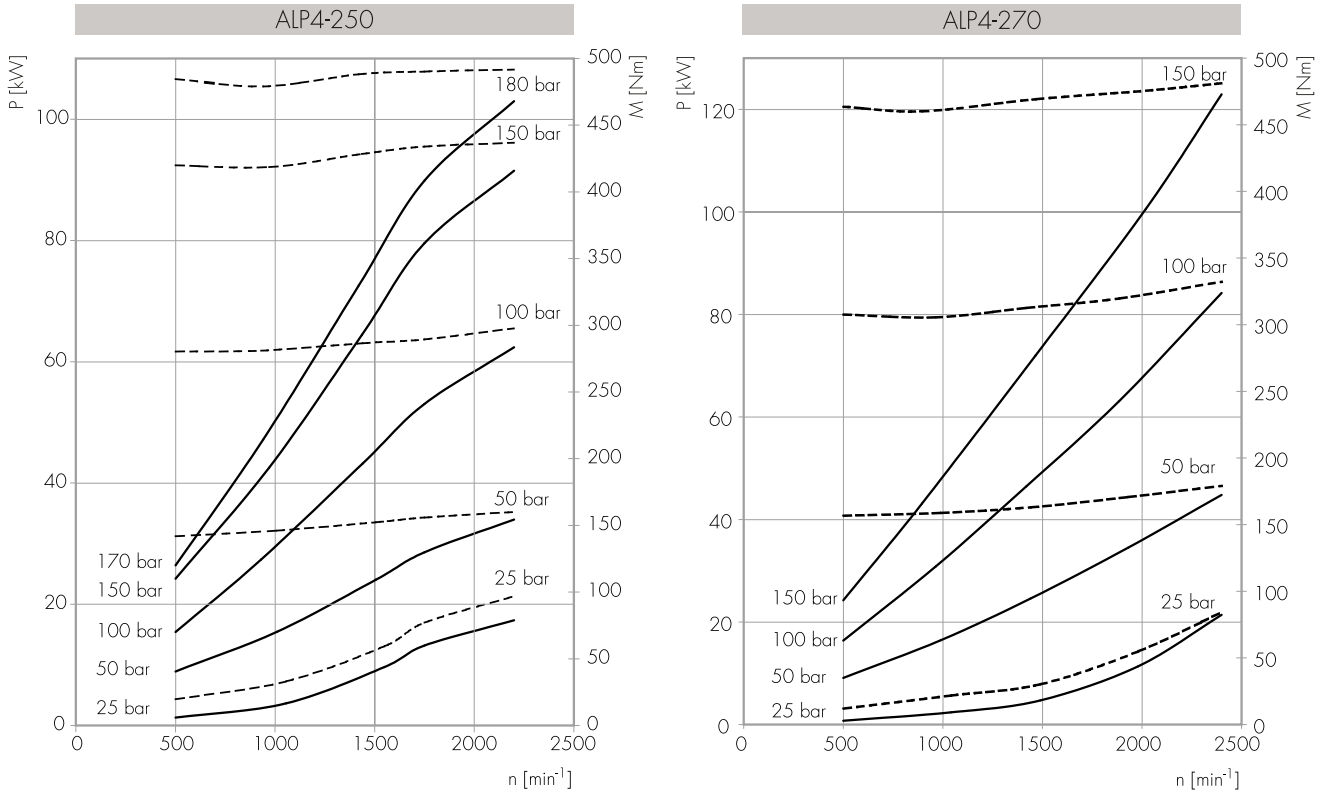


Absorbed power P [kW]. Absorbed torque M [Nm]. Drive speed n [rpm]





Absorbed power P [kW]. Absorbed torque M [Nm]. Drive speed n [rpm]





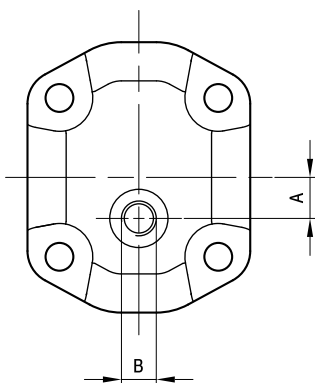
Draining

As described at the beginning of the single rotation pump section, also bi-rotational models are rotary positive-displacement pumps with external gears. Their operating concept is the same as single rotation pumps. What changes is that bi-rotational pumps can rotate both clockwise and counterclockwise thanks to their perfectly symmetrical machining on the internal components.

