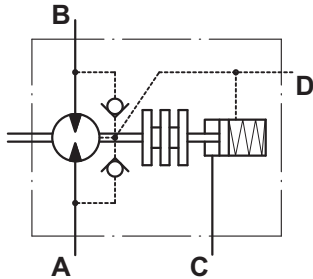


## Hydraulic motor-brakes type BD/MR...

### INTRODUCTION

M+S Hydraulic introduces a new series of hydraulic motor-brakes, type BD/MR.

This development represents a combination between hydraulic motors, type MR and parking brake with friction discs, which unit is built in the end side of the hydraulic motor. The Motor-brake unit is designed for attachment to the low speed agricultural and transport machines with high load capacity.



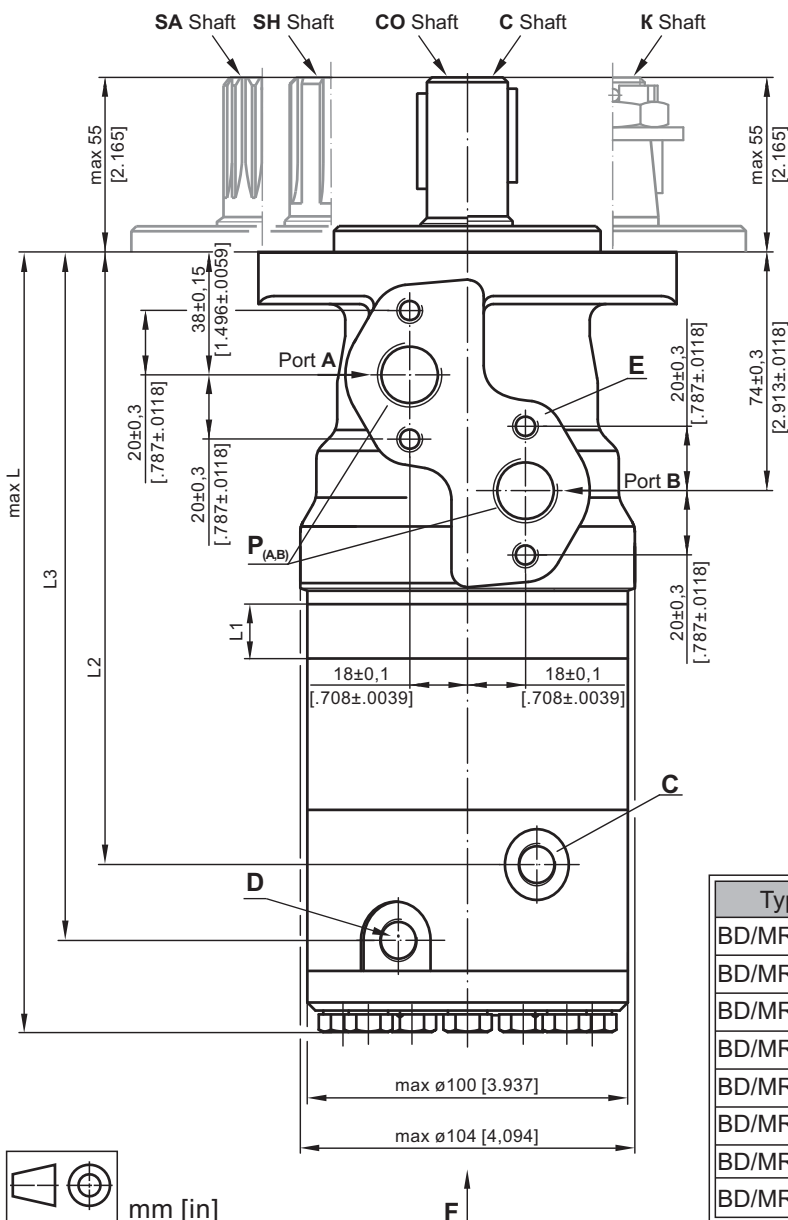
### OUTLINE DIMENSIONS REFERENCE

#### Standard Rotation

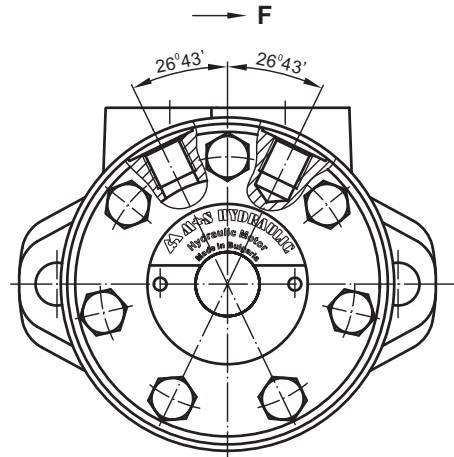
Viewed from Shaft End  
 Port A Pressurized - CW  
 Port B Pressurized - CCW

