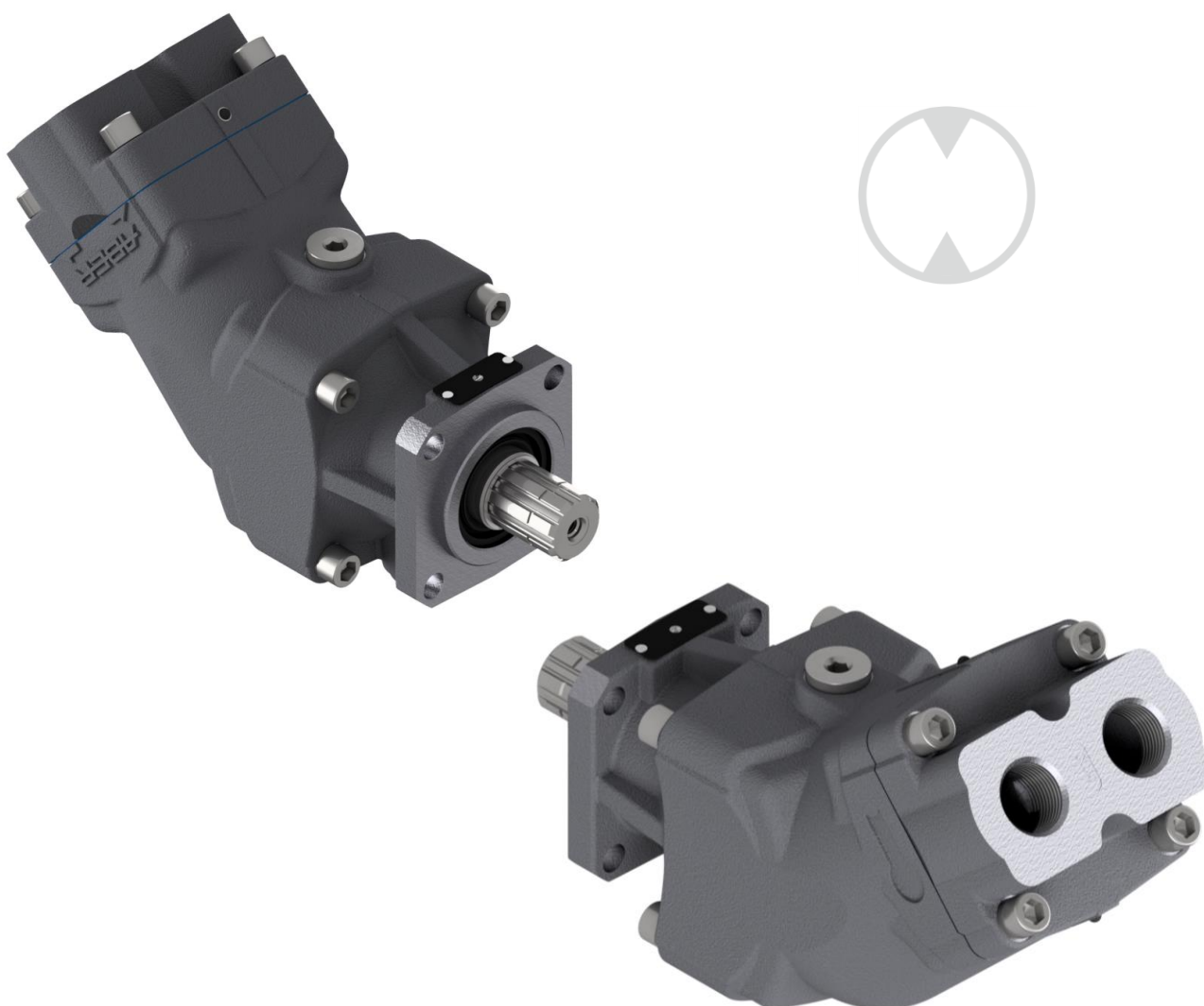


HYDRAULIC PISTON MOTORS MBIF | IRON CAST BENT AXIS PISTON MOTORS – ISO 7653 17cm³/rev. to 135cm³/rev.

Advantages:

- High maximum speed
- High efficiency
- High reliability
- High pressure
- Available in many configurations
- Bidirectional



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General information

MBIF Series is an iron cast bent axis piston motor designed to ensure high speeds due to it's few moving parts and due to is tapered roller bearings. They are available from 17 to 135 cm³/rev.

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Ordering Code

MBIF	110	P	7	I	E	6	0	0
01	02	03	04	05	06	07	08	09

Series

01	Iron Cast Bent Axis Motors	MBIF
----	----------------------------	------

Displacement

02	Displacement, cm³/rev.	17	25	30	40	50	60	80	110	80	110	125	135
----	------------------------	----	----	----	----	----	----	----	-----	----	-----	-----	-----

Motor Size

03	Motor Size	•	•	•	•	•	•	•	•	•	•	•	•	M
														P

Piston Number

04	5 Pistons	•	•	•	•	•								5
	7 Pistons						•	•	•	•	•	•	•	7

Mounting Flange

05	ISO 7653-1985, type D direct coupling	•	•	•	•	•	•	•	•	•	•	•	•	0
----	---------------------------------------	---	---	---	---	---	---	---	---	---	---	---	---	---

Drive Shaft

06	Splined, DIN 5462 B 8x32x36	•	•	•	•	•	•	•	•	•	•	•	•	0
	Splined, DIN 5462 B 8x32x36 with Ø8 bore on the shaft	•	•	•	•	•	•	•	•	•	•	•	•	DF
	Splined, DIN 9611 B 6x30x35 (Agricultural Shaft)	•	•	•	•	•	•	•	•	•	•	•	•	DA

