# Hydraulic Motors

NIMCO
NIMCO
NIMCO
CONTROLS

Reliability from Quality

## APPLICATION

The NMP Series motor is a robust and economical motor which can be provided in up to 13 displacements. It is designed for medium duty applications and is premachined to allow for any valve block to be assembled directly on top of the motor.

The NMP Series motor offers a wide range of mounting options as well as a large number of shaft options.

## SPECIFICATION

| TYPE | | NMP NMPW 50 | NMP NMPW 80 | NMP NMPW 100 | NMP NMPW 125 | NMP NMPW 160 | NMP(1) NMPW 200 | NMP(2) NMPW 200 | NMP(1) NMPW 250 | NMP(2) NMPW 250 | NMP(1) NMPW 315 | NMP(2) NMPW 315 | NMP(1) NMPW 400 | NMP(2) NMPW 400 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Displacement (c.c/rev) | | 50.8 | 78.8 | 98.6 | 123.5 | 158.6 | 197.9 | 197.9 | 247.5 | 247.5 | 316.5 | 316.5 | 396.5 | 396.5 |
| Max. speed (rpm) | Cont | 1180 | 760 | 600 | 485 | 380 | 302 | 302 | 240 | 240 | 190 | 190 | 150 | 150 |
| | Int(3) | 1380 | 940 | 750 | 600 | 475 | 380 | 380 | 302 | 302 | 235 | 235 | 190 | 190 |
| Max. Torque (da Nm) | Cont | 9.3 | 14.9 | 19 | 23.4 | 31 | 36.4 | 35.9 | 45.2 | 35.1 | 46.3 | 34.2 | 48.2 | 34.8 |
| | Int(3) | 12 | 19 | 23 | 29 | 37 | 45.2 | 43.5 | 58.9 | 46.8 | 54.3 | 49.2 | 55.5 | 45.4 |
| | Peak(4) | 14 | 21.9 | 26.5 | 36.2 | 42.6 | 54.5 | 54.5 | 64.2 | 58.5 | 70.5 | 68.4 | 78.7 | 68.8 |
| Max. output (Kw) | Cont | 10.2 | 10.1 | 10.3 | 10 | 10 | 10 | 9.6 | 9.4 | 7.4 | 7.5 | 5.6 | 6.3 | 4.6 |
| | Int(3) | 12.3 | 12.3 | 12.5 | 12 | 12 | 12 | 12 | 12 | 12 | 9 | 9 | 7.8 | 7.8 |
| Max. pressure drop (bar) | Cont | 140 | 140 | 140 | 140 | 140 | 140 | 135 | 135 | 105 | 115 | 80 | 90 | 65 |
| | Int(3) | 175 | 175 | 175 | 175 | 175 | 175 | 160 | 175 | 140 | 135 | 115 | 110 | 90 |
| | Peak(4) | 210 | 210 | 210 | 210 | 210 | 210 | 210 | 200 | 175 | 175 | 160 | 160 | 140 |
| Max.oil flow (l/min) | Cont | 50 | 60 | 60 | 60 | 60 | 60 | 60 | 60 | 60 | 60 | 60 | 60 | 60 |
| | Int(3) | 60 | 75 | 75 | 75 | 75 | 75 | 75 | 75 | 75 | 75 | 75 | 75 | 75 |
| Max. Inlet pressure (bar) | Cont | 160 | 160 | 160 | 160 | 160 | 160 | 160 | 160 | 160 | 160 | 160 | 160 | 160 |
| | Int(3) | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 |
| | Peak(4) | 210 | 210 | 210 | 210 | 210 | 210 | 210 | 210 | 210 | 210 | 210 | 210 | 210 |
| Weight (kg) | | 5.6 | 5.7 | 5.9 | 6.0 | 6.2 | 6.4 | 6.4 | 6.6 | 6.6 | 6.9 | 6.9 | 7.4 | 7.4 |

(1) 32mm Straight (2) 1" Straight, 25mm Straight, 6-b Spline (3) Intermittent operation rating applies to 6 sec. of every minute
(4) Peak load rating applies to 0.6 sec of every minute

| TYPE | | NMP NMPW 50 | NMP NMPW 80 | NMP NMPW 100 | NMP NMPW 125 | NMP NMPW 160 | NMP(1) NMPW 200 | NMP(2) NMPW 200 | NMP(1) NMPW 250 | NMP(2) NMPW 250 | NMP(1) NMPW 315 | NMP(2) NMPW 315 | NMP(1) NMPW 400 | NMP(2) NMPW 400 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Displacement (in.3/r ) | | 3.1 | 4.8 | 6 | 7.5 | 9.7 | 12.1 | 12.1 | 15.1 | 15.1 | 19.3 | 19.3 | 24.2 | 24.2 |
| Max. speed (rpm) | Cont | 1180 | 760 | 600 | 485 | 380 | 302 | 302 | 240 | 240 | 190 | 190 | 150 | 150 |
| | Int(3) | 1380 | 940 | 750 | 600 | 475 | 380 | 380 | 302 | 302 | 235 | 235 | 190 | 190 |
| Max. Torque (lb-in) | Cont | 820 | 1320 | 1682 | 2068 | 2744 | 3221 | 3177 | 3996 | 3108 | 4097 | 3028 | 4268 | 3083 |
| | Int(3) | 1062 | 1682 | 2036 | 2567 | 3275 | 3996 | 3850 | 4950 | 4144 | 4810 | 4353 | 4910 | 4017 |
| | Peak(4) | 1239 | 1938 | 2345 | 3204 | 3770 | 4823 | 4823 | 5680 | 5181 | 6235 | 6057 | 6965 | 6093 |
| Max. output (hp) | Cont | 13.7 | 13.5 | 13.8 | 13.4 | 13.4 | 13.4 | 12.9 | 12.6 | 9.9 | 10.1 | 7.5 | 8.4 | 6.2 |
| | Int(3) | 16.5 | 16.5 | 16.8 | 16.1 | 16.1 | 16.1 | 16.1 | 16.1 | 16.1 | 12.1 | 12.1 | 10.5 | 10.5 |
| Max. pressure drop (psi) | Cont | 2030 | 2030 | 2030 | 2030 | 2030 | 2030 | 1960 | 1960 | 1525 | 1615 | 1160 | 1305 | 945 |
| | Int(3) | 2540 | 2540 | 2540 | 2540 | 2540 | 2540 | 2320 | 2540 | 2030 | 1960 | 1665 | 1600 | 1305 |
| | Peak(4) | 3045 | 3045 | 3045 | 3045 | 3045 | 3045 | 3045 | 2900 | 2540 | 2540 | 2320 | 2320 | 2030 |
| Max.oil flow (gpm) | Cont | 13 | 16 | 16 | 16 | 16 | 16 | 16 | 16 | 16 | 16 | 16 | 16 | 16 |
| | Int(3) | 16 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 |
| Max. Inlet pressure (psi) | Cont | 2320 | 2320 | 2320 | 2320 | 2320 | 2320 | 2320 | 2320 | 2320 | 2320 | 2320 | 2320 | 2320 |
| | Int(3) | 2540 | 2540 | 2540 | 2540 | 2540 | 2540 | 2540 | 2540 | 2540 | 2540 | 2540 | 2540 | 2540 |
| | Peak(4) | 3045 | 3045 | 3045 | 3045 | 3045 | 3045 | 3045 | 3045 | 3045 | 3045 | 3045 | 3045 | 3045 |
| Weight (lbs) | | 12.3 | 12.5 | 13 | 13.2 | 13.6 | 14.1 | 14.1 | 14.5 | 14.5 | 15.2 | 15.2 | 16.3 | 16.3 |

## APPLICATION

The NMPH Series motor is the same as the NMP type motor but with front parallel ports. It is a robust and economical motor which is offered in up to 9 different displacements.

It also offers a wide range of shaft and mounting options.

## SPECIFICATION

| TYPE | | NMPH 50 | NMPH 80 | NMPH 100 | NMPH 125 | NMPH 160 | NMPH 200 | NMPH 250 | NMPH 315 | NMPH 400 |
|---|---|---|---|---|---|---|---|---|---|---|
| Displacement (c.c/rev) | | 50.8 | 78.8 | 98.6 | 123.5 | 158.6 | 197.9 | 247.5 | 316.5 | 396.5 |
| Max. speed (rpm) | Cont | 1180 | 760 | 600 | 485 | 380 | 302 | 240 | 190 | 150 |
| | Int(3) | 1380 | 940 | 750 | 600 | 475 | 380 | 302 | 235 | 190 |
| Max. Torque (da Nm) | Cont | 9.3 | 14.9 | 19 | 23.4 | 31 | 35.9 | 35.1 | 34.2 | 34.8 |
| | Int(3) | 12 | 19 | 23 | 29 | 37 | 43.5 | 46.8 | 49.2 | 45.4 |
| | Peak(4) | 14 | 21.9 | 26.5 | 36.2 | 42.6 | 54.5 | 58.5 | 68.4 | 68.8 |
| Max. output (Kw) | Cont | 10.2 | 10.1 | 10.3 | 10 | 10 | 9.6 | 7.4 | 5.6 | 4.6 |
| | Int(3) | 12.3 | 12.3 | 12.5 | 12 | 12 | 12 | 12 | 9 | 7.8 |
| Max. pressure drop (bar) | Cont | 140 | 140 | 140 | 140 | 140 | 135 | 105 | 80 | 65 |
| | Int(3) | 175 | 175 | 175 | 175 | 175 | 160 | 140 | 115 | 90 |
| | Peak(4) | 210 | 210 | 210 | 210 | 210 | 210 | 175 | 160 | 140 |
| Max.oil flow (l/min) | Cont | 60 | 60 | 60 | 60 | 60 | 60 | 60 | 60 | 60 |
| | Int(3) | 75 | 75 | 75 | 75 | 75 | 75 | 75 | 75 | 75 |
| Max. Inlet pressure (bar) | Cont | 160 | 160 | 160 | 160 | 160 | 160 | 160 | 160 | 160 |
| | Int(3) | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 |
| | Peak(4) | 210 | 210 | 210 | 210 | 210 | 210 | 210 | 210 | 210 |
| Weight (kg) | | 5.6 | 5.7 | 5.9 | 6.0 | 6.2 | 6.4 | 6.6 | 6.9 | 7.4 |

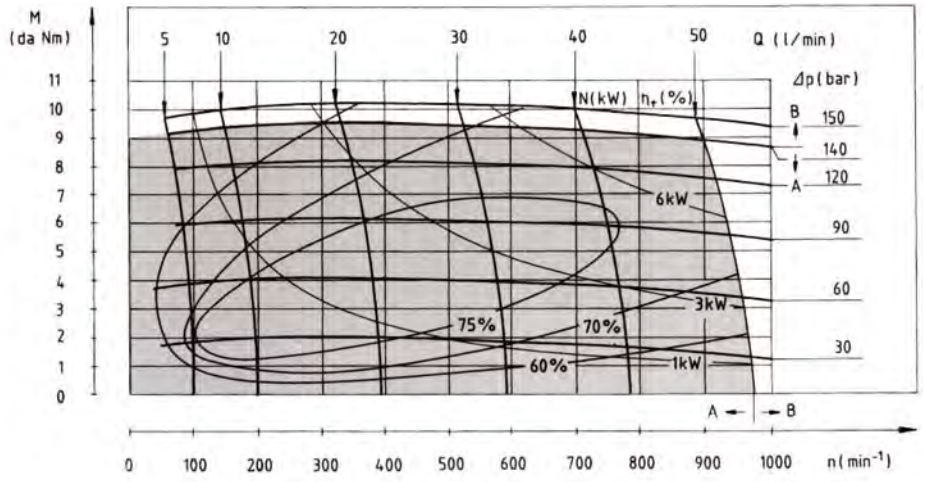
(3) Intermittent operation rating applies to 6 sec. of every minute
(4) Peak load rating applies to 0.6 sec of every minute

| TYPE | | NMPH 50 | NMPH 80 | NMPH 100 | NMPH 125 | NMPH 160 | NMPH 200 | NMPH 250 | NMPH 315 | NMPH 400 |
|---|---|---|---|---|---|---|---|---|---|---|
| Displacement (in.3/r ) | | 3.1 | 4.8 | 6 | 7.5 | 9.7 | 12.1 | 15.1 | 19.3 | 24.2 |
| Max. speed (rpm) | Cont | 1180 | 760 | 600 | 485 | 380 | 302 | 240 | 190 | 150 |
| | Int(3) | 1380 | 940 | 750 | 600 | 475 | 380 | 302 | 235 | 190 |
| Max. Torque (lb-in) | Cont | 820 | 1320 | 1682 | 2068 | 2744 | 3177 | 3108 | 3028 | 3083 |
| | Int(3) | 1062 | 1682 | 2036 | 2567 | 3275 | 3850 | 4144 | 4353 | 4017 |
| | Peak(4) | 1239 | 1938 | 2345 | 3204 | 3770 | 4823 | 5181 | 6057 | 6093 |
| Max. output (hp) | Cont | 13.7 | 13.5 | 13.8 | 13.4 | 13.4 | 12.9 | 9.9 | 7.5 | 6.2 |
| | Int(3) | 16.5 | 16.5 | 16.8 | 16.1 | 16.1 | 16.1 | 16.1 | 12.1 | 10.5 |
| Max. pressure drop (psi) | Cont | 2030 | 2030 | 2030 | 2030 | 2030 | 1960 | 1525 | 1160 | 945 |
| | Int(3) | 2540 | 2540 | 2540 | 2540 | 2540 | 2320 | 2030 | 1665 | 1305 |
| | Peak(4) | 3045 | 3045 | 3045 | 3045 | 3045 | 3045 | 2540 | 2320 | 2030 |
| Max.oil flow (gpm) | Cont | 16 | 16 | 16 | 16 | 16 | 16 | 16 | 16 | 16 |
| | Int(3) | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 |
| Max. Inlet pressure (psi) | Cont | 2320 | 2320 | 2320 | 2320 | 2320 | 2320 | 2320 | 2320 | 2320 |
| | Int(3) | 2540 | 2540 | 2540 | 2540 | 2540 | 2540 | 2540 | 2540 | 2540 |
| | Peak(4) | 3045 | 3045 | 3045 | 3045 | 3045 | 3045 | 3045 | 3045 | 3045 |
| Weight (lbs) | | 12.3 | 12.5 | 13.0 | 13.2 | 13.6 | 14.1 | 14.5 | 15.2 | 16.3 |