#### Reverse Rotation

Viewed from Shaft End  
 Port A Pressurized - CCW  
 Port B Pressurized - CW



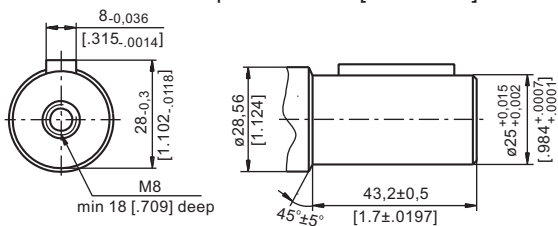
- P<sub>(A, B)</sub> : 2xG1/2, 15 mm [.59 in] depth
- C : G1/4, 12 mm [.47 in] depth
- D : G1/4, 12 mm [.47 in] depth
- E : 4xM8, 13 mm [.51 in] depth



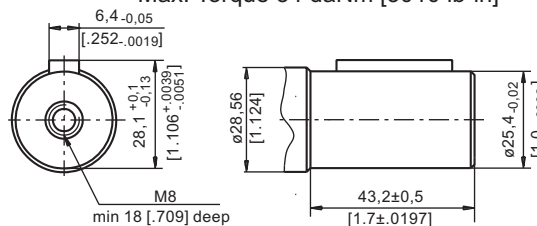
Type	L1, mm [in]	L2, mm [in]	L3, mm [in]	Lmax, mm [in]
BD/MR 80	14,0 [.55]	187,2 [7.37]	210,7 [8.30]	240,0 [9.45]
BD/MR 100	17,4 [.69]	190,6 [7.50]	214,1 [8.43]	243,0 [9.57]
BD/MR 125	21,8 [.89]	195,0 [7.68]	218,5 [8.60]	247,5 [9.74]
BD/MR 160	27,8 [1.10]	201,0 [7.91]	224,5 [8.84]	253,5 [9.98]
BD/MR 200	34,8 [1.37]	208,0 [8.19]	231,5 [9.11]	260,5 [10.26]
BD/MR 250	43,5 [1.71]	216,7 [8.53]	240,0 [9.45]	269,0 [10.59]
BD/MR 315	54,8 [2.16]	228,0 [8.98]	251,5 [9.90]	280,5 [11.04]
BD/MR 400	69,4 [2.73]	242,6 [9.55]	266,1 [10.48]	295,0 [11.61]

SHAFT EXTENSIONS

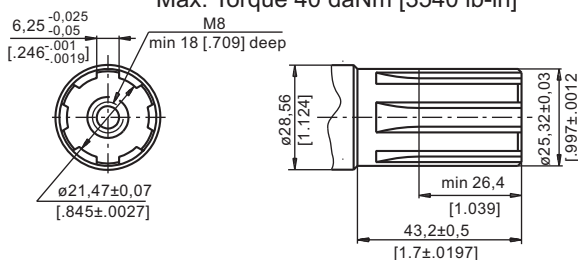
**C** -  $\phi 25$  straight, Parallel key A8x7x32 DIN 6885  
Max. Torque 34 daNm [3010 lb-in]



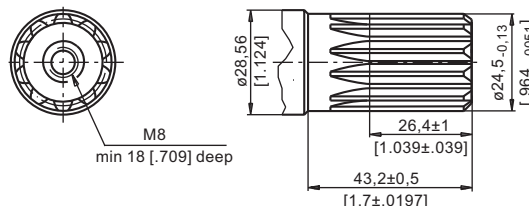
**CO** -  $\phi 1$ " straight, Parallel key  $\frac{1}{4}$ "x $\frac{1}{4}$ "x $\frac{1}{4}$ " BS46  
Max. Torque 34 daNm [3010 lb-in]