Line Ports

07	ISO DIN 228, G threads (BSP)	•	•	•	•	•	•	•	•	•	•	•	•	0
	8 Thread Holes (4 Oil Admission + 4 Pressure) for assembly	•	•	•	•	•	•	•	•	○	○	○	○	1
	SAE Flange Ports at Rear	○	○	○	○	○	○	○	○	○	○	○	○	5
	SAE Flange Ports at Bottom	•	•	•	•	•	•	•	•	•	•	•	•	6
	SAE Flange Ports at Side	○	○	○	○	○	○	○	○	○	○	○	○	7

Seals

08	NBR Seals	•	•	•	•	•	•	•	•	•	•	•	•	0
	FKM Seals	○	○	○	○	○	○	○	○	○	○	○	○	V

Speed Sensor

09	No Speed Sensor	•	•	•	•	•	•	•	•	•	•	•	•	0
	Prepared for Speed Sensor	○	○	○	○	○	○	○	○	○	○	○	○	S

• Standard version ○ Available under request

The options with the number 0 does not need to be included in the ordering code. Other combinations can be made, for more information please consult ABER.

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Technical Data

MBIF Motors		17	25	30	40	50	60	80	110	80	110	125	135
Displacement	cm³/rev.	17.5	26.4	29.8	40.1	52.9	61.3	82	107	80	108	126	136
Max. Intermittent Pressure	bar	450	450	450	450	450	450	400	400	400	400	400	300
Max. Continuous Pressure	bar	400	400	400	400	400	400	350	350	350	350	350	250
Max. Intermittent Speed ⁽¹⁾	rpm	6000	6000	6000	6000	6000	5600	5600	5600	4800	4700	4700	4700
Max. Continuous Speed	rpm	5400	5400	5400	5400	5400	5000	5000	5000	4200	4200	4200	4200
Min. Continuous Speed	rpm	150	150	150	150	150	150	150	150	150	150	150	150
Moment of Inertia (rotary group) (x10 ⁻³)	Kg. m²	2.5	2.5	2.5	2.5	2.5	3.3	3.3	3.3	7.3	7.3	7.3	7.3
Max. Intermittent Torque	Nm	125	189	213	287	378	439	522	680	509	687	802	649
Max. Continuous Torque	Nm	111	168	189	255	336	390	456	595	445	601	701	541
Weight ⁽²⁾	Kg	11.6	11.8	12	12.3	12.3	12.8	12.8	15.1	21.5	21.3	21.2	21.1
Recommended Fluids		Mineral Oils Type ISO HM or DIN 51524-2 HLP											
Recommended Viscosity Range		20 to 40 cSt (mm²/s) at Working Temperature											
Limits Viscosity Range		10 to 400 cSt (mm²/s)											
Start-up Viscosity Range, Without Load		400 to 1500 cSt (mm²/s)											
Filtration Requirements		ISO 4406 18/13											
Ambient Temperature		-40°C to +60°C											
Oil Temperature ⁽³⁾		-25°C to +75°C											

Data contained in this table are rounded, theoretical and without efficiency or tolerances.

(1) Max. 6 seconds per minute. Higher speeds, please contact aber@aber.pt

(2) Valid for standard version

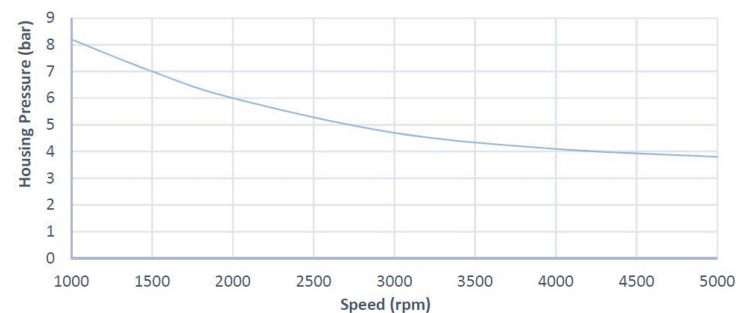
(3) Valid for seals type NBR (Nitril Seals)

Housing Pressures

Different housing pressures and different drain fluid temperatures can be achieved with different Seals, please contact ABER.

With seals type NBR (Nitril seals) maximum drain fluid temperature is 75°C.

Diagram for motors with seals type NBR
Housing Pressure - Speed



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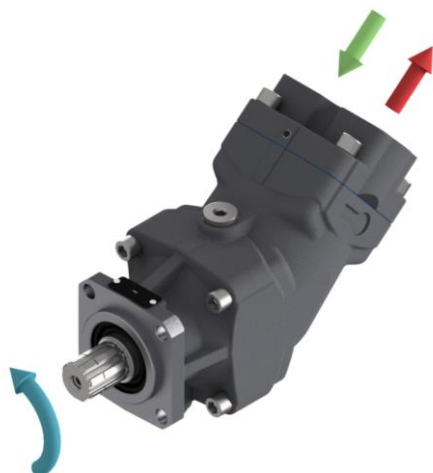
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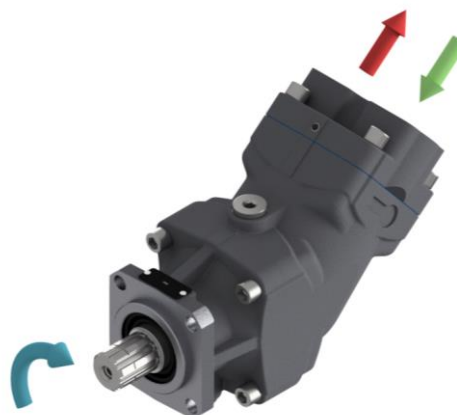
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Rotation Sense



Left Hand (CCW)



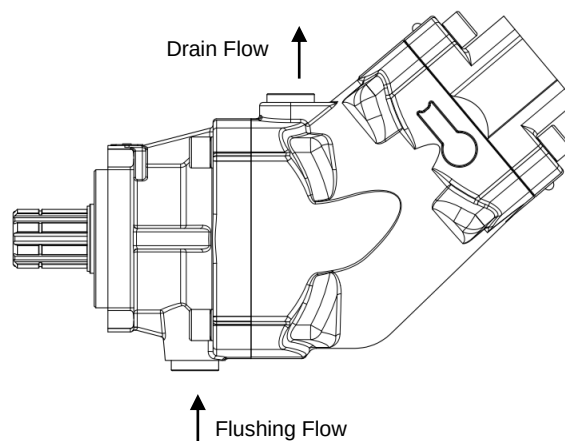
Right Hand (CW)

 Rotation sense is defined viewed from drive shaft.

