A2FS (SAE) Bent Axis Pumps

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.

Designation;

5cc, 10cc, 12cc, 18cc, 25cc, 32cc, 41cc, 50cc, 56cc, 63cc, 80cc, 108cc, 130cc, 160cc, 180cc

Hidrapac Store

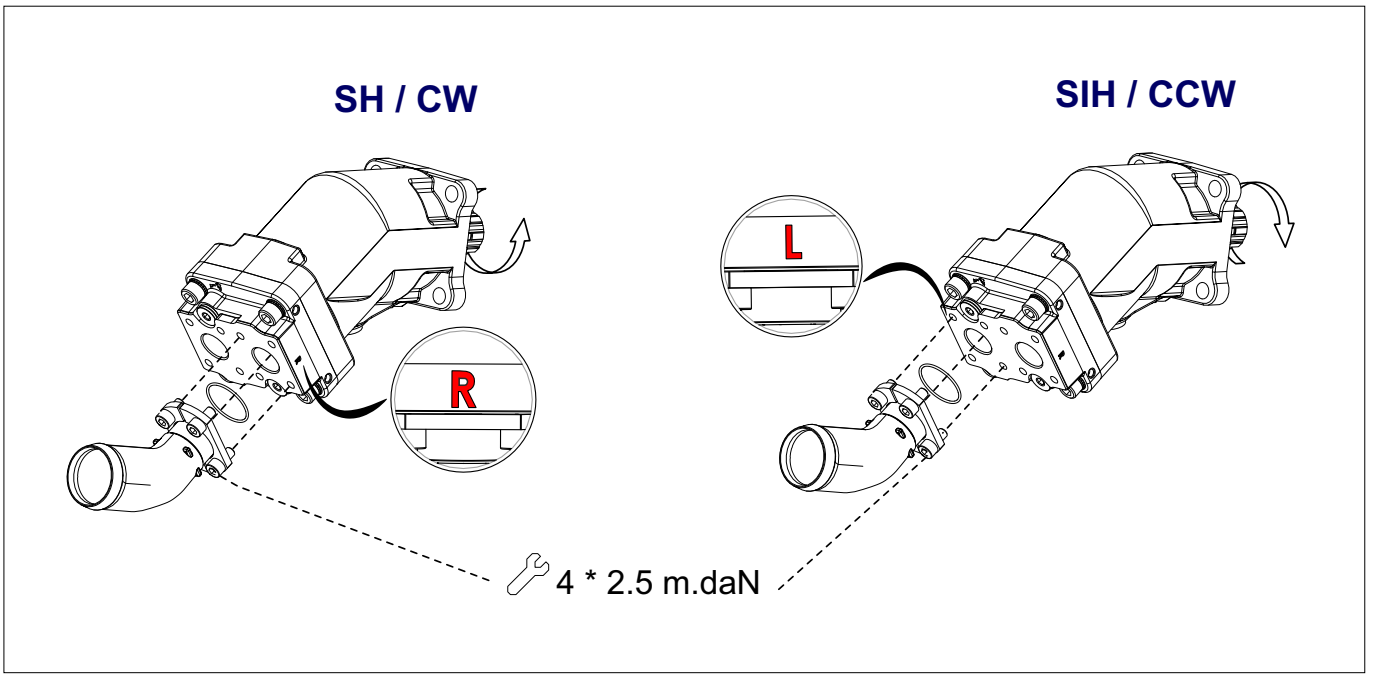
www.HIDRAPAC.com.tr

Characteristics of the A2FS - SAE Flange Bent Axis Pumps

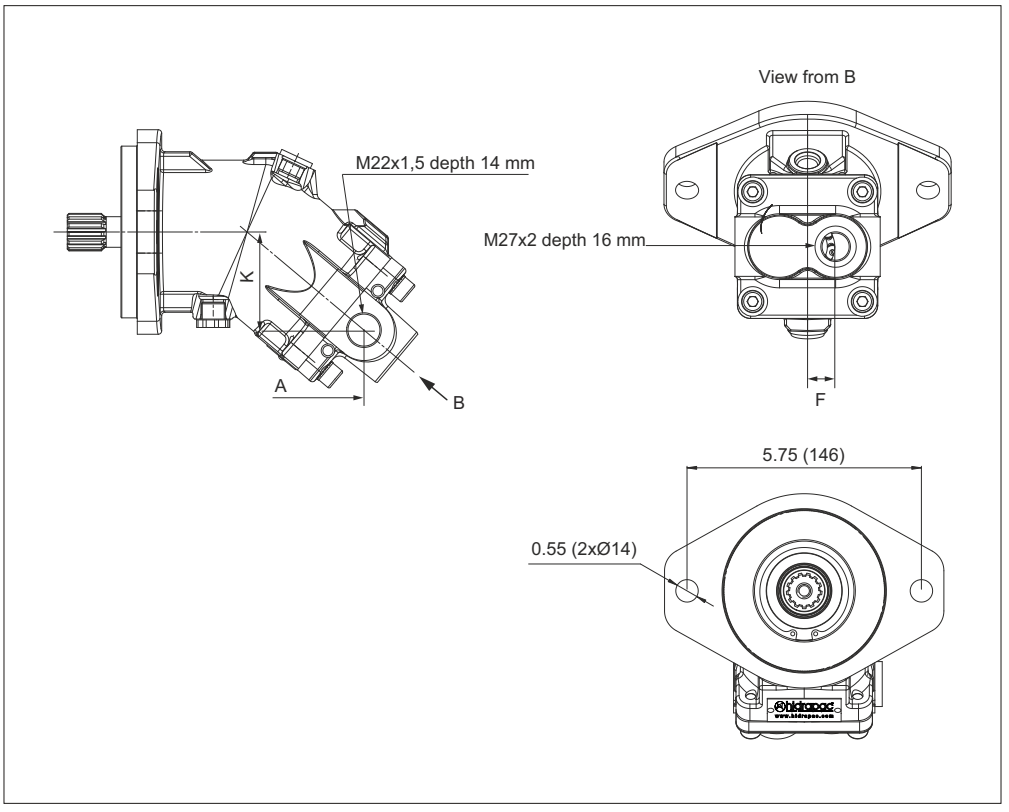
Pump MODEL	DISPL. (cc)	MAX. PEAK/ CONTINUOUS PRESSURE (bar)	MAXIMUM SPEED (rpm)	MAX.TORQUE ABSORBED AT 380 BAR (N.m)	WEIGHT WITHOUT INLET FITTING (kg)	WEIGHT WITH 2" INLET FITTING (kg)	TORQUE WITHOUT FITTING (N.m)	TORQUE WITH FITTING (N.m)
5 cc	5.1	450 / 400	3300	60	9.00	9.40	8.20	8.60
10 cc	10.2	450 / 400	3200	68	9.00	9.40	8.65	9.05
12 cc	12.0	450 / 400	3150	76	9.20	9.60	8.74	9.14
18 cc	18.0	450 / 400	2900	114	9.30	9.70	8.79	9.19
25 cc	25.0	450 / 400	2750	159	11.00	11.40	8.89	9.29
32 cc	32.0	450 / 400	2700	204	11.10	11.50	11.10	11.50
41 cc	41.0	450 / 400	2550	261	11.20	11.60	11.15	11.55
50 cc	50,3	450 / 400	2450	318	17.80	18.20	18.10	18.50
56 cc	56,0	450 / 400	2400	375	17.80	18.20	18.10	18.50
63 cc	63.0	450 / 400	2300	401	17.80	18.20	18.10	18.50
80 cc	80,4	450 / 400	2150	509	24.80	25.20	27.80	28.30
108 cc	108	450 / 400	1900	687	34.90	35.30	37.92	38.42
125 cc	125	450 / 400	1750	827	35.30	35.70	38.70	39.50
160 cc	160	450 / 400	1900	891	44.90	45.30	47.92	48.42
180 cc	180	450 / 400	1750	1006	45.30	45.70	48.70	49.50

