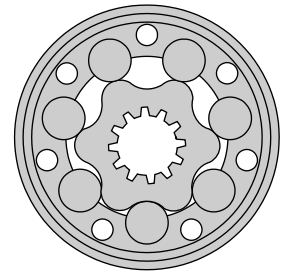


HYDRAULIC MOTORS HR



APPLICATION

- » Conveyors
- » Feeding mechanism of robots and manipulators
- » Metal working machines
- » Textile machines
- » Machines for agriculture
- » Food industries
- » Wood working and sawmill machinery etc.



CONTENTS

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OPTIONS

- » Model- Spool valve, roll-gerotor
- » Flange mount
- » Side ports
- » Shafts- straight, splined and tapered
- » SAE and manifold ports
- » Speed sensing
- » Other special features

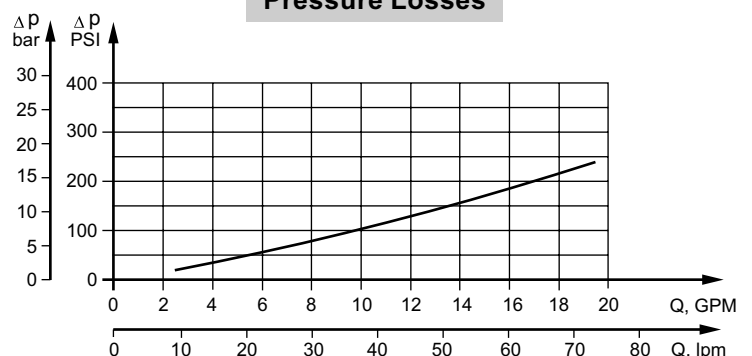
GENERAL

Displacement,	in ³ /rev [cm ³ /rev.]	3.14÷24.4 [51,5÷397]
Max. Speed,	[RPM]	185÷1000
Max. Torque,	in-lb [daNm]	900÷4250 [10,1÷48]
Max. Output,	HP [kW]	6÷11 [4,5÷8,2]
Max. Pressure Drop,	PSI [bar]	1305÷2030 [90÷140]
Max. Oil Flow,	GPM [lpm]	16 [60,6]
Min. Speed,	[RPM]	10
Pressure fluid		Mineral based- HLP(DIN 51524) or HM(ISO 6743/4)
Temperature range,	°F [°C]	-22÷194 [-30÷90]
Optimal Viscosity range, SUS [mm²/s]		98÷347 [20÷75]
Filtration		ISO code 20/16 (Min. recommended fluid filtration of 25 micron)

Oil flow in drain line

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

Pressure Losses



SPECIFICATION DATA

Type		HR 50	HR 80	HR 100	HR 125	HR 160	HR 200	HR 250	HR 315	HR 400
Displacement, in.³/rev. [cm.³/rev.]		3.14 [51,5]	4.90 [80,3]	6.09 [99,8]	7.67 [125,7]	9.74 [159,6]	12.19 [199,8]	15.26 [250,1]	19.26 [315,7]	24.23 [397]
Max. Speed, [RPM]	Cont.	734	750	600	475	375	300	240	190	150
	Int.*	1029	940	750	600	470	375	300	240	191
Max. Torque in-lb [daNm]	Cont.	900 [10,1]	1390 [15,7]	1750 [19,8]	2210 [25,0]	2830 [32,0]	3045 [34,4]	3540 [40,0]	3850 [43,5]	4250 [48,0]
	Int.*	1150 [13]	1725 [19,5]	2125 [24,0]	2655 [30,0]	3450 [39,0]	3450 [39,0]	4160 [47,0]	4515 [51,0]	4870 [55,0]
Max. Output HP [kW]	Cont.	9.3 [6,9]	14 [10,5]	14 [10,5]	14 [10,5]	13.7 [10,2]	12.6 [9,4]	10.7 [8]	8.7 [6,5]	8.2 [6,1]
	Int.*	13.4 [10]	20.1 [15]	20.1 [15]	20.1 [15]	18.8 [14]	18.7 [14]	15.4 [11,5]	12.1 [9]	11 [8,2]
Max. Pressure Drop PSI [bar]	Cont.	2030 [140]	2030 [140]	2030 [140]	2030 [140]	2030 [140]	1810 [125]	1595 [110]	1450 [100]	1305 [90]
	Int.*	2540 [175]	2540 [175]	2540 [175]	2540 [175]	2540 [175]	2250 [155]	2030 [140]	1810 [125]	1520 [105]
Max. Oil Flow GPM [lpm]	Cont.	10 [37,8]	16 [60,6]	16 [60,6]	16 [60,6]	16 [60,6]	16 [60,6]	16 [60,6]	16 [60,6]	16 [60,6]
	Int.*	14 [53]	20 [75,7]	20 [75,7]	20 [75,7]	20 [75,7]	20 [75,7]	20 [75,7]	20 [75,7]	20 [75,7]
Max. Inlet Pressure PSI [bar]	Cont.	2030 [140]	2030 [140]	2030 [140]	2030 [140]	2030 [140]	2030 [140]	2030 [140]	2030 [140]	2030 [140]
	Int.*	2540 [175]	2540 [175]	2540 [175]	2540 [175]	2540 [175]	2540 [175]	2540 [175]	2540 [175]	2540 [175]
	Peak**	2900 [200]	2900 [200]	2900 [200]	2900 [200]	2900 [200]	2900 [200]	2900 [200]	2900 [200]	2900 [200]
Max. Return Pressure with Drain Line PSI [bar]	Cont.	2030 [140]	2030 [140]	2030 [140]	2030 [140]	2030 [140]	2030 [140]	2030 [140]	2030 [140]	2030 [140]
	Int.*	2540 [175]	2540 [175]	2540 [175]	2540 [175]	2540 [175]	2540 [175]	2540 [175]	2540 [175]	2540 [175]
	Peak**	2900 [200]	2900 [200]	2900 [200]	2900 [200]	2900 [200]	2900 [200]	2900 [200]	2900 [200]	2900 [200]
Max. Starting Pressure with Unloaded Shaft, PSI [bar]		145 [10]	145 [10]	145 [10]	130 [9]	102 [7]	73 [5]	58 [4]	44 [3]	44 [3]
Min. Starting Torque in-lb [daNm]	At max.press.									
	drop Cont.	710 [8]	1060 [12]	1420 [16]	1770 [20]	2270 [25,6]	2620 [29,5]	2510 [28,3]	2840 [32]	3170 [35,8]
	At max.press. drop Int.*	885 [10]	1310 [14,8]	1780 [20,1]	1930 [21,8]	2860 [32,3]	3150 [35,6]	3400 [38,4]	4580 [51,7]	4040 [45,6]
Min. Speed***, [RPM]		10	10	10	10	10	10	10	10	10
Weight, lb [kg]	HR	14.56 [6,6]	14.77 [6,7]	15.44 [7,0]	15.66 [7,1]	16.10 [7,3]	17.20 [7,8]	18.10 [8,2]	19.62 [8,9]	21.17 [9,6]
	HRQ	13.23 [6,0]	13.45 [6,1]	14.11 [6,4]	14.33 [6,5]	14.77 [6,7]	15.88 [7,2]	16.76 [7,6]	18.30 [8,3]	19.85 [9,0]