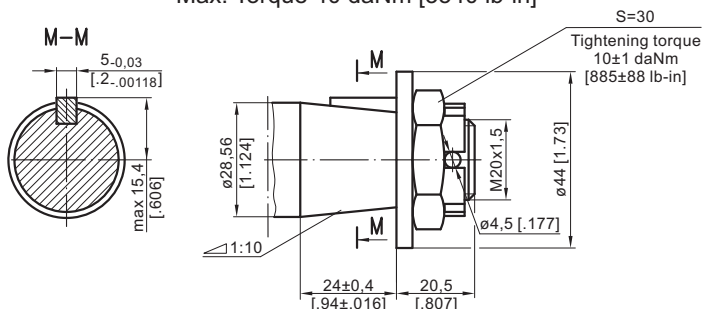
**SH** - splined, BS 2059 (SAE 6B)  
Max. Torque 40 daNm [3540 lb-in]



**SA** - splined, B25x22h9 DIN 5482  
Max. Torque 40 daNm [3540 lb-in]

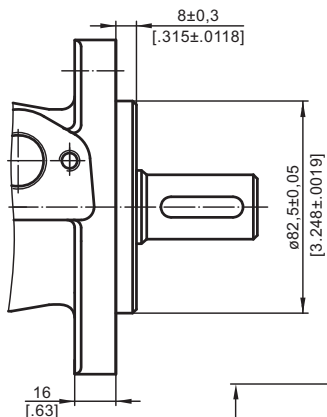
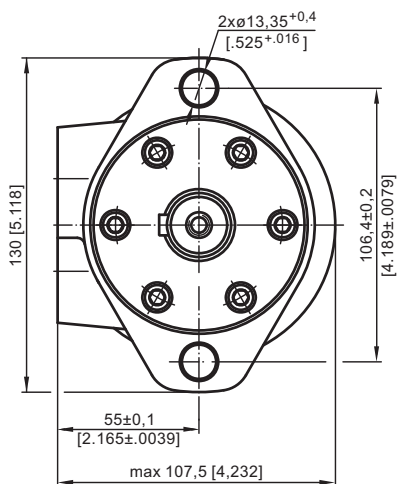


**K** - tapered 1:10, Parallel key B5x5x14 DIN 6885  
Max. Torque 40 daNm [3540 lb-in]

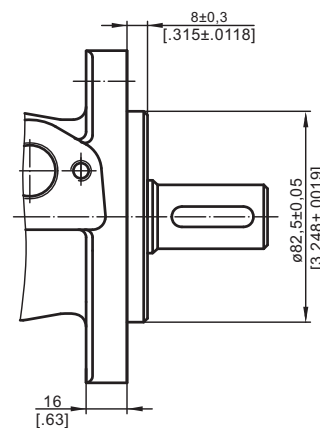
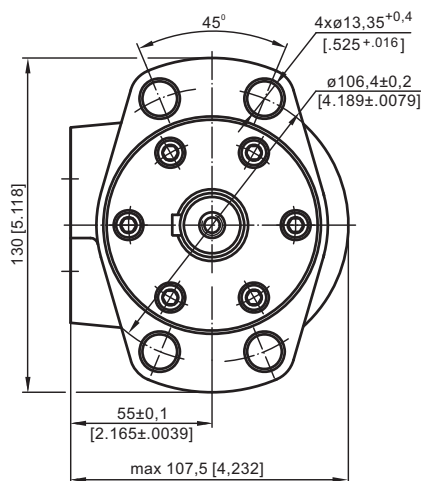


MOUNTING

Oval Mount (2 Holes)



