

K3FH (HYBRID) Bent Axis Motors

HYBRID® High Pressure Hydraulic Bent Axis Piston Motors, High Pressure, 450/500 BAR Working Pressure. High Rotational Speed, High Efficiency, Slim Design, Cast Iron Motor Body, Re-Designed.

Designation;

5cc, 10cc, 12cc, 18cc, 25cc, 32cc, 41cc, 50cc,
56cc, 63cc, 80cc, 108cc, 126cc



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Bi-Directional
Bent Axis Pump
380-420 Bar Working Pressure
2200 RPM Working Speed...

External
MotoKit
Easy Installation, 10 min.
Upgrade Pump to Motor

Bi-Directional
Bent Axis Motor
450 Bar Working Pressure
High Rotational Speed...



Ordering Code; K3FH - (HYBRID) DIN Flange Bent Axis Motors

Model Code	Displacement	Shaft Type	Flange Type	Version	Sealing	
K3FH	108	S	B4	HM	V	
K3FH HYBRID Bent Axis Hydraulic Motor DIN Flange	5	S Splined Shaft (default) 8x32x36 DIN ISO 14NF	B4 ISO 7653 Ø80 4 Bolt Flange	HM HYBRID Motor Version	V Viton High Pressure Seal	
	10					
	12					
	18					
	25					
	32					
	41	K Parallel Keyed Shaft (special) DIN 6885		HP HYBRID Pump Version	N Nitrile Seal 5/10 Bar	
	50					
	56					
	63					
	80					
	108					
	126					

Formulas

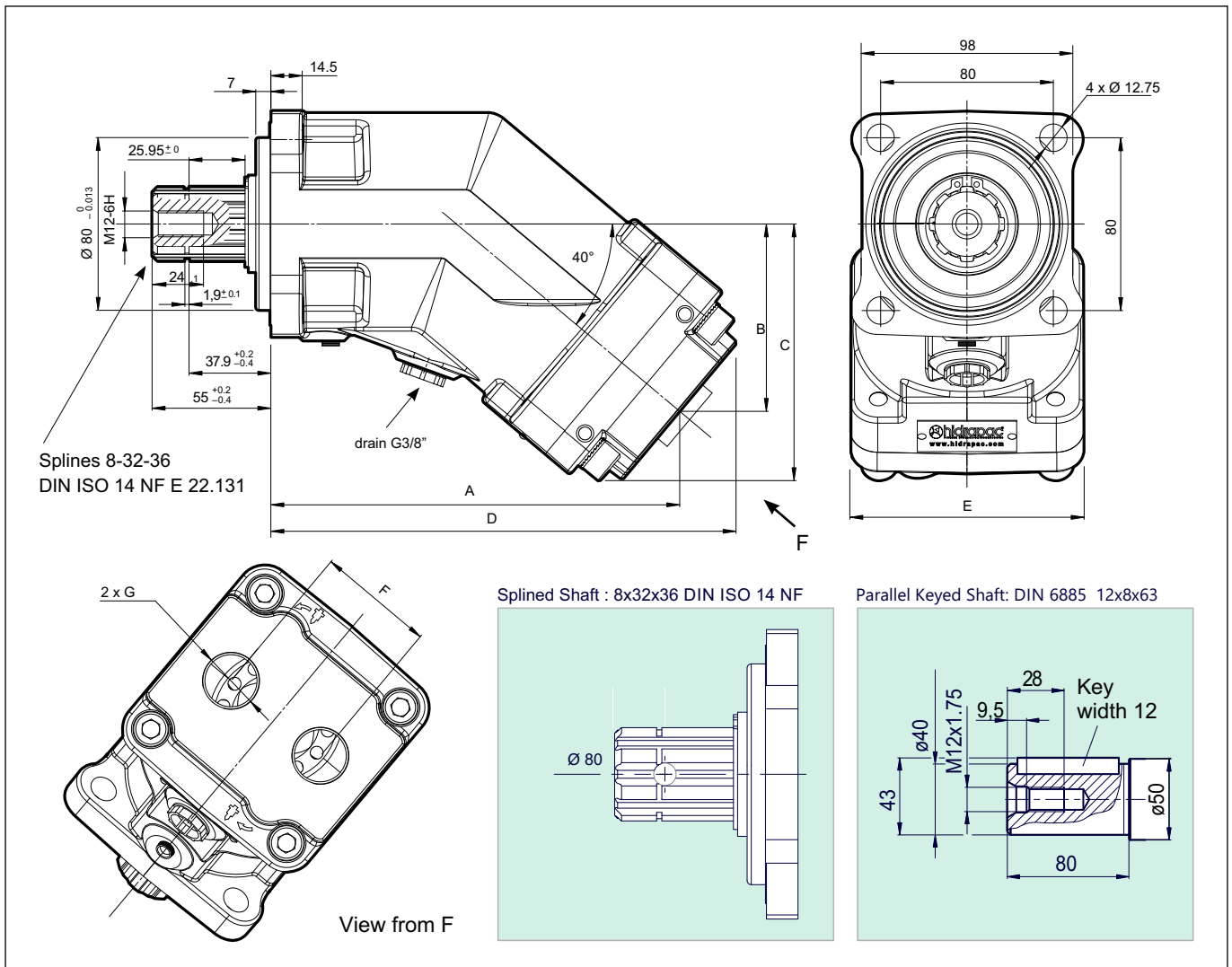
Pump Output Flow	GPM	$GPM = (Speed \text{ (rpm)} \times disp. \text{ (cu. in.)}) / 231$	$GPM = (n \times d) / 231$
Pump Input Horsepower	HP	$HP = GPM \times Pressure \text{ (psi)} / 1714 \times Efficiency$	$HP = (Q \times P) / 1714 \times E$
Pump Efficiency	E	Overall Efficiency = Output HP / Input HP	Eoverall = HPOut / HPIn X 100
		Overall Efficiency = Volumetric Eff. x Mechanical Eff.	EOverall = EffVol. x EffMech.
Pump Volumetric Efficiency	E	Volumetric Efficiency = Actual Flow Rate Output (GPM) / Theoretical Flow Rate Output (GPM) x 100	EffVol. = QAct. / QTheo. X 100
Pump Mechanical Efficiency	E	Mechanical Efficiency = Theoretical Torque to Drive / Actual Torque to Drive x 100	EffMech = TTheo. / TAct. x 100
Pump Displacement	CIPR	$Displcmnt \text{ (In.}^3 \text{ / rev.)} = Flow \text{ Rate (GPM)} \times 231 / Pump \text{ RPM}$	$CIPR = GPM \times 231 / RPM$
Pump Torque	T	Torque = Horsepower x 63025 / RPM	$T = 63025 \times HP / RPM$
		Torque = Pressure (PSIG) x Pump Displacement (CIPR) / 2π	$T = P \times CIPR / 6.28$