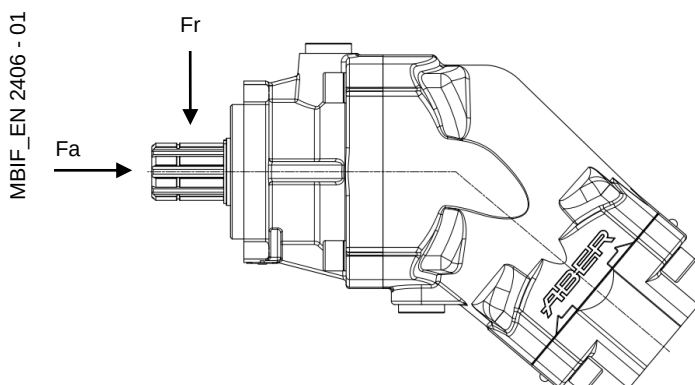
Housing Cooling

In order to provide an additional cooling flow to the rotating parts of the motor, when it operates at high speeds a housing flushing valve must be considered. Housing flushing can be achieved through a flushing valve or through a connection between the return line and the flushing plug.

The drainage pipe should be connected in the highest port as show in the figure.

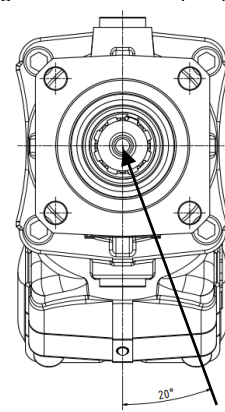
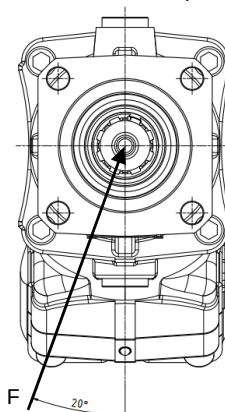


Shaft Loads



Left Hand Rotation (CCW)

Right Hand Rotation (CW)



The life of the motor is directly related with the bearings life. External loads on the main shaft (F_a and F_r) reduced the bearing life. To obtain the maximum bearing life, the radial load (F_r) should be applied in the direction show below ($\alpha = 20^\circ$)

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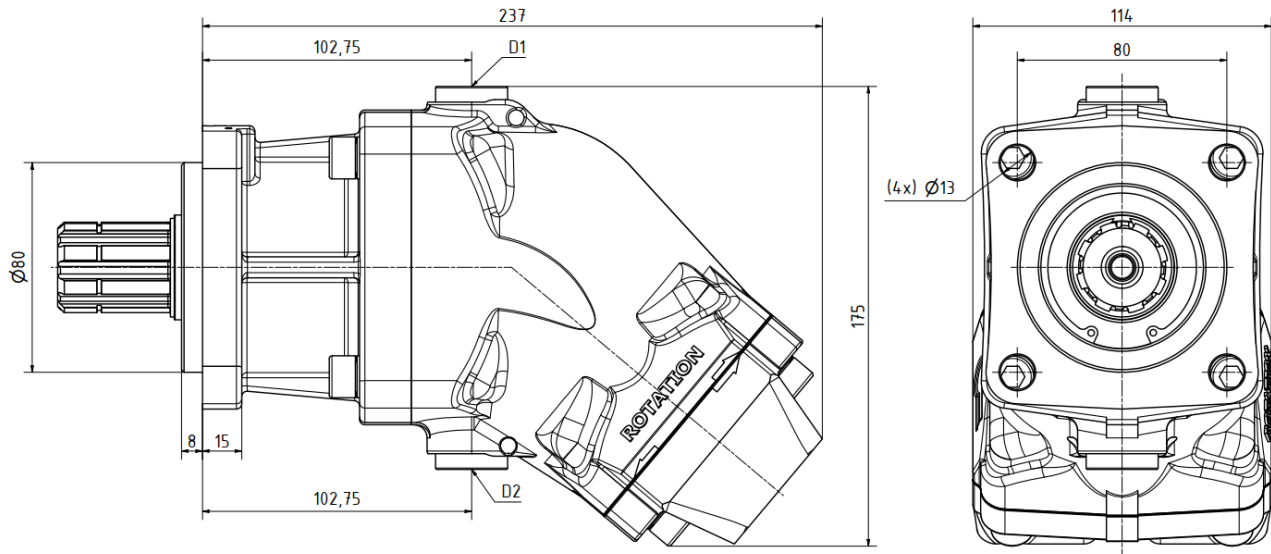
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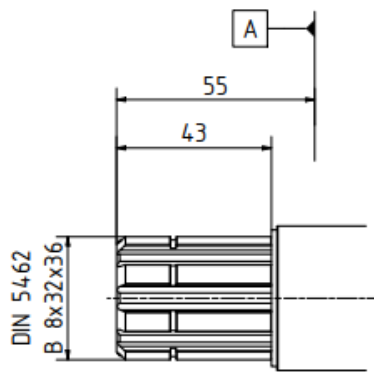
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Dimensions – 17M5, 25M5, 30M5, 40M5, 50M5, 60M7, 80M7, 110M7

