

K2FH (HYBRID) Bent Axis Pumps

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

Designation;

5cc, 10cc, 12cc, 18cc, 25cc, 32cc, 41cc, 50cc,
56cc, 63cc, 80cc, 108cc, 130cc



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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; K2FH - (HYBRID) DIN Flange Bent Axis Pumps

Model Code	Displacement	Shaft Type	Flange Type	Version	Sealing
K2FH	108	S	B4	HP	V
K2FH HYBRID Bent Axis Hydraulic Pump DIN Flange	5	S Splined Shaft (default) 8x32x36 DIN ISO 14NF	B4 ISO 7653 Ø80 4 Bolt Flange	HP HYBRID Pump Version	V Viton High Pressure Seal
	10				
	12				
	18				
	25				
	32				
	41				
	50	K Parallel Keyed Shaft (special) DIN 6885		HM HYBRID Motor Version	N Nitrile Seal 5/10 Bar
	56				
	63				
	80				
	108				
	126				

Formulas

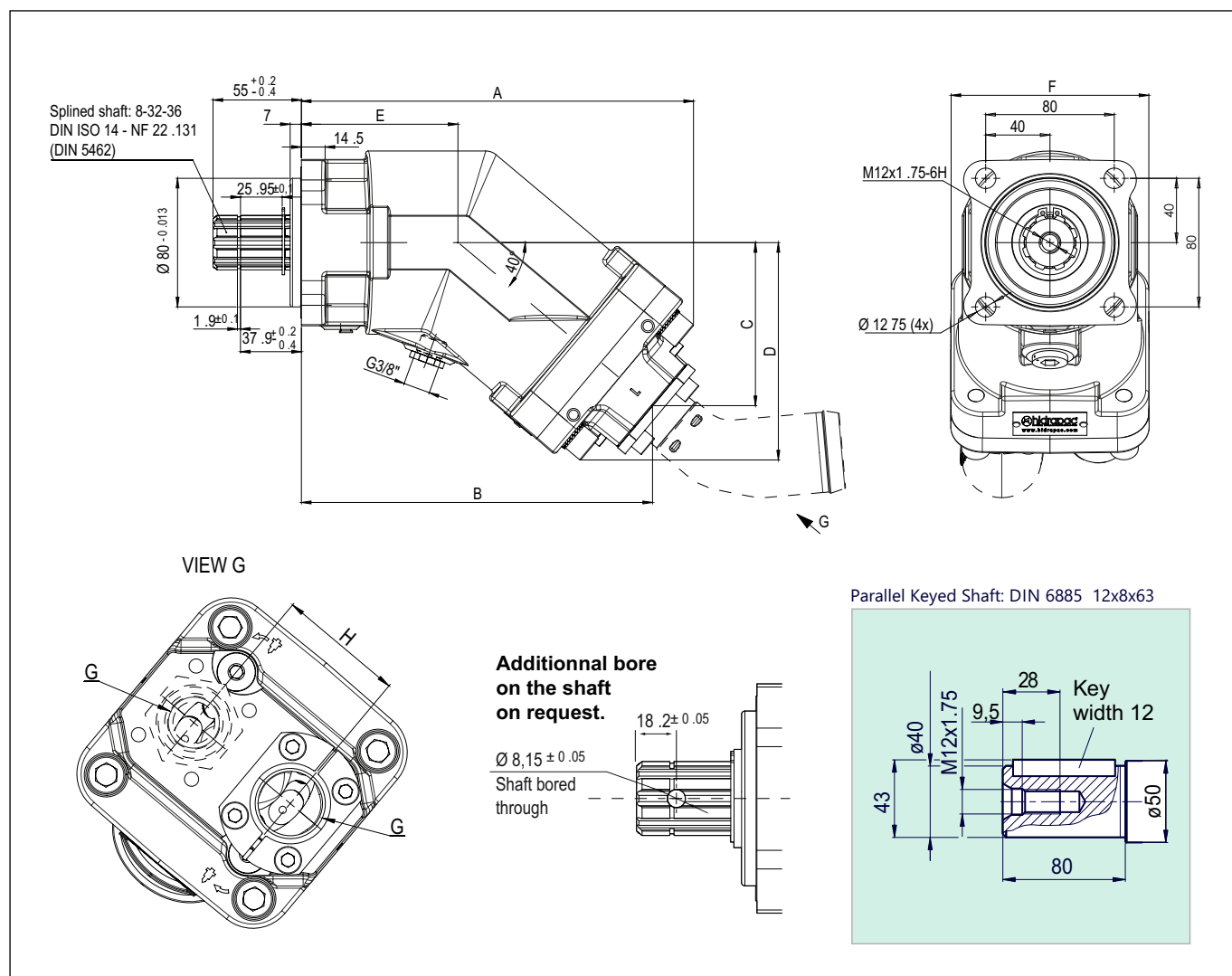
Pump Output Flow	GPM	$GPM = (Speed \text{ (rpm)} \times disp. \text{ (cu. in.)}) / 231$	$GPM = (n \times d) / 231$
Pump Input Horsepower	HP	$HP = GPM \times Pressure \text{ (psi)} / 1714 \times Efficiency$	$HP = (Q \times P) / 1714 \times E$
Pump Efficiency	E	Overall Efficiency = Output HP / Input HP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

