

Re-Designed by
Research and
Development Team

A11

Bent Axis MotoPump (2019)

FIRST IN THE WORLD

BI-DIRECTIONAL BENT AXIS PUMPMOTOR
As a Pump + Motor.
Both Functions All in One...
In the Single Design..

Size: 12cc, 18cc, 25cc, 32cc, 40cc, 50cc, 63cc, 80cc, 108cc, 130cc

External ByPass Valve

400-450 Bar High Pressure

High Rotational Speed

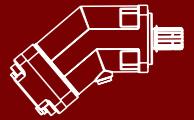
Slim Design

A11 - Bent Axis Motor

Become Distributor

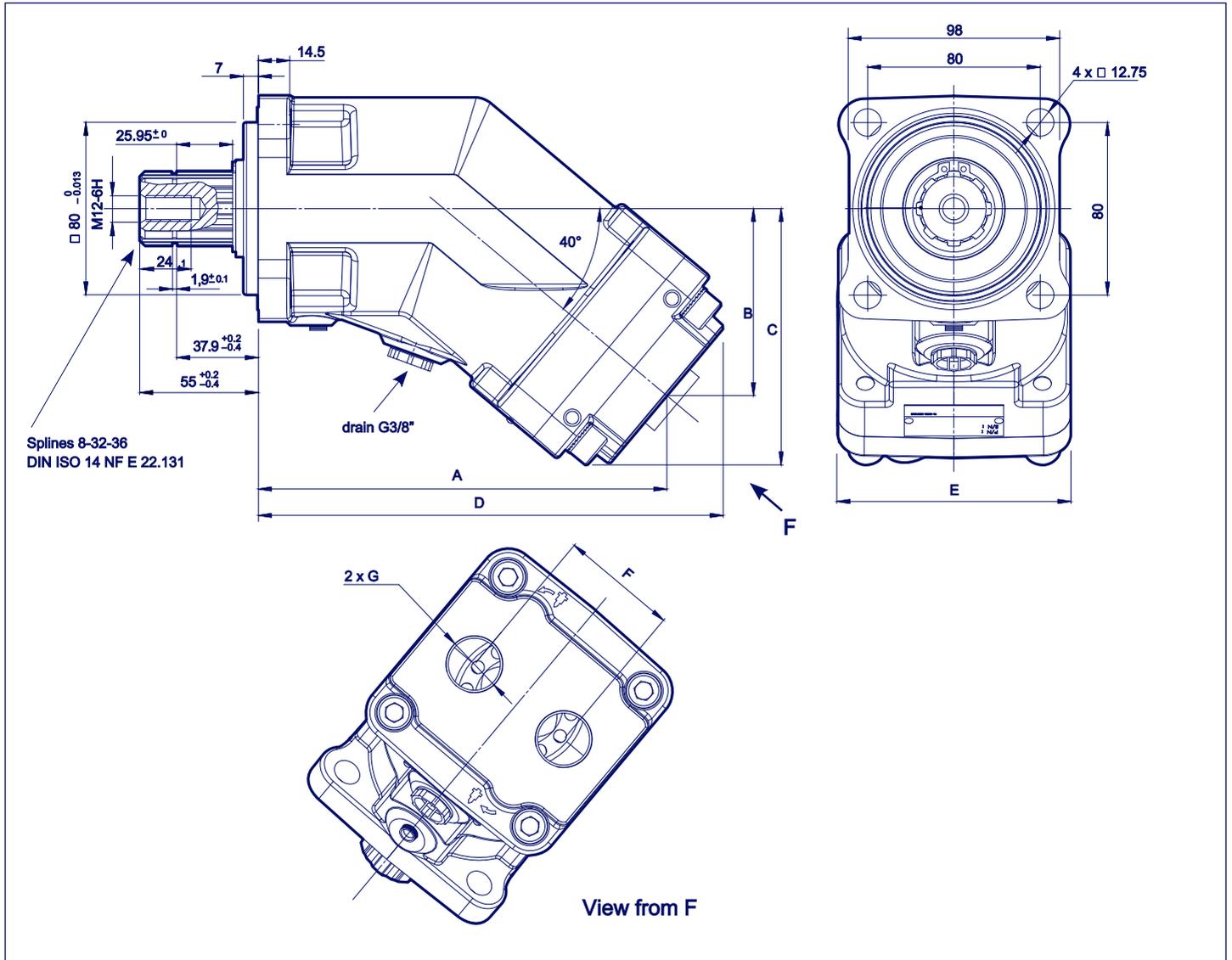
Today





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Bent Axis MotoPump (2019)