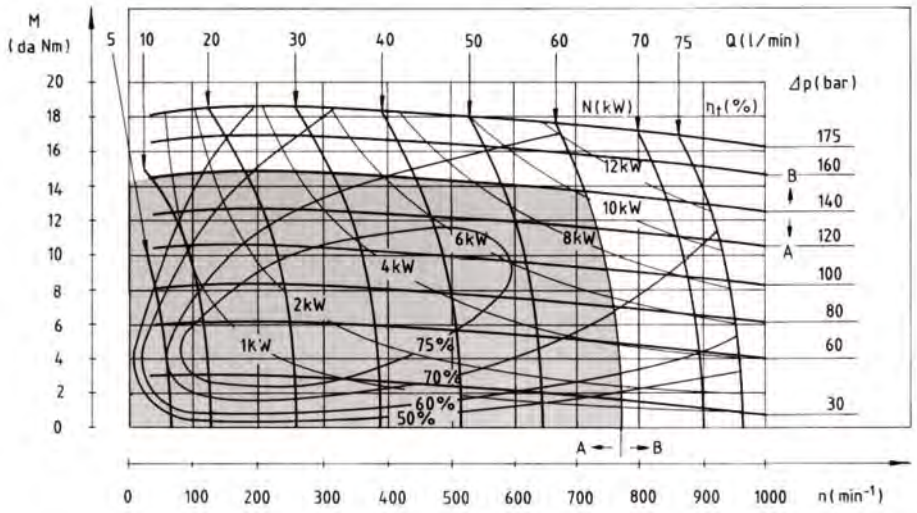
A : CONTINUOUS OPERATION

B : INTERMITTENT RATING APPLIES TO 6 SEC. PER MINUTE

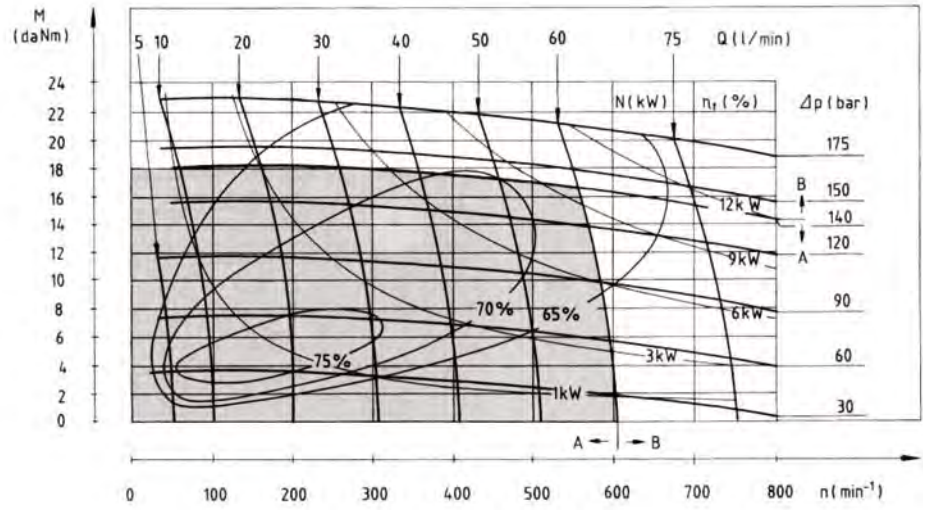
## NMP/NMPH50




## NMP/NMPH80



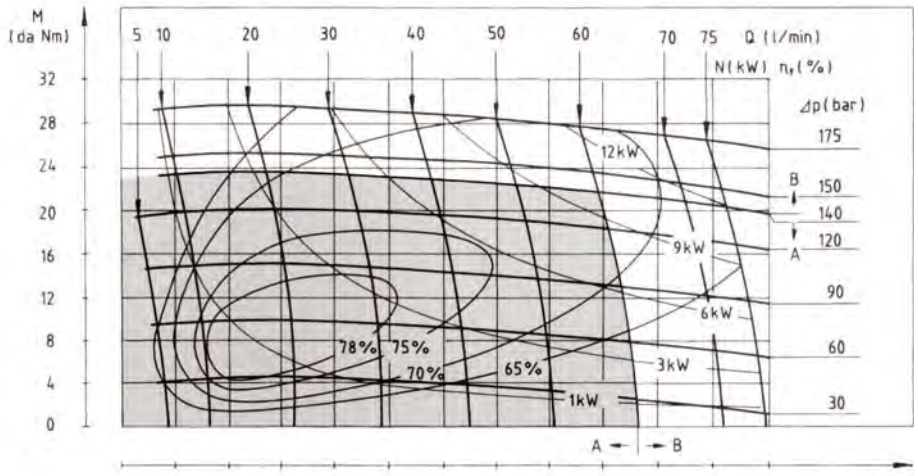

## NMP/NMPH100



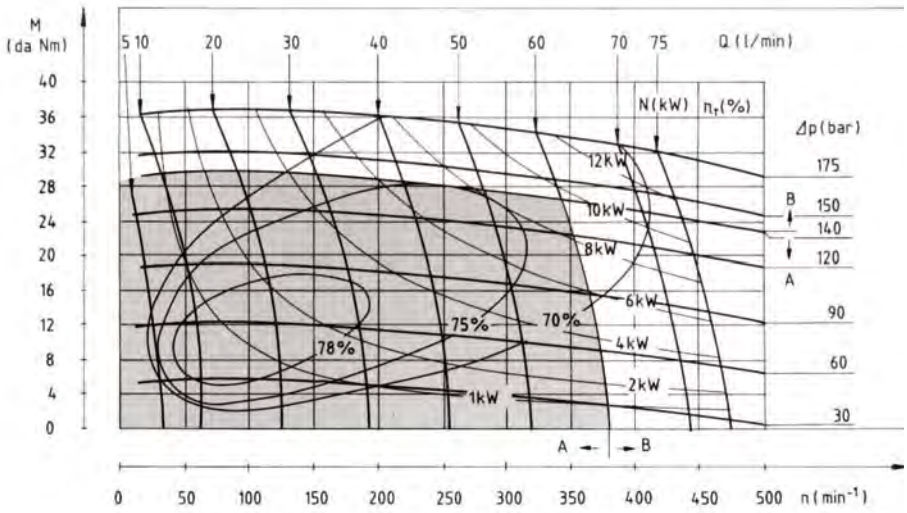
A : CONTINUOUS OPERATION

B : INTERMITTENT RATING APPLIES TO 6 SEC. PER MINUTE

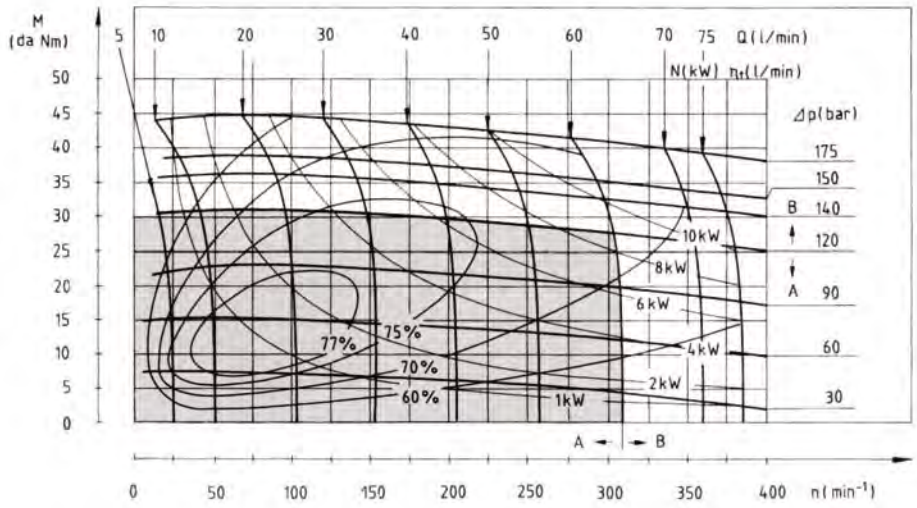
## NMP/NMPH125




## NMP/NMPH160



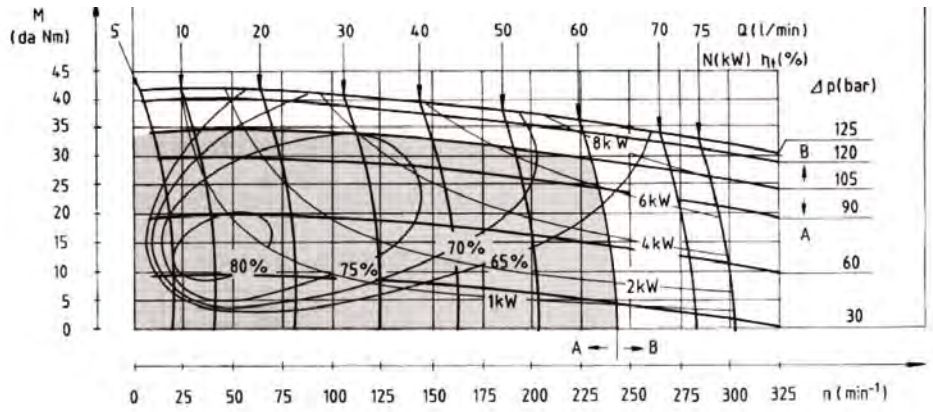

## NMP/NMPH200



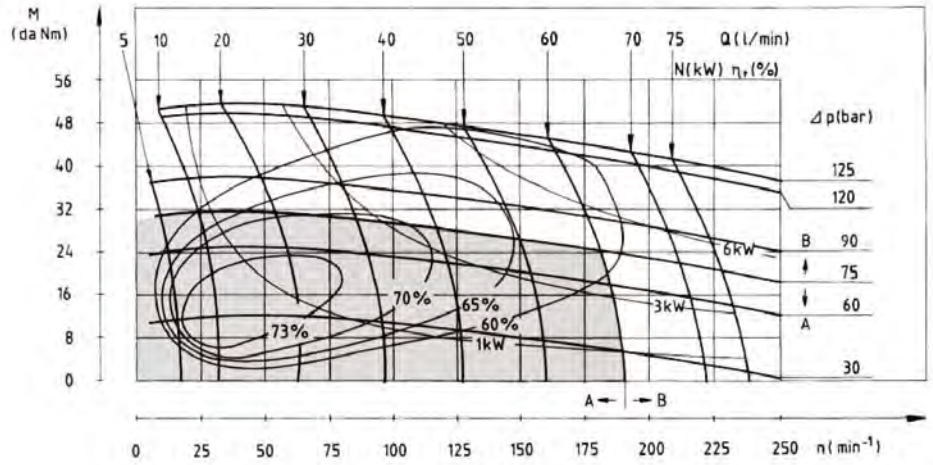
A : CONTINUOUS OPERATION

B : INTERMITTENT RATING APPLIES TO 6 SEC. PER MINUTE

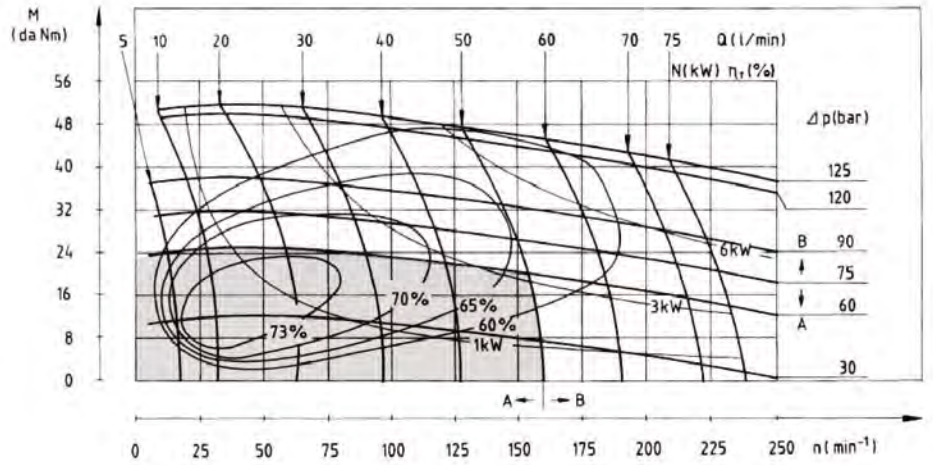
## NMP/NMPH250




## NMP/NMPH315

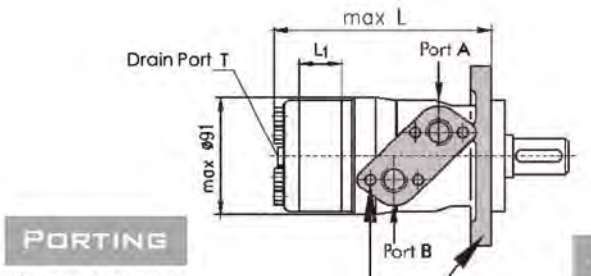



## NMP/NMPH400



## DIMENSIONS AND MOUNTING DATA

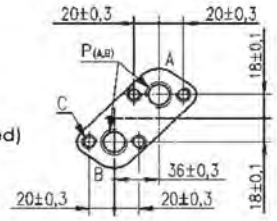
| Type | L | L1 |
|---|---|---|
| NMP 50 | 137 | 7 |
| NMP 80 | 140.5 | 10.5 |
| NMP 100 | 143 | 13 |
| NMP 125 | 146 | 16 |
| NMP 160 | 151 | 21 |
| NMP 200 | 157 | 26 |
| NMP 250 | 162 | 32 |
| NMP 315 | 172 | 42 |
| NMP 400 | 182 | 52 |




**PORTING**

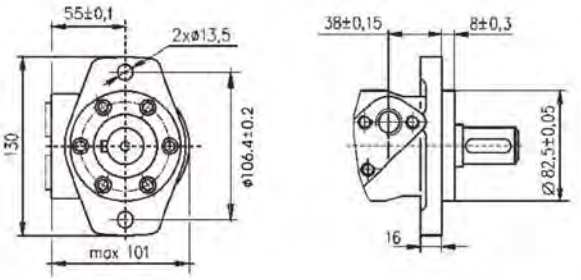
**SIDE PORTS**

**P(A, B)** : 2xG1/2 or
2xM22x1.5-20mm depth
**T** : G1/4 or
M14x1.5-12mm depth (plugged)
**C** : 4xM8-13mm depth

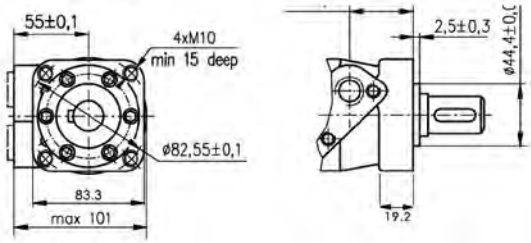



**MOUNTING**

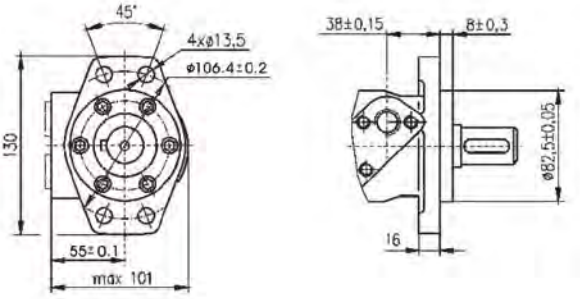
**A** OVAL MOUNT SAE. A (2 HOLES)




**Q** SQUARE MOUNT (4 BOLTS)



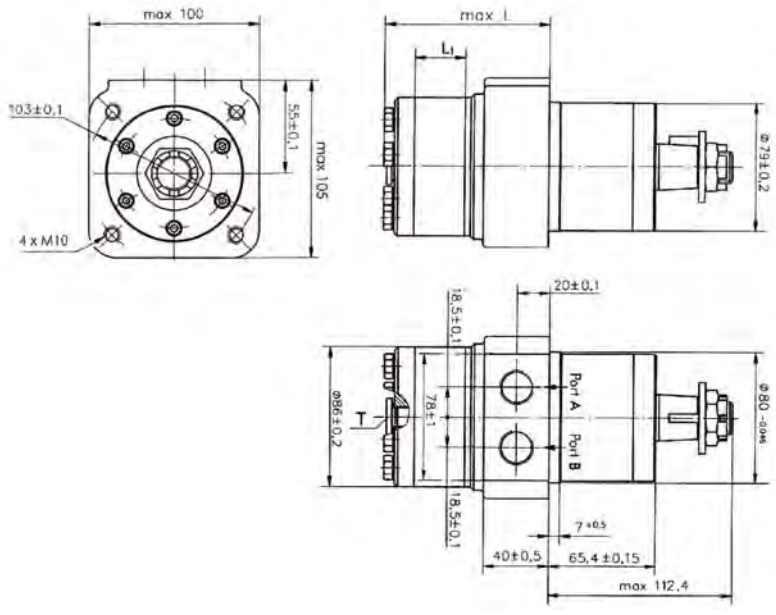

**F** MAGNETO MOUNT (4 HOLES)




**W** WHEEL MOUNT

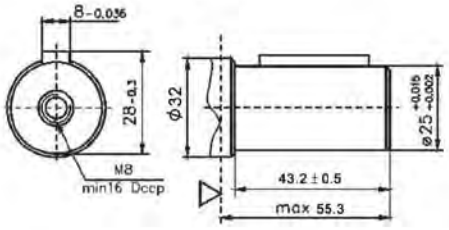
| Type | L | L1 |
|---|---|---|
| NMPW 50 | 78.33 | 7 |
| NMPW 80 | 81.83 | 10.5 |
| NMPW 100 | 84.67 | 13 |
| NMPW 125 | 87.33 | 16 |
| NMPW 160 | 92.67 | 21 |
| NMPW 200 | 97.33 | 26 |
| NMPW 250 | 103.67 | 32 |
| NMPW 315 | 113.33 | 42. |
| NMPW 400 | 123.67 | 52 |

**P(A, B)** : 2xG1/2 or 2xM22x1.5 - 15mm depth
**T** : G1/4 or M14x1.5-12mm depth (plugged)

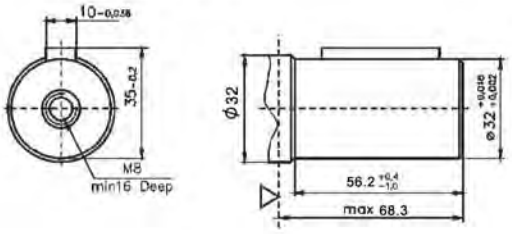


## SHAFT EXTENSIONS FOR NMP & NMR MOTOR

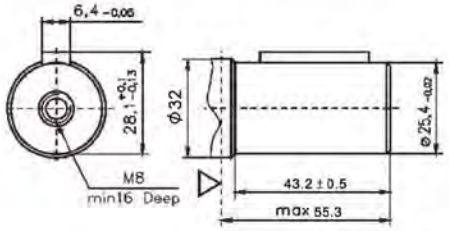
### C
ϕ25 straight, Parallel key A8x7x32
Max. Torque 34 daNm



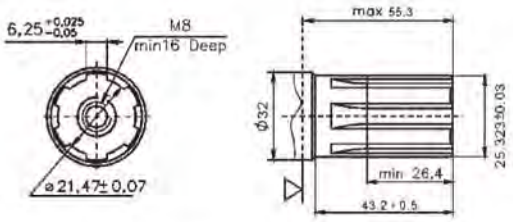

### C2
ϕ 32 straight, Parallel key A10x8x45
Max. Torque 77 daNm



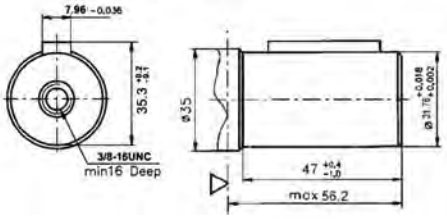

### CA
ϕ 1" straight, Parallel key 1/4" x 1/4" x 1¼"
Max. Torque 40 daNm



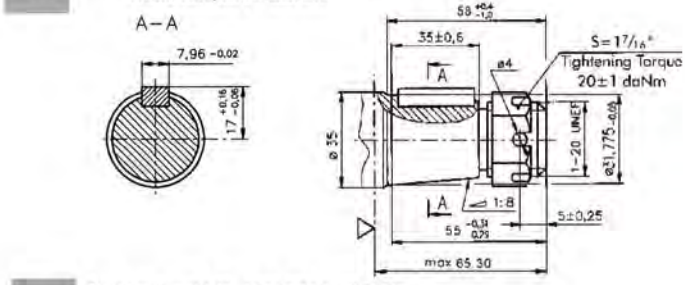

### S
Splined, (SAE 6B)
Max. Torque 40 daNm



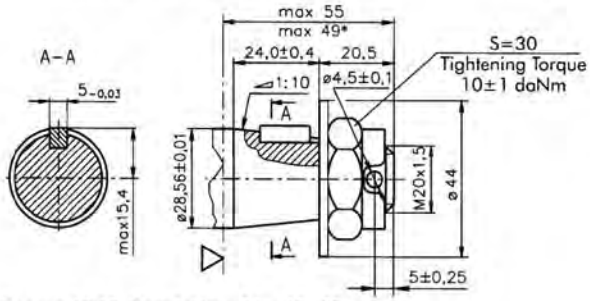

### C1
ϕ 1¼" straight, Parallel key 5/16" x 5/16" x 1¼"
Max. Torque 77 daNm



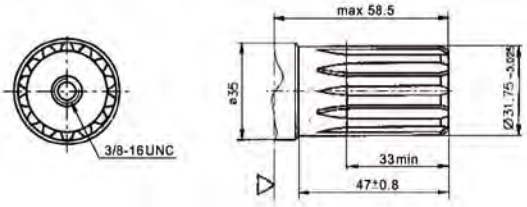

### TA
Tapered 1:8 SAEJ 501, Parallel key 5/16" x 5/16" x 1¼"
Max. Torque 77 daNm



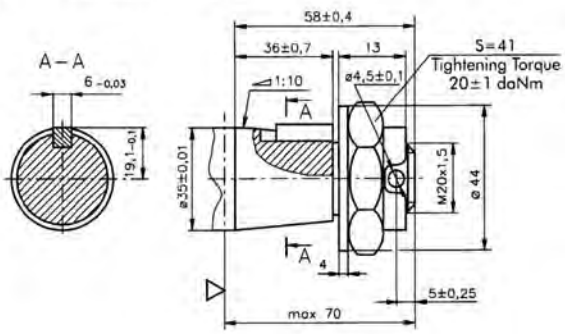

### T
Tapered 1:10, Parallel key B5 x 5 x 14
Max. Torque 40 daNm




### SB
ϕ 1¼" splined 14T, ANSI B92.1-1976 Norm
Max. Torque 77 daNm

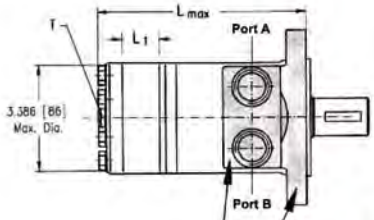



### TB
Tapered 1:10, Parallel key B6 x 65 x 20
Max. Torque 77daNm



## DIMENSIONS AND MOUNTING DATA

| Type | L | $L_1$ |
|---|---|---|
| NMPH 50 | 5.551[141] | 7 |
| NMPH 80 | 5.689[144.5] | 10 |
| NMPH100 | 5.787[147] | 13 |
| NMPH125 | 5.906[150] | 16 |
| NMPH160 | 6.102[155] | 21 |
| NMPH200 | 6.299[160] | 26 |
| NMPH250 | 6.535[166] | 32 |
| NMPH315 | 6.929[176] | 42 |
| NMPH400 | 7.323[186] | 52 |