Horsepower for driving a pump : For every 1 hp of drive, the equivalent of 1 gpm @ 1500 psi can be produced.

Horsepower for idling a pump : To idle a pump when it is unloaded will require about 5% of it's full rated power

Wattage for heating hydraulic oil : Each watt will raise the temperature of 1 gallon of oil by 1° F. per hour.

Flow velocity in hydraulic lines : Pump suction lines 2 to 4 feet per second, pressure lines up to 500 psi - 10 to 15 ft./sec., pressure lines 500 to 3000 psi - 15 / 20 ft./sec.; all oil lines in air-over-oil systems; 4 ft./sec.



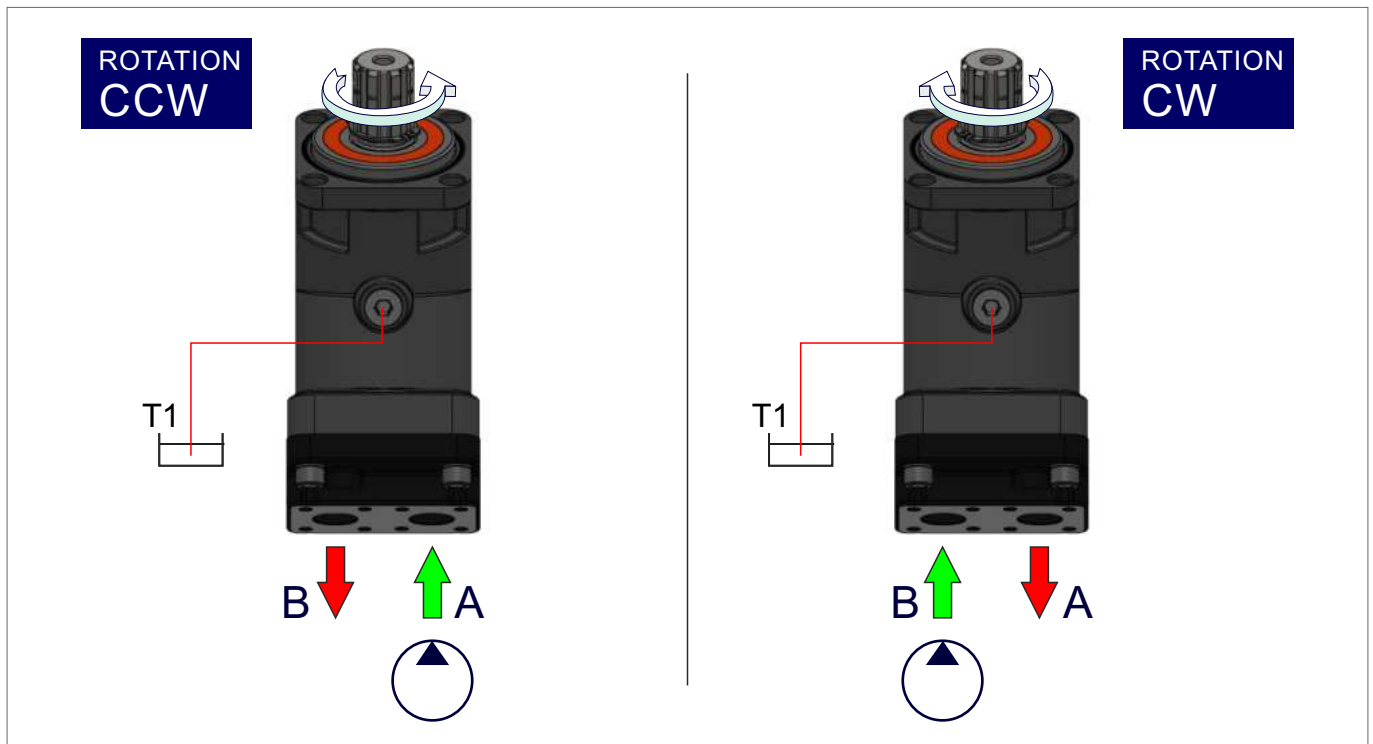
MOTOR MODEL	DISPL. (cc)	A	B	C	D	E	F	G	WEIGHT (kg)
5 cc	5.1	171.5	71.9	103.9	197.9	108.5	54	G 3/4"	9.3
10 cc	10.2	171.5	71.9	103.9	197.9	108.5	54	G 3/4"	9.3
12 cc	12.0	171.5	71.9	103.9	197.9	108.5	54	G 3/4"	9.3
18 cc	18.0	171.5	71.9	103.9	197.9	108.5	54	G 3/4"	9.3
25 cc	25.0	171.5	71.9	103.9	197.7	108.5	54	G 3/4"	9.3
32 cc	32.0	177.7	77.0	109.1	203.8	108.5	54	G 3/4"	10.3
41 cc	41.0	177.7	77.0	109.1	203.8	108.5	54	G 3/4"	10.3
50 cc	50.3	189.3	86.8	118.9	215.4	108.5	54	G 3/4"	11.5
56 cc	56.0	189.3	86.8	118.9	215.4	108.5	54	G 3/4"	11.5