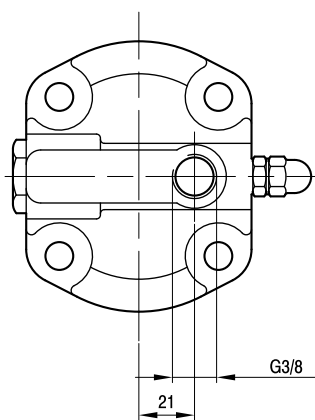
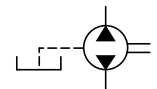
The external draining is located on the cover and it must be connected always to the tank; connection pipes to the system tank should never be clogged or show reduced cross-section, otherwise pressure values might exceed 6 bar. The reversible pumps can handle pressurized inflow.

The pressures P1, P2, p3 of the reversible pumps of the GHP series must be reduced of approx 15% with respect to the pressures indicated on the performing charts relevant to the mono-directional pumps.

Please contact jbj Techniques technical office, tel: +44 (0)1737 767493 or email: info@jbj.co.uk. if system operating conditions differ from the values indicated in the product tables.

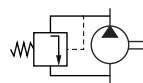


TYPE	DRAIN	A	B	
			THREAD	DEPTH (mm)
ALP1	E1	12	G $\frac{1}{4}$	12
	E2	12	$\frac{9}{16}$ -18 UNF	12.7
ALP2	E1	15,5	G $\frac{1}{4}$	12
	E2	15,5	$\frac{9}{16}$ -18 UNF	12.7
	E4	21	$\frac{7}{16}$ -20 UNF	11.5
ALP3	E1	22	G $\frac{3}{8}$	15
	E2	22	$\frac{3}{4}$ -16 UNF	14.3
	E3	22	G $\frac{1}{4}$	12
	E4	22	$\frac{9}{16}$ -18 UNF	12.7



Pressure Relief Valve

It is possible, for the pumps of the group 2, using a pressure relief valve integrated onto the cover (option "VM"). This in both internal ("E0") or external G3/8 ("E3") draining. The setting pressure should be specified between 20 and 280 bars.





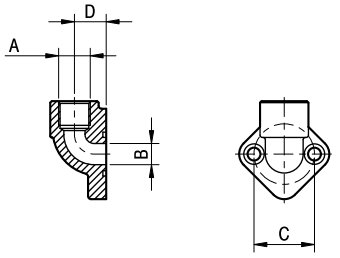
Fittings

Cast iron and steel fittings are available as follows, complete with assembly screws, washers and NBR seals (temperature range -30°C to +100°C). Screws tightening torque are showed in the following tables.

Spare Gasket Kit

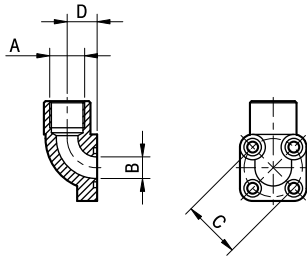
The standard model types are supplied with NBR seals. Allowed operating conditions are indicated in the technical information section. In case of change of the motor's seals, please pay attention to not damage the parts; it is important to clean all the components in order to avoid contamination and to tighten the motor bolts correctly.

