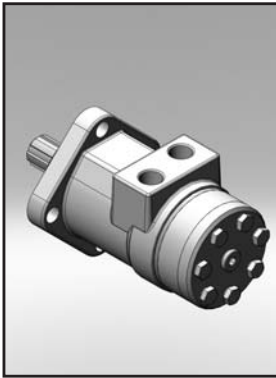
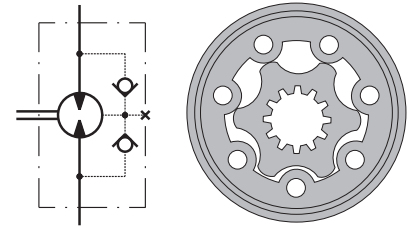


HYDRAULIC MOTORS PL



APPLICATION

- » Conveyors
- » Feeding mechanism of robots and manipulators
- » Metal working machines
- » Textile machines
- » Agricultural machines
- » Food industries
- » Mining machinery etc.



CONTENTS

Specification data 66
 Dimensions and mounting 67
 Shaft extensions 68
 Permissible shaft loads 69
 Order code 69

OPTIONS

- » Model - Spool valve, gerotor
- » Antifriction conical bearing
- » Flange mount
- » Shafts - straight, splined and tapered
- » Metric and BSPP ports
- » Other special features

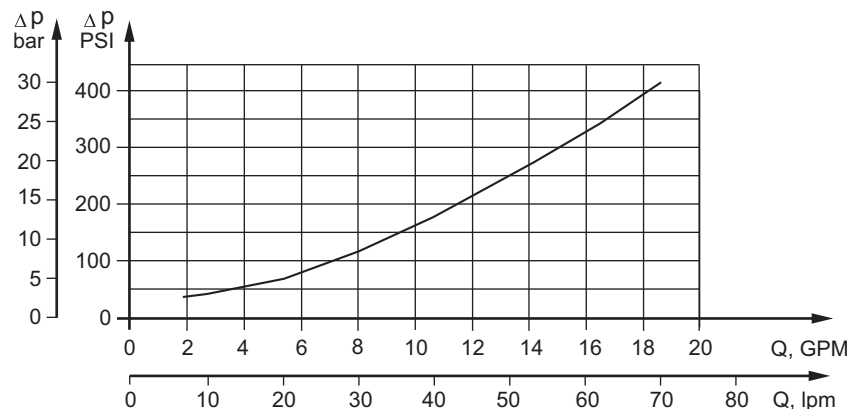
GENERAL

Max Displacement, cm ³ /rev [in ³ /rev]	396 [24.16]
Max. Speed, [RPM]	1515
Max. Torque, daNm [lb-in]	cont.: 50 [4415] int.: 59 [5222]
Max. Output, kW [HP]	17,5 [23.5]
Max. Pressure Drop, bar [PSI]	cont.: 140 [2030] int.: 175 [2540]
Max. Oil Flow, lpm [GPM]	75 [20]
Min. Speed, [RPM]	10
Pressure fluid	Mineral based- HLP(DIN 51524) or HM(ISO 6743/4)
Temperature range, °C [°F]	-40÷140 [-40÷284]
Optimal Viscosity range, mm ² /s [SUS]	20÷75 [98÷347]
Filtration	ISO code 20/16 (Min. recommended fluid filtration of 25 microns)

Oil flow in drain line

Pressure drop bar [PSI]	Viscosity mm ² /s [SUS]	Oil flow in drain line lpm [GPM]
100 [1450]	20 [98]	2,5 [.660]
	35 [164]	1,8 [.476]
140 [2030]	20 [98]	3,5 [.925]
	35 [164]	2,8 [.740]