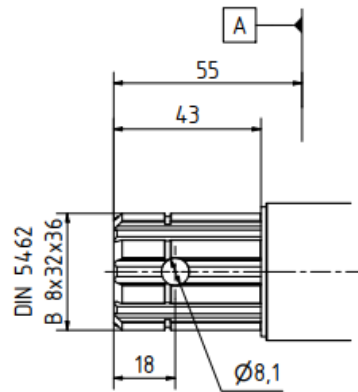


Designation	Port for	Standard	Size
D1	Drain Line	DIN 3852	M22x1,5; 20 deep
D2			

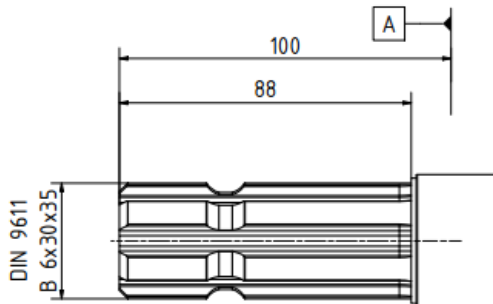
Drive shafts – 17M5, 25M5, 30M5, 40M5, 50M5, 60M7, 80M7, 110M7



0 – Splined, DIN 5462 B 8x32x36



DF – Splined, DIN 5462 B 8x32x36 with Ø8 bore on the shaft



DA – Splined, DIN 9611 B 6x30x35
(Agricultural Shaft)

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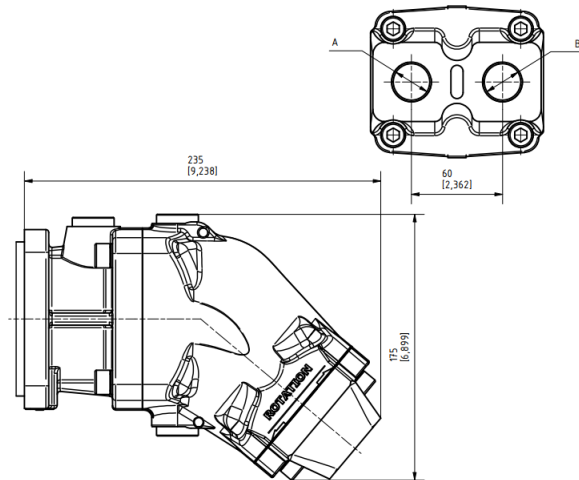
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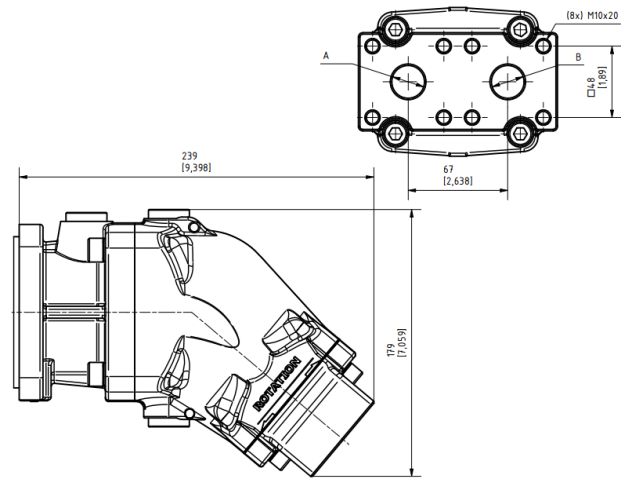
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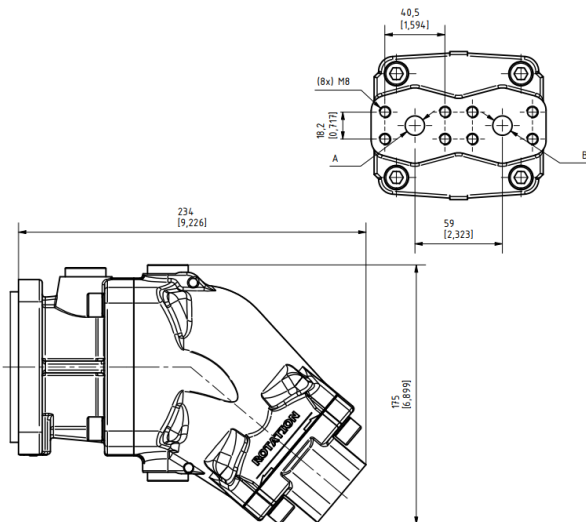
Port plates – 17M5, 25M5, 30M5



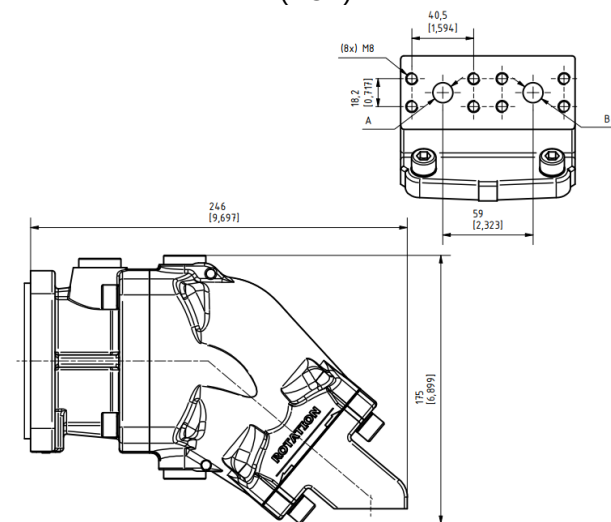
0 – ISO DIN 228, G threads (BSP)



