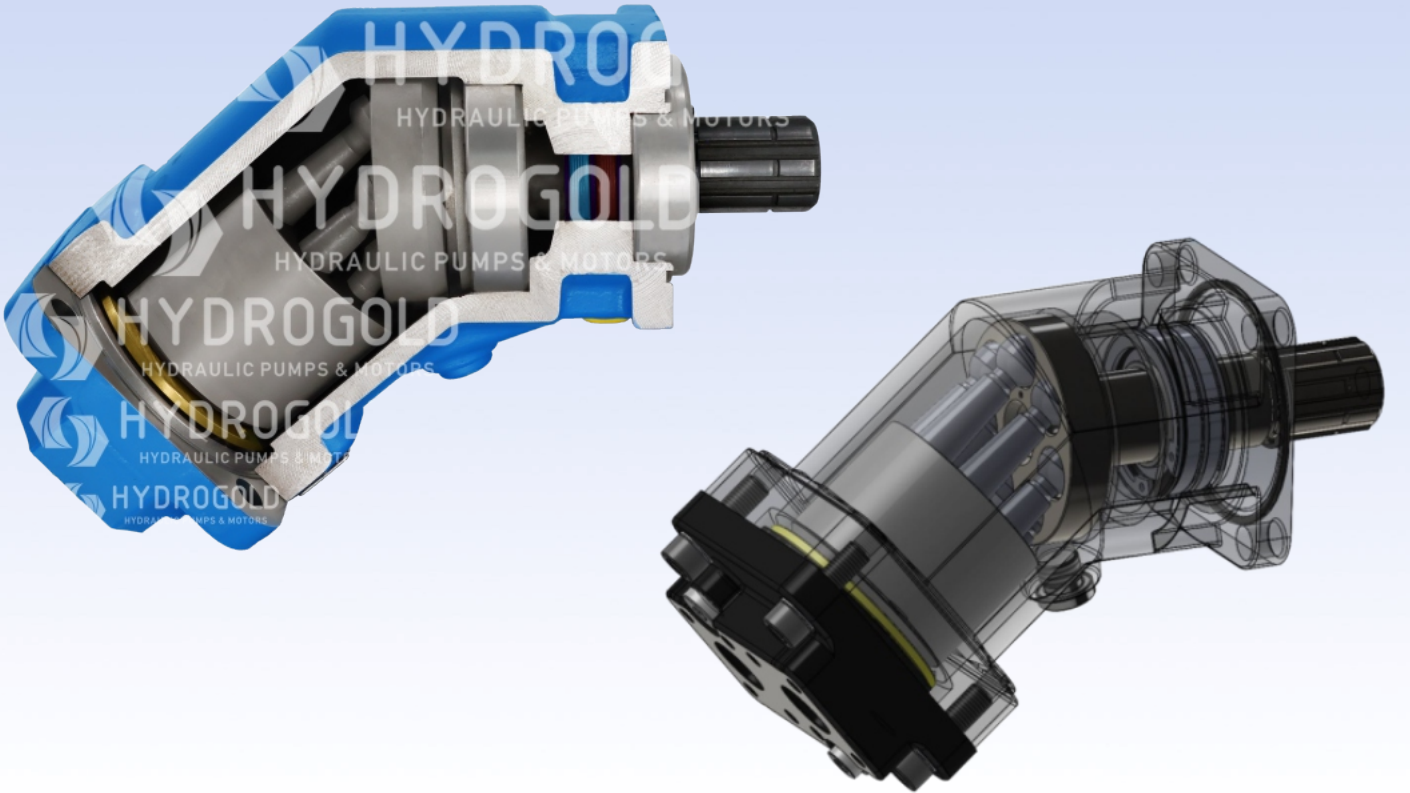


# A10M (HYBRID) Eksenel Pistonlu Motor

**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 in 2025.

## Designation;

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



[www.hydrogold.com.tr](http://www.hydrogold.com.tr)



+



=



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...