63 cc	63.0	189.3	86.8	118.9	215.4	108.5	54	G 3/4"	11.5
80 cc	80.4	216.2	99.5	133.3	241.7	123.5	60	G 1"	14.5
108 cc	108	216.2	99.5	133.3	241.7	123.5	60	G 1"	14.5
126 cc	126	218.5	101.4	135.2	244	123.5	60	G 1"	14.5

Characteristics of the K3FH - DIN Flange Bent Axis Motors

MOTOR MODEL	DISPL. (cc)	CONTINUOUS MAX. SPEED (rpm)	INTERMITTENT MAX. SPEED (rpm)	MAX. FLOW ABSORBED (l/mn)	TORQUE BAR (m.N/bar)	TORQUE AT 350 BAR (m.N)	MOTOR MAX./MIN. TEMP. (celsius)	MAX. ALLOW PRESSURE CONTN./PEAK (bar)
5 cc	5.1	8800	9600	45	0.09	46	-25 / 110	400 / 450
10 cc	10.2	8600	9400	88	0.14	58	-25 / 110	400 / 450
12 cc	12.0	8000	8800	96	0.19	66	-25 / 110	400 / 450
18 cc	18.0	8000	8800	144	0.28	98	-25 / 110	400 / 450
25 cc	25.0	6300	6900	158	0.40	140	-25 / 110	400 / 450
32 cc	32.0	6300	6900	202	0.50	175	-25 / 110	400 / 450
41 cc	41.0	5600	6200	230	0.65	227	-25 / 110	400 / 450
50 cc	50,3	5000	5500	252	0.80	280	-25 / 110	400 / 450
56 cc	56,0	5000	5500	280	0.90	320	-25 / 110	400 / 450
63 cc	63.0	5000	5500	315	1.00	350	-25 / 110	400 / 450
80 cc	80,4	4500	5000	362	1.27	445	-25 / 110	400 / 450
108 cc	108	4000	4400	435	1.70	595	-25 / 110	400 / 450
126 cc	126	3400	4400	428	2.0	700	-25 / 110	400 / 450