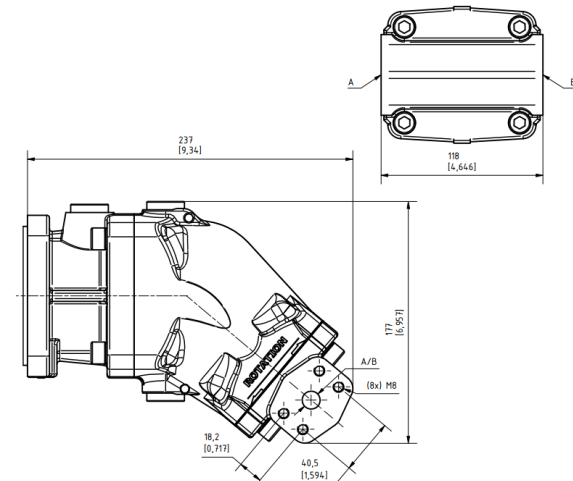
1 – 8 Thread Holes (4 Oil Admission + 4 Pressure) for assembly - Compatible with Anti Cavitation Valve (ACV)



5 – SAE Flange Ports at Rear



6 – SAE Flange Ports at Bottom



7 – SAE Flange Ports at Side

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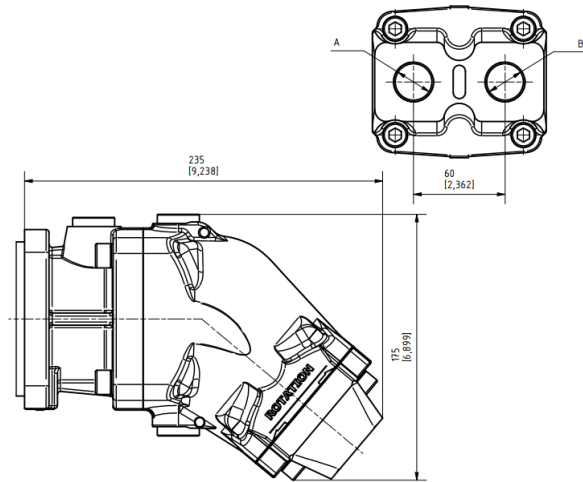
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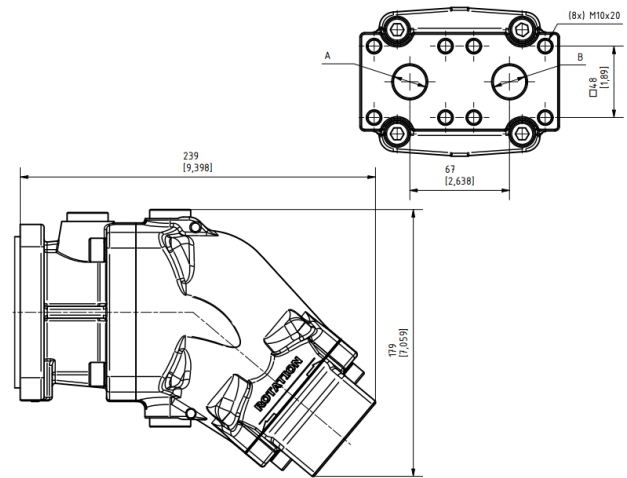
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Type	Designation	Port for	Standard	Size
0	A, B	Service line	DIN 228	3/4" BSP
1			-	Ø22
5			SAE J518	Ø13
6				
7				

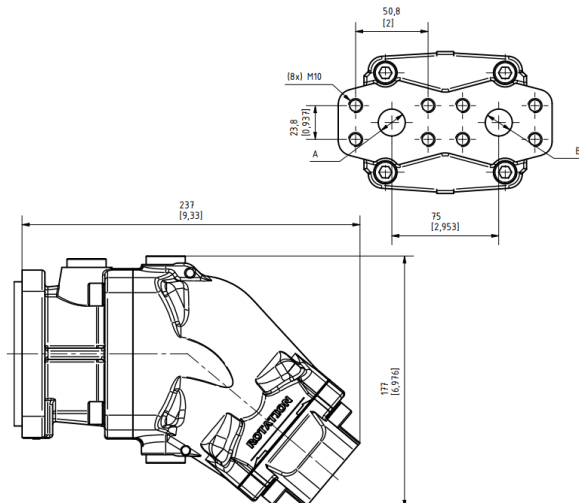
Port plates – 30M5, 40M5, 50M5, 60M7, 80M7, 110M7



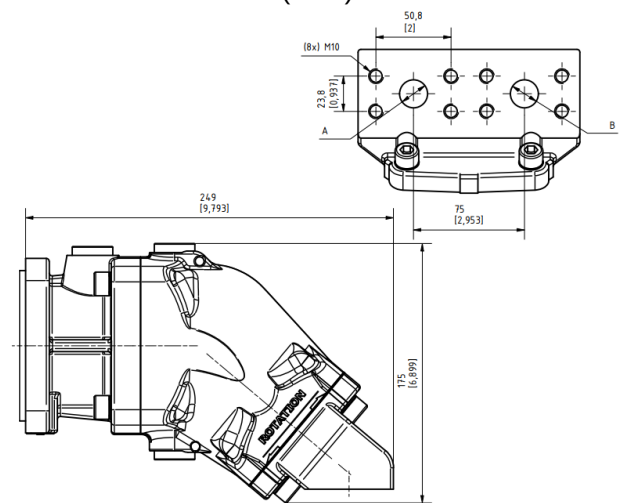
0 – ISO DIN 228, G threads (BSP)