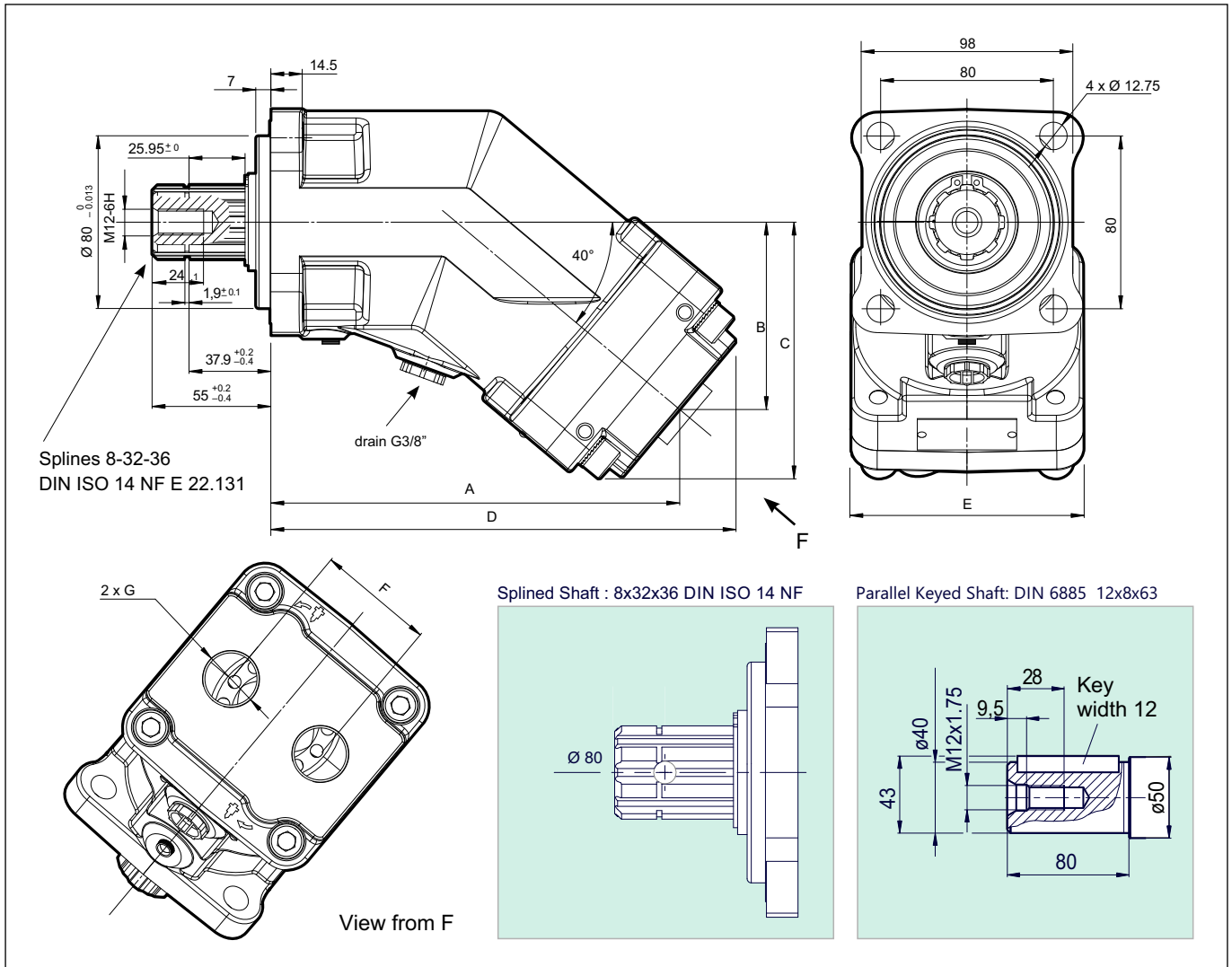


## Ordering Code; A10M - (HYBRID) DIN Flange Bent Axis Motors

Model Code	Displacement	Shaft Type	Flange Type	Version	Sealing
<b>A10M</b>	<b>108</b>	<b>S</b>	<b>B4</b>	<b>HM</b>	<b>V</b>
<b>A10M HYBRID Bent Axis Hydraulic Motor</b>  <b>DIN Flange</b>	5	<b>S</b>  Splined Shaft (default) 8x32x36 DIN ISO 14NF	<b>B4</b>  ISO 7653 Ø80 4 Bolt Flange	<b>HM</b>  HYBRID Motor Version	<b>V</b>  Viton High Pressure Seal
	10				
	12				
	18				
	25				
	32				
	41	<b>K</b>  Parallel Keyed Shaft (special) DIN 6885		<b>HP</b>  HYBRID Pump Version	<b>N</b>  Nitrile Seal 5/10 Bar
	50				
	56				
	63				
	80				
	108				
126					