**F** - Oval Mount (4 Holes)



## SPECIFICATION DATA

Type	BD/MR 80	BD/MR 100	BD/MR 125	BD/MR 160	BD/MR 200	BD/MR 250	BD/MR 315	BD/MR 400
<b>Displacement, cm<sup>3</sup>/rev [in<sup>3</sup>/rev]</b>	80,3 [4.9]	99,8 [6.09]	125,7 [7.67]	159,6 [9.74]	199,8 [12.19]	250,1 [15.26]	315,7 [19.27]	397 [24.23]
<b>Max. Speed, [RPM]</b>	cont.	750	600	475	375	300	240	190
	int.*	940	750	600	470	375	300	190
<b>Max. Torque, daNm [lb-in]</b>	cont.	20 [1770]	24 [2124]	30 [2655]	39 [3452]	38,5 [3410]	39 [3450]	36 [3185]
	int.*	22 [1947]	28 [2478]	34 [3010]	43 [3805]	46 [4070]	47 [4160]	47 [4160]
	peak**	27 [2390]	32 [2832]	37 [3275]	46 [4070]	56 [4960]	60 [5310]	61 [5400]
<b>Max. Output, kW [HP]</b>	cont.	12,5 [17]	13 [17.4]	12,5 [16.8]	11,5 [15.4]	9 [12]	8 [10.7]	5 [6.7]
	int.*	15 [20.1]	15 [20.1]	14,5 [19.4]	14 [18.8]	12 [16.1]	9,5 [12.7]	8 [10.7]
<b>Max. Inlet Pressure, bar [PSI]</b>	cont.	175 [2540]	175 [2540]	175 [2540]	175 [2540]	175 [2540]	175 [2540]	175 [2540]
	int.*	200 [2900]	200 [2900]	200 [2900]	200 [2900]	200 [2900]	200 [2900]	200 [2900]
	peak**	225 [3260]	225 [3260]	225 [3260]	225 [3260]	225 [3260]	225 [3260]	225 [3260]
<b>Max. Oil Flow, lpm [GPM]</b>	cont.	60 [16]	60 [16]	60 [16]	60 [16]	60 [16]	60 [16]	60 [16]
	int.*	75 [20]	75 [20]	75 [20]	75 [20]	75 [20]	75 [20]	75 [20]
<b>Max. Return Pressure, bar [PSI]</b>	cont.	175 [2540]	175 [2540]	175 [2540]	175 [2540]	175 [2540]	175 [2540]	175 [2540]
	int.*	200 [2900]	200 [2900]	200 [2900]	200 [2900]	200 [2900]	200 [2900]	200 [2900]
	peak**	225 [3260]	225 [3260]	225 [3260]	225 [3260]	225 [3260]	225 [3260]	225 [3260]
<b>Max. Pressure Drop, bar [PSI]</b>	cont.	175 [2540]	175 [2540]	175 [2540]	175 [2540]	175 [2540]	175 [2540]	135 [1960]
	int.*	200 [2900]	200 [2900]	200 [2900]	200 [2900]	200 [2900]	200 [2900]	175 [2540]
	peak**	225 [3260]	225 [3260]	225 [3260]	225 [3260]	225 [3260]	225 [3260]	210 [3045]
<b>Min. Starting Torque, daNm [lb-in]</b>	15 [1330]	20 [1770]	24 [2125]	32 [2830]	33 [2920]	31 [2745]	31,5 [2787]	31,5 [2787]
<b>Min. Holding Torque, daNm [lb-in]</b>	40 [3540]							
<b>Min. Release Pressure***, bar [PSI]</b>	21 [305]							
<b>Max. Brake Release Pressure***, bar [PSI]</b>	200 [2900]							
<b>Weight, kg [lb]</b>	11,5 [25.35]	12 [26.45]	12,3 [27.12]	12,5 [27.56]	13 [28.66]	13,5 [29.76]	14 [30.86]	14,5 [31.97]

\* Intermittent operation: the permissible values may occur for max. 10% of every minute.


\*\* Peak load: the permissible values may occur for max. 1% of every minute.

\*\*\* Motor-brakes must always have a drain line. The brake release pressure is the difference between the pressure in the brake release line and the pressure in the drain line.

1. Intermittent speed and intermittent pressure drop must not occur simultaneously.
2. Recommended filtration is per ISO cleanliness code 20/16. A nominal filtration of 25 micron or better.
3. Recommend using a premium quality, anti-wear type mineral based hydraulic oil HLP (DIN51524) or HM (ISO 6743/4).  
If using synthetic fluids consult the factory for alternative seal materials.
4. Recommended minimum oil viscosity 13 mm<sup>2</sup>/s [70 SUS] at 50°C [122°F].
5. Recommended maximum system operating temperature is 82°C [180°F].
6. To assure optimum motor life fill with fluid prior to loading and run at moderate load and speed for 10-15 minutes.