Group	Type	Rotation	Seals	Options	Code	
ALP1	tutti / all	D/S	omit	omit	650221/R	
			V		650222/R	
			ST		650224/R	
			H		650223/R	
			omit		650251/R	
			V		650248/R	
		ST	650250/R			
		R	H	650249/R		
			omit	650225/R		
			V	650253/R		
			ST	650255/R		
			H	650254/R		
TR	650246/R					
ALP2	omit A BK1 BK2 BK4	D/S	omit	omit	650226/R	
			V		650227/R	
			ST		650229/R	
			H		650228/R	
			omit		650244/R	
			V		650245/R	
		ST	650247/R			
		H	650246/R			
		R	omit	650230/R		
			V	650256/R		
			ST	650258/R		
			H	650257/R		
	TR		650236/R			
	TR		650267/R			
	BK7	D/S	omit	omit	650273/R	
			V		650274/R	
			omit		650275/R	
		R	V		650276/R	
TR			650231/R			
TR			650232/R			
ALP3	omit	D/S	ST	omit	650234/R	
			H		650233/R	
			omit		650263/R	
			V		650264/R	
			ST		650266/R	
			H		650265/R	
		A	D/S	omit	omit	650236/R
				V		650237/R
				ST		650239/R
				H		650238/R
				omit		650267/R
				V		650268/R
	omit	D/S	ST	TR	650270/R	
			H		650269/R	
			omit		650351/R	
			V		650352/R	
			omit		650353/R	
			V		650354/R	
ALP4	omit	D/S	omit	omit	650351/R	
			V		650352/R	
			omit		650353/R	
	E/A	D/S	V	TR	650354/R	
			omit		650353/R	
			V		650354/R	



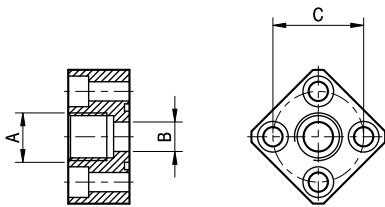
RG

TYPE	A	B	C	D	TORQUE WRENCH SETTING FIXED (SCREWS)
		mm	mm	mm	Nm
RG $\frac{3}{8}$ x 30	G $\frac{3}{8}$	12	30	17.5	10
RG $\frac{1}{2}$ x 30	G $\frac{1}{2}$	12	30	17.5	10
RG $\frac{3}{8}$ x 40	G $\frac{3}{8}$	14	40	18	20
RG $\frac{1}{2}$ x 40	G $\frac{1}{2}$	14	40	21	20
RG $\frac{3}{4}$ x 40	G $\frac{3}{4}$	19	40	21	20
Rg1 x 51	G1	25.5	51	25.5	30
RG $\frac{3}{4}$ x 56	G $\frac{3}{4}$	20	56	27	30
Rg1 x 56	G1	25.5	56	27	30
RG1 $\frac{1}{4}$ x 62	G1 $\frac{1}{4}$	32	62	34.5	30
RG1 $\frac{1}{2}$ x 72.5	G1 $\frac{1}{2}$	40	72.5	34.5	50
RG2 $\frac{1}{2}$ x 92	G2 $\frac{1}{2}$	65	92	51	50



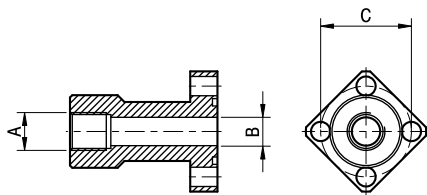
BK

TYPE	A	B	C	D	TORQUE WRENCH SETTING FIXED (SCREWS)
		mm	mm	mm	Nm
BK $\frac{3}{8}$ x 35	G $\frac{3}{8}$	13	35	18	10
BK $\frac{1}{2}$ x 35	G $\frac{1}{2}$	13	35	18	10
BK 18 x 35	M18 x 1.5	13	35	18	10
BK 18 x 40	M18 x 1.5	19	40	24	10
BK $\frac{1}{2}$ x 40	G $\frac{1}{2}$	19	40	24	10
BK $\frac{3}{4}$ x 40	G $\frac{3}{4}$	19	40	24	10
BK 1 x 55	G1	25	55	29	20



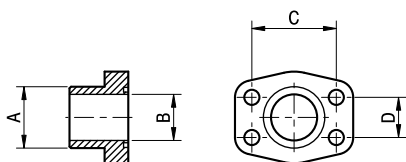
FI

TYPE	A	B	C	TORQUE WRENCH SETTING FIXED (SCREWS)
		mm	mm	Nm
FI $\frac{3}{8}$ x 30	G $\frac{3}{8}$	12.5	30	10
FI $\frac{3}{8}$ x 40	G $\frac{3}{8}$	13	40	20
FI $\frac{1}{2}$ x 40	G $\frac{1}{2}$	13	40	20
FI $\frac{3}{4}$ x 56	G $\frac{3}{4}$	20	56	30
FI 1 x 56	G1	27	56	30
FI 1 $\frac{1}{4}$ x 62	G1 $\frac{1}{4}$	33	62	30
FI 1 $\frac{1}{2}$ x 72.5	G1 $\frac{1}{2}$	42	72.5	50