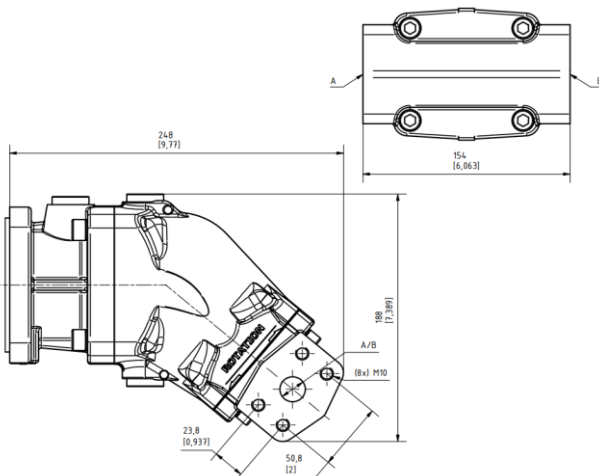
1 – 8 Thread Holes (4 Oil Admission + 4 Pressure)
for assembly - Compatible with Anti Cavitation Valve
(ACV)



5 – SAE Flange Ports at Rear



6 – SAE Flange Ports at Bottom



7 – SAE Flange Ports at Side

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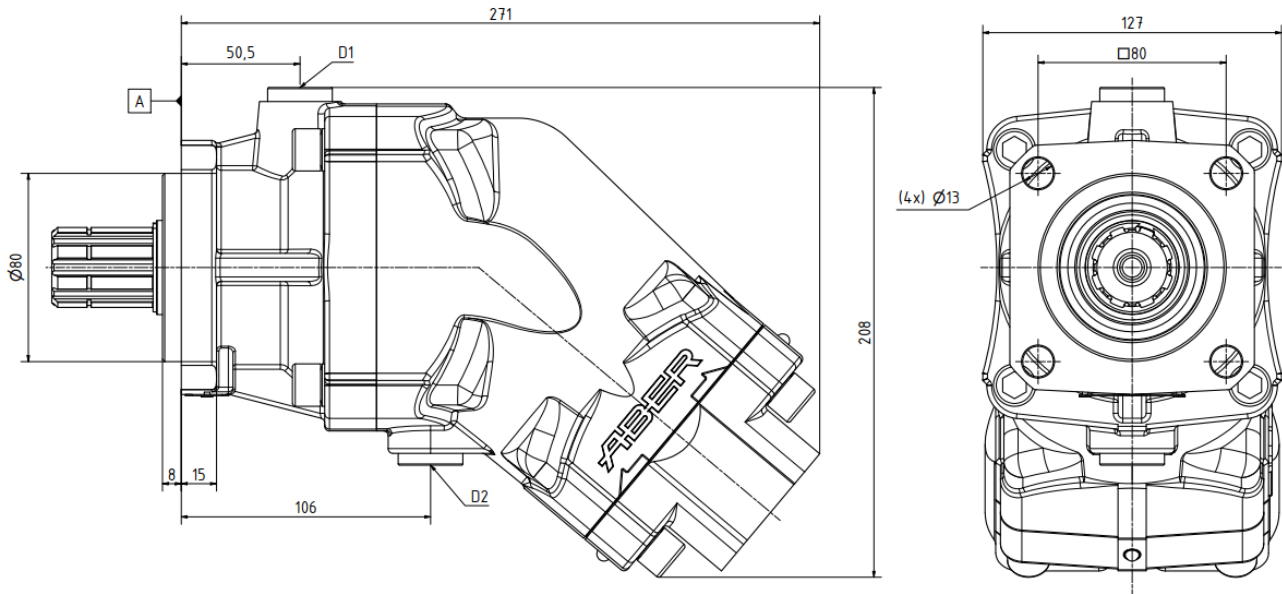
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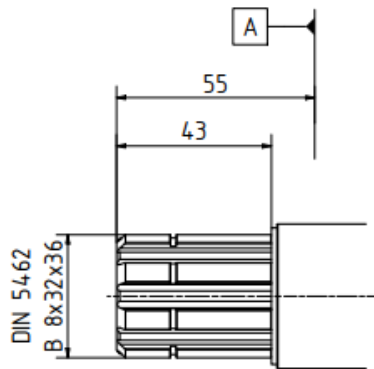
Type	Designation	Port for	Standard	Size
0	A, B	Service line	DIN 228	3/4" BSP (1" BSP for 80M7)
1			-	Ø22
5			SAE J518	Ø19
6				
7				

Dimensions – 80P7, 110P7, 125P7, 135P7

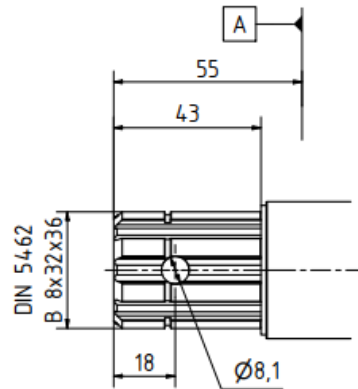


Designation	Port for	Standard	Size
D1	Drain Line	DIN 3852	M22x1,5; 20 deep
D2			

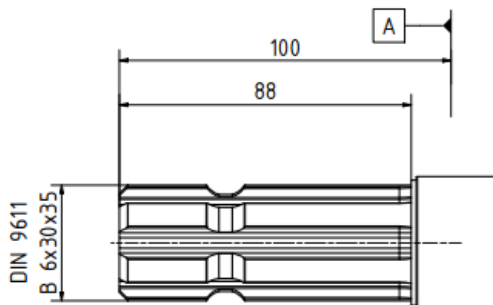
Drive shafts sizes – 80P7, 110P7, 125P7, 135P7



0 – Splined, DIN 5462 B 8x32x36



DF – Splined, DIN 5462 B 8x32x36 with Ø8 bore on the shaft



DA – Splined, DIN 9611 B 6x30x35
(Agricultural Shaft)