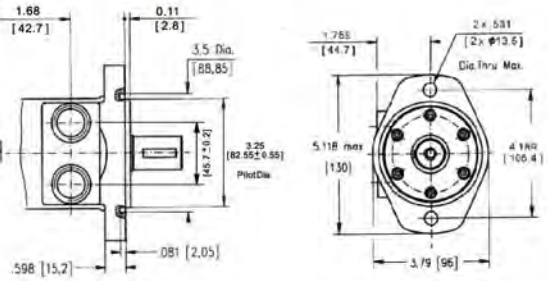



### PORTING

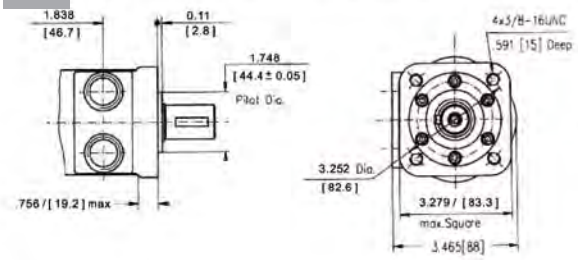
A,B: **U** 2 x 7/8-14UNF T: 7/16-20UNF
**P** 2 x 1/2-14NPTF T: 7/16-20UNF
**G** 2 x G1/2, 15 depth T: G1/4, 12 depth
**R** 2 x PT(RC) 1/2, 13 depth T: PT(RC)1/4, 10 depth
**M** 2 x M22x1.5, 15 depth T: M10x1.0, 12 depth

### MOUNTING

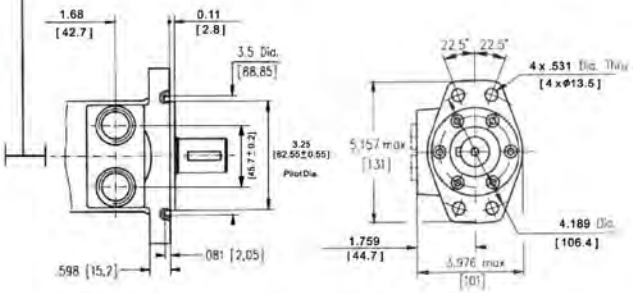
**A** OVAL MOUNT SAE. A (2 HOLES)




**Q** SQUARE MOUNT (4 BOLTS)

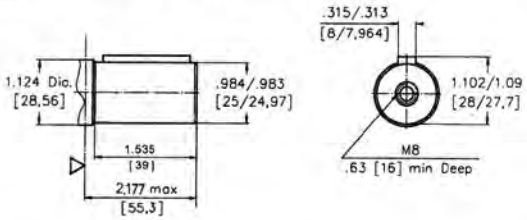



**F** MAGNETO MOUNT (4 HOLES)

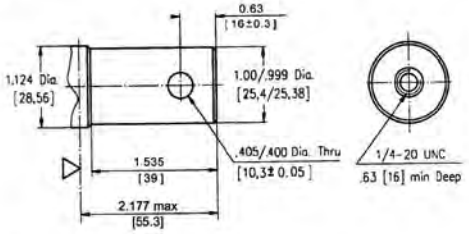



## SHAFT EXTENSIONS FOR NMPH MOTOR

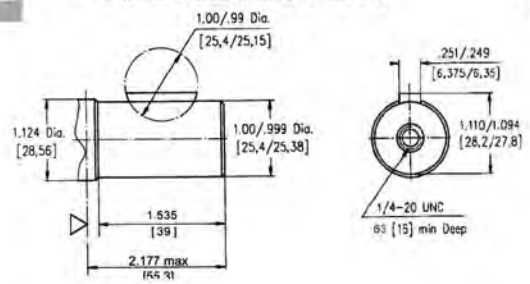
**C** ø25, Parallel key A8x7x28
Max. Torque 3050 in-lb [34 daNm]



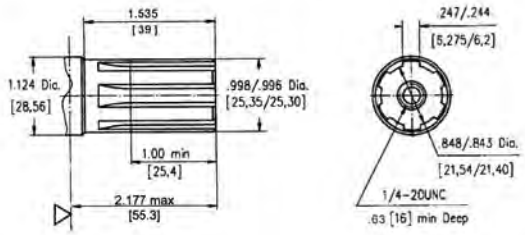

**C3** 1" [25,4] straight pin hole ϕ10.3
Max. Torque 3050 in-lb [34 daNm]



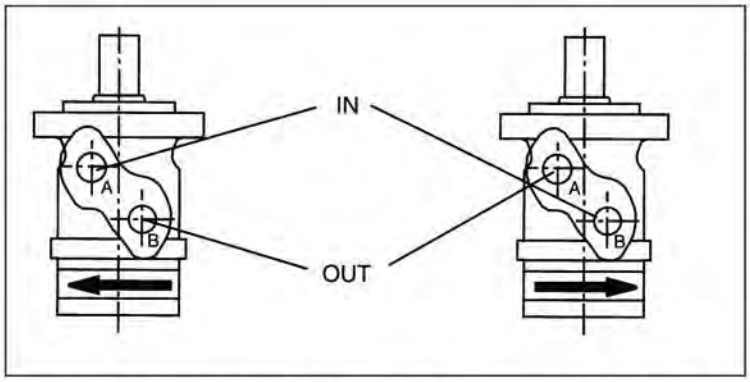

**C6** 1" [25,4], Woodruff key ¼"x1"
Max. Torque 3050 in-lb [34 daNm]




**S** 1" [25,4], SAE 6B Splined
Max. Torque 3050 in-lb [34 daNm]



## ROTATION SLECTION




The NMP & NMPH have built-in check valves. The pressure on the shaft seal is identical to the output pressure

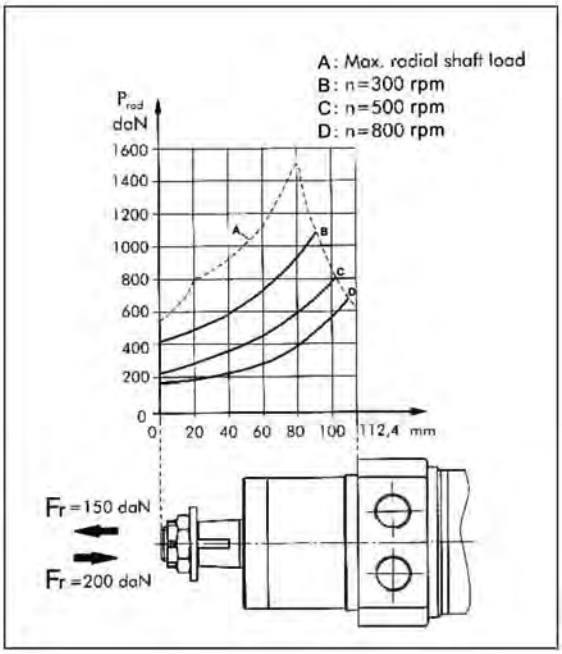
Max. return pressure without drain line or/ Max. pressure in drain line

| rpm | Cont. (bar) |
|---|---|
| 0 - 100 rpm | 75 |
| 100 - 300 rpm | 50 |
| 300 - 1000 rpm | 25 |

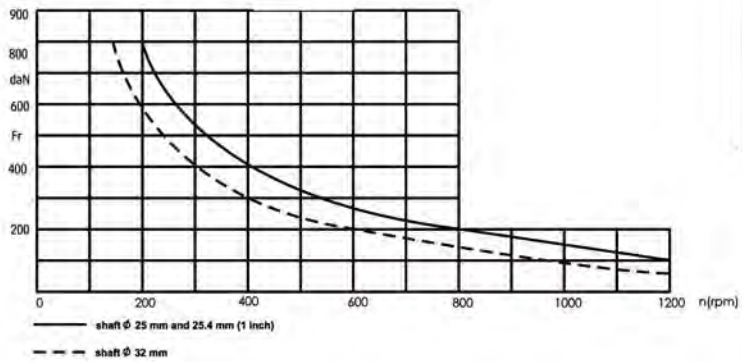
Max. return pressure with drain line

| | |
|---|---|
| Continuous | 160 bar |
| Intermittent | 175 bar |
| Peak | 210 bar |

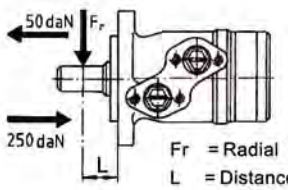
## NMPW



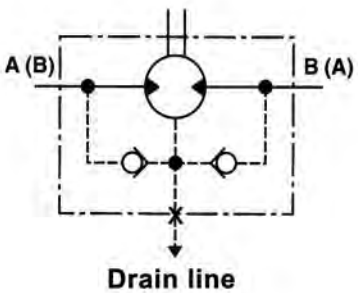

## SHAFT LOAD




$$F_r = \frac{800}{n} \cdot \frac{25000}{95+L} \text{ daN}$$




Fr = Radial Force (daN)
L = Distance (mm)
n = Speed (rpm)



## ORDERING INFORMATION

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|---|
| NMP | | | | | | | |

### POS. 1
DISPLACEMENT CODE

- 50 - 50.8cc / 3.1 [in.3/r]
- 80 - 78.8cc / 4.8 [in.3/r]
- 100 - 98.6cc / 6.0 [in.3/r]
- 125 - 123.5cc / 7.5 [in.3/r]
- 160 - 158.6cc / 9.7 [in.3/r]
- 200 - 197.9cc / 12.1 [in.3/r]
- 250 - 247.5cc / 15.1 [in.3/r]
- 315 - 316.5cc / 19.3 [in.3/r]
- 400 - 396.5cc / 24.2 [in.3/r]

### POS. 2
MOUNTING FLANGE

- A - Oval mount, SAE. A 2 holes
- F - Magneto mount, 4 holes
- Q - Square mount, 4 bolts
- W - Wheel Mount (not available)

### POS. 3 (SEE PAGE 9)
SHAFT EXTENSIONS

- C - ϕ25 straight, Parallel key A8x7x32
- CO - ϕ1" straight, Parallel key 1/4" x 1/4" x 1 1/4"
- C2 - ϕ32 straight, Parallel key A10x8x45
- S - ϕ25,32 splined (SAE 6B)
- C1 - ϕ1 1/4" straight, Parallel key 5/16" x 5/16" x 1 1/4"
- SB - ϕ1 1/4" splined 14T, ANSI B92.1-1976 Norm
- T - Tapered 1:10 , Parallel key B5 x 5 x 14
- TA - Tapered 1:8 SAEJ 501, Parallel key 5/16" x 5/16" x 1 1/4"
- TB - Tapered 1:10 Parallel key B6 x 6 x 20

### POS. 4
BEARING OPTIONS

Omit - None

- N - With needle bearings

### POS. 5
PORTING

Omit - G 1/2

- M - Metric

### POS. 6
SHAFT SEAL VERSION

Omit - Standard Seal

- D - High pressure seal

### POS. 7
ROTATION

Omit - Standard rotation

- R - Reverse rotation

## ORDERING INFORMATION

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|---|
| NMPH | | | | | | | |

### POS. 1
DISPLACEMENT CODE

- 50 - 50.8cc / 3.1 [in.3/r]
- 80 - 78.8cc / 4.8 [in.3/r]
- 100 - 98.6cc / 6.0 [in.3/r]
- 125 - 123.5cc / 7.5 [in.3/r]
- 160 - 158.6cc / 9.7 [in.3/r]
- 200 - 197.9cc / 12.1 [in.3/r]
- 250 - 247.5cc / 15.1 [in.3/r]
- 315 - 316.5cc / 19.3 [in.3/r]
- 400 - 396.5cc / 24.2 [in.3/r]

### POS. 2
MOUNTING FLANGE

- A - Oval mount, SAE. A 2 holes
- F - Magneto mount, 4 holes
- Q - Square mount, 4 bolts

### POS. 3 (SEE PAGE 9)
SHAFT EXTENSIONS

- C - ϕ25 straight, Parallel key A8x7x32
- CO - ϕ1" Woodruff key ϕ1/4" x 1"
- C3 - ϕ1" (25.4), straight Pin hole ϕ10.3
- S - ϕ25,32 splined (SAE 6B)

### POS. 4
OPTION BEARINGS

Omit - None

- N - With needle bearings

### POS. 5
PORTING

| | | |
|---|---|---|
| U | 2 x 7/8-14 UNF | T : 7/16-20UNF, 12 depth |
| P | 2 x 1/2-14 NPTF | T : 7/16-20 UNF, 12 depth |
| R | 2 x PT(RC)1/2, 13 depth | T : PT(RC)1/4, 10 depth |
| G | 2 x G1/2, 15 depth | T : G1/4, 12 depth |
| M | 2 x M22 x 1.5, 15 depth | T : M10x1.0, 12 depth |

### POS. 6
SHAFT SEAL VERSION

Omit - Standard Seal

- D - High pressure seal

### POS. 7
ROTATION

Omit - Standard rotation

- R - Reverse rotation

## APPLICATION

The NMR Series Motor is designed for high endurance within in its flow and pressure range. It is designed for any medium-duty applications and is delivered with a needle bearing as standard.
The motor body allows for the assembly of any type of valve on top of the in and out let port such as relief valves etc.

The NMR serial offers a wide range of mounting options as well as a large number of shaft options and postings.

## SPECIFICATION

| TYPE | | NMR NMRW 50 | NMR NMRW 80 | NMR NMRW 100 | NMR NMRW 125 | NMR NMRW 160 | NMR(1) NMRW 200 | NMR(2) NMRW 200 | NMR(1) NMRW 250 | NMR(2) NMRW 250 | NMR(1) NMRW 315 | NMR(2) NMRW 315 | NMR(1) NMRW 400 | NMR(2) NMRW 400 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Displacement (c.c/rev) | | 51.2 | 80.5 | 100.8 | 125.1 | 159.4 | 199.6 | 199.6 | 249.8 | 249.8 | 315.7 | 315.7 | 396.5 | 396.5 |
| Max. speed (rpm) | Cont | 770 | 745 | 600 | 470 | 370 | 300 | 300 | 240 | 240 | 190 | 190 | 150 | 150 |
| | Int(3) | 970 | 940 | 750 | 600 | 470 | 370 | 370 | 300 | 300 | 240 | 240 | 190 | 190 |
| Max. Torque (da Nm) | Cont | 10 | 19.6 | 24.2 | 27.1 | 38.9 | 45 | 38.5 | 53.8 | 38.8 | 53.1 | 38.5 | 58.5 | 35.5 |
| | Int(3) | 12.8 | 22.1 | 28.1 | 33.9 | 42.8 | 50 | 46 | 60.8 | 57.9 | 63 | 57 | 68.7 | 59.8 |
| | Peak(4) | 16.8 | 27 | 32.1 | 36.8 | 45.8 | 56 | 56 | 70.6 | 65.5 | 83 | 83 | 86.8 | 71.3 |
| Max. output (Kw) | Cont | 6.9 | 12.6 | 12 | 12.4 | 11.4 | 11 | 9 | 10.5 | 6.4 | 9 | 6 | 7.7 | 4.7 |
| | Int(3) | 8.3 | 15 | 15 | 14.5 | 12.6 | 13 | 11.5 | 12 | 10.5 | 11 | 9.6 | 10.6 | 8.7 |
| Max. pressure drop (bar) | Cont | 140 | 160 | 160 | 160 | 160 | 160 | 135 | 150 | 105 | 135 | 85 | 110 | 65 |
| | Int(3) | 175 | 180 | 180 | 180 | 180 | 180 | 175 | 175 | 160 | 150 | 130 | 140 | 75 |
| | Peak(4) | 210 | 210 | 210 | 210 | 210 | 210 | 210 | 210 | 200 | 175 | 175 | 175 | 175 |
| Max.oil flow (l/min) | Cont | 40 | 60 | 60 | 60 | 60 | 60 | 60 | 60 | 60 | 60 | 60 | 60 | 60 |
| | Int(3) | 50 | 75 | 75 | 75 | 75 | 75 | 75 | 75 | 75 | 75 | 75 | 75 | 75 |
| Max. Inlet pressure (bar) | Cont | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 |
| | Int(3) | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 200 |
| | Peak(4) | 225 | 225 | 225 | 225 | 225 | 225 | 225 | 225 | 225 | 225 | 225 | 225 | 225 |
| Weight (kg) | | 6.7 | 6.9 | 6.9 | 7.2 | 7.5 | 8.1 | 8.1 | 8.5 | 8.5 | 9.1 | 9.1 | 9.5 | 9.5 |

(1) 32mm Straight (2) 1" Straight, 25mm Straight, 6-b Spline (3) Intermittent operation rating applies to 6 sec. of every minute
(4) Peak load rating applies to 0.6 sec of every minute