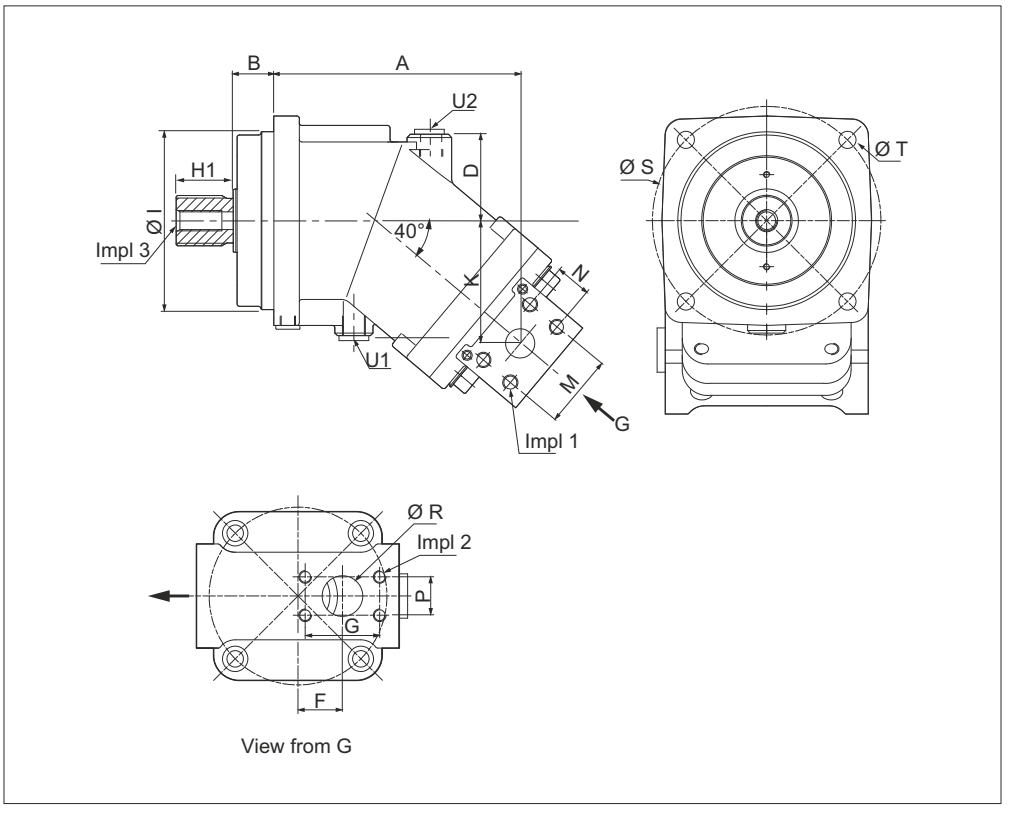
Direction of Rotation; CW and CCW

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



Characteristics of the A2FS - SAE Flange Bent Axis Pumps





Characteristics of the A2FS - SAE Flange Bent Axis Pumps

Pump MODEL	A	B	D	F	G	I	K	M	N	P	R	S	T
5 cc	134.1	7.9	41.9	17	-	101.6	58	-	-	-	-	SAE-B2	14
10 cc	134.1	7.9	41.9	17	-	101.6	58	-	-	-	-	SAE-B2	14
12 cc	134.1	7.9	41.9	17	-	101.6	58	-	-	-	-	SAE-B2	14
18 cc	134.1	7.9	41.9	17	-	101.6	58	-	-	-	-	SAE-B2	14
25 cc	157.8	7.9	56	22	47.6	127.0	66	40.5	18.2	22.2	19	162	14.3
32 cc	164.0	7.9	56	22	47.6	127.0	71	40.5	18.2	22.2	19	162	14.3
41 cc	164.0	7.9	56	22	47.6	127.0	71	40.5	18.2	22.2	19	162	14.3
50 cc	189.2	7.9	59	30	52.5	127.0	85	50.8	23.8	26.2	25	162	14.3
56 cc	189.2	7.9	59	30	52.5	127.0	85	50.8	23.8	26.2	25	162	14.3
63 cc	189.2	7.9	59	30	52.5	127.0	85	50.8	23.8	26.2	25	162	14.3
80 cc	215.2	7.9	68	35	58.7	152.4	97	57.2	27.8	30.2	32	228.6	21.0
108 cc	235.0	7.9	60	35	69.9	152.4	100.8	66.7	31.8	35.7	38	228.6	21.0
125 cc	235.0	7.9	60	35	69.9	152.4	100.8	66.7	31.8	35.7	38	228.6	21.0
160 cc	267.7	7.9	68	49.5	77.8	152.4	105.7	66.7	31.8	42.9	51	228.6	21.0
180 cc	267.7	7.9	68	49.5	77.8	152.4	105.7	66.7	31.8	42.9	51	228.6	21.0

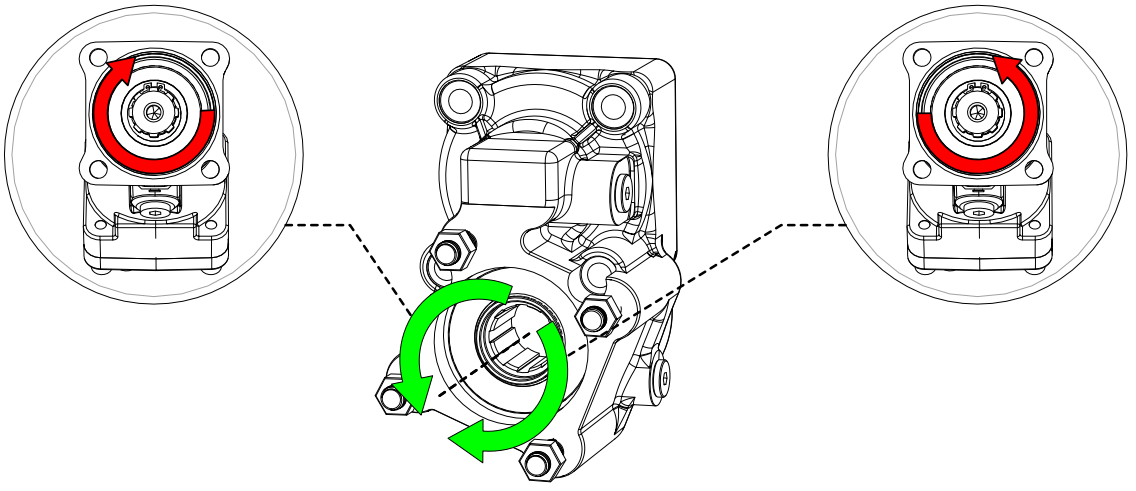
Pump MODEL	Splined Shaft	H1	Outlet 6000 PSI	Inlet 3000 PSI	Impl 1	Impl 2	Impl 3	U1 / U2