Formulas			
<b>Pump Output Flow</b>	GPM	$GPM = (\text{Speed (rpm)} \times \text{disp. (cu. in.)}) / 231$	$GPM = (n \times d) / 231$
<b>Pump Input Horsepower</b>	HP	$HP = GPM \times \text{Pressure (psi)} / 1714 \times \text{Efficiency}$	$HP = (Q \times P) / 1714 \times E$
<b>Pump Efficiency</b>	E	Overall Efficiency = Output HP / Input HP	$E_{\text{Overall}} = \text{HPOut} / \text{HPIn} \times 100$
		Overall Efficiency = Volumetric Eff. × Mechanical Eff.	$E_{\text{Overall}} = \text{EffVol.} \times \text{EffMech.}$
<b>Pump Volumetric Efficiency</b>	E	Volumetric Efficiency = Actual Flow Rate Output (GPM) / Theoretical Flow Rate Output (GPM) × 100	$\text{EffVol.} = \text{QAct.} / \text{QTheo.} \times 100$
<b>Pump Mechanical Efficiency</b>	E	Mechanical Efficiency = Theoretical Torque to Drive / Actual Torque to Drive × 100	$\text{EffMech} = \text{TTheo.} / \text{TAct.} \times 100$
<b>Pump Displacement</b>	CIPR	$\text{Dsplcmnt (In.}^3 \text{ / rev.)} = \text{Flow Rate (GPM)} \times 231 / \text{Pump RPM}$	$\text{CIPR} = \text{GPM} \times 231 / \text{RPM}$
<b>Pump Torque</b>	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 / 20 ft./sec.; all oil lines in air-over-oil systems; 4 ft./sec.



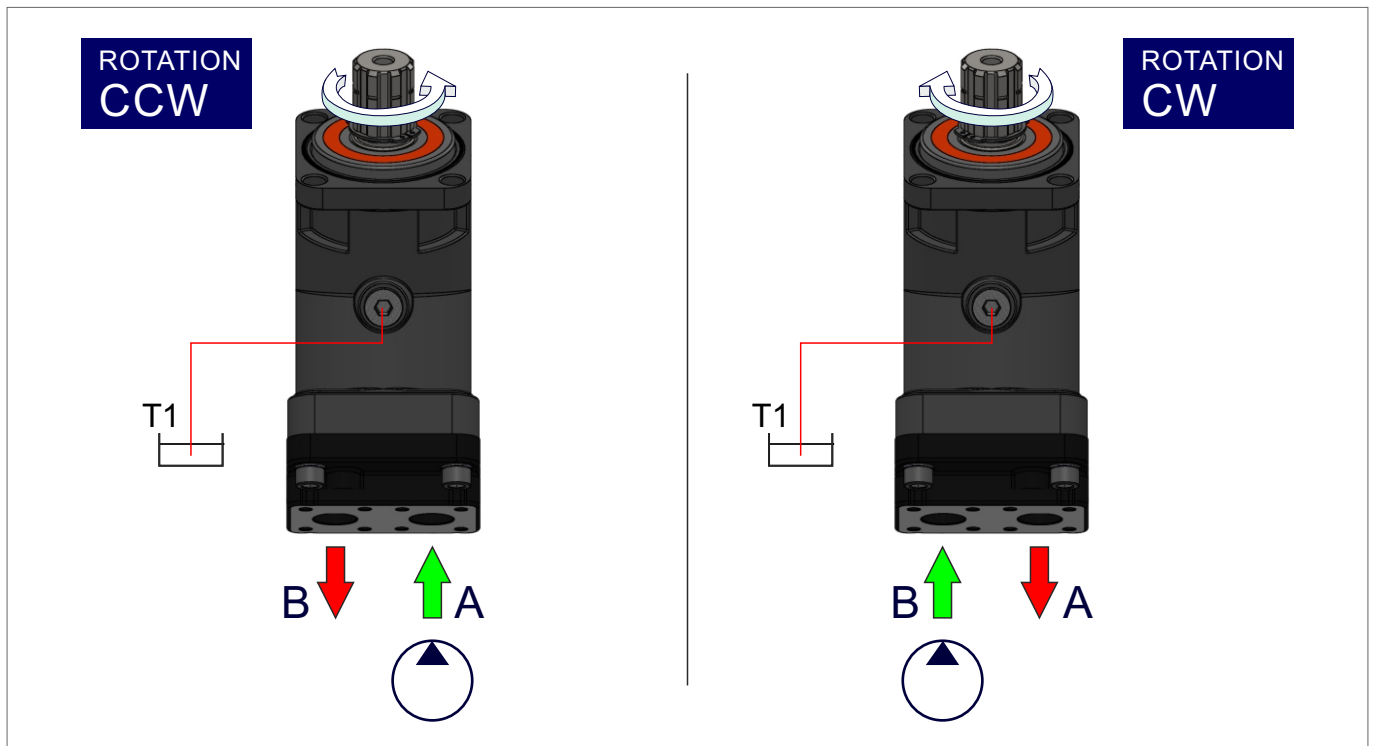
MOTOR MODEL	DISPL. (cc)	A	B	C	D	E	F	G	WEIGHT (kg)
5 cc	5.1	171.5	71.9	103.9	197.9	108.5	54	G 3/4"	9.3
10 cc	10.2	171.5	71.9	103.9	197.9	108.5	54	G 3/4"	9.3
12 cc	12.0	171.5	71.9	103.9	197.9	108.5	54	G 3/4"	9.3
18 cc	18.0	171.5	71.9	103.9	197.9	108.5	54	G 3/4"	9.3
25 cc	25.0	171.5	71.9	103.9	197.7	108.5	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 A10M - 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