### PERMISSIBLE SHAFT LOADS

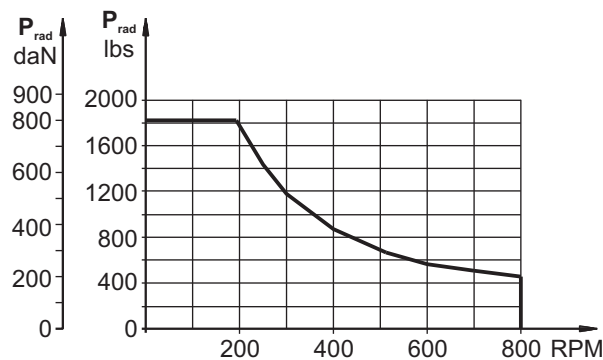
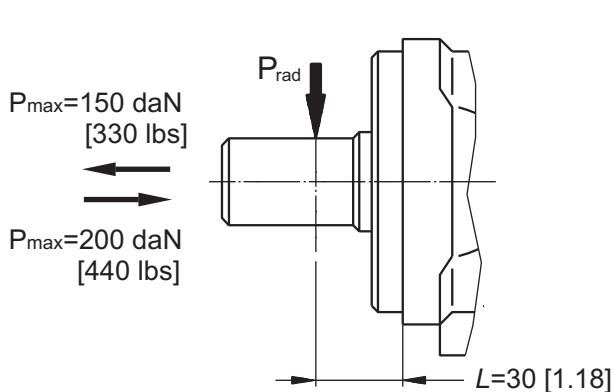
The permissible radial shaft load  $P_{rad}$  depends on the speed  $n$ , RPM; distance  $L$  from the point of load to the mounting flange and shaft version.

<b>Mounting Flange</b>	
<b>Radial Shaft Load <math>P_{rad}</math>, in mm</b>	$\frac{800}{n} \times \frac{25000}{95+L}$ , daN*
<b>Radial Shaft Load <math>P_{rad}</math>, in inch</b>	$\frac{800}{RPM} \times \frac{2215}{3.74+L}$ , lbs*

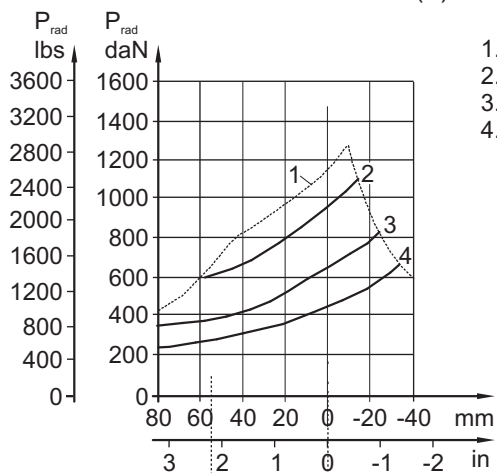
\*  $n \leq 200$  RPM; max  $P_{rad}$ =800 daN [1800 lbs]

$n \geq 200$  RPM;  $L < 55$  mm [2.2 in]

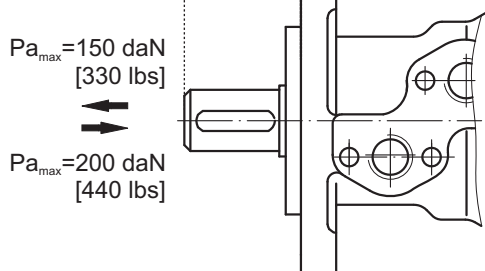
#### Radial Shaft Load $P_{rad}$ for C, CO Shaft Extensions by $L=30$ mm [1.18 in]