5 cc	13T 16/32 SAE B	33.3	M22x1.5	M27x2	-	-	5/16"-18 UNC	9/19"-18 UNF
10 cc	13T 16/32 SAE B	33.3	M22x1.5	M27x2	-	-	5/16"-18 UNC	9/19"-18 UNF
12 cc	13T 16/32 SAE B	33.3	M22x1.5	M27x2	-	-	5/16"-18 UNC	9/19"-18 UNF
18 cc	13T 16/32 SAE B	33.3	M22x1.5	M27x2	-	-	5/16"-18 UNC	9/19"-18 UNF
25 cc	13T 16/32 SAE B	33.3	SAE 1/2"	SAE 3/4"	M8x1.25 dp 15	M10x1.5 prf 17	7/16"-14 UNC	3/4"-16 UNF
32 cc	13T 16/32 SAE B	33.3	SAE 1/2"	SAE 3/4"	M8x1.25 dp 15	M10x1.5 prf 17	7/16"-14 UNC	3/4"-16 UNF
41 cc	13T 16/32 SAE B	33.3	SAE 1/2"	SAE 3/4"	M8x1.25 dp 15	M10x1.5 prf 17	7/16"-14 UNC	3/4"-16 UNF
50 cc	13T 12/24 SAE C	48.0	SAE 3/4"	SAE 1"	M10x1.5 dp 17	M10x1.5 prf 17	7/16"-14 UNC	3/4"-16 UNF
56 cc	13T 12/24 SAE C	48.0	SAE 3/4"	SAE 1"	M10x1.5 dp 17	M10x1.5 prf 17	7/16"-14 UNC	3/4"-16 UNF
63 cc	13T 12/24 SAE C	48.0	SAE 3/4"	SAE 1"	M10x1.5 dp 17	M10x1.5 prf 17	7/16"-14 UNC	3/4"-16 UNF
80 cc	13T 12/24 SAE C	48.0	SAE 1"	SAE 1" 1/4	M12x1.75 dp 20	M10x1.5 prf 17	7/16"-14 UNC	3/4"-16 UNF
108 cc	13T- 8/16 SAE D	67.0	SAE 1" 1/4	SAE 2"	1/2" - 13 UNC	1/2" - 13 UNC	5/8" - 11 UNC	7/8" - 14 UNF
125 cc	13T- 8/16 SAE D	67.0	SAE 1" 1/4	SAE 2"	1/2" - 13 UNC	1/2" - 13 UNC	5/8" - 11 UNC	7/8" - 14 UNF
160 cc	13T- 8/16 SAE D	67.0	SAE 1" 1/4	SAE 2"	1/2" - 13 UNC	1/2" - 13 UNC	5/8" - 11 UNC	7/8" - 14 UNF
180 cc	13T- 8/16 SAE D	67.0	SAE 1" 1/4	SAE 2"	1/2" - 13 UNC	1/2" - 13 UNC	5/8" - 11 UNC	7/8" - 14 UNF