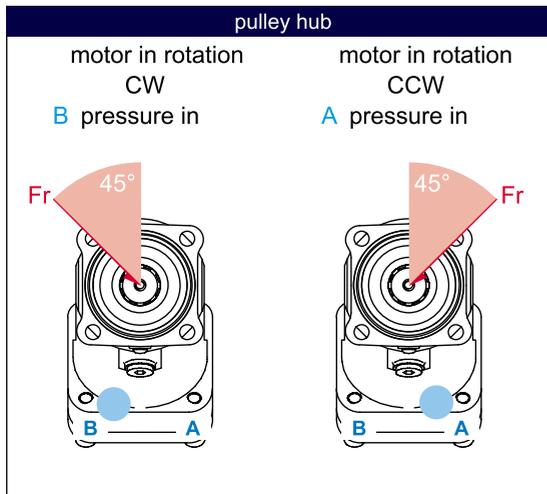
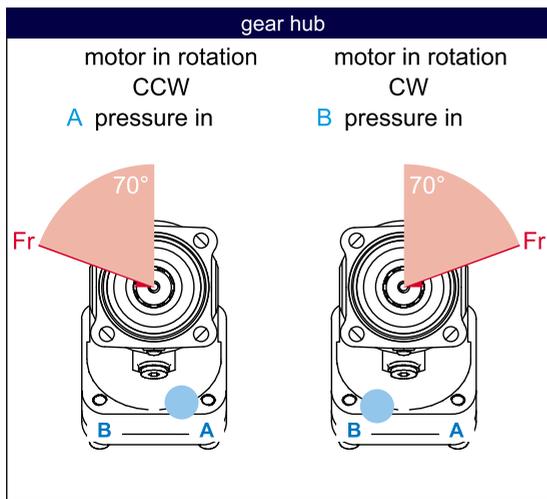
Motor model	Dis. (cc)	A	B	C	D	E	F	G	weight (kg)
12	12	171.5	71.9	103.9	197.9	108.5	54	G 3/4"	9.3
18	18	171.5	71.9	103.9	197.9	108.5	54	G 3/4"	9.3
25	25	171.5	71.9	103.9	197.7	108.5	54	G 3/4"	9.3
32	32	177.7	77	109.1	203.8	108.5	54	G 3/4"	10.3
41	41	177.7	77	109.1	203.8	108.5	54	G 3/4"	10.3
50	50,3	189.3	86.8	118.9	215.4	108.5	54	G 3/4"	11.5
63	63	189.3	86.8	118.9	215.4	108.5	54	G 3/4"	11.5
80	80,4	216.2	99.5	133.3	241.7	123.5	60	G 1"	14.5
108	108,3	216.2	99.5	133.3	241.7	123.5	60	G 1"	14.5
126	126	218.5	101.43	135.2	244	123.5	60	G 1"	14.5