#### Permissible shaft loads for BD/MR(F)N...

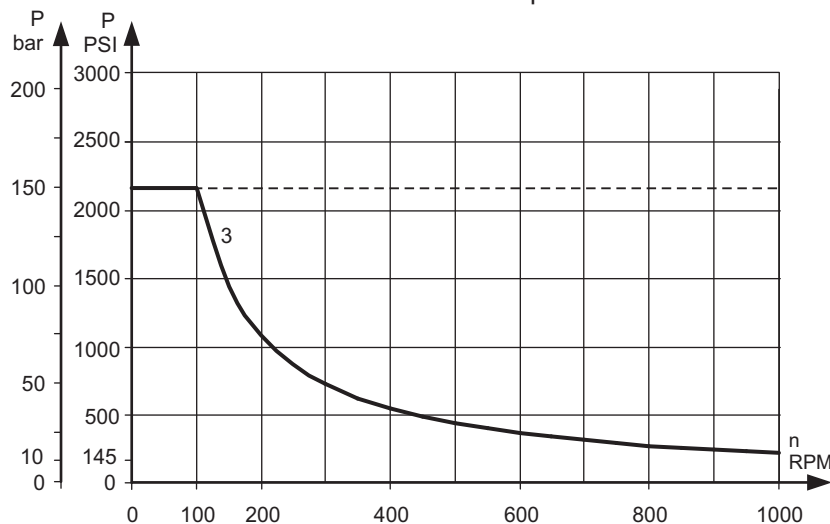


1. Max. permissible radial shaft load
2. Drawing by  $n=50$  rpm
3. Drawing by  $n=200$  rpm
4. Drawing by  $n=800$  rpm



### MAX. PERMISSIBLE SHAFT SEAL PRESSURE

— - continuous operations  
 - - - - - intermittent operations



## ORDER CODE

	1	2	3	4	5	6	7	8	9	10
<b>BD/MR</b>										

**Pos.1 - Mounting Flange**

omit - Oval mount, two holes

**F** - Oval mount, four holes**Pos.2 - Option (needle bearings)**

omit - none

**N** - with needle bearings**Pos.3 - Displacement code****80** - 80,3 cm<sup>3</sup>/rev [ 4.90 in<sup>3</sup>/rev]**100** - 99,8 cm<sup>3</sup>/rev [ 6.09 in<sup>3</sup>/rev]**125** - 125,7 cm<sup>3</sup>/rev [ 7.67 in<sup>3</sup>/rev]**160** - 159,6 cm<sup>3</sup>/rev [ 9.74 in<sup>3</sup>/rev]**200** - 199,8 cm<sup>3</sup>/rev [12.19 in<sup>3</sup>/rev]**250** - 250,1 cm<sup>3</sup>/rev [15.26 in<sup>3</sup>/rev]**315** - 315,7 cm<sup>3</sup>/rev [19.26 in<sup>3</sup>/rev]**400** - 397,0 cm<sup>3</sup>/rev [24.40 in<sup>3</sup>/rev]**Pos.4 - Shaft Extensions\*****C** -  $\varnothing$ 25 straight, Parallel key A8x7x32 DIN6885**CO** -  $\varnothing$ 1" straight, Parallel key 1/4"x1/4"x1 1/4" BS46**SH** -  $\varnothing$ 25,32 splined BS 2059 (SAE 6B)**K** -  $\varnothing$ 35 tapered 1:10, Parallel key B5x5x14 DIN6885**SA** -  $\varnothing$ 24,5 splined B25x22 DIN 5482**Pos.5 - Shaft Seal Version****D** - Standard shaft seal**Pos. 6 - Speed Sensor**

omit - without sensor

**RS** - with sensor**Pos. 7 - Special Features**

omit - none

**LL** - Low Leakage**LSV** - Low Speed Valve**FR** - Free Running**Pos. 8 - Rotation**

omit - Standard Rotation

**R** - Reverse Rotation**Pos. 9 - Seal Guard**

omit - without Seal Guard

**SG** - with Seal Guard**Pos.10 - Option (Paint)\*\***

omit - no Paint

**P** - Painted**PC** - Corrosion Protected Paint**PS** - Special Paint\*\*\***PCS** - Special Paint\*\*\***Pos.11 - Design Series**

omit - Factory specified

**NOTES:**

\* The permissible output torque for shafts must not be exceeded!

\*\* Colour at customer's request.

\*\*\* Non painted feeding surfaces, colour at customer's request.

The hydraulic motors are mangano-phosphatized as standard.



68, Kozloduy St., 6100 Kazanlak, Bulgaria

Tel.: ++359 431 65167

Fax: +359 431 64114

E-Mail: [msh@ms-hydraulic.com](mailto:msh@ms-hydraulic.com)