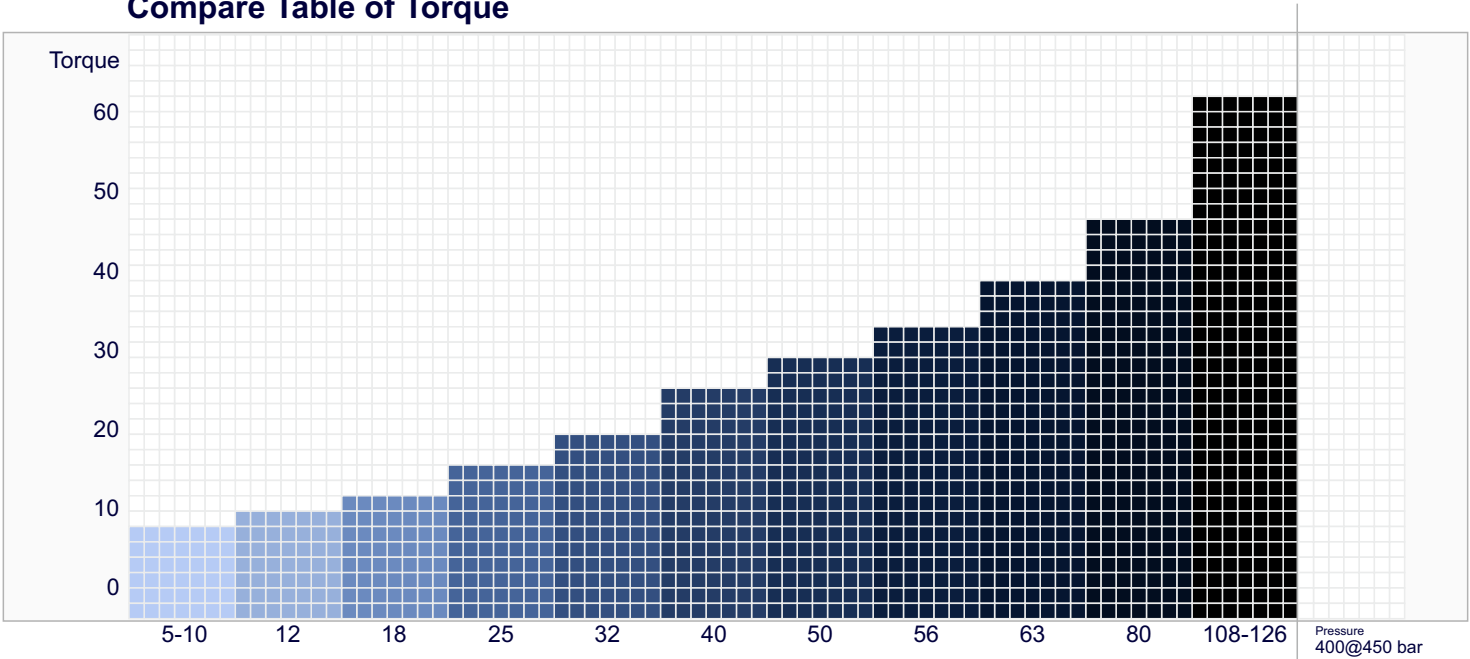
Direction of Rotation; Reversible

The motors rotate clockwise or counter-clockwise depending on the direction of hydraulic flow entering the motor.