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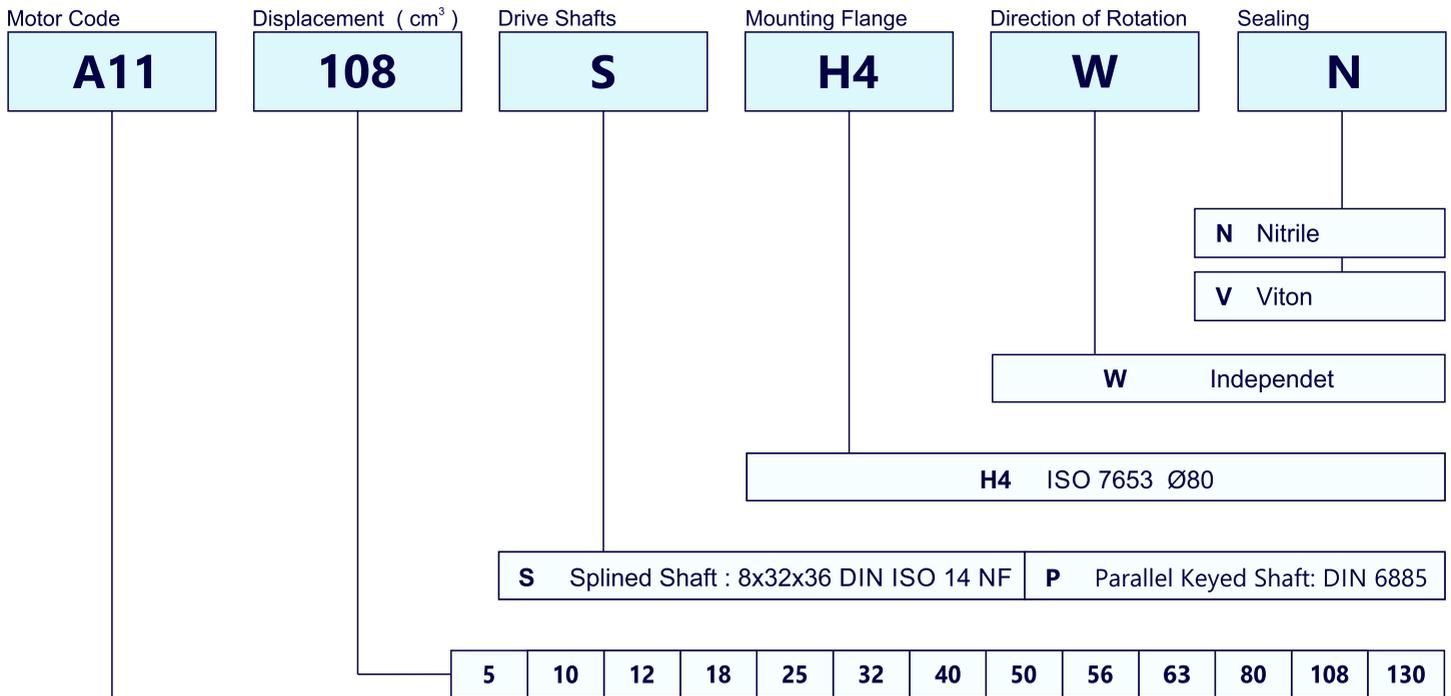
Motor model	Displacement (cc)	continuous max. speed (rpm)	Intermittent max. speed (rpm)	Max. flow absorbed (l/mn)	Torque bar (m.N/bar)	Torque at 350 bar (m.N)	Motor max./min. temperature (°C)	Max. allowable pressure continuous / peak (bar)
12	12	8000	8800	96	0.19	66	-25 / 110	400 / 450
18	18	8000	8800	144	0.28	98	-25 / 110	400 / 450
25	25	6300	6900	158	0.4	140	-25 / 110	400 / 450
32	32	6300	6900	202	0.5	175	-25 / 110	400 / 450
41	41	5600	6200	230	0.65	227	-25 / 110	400 / 450
50	50.3	5000	5500	252	0.8	280	-25 / 110	400 / 450
63	63	5000	5500	315	1	350	-25 / 110	400 / 450
80	80.4	4500	5000	362	1.27	445	-25 / 110	400 / 450
108	108.3	4000	4400	435	1.7	595	-25 / 110	400 / 450
126	126	3400	4400	428	2.0	700	-25 / 110	400 / 450





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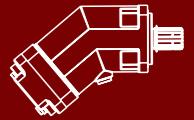


A11 Bent Axis Piston Motor, Fixed Displacement.

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	$\text{Dspclmnt (In.}^3 \text{ / rev.)} = \text{Flow Rate (GPM)} \times 231 / \text{Pump RPM}$	$\text{CIPR} = \text{GPM} \times 231 / \text{RPM}$
Pump Torque	T	Torque = Horsepower × 63025 / RPM	$T = 63025 \times \text{HP} / \text{RPM}$
		Torque = Pressure (PSIG) × Pump Displacement (CIPR) / 2π	$T = P \times \text{CIPR} / 6.28$

