

*TECHNICAL DATA SHEETS*  
*and*  
*RECOMMENDATIONS*

**ABER**

Manufacturing Hydraulic Excellence since 1972

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**HYDRAULIC PISTON MOTORS**  
**MBIF | IRON CAST BENT AXIS PISTON MOTORS**  
**17cm<sup>3</sup>/rev. to 80cm<sup>3</sup>/rev.**

High maximum speed



**MBIF SERIES**

**Higher Pressure**  
**Compact Design**  
**High Reability**  
**Bidirectional**



CTI MBIF 1603-0

ABER is constantly engaged in improving its products and, therefore, reserves itself the right to modify without any further notice the characteristics shown



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## General information

MBIF Series is an iron cast bent axis piston motor designed to ensure high speeds due to its few moving parts and due to its tapered roller bearings. They are available from 17 to 80 cm<sup>3</sup>/rev.

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# HYDRAULIC MOTORS IRON CAST BENT AXIS PISTON MOTORS

Ref.  
MBIF\_M/M7

## Ordering code

MBIF	80	M	7	0	0	0	0
01	02	03	04	05	06	07	08

### Series

01	Iron cast bent axis motors	MBIF
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### Displacement

02	Displacement, cm <sup>3</sup> /rev.	17	25	30	40	50	60	80
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### Motor Size

03	Medium	M
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### Piston Number

04	5 pistons	•	•	•	•	•			5*
	7 pistons						•	•	7

### Mounting flange

		17	25	30	40	50	60	80	
05	ISO 7653-1985, type D direct coupling	•	•	•	•	•	•	•	0
	SAE J744, B 2 holes	○	○	○	○	○	○	○	B2
	SAE J744, B 4 holes	○	○	○	○	○	○	○	B4
	SAE J744, C 2 holes	○	○	○	○	○	○	○	C2
	SAE J744, C 4 holes	○	○	○	○	○	○	○	C4
	ISO 3019, 4-h Ø125	○	○	○	○	○	○	○	I

### Drive Shaft

		17	25	30	40	50	60	80	
06	Splined DIN 5462, B8x32x36	•	•	•	•	•	•	•	0
	Splined DIN 5480, W35x2x16x9	○	○	○	○	○	○	○	A
	Splined, 13T 16/32 DP-SAE B	○	○	○	○	○	○	○	0**
	Splined, 14T 12/24 DP-SAE C	○	○	○	○	○	○	○	
	Key, SAEJ744 Ø25.4 – SAE B	○	○	○	○	○	○	○	K
	Key, SAEJ744 Ø31.7 – SAE C	○	○	○	○	○	○	○	
Key, Ø35 k6 – ISO3019	○	○	○	○	○	○	○		

### Line ports

		17	25	30	40	50	60	80	
07	ISO DIN 228, G threads (BSP)	•	•	•	•	•	•	•	0
	Metric	○	○	○	○	○	○	○	3
	SAE J514	○	○	○	○	○	○	○	4
	SAE J518 – 6000 psi	○	○	○	○	○	○	○	5

### Speed sensor

08	No speed sensor	0
	Fitted with speed sensor	S

- Standard version
- Available under request

\* Number 5 only used when ordering code contains more than 04 characters.

\*\* Ordering the SAE B and SAE C mounting flange the splined drive shaft does not need to be included in the ordering code

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	32	40	50	60	80
Displacement	cm <sup>3</sup> /rev.	17.5	26.4	29.8	40.1	52.9	61.3	82
Max intermittent pressure	bar	450	450	450	450	450	450	400
Max continuous pressure	bar	400	400	400	400	400	400	350
Max. intermittent speed <sup>(1)</sup>	rpm	6000	6000	6000	6000	6000	5600	5600
Max. continuous speed	rpm	5400	5400	5400	5400	5400	5000	5000
Moment of inertia (rotary group) (x10 <sup>-3</sup> )	kg.m <sup>2</sup>	2.5	2.5	2.5	2.5	2.5	3.3	3.3
Max. Intermittent Torque	Nm	125	185	230	300	360	430	515
Max. continuous Torque	Nm	110	165	205	265	320	380	450
Weight <sup>(2)</sup>	kg	11.6	11.8	12	12.3	12.3	12.8	12.8
Recommended fluids	mineral oils type ISO HM or DIN 51524-2 HLP							
Recommended viscosity range	20 to 40 cSt (mm <sup>2</sup> /s) at working temperature							
Limits viscosity range	10 to 400 cSt (mm <sup>2</sup> /s)							
Start-up viscosity range, without load	400 to 1500 cSt (mm <sup>2</sup> /s)							
Filtration requirements	ISO 4406 18/13							
Ambient temperature	-40°C to +60°C							
Oil temperature <sup>(3)</sup>	-25°C to +75°C							