Ordering Code; A2FS - SAE Flange Bent Axis Pumps

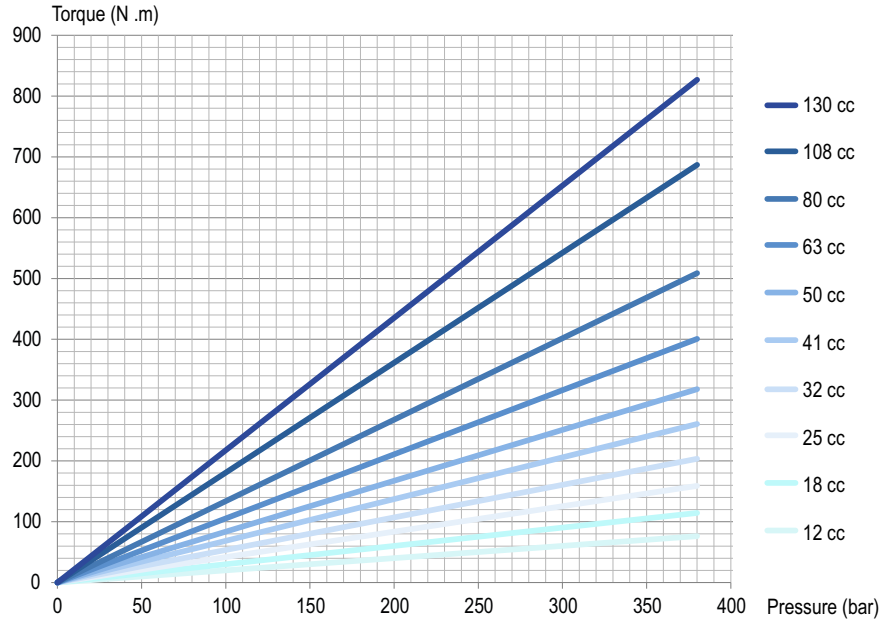
Model Code	Displacement	Shaft Type	Flange Type	Rotation	Sealing
A2FS	**25**	**S**	**B6**	**R**	**V**
A2FS Bent Axis Hydraulic Pump SAE Flange	5, 10, 12, 18, 25, 32, 41, 50 56, 63, 80, 108, 125, 160, 180	**S** Splined Shaft **K** Keyed Shaft	**B2** 2 Bolt SAE Flange Shaft **B4** 4 Bolt SAE Flange Shaft **B6** 6 Bolt SAE Flange Shaft	**R** CW Right Direction of Rotation **L** CCW Left Direction of Rotation	**V** Viton High Pressure Seal **N** Nitrile Seal 5/10 Bar