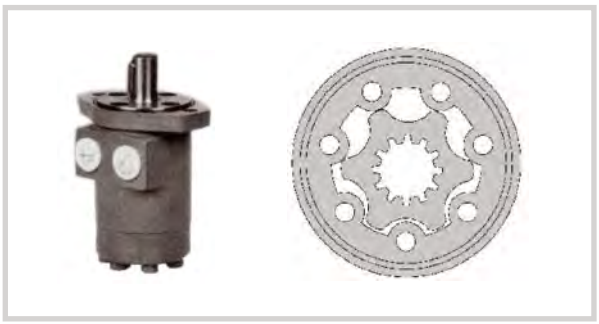
| TYPE | | NMR NMRW 50 | NMR NMRW 80 | NMR NMRW 100 | NMR NMRW 125 | NMR NMRW 160 | NMR(1) NMRW 200 | NMR(2) NMRW 200 | NMR(1) NMRW 250 | NMR(2) NMRW 250 | NMR(1) NMRW 315 | NMR(2) NMRW 315 | NMR(1) NMRW 400 | NMR(2) NMRW 400 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Displacement (in.3/r ) | | 31.1 | 4.9 | 6.2 | 7.6 | 9.7 | 12.2 | 12.2 | 15.2 | 15.2 | 19.3 | 19.3 | 24.2 | 24.2 |
| Max. speed (rpm) | Cont | 770 | 745 | 600 | 470 | 370 | 300 | 300 | 240 | 240 | 190 | 190 | 150 | 150 |
| | Int(3) | 970 | 940 | 750 | 600 | 470 | 370 | 370 | 300 | 300 | 240 | 240 | 190 | 190 |
| Max. Torque (lb-in) | Cont | 885 | 17.5 | 21.42 | 2394 | 3443 | 3983 | 3407 | 4761 | 3434 | 4699 | 3407 | 5177 | 3142 |
| | Int(3) | 1133 | 1956 | 2487 | 3000 | 3788 | 4425 | 4071 | 5381 | 5124 | 5576 | 5045 | 6080 | 5292 |
| | Peak(4) | 1487 | 2390 | 2841 | 3257 | 4.53 | 4956 | 4956 | 5248 | 5797 | 7345.5 | 7346 | 7682 | 6310 |
| Max. output (hp) | Cont | 9.2 | 16.9 | 16.1 | 16.6 | 15.3 | 14.7 | 12.1 | 14.1 | 8.6 | 12.1 | 8 | 10.3 | 6.3 |
| | Int(3) | 11.1 | 20.1 | 20.1 | 19.4 | 16.9 | 17.4 | 15.4 | 16.1 | 14.1 | 14.7 | 12.9 | 14.2 | 11.7 |
| Max. pressure drop (psi) | Cont | 2030 | 2320 | 2320 | 2320 | 2320 | 2320 | 1965 | 2175 | 1525 | 1885 | 1235 | 1600 | 945 |
| | Int(3) | 2540 | 2610 | 2610 | 2610 | 2610 | 2610 | 2540 | 2540 | 2320 | 2175 | 1885 | 2030 | 1450 |
| | Peak(4) | 3045 | 3045 | 3045 | 3045 | 3045 | 3045 | 3045 | 3045 | 2900 | 2540 | 2540 | 2540 | 2030 |
| Max.oil flow (gpm) | Cont | 10.6 | 15.9 | 15.9 | 15.9 | 15.9 | 15.9 | 15.9 | 15.9 | 15.9 | 15.9 | 15.9 | 15.9 | 15.9 |
| | Int(3) | 13.2 | 19.8 | 19.8 | 19.8 | 19.8 | 19.8 | 19.8 | 19.8 | 19.8 | 19.8 | 19.8 | 19.8 | 19.8 |
| Max. Inlet pressure (psi) | Cont | 2540 | 2540 | 2540 | 2540 | 2540 | 2540 | 2540 | 2540 | 2540 | 2540 | 2540 | 2540 | 2540 |
| | Int(3) | 2900 | 2900 | 2900 | 2900 | 2900 | 2900 | 2900 | 2900 | 2900 | 2900 | 2900 | 2900 | 2900 |
| | Peak(4) | 3260 | 3260 | 3260 | 3260 | 3260 | 3260 | 3260 | 3260 | 3260 | 3260 | 3260 | 3260 | 3260 |
| Weight (lbs) | | 14.9 | 15.3 | 15.3 | 16 | 16.7 | 18 | 18 | 18.9 | 18.9 | 20.2 | 20.2 | 21.1 | 21.1 |

## APPLICATION

The NMRS Series Motor is designed for high endurance within its flow and pressure range. It is designed for any medium-duty applications and can be delivered with a heavy duty needle bearing.

The motor body has the Pump and Tank connections parallel to each other for easy hose assembly in narrow spaces.

The NMRS serial offers a wide range of mounting options as well as a large number of shaft options and portings.



## SPECIFICATION

| TYPE | | NMRS 50 | NMRS 80 | NMRS 100 | NMRS 125 | NMRS 160 | NMRS 200 | NMRS 250 | NMRS 315 | NMRS 400 |
|---|---|---|---|---|---|---|---|---|---|---|
| Displacement (c.c/rev) | | 51.2 | 80.5 | 100.8 | 125.1 | 159.4 | 199.6 | 249.8 | 315.7 | 396.5 |
| Max. speed (rpm) | Cont | 770 | 745 | 600 | 470 | 370 | 300 | 240 | 190 | 150 |
| | Int(3) | 970 | 940 | 750 | 600 | 470 | 370 | 300 | 240 | 190 |
| Max. Torque (da Nm) | Cont | 10 | 19.6 | 24.2 | 27.1 | 38.9 | 38.5 | 38.8 | 38.5 | 35.5 |
| | Int(3) | 12.8 | 22.1 | 28.1 | 33.9 | 42.8 | 46 | 57.9 | 57 | 59.8 |
| | Peak(4) | 16.8 | 27 | 32.1 | 36.8 | 45.8 | 56 | 65.5 | 83 | 71.3 |
| Max. output (Kw) | Cont | 6.9 | 12.6 | 12 | 12.4 | 11.4 | 9 | 6.4 | 6 | 4.7 |
| | Int(3) | 8.3 | 15 | 15 | 14.5 | 12.6 | 11.5 | 10.5 | 9.6 | 8.7 |
| Max. pressure drop (bar) | Cont | 140 | 160 | 160 | 160 | 160 | 135 | 105 | 85 | 65 |
| | Int(3) | 175 | 180 | 180 | 180 | 180 | 175 | 160 | 130 | 100 |
| | Peak(4) | 210 | 210 | 210 | 210 | 210 | 210 | 200 | 175 | 140 |
| Max.oil flow (l/min) | Cont | 40 | 60 | 60 | 60 | 60 | 60 | 60 | 60 | 60 |
| | Int(3) | 50 | 75 | 75 | 75 | 75 | 75 | 75 | 75 | 75 |
| Max. Inlet pressure (bar) | Cont | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 |
| | Int(3) | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 200 |
| | Peak(4) | 225 | 225 | 225 | 225 | 225 | 225 | 225 | 225 | 225 |
| Weight (kg) | | 6.7 | 6.9 | 6.9 | 7.2 | 7.5 | 8.1 | 8.5 | 9.1 | 9.5 |

(3) Intermittent operation rating applies to 6 sec. of every minute

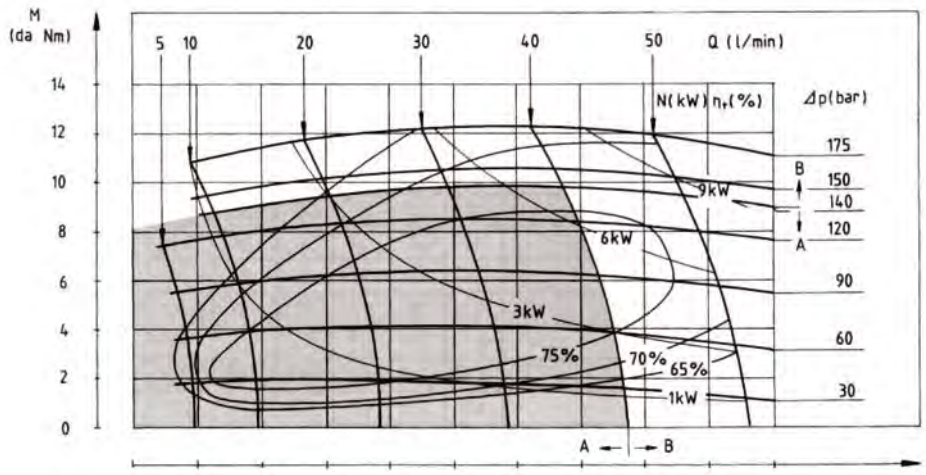
(4) Peak load rating applies to 0.6 sec of every minute

| TYPE | | NMRS 50 | NMRS 80 | NMRS 100 | NMRS 125 | NMRS 160 | NMRS 200 | NMRS 250 | NMRS 315 | NMRS 400 |
|---|---|---|---|---|---|---|---|---|---|---|
| Displacement (in.3/r ) | | 3.1 | 4.9 | 6.2 | 7.6 | 9.7 | 12.2 | 15.2 | 19.3 | 24.2 |
| Max. speed (rpm) | Cont | 770 | 745 | 600 | 470 | 370 | 300 | 240 | 190 | 150 |
| | Int(3) | 970 | 940 | 750 | 600 | 470 | 370 | 300 | 240 | 190 |
| Max. Torque (lb-in) | Cont | 885 | 1735 | 2142 | 2394 | 3443 | 3407 | 3434 | 3407 | 3142 |
| | Int(3) | 1133 | 1956 | 2487 | 3000 | 3788 | 4071 | 5124 | 5045 | 5292 |
| | Peak(4) | 1487 | 2390 | 2841 | 3257 | 4053 | 4956 | 5797 | 7346 | 6310 |
| Max. output (hp) | Cont | 9.2 | 16.9 | 16.1 | 16.6 | 15.3 | 12.1 | 8.6 | 8.0 | 6.3 |
| | Int(3) | 11.1 | 20.1 | 20.1 | 19.4 | 16.9 | 15.4 | 14.1 | 12.9 | 11.7 |
| Max. pressure drop (psi) | Cont | 2030 | 2320 | 2320 | 2320 | 2320 | 1960 | 1525 | 1235 | 945 |
| | Int(3) | 2540 | 2610 | 2610 | 2610 | 2610 | 2540 | 2320 | 1885 | 1450 |
| | Peak(4) | 3045 | 3045 | 3045 | 3045 | 3045 | 3045 | 2900 | 2540 | 2030 |
| Max.oil flow (gpm) | Cont | 10.6 | 15.9 | 15.9 | 15.9 | 15.9 | 15.9 | 15.9 | 15.9 | 15.9 |
| | Int(3) | 13.2 | 19.8 | 19.8 | 19.8 | 19.8 | 19.8 | 19.8 | 19.8 | 19.8 |
| Max. Inlet pressure (psi) | Cont | 2540 | 2540 | 2540 | 2540 | 2540 | 2540 | 2540 | 2540 | 2540 |
| | Int(3) | 2900 | 2900 | 2900 | 2900 | 2900 | 2900 | 2900 | 2900 | 2900 |
| | Peak(4) | 3260 | 3260 | 3260 | 3260 | 3260 | 3260 | 3260 | 3260 | 3260 |
| Weight (lbs) | | 14.9 | 15.3 | 15.3 | 16 | 16.7 | 18 | 18.9 | 20.2 | 21.1 |

