

A11 (SAE2) Bent Axis Piston Pump

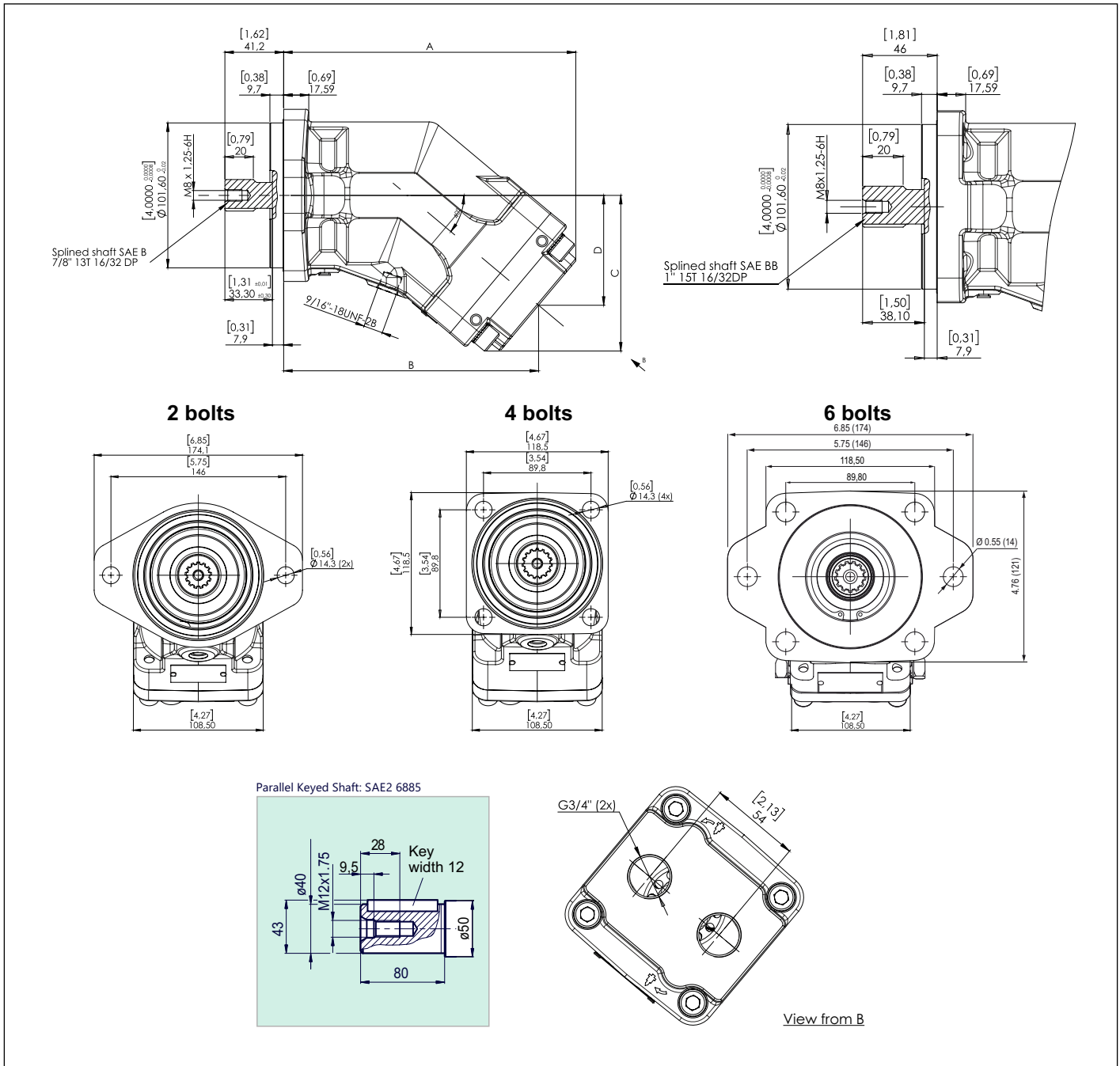
High Pressure Hydraulic Bent Axis Piston Pumps, High Pressure, 450/500 BAR Working Pressure. High Rotational Speed, High Efficiency, Slim Design, Cast Iron Pump Body, Re-Designed in 2025.