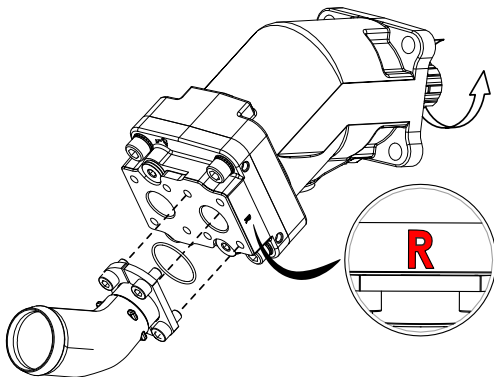


Pump MODEL	DISPL. (cc)	A	B	C	D	E	F	G	H
5 cc	5.1	196.7	177.8	77.1	103.9	85.7	108	G 3/4"	54
10 cc	10.2	196.7	177.8	77.1	103.9	85.7	108	G 3/4"	54
12 cc	12.0	196.7	177.8	77.1	103.9	85.7	108	G 3/4"	54
18 cc	18.0	196.7	177.8	77.1	103.9	85.7	108	G 3/4"	54
25 cc	25.0	196.7	177.8	77.1	103.9	85.7	108	G 3/4"	54
32 cc	32.0	202.8	184.0	82.3	109.1	85.7	108	G 3/4"	54
41 cc	41.0	202.8	184.0	82.3	109.1	85.7	108	G 3/4"	54
50 cc	50.3	214.4	195.5	92.0	118.9	85.7	108	G 3/4"	54
56 cc	56.0	214.4	195.5	92.0	118.9	85.7	108	G 3/4"	54
63 cc	63.0	214.4	195.5	92.0	118.9	85.7	108	G 3/4"	54
80 cc	80.4	241.7	220.9	103.5	133.3	97.4	123	G 1"	60
108 cc	108	241.7	222.5	104.8	133.3	97.4	123	G 1"	60
130 cc	130	244.0	224.8	106.7	135.2	97.4	123	G 1"	60

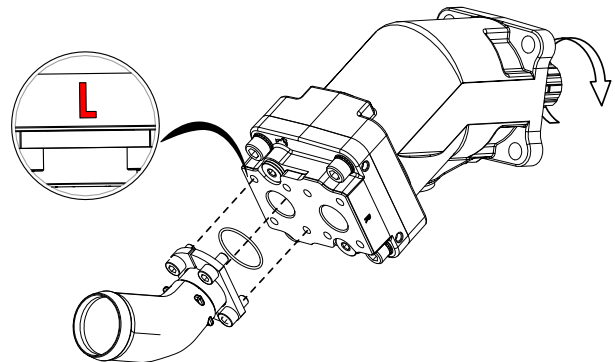
Characteristics of the K2FH - DIN Flange Bent Axis Pumps