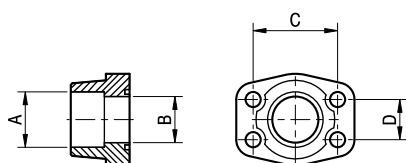
DFI

TYPE	A	B	C	TORQUE WRENCH SETTING FIXED (SCREWS)
		mm	mm	Nm
DFI $\frac{3}{8}$ x 30	G $\frac{3}{8}$	12.5	30	10
DFI $\frac{1}{2}$ x 30	G $\frac{1}{2}$	12.5	30	10
DFI $\frac{3}{8}$ x 40	G $\frac{3}{8}$	12.5	40	20
DFI $\frac{1}{2}$ x 40	G $\frac{1}{2}$	12.5	40	20
DFI $\frac{3}{4}$ x 40	G $\frac{3}{4}$	19	40	20
DFI $\frac{3}{4}$ x 56	G $\frac{3}{4}$	20	56	30
DFI 1 x 56	G1	26	56	30



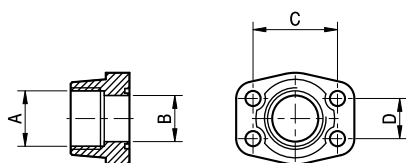
AST

TYPE	A	B	C	D	TORQUE WRENCH SETTING FIXED (SCREWS)
	mm	mm	mm	mm	Nm
AST 21.5	21.5	13	38.1	17.48	20
AST 28	28	19	47.63	22.23	25
AST 34	34	25	52.37	26.19	25
AST 42.8	42.8	32	58.7	30.2	30
AST 48.6	48.6	38	69.8	35.7	40
AST 61	61	51	77.7	42.8	40



AS

TYPE	A	B	C	D	TORQUE WRENCH SETTING FIXED (SCREWS)
	mm	mm	mm	mm	Nm
AST 21.5	21.5	13	38.1	17.48	20
AST 28	28	19	47.63	22.23	25
AST 34	34	25	52.37	26.19	25
AST 42.8	42.8	32	58.7	30.2	30
AST 48.6	48.6	38	69.8	35.7	40
AST 61	61	51	77.7	42.8	40



AG

TYPE	A	B	C	D	TORQUE WRENCH SETTING FIXED (SCREWS)
		mm	mm	mm	Nm
AG 1/2	G1/2	13	38.1	17.48	20
AG 3/4	G3/4	19	47.63	22.23	25
AG 1	G1	25	52.37	26.79	25
AG 1 1/4	G1 1/4	32	58.7	30.2	30
AG 1 1/2	G1 1/2	38	69.8	35.7	40
AG 2	G2	51	77.7	42.8	40



an excellence in engineering

www.jbj.co.uk/FTP-gear-pumps.html

Ideal for low-pressure, low viscosity, lubrication applications such as fire-resistant fluids.

The FTP gear pump from Marzocchi is an ideal solution for low-pressure lubrication applications where low-viscosity fluids are required, such as fire-resistant fluids. Typical applications include large lubrication systems, lubrication of the guides of machine tools, and the lubrication and cooling of tools themselves.

Fire-resistant fluids are used whenever there is a possibility that a hydraulic fluid (also used for lubrication) may encounter a source of ignition, such as the surface of very hot equipment. Fire-resistant hydraulic fluids are specially formulated so they are more difficult to ignite and do not propagate a flame from an ignition source.