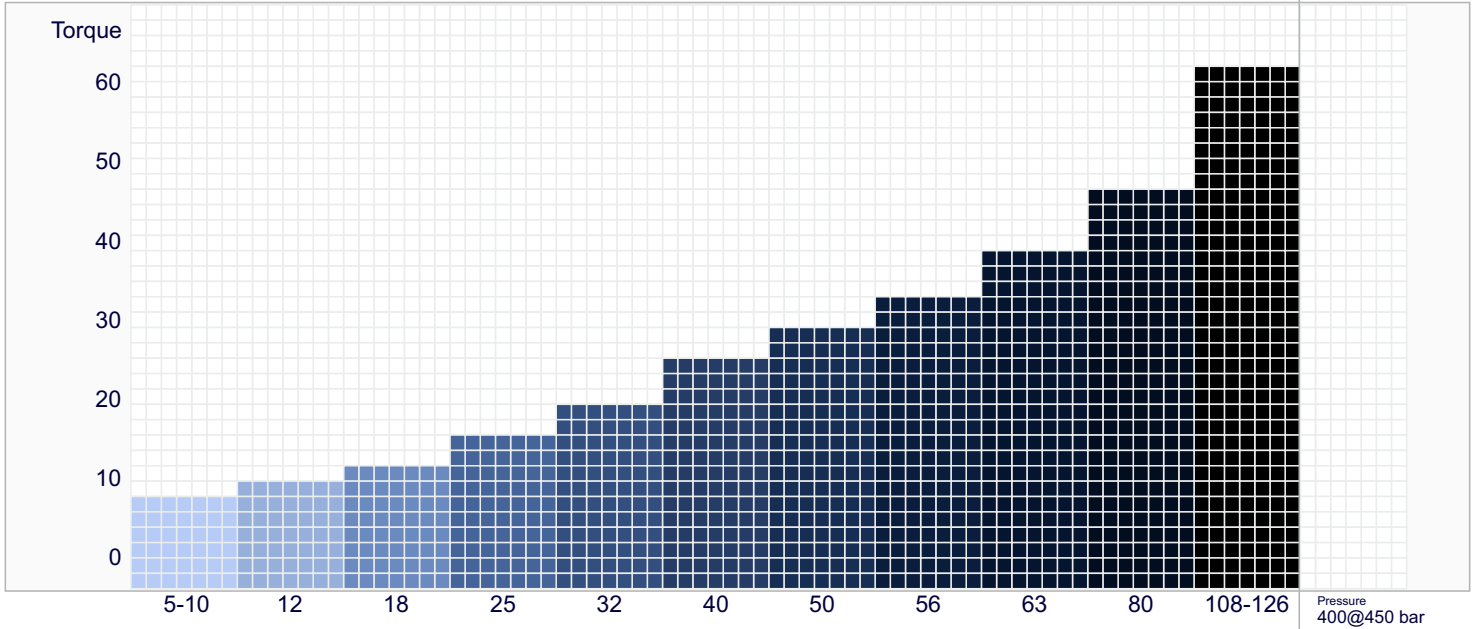
### Direction of Rotation; Reversible

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