SH / CW

SIH / CCW



Performance, Torque, Speed and Pressure Charts

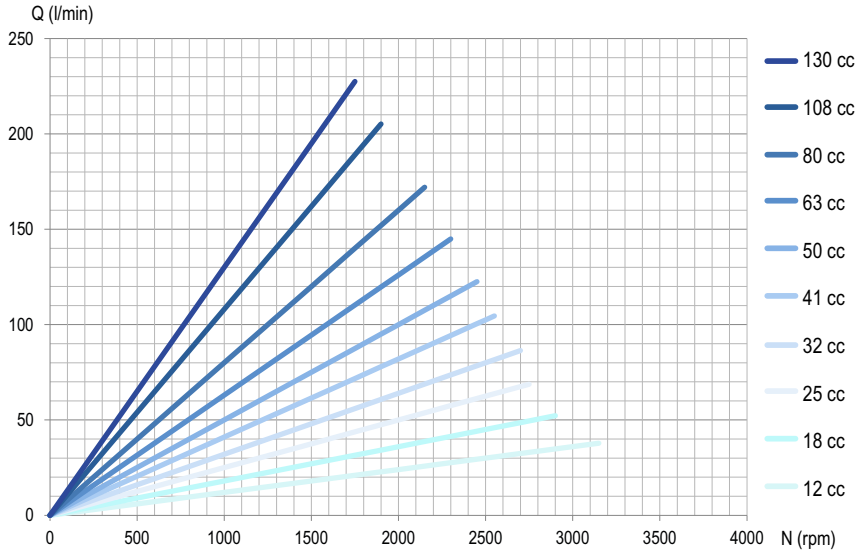


$$C = \frac{\Delta Cyl \times P}{62\,8 \times \eta_{meca}}$$

With:

C	=	Torque in N m
Cyl	=	Displacement in cc/rev
ΔP	=	Differential pressure in bar
η_{meca}	=	Mechanical efficiency

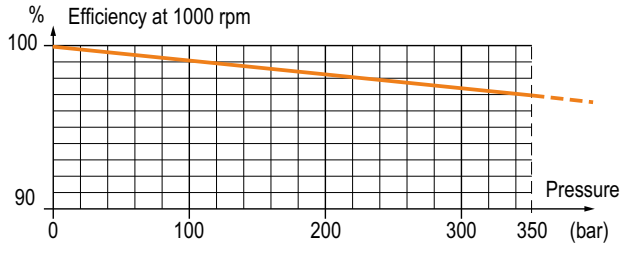
► Flow as a function of rotating speed



$$Q = \frac{N \; Cyl \times \; \times \eta_{vol}}{1000}$$

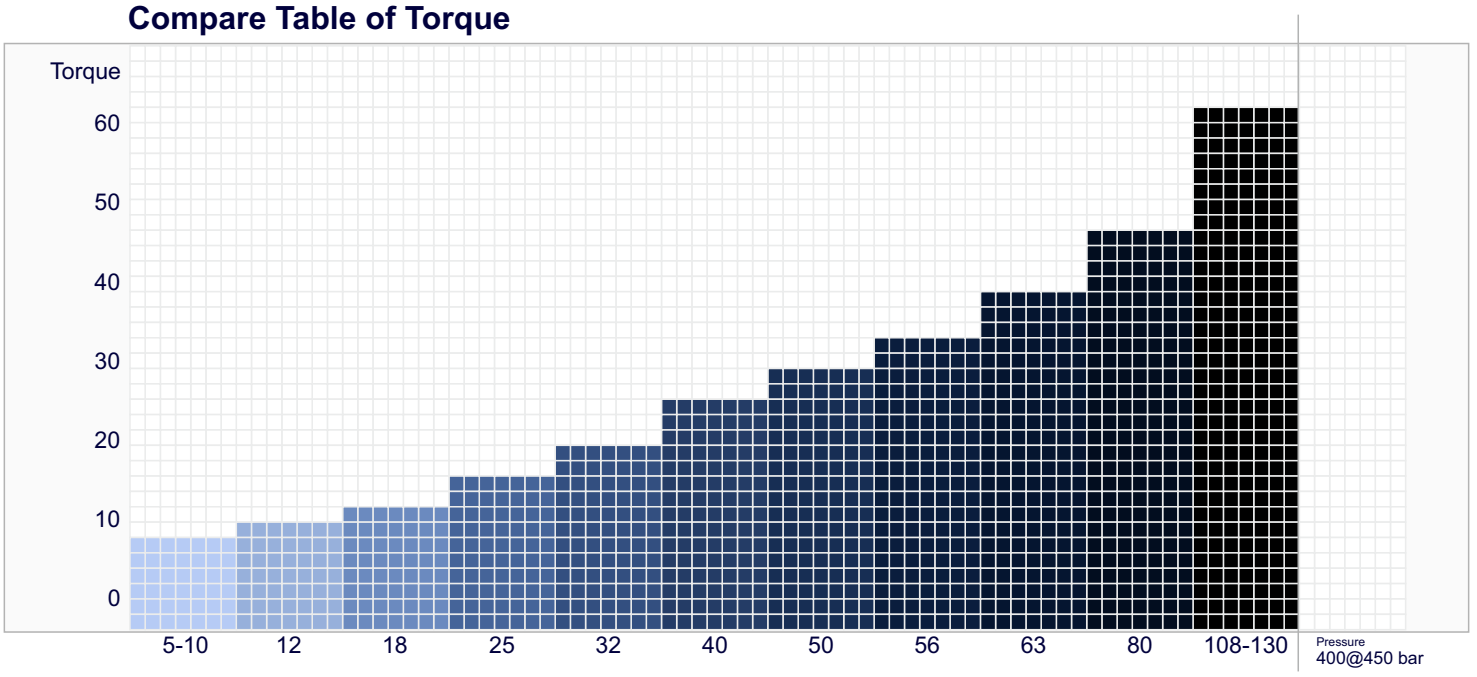
With:

Q	=	Flow in l/min
N	=	Speed in rpm
η_{vol}	=	Volumetric efficiency
Cyl	=	Displacement in cc/rev