Pump MODEL	DISPL. (cc)	MAX. PEAK/ CONTINUOUS PRESSURE (bar)	MAXIMUM SPEED (rpm)	MAX.TORQUE ABSORBED AT 380 BAR (N.m)	WEIGHT WITHOUT INLET FITTING (kg)	WEIGHT WITH 2" INLET FITTING (kg)	TORQUE WITHOUT FITTING (N.m)	TORQUE WITH FITTING (N.m)
5 cc	5.1	420 / 380	3300	60	9.00	9.40	8.20	8.60
10 cc	10.2	420 / 380	3200	68	9.00	9.40	8.65	9.05
12 cc	12.0	420 / 380	3150	76	9.20	9.60	8.74	9.14
18 cc	18.0	420 / 380	2900	114	9.30	9.70	8.79	9.19
25 cc	25.0	420 / 380	2750	159	11.00	11.40	8.89	9.29
32 cc	32.0	420 / 380	2700	204	11.10	11.50	11.10	11.50
41 cc	41.0	420 / 380	2550	261	11.20	11.60	11.15	11.55
50 cc	50,3	420 / 380	2450	318	11.30	11.70	11.75	12.15
56 cc	56,0	420 / 380	2400	375	11.35	11.75	11.80	12.20
63 cc	63.0	420 / 380	2300	401	11.45	11.85	11.85	12.25
80 cc	80,4	420 / 380	2150	509	14.80	15.20	17.80	18.30
108 cc	108	420 / 380	1900	687	14.90	15.30	17.92	18.42
130 cc	130	420 / 380	1750	827	15.30	15.70	18.70	19.50

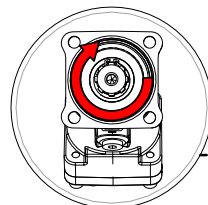
SH / CW



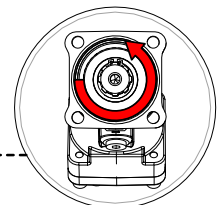
SIH / CCW



SH / CW

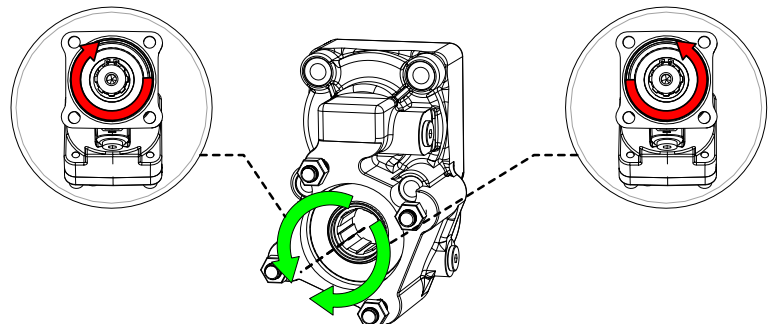


SIH / CCW



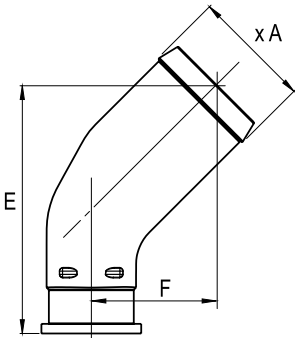
Direction of Rotation; Bi-Directional

The Pumps rotate clockwise or counter-clockwise depending on the direction of hydraulic flow entering the Pump.



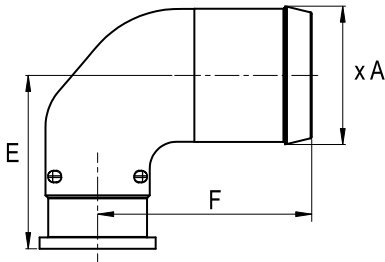
Suction Fittings for K2FH - DIN Flange Bent Axis Pumps

45° elbow fittings kit

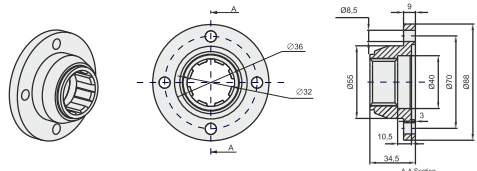
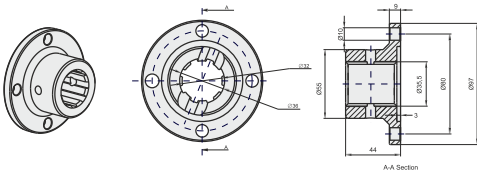
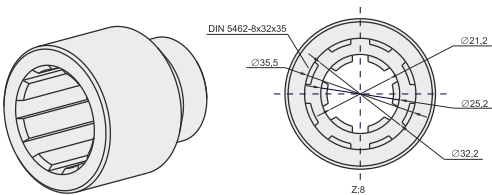
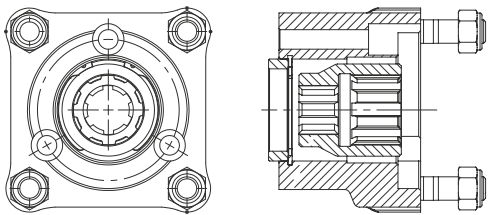