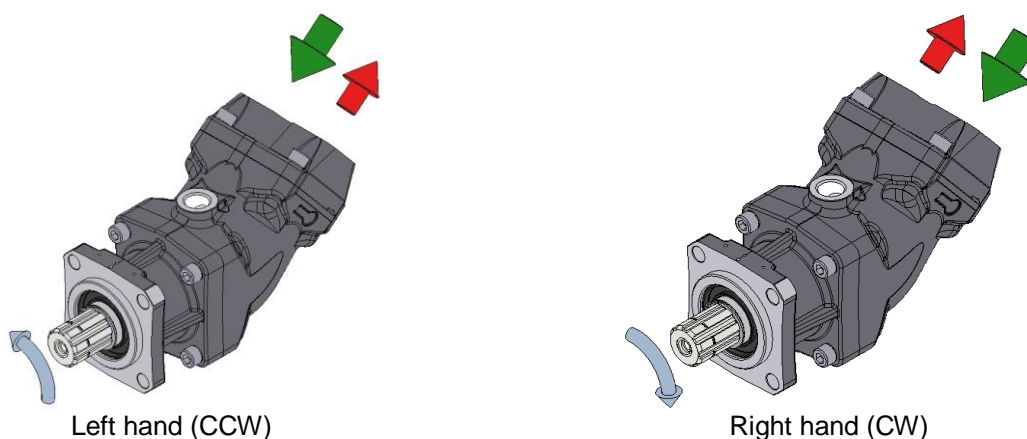
Data contained in this table are rounded, theoretical and without efficiency or tolerances.

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

(2) Valid for standard version

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

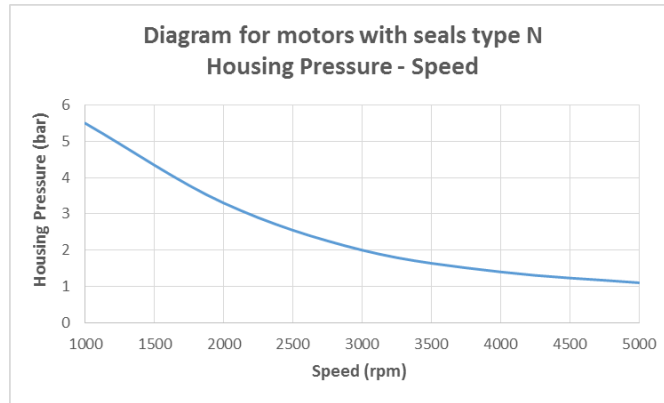
## Rotation sense



**i** Rotation sense is defined viewed from drive shaft.

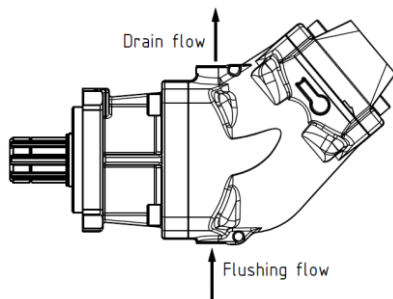
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## Housing pressures



Different housing pressures and different drain fluid temperatures can be achieved with different Seals. With seals type N (Nitril seals) maximum drain fluid temperature is 75°C.

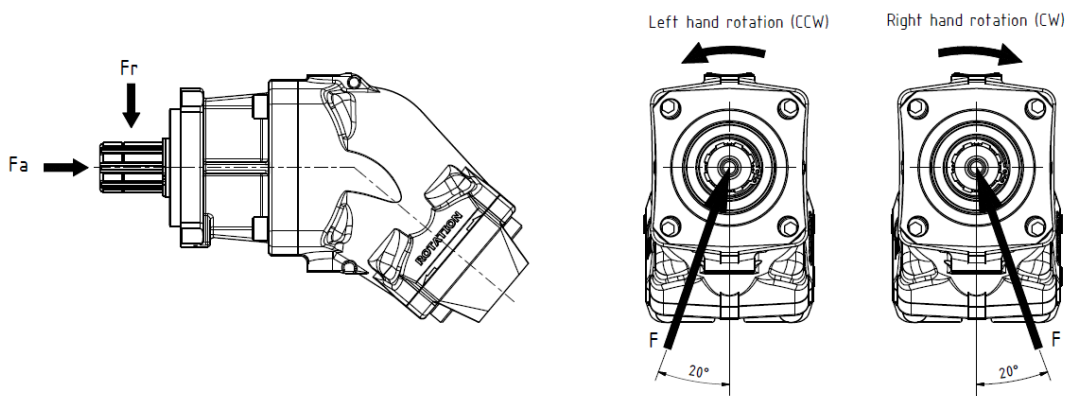
## Housing cooling



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 drain port as show in the figure