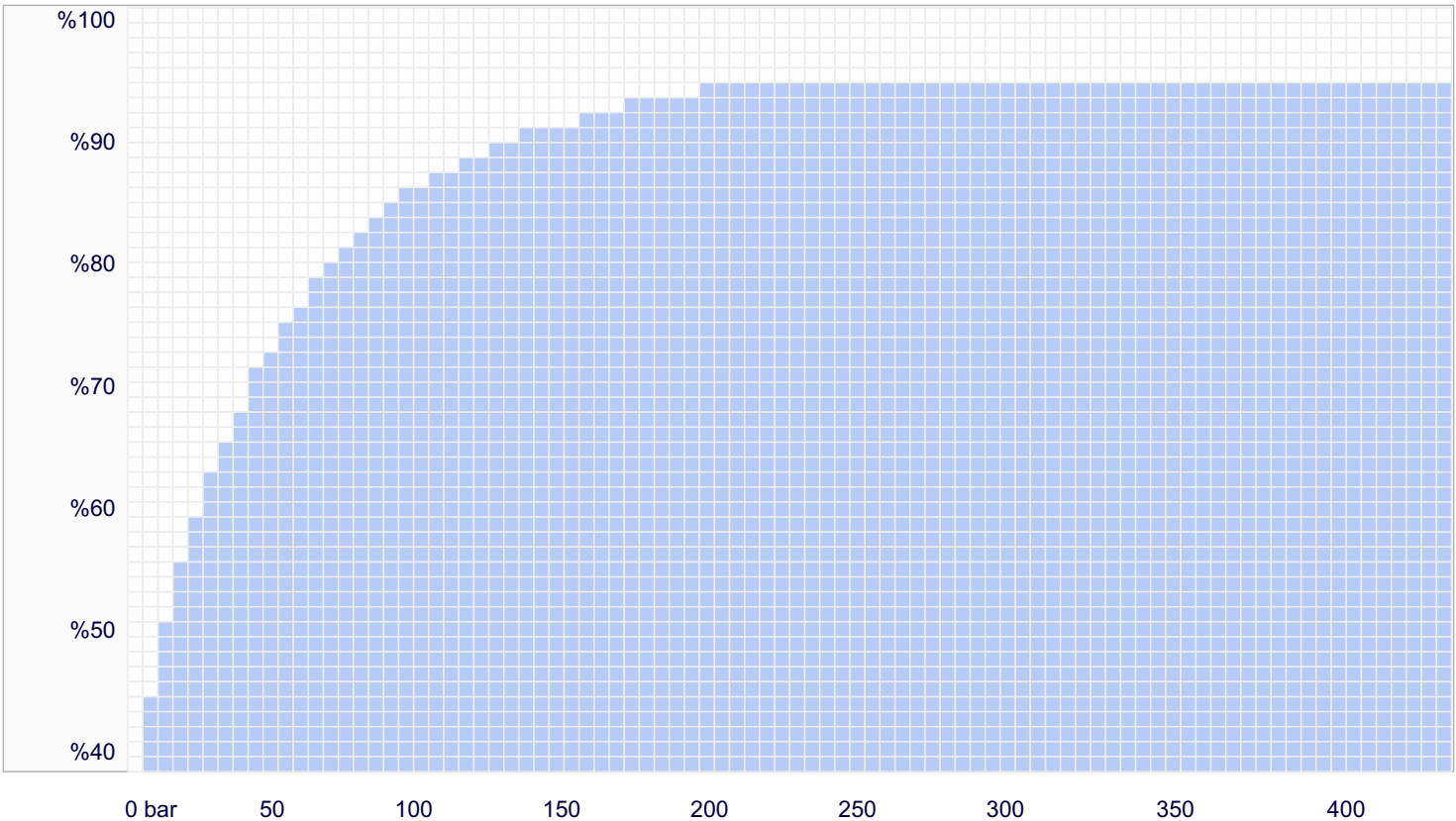


Performance, Torque, Speed and Pressure Charts

Compare Table of Torque



Efficiency of Bent Axis Motors (1000 rpm)



Installation & Assemble Informations for Bent Axis Motors

POSITION

DIN Flange Bent Axis Motors can be operate any position.

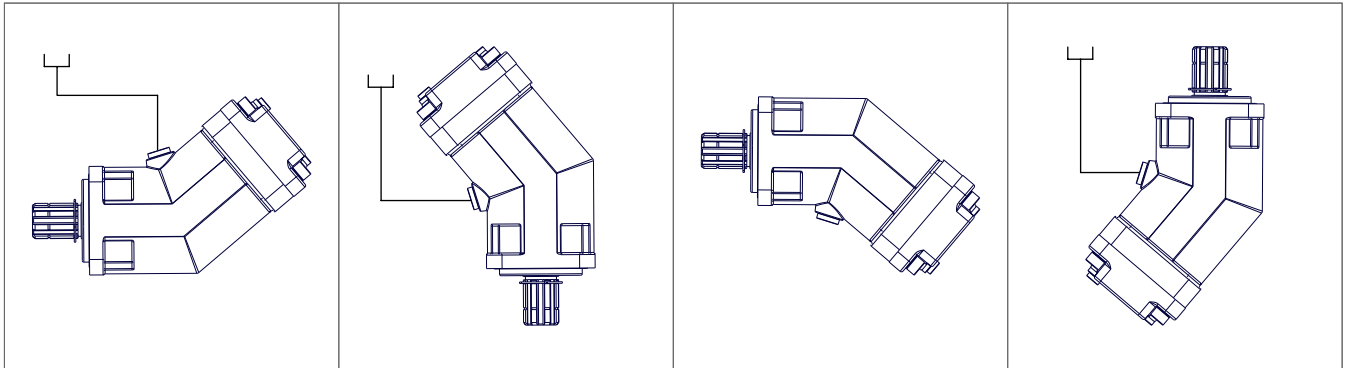
DIRECTION OF ROTATION

DIN Flange Bent Axis Motors can be operate in both directions of rotation.

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

INSTALLATION POSITION

See following examples.