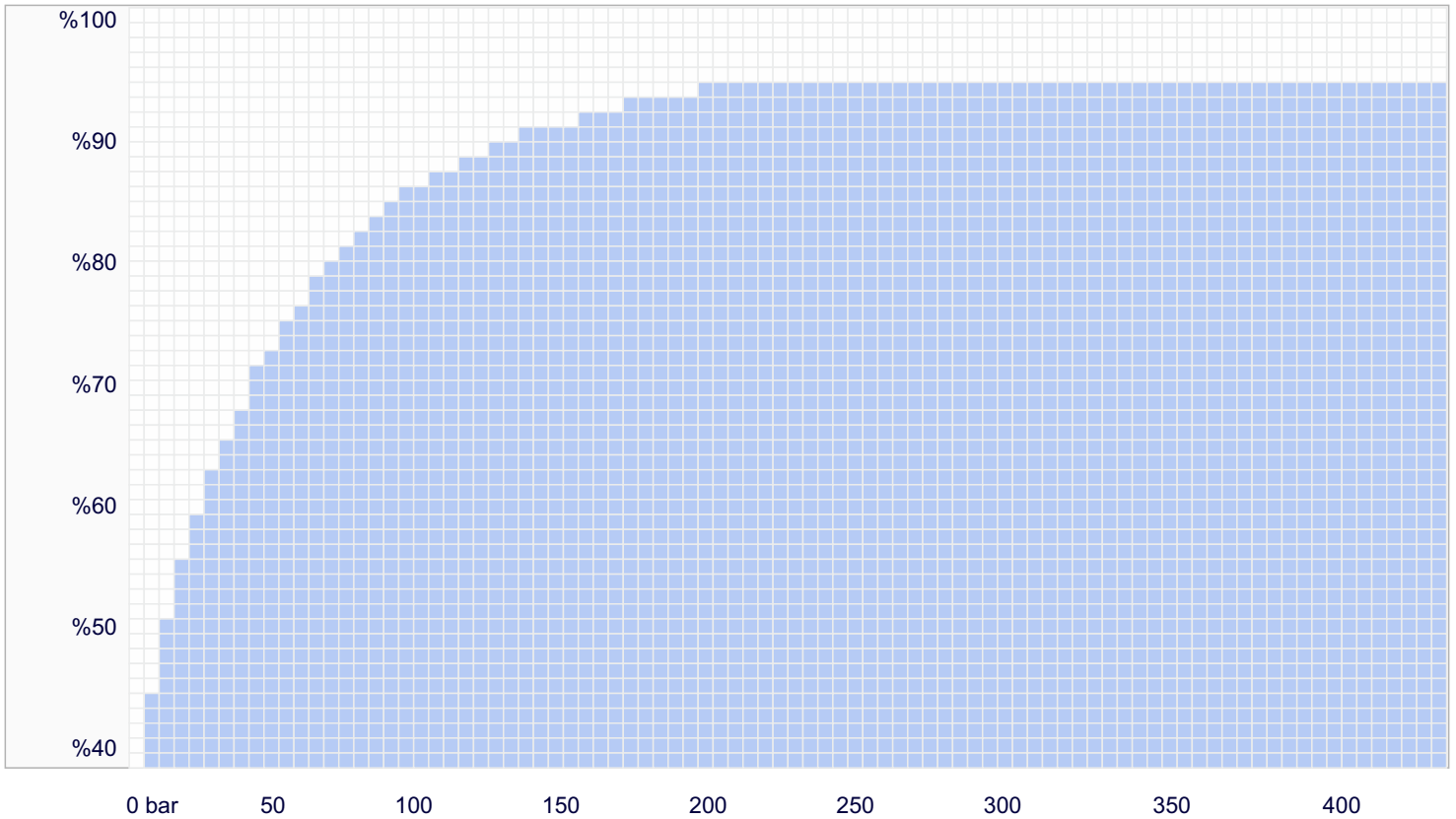


## Performance, Torque, Speed and Pressure Charts

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.