Reference	Ø hose	Ø A	E	F
450039	1 1/2"	39.1	91.7	46.7
450043	42	43	91.7	46.7
450046	1 3/4"	46	91.7	46.7
450051	2"	51.8	108.4	54.4
450064	2 1/2"	64.5	125.2	62.2

90° elbow fittings kit



Reference	Ø hose	Ø A	E	F
900039	1 1/2"	39.1	58.6	79.5
900051	2"	51.8	64.9	80.2
900064	2 1/2"	64.5	71.3	87.5



Inlet Fittings & Installation Parts

- Split Flange
- Seal
- Screw



By-Pass Valves

- 12 V
- 24 V



Hydraulic Adapters

- PTO Piston Pump Adapter
- PTO Gear Pump Adapter
- Long / Short Adapter



Flanges

- 1120 (6 Spline)
- 1120 (8 Spline)
- 1300 (6 Spline)
- 1300 (8 Spline)

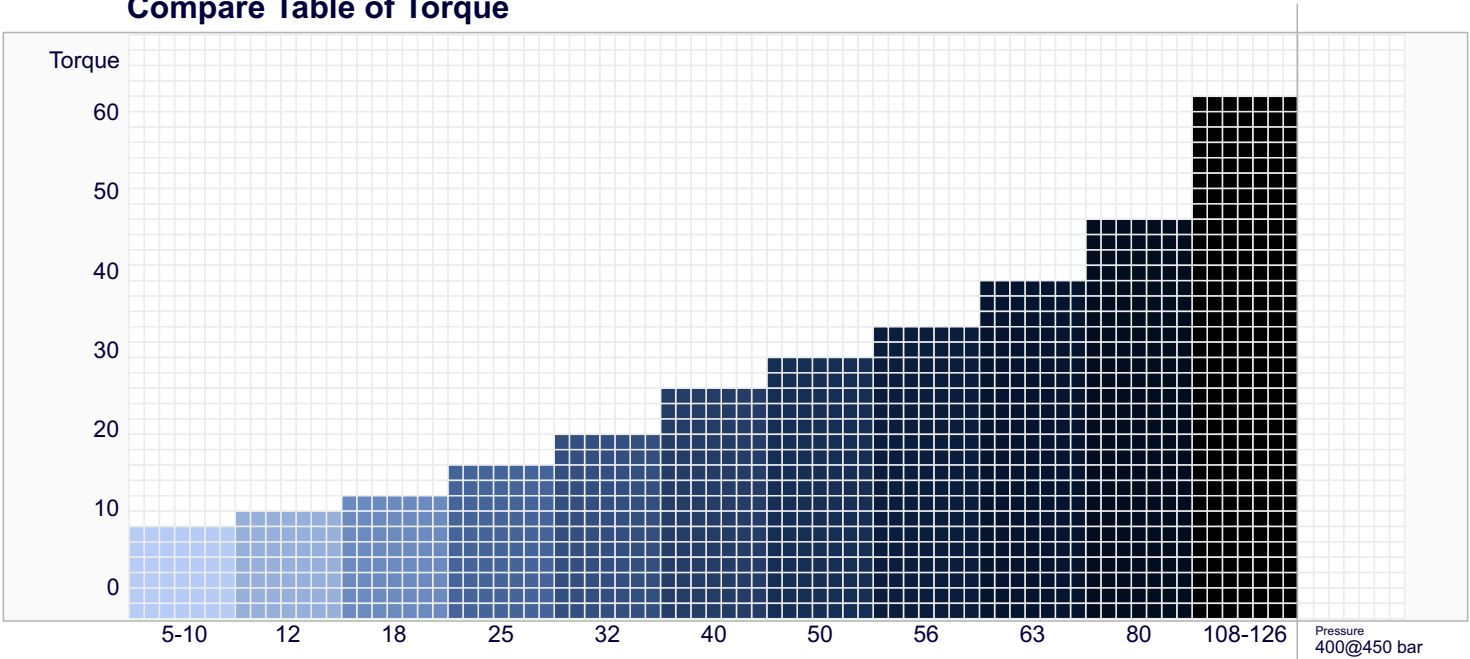


Couplers

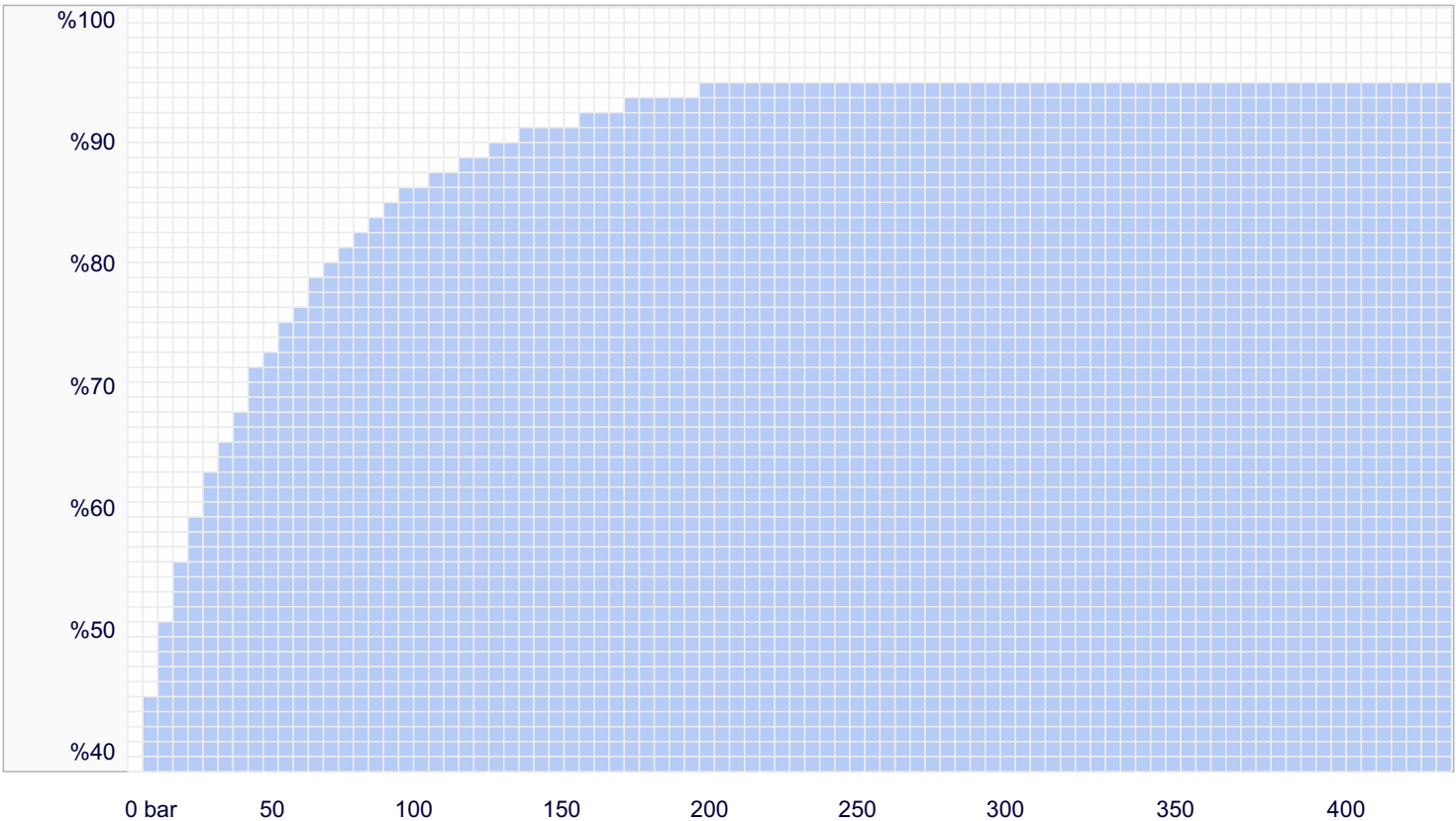
- 6 x 8 Couplar
- 6 x 8 Couplar (Long)
- 8 x 8 Couplar
- 8 x 8 Couplar (Long)

Performance, Torque, Speed and Pressure Charts

Compare Table of Torque



Efficiency of Bent Axis Pumps (1000 rpm)



Installation & Assemble Informations for Bent Axis Pumps

POSITION

DIN Flange Bent Axis Pumps can be operate any position.