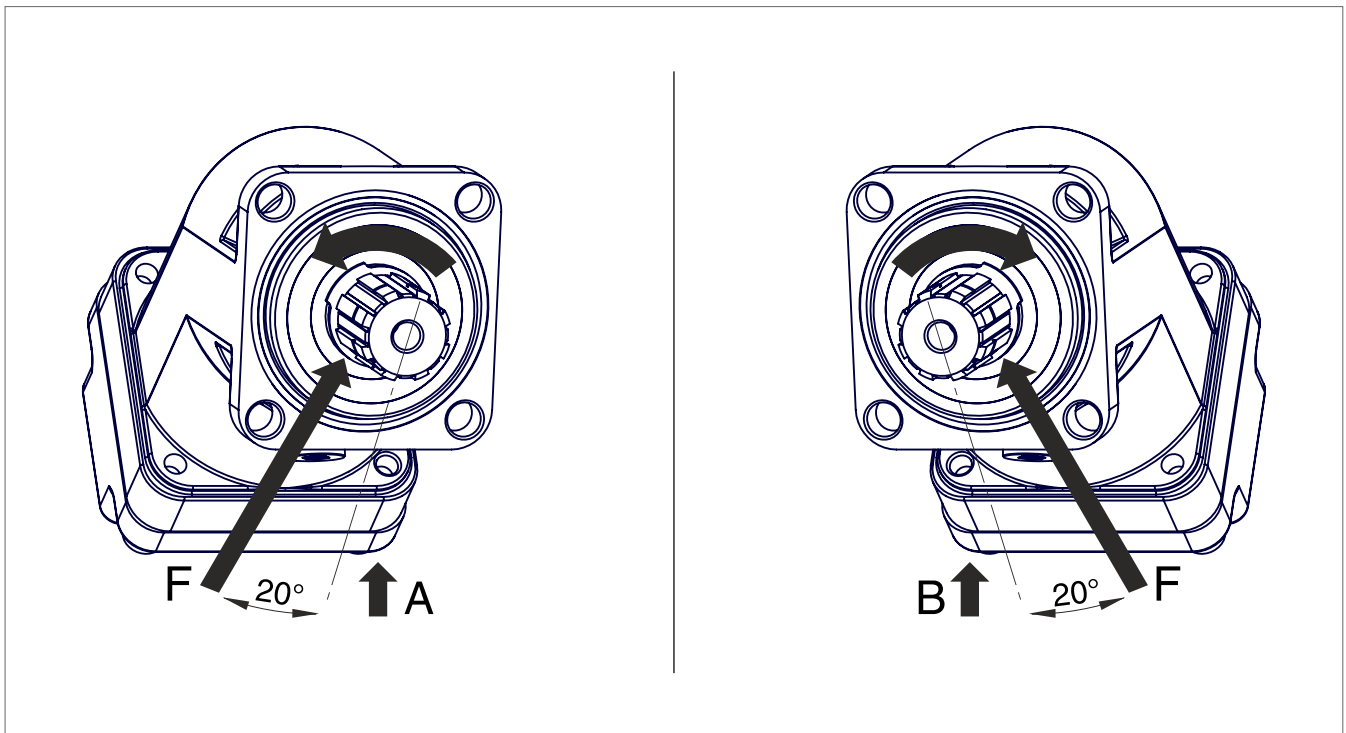


HYDRAULIC FLUID

Recommended ;

Generally : between 15 and 200 cSt.

Maximum : between 5 and 1600 cSt.



FOR USE;

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

Formulas, Calculations, Installation Guide

Quick Calculation

Flow rate

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

Torque

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

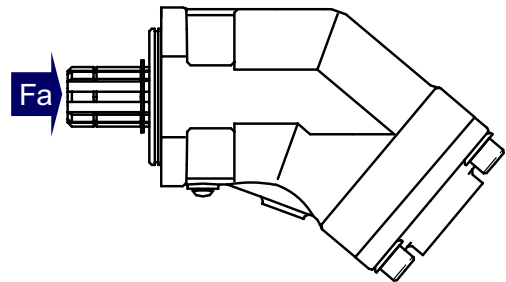
Power

$$P = \frac{2\pi \cdot M \cdot n}{60000} = \frac{M \cdot n}{9549} = \frac{Q \cdot \Delta p \cdot \eta_t}{600} \text{ (kw)}$$