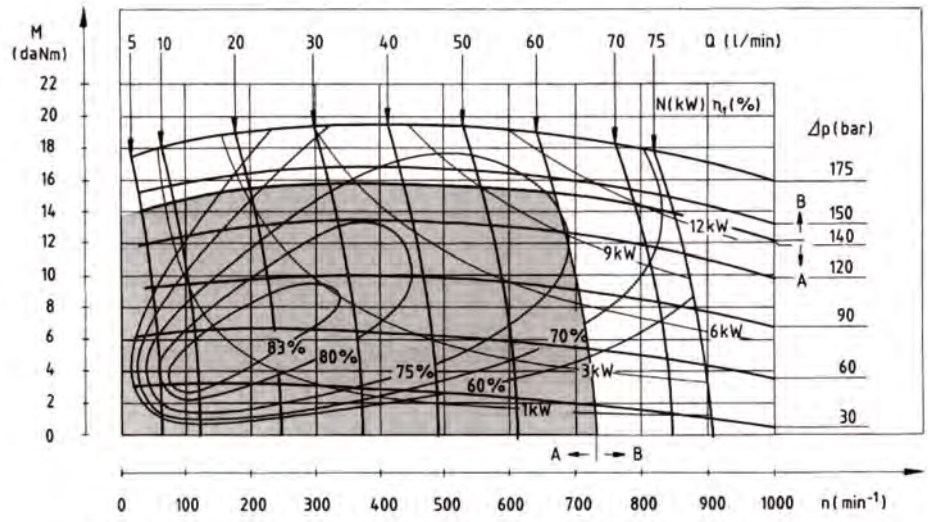
A : CONTINUOUS OPERATION

B : INTERMITTENT RATING APPLIES TO 6 SEC. PER MINUTE

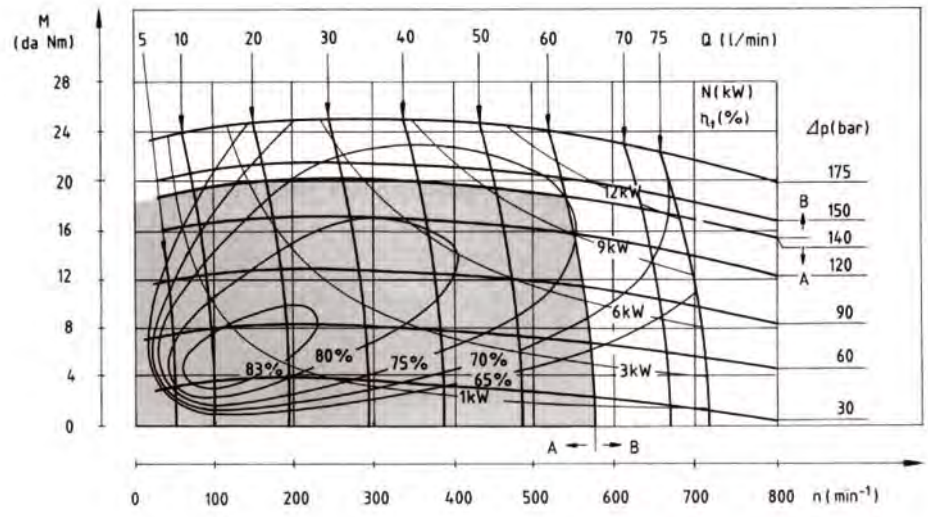
## NMR/NMRS50




## NMR/NMRS80



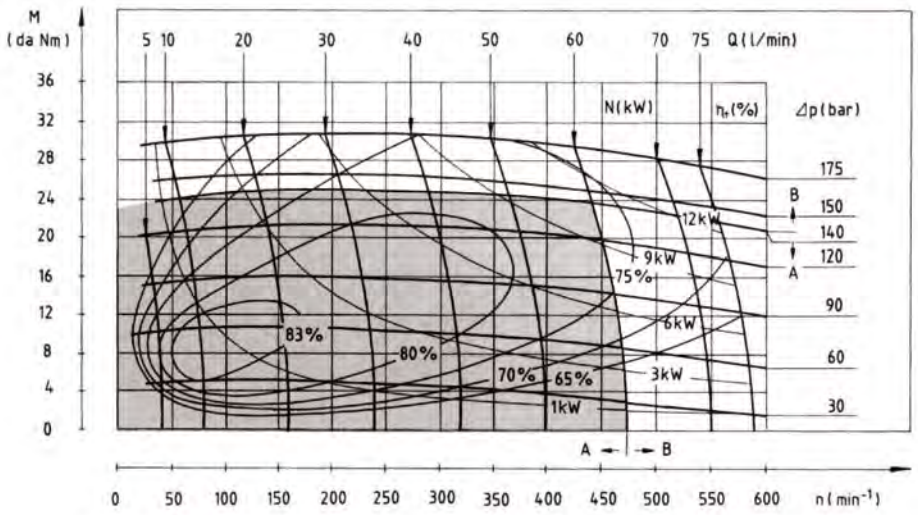

## NMR/NMRS100



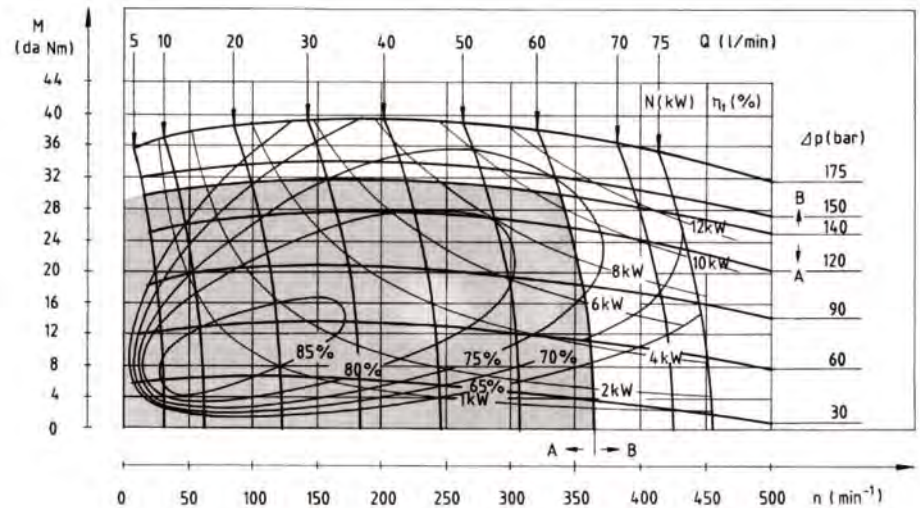
A : CONTINUOUS OPERATION

B : INTERMITTENT RATING APPLIES TO 6 SEC. PER MINUTE

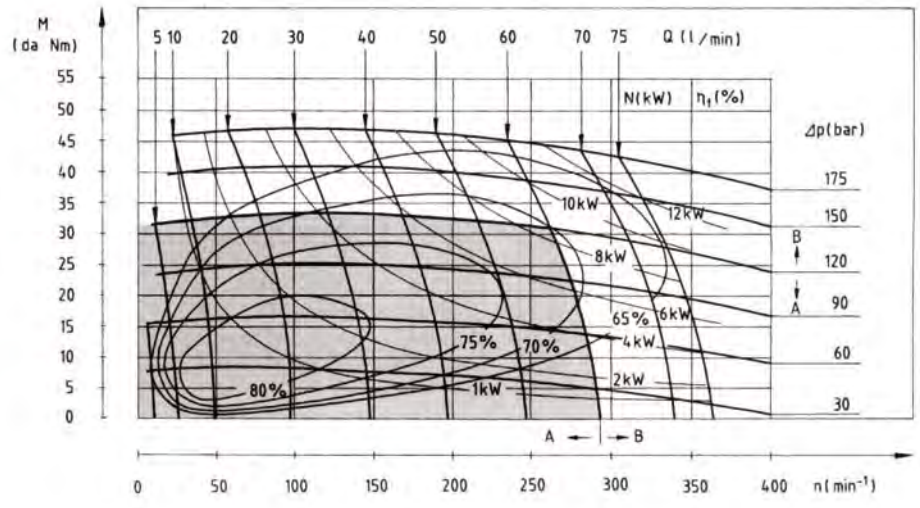
## NMR/NMRS125




## NMR/NMRS160



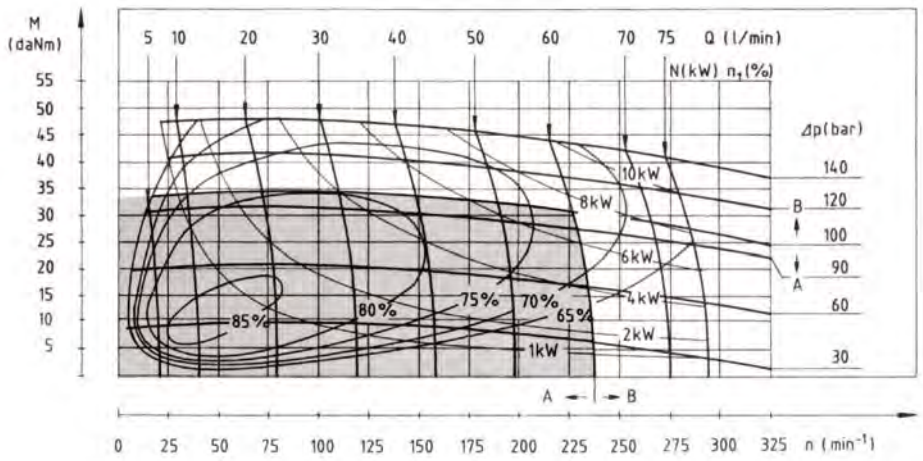

## NMR/NMRS200



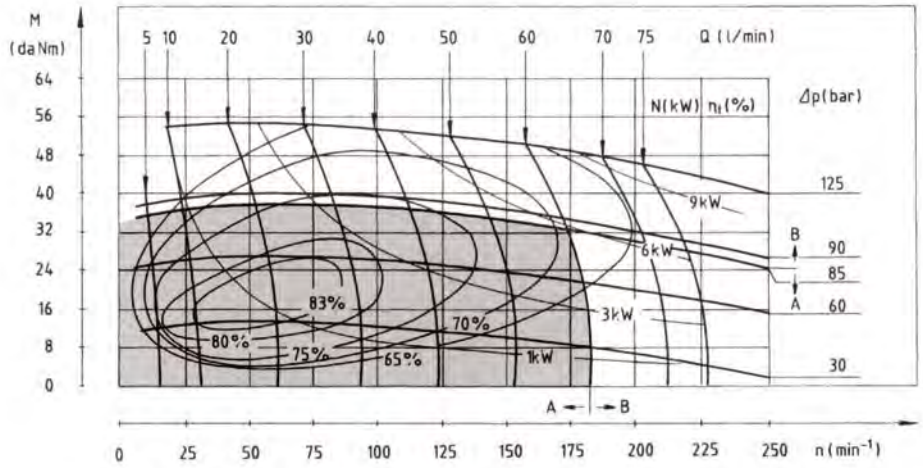
A : CONTINUOUS OPERATION

B : INTERMITTENT RATING APPLIES TO 6 SEC. PER MINUTE

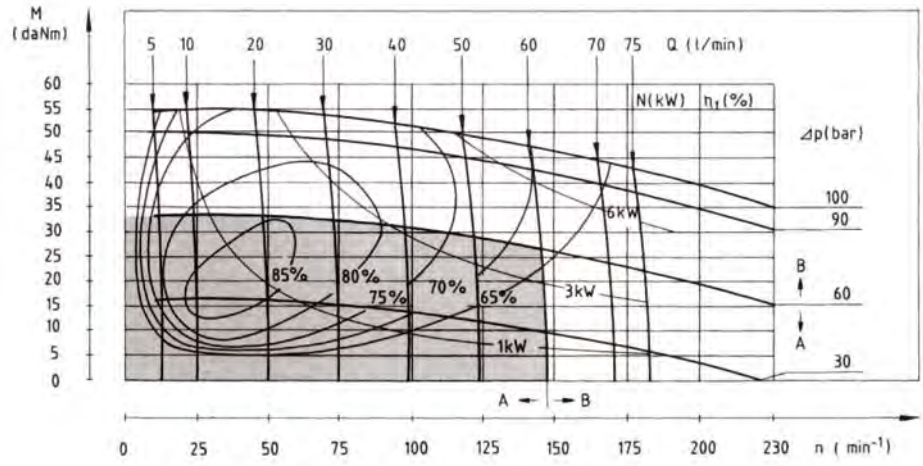
## NMR/NMRS250




## NMR/NMRS315

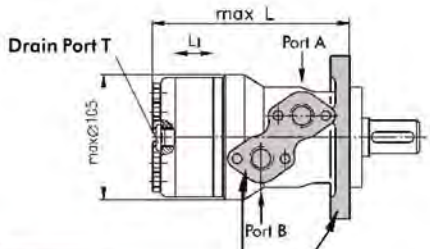



## NMR/NMRS400



| Type | L | L1 |
|---|---|---|
| NMR 50 | 140 | 10 |
| NMR 80 | 146 | 16 |
| NMR 100 | 150 | 20 |
| NMR 125 | 155 | 25 |
| NMR 160 | 161.5 | 31.5 |
| NMR 200 | 170 | 40 |
| NMR 250 | 180 | 50 |
| NMR 315 | 192 | 62 |
| NMR 400 | 204 | 74 |

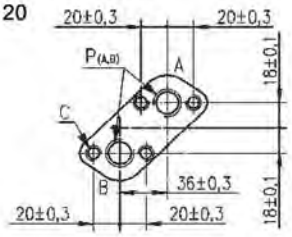
## DIMENSIONS AND MOUNTING DATA




### PORTING

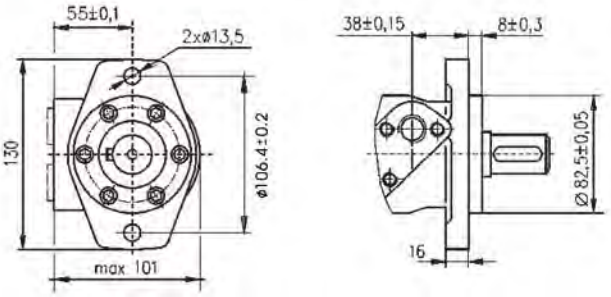
SIDE PORTS

P(A,B) : 2 x G1/2 or 2xM22x1,5 - 20
T : G1/4 or M14 x 1.5 - 12
C : 4 x M8 - 13

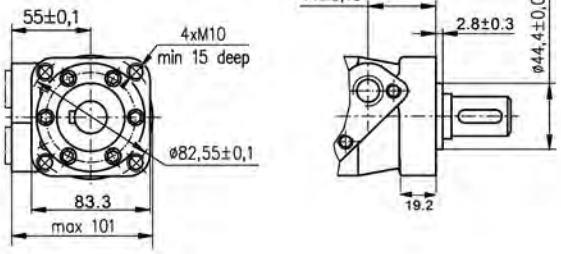



### MOUNTING

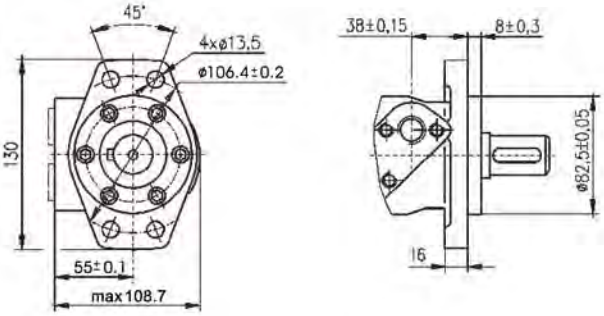
#### A OVAL MOUNT SAE. A (2 HOLES)




#### Q SQUARE MOUNT (4 BOLTS)



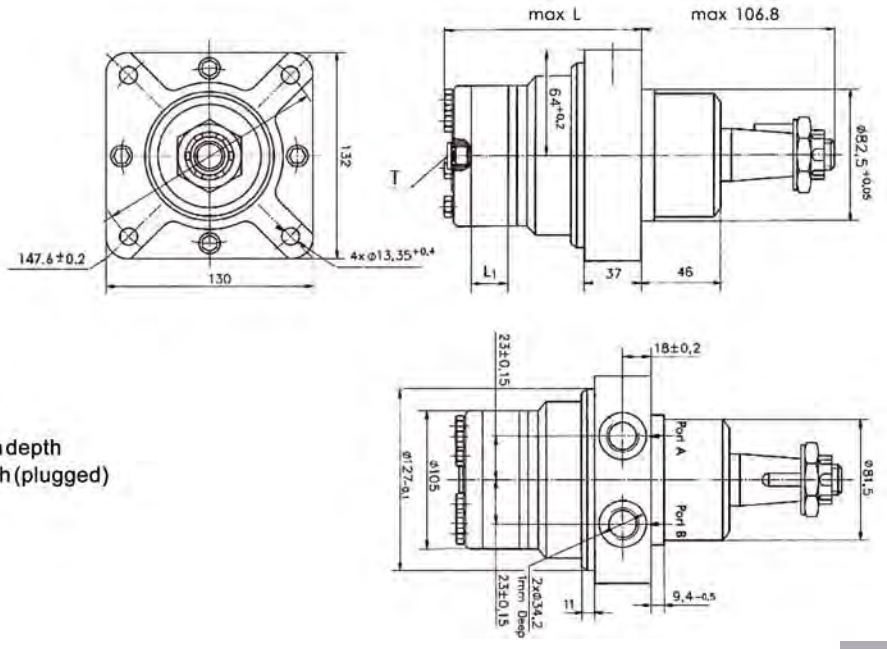

#### F MAGNETO MOUNT (4 HOLES)




#### W WHEEL MOUNTING

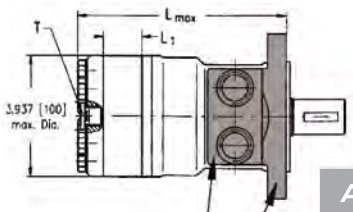
| Type | L | L1 |
|---|---|---|
| NMRW 50 | 109 | 10 |
| NMRW 80 | 115 | 16 |
| NMRW 100 | 118.6 | 20 |
| NMRW 125 | 124.2 | 25 |
| NMRW 160 | 130.7 | 31.5 |
| NMRW 200 | 139.2 | 40 |
| NMRW 250 | 149 | 50 |
| NMRW 315 | 161.2 | 62 |
| NMRW 400 | 173.1 | 74 |

P(A, B) : 2xG1/2 or 2xM22x1,5 - 15mm depth
T : G1/4 or M14x1.5 - 12mm depth (plugged)



| Type | L | $L_1$ |
|---|---|---|
| NMRS 50 | 5.669[144] | 10 |
| NMRS 80 | 5.906[150] | 16 |
| NMRS 100 | 6.063[154] | 20 |
| NMRS 125 | 6.260[159] | 25 |
| NMRS 160 | 6.516[165.5] | 31.5 |
| NMRS 200 | 6.850[174] | 40 |
| NMRS 250 | 7.244[184] | 50 |
| NMRS 315 | 7.717[196] | 62 |
| NMRS 400 | 8.189[208] | 74 |

## DIMENSIONS AND MOUNTING DATA

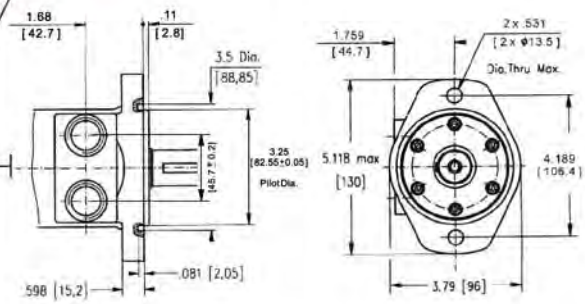



### PORTING

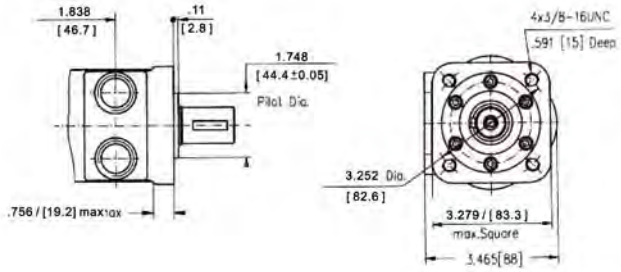
| | | | |
|---|---|---|---|
| A,B: | U | 2 x 7/8-14UNF | T: 7/16-20UNF |
| | P | 2 x 1/2-14NPTF | T: 7/16-20UNF |
| | G | 2 x G1/2, 15 depth | T: G1/4, 12 depth |
| | R | 2 x PT(RC) 1/2, 13 depth | T: PT(RC)1/4, 10 depth |
| | M | 2 x M22x1.5, 15 depth | T: M10x1.0, 12 depth |

### MOUNTING

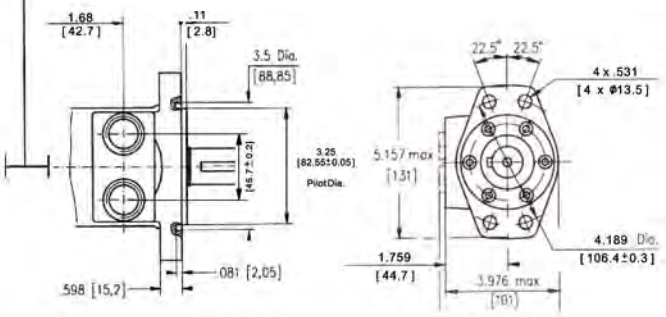
### A OVAL MOUNT SAE. A (2 HOLES)




### Q SQUARE MOUNT (4 BOLTS)



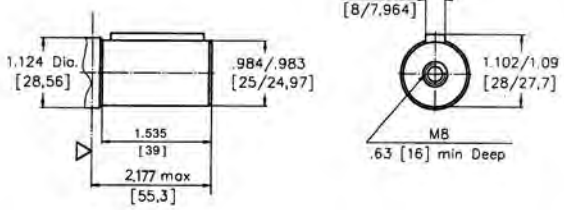

### F MAGNETO MOUNT (4 HOLES)




## SHAFT EXTENSIONS FOR NMRS MOTOR

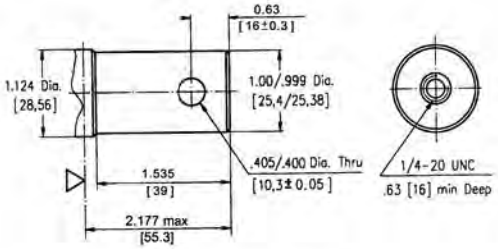
### C

ø25, Parallel key A8x7x28
Max. Torque 3050 in-lb [34 daNm]



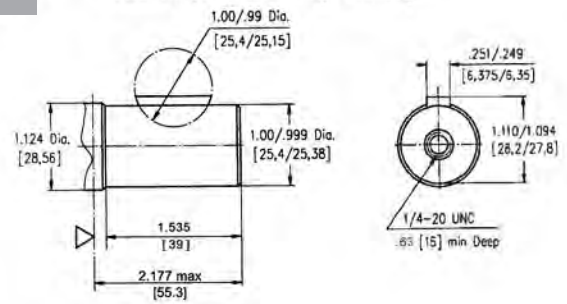

### C3

1" [25,4] straight pin hole Ø10.3
Max. Torque 3050 in-lb [34 daNm]



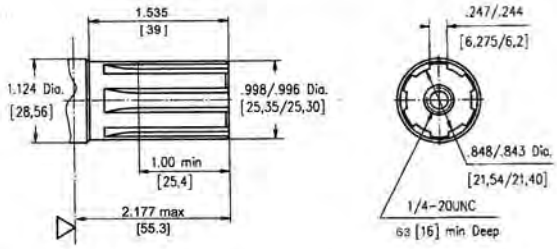

### CO

1" [25,4], Woodruff key ¼"x1"
Max. Torque 3050 in-lb [34 daNm]



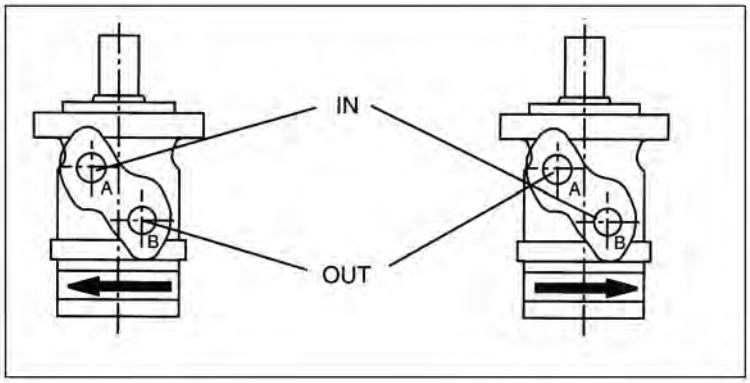

### S

1" [25,4], SAE 6B Splined
Max. Torque 3050 in-lb [34 daNm]



## ROTATION SELECTION

The NMR & NMRS have built-in check valves. The pressure on the shaft seal is identical to the output pressure.