Designation;

12cc, 18cc, 25cc, 32cc, 41cc,
50cc, 56cc, 63cc,



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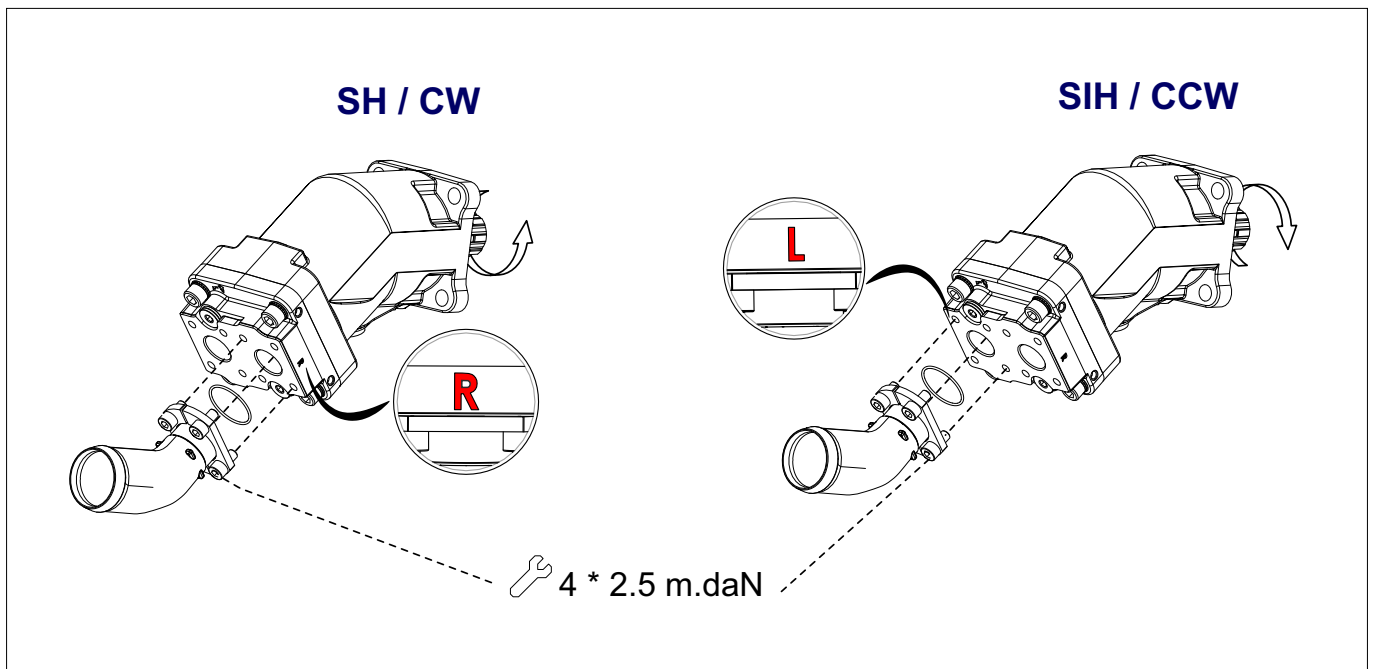
Pump MODEL	DISPL. (cc)	A	B	C	D	SHAFT (SPLINED)	SHAFT (KEYED)
12 cc (SAE J744)	12.1	197.2	172.5	103.7	73.0	SAE B 7/8"13T-16/32DP	Parallel Keyed Shaft: SAE2 6885
18 cc (SAE J744)	18.0	197.2	172.5	103.7	73.0	SAE B 7/8"13T-16/32DP	Parallel Keyed Shaft: SAE2 6885
25 cc (SAE J744)	25.1	197.2	172.5	103.7	73.0	SAE B 7/8"13T-16/32DP	Parallel Keyed Shaft: SAE2 6885
32 cc (SAE J744)	32.0	203.2	178.5	108.7	77.0	SAE B 7/8"13T-16/32DP	Parallel Keyed Shaft: SAE2 6885
41 cc (SAE J744)	41.2	203.2	178.5	108.7	77.0	SAE B 7/8"13T-16/32DP	Parallel Keyed Shaft: SAE2 6885
50 cc (SAE J744)	50.2	214.7	190.0	118.2	86.5	SAE BB 1" 15T-16/32DP	Parallel Keyed Shaft: SAE2 6885
56 cc (SAE J744)	56.0	214.7	190.0	118.2	86.5	SAE BB 1" 15T-16/32DP	Parallel Keyed Shaft: SAE2 6885
63 cc (SAE J744)	63,3	214.7	190.0	118.2	86.5	SAE BB 1" 15T-16/32DP	Parallel Keyed Shaft: SAE2 6885