## Shaft loads



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 ( $\alpha = 20^\circ$ )

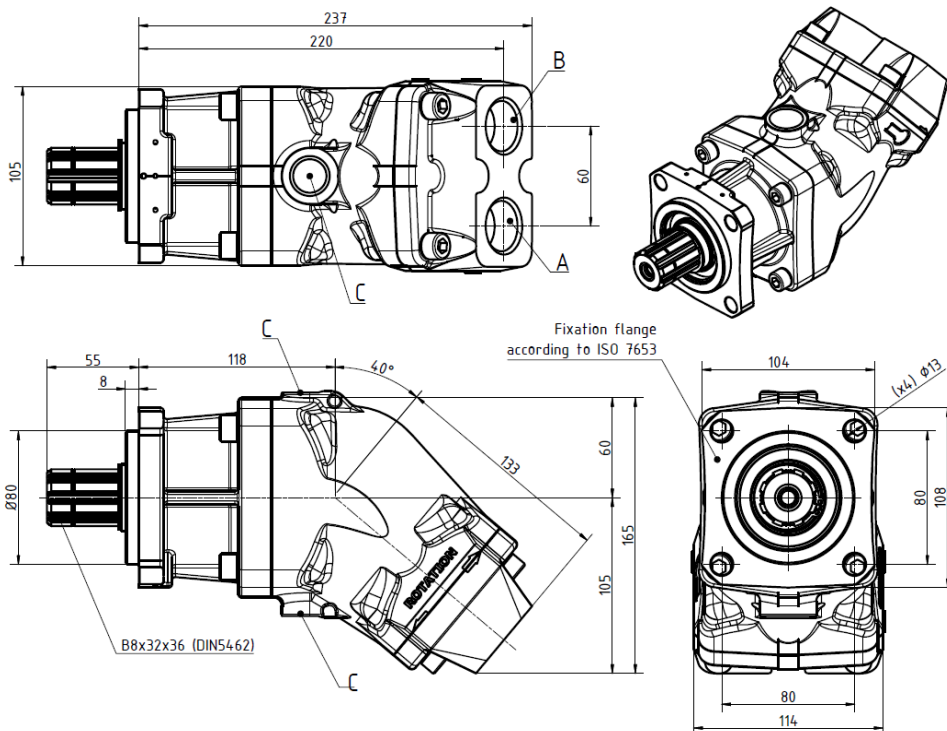
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### Dimensions

Standard version - Mounting flange ISO 7653-1985, type D direct coupling / Splined drive shaft DIN 5462, B8x32x36 / Line ports ISO DIN 228, G threads (BSP).

Dimensions in mm.



A – Oil Port DIN ISO 228	BSP	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	1"
B – Oil Port DIN ISO 228	BSP	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	1"
C – Drain/ Flushing		M22x1.5						

### Formulas

Input Flow  $Q = \frac{D \times n}{1000 \times \eta_v}$  [l/min]

D - Displacement [cm<sup>3</sup>/rev.]  
n - Speed (rpm)  
 $\eta_v$  - Volumetric efficiency

Speed  $n = \frac{Q \times 1000 \times \eta_v}{D}$  [rpm]

Q - Input flow [l/min]  
 $\eta_v$  - Volumetric efficiency  
D - Displacement [cm<sup>3</sup>/rev.]

Torque  $M = \frac{D \times \Delta p \times \eta_{hm}}{20 \times \pi}$  [N.m]

$\Delta p$  - Differential pressure [bar]  
 $\eta_{hm}$  - Hydraulic-mechanical efficiency  
D - Displacement [cm<sup>3</sup>/rev.]

Power  $P = \frac{Q \times \Delta p \times \eta_g}{600}$  [kW]

$\Delta p$  - Differential pressure [bar]  
 $\eta_g$  - Overall efficiency  
Q - Input flow [l/min]

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## 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.

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