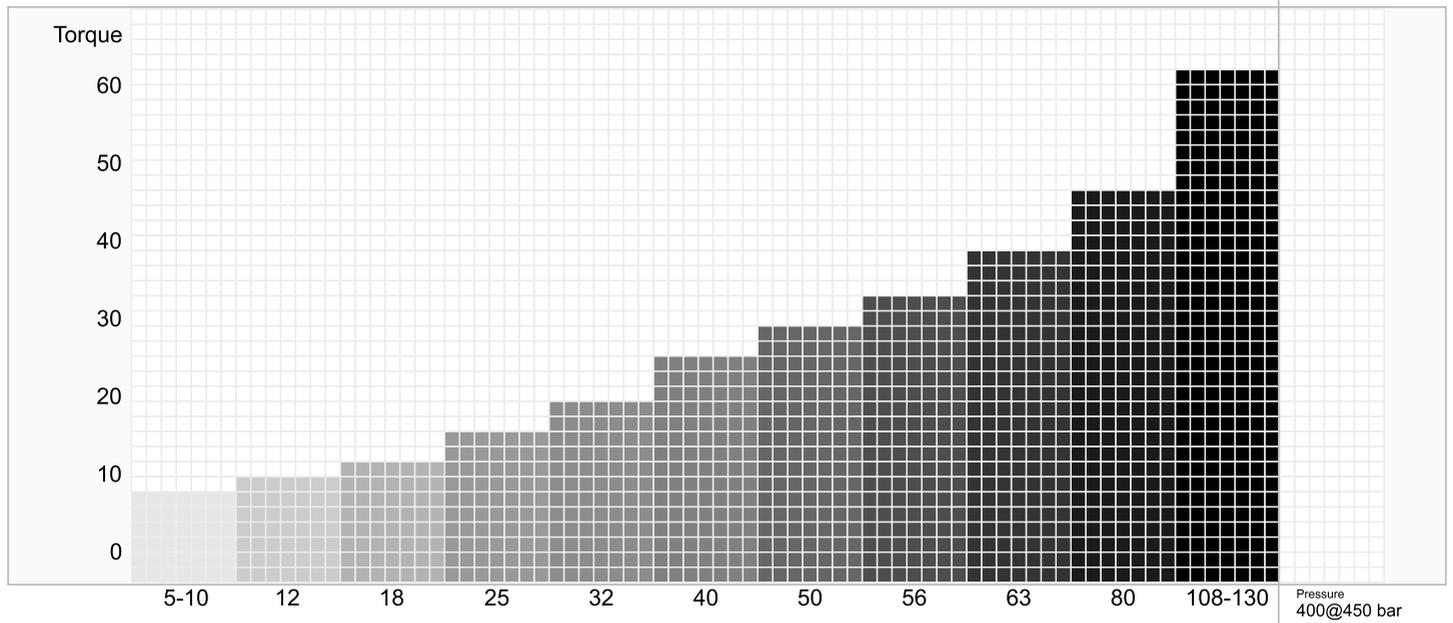
- Horsepower for driving a pump** : For every 1 hp of drive, the equivalent of 1 gpm @ 1500 psi can be produced.
- Horsepower for idling a pump** : To idle a pump when it is unloaded will require about 5% of it's full rated power