Characteristics of the A11 - SAE2 Flange Bent Axis Pumps

Pump 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)	Pump MAX./MIN. TEMP. (celsius)	MAX. ALLOW PRESSURE CONTN./PEAK (bar)
12 cc	12.1	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	25.1	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	41.2	5600	6200	230	0.65	227	-25 / 110	400 / 450
50 cc	50,2	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	63.3	5000	5500	315	1.00	350	-25 / 110	400 / 450

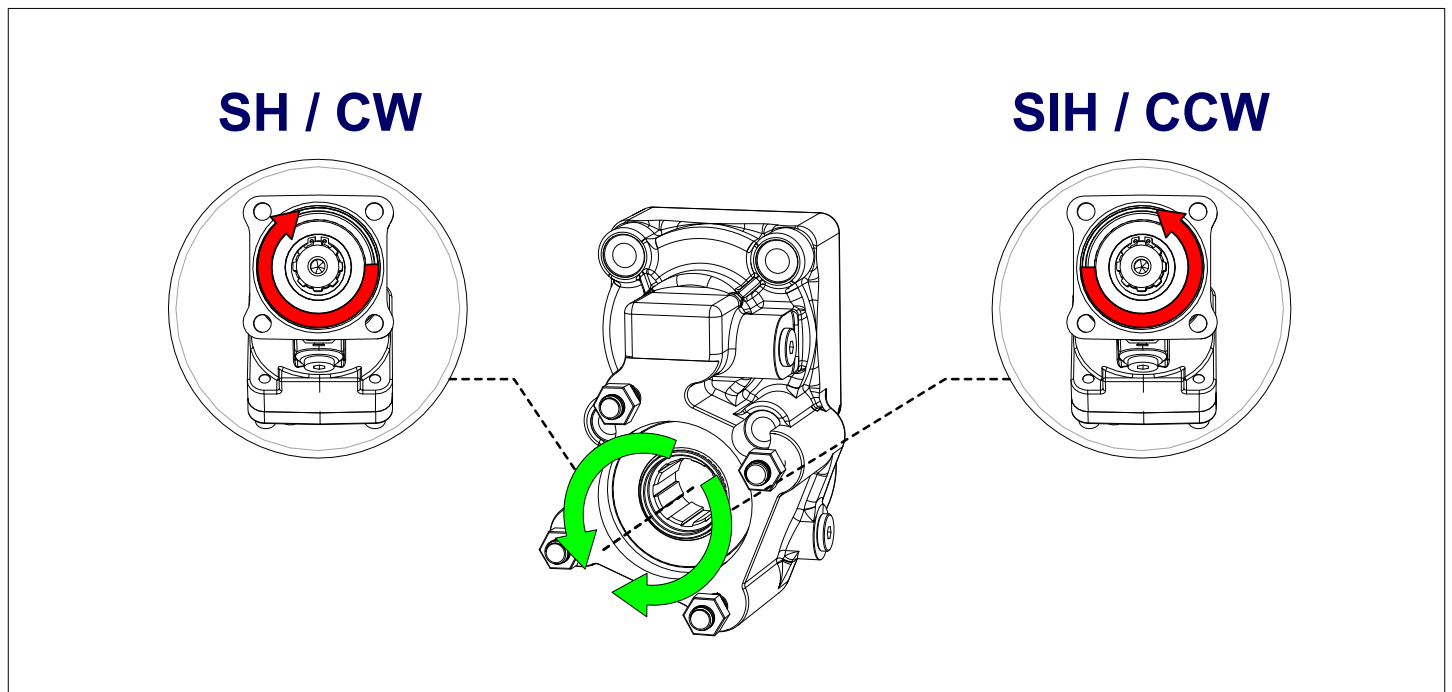
Direction of Rotation; **Bi-Direcional**