Pressure Losses



SPECIFICATION DATA

Type	PL 50	PL 80	PL 100	PL 125	PL 160	PL 200	PL 250	PL 315	PL 400	
Displacement, cm³/rev [in³/rev]	49,5 [3.02]	79,2 [4.83]	99 [6.04]	123,8 [7.55]	158,4 [9.66]	198 [12.1]	247,5 [15.1]	316,8 [19.3]	396 [24.16]	
Max. Speed, [RPM]	Cont.	1210	755	605	485	378	303	242	190	150
	Int.*	1515	945	755	605	472	378	303	236	189
Max. Torque daNm [lb-in]	Cont.	9,4 [832]	15,1 [1336]	19,3 [1708]	23,7 [2100]	31,3 [2770]	36,6 [3240]	47 [4160]	48,6 [4300]	50 [4425]
	Int.*	11,9 [1054]	19,5 [1725]	23,7 [2097]	29,8 [2637]	37,8 [3345]	45,6 [4035]	58,3 [5160]	56 [4956]	59 [5222]
	Peak**	14,0 [1240]	22,0 [1947]	27,0 [2390]	36,5 [3230]	42 [3717]	53 [4700]	67 [5930]	85 [7523]	85,4 [7560]
Max. Output kW [HP]	Cont.	9,9 [13.3]	9,9 [13.3]	9,9 [13.3]	9,9 [13.3]	11,7 [15.7]	10,3 [13.8]	9,8 [13.1]	7,6 [10.2]	6,6 [8.9]
	Int.*	12,5 [16.8]	12,5 [16.8]	12,5 [16.8]	12,5 [16.8]	12,5 [16.8]	12,5 [16.8]	12,5 [16.8]	10,5 [14]	8,5 [11.4]
Max. Pressure Drop bar [PSI]	Cont.	140 [2030]	140 [2030]	140 [2030]	140 [2030]	140 [2030]	140 [2030]	140 [2030]	120 [1300]	95 [1015]
	Int.*	175 [2540]	175 [2540]	175 [2540]	175 [2540]	175 [2540]	175 [2540]	175 [2540]	140 [2030]	115 [1665]
	Peak**	225 [3260]	225 [3260]	225 [3260]	225 [3260]	225 [3260]	225 [3260]	225 [3260]	225 [3260]	180 [2610]
Max. Oil Flow lpm [GPM]	Cont.	60 [16]	60 [16]	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]	75 [20]	75 [20]
Max. Inlet Pressure bar [PSI]	Cont.	175 [2540]	175 [2540]	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]	200 [2900]	200 [2900]
	Peak**	225 [3260]	225 [3260]	225 [3260]	225 [3260]	225 [3260]	225 [3260]	225 [3260]	225 [3260]	225 [3260]
Max. Return Pressure without Drain Line or Max. Pressure in Drain Line, bar [PSI]	Cont. 0-100 RPM	100 [1450]	100 [1450]	100 [1450]	100 [1450]	100 [1450]	100 [1450]	100 [1450]	100 [1450]	100 [1450]
	Cont. 100-300 RPM	50 [725]	50 [725]	50 [725]	50 [725]	50 [725]	50 [725]	50 [725]	50 [725]	50 [725]
	Cont. 300-600 RPM	25 [365]	25 [365]	25 [365]	25 [365]	25 [365]	25 [365]	25 [365]	25 [365]	25 [365]
	Cont. >600 RPM	15 [220]	15 [220]	15 [220]	15 [220]	15 [220]	15 [220]	15 [220]	15 [220]	15 [220]
	Int.* 0-max. RPM	100 [1450]	100 [1450]	100 [1450]	100 [1450]	100 [1450]	100 [1450]	100 [1450]	100 [1450]	100 [1450]
Max. Return Pressure with Drain Line bar [PSI]	Cont.	175 [2540]	175 [2540]	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]	200 [2900]	200 [2900]
	Peak**	225 [3260]	225 [3260]	225 [3260]	225 [3260]	225 [3260]	225 [3260]	225 [3260]	225 [3260]	225 [3260]
Max. Starting Pressure with Unloaded Shaft, bar [PSI]	10 [145]	10 [145]	10 [145]	9 [131]	8 [116]	7 [100]	6 [87]	5 [73]	5 [73]	
Min. Starting Torque, daNm [lb-in]	7,7 [681]	13 [1150]	16,8 [1487]	21,0 [1860]	28,0 [2478]	32,2 [2850]	41,4 [3665]	43,0 [3805]	44,0 [3900]	
Min. Speed***, [RPM]	10	10	10	10	10	10	10	10	10	
Weight, kg [lb]	6,8 [15]	7,0 [15.4]	7,1 [15.7]	7,2 [15.9]	7,4 [16.3]	7,6 [16.8]	7,8 [17.2]	8,2 [18]	8,6 [18.9]	