- Wattage for heating hydraulic oil** : Each watt will raise the temperature 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.



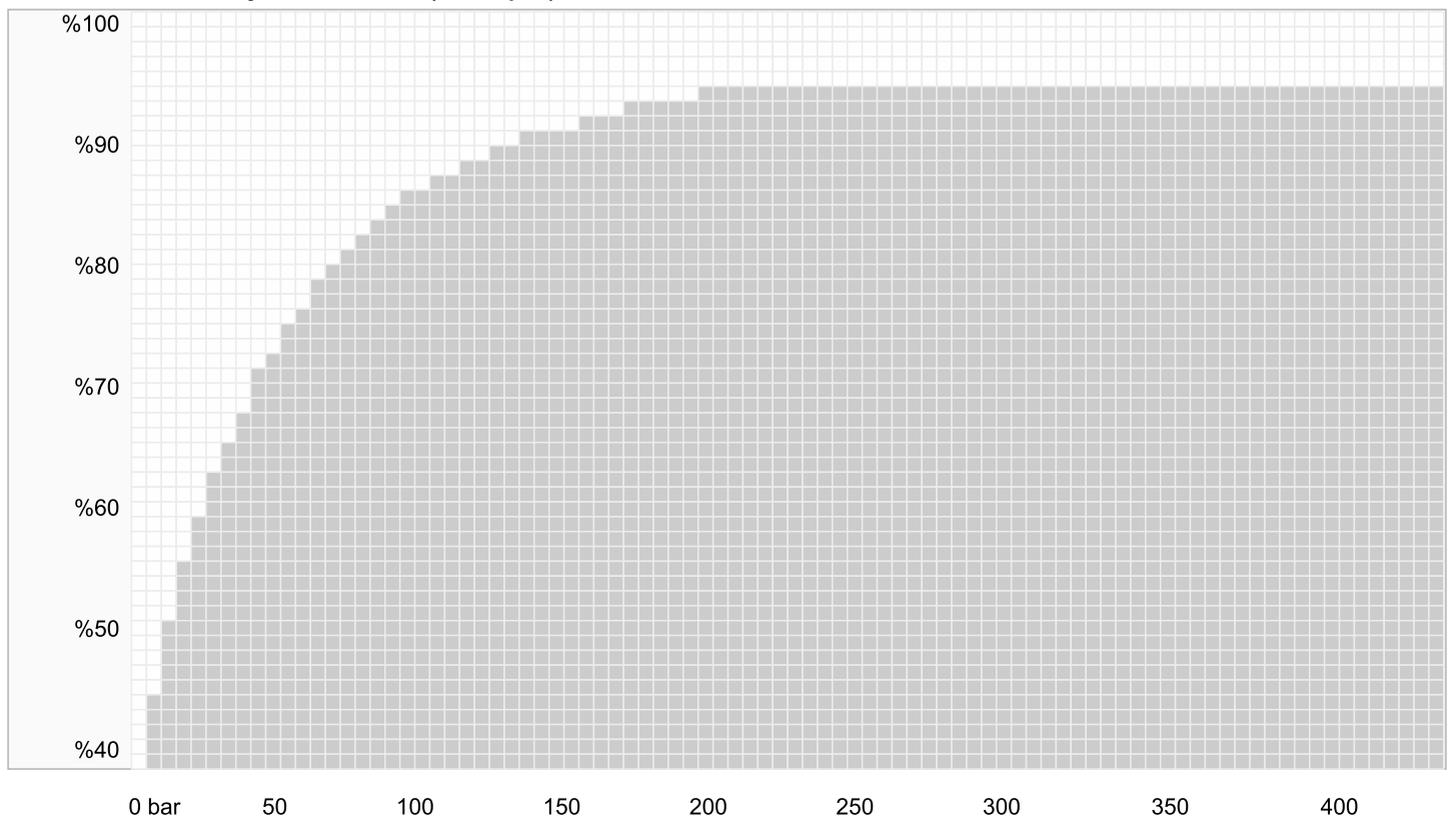
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Bent Axis MotoPump (2019)