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



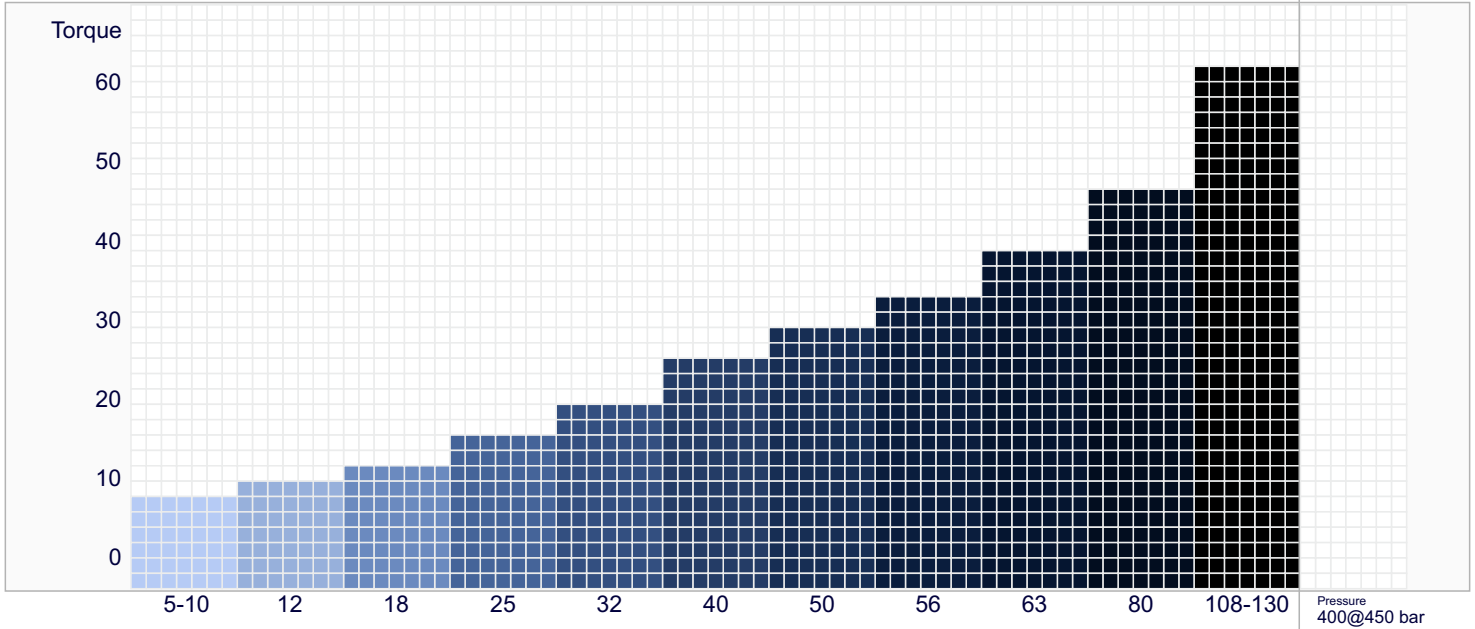
Ordering Code; A11 - SAE2 Flange Bent Axis Pumps