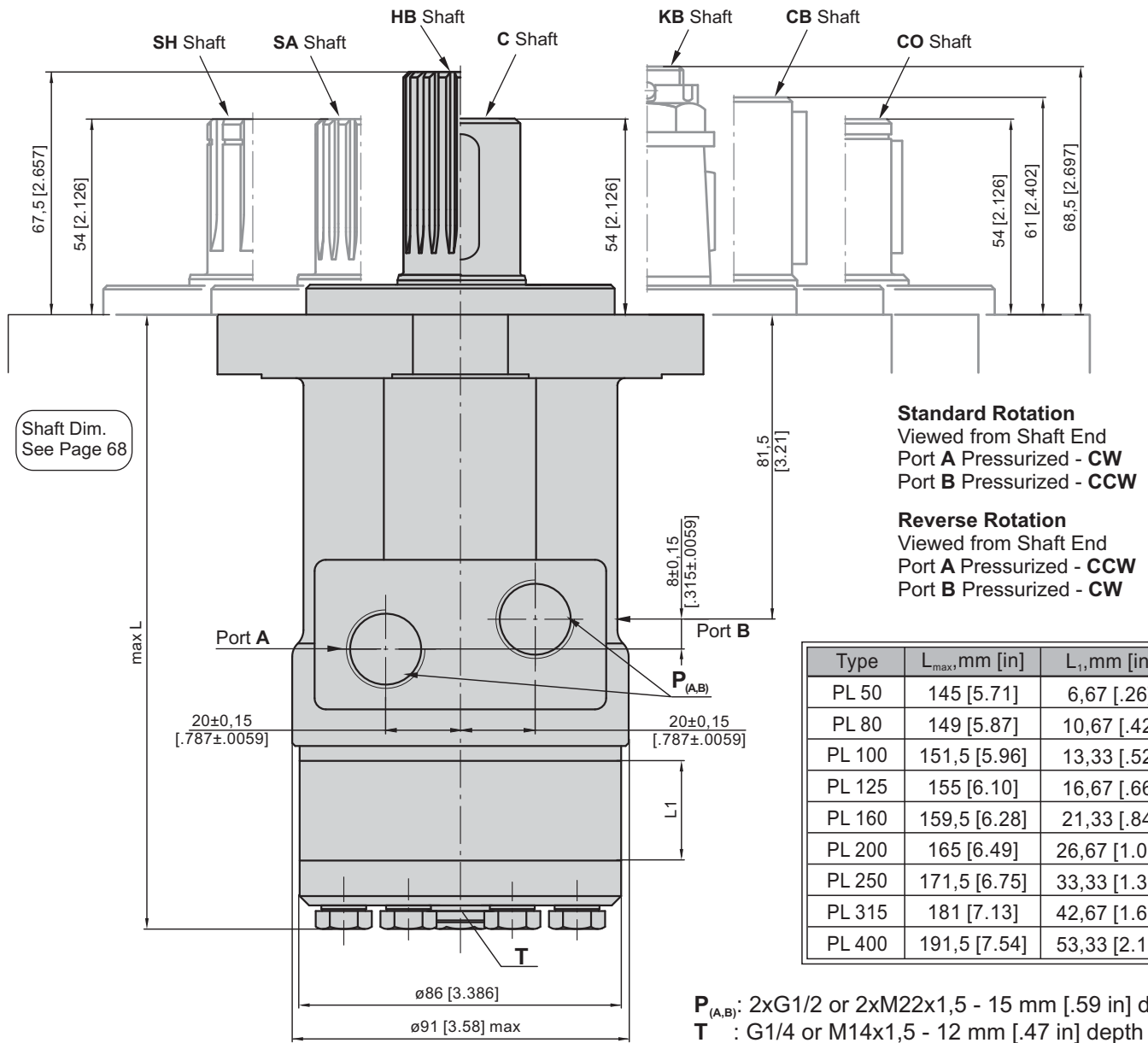
* Intermittent operation: the permissible values may occur for max. 10% of every minute.