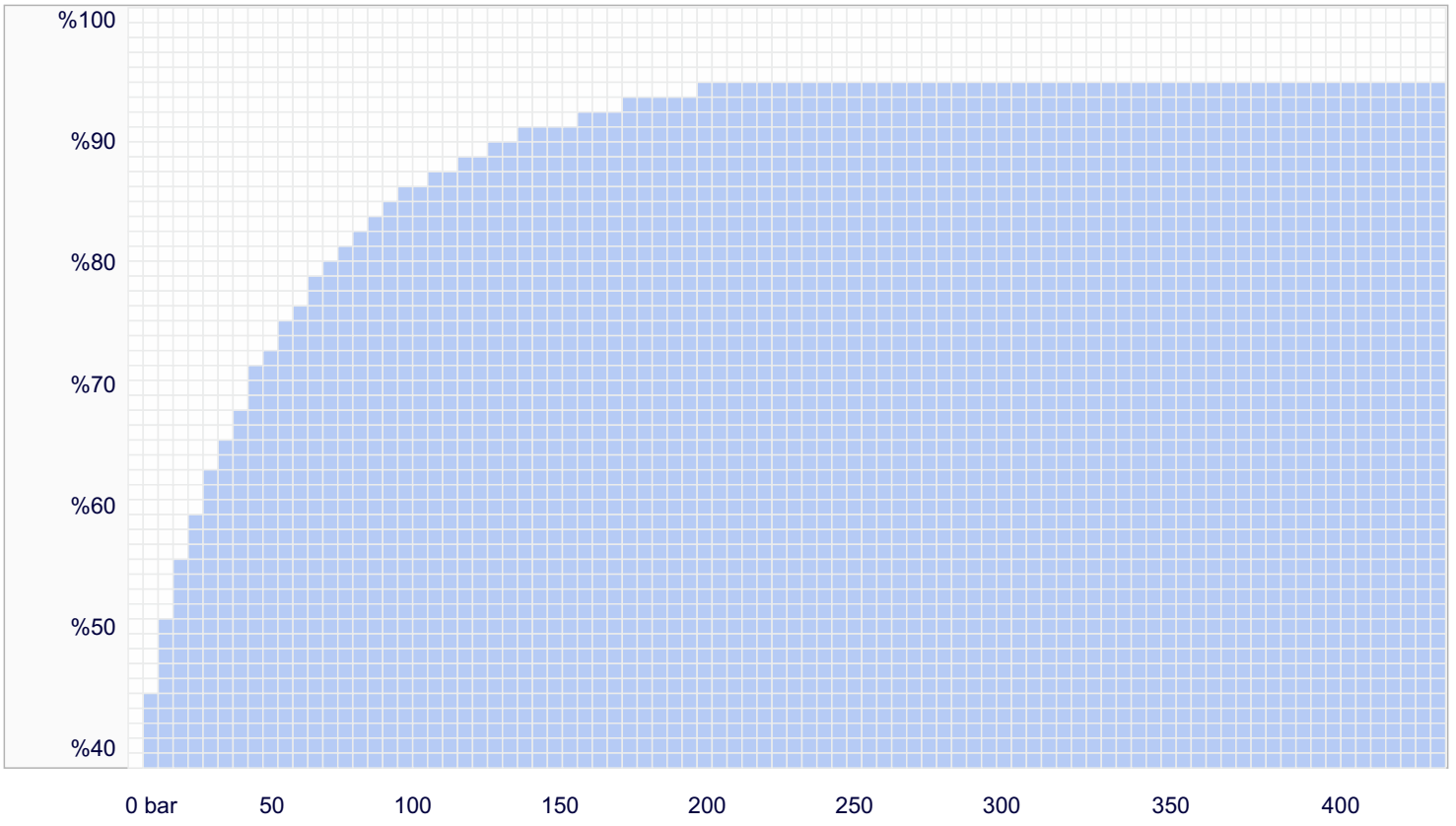


Performance, Torque, Speed and Pressure Charts

Compare Table of Torque

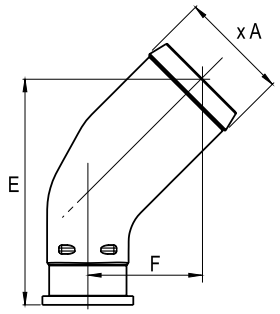


Efficiency of Bent Axis Pumps (1000 rpm)



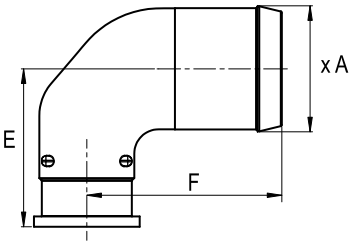
Suction Fittings for A2FS (SAE) Bent Axis Pumps