Model Code	Displacement	Shaft Type	Flange Type	Rotation	Sealing
A11	25	S13	B6	W	V
A11 Bent Axis Hydraulic Pump SAE2 Flange	12	S13 Splined Shaft SAE B 7/8" 13T-16/32DP	B2 2 Bolt SAE2 Flange Shaft	W Direction of Rotation Bi-Directional	V Viton High Pressure Seal
	18				
	25	S15 Splined Shaft SAE BB 1" 15T-16/32DP	B4 4 Bolt SAE2 Flange Shaft		N Nitrile Seal 5/10 Bar
	32				
	41				
	50	K40 Keyed Shaft SAE2 6885	B6 6 Bolt SAE2 Flange Shaft		
	56				
63					

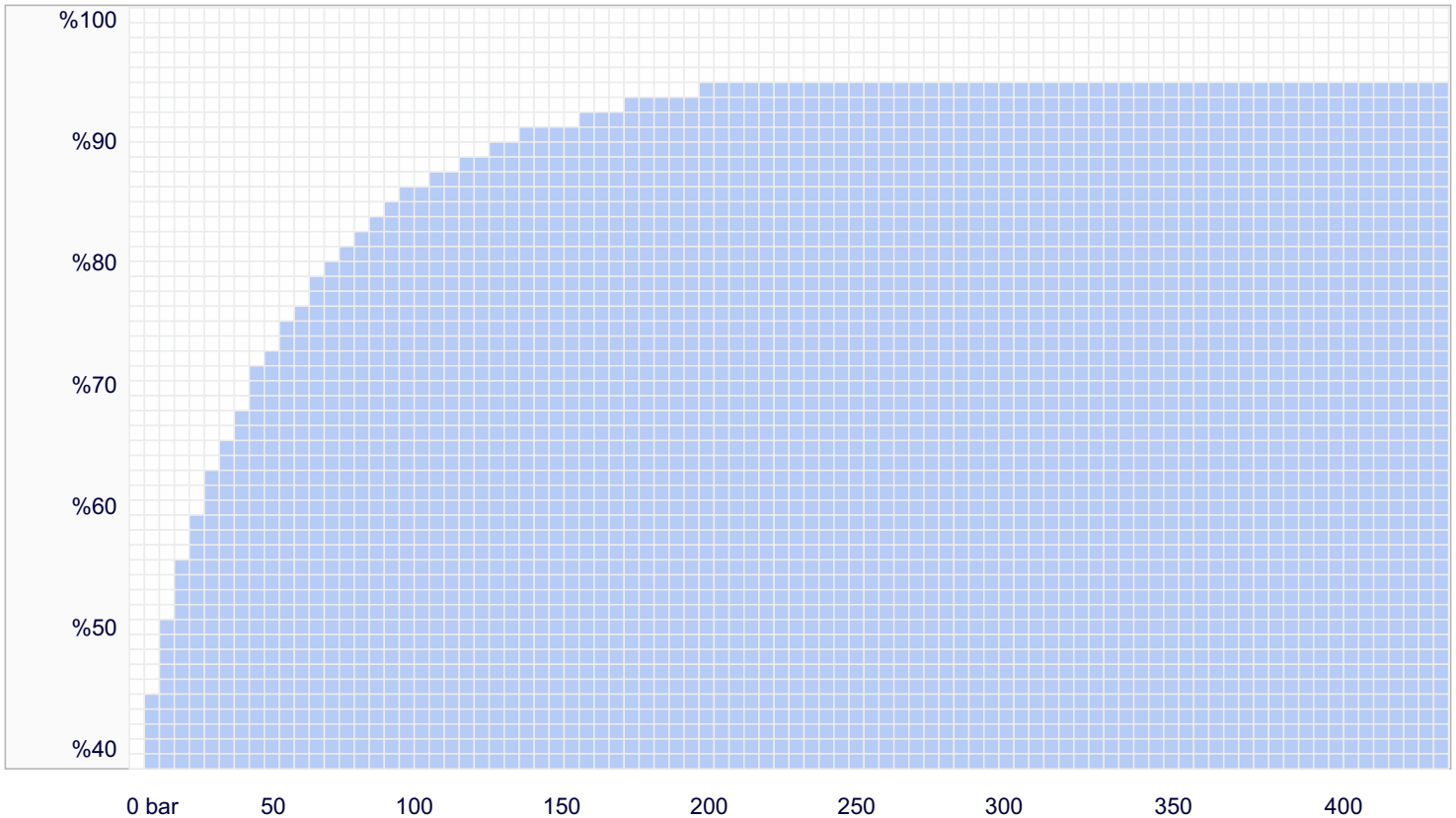


Performance, Torque, Speed and Pressure Charts

Compare Table of Torque

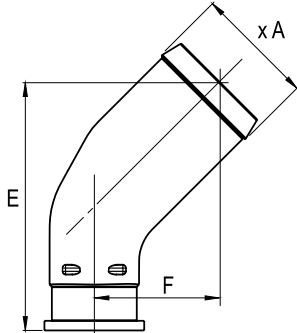


Efficiency of Bent Axis Pumps (1000 rpm)