Compare Table of Torque

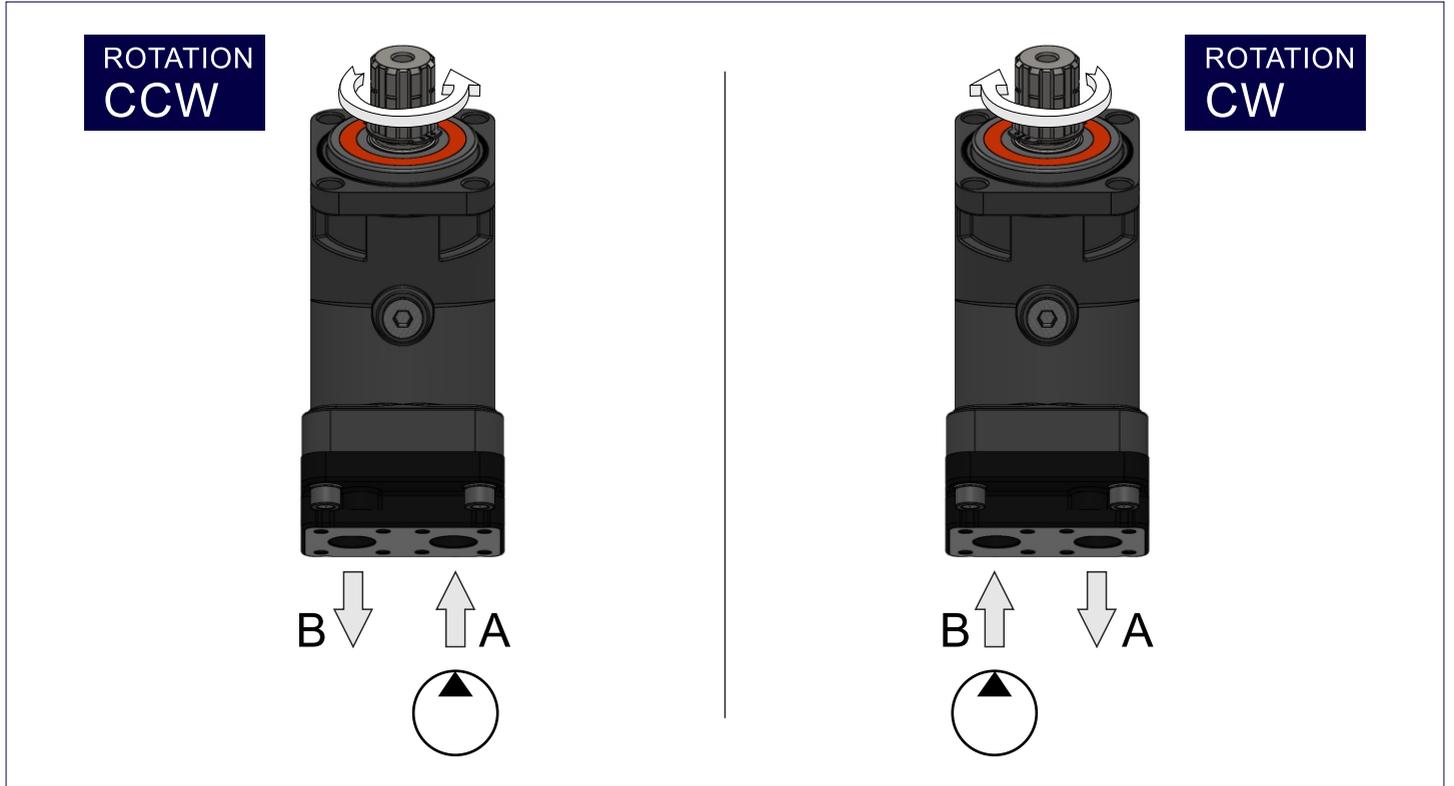


Efficiency of A11 Motors (1000 rpm)



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Bent Axis MotoPump (2019)



Quick Calculation

<p>Flow rate</p> $Q = \frac{V_s \cdot n}{1000 \eta_v} \text{ (lpm)}$	<p>Torque</p> $M = \frac{V_s \cdot \Delta p \cdot \eta_{mh}}{63} \text{ (Nm)}$	<p>Power</p> $P = \frac{2\pi \cdot M \cdot n}{60000} = \frac{M \cdot n}{9549} = \frac{Q \cdot \Delta p \cdot \eta_t}{600} \text{ (kW)}$	<p>Speed</p> $n = \frac{1000 \cdot Q \cdot \eta_v}{V_s} \text{ (rpm)}$
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- V_s = Displacement (ccm/rev.)
- p = Diff. pressure (bar)
- n = Speed (rpm)
- Q = Flow (lpm)
- η_v = Volumetric efficiency
- η_{mh} = Mechanical-hydraulic efficiency
- η_t = Total efficiency ($\eta_t = \eta_v \times \eta_{mh}$)

POSITION

A11 Motors can be operate any position.

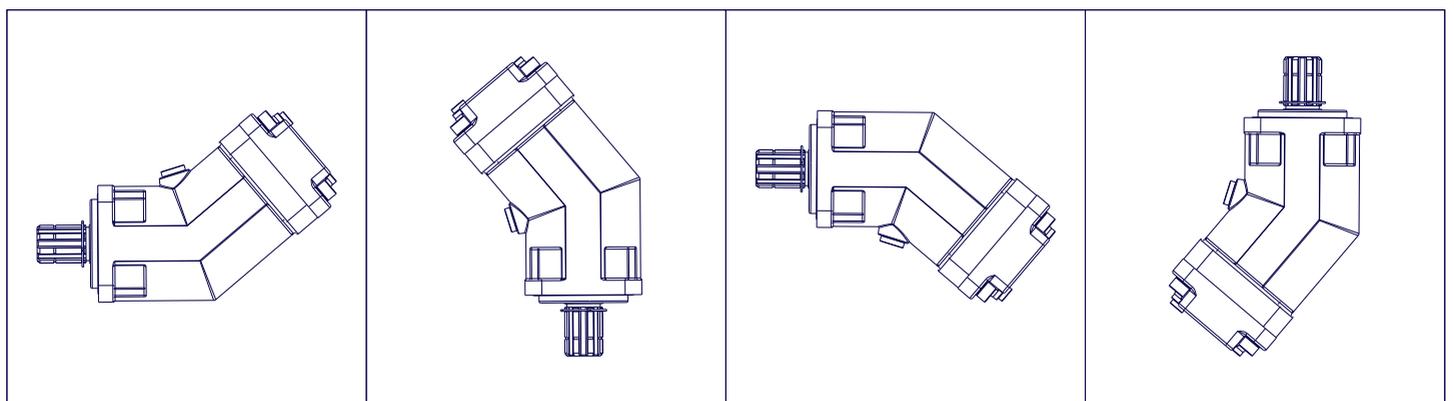
DIRECTION OF ROTATION

A11 Motors can be operate in both directions of rotation.

