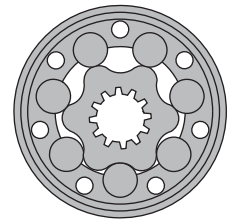
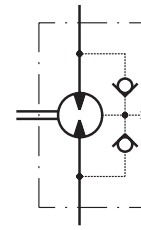


# HYDRAULIC MOTORS RL



## APPLICATION

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



## CONTENTS

Specification data .....	55
Permissible shaft loads .....	53
Dimensions and mounting ....	56
Shaft extensions .....	57
Order code .....	57

## OPTIONS

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

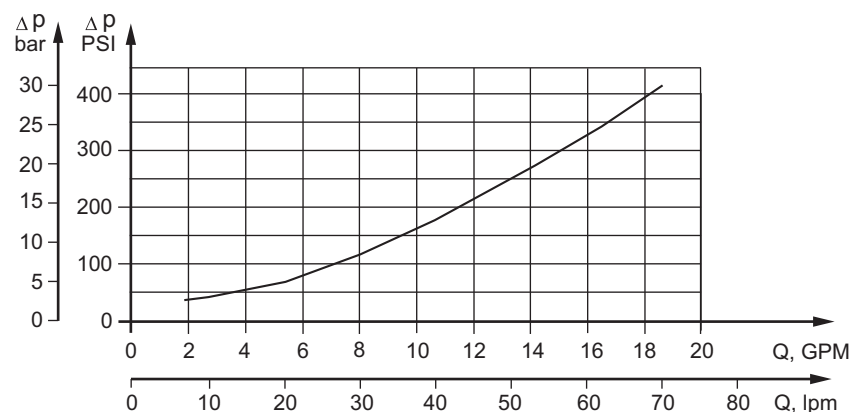
## GENERAL

<b>Max. Displacement,</b> cm <sup>3</sup> /rev. [in <sup>3</sup> /rev.]	397 [24.4]
<b>Max. Speed,</b> [RPM]	970
<b>Max. Torque,</b> daNm [lb-in]	cont.: 61 [5400] int.: 69 [6100]
<b>Max. Output,</b> kW [HP]	16 [21.5]
<b>Max. Pressure Drop,</b> bar [PSI]	cont.:175 [2540] int.: 200 [2900]
<b>Max. Oil Flow,</b> lpm [GPM]	75 [20]
<b>Min. Speed,</b> [RPM]	10
<b>Permissible Shaft Loads,</b> daN [lbs]	P <sub>a</sub> =500 [1124]
<b>Pressure fluid</b>	Mineral based- HLP(DIN 51524) or HM(ISO 6743/4)
<b>Temperature range,</b> °C [°F]	-40÷140 [-40÷284]
<b>Optimal Viscosity range,</b> mm <sup>2</sup> /s [SUS]	20÷75 [98÷347]
<b>Filtration</b>	ISO code 20/16 (Min. recommended fluid filtration of 25 micron)