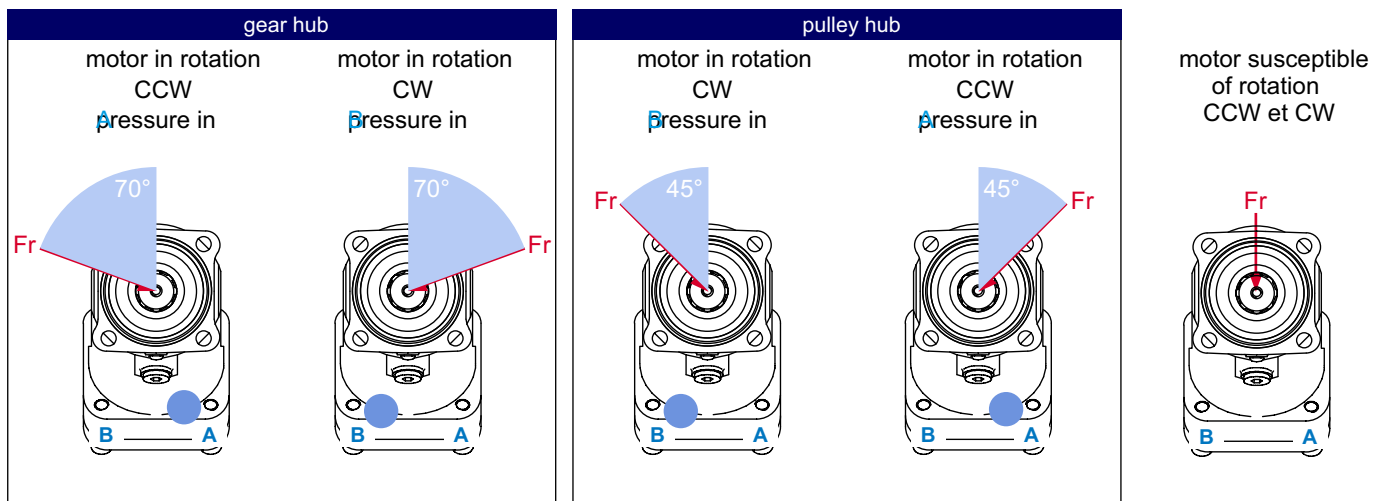
Speed

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

V_s = Displacement (ccm/rev.)
 Δp = Diff. pressure (bar)
 n = Speed (rpm)
 Q = Flow (lpm)
 η_v = Volumetric efficiency
 η_{mh} = Mechanical-hydraulic efficiency
 η_t = Total efficiency ($\eta_t = \eta_v \times \eta_{mh}$)



Motor model	5, 10, 12	18 cc	25 cc	32 cc	41 cc	50 cc	56, 63cc	80 cc	108 cc	126 cc
Fa (N/bar)	15	20	30	30	40	40	50	60	80	90



Other Advantages of DIN Flange Bent Axis Motors

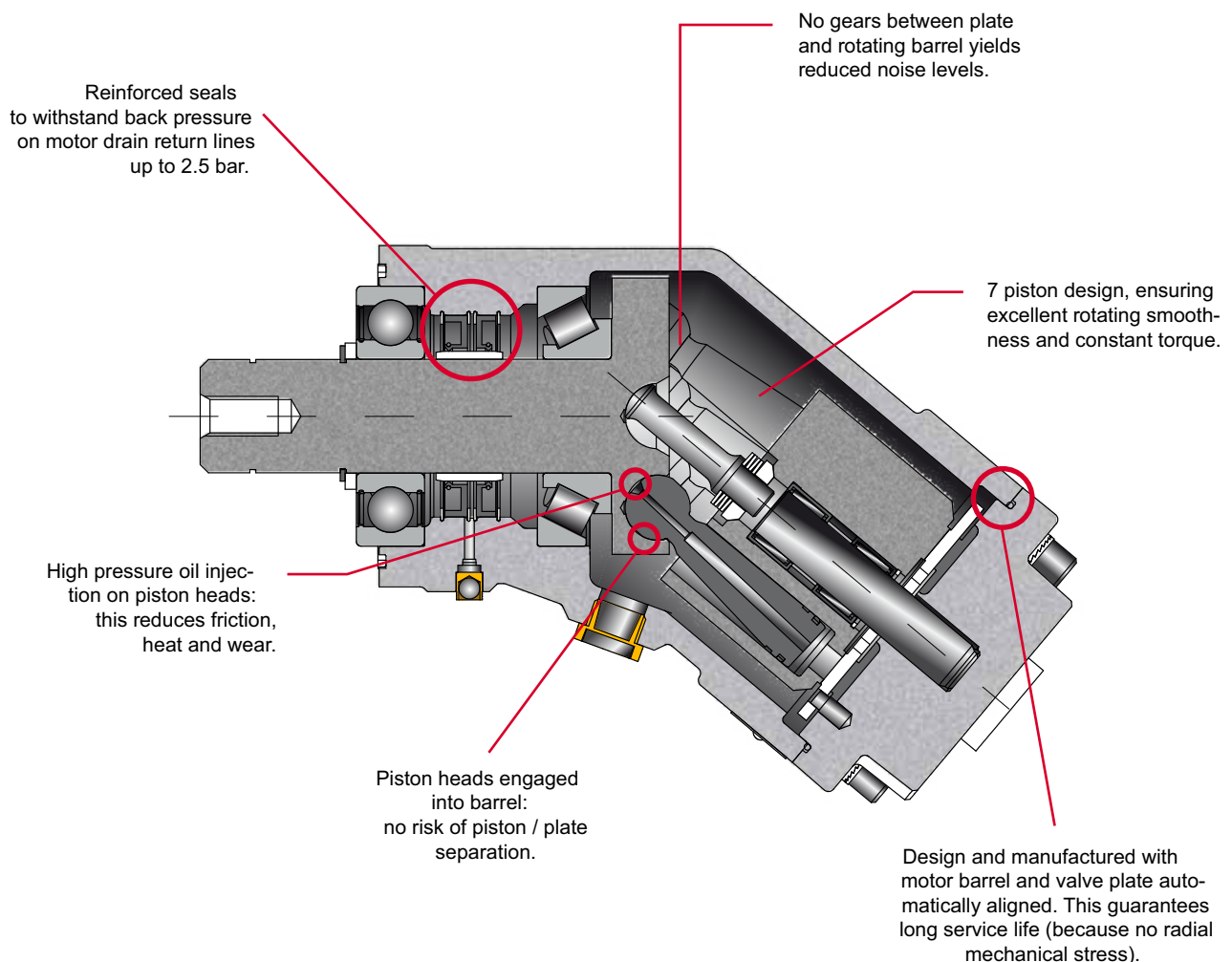
Interchangeable and Compatible with other DIN Bent Axis Motors,
 Special Designed Pistons,
 One-Piece Piston with Piston Rings,
 For use in stationary and mobile applications,
 Compact motor design and extra durable parts,
 High Operational Reliability and High Starting Torque
 Extra Warranty with Wide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