45° elbow fittings kit

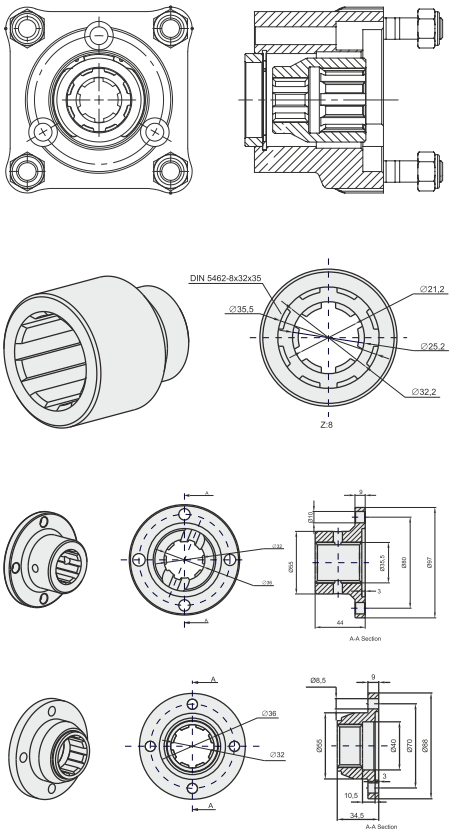


Reference	Ø hose	Ø A	E	F
450039	1 1/2"	39.1	91.7	46.7
450043	42	43	91.7	46.7
450046	1 3/4"	46	91.7	46.7
450051	2"	51.8	108.4	54.4
450064	2 1/2"	64.5	125.2	62.2

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

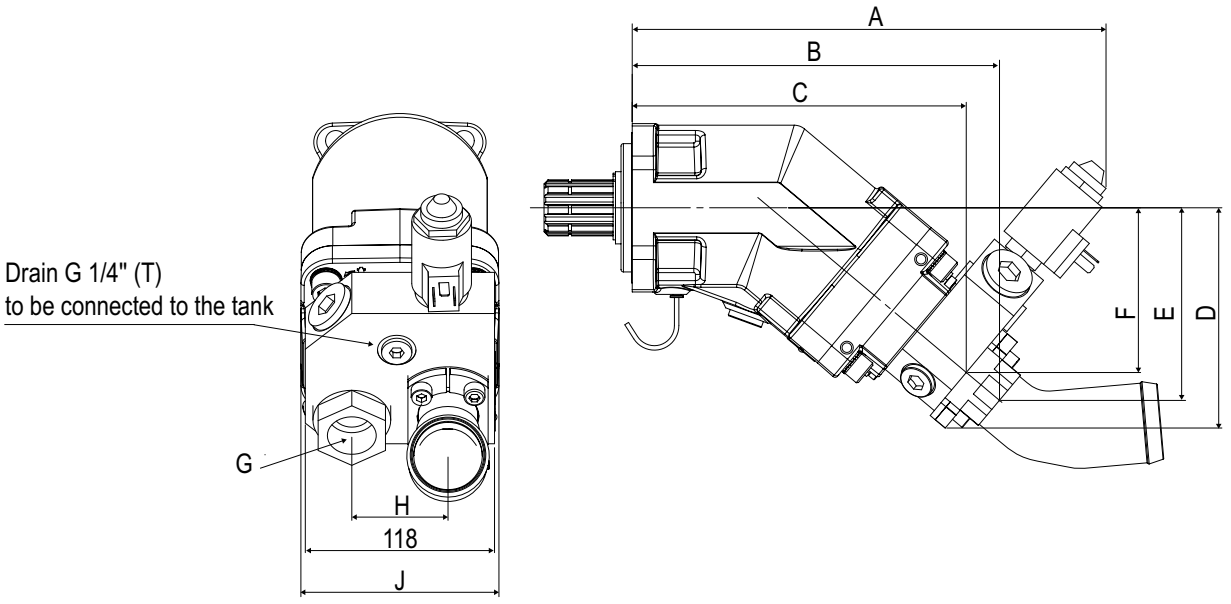
By-Pass Valves
- 12 V
- 24 V

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)

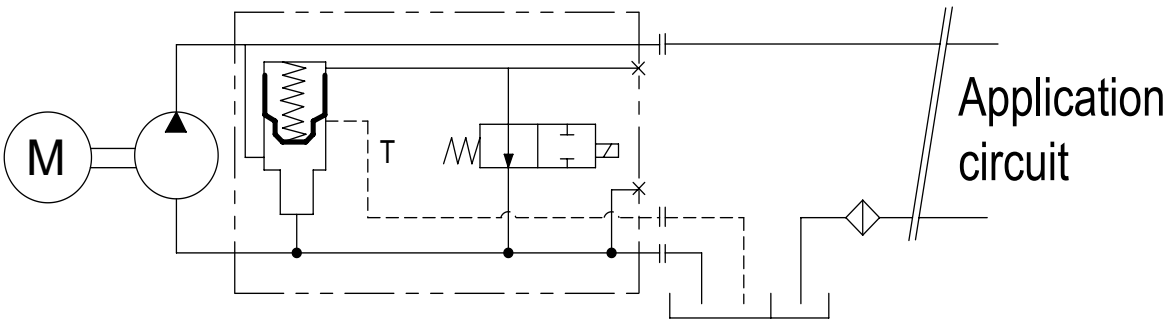
Couplars
- 6 x 8 Couplar
- 6 x 8 Couplar (Long)
- 8 x 8 Couplar
- 8 x 8 Couplar (Long)