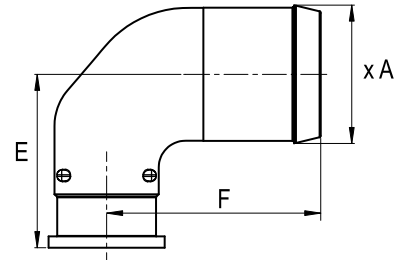
Suction Fittings for A8PS (SAE) Bent Axis Pumps

45° elbow fittings kit

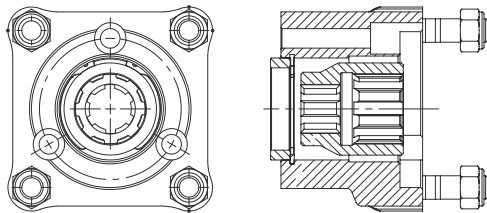


Reference	Ø hose	Ø A	E	F
450039	1 1/2"	39.1	91.7	46.7
450043	42	43	91.7	46.7
450046	1 3/4"	46	91.7	46.7
450051	2"	51.8	108.4	54.4
450064	2 1/2"	64.5	125.2	62.2

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



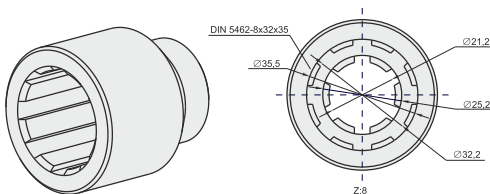
Inlet Fittings & Installation Parts

- Split Flange
- Seal
- Screw



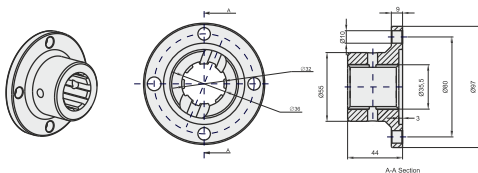
By-Pass Valves

- 12 V
- 24 V



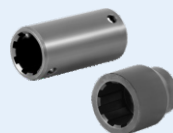
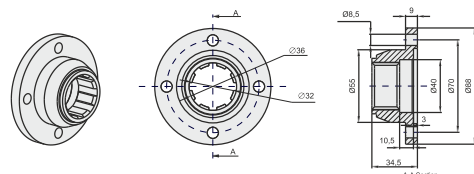
Hydraulic Adapters