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

*** For speeds lower than given, consult factory or your regional manager.

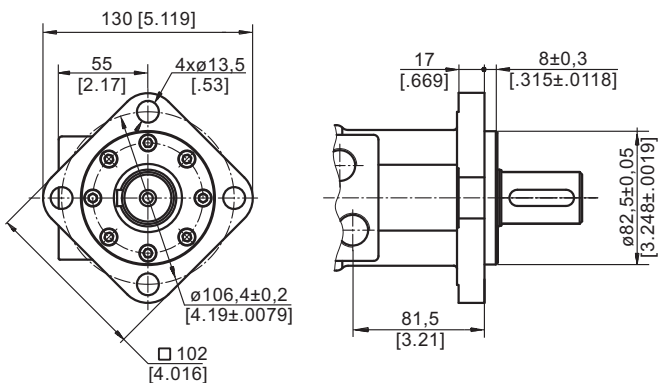
- Intermittent speed and intermittent pressure must not occur simultaneously.
- Recommended filtration is per ISO cleanliness code 20/16. A nominal filtration of 25 micron or better.
- Recommend using a premium quality, anti-wear type mineral based hydraulic oil HLP(DIN51524) or HM (ISO 6743/4).
If using synthetic fluids consult the factory for alternative seal materials.
- Recommended minimum oil viscosity 13 mm²/s [70 SUS] at 50°C [122°F].
- Recommended maximum system operating temperature is 82°C [180°F].
- To assure optimum motor life fill with fluid prior to loading and run at moderate load and speed for 10-15 minutes.

DIMENSIONS AND MOUNTING DATA

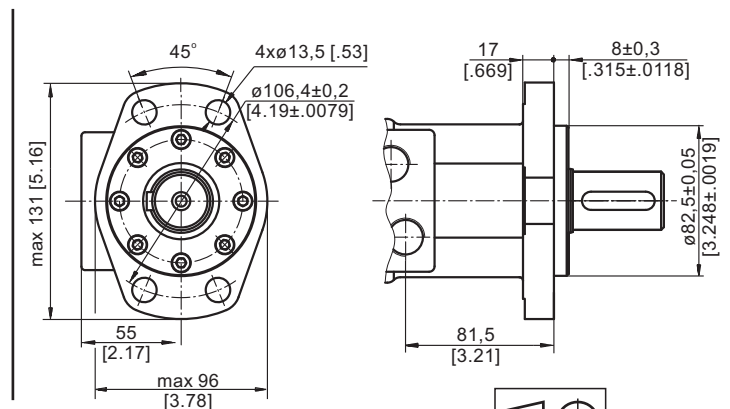


MOUNTING

Square Mount (4 Holes)

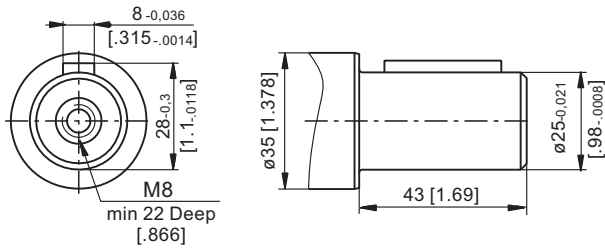


F Oval Mount (4 Holes)

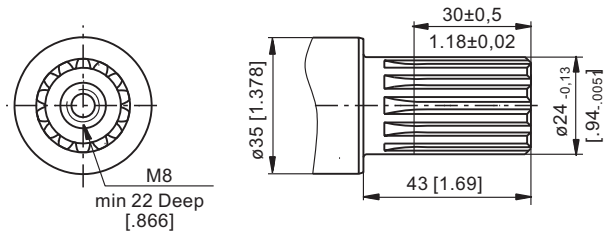


SHAFT EXTENSIONS

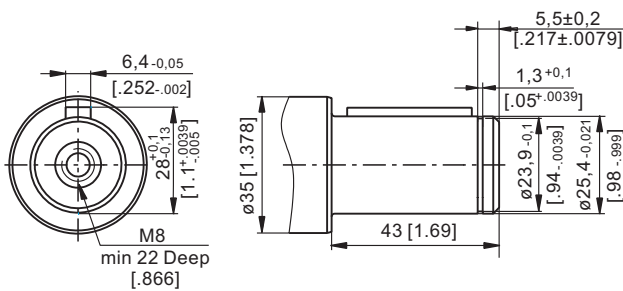
C - $\varnothing 25$ straight, Parallel key A8x7x30 DIN 6885
Max. Torque 34 daNm [3010 lb-in]