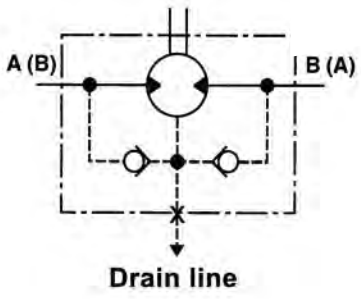



Max. return pressure without drain line or/ Max. pressure in drain line

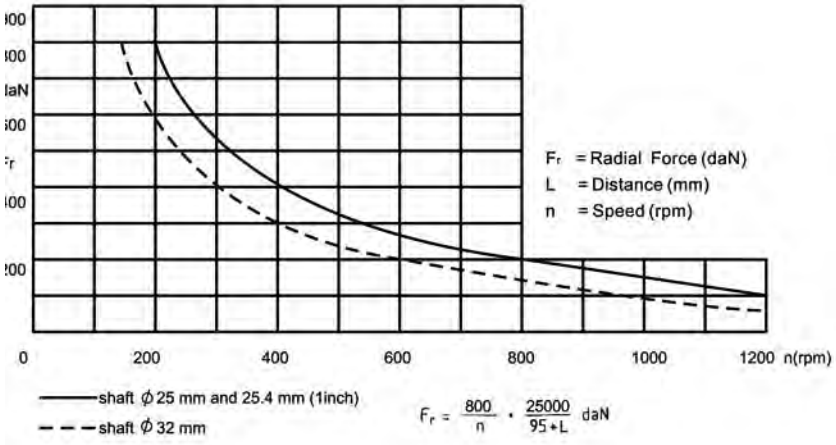
| rpm | Cont. (bar) |
|---|---|
| 0 - 100 rpm | 75 |
| 100 - 300 rpm | 50 |
| 300 - 1000 rpm | 25 |

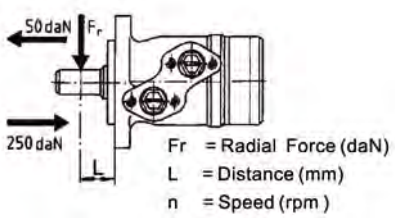
Max. return pressure with drain line

| | |
|---|---|
| Continuous | 160 bar |
| Intermittent | 175 bar |
| Peak | 210 bar |



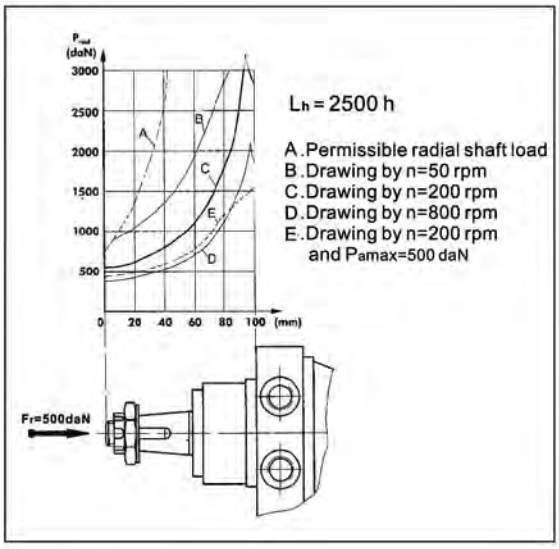

## SHAFT LOAD




Fr = Radial Force (daN)
L = Distance (mm)
n = Speed (rpm )

## NMRW



## ORDERING INFORMATION

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|---|
| NMR | | | | | | | |

### POS. 1
#### DISPLACEMENT CODE

- 50 - 51.2cc / 3.1 [in.3/r]
- 80 - 80.5cc / 4.9 [in.3/r]
- 100 - 100.8cc / 6.1 [in.3/r]
- 125 - 125.1cc / 7.7 [in.3/r]
- 160 - 159.4cc / 9.7 [in.3/r]
- 200 - 199.6cc / 12.2 [in.3/r]
- 250 - 251.1cc / 15.3 [in.3/r]
- 315 - 315.7cc / 19.3 [in.3/r]
- 400 - 398.5cc / 24.3 [in.3/r]

### POS. 2
#### MOUNTING FLANGE

- A - Oval mount, SAE. A 2 holes
- F - Magneto mount, 4 holes
- Q - Square mount, 4 bolts
- W - Wheel mount with bearings (not available)

### POS. 3 (SEE PAGE 9)
#### SHAFT EXTENSIONS

- C - ϕ 25 straight, Parallel key A8x7x32
- CO - ϕ 1" straight, Parallel key 1/4" x 1/4" x 1/4"
- C2 - ϕ 32 straight, Parallel key A10x8x45
- S - ϕ 25,32 splined (SAE 6B)
- C1 - ϕ 31.75 straight, Parallel key 5/16" x 5/16" x 1 1/4"
- SB - ϕ 1 1/4" splined 14T, ANSI B92.1-1976 Norm
- T - Tapered 1:10 , Parallel key B5 x 5 x 14
- TA - Tapered 1:8 SAEJ 501, Parallel key 5/16" x 5/16" x 1 1/4"
- TB - Tapered 1:10 Parallel key B6 x 6 x 20

### POS. 4
#### OPTION BEARINGS

Omit - None

- N - With needle bearings

### POS. 5
#### PORTING

Omit - G 1/2

- M - Metric

### POS. 6
#### SHAFT SEAL VERSION

Omit - Standard Seal

- D - High pressure seal

### POS. 7
#### ROTATION

Omit - Standard rotation

- R - Reverse rotation

## ORDERING INFORMATION

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|---|
| NMRS | | | | | | | |

### POS. 1
DISPLACEMENT CODE

- 50 - 50.8cc / 3.1 [in.3/r]
- 80 - 78.8cc / 4.8 [in.3/r]
- 100 - 98.6cc / 6.0 [in.3/r]
- 125 - 123.5cc / 7.5 [in.3/r]
- 160 - 158.6cc / 9.7 [in.3/r]
- 200 - 197.9cc / 12.1 [in.3/r]
- 250 - 247.5cc / 15.1 [in.3/r]
- 315 - 316.5cc / 19.3 [in.3/r]
- 400 - 396.5cc / 24.2 [in.3/r]

### POS. 2
MOUNTING FLANGE

- A - Oval mount, SAE. A 2 holes
- F - Magneto mount, 4 holes
- Q - Square mount, 4 bolts

### POS. 3 (SEE PAGE 9)
SHAFT EXTENSIONS

- C - ϕ 25 straight, Parallel key A8x7x32
- CO - ϕ 1" Woodruff key ϕ 1/4" x 1"
- C3 - ϕ 1" straight, Pin hole ϕ 10.3
- S - ϕ 25,32 splined (SAE 6B)

### POS. 4
OPTION BEARINGS

Omit - None

- N - With needle bearings

### POS. 5
PORTING

| | | |
|---|---|---|
| U | 2 x 7/8-14 UNF | T : 7/16-20UNF, 12 depth |
| P | 2 x 1/2-14 NPTF | T : 7/16-20 UNF, 12 depth |
| R | 2 x PT(RC)1/2, 13 depth | T : PT(RC)1/4, 10 depth |
| G | 2 x G1/2, 15 depth | T : G1/4, 12 depth |
| M | 2 x M22 x 1.5, 15 depth | T : M10x1.0, 12 depth |

### POS. 6
SHAFT SEAL VERSION

Omit - Standard Seal

- D - High pressure seal

### POS. 7
ROTATION

Omit - Standard rotation

- R - Reverse rotation

## APPLICATION

The MNS(E) motor is a heavy duty motor which offers its user the optimal of high efficiency and durability. Its tapered roller bearings in the output shaft allow for the MNS series to sustain high radial loads. It is offered in 8 different displacements.
Its advanced valve design where the high pressure is efficiently isolated from the low pressure allows for high over all efficiencies over the whole pressure and flow range.
It is offered in three different versions: the NMS model which is also available in a wheel mounted version with top port drainage, the NMSE model with a side tank drainage, and the NMSS short motor series model which has its drain line in the front and is designed for assembly in to a gear box unit.

## SPECIFICATION

| TYPE | | NMS(E) 80 | NMS(E) 100 | NMS(E) 125 | NMS(E) 160 | NMS(E) 200 | NMS(E) 250 | NMS(E) 315 | NMS(E) 400 |
|---|---|---|---|---|---|---|---|---|---|
| Displacement (c.c/rev) | | 80.8 | 99.8 | 125.2 | 159.5 | 200 | 252.3 | 315.1 | 397 |
| Max. speed (rpm) | Cont | 805 | 746 | 598 | 465 | 373 | 298 | 236 | 187 |
| | Int(3) | 1000 | 900 | 718 | 560 | 447 | 360 | 290 | 230 |
| Max. Torque (da Nm) | Cont | 19.8 | 24.4 | 30.7 | 34.0 | 39.5 | 45.0 | 54.1 | 58 |
| | Int(3) | 23.7 | 29.3 | 36.8 | 46.9 | 49.0 | 53.5 | 63 | 69 |
| | Peak(4) | 26.0 | 32.2 | 40.5 | 48.5 | 64.8 | 68.2 | 84 | 85 |
| Max. output (Kw) | Cont | 16.4 | 19.4 | 20 | 12 | 14 | 13.6 | 11.5 | 10 |
| | Int(3) | 22 | 26 | 24 | 21.8 | 21 | 21.2 | 13.5 | 13 |
| Max. pressure drop (bar) | Cont | 175 | 175 | 175 | 160 | 150 | 140 | 120 | 100 |
| | Int(3) | 210 | 210 | 210 | 210 | 180 | 175 | 140 | 120 |
| | Peak(4) | 225 | 225 | 225 | 225 | 225 | 200 | 185 | 140 |
| Max.oil flow (l/min) | Cont | 65 | 75 | 75 | 75 | 75 | 75 | 75 | 75 |
| | Int(3) | 80 | 90 | 90 | 90 | 90 | 90 | 90 | 90 |
| Max. Inlet pressure (bar) | Cont | 210 | 210 | 210 | 210 | 210 | 210 | 210 | 210 |
| | Int(3) | 250 | 250 | 250 | 250 | 250 | 250 | 250 | 250 |
| | Peak(4) | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 |
| Weight (kg) | | 10 | 10.3 | 10.5 | 11 | 11.4 | 11.9 | 12.5 | 13.5 |

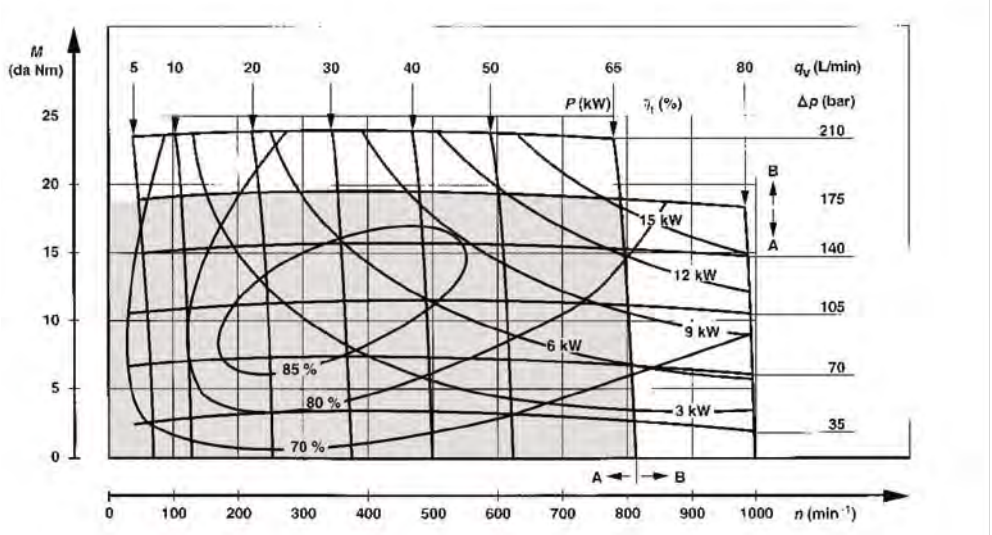
(1) Intermittent operation rating applies to 6 sec. of every minute
(2) Peak load rating applies to 0.6 sec of every minute

| TYPE | | NMS(E) 80 | NMS(E) 100 | NMS(E) 125 | NMS(E) 160 | NMS(E) 200 | NMS(E) 250 | NMS(E) 315 | NMS(E) 400 |
|---|---|---|---|---|---|---|---|---|---|
| Displacement (in.3/r ) | | 4.9 | 6.1 | 7.6 | 9.7 | 12.2 | 15.4 | 19.2 | 24.2 |
| Max. speed (rpm) | Cont | 805 | 746 | 598 | 465 | 373 | 298 | 236 | 187 |
| | Int(3) | 1000 | 900 | 718 | 560 | 447 | 360 | 290 | 230 |
| Max. Torque (lb-in) | Cont | 1751 | 2163 | 2713 | 3009 | 3496 | 3983 | 4788 | 5133 |
| | Int(3) | 2101 | 2595 | 3256 | 4148 | 4337 | 4735 | 5576 | 6107 |
| | Peak(4) | 2301 | 2850 | 3584 | 4292 | 5735 | 6035 | 7434 | 7523 |
| Max. output (hp) | Cont | 22 | 26 | 26.8 | 16.1 | 18.8 | 18.2 | 15.4 | 13.4 |
| | Int(3) | 29.5 | 34.9 | 32.2 | 29.2 | 28.2 | 28.4 | 18.1 | 17.4 |
| Max. pressure drop (psi) | Cont | 2540 | 2540 | 2540 | 2320 | 2175 | 2030 | 1740 | 1450 |
| | Int(3) | 3045 | 3045 | 3045 | 3045 | 2610 | 2540 | 2030 | 1740 |
| | Peak(4) | 3260 | 3265 | 3265 | 3265 | 3265 | 2900 | 2685 | 2030 |
| Max.oil flow (gpm) | Cont | 17.2 | 19.8 | 19.8 | 19.8 | 19.8 | 19.8 | 19.8 | 19.8 |
| | Int(3) | 21.2 | 23.8 | 23.8 | 23.8 | 23.8 | 23.8 | 23.8 | 23.8 |
| Max. Inlet pressure (psi) | Cont | 3045 | 3045 | 3045 | 3045 | 3045 | 3045 | 3045 | 3045 |
| | Int(3) | 3625 | 3625 | 3625 | 3625 | 3625 | 3625 | 3625 | 3625 |
| | Peak(4) | 4350 | 4350 | 4350 | 4350 | 4350 | 4350 | 4350 | 4350 |
| Weight (lbs) | | 22.2 | 22.9 | 23.3 | 24.4 | 25.3 | 26.4 | 27.8 | 30.0 |