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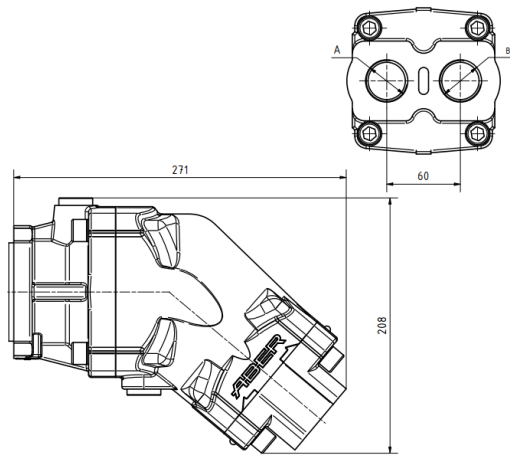
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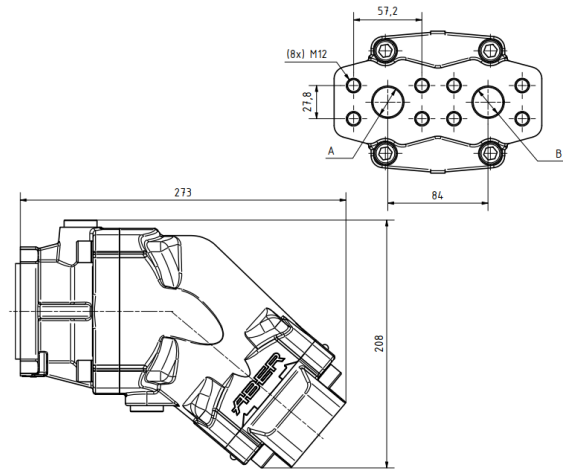
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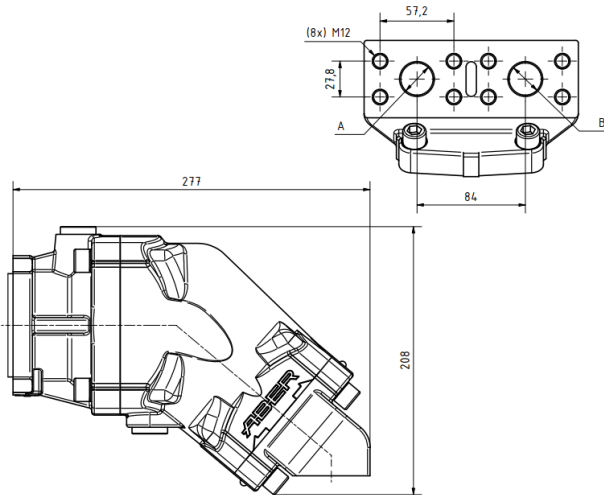
Port plates – 80P7



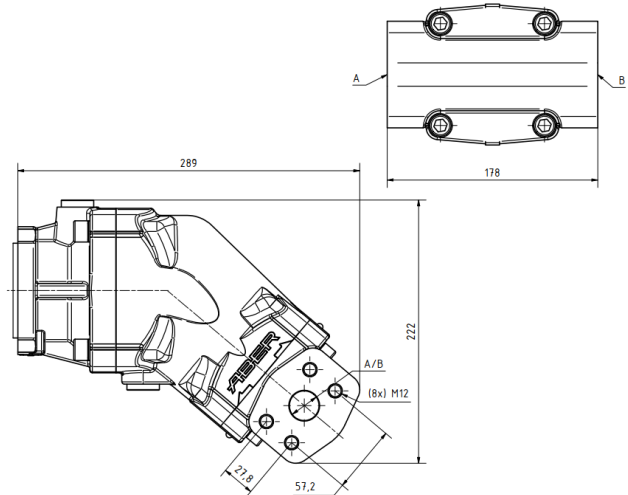
0 – ISO DIN 228, G threads (BSP)



5 – SAE Flange Ports at Rear



6 – SAE Flange Ports at Bottom



7 – SAE Flange Ports at Side

Type	Designation	Port for	Standard	Size
0	A, B	Service line	DIN 228	1" BSP
5			SAE J518	Ø25
6				
7				

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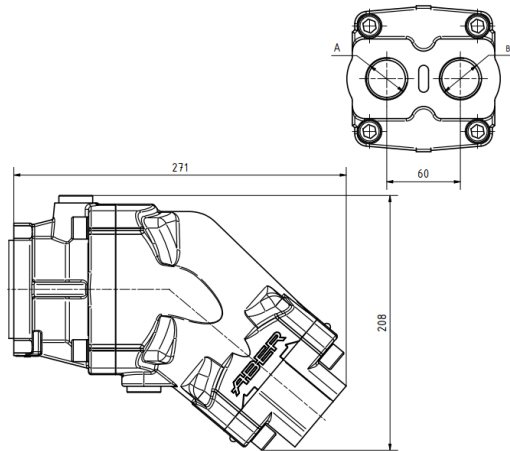
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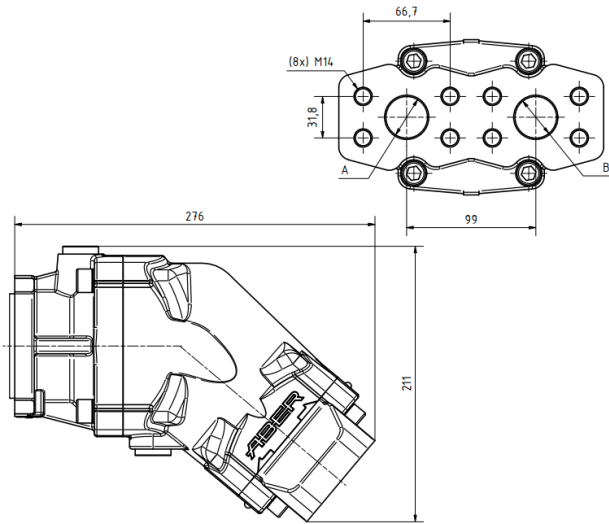
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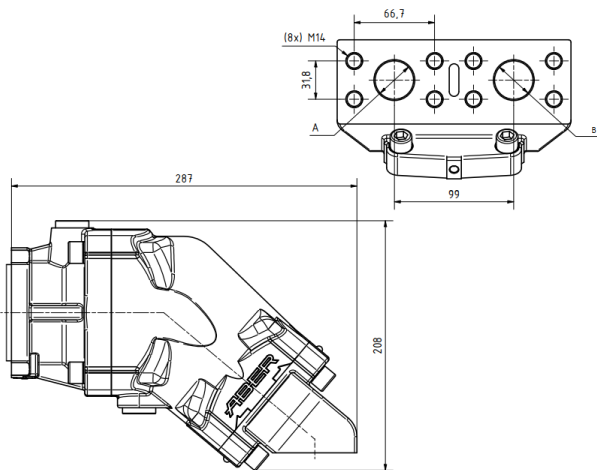
Port plates – 110P7, 125P7, 135P7