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

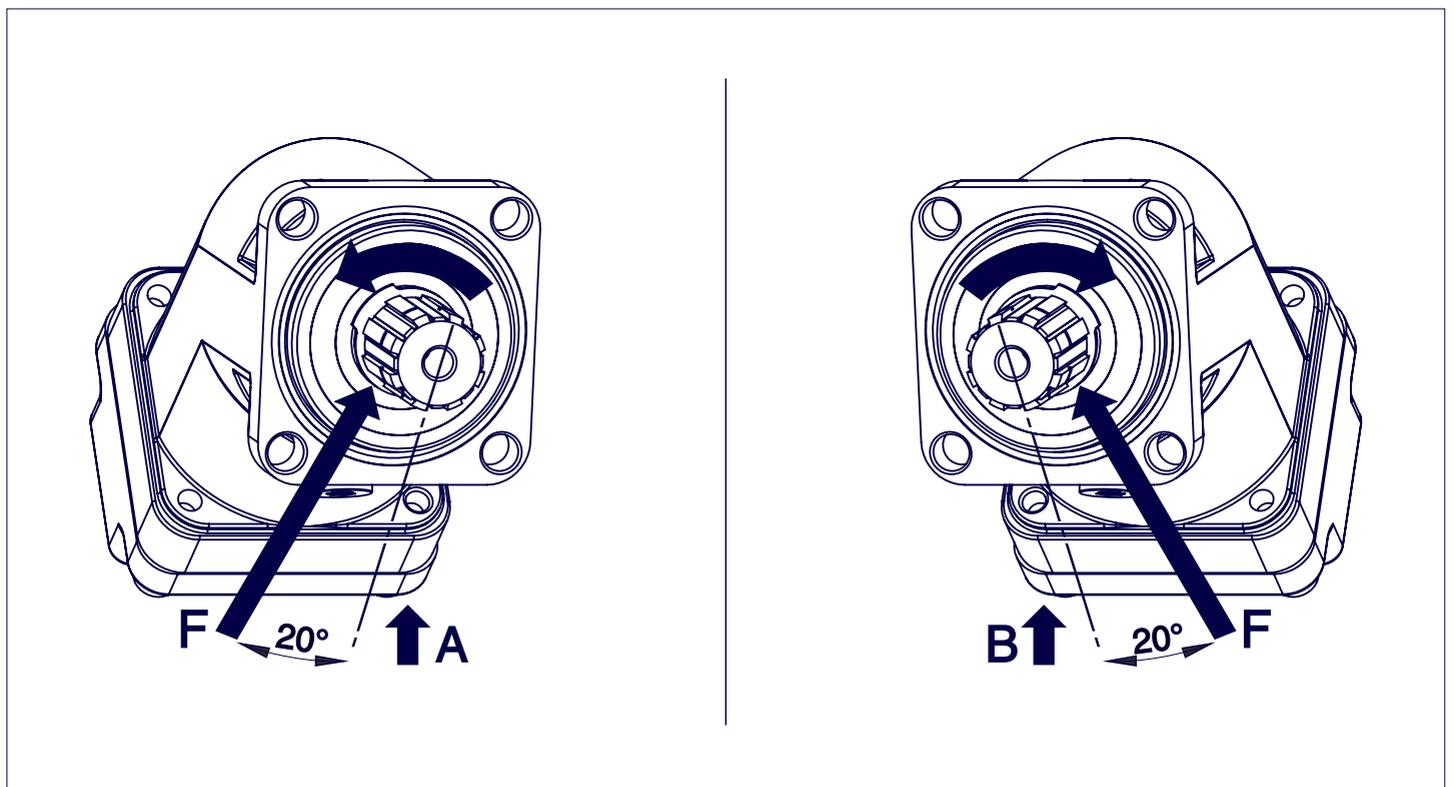
INSTALLATION POSITION

See following examples.



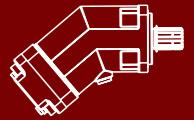
HYDRAULIC FLUID

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.