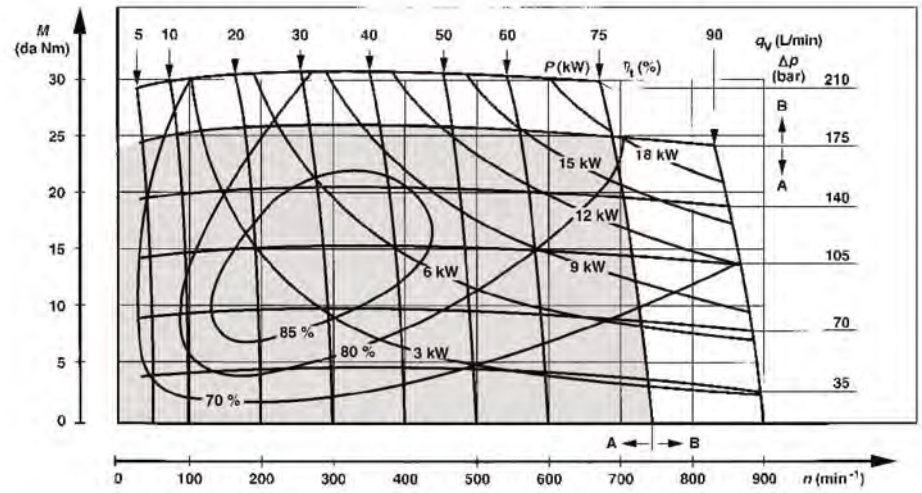
A : CONTINUOUS OPERATION

B : INTERMITTENT RATING APPLIES TO 6 SEC. PER MINUTE

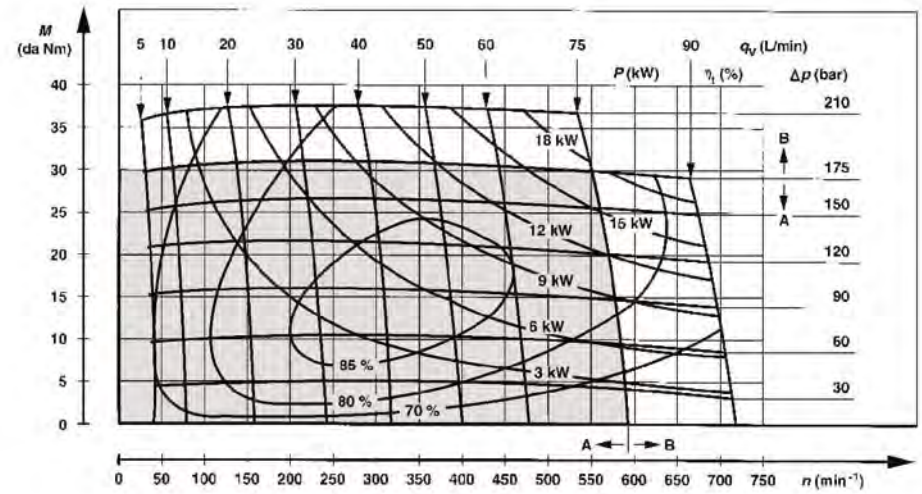
## NMS(E)80




## NMS(E)100



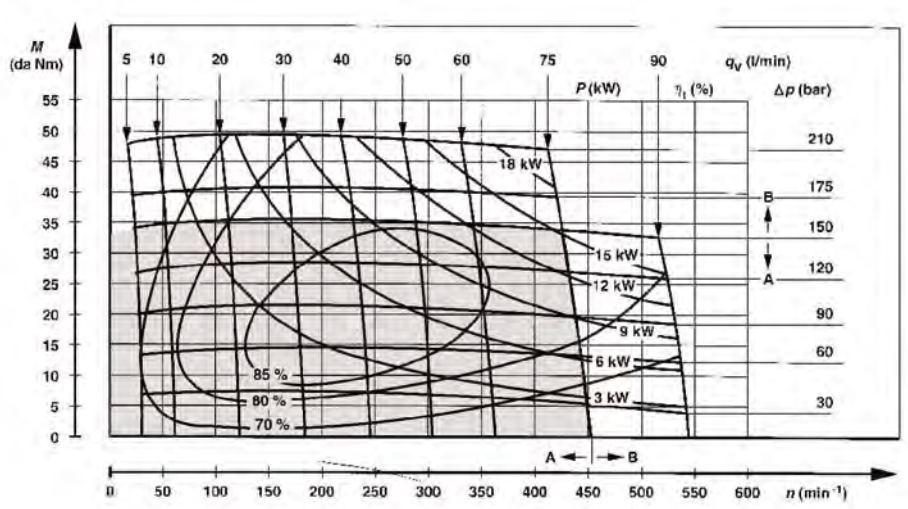

## NMS(E)125



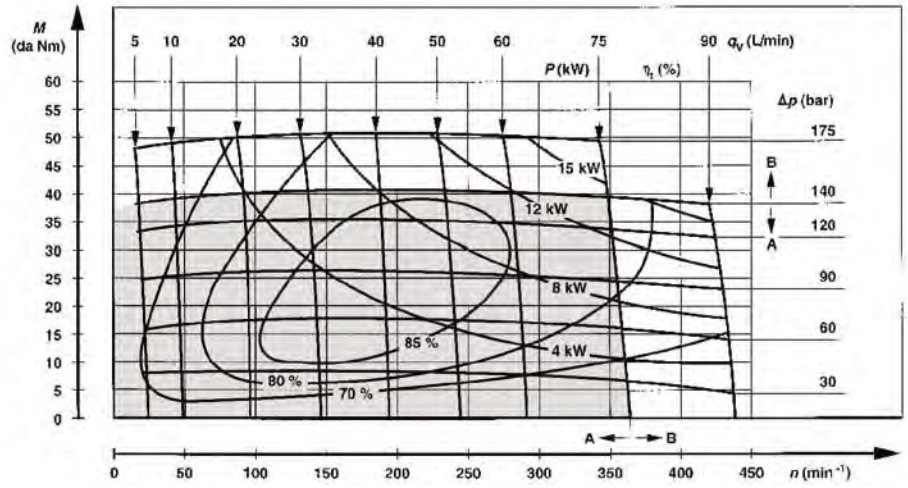
A : CONTINUOUS OPERATION

B : INTERMITTENT RATING APPLIES TO 6 SEC. PER MINUTE

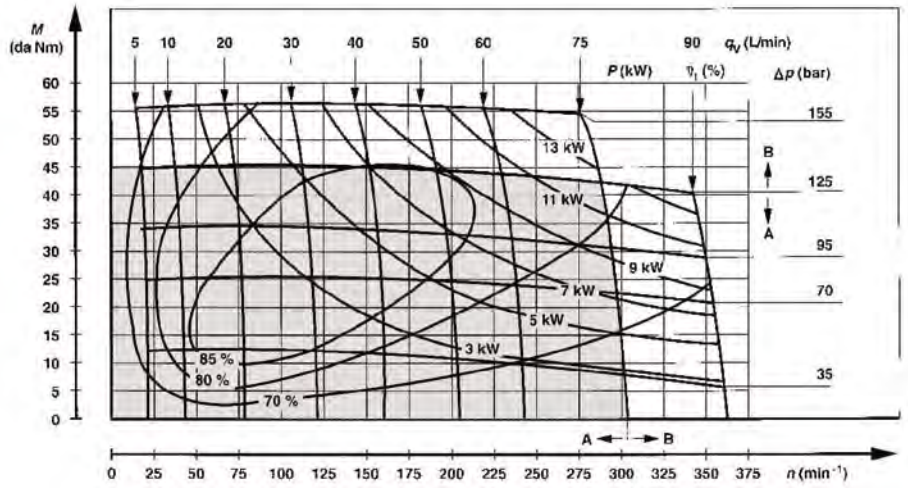
## NMS(E)160




## NMS(E)200



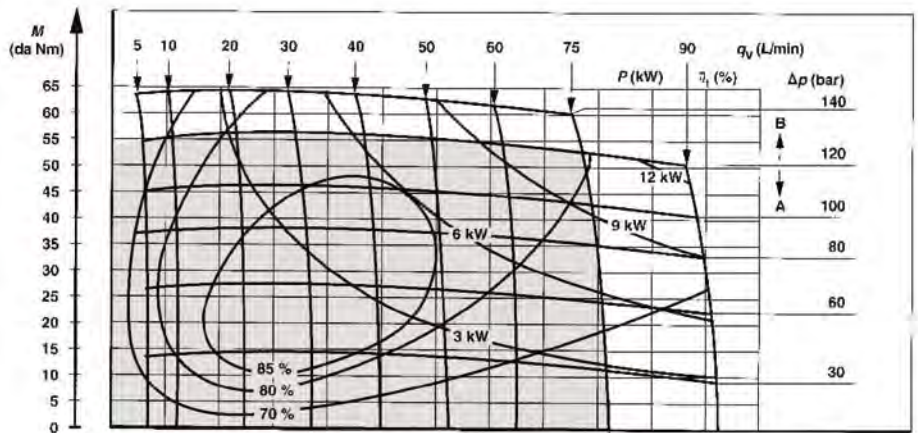

## NMS(E)250



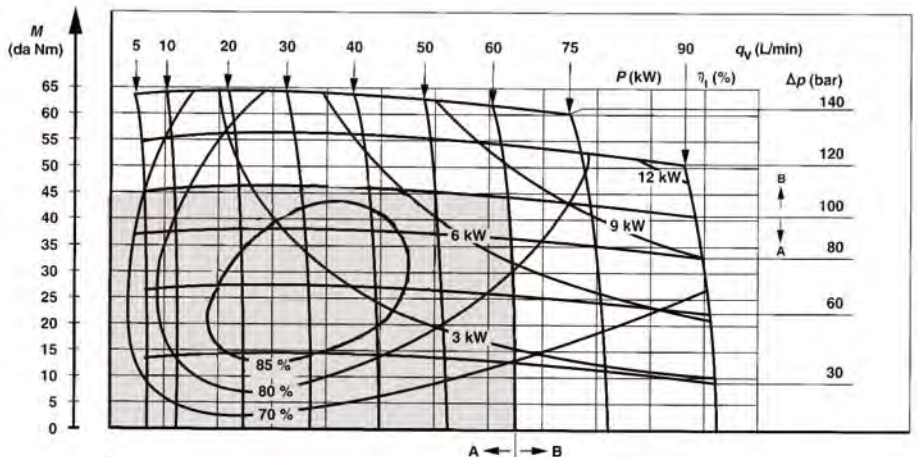
A : CONTINUOUS OPERATION

B : INTERMITTENT RATING APPLIES TO 6 SEC. PER MINUTE

## NMS(E)315

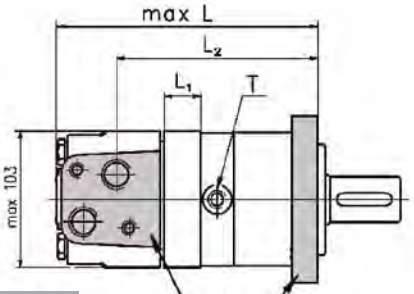



## NMS(E)400



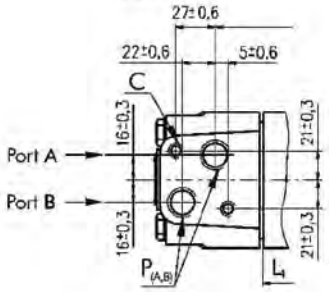
## DIMENSIONS AND MOUNTING DATA

| Type | L | $L_1$ | $L_2$ |
|---|---|---|---|
| NMS 80 | 168 | 16 | 124 |
| NMS 100 | 172 | 20 | 128 |
| NMS 125 | 177 | 25 | 133 |
| NMS 160 | 183.5 | 31.5 | 139.5 |
| NMS 200 | 192 | 40 | 148 |
| NMS 250 | 202 | 50 | 158 |
| NMS 315 | 214 | 62 | 170 |
| NMS 400 | 226 | 74 | 182 |




### PORTING

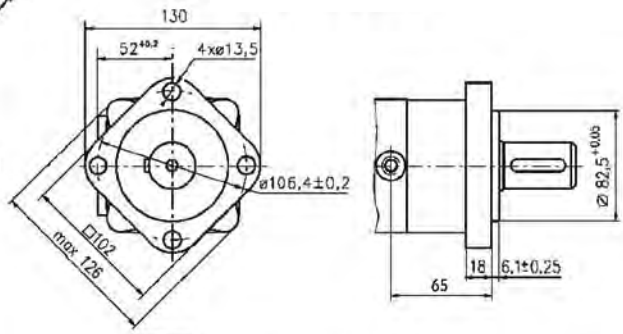
SIDE PORTS



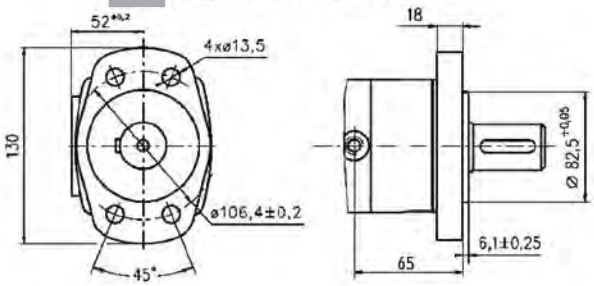

| | | | |
|---|---|---|---|
| A,B: | G | 2 x G1/2, 15 depth | T: G1/4, 12 depth |
| | M | 2 x M22 x 1.5, 15 depth | T: M14x1.5, 12 depth |
| | U | 2 x 7/8-14UNF | T: 7/16-20UNF |
| | P | 2 x 1/2-14NPTF | T: 7/16-20UNF |
| | C | 2xM10-12mm depth | |

### MOUNTING

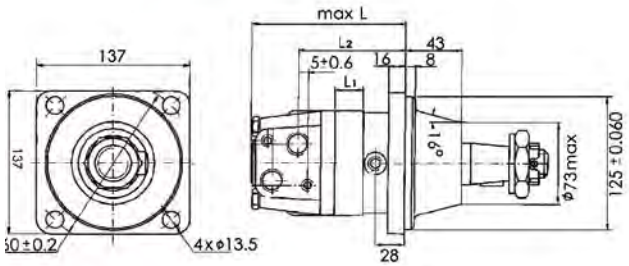
SAE.A - MOUNT (4 HOLES)




F MAGNETO MOUNT (4 HOLES)

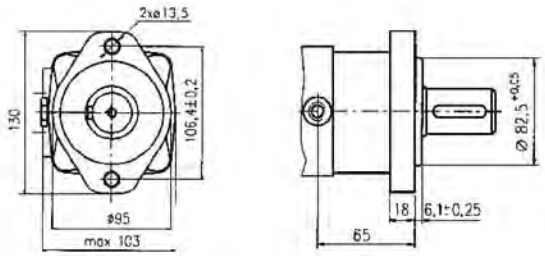



W WHEEL MOUNTING

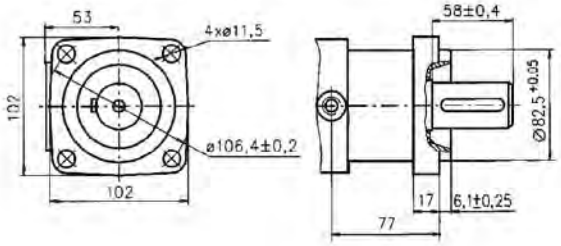



| Type | L | $L_1$ | $L_2$ |
|---|---|---|---|
| NMSW 80 | 131 | 16 | 89 |
| NMSW 100 | 135.6 | 20 | 93.5 |
| NMSW 125 | 140.2 | 25 | 98.2 |
| NMSW 160 | 146.7 | 31.5 | 104.7 |
| NMSW 200 | 155.2 | 40 | 113.2 |
| NMSW 250 | 165.5 | 50 | 123.5 |
| NMSW 315 | 177.2 | 62 | 135.2 |
| NMSW 400 | 188.6 | 74 | 146.6 |

A SAE.A - MOUNT (2 HOLES)

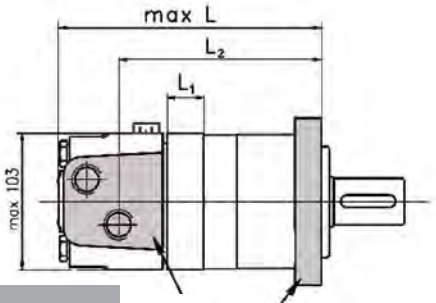



Q SQUARE MOUNT (4 HOLES)



## DIMENSIONS AND MOUNTING DATA

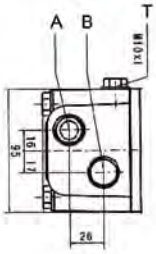
| Type | L | $L_1$ | $L_2$ |
|---|---|---|---|
| NMSE 80 | 7.087 [180] | 16 | 133 |
| NMSE 100 | 7.244 [184] | 20 | 137 |
| NMSE 125 | 7.441 [189] | 25 | 142 |
| NMSE 160 | 7.697 [195.5] | 31.5 | 148.5 |
| NMSE 200 | 8.031 [204] | 40 | 157 |
| NMSE 250 | 8.425 [214] | 50 | 167 |
| NMSE 315 | 8.898 [226] | 62 | 179 |
| NMSE 400 | 9.370 [238] | 74 | 191 |




### PORTING

SIDE PORTS

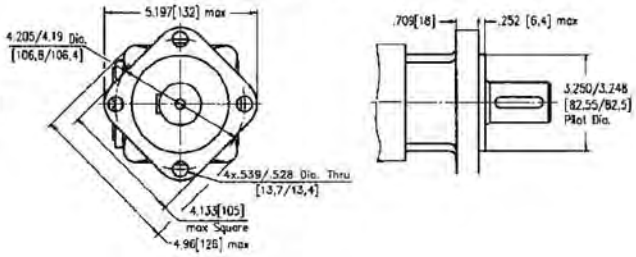
Side Ports



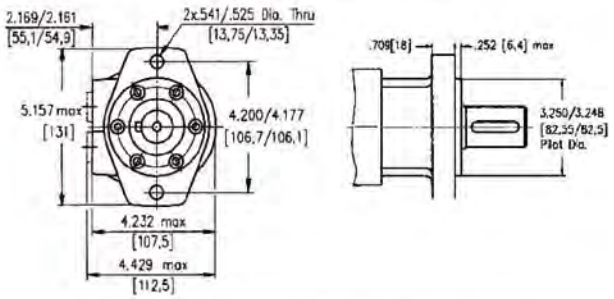

| | | | |
|---|---|---|---|
| A,B : | U | 2 x 7/8-14UNF | T : 7/16 - 20UNF |
| | P | 2 x 1/2 - 14NPTF | T : 7/16 - 20UNF |
| | R | 2 x PT(RC) 1/2, 13 depth | T : PT(RC)1/4, 10 depth |
| | G | 2 x G1/2, 15 depth | T : G1/4, 12 depth |
| | M | 2 x M22x1.5, 15 depth | T : M14x1.5, 12 depth |

### MOUNTING

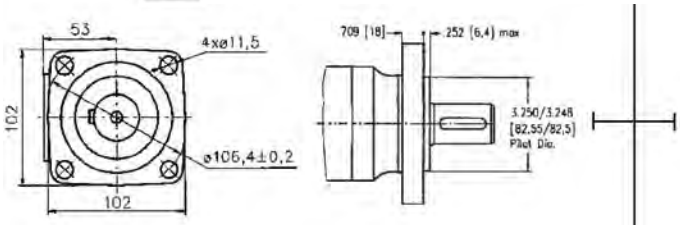
SEE.A - MOUNT (4 HOLES)



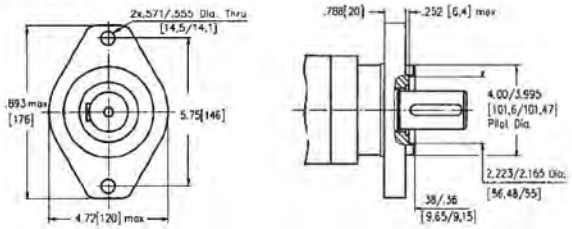

### A SEE.A - MOUNT (2 HOLES)



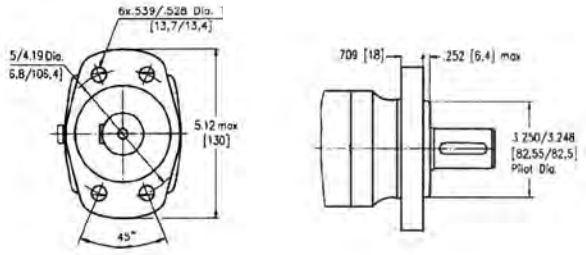

### Q SQUARE MOUNT (4 HOLES)



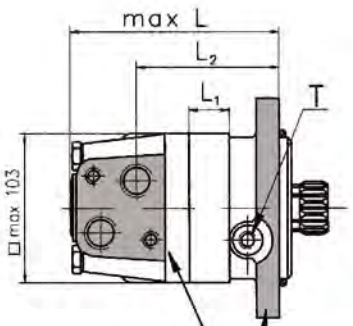

### B SAE.B - MOUNT (2 HOLES)




### F MAGNETO MOUNT (4 HOLES)

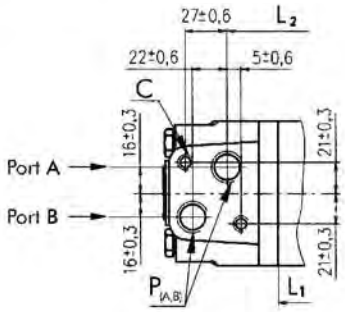


## DIMENSIONS AND MOUNTING DATA



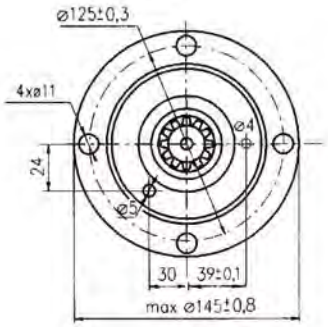

### PORTING

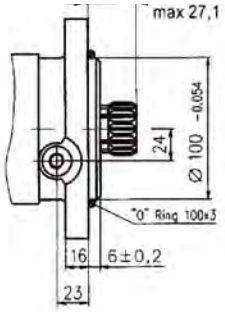
#### SIDE PORTS




### MOUNTING

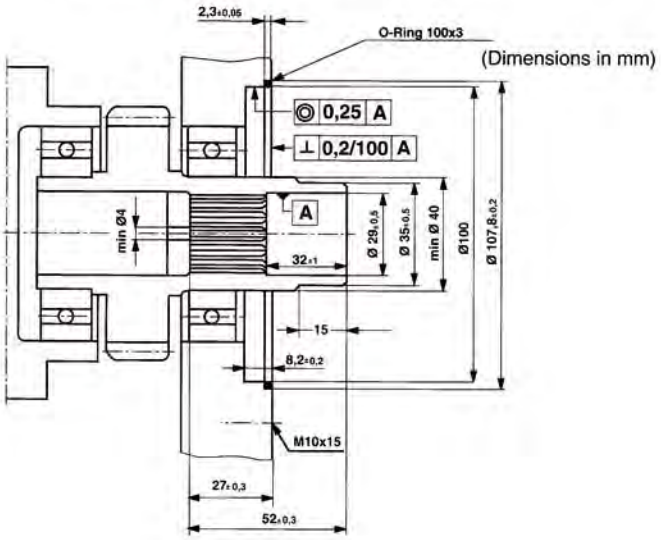
#### S SHORT MOUNT




| Type | L | L1 | L2 |
|---|---|---|---|
| NMSS 80 | 130 | 16 | 86 |
| NMSS 100 | 134 | 20 | 90 |
| NMSS 125 | 139 | 25 | 95 |
| NMSS 160 | 145.5 | 31.5 | 101.5 |
| NMSS 200 | 154 | 40 | 110 |
| NMSS 250 | 164 | 50 | 120 |
| NMSS 315 | 176 | 62 | 132 |
| NMSS 400 | 188 | 74 | 144 |

P(A,B) : 2 x G1/2 or 2xM22x1,5 - 20
T : G1/4 or M14 x 1.5 - 12
C : 2 x M10 - 12



## TECHNICAL INFORMATION

The NMSS short motor has no output shaft bearing and is designed to be mounted directly in to the gear box.

The work cycle of a short motor can be described as a tumbling motion, while the motor itself can not be assembled with an integrated shaft seal. Therefore, must the leakage oil from the motor be collected in a sealed gear box unit. This oil then is used to lubricate the moving parts of the gear box unit itself.

The maximum permissible back flow pressure is dependent on the load capacity of the shaft seal. It is recommended that a tank drain line is always used in these applications.