There are several types of fire-resistant fluids and they are generally classified as follows: oil and water emulsions, water-polymer solutions, and anhydrous synthetics. More specifically, the International Standards Organization (ISO) further classifies these fluids as follows: HFAE – oil-in-water emulsions, typically with more than 80% water content; HFAS – synthetic aqueous fluids, typically with more than 80% water content; HFB – water-in-oil emulsions, typically with more than 40% water content; HFC – water polymer solutions, typically with more than 35% water content (also known as glycol solutions, polyalkylene glycol solutions or water glycols); HFDR – synthetic anhydrous fluids composed of phosphate esters; and HFDU – synthetic anhydrous fluids other than phosphate esters. Examples include polyol esters and polyalkylene glycols.

The only fire-resistant fluids that are completely incompatible with gear pumps are the HFDR ones; for all the others, it is possible to obtain a configuration that makes them compatible. To avoid fast wear of the sliding contact parts, FTP pumps can be supplied, depending on the type of application with bronze or bronze/PTFE thrust plates.

These FTP helical gear pumps are available in versions with or without a relief valve built into the cover, and maximum working pressure is 50 bar. The gear pumps have very high specifications for rotation speed and viscosity range.

FTP pumps are available in clockwise rotation whilst a counter-clockwise rotation version is currently under development.



Marzocchi FTP pumps are based on ELIKA Gear Technology that reduces the noise level by an average of 15 dBA compared with a conventional external gear pump.

The helical gears ensure the continuity of motion despite the low number of teeth. FTP pumps are perfectly interchangeable with standard gear pumps. The low number of teeth reduces the fundamental frequencies of the pump noise, therefore lowering sound levels.

The shape of the Elika profile, patented by Marzocchi Pompe, eliminates the encapsulation phenomenon typical of standard gear pumps, remedying the source of the main cause of noise and vibrations.

By reducing the pressure-oscillations and vibrations produced by the pump and transmitted to the other components, the noise of the hydraulic system itself is reduced. Specific compensation areas in the flange and cover, insulated by special gaskets reinforced with anti-extrusion, allow for fully free axial and radial movement of the bushings.

www.jbj.co.uk/ftp-gear-pumps.html



Gear Pump Basic Design - simple construction, long and useful life.

External gear pumps are the most popular pumps used in modern hydraulic systems.

They feature versatility, strength and long life. Their simple construction ensures cost effective purchasing and service. Thanks to these basic concepts, coupled with ever improving product design and features, result in a quality product manufactured to the very highest standards. Due to the many years of research and experience, accurate material selection, rigid production process and rigorous testing on all aspects of the product range, enables Marzocchi gear pumps to operate under extreme working conditions and transmit high hydraulic power. In addition Marzocchi pumps are produced with good mechanical and hydraulic efficiency, low noise level and their compact dimensions give a low weight too power ratio.