### Oil flow in drain line

Pressure drop bar [PSI]	Viscosity mm <sup>2</sup> /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	RL 50	RL 80	RL 100	RL 125	RL 160	RL 200	RL 250	RL 315	RL 400	
<b>Displacement, cm<sup>3</sup>/rev [in<sup>3</sup>/rev]</b>	51,5 [3.14]	80,3 [4.90]	99,8 [6.09]	125,7 [7.67]	159,6 [9.74]	199,8[12.19]	250,1[15.26]	315,7[19.26]	397 [24.4]	
<b>Max. Speed, [RPM]</b>	Cont.	775	750	600	475	375	300	240	190	150
	Int.*	970	940	750	600	470	375	300	240	190
<b>Max. Torque, daNm [lb-in]</b>	Cont.	10,1 [900]	20 [1770]	24 [2125]	30 [2655]	39 [3450]	45 [4000]	54 [4780]	55 [4870]	61 [5400]
	Int.*	13 [1150]	22,0 [1947]	28 [2480]	34 [3010]	43 [3805]	50 [4425]	61 [5400]	63 [5580]	69 [6100]
	Peak**	17 [1505]	27,0 [2390]	32 [2832]	37 [3275]	46 [4070]	56 [4960]	71 [6280]	83 [7350]	87 [7700]
<b>Max. Output kW [HP]</b>	Cont.	7 [9.5]	12,5 [17]	13 [17.4]	12,5 [16.8]	11,5 [15.4]	11 [14.8]	10 [13.4]	9 [12]	7,8 [10.5]
	Int.*	8,5 [11.9]	15 [20.1]	15 [20.1]	16 [21.5]	14 [18.8]	13 [17.4]	12 [16.1]	11 [14.8]	10,6 [14.2]
<b>Max. Pressure Drop bar [PSI]</b>	Cont.	140 [2030]	175 [2540]	175 [2540]	175 [2540]	175 [2540]	175 [2540]	175 [2540]	135 [1960]	115 [1670]
	Int.*	175 [2540]	200 [2900]	200 [2900]	200 [2900]	200 [2900]	200 [2900]	200 [2900]	160 [2320]	140 [2030]
	Peak**	225 [3260]	225 [3260]	225 [3260]	225 [3260]	225 [3260]	225 [3260]	225 [3260]	210 [3045]	175 [2540]
<b>Max. Oil Flow lpm [GPM]</b>	Cont.	40 [11]	60 [16]	60 [16]	60 [16]	60 [16]	60 [16]	60 [16]	60 [16]	60 [16]
	Int.*	50 [13]	75 [20]	75 [20]	75 [20]	75 [20]	75 [20]	75 [20]	75 [20]	75 [20]
<b>Max. Inlet Pressure bar [PSI]</b>	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]
<b>Max. Return Pressure without Drain Line or Max. Pressure in Drain Line, bar [PSI]</b>	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]	100 [1450]
<b>Max. Return Pressure with Drain Line bar [PSI]</b>	Cont.	140 [2030]	175 [2540]	175 [2540]	175 [2540]	175 [2540]	175 [2540]	175 [2540]	175 [2540]	175 [2540]
	Int.*	175 [2540]	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]
<b>Max. Starting Pressure with Unloaded Shaft, bar [PSI]</b>	10 [145]	10 [145]	10 [145]	9 [130]	102 [7]	5 [73]	4 [58]	3 [44]	3 [44]	
<b>Min. Starting Torque daNm [lb-in]</b>	8 [710]	15 [1330]	20 [1770]	25 [2215]	2835 [32]	37 [3275]	45 [4000]	45 [4000]	49 [4340]	
<b>Min. Speed***, [RPM]</b>	10	10	10	10	10	10	10	10	10	
<b>Weight, kg [lb]</b>	8,5 [18.7]	8,6 [19]	8,9 [19.6]	9,0 [19.8]	9,2 [20.3]	9,6 [21.2]	10,1 [22.3]	10,8 [23.8]	11,5 [25.4]	

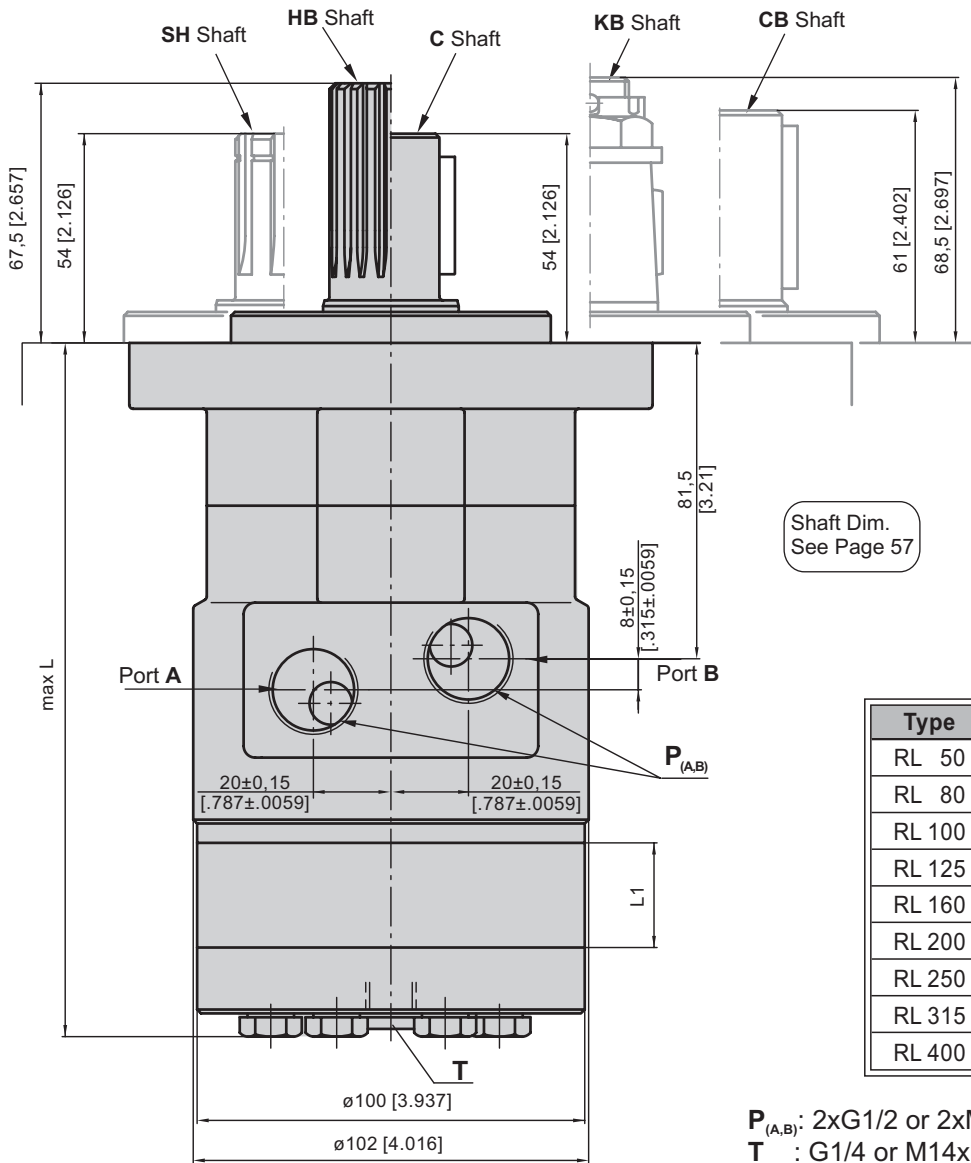
\* Intermittent operation: the permissible values may occur for max. 10% of every minute.