ByPass Valve for A2FS (SAE) Bent Axis Pumps



Pump MODEL	DISPL. (cc)	A	B	C	D	E	F	G	H	J
5 cc	5.1	289.35	223.04	202.19	132.20	114.72	97.58	G 3/4”	54	108
10 cc	10.2	289.35	223.04	202.19	132.20	114.72	97.58	G 3/4”	54	108
12 cc	12.0	289.35	223.04	202.19	132.20	114.72	97.58	G 3/4”	54	108
18 cc	18.0	289.35	223.04	202.19	132.20	114.72	97.58	G 3/4”	54	108
25 cc	25.0	289.35	223.04	202.19	132.20	114.72	97.58	G 3/4”	54	108
32 cc	32.0	295.50	229.00	208.30	137.30	120.10	102.70	G 3/4”	54	108
41 cc	41.0	295.50	229.00	208.30	137.30	120.10	102.70	G 3/4”	54	108
50 cc	50,3	307.10	240.40	220.00	147.10	129.70	112.50	G 3/4”	54	108
56 cc	56,0	307.10	240.40	220.00	147.10	129.70	112.50	G 3/4”	54	108
63 cc	63.0	307.10	240.40	220.00	147.10	129.70	112.50	G 3/4”	54	108
80 cc	80,4	334.00	269.00	246.70	157.80	143.90	124.80	G 1”	60	123
108 cc	108	334.00	269.00	246.70	157.80	143.90	124.80	G 1”	60	123
130 cc	130	336.30	271.3	249.00	159.70	145.80	126.70	G 1”	60	123

ByPass Valve for A2FS (SAE) Bent Axis Pumps



Pump MODEL	DISPL. (cc)	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	9.00	9.40	8.20	8.60
10 cc	10.2	9.00	9.40	8.65	9.05
12 cc	12.0	9.20	9.60	8.74	9.14
18 cc	18.0	9.30	9.70	8.79	9.19
25 cc	25.0	11.00	11.40	8.89	9.29
32 cc	32.0	11.10	11.50	11.10	11.50
41 cc	41.0	11.20	11.60	11.15	11.55
50 cc	50,3	11.30	11.70	11.75	12.15
56 cc	56,0	11.35	11.75	11.80	12.20
63 cc	63.0	11.45	11.85	11.85	12.25
80 cc	80,4	14.80	15.20	17.80	18.30
108 cc	108	14.90	15.30	17.92	18.42
130 cc	130	15.30	15.70	18.70	19.50

40° bent axis design giving high power, small overall dimensions, optimum efficiency and economic design. Flange and shaft designed for direct mounting on truck gearbox PTO's. The fixed displacement bent axis pumps generates a hydraulic fluid flow. It is designed for use in trucks, commercial vehicles and all stationary hydraulic applications. The Pump a fixed pump with rotary group in bent-axis design open circuits. 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 130 cm3/rev. The pump has been developed with modern styling and design to satisfy market demand as to designed new generation plate and pistons with give high flow performance, high pressures with high efficiency and very small dimensions.

The pump is available both to SAE and SAE world standards and can be mounted either directly at the gear box or via a drive shaft. If necessary it can also be augmented with a by-pass valve.Other brand bent axis pumps compatible and interchangeable with SAE 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.

Formulas			
Pump Output Flow	GPM	GPM = (Speed (rpm) × disp. (cu. in.)) / 231	GPM = (n ×d) / 231
Pump Input Horsepower	HP	HP = GPM × Pressure (psi) / 1714 × Efficiency	HP = (Q ×P) / 1714 × E
Pump Efficiency	E	Overall Efficiency = Output HP / Input HP	Eoverall = HPOut / HPIn X 100
		Overall Efficiency = Volumetric Eff. × Mechanical Eff.	EOverall = EffVol. × EffMech.
Pump Volumetric Efficiency	E	Volumetric Efficiency = Actual Flow Rate Output (GPM) / Theoretical Flow Rate Output (GPM) × 100	EffVol. = QAct. / QTheo. X 100
Pump Mechanical Efficiency	E	Mechanical Efficiency = Theoretical Torque to Drive / Actual Torque to Drive × 100	EffMech = TTheo. / TAct. × 100
Pump Displacement	CIPR	Dsplcmnt (In.3 / rev.) = Flow Rate (GPM) × 231 / Pump RPM	CIPR = GPM × 231 / RPM
Pump Torque	T	Torque = Horsepower × 63025 / RPM	T = 63025 × HP / RPM
		Torque = Pressure (PSIG) × Pump Displacement (CIPR) / 2π	T = P × 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 to 20 ft./sec.; all oil lines in air-over-oil systems; 4 ft./sec.

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

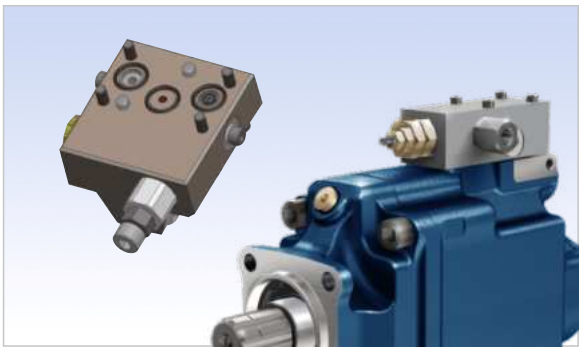
A2MS (SAE)
BENT AXIS PISTON MOTORS

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)

Fevzicakmak Mah. Sıla Cad. Kobisan 3 San. Sit.
No: 73 / C Karatay – Konya, PO Code; 42050, Turkiye

Address; (ASSEMBLE, SHIPMENT)

Fevzicakmak Mah. Sıla Cad. Kobisan 3 San. Sit.
No: 71 / AD Karatay – Konya, PO Code; 42050, Turkiye

Phone; +90 551 111 77 44