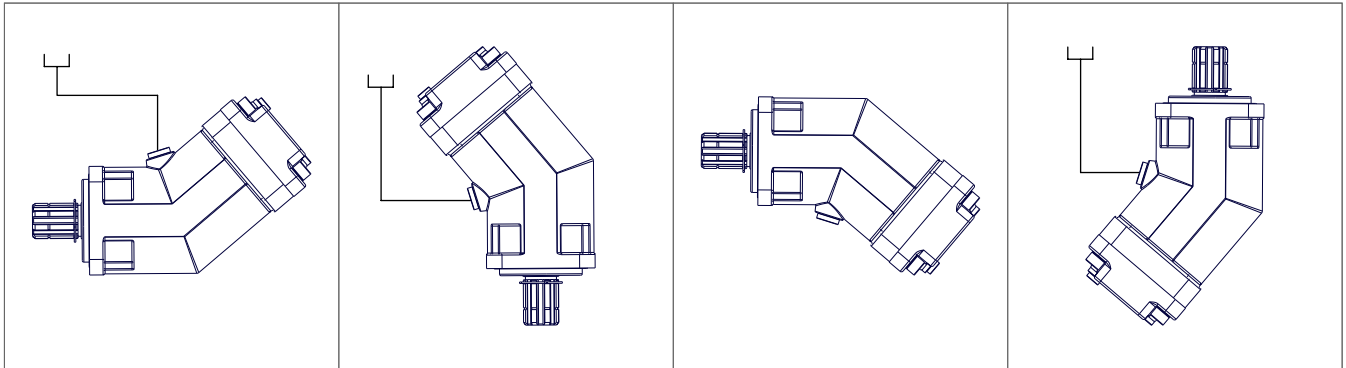
### DIRECTION OF ROTATION

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.