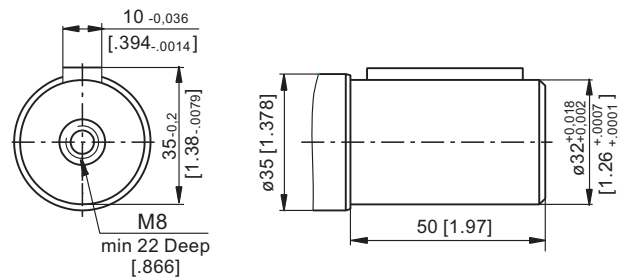
SA - splined B25x22 DIN 5482
Max. Torque 40 daNm [3540 lb-in]



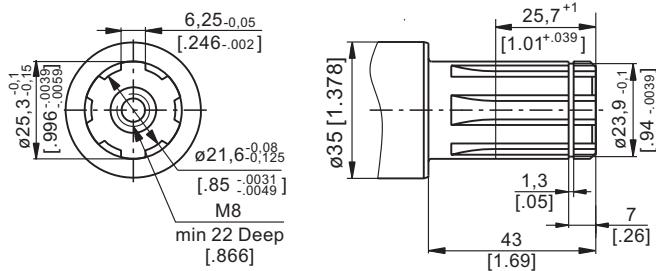
CO - $\varnothing 1$ " straight, Parallel key $\frac{1}{4}$ "x $\frac{1}{4}$ "x $\frac{1}{4}$ " BS46
Max. Torque 34 daNm [3010 lb-in]



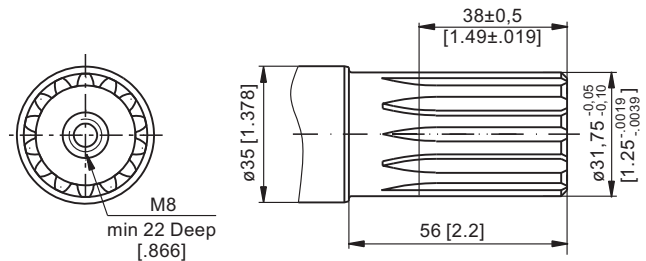
CB - $\varnothing 32$ straight, Parallel key A10x8x40 DIN 6885
Max. Torque 77 daNm [6815 lb-in]



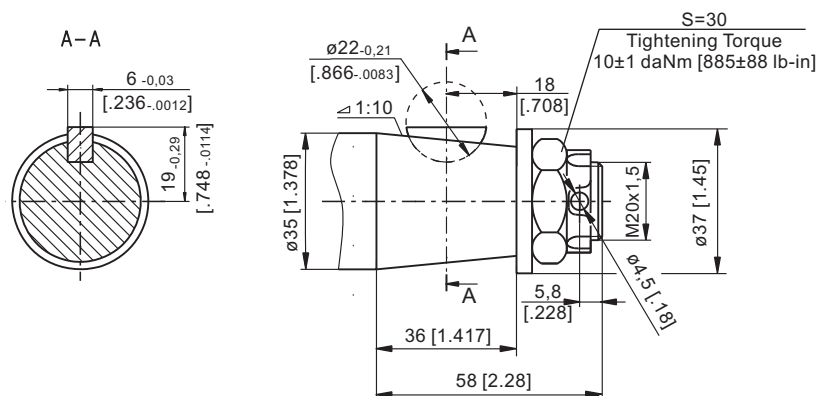
SH - splined, BS 2059 (SAE 6B)
Max. Torque 40 daNm [3540 lb-in]



HB - $\varnothing 1\frac{1}{4}$ " splined 14T, DP12/24 ANSI B92.1-1976
Max. Torque 95 daNm [8410 lb-in]