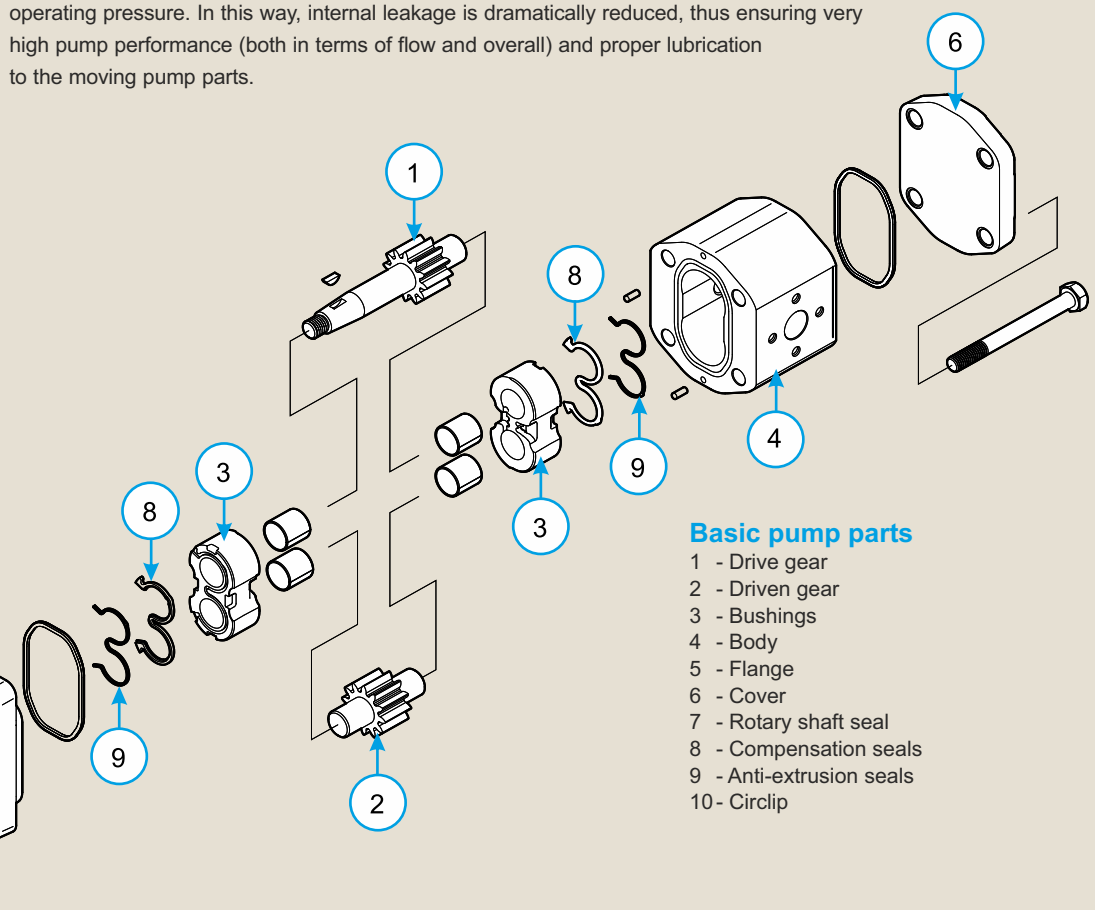
A gear pump usually consists of a gear pair supported by two aluminium bushes for groups 0.25, 0.5 and 1P, or bushes with plain bearings coated with anti-friction material for groups 1, 2, 3 and 4, a body, a securing flange and a cover.

Shaft of the driving gear projecting beyond the flange mounts a twin-lip seal ring (the inner lip being a seal, the outer lip being a dust seal) for groups 0.25, 0.5 and 1P, or two opposed single-lip seal rings (the outer being a dust seal) for groups 1, 2, 3 and 4.

Pump body, flange and cover are made of special high-resistant aluminium alloys for minimized deformation even when subject to high pressure, be it continuous or intermittent or peak pressure. The body is profiled by means of extrusion, whereas flange and cover are obtained by means of die-casting (gravity die-casting for some models).