Bent Axis Hydraulic Piston Motors

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

For axial piston units with bent-axis design, the Pistons are arranged diagonally with respect to the drive shaft. The motor covers the whole displacement range 5 to 126 cm³/rev. The motor has been developed with modern styling and design to satisfy market demand as to designed new generation plate, extra parts and pistons with give high flow performance, high pressures with high efficiency and very small dimensions.

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



Hydraulic Pumps



K2FA (DIN)

BENT AXIS PISTON PUMPS



K2FL (DIN)

ALUMINUM BODY
BENT AXIS PISTON PUMPS



A2FD (DIN)

DUAL FLOW
BENT AXIS PISTON PUMPS



A2FO (ISO)

BENT AXIS PISTON PUMPS



A2FS (SAE)

BENT AXIS PISTON PUMPS



AXVP Series

VARIABLE DISPLACEMENT
PISTON PUMPS



A3PP Series

AXIAL PISTON PUMPS



A3PH Series

HIGH PRESSURE
PISTON PUMPS



ByPass Valve

FOR
BENT AXIS PISTON PUMPS



LS Adapters

FOR
VARIABLE PISTON PUMPS

Hydraulic Motors



K2FM (DIN)

BENT AXIS PISTON MOTORS



A2FM (ISO)

BENT AXIS PISTON MOTORS



A2MS (SAE)

BENT AXIS PISTON MOTORS



A2FE (FixedPlug)

BENT AXIS PISTON MOTORS



Anti Cavitation

VALVE
BENT AXIS PISTON MOTORS

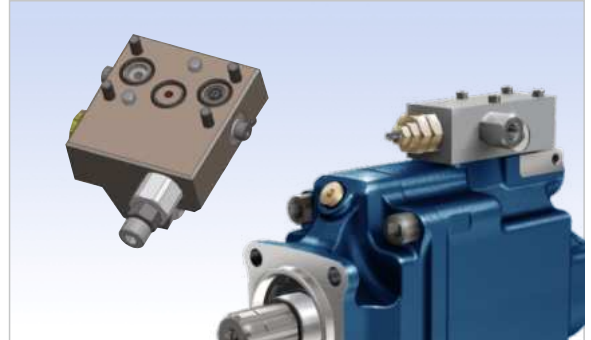
ByPass Valve

for Bent Axis Piston Pumps



LS Adapter

for Variable Displacement Piston Pump



Suction Fittings

for Bent Axis Piston Pumps



Flushing Valve

for Bent Axis Piston Motors



Adapter

for Bent Axis Piston Pumps



Flange, Couplar

for Bent Axis Piston Pumps



Hydraulic Pumps, Hydraulic Motors

Bent Axis Hydraulic Piston Pumps, Bent Axis Piston Motors,
Dual Flow Hydraulic Piston Pumps, Variable Displacement Piston Pumps,
High Pressure Piston Pumps, Straight Axial Piston Pumps..



Address;

HIDRAPAC HYDRAULIC PUMP & MOTORS

Address; (PRODUCTION)

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No: 73 / C Karatay – Konya, PO Code; 42050, Turkiye

Address; (ASSEMBLE, SHIPMENT)

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Phone; +90 551 111 77 44