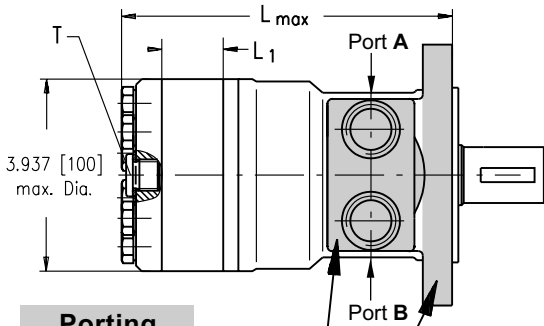
* Intermittent operation: the permissible values may occur for max. 10% of every minute.

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

*** For speeds of 10 RPM or lower, consult factory or your regional manager.

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 70 SUS [13 mm²/s] at 122°F [50°C].
5. Recommended maximum system operating temperature is 180°F [82°C].
6. To assure optimum motor life fill with fluid prior to loading and run at moderate load and speed for 10-15 minutes.

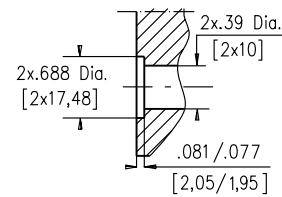
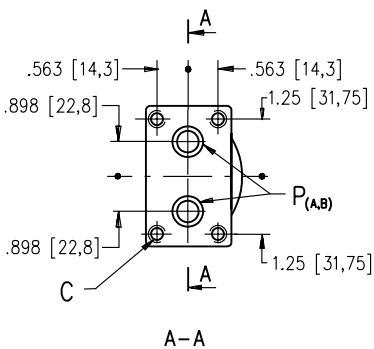
DIMENSIONS AND MOUNTING DATA FOR HR



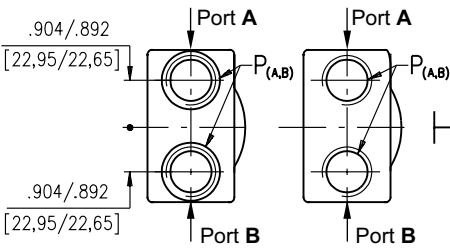
Porting

Side Ports

Version **1** **3**

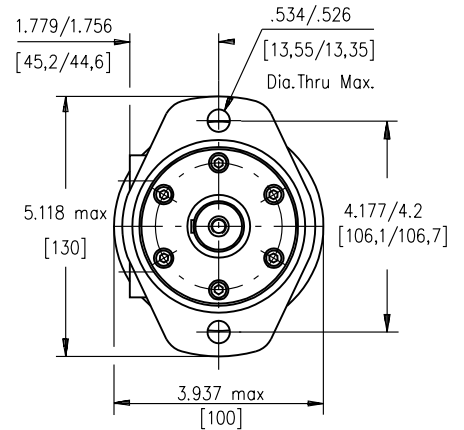
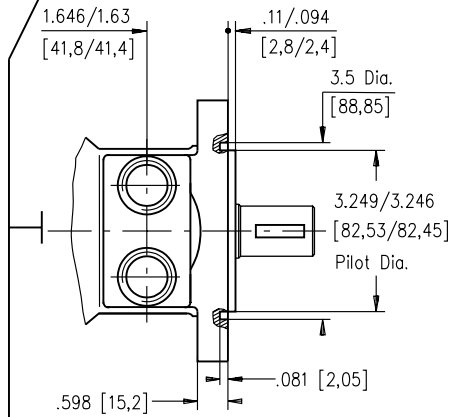