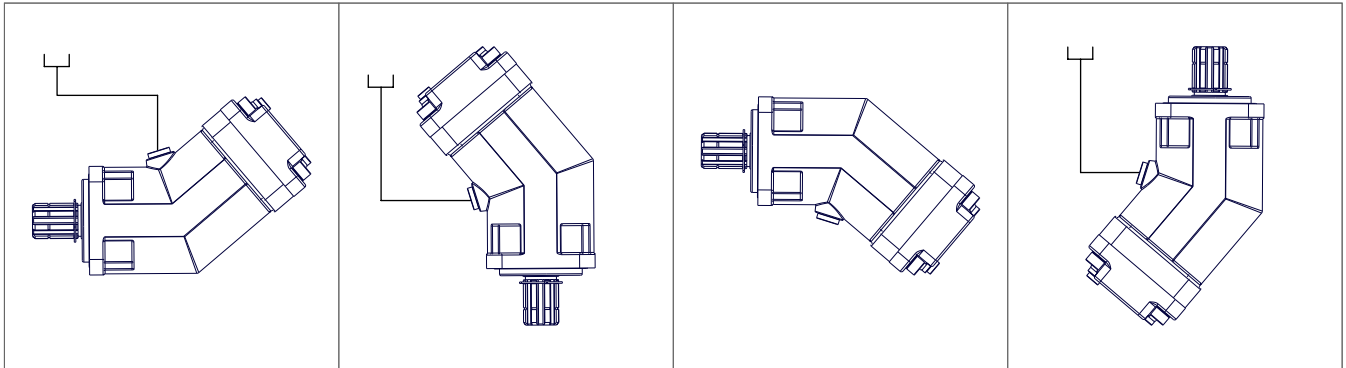
DIRECTION OF ROTATION

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

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

INSTALLATION POSITION

See following examples.

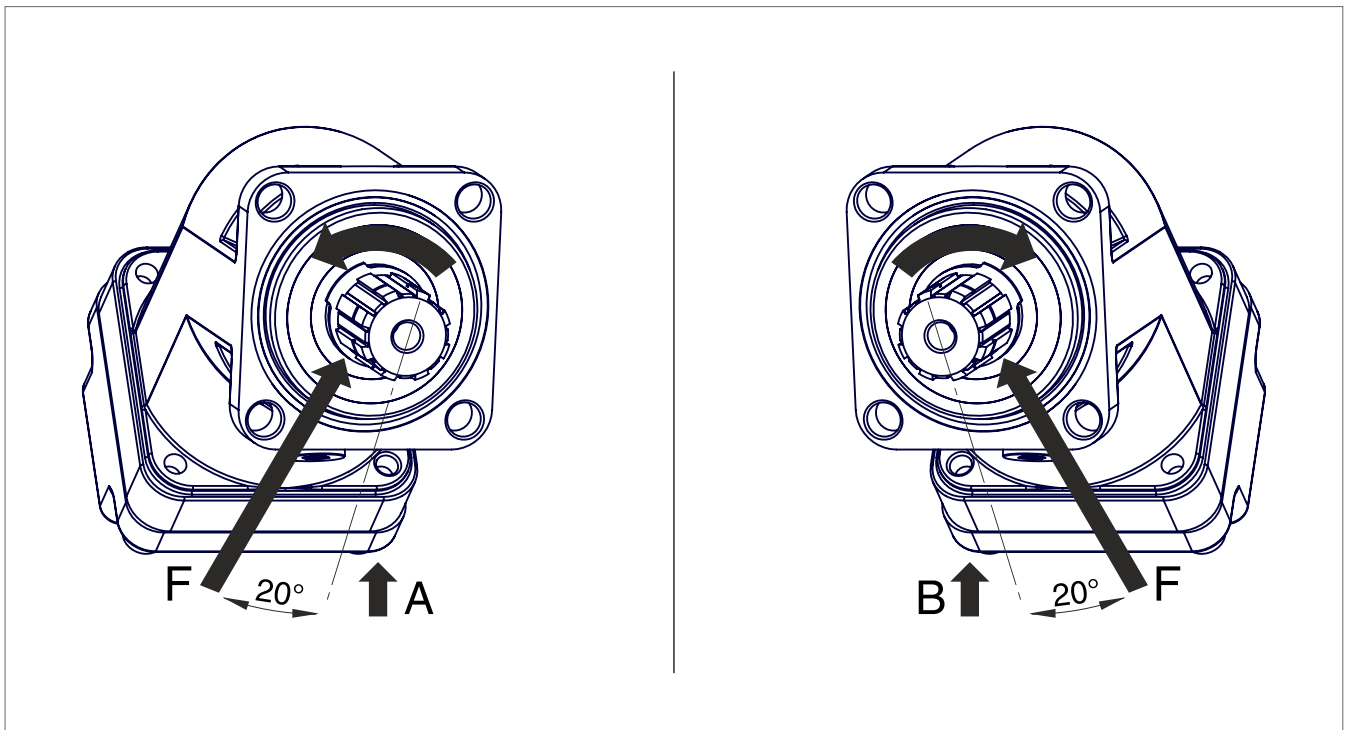


HYDRAULIC FLUID

Recommended ;

Generally : between 15 and 200 cSt.