\*\* 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 mm<sup>2</sup>/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**



Shaft Dim.  
See Page 57

**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

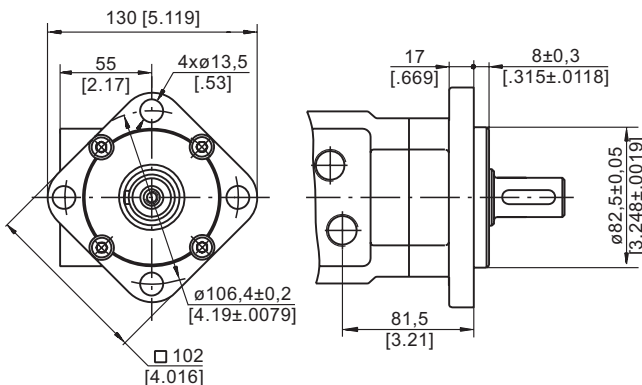
Type	L ,mm [in]	L <sub>1</sub> ,mm [in]
RL 50	152 [5.98]	9,0 [.35]
RL 80	157 [6.18]	14,0 [.55]
RL 100	160 [6.30]	17,4 [.69]
RL 125	165 [6.50]	21,8 [.86]
RL 160	171 [6.73]	27,8 [1.09]
RL 200	178 [7.01]	34,8 [1.37]
RL 250	187 [7.36]	43,5 [1.71]
RL 315	198 [7.80]	54,8 [2.16]
RL 400	212 [8.35]	69,4 [2.73]

P<sub>(A,B)</sub>: 2xG1/2 or 2xM22x1,5 - 15 mm [.59 in] depth

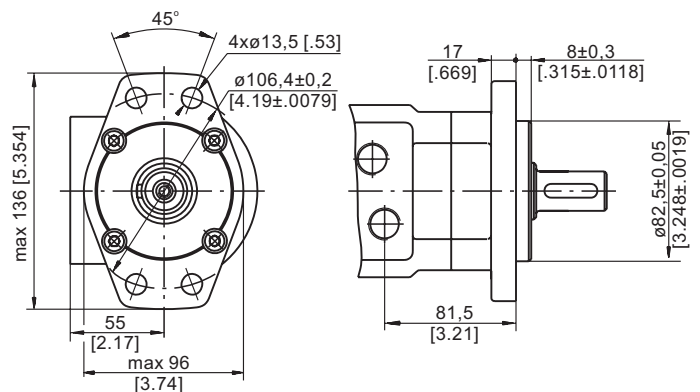
T : G1/4 or M14x1,5 - 12 mm [.47 in] depth