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



Flanges

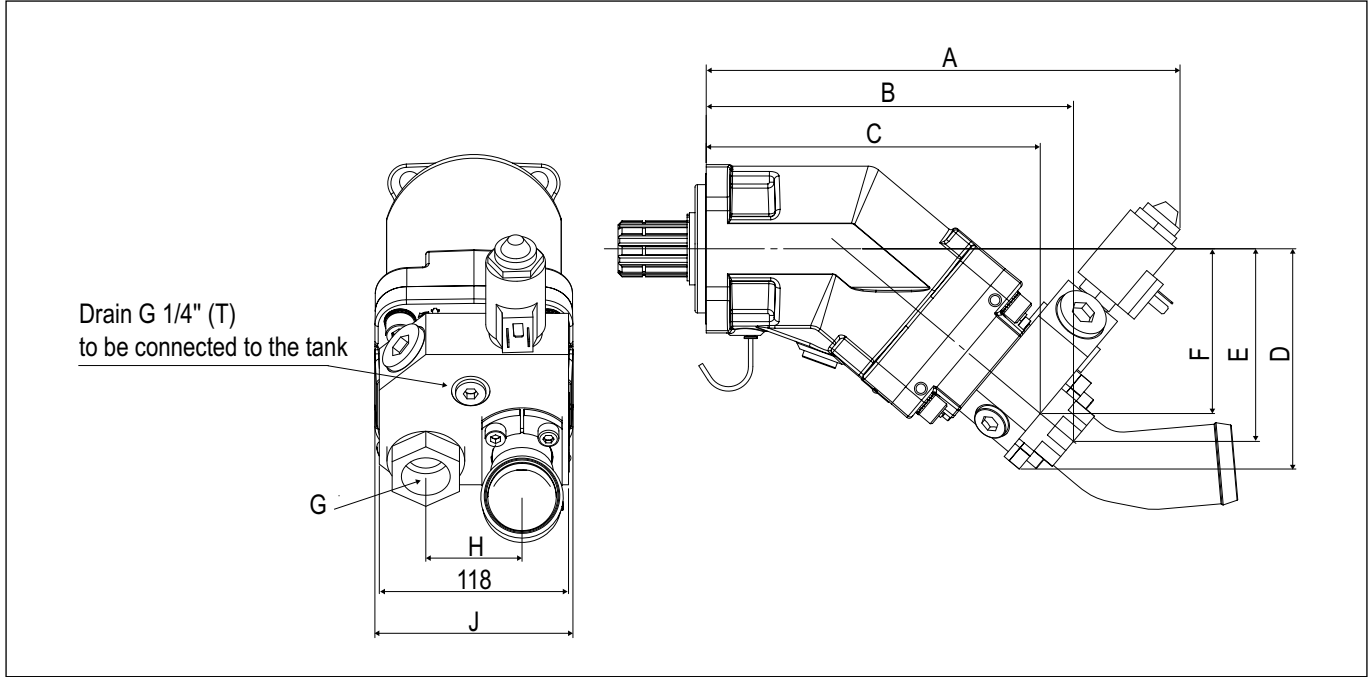
- 1120 (6 Spline)
- 1120 (8 Spline)
- 1300 (6 Spline)
- 1300 (8 Spline)



Couplers

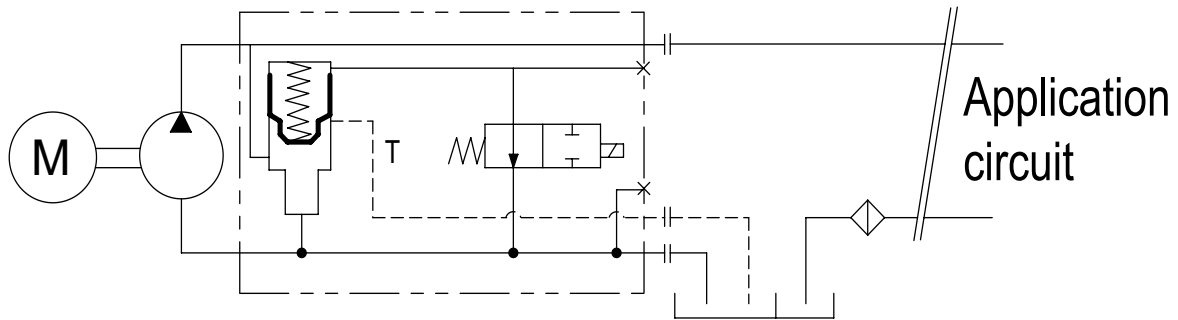
- 6 x 8 Coupler
- 6 x 8 Coupler (Long)
- 8 x 8 Coupler
- 8 x 8 Coupler (Long)