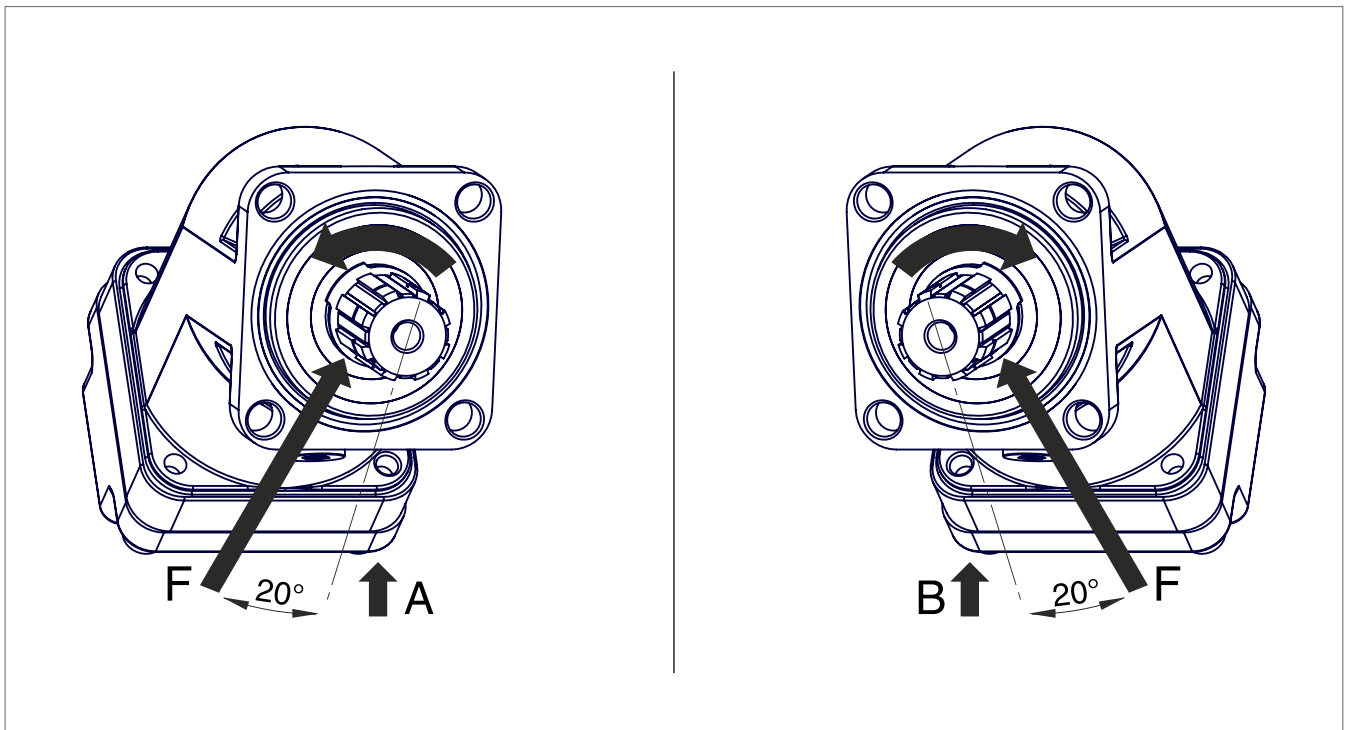


### HYDRAULIC FLUID

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

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

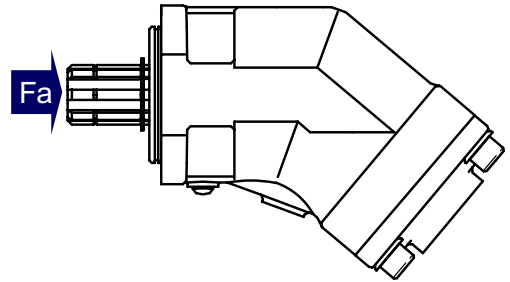
#### Power

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

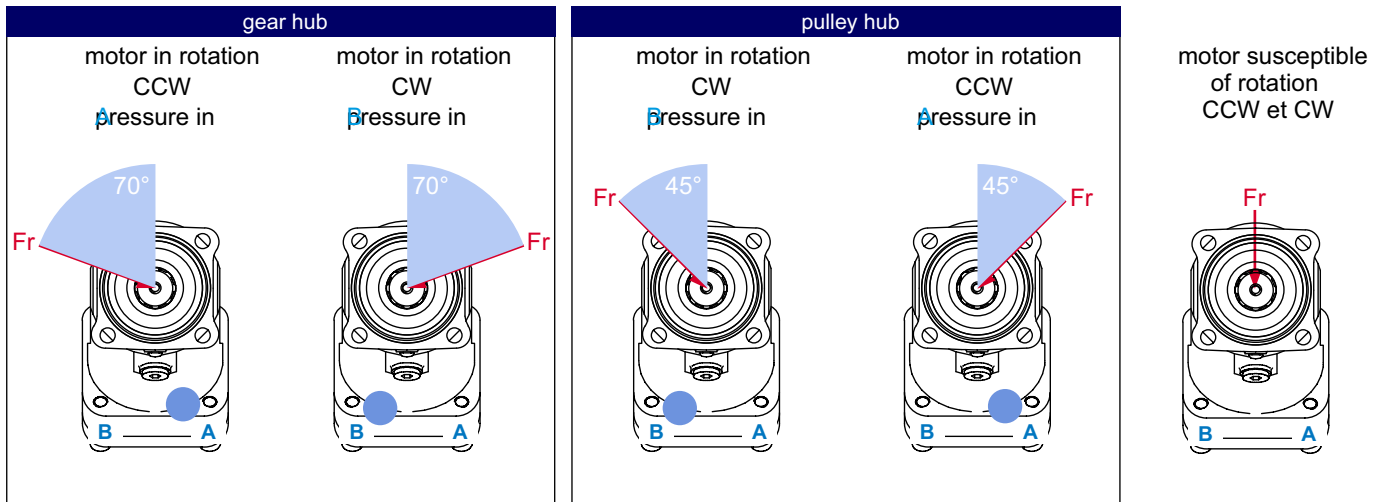
#### Speed

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

- $V_s$  = Displacement (ccm/rev.)
- $\Delta p$  = Diff. pressure (bar)
- $n$  = Speed (rpm)
- $Q$  = Flow (lpm)
- $\eta_v$  = Volumetric efficiency
- $\eta_{mh}$  = Mechanical-hydraulic efficiency
- $\eta_t$  = 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
<b>Fa (N/bar)</b>	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