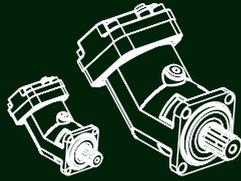


Hydraulic Pumps & Motors

A8PD

DIN

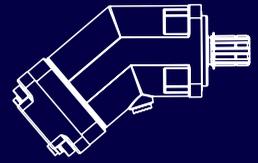
Bent Axis Piston Pumps



A9MD

DIN

Bent Axis Piston Motors



A8PO

ISO

Bent Axis Piston Pumps



A9MO

ISO

Bent Axis Piston Motors



A8PS

SAE

Bent Axis Piston Pumps



A9MS

SAE

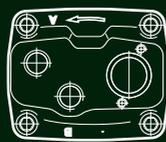
Bent Axis Piston Motors



A8PL

Dual Flow

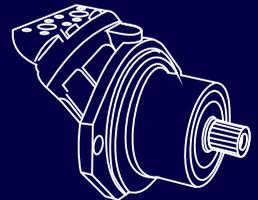
Bent Axis Piston Pumps



A9MF

Fixed Plug-in

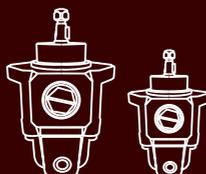
Bent Axis Piston Motors
Semi-integrated



A6HP

High Pressure

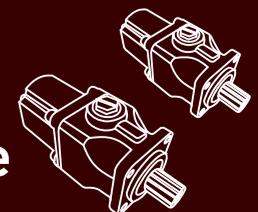
Piston Pumps

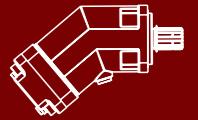


A4PP

High Pressure

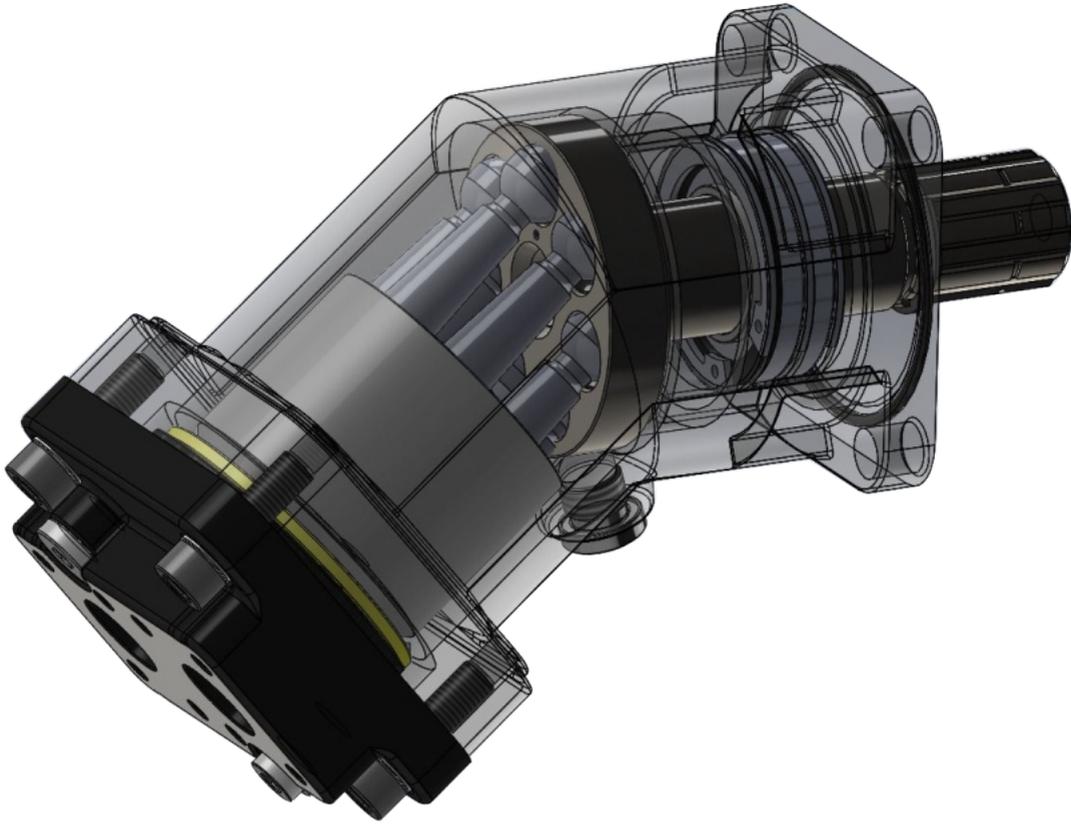
Axial Piston Pumps





A11

Bent Axis MotoPump (2019)



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Complete Product Range

Piston Pumps

Piston Motors

DIN

DIN 5462 / ISO 14
8x32x35
8x32x36
DIN 6885



A8PD



A9MD

ISO

ISO 3019-2 (4 BOLTS)
DIN 5480 -W25,30,35,40,45
DIN 6885 -Ø20,25,30,35,40,45



A8PO



A9MO

SAE

SAE B2 C4 - SAE D
SAE J498b
SAE J 744



A8PS



A9MS

M2

Fixed Plug-in

DIN 5480 / ISO 3019-2
W30 - W35 - W40
M21 - M22 - M23



A8PL - Dual Flow



A9MF - Semi integrated

A4

DIN ISO 14
8x32x36



A4PP Single Flow



A4PL Dual Flow

A6

P2 Connection M8x125
Woodruff key 3x6,5 NF E
27-653 NF R 124-04
(2 BOLTS)



A6HP - High Pressure



**A7GP - Gear Pump
A7GM - Gear Motor**

Contact



Gold Hydraulics, Ltd.

2019® Catalogue

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Bent Axis Motors
Dual Flow Piston Pumps and Gear Pumps...

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