Maximum : between 5 and 1600 cSt.



FOR USE;

Available via e-mail on request or each Pump 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

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

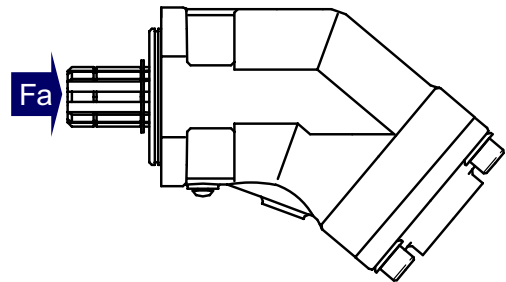
Power

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

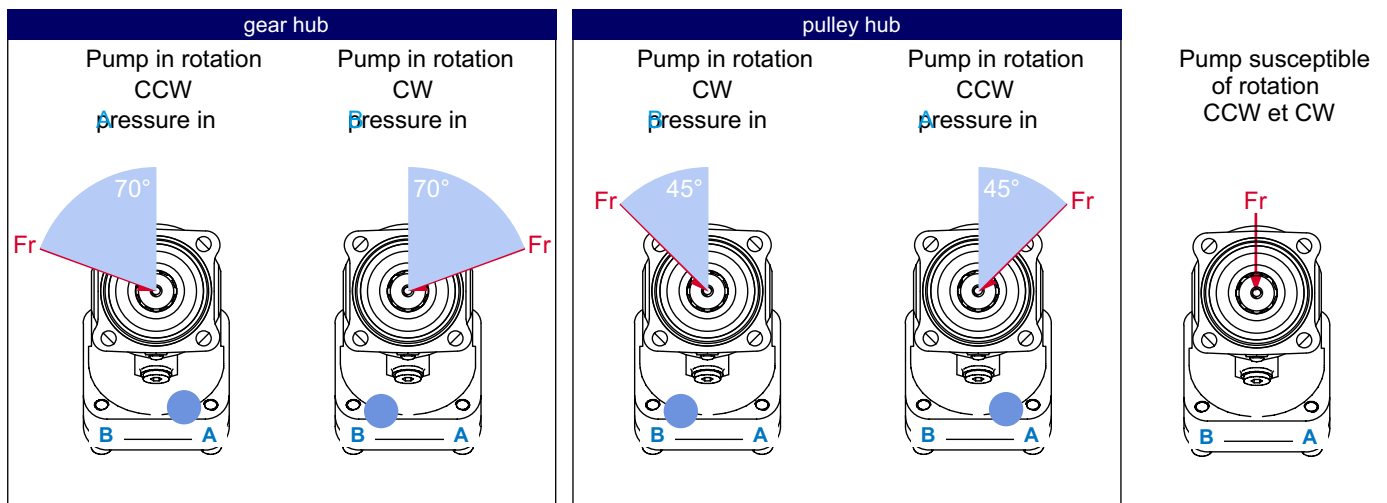
Speed

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

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



Pump 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 Pumps

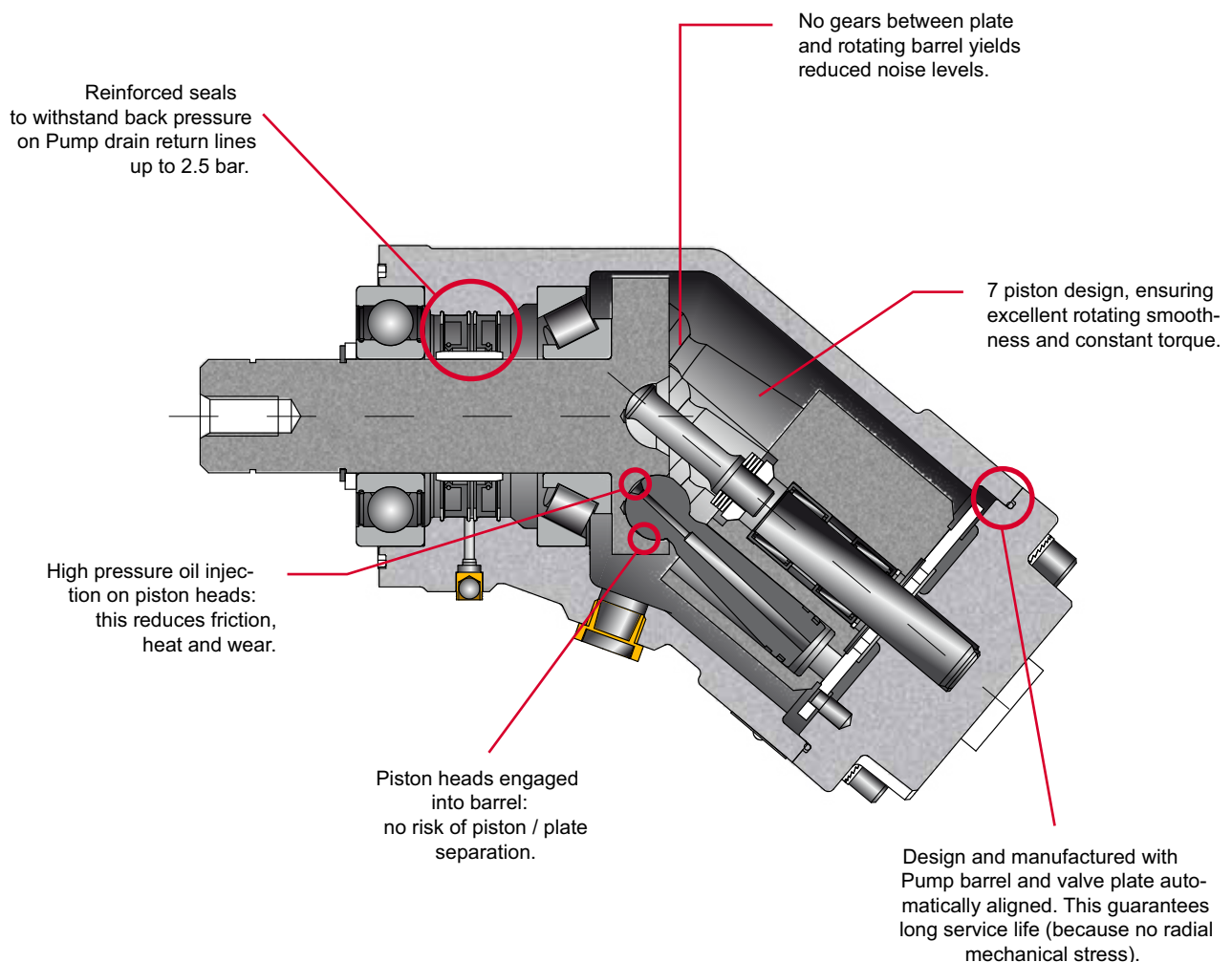
Interchangeable and Compatible with other DIN Bent Axis Pumps,
 Special Designed Pistons,
 One-Piece Piston with Piston Rings,
 For use in stationary and mobile applications,
 Compact Pump design and extra durable parts,
 High Operational Reliability and High Starting Torque
 Extra Warranty with Wide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

Bent Axis Hydraulic Piston Pumps

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 Pumps 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 Pump 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 Pump covers the whole displacement range 5 to 126 cm³/rev. The Pump 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 Pump 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 Pumps compatible and interchangeable with DIN FI. bent axis Pumps. Refer to the data sheet and order confirmation for the technical data, operating conditions and operating limits of the bent axis piston Pumps.



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

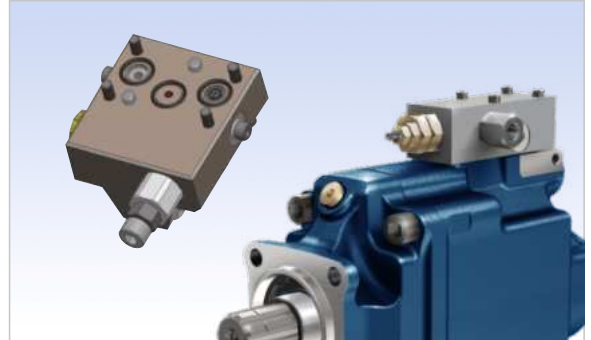
ByPass Valve

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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No: 71 / AD Karatay – Konya, PO Code; 42050, Turkiye

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