ByPass Valve for A11 (SAE2) 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 A11 (SAE2) 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 SAE2 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 SAE2 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	$GPM = (\text{Speed (rpm)} \times \text{disp. (cu. in.)}) / 231$	$GPM = (n \times d) / 231$
Pump Input Horsepower	HP	$HP = GPM \times \text{Pressure (psi)} / 1714 \times \text{Efficiency}$	$HP = (Q \times P) / 1714 \times E$
Pump Efficiency	E	Overall Efficiency = Output HP / Input HP	$E_{\text{Overall}} = \text{HPOut} / \text{HPIn} \times 100$
		Overall Efficiency = Volumetric Eff. × Mechanical Eff.	$E_{\text{Overall}} = \text{EffVol.} \times \text{EffMech.}$
Pump Volumetric Efficiency	E	Volumetric Efficiency = Actual Flow Rate Output (GPM) / Theoretical Flow Rate Output (GPM) × 100	$\text{EffVol.} = \text{QAct.} / \text{QTheo.} \times 100$
Pump Mechanical Efficiency	E	Mechanical Efficiency = Theoretical Torque to Drive / Actual Torque to Drive × 100	$\text{EffMech} = \text{TTheo.} / \text{TAct.} \times 100$
Pump Displacement	CIPR	$\text{Dsplcmnt (In.}^3 \text{ / rev.)} = \text{Flow Rate (GPM)} \times 231 / \text{Pump RPM}$	$\text{CIPR} = \text{GPM} \times 231 / \text{RPM}$
Pump Torque	T	Torque = Horsepower × 63025 / RPM	$T = 63025 \times \text{HP} / \text{RPM}$
		Torque = Pressure (PSIG) × Pump Displacement (CIPR) / 2π	$T = P \times \text{CIPR} / 6.28$

- 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.

Complete Product Range

Bent Axis Piston Motors

- A9MD** (DIN) Bent Axis Motors
- A9MO** (ISO) Bent Axis Motors
- A9MS** (SAE) Bent Axis Motors
- A9ML** (SAE2) Bent Axis Motors
- A9MF** (Fixed Plugin) Bent Axis Motors
- A10M** (HYBRID) Bent Axis Motors
- A7GM** Hydraulic Gear Motors
- A7GMT** Tandem Hydraulic Gear Motors

Bent Axis Piston Pumps

- A8PA** (Aluminum) Bent Axis Pumps
- A8PD** (DIN) Bent Axis Pumps
- A8PO** (ISO) Bent Axis Pumps
- A8PS** (SAE) Bent Axis Pumps
- A8PF** (Fixed Plugin) Bent Axis Pumps
- A10** (HYBRID) Bent Axis Pumps
- A11** (ISO2) Bent Axis Pumps
- A11** (SAE2) Bent Axis Pumps

Variable Displacement Pumps

- A12V** Variable Displacement Piston Pumps

Dual Flow Piston Pumps

- A8PL** (DIN) Dual Flow Pumps

Axial Piston & Gear Pumps

- A4PP** Axial Hydraulic Piston Pumps
- A6HP** High Pressure Piston Pumps
- A7GP** Hydraulic Gear Pumps
- A7GPT** Tandem Hydraulic Gear Pumps

Valve (ByPass) (Flushing) (Cavitation)

- Circulation Valve
- ByPass Valve
- Anti-Cavitation Valve
- Flushing Valve
- LS Valve
- AntiShock Valve
- Speed Sensor

Hydraulic Spare Parts

- Suction Fittings
- Couplers
- Adapters
- Flanges
- Power Take Off
- Monoblock Valve
- Section Valve

Hydraulic Pumps, Motors

Bent Axis Hydraulic Piston Motors, Bent Axis Hydraulic Piston Pumps, Piston Pumps, Variable Displacement Piston Pumps, Variable Displacement Piston Motors, Axial Piston Pumps, High Pressure Piston Pumps, Gear Pumps, Gear Motors, Hydraulic Valve.

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