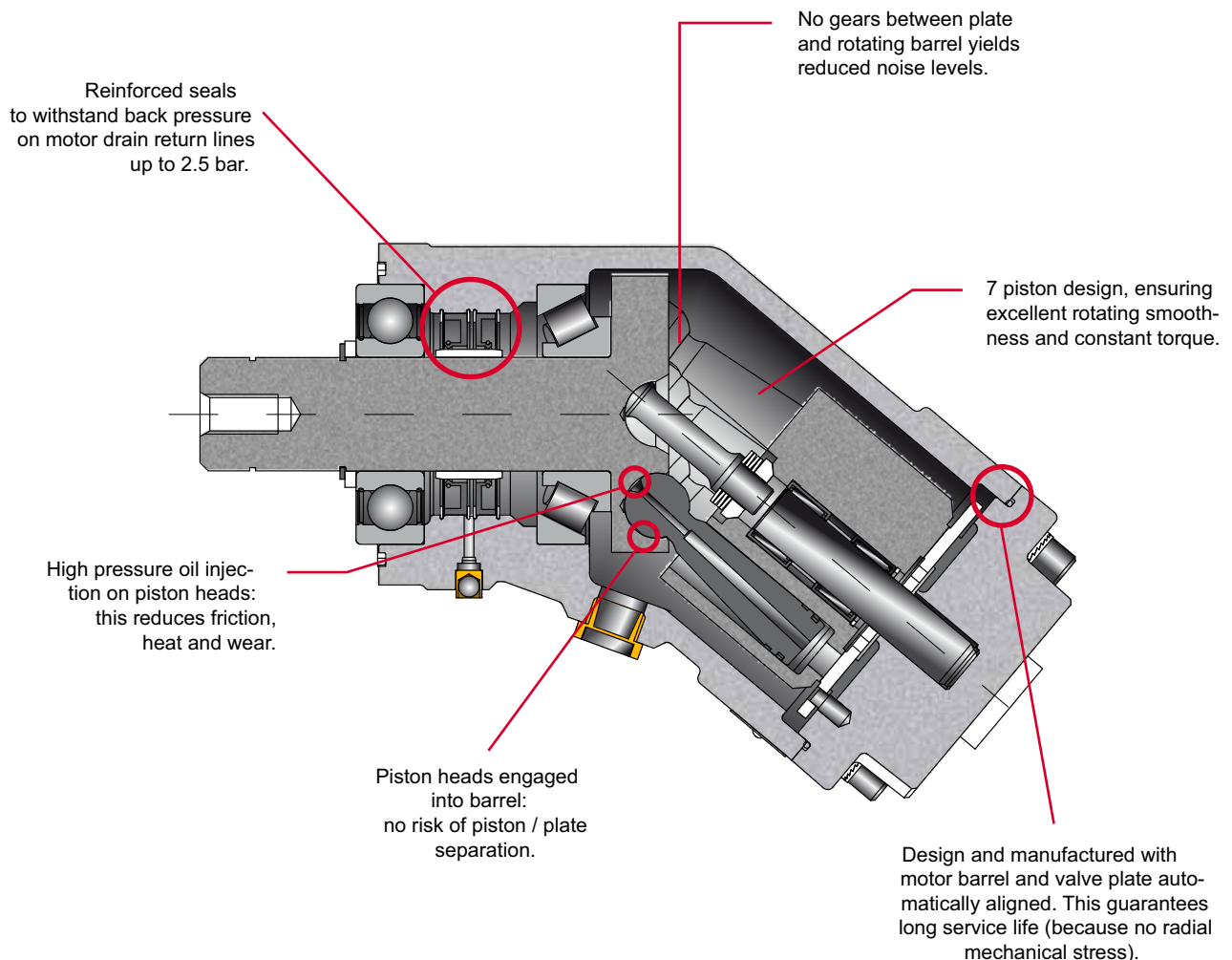


## Bent Axis Hydraulic Piston Motors

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 cm<sup>3</sup>/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.



## 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

A8P (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  
Couplars  
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.

[www.hydrogold.com.tr](http://www.hydrogold.com.tr)

### Address;

**HYDROGOLD HİDROLİK PNM. MAK. SAN. TİC. LTD. ŞTİ.**

**Address; (Fabrika, İmalat)**

Fevzicakmak Mah. Sıla Cad. Kobisan 3 San. Sit.

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

**Address; (Montaj, Sevkiyat)**

Fevzicakmak Mah. Sıla Cad. Kobisan 3 San. Sit.

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

**Phone; +90 332 248 92 01**

[info@hydrogold.com.tr](mailto:info@hydrogold.com.tr)