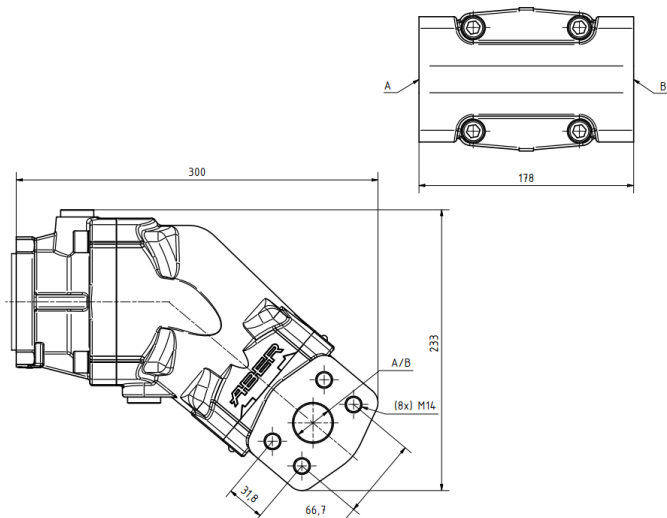
0 – ISO DIN 228, G threads (BSP)



5 – SAE Flange Ports at Rear



6 – SAE Flange Ports at Bottom



7 – SAE Flange Ports at Side

Type	Designation	Port for	Standard	Size
0	A, B	Service line	DIN 228	1" BSP
5			SAE J518	Ø32
6				
7				

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Formulas

Input Flow	$Q = \frac{D \times n}{1000 \times \eta_v} \quad [l/min]$	D - Displacement [cm ³ /rev.] n - Speed (rpm) η_v - Volumetric efficiency
Speed	$n = \frac{Q \times 1000 \times \eta_v}{D} \quad [rpm]$	Q - Input flow [l/min] η_v - Volumetric efficiency D - Displacement [cm ³ /rev.]
Torque	$M = \frac{D \times \Delta p \times \eta_{hm}}{20 \times \pi} \quad [N.m]$	Δp - Differential pressure [bar] η_{hm} - Hydraulic-mechanical efficiency D - Displacement [cm ³ /rev.]
Power	$P = \frac{Q \times \Delta p \times \eta_g}{600} \quad [kW]$	Δp - Differential pressure [bar] η_g - Overall efficiency Q - Input flow [l/min]

Recommendations before start up

- Grease spline shaft with solid lubricant before installation. High efforts or shocks are not recommended during the installation. The motor must be connected without making use of any type of tool that forces its assembly. In driving gear application and couplings use circlips and/ or washers with one screw and locking fluid.
- Remove all protection covers from the threaded holes (inlet/outlet/drain line/flushing lines). Apply the inlet and outlet fittings into the motor (require the tightening information from the fittings manufacturer). Connect the outlet and the inlet pipes to the accessories.
- Before start-up, the housing volume must be filled at least at 50% with the same hydraulic fluid used in the system.

Faults / Causes / Remedies

Faults	Causes	Remedies
Motor turning in wrong direction	1.Incorrect piping between control valve and motor	1.Check circuit to determine the correct rotation sense
Motor not turning over or not developing proper speed or Torque	1.System overload relief valve adjustment not set high enough 2.Relief valve sticking open 3.Free recirculation of oil to reservoir being allowed through system 4.Driven mechanism binding because of misalignment 5.Pump not delivering sufficient pressure or volume	1.Check system pressure and reset relief valve 2.Remove dirt under pressure adjustment ball or piston 3.Direction control valve may be in open center neutral or other return line unintentionally open. Repair or replace valve. 4.Remove motor and check torque requirement of driven shaft. 5.Check pump delivery and pressure.
Oil leakage	1.From inlet/outlet lines 2.From gasket/seals	1.Tighten fittings and hoses, or replace if necessary 2.Replace (if drain line required, it must be piped directly to reservoir)



When the motor is working, never touch or pull hoses or intermediate shaft when applied. When intermediate shaft is applied take into account that parts can be ejected. The application of the motors must follow all the instructions hereby mentioned in order to assure the safety of all personal working with the equipment including its surroundings, assure a long life to the product and preserve the warranty of the brand. All applications that do not follow the hereby instruction are solely the users responsibility. If there should happen any malfunctioning, it is strictly forbidden the disassembly of the product except if it is being made by a qualified technician of the brand or if there is a special authorization to do that. If this specification should not be followed, all warranties might be lost.