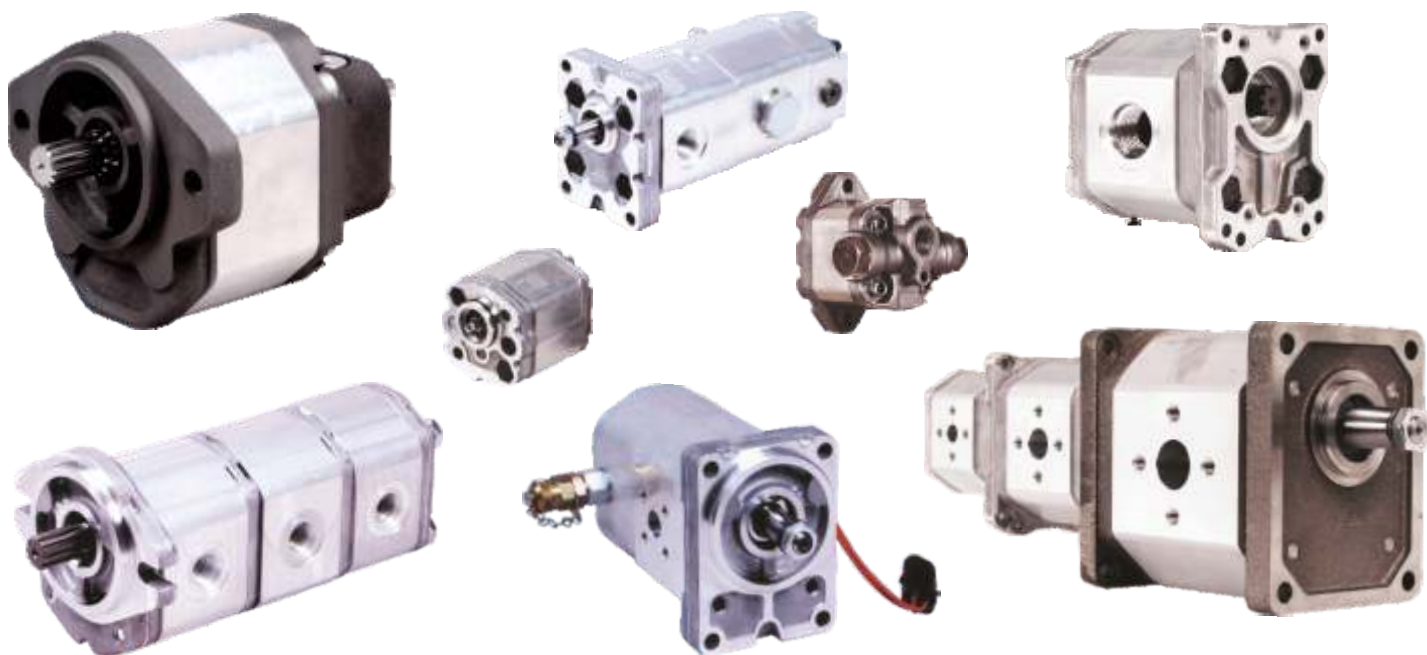
Gears are made of special steel. Their manufacturing process includes case-hardening and quench hardening. The gears are ground and fine finished so as to have a high degree of surface finishing. Proper tooth profile design and geometric proportions ensure low pulsation levels and low noise levels during pump operation.

Bushes are made of special low-friction and high-resistant aluminium alloy and manufactured from die-casting. Special compensation zones onto flange and cover, insulated by special seals with anti-extrusion rings, allow fully free axial and radial movement to the bushes, which is proportional to pump operating pressure. In this way, internal leakage is dramatically reduced, thus ensuring very high pump performance (both in terms of flow and overall) and proper lubrication to the moving pump parts.



Basic pump parts

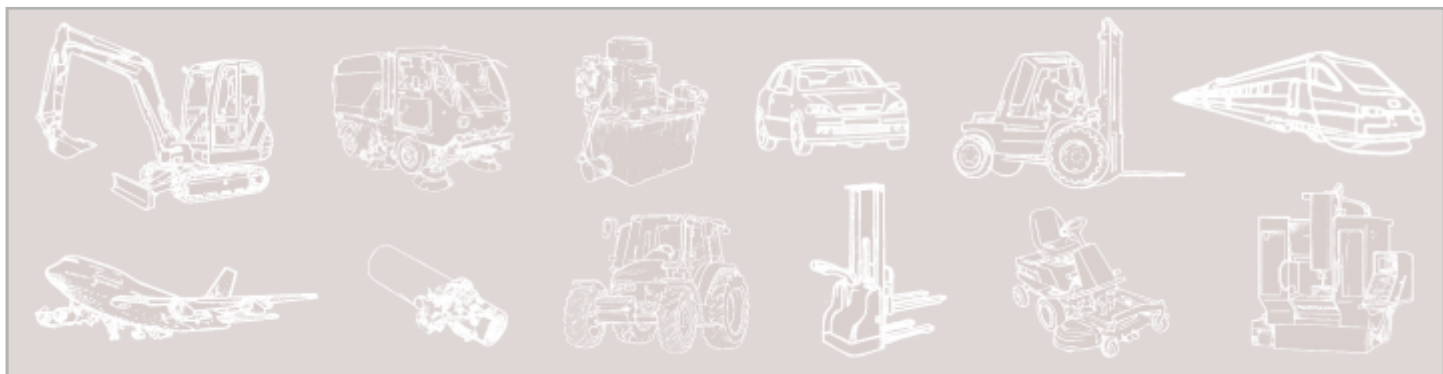
- 1 - Drive gear
- 2 - Driven gear
- 3 - Bushings
- 4 - Body
- 5 - Flange
- 6 - Cover
- 7 - Rotary shaft seal
- 8 - Compensation seals
- 9 - Anti-extrusion seals
- 10 - Circlip



integrated valves and mounting arrangements

ALP/GHP VP-LS: Load sensing pump with priority valve.
 ALM VE: Motor with proportional relief valve.
 ALP VM: Pump with integrated relief valve.