**MOUNTING**

**Square Mount (4 Holes)**

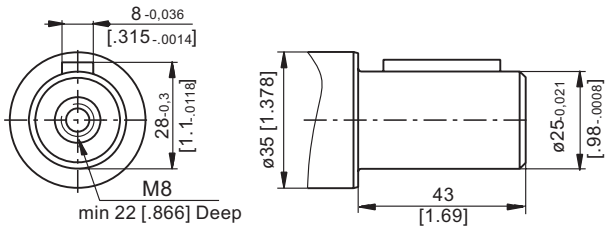


**F Oval Mount (4 Holes)**

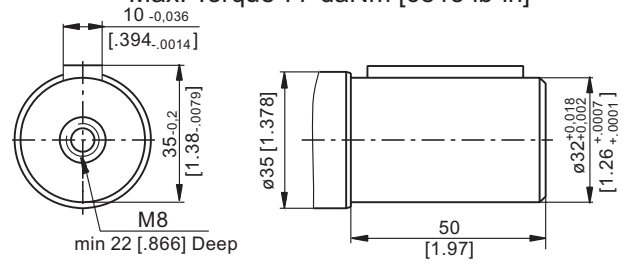


**SHAFT EXTENSIONS**

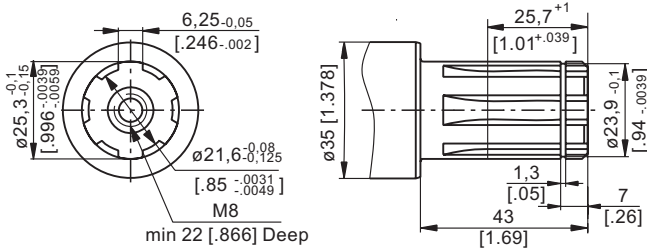
**C** -  $\varnothing 25$  straight, Parallel key A8x7x30 DIN 6885  
Max. Torque 34 daNm [3010 lb-in]



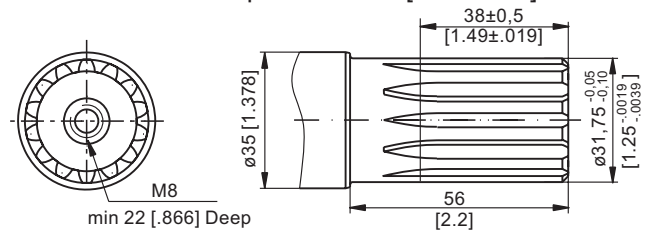
**CB** -  $\varnothing 32$  straight, Parallel key A10x8x40 DIN 6885  
Max. Torque 77 daNm [6815 lb-in]



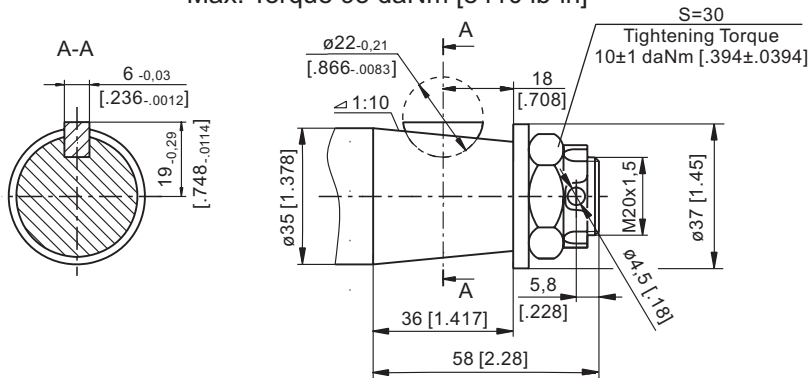
**SH** - splined, BS 2059 (SAE 6B)  
Max. Torque 40 daNm [3540 lb-in]



**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]



**ORDER CODE**

1	2	3	4	5	6
<b>RL</b>					

**Pos.1 - Mounting Flange**

omit - Square mount, four holes

**F** - Oval mount, four holes

**Pos.2 - Displacement code\***

<b>50</b>	- 51,5 cm <sup>3</sup> /rev [3.14 in <sup>3</sup> /rev]
<b>80</b>	- 80,3 cm <sup>3</sup> /rev [4.90 in <sup>3</sup> /rev]
<b>100</b>	- 99,8 cm <sup>3</sup> /rev [6.09 in <sup>3</sup> /rev]
<b>125</b>	- 125,7 cm <sup>3</sup> /rev [7.67 in <sup>3</sup> /rev]
<b>160</b>	- 159,6 cm <sup>3</sup> /rev [9.74 in <sup>3</sup> /rev]
<b>200</b>	- 199,8 cm <sup>3</sup> /rev [12.19 in <sup>3</sup> /rev]
<b>250</b>	- 250,1 cm <sup>3</sup> /rev [15.26 in <sup>3</sup> /rev]
<b>315</b>	- 315,7 cm <sup>3</sup> /rev [19.26 in <sup>3</sup> /rev]
<b>400</b>	- 397,0 cm <sup>3</sup> /rev [24.40 in <sup>3</sup> /rev]

**Pos.3 - Shaft Extensions\*\***

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

**Pos.4 - Ports**

omit - BSPP (ISO 228)

**M** - Metric (ISO 262)

**Pos.5 - Special Features (see page 98)**

**Pos.6 - Design Series**

omit - Factory specified

**NOTES:**

\* For the Function Diagrams data please look at "M+S Hydraulic" Catalogue for MR motors, pages 37+41.

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

The hydraulic motors are mangano-phosphatized as standard.