Version **4** Version **5**

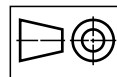
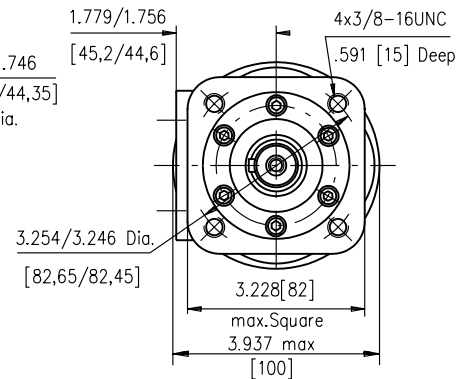
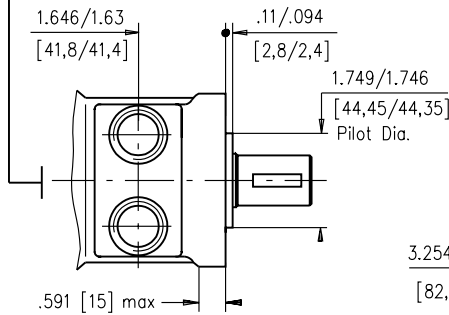


Mounting

SAE A Flange



Q Square Flange



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**

Type	Lmax,in. [mm]	L ₁ ,in.[mm]
HR(Q) 50	5.49 [139,5]	.35 [9,0]
HR(Q) 80	5.69 [144,5]	.55[14,0]
HR(Q) 100	5.83 [148,0]	.69[17,4]
HR(Q) 125	6.00 [152,5]	.86[21,8]
HR(Q) 160	6.24 [158,5]	1.09[27,8]
HR(Q) 200	6.52 [165,5]	1.37[34,8]
HR(Q) 250	6.85 [174,0]	1.71[43,5]
HR(Q) 315	7.30 [185,5]	2.16[54,8]
HR(Q) 400	7.87 [200,0]	2.73[69,4]

Versions				
	1	3	4	5
C	4x 5/16-18UNC	4x M8	-	-
P_(A,B)	2x.39 Dia. [2x10]	2x.39 Dia. [2x10]	2x 3/8-14UNF	2x 1/2 -14NPTF
T	3/16 -20UNF	3/16 -20UNF	3/16 -20UNF	3/16 -20UNF

ORDER CODE

	1	2	3	4	5	6	7	8
H R					U			

Pos.1 - Mounting Flange

omit - SAE A, two holes

Q - Square, four bolts

Pos.2 - Displacement code*

50	- 3.14 [51,5] in. ³ /rev. [cm. ³ /rev.]
80	- 4.90 [80,3] in. ³ /rev. [cm. ³ /rev.]
100	- 6.09 [99,8] in. ³ /rev. [cm. ³ /rev.]
125	- 7.67 [125,7] in. ³ /rev. [cm. ³ /rev.]
160	- 9.74 [159,6] in. ³ /rev. [cm. ³ /rev.]
200	- 12.19 [199,8] in. ³ /rev. [cm. ³ /rev.]
250	- 15.26 [250,1] in. ³ /rev. [cm. ³ /rev.]
315	- 19.26 [315,7] in. ³ /rev. [cm. ³ /rev.]
400	- 24.23 [397,0] in. ³ /rev. [cm. ³ /rev.]

Pos.3 - Shaft Extensions** [see page 8]

C	- 1" [25,4] straight, Woodruff key
G	- 1" [25,4] SAE 6B Splined
H	- 1" [25,4] straight, w/.315 [8] Cross-hole
S	- 7/8" [22,2] 13T Splined
T	- 1" [25,4] SAE J501 Tapered

Pos. 4 - Port Size/Type [standard manifold to each]

1 - side ports, Manifold [5/16-18 UNC Mounting Threads], 7/16-20 UNF

3 - side ports, Manifold [M8 Mounting Threads], 7/16-20 UNF

4 - side ports, 2x7/8-14 UNF, O-ring, 7/16-20 UNF

5 - side ports, 2x1/2-14 NPTF, 7/16-20 UNF

Pos. 5 - Shaft Seal Version [see page 9]

U - High pressure shaft seal (without check valves)

Pos. 6 - Drain Port

omit - with drain port

1 - without drain port

Pos. 7 - Special Features [see page 38]

Pos. 8 - Design Series

omit - Factory specified

Notes : * For the Performance Data please look at "M+S Hydraulic" Catalogue for MLHR motors, pages 36÷40.

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

The hydraulic motors are mangano-phosphatized as standard.