ALM VN - VM: Motors with anti-cavitation valves and relief valve.
 ALP/GHP T: Pumps with support bearing for high side/radial loads.
 ALM/GHM T: Motors with support bearings for high side/radial loads.



www.jbj.co.uk/Marzocchigearpumps.html

jbj Techniques Ltd provide a diverse range of mechanical drive & transmission solutions to industrial markets including design engineering, product supply and after sales service.

An experienced and dedicated team of technical sales engineers are on hand to work with customers and deliver results.

The markets where jbj operate are tough and time sensitive. In such circumstances customers need reliable solution partners, people who are conscious of deadlines, innovative in design and always willing to seek the best solution for the customers' needs.

On all counts, jbj Techniques Limited deliver. From specification, through technical advice, manufacture and support, together with our extensive product database, jbj Techniques provide a comprehensive and valued service to the power transmission and hydraulic industries.

jbj Techniques is a specialist supplier of high-quality products for the mechanical power transmission and fluid power sectors. The company offers a high level of in-house expertise plus a huge selection of products to meet a very broad range of customer applications. From specification, through technical advice and manufacture to after-sales support, jbj Techniques provides a comprehensive and valued service to the power transmission and hydraulics industries. The company fields a UK-wide team of technical sales engineers to ensure that the business is close to its customers, and it enjoys excellent associations with European manufacturers, acting as sole UK distributor in many cases.

jbj's team is recognised for its expertise in the selection and configuration of hydraulic and mechanical transmission systems. Able to draw on an **extensive product range** that provides the building blocks for **bespoke systems both large and small**, the in-house design team offers a complete service, ranging from an assessment of customer requirements to full technical backup, including product specification, CAD based system design, system build and certification. Moreover customers can take advantage of **jbj's own machine-shop facilities and skilled engineers** to **guarantee quality and control costs**.

jbj Techniques provides one of the widest ranges of couplings available within the UK; mechanical power transmission couplings for a vast range of applications. Ranging from miniature couplings, all steel gear couplings, flexible spider couplings, shaft couplings, torque limiting couplings, disc and grid type couplings, ATEX compliant and shaft locking devices. Magnetic couplings for power transmission between hermetically sealed areas. However as extensive as the selection is, couplings make up a fraction of jbj's portfolio. As power transmission specialists the company stock and provide gearboxes, clutches, pumps, hydraulic motors, flow meters, fluid power accessories including: cooling & heat exchange products, reservoirs, pipe flanges, seals and level indicators, as well as a variety of bellhousings and engine adaptors, to name just a few of the product categories.

jbj Techniques Limited is proud of its relationship and reputation with customers and suppliers.

The core client base is stable and loyal, which is testament to the quality of service provided by the company. A similar relationship exists with suppliers, ensuring a continuing high quality service in which customers can have complete confidence.



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Torsionally Flexible Couplings



Torsionally Rigid Couplings



Torsional Couplings



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Gear Pumps/Motors



Screw Pumps



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LSHT Motors/Geared Motors



Vane Pumps



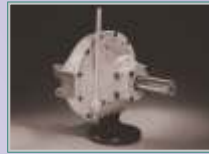
Splitter Gearboxes



Pneumatic Motors & Starters



BD Clutches & Gearboxes



BDS Clutches



Planetary Gearboxes



Coolers



Oil Bath Clutches



Flow Dividers



Tanks/Accessories



Fluid Level Indicators



Flanges



Mini Power Packs



Pressure Intensifiers



quality products for mechanical & fluid power



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A range of products ATEX certified to directive 94/9/E requirements





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