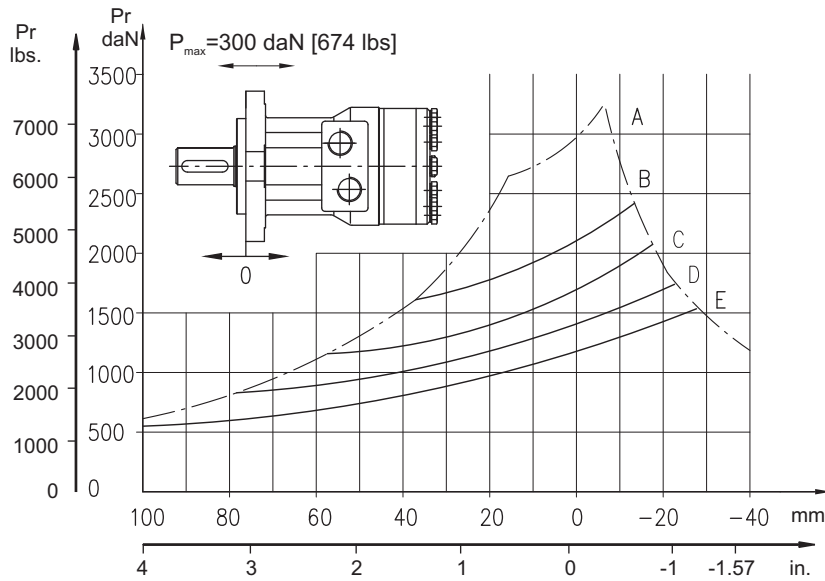


KB - tapered 1:10, Woodruff key 6x9 DIN6888
Max. Torque 95 daNm [8410 lb-in]



Permissible Shaft Loads PL and RL

The curves apply to a B10 bearings life of 2000 hrs



- A** - Max. radial shaft load.
- B** - $n=50 \text{ min}^{-1}$
- C** - $n=100 \text{ min}^{-1}$
- D** - $n=200 \text{ min}^{-1}$
- E** - $n=400 \text{ min}^{-1}$

ORDER CODE

	1	2	3	4	5	6	7
PL							

Pos.1 - Mounting Flange

omit - Square mount, four holes

F - Oval mount, four holes

Pos.2 - Displacement code*

50	- 49,5 cm ³ /rev [3.02 in ³ /rev]
80	- 79,2 cm ³ /rev [4.83 in ³ /rev]
100	- 99,0 cm ³ /rev [6.04 in ³ /rev]
125	- 123,8 cm ³ /rev [7.55 in ³ /rev]
160	- 158,4 cm ³ /rev [9.66 in ³ /rev]
200	- 198,0 cm ³ /rev [12.10 in ³ /rev]
250	- 247,5 cm ³ /rev [15.10 in ³ /rev]
315	- 316,8 cm ³ /rev [19.30 in ³ /rev]
400	- 396,0 cm ³ /rev [24.16 in ³ /rev]

Pos.3 - Shaft Extensions**

- C** - $\varnothing 25$ straight, Parallel key A8x7x30 DIN6885
- CO** - $\varnothing 1"$ straight, Parallel key $\frac{1}{4}" \times \frac{1}{4}" \times \frac{1}{4}"$ BS46
- SH** - $\varnothing 25,3$ splined, BS 2059 (SAE 6B)
- SA** - $\varnothing 24$ splined, B 25x22 DIN 5482
- CB** - $\varnothing 32$ straight, Parallel key A10x8x40 DIN6885
- HB** - $\varnothing 1\frac{1}{4}"$ splined 14T ANSI B92.1-1976
- KB** - $\varnothing 35$ tapered 1:10, Woodruff key 6x9 DIN6888

Pos.4 - Shaft Seal Version

- omit - Standard shaft seal
- U** - High pressure shaft seal

Pos.5 - Ports

- omit - BSPP (ISO 228)
- M** - Metric (ISO 262)

Pos.6 - Special Features (see page 119)

Pos.7 - Design Series

- omit - Factory specified

NOTES:

- * For the Function Diagrams data please look at "M+S Hydraulic" Catalogue for MP motors, pages 19+23.
- ** The permissible output torque for shafts must not be exceeded!

The hydraulic motors are mangano-phosphatized as standard.