When this unit is first fitted it is important that it first filled with oil and the shaft turned a number of times in order for the oil to reach and lubricate all internal components.

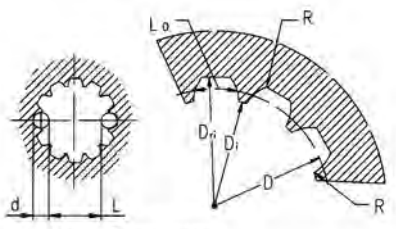
| **Technical Specifications:** | **Europe** | **USA** |
|---|---|---|
| Displacements : | 80.8 -397 cc/rev | 4.9 -24.2 in3/r |
| Max Speed : | 1000 rpm | 1000 rpm |
| Max Flow : | 65-75 LPM | 17,2-19,8 GPM |
| Max Torque : | 23,7-69 da Nm | 2101-6107 lb-in |
| Max Pressure : | 250 bar | 3625 psi |
| Weight : | 10-13,5 kg | 22,2 – 30 lbs |

**Build Options :**

4 Output shafts
4 Mounting Options
5 Porting Options

## INTERNAL SPLINE DATA FOR ANY ATTACHED COMPONENT USED ON THE NMS MOTOR

| Fillet Root Side Fit | | mm |
|---|---|---|
| Number of Tech | z | 12 |
| Diametral Pitch | DP | 12/24 |
| Pressure Angle | | 30° |
| Pitch Dia. | D | 25.4 |
| Major Dia. | Dri | $28.0^{-0.1}$ |
| Minor Dia. | Di | $23.0^{+0.033}$ |
| Space Width [Circular] | Lo | 4.308±0.020 |

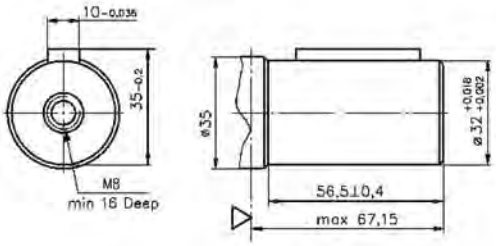



*Hardering Specification:*
HRC 60±2
Effective case depth (HRC 52) 0,7±0,2 mm

## SHAFT EXTENSIONS FOR NMS AND NMSE MOTOR

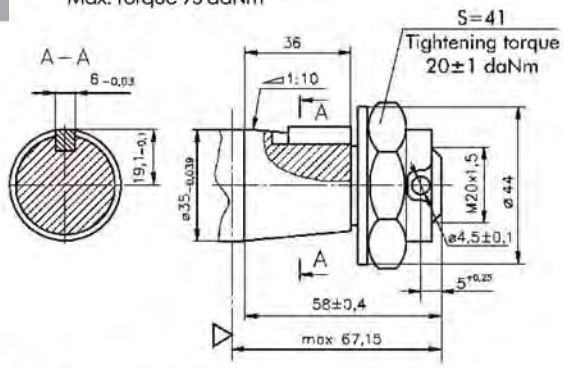
### C

ϕ32 straight, Parallel key A10x8x45
Max. Torque 77 daNm



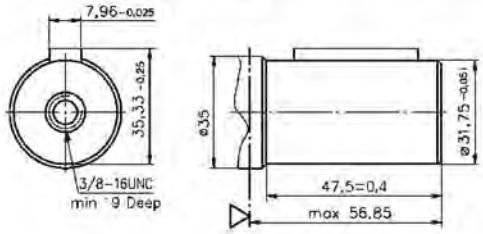

### TB

- Tapered 1:10, Parallel key B6x6x20
Max. Torque 95 daNm



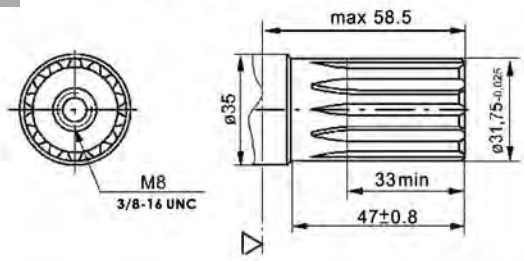

### CO

ϕ 1 1/4" straight, Parallel key 5/16" x 5/16" x 1 1/4" BS46
Max. Torque 77 daNm



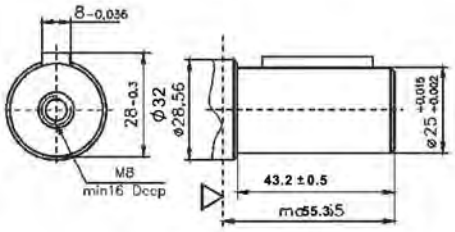

### SB

ϕ 1¼" splined 14T, ANSI B92.1-1976 Norm
Max. Torque 77 daNm



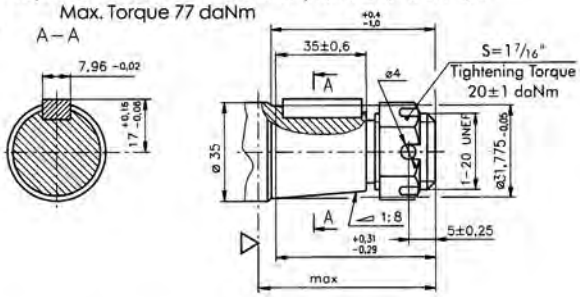

### C1

ϕ25 straight, Parallel key A8x7x32
Max. Torque 34 daNm



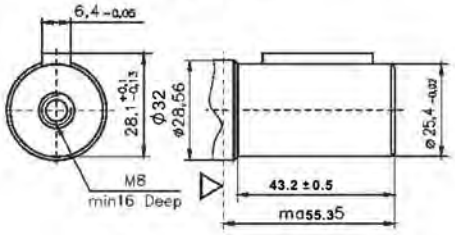

### TA

Tapered 1:8 SAEJ 501, Parallel key 5/16" x 5/16" x 1 1/4"
Max. Torque 77 daNm



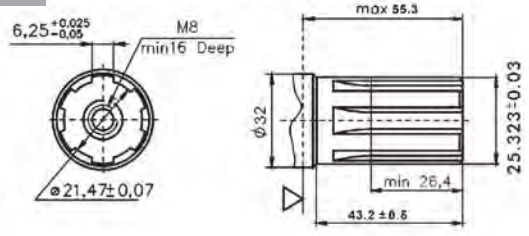

### C2

ϕ 1" straight, Parallel key 1/4" x 1/4" x 1 1/4"
Max. Torque 34 daNm

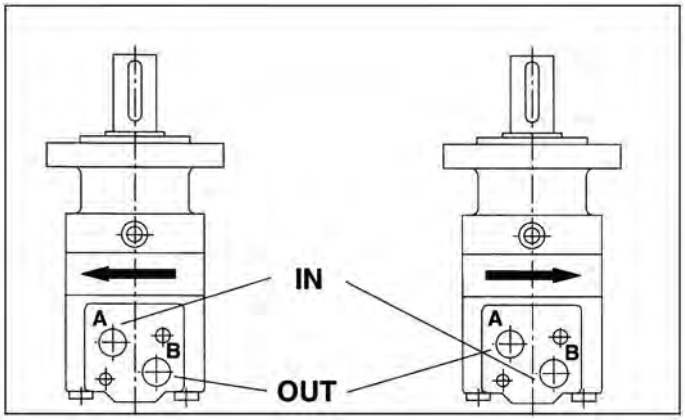



### S

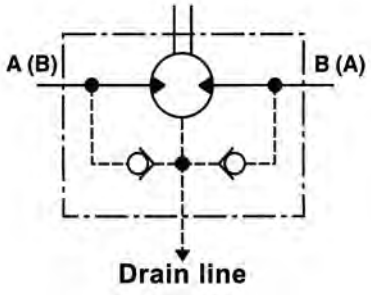
Splined, (SAE 6B)
Max. Torque 34 daNm



## ROTATION SELECTION




The NMS(E) motor is equipped with built-in check valves. The pressure on the shaft seal is never greater than the back flow pressure due of the built-in check valves.
In the short motor version the pressure is determinated on the technical specifications of the gearbox used.

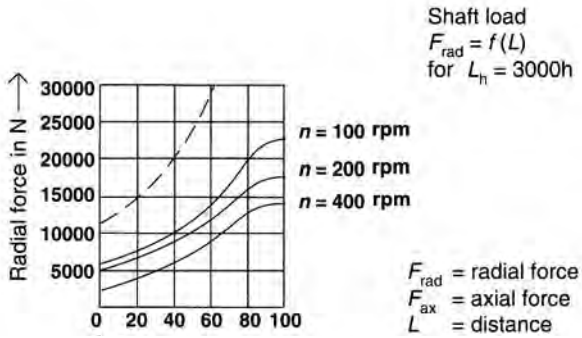



Max. return pressure without drain line or/ Max. pressure in drain line

| rpm | Cont. (bar) |
|---|---|
| 0 - 100 rpm | 75 |
| 100 - 300 rpm | 50 |
| 300 - 810 rpm | 20 |

Max. return pressure with drain line

| | |
|---|---|
| Continuous | 140 bar |
| Intermittent | 175 bar |

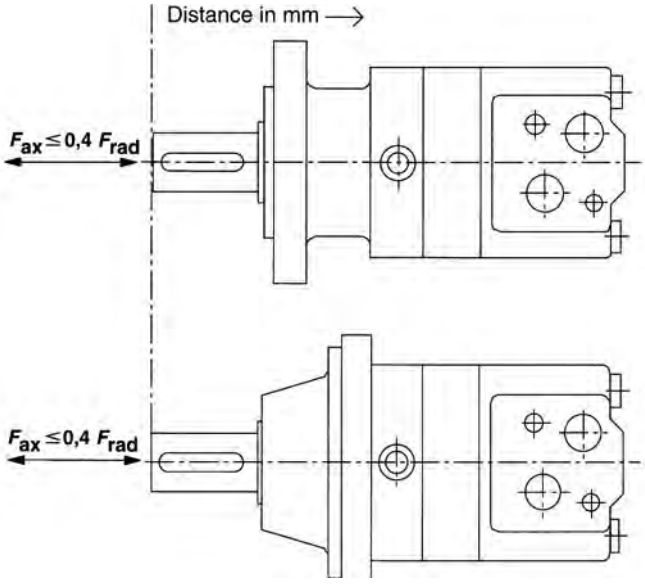



## SHAFT LOAD

The tapered roller bearings on the output shaft are designed to accept high levels of axial and radial shaft load.
The broken curve to the right here plots the maximum permissible radial load. Loads above and beyond this level can lead to product damage.
The central solid curve to the right here plots the permissible radial load. Loads above and beyond this level can lead to breakage.

The central solid curve plots the permissible radial loads for a theoretical service life of 3000 hours at 200 rpm.

The expected service life can be calculated for different speeds and/or radial loads. This data assumes the use of hydraulic fluid with a sufficient anti-wear additive content.



## ORDERING INFORMATION

| | 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|---|
| NMS | | | | | | |

### POS. 1
SHORT MOTOR

S - Short Motor

### POS. 2
DISPLACEMENT CODE

80 - 80.8cc / 4.9 [in.3/r]
100 - 100.9cc / 6.2 [in.3/r]
125 - 125.2cc / 7.6 [in.3/r]
160 - 159.5cc / 9.7 [in.3/r]
200 - 201.2cc / 12.3 [in.3/r]
250 - 252.3cc / 15.4 [in.3/r]
315 - 315.1cc / 19.2 [in.3/r]
400 - 397.0cc / 24.2 [in.3/r]

### POS. 3
MOUNTING FLANGE

Omit - SAE. A Mount, 4 holes
F - Magneto Mount, 4 holes
A - SAE. A Mount (2 holes)
Q - Square Mount
W - Wheel Mount (not available)

### POS. 4
SHAFT EXTENSIONS

C1 - ϕ 1 1/4" straight, Parallel key 5/16" x 5/16" x 1 1/4" BS46
C2 - ϕ 32 straight, Parallel key A10x8x45
TB - Tapered 1:10, Parallel key B6x6x20
SB - ϕ 1 1/4" splined 14T, DP 12/24
C - ϕ 25 straight, Parallel key A8x7x32
CO - ϕ 1" straight, Parallel key 1/4" x 1/4" x 1 1/4"
S - ϕ 25,32 splined (SAE 6B)
TA - Tapered 1:8 SAEJ 501, Parallel key 5/16" x 5/16" x 1 1/4"

### POS. 5
PORTING

Omit - G1/2
M - 2 x M22x1.5, 15 depth
U - 2 x 7/8-14UNF
P - 2 x 1/2 - 14NPTF

### POS. 6
ROTATION

Omit - Standard rotation
R - Reverse rotation

## ORDERING INFORMATION

| | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|
| NMSE | | | | | |

### POS. 1
DISPLACEMENT CODE

- 80 - 80.8cc / 4.9 [in.3/r]
- 100 - 100.9cc / 6.2 [in.3/r]
- 125 - 125.2cc / 7.6 [in.3/r]
- 160 - 159.5cc / 9.7 [in.3/r]
- 200 - 201.2cc / 12.3 [in.3/r]
- 250 - 252.3cc / 15.4 [in.3/r]
- 315 - 315.1cc / 19.2 [in.3/r]
- 400 - 397.0cc / 24.2 [in.3/r]

### POS. 2
MOUNTING FLANGE

Omit - SAE. A Mount, 4 holes

- A - Oval Mount, SAE. A (2 holes)
- F - Magneto Mount, 4 holes
- B - SAE. B Mount (2 holes)
- Q - Square Mount

### POS. 3
SHAFT EXTENSIONS

- C1 - ϕ 1 1/4" straight, Parallel key 5/16" x 5/16" x 1 1/4" BS46
- C2 - ϕ 32 straight, Parallel key A10x8x45
- TB - Tapered 1:10, Parallel key B6x6x20
- SB - ϕ 1 1/4" splined 14T, DP 12/24
- C - ϕ 25 straight, Parallel key A8x7x32
- CO - ϕ 1" straight, Parallel key 1/4" x 1/4" x 1 1/4"
- S - ϕ 25,32 splined (SAE 6B)
- TA - Tapered 1:8 SAEJ 501, Parallel key 5/16" x 5/16" x 1 1/4"

### POS. 4
PORTING

Omit - G1/2

- U - 2 x 7/8-14UNF
- P - 2 x 1/2 - 14NPTF
- R - 2 x PT(RC) 1/2, 13 depth
- M - 2 x M22x1.5, 15 depth

### POS. 5
ROTATION

Omit - Standard rotation

- R - Reverse rotation

## APPLICATION

The NMT motor is a heavy duty motor which offers its user the optimal of high efficiency and durability. It is available in six large displacements and has tapered roller bearings in the output shaft to sustain both high axial and radial loads.

Its advanced valve design where the high pressure is efficiently isolated from the low pressure allows for high over all efficiencies over the whole pressure and flow range.

It is offered in two different versions: the NMT standard model which is also available in a wheel mounted version with top port drainage and the NMTS short motor series model which has its drain line in the front and is designed for assembly in to a gear box unit.

## SPECIFICATION

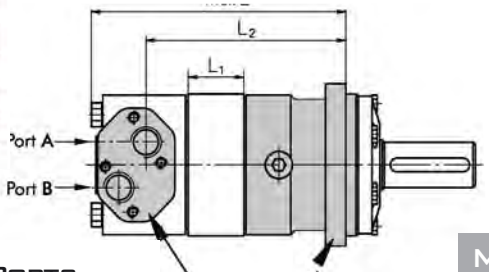
| TYPE | | NMT 230 | NMT 250 | NMT 315 | NMT 400 | NMT 500 | NMT 630 | NMT 800 |
|---|---|---|---|---|---|---|---|---|
| Displacement (c.c/rev) | | 226.5 | 250.4 | 319.5 | 401.8 | 523.5 | 629 | 801 |
| Max. speed (rpm) | Cont | 570 | 495 | 375 | 300 | 235 | 196 | 154 |
| | Int(1) | 720 | 600 | 455 | 360 | 285 | 233 | 185 |
| Torque (da Nm) | Cont | 63 | 73 | 94.8 | 107.8 | 122 | 132.1 | 146.2 |
| | Int(1) | 79.5 | 88 | 113.8 | 125.9 | 137 | 150 | 152 |
| | Peak(2) | 90.9 | 102 | 133 | 144 | 159.9 | 162.2 | 166.4 |
| Max. output (Kw) | Cont | 33.5 | 33.5 | 33.4 | 30 | 26.4 | 18.3 | 15.3 |
| | Int(1) | 40 | 40 | 40 | 35 | 30 | 25.5 | 22.3 |
| Max. pressure drop (bar) | Cont | 200 | 200 | 200 | 180 | 160 | 140 | 125 |
| | Int(1) | 240 | 240 | 240 | 210 | 180 | 160 | 130 |
| | Peak(2) | 280 | 280 | 280 | 240 | 210 | 190 | 160 |
| Max.oil flow (l/min) | Cont | 125 | 125 | 125 | 125 | 125 | 125 | 125 |
| | Int(1) | 150 | 150 | 150 | 150 | 150 | 150 | 150 |
| | Cont | 210 | 210 | 210 | 210 | 210 | 210 | 210 |
| Max. Inlet pressure (bar) | Int(1) | 250 | 250 | 250 | 250 | 250 | 250 | 250 |
| | Peak(2) | 300 | 300 | 300 | 300 | 300 | 300 | 300 |
| Weight(kg) | | 20 | 21 | 21.5 | 22 | 23 | 24 | 25 |

(1) Intermittent operation rating applies to 6 sec. of every minute
(2) Peak load rating applies to 0.6 sec of every minute

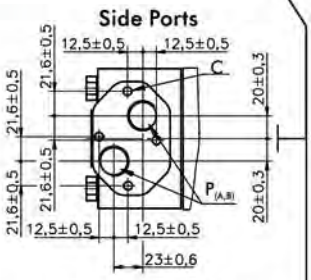
| TYPE | | NMT 230 | NMT 250 | NMT 315 | NMT 400 | NMT 500 | NMT 630 | NMT 800 |
|---|---|---|---|---|---|---|---|---|
| Displacement (in.3/r ) | | 13.8 | 15.3 | 19.5 | 24.5 | 31.9 | 38.4 | 48.9 |
| Max. speed (rpm) | Cont | 570 | 495 | 375 | 300 | 235 | 196 | 154 |
| | Int(1) | 720 | 600 | 455 | 360 | 285 | 233 | 185 |
| Torque (lb-in) | Cont | 5576 | 6461 | 8390 | 9540 | 10797 | 11691 | 12939 |
| | Int(1) | 7036 | 7788 | 10071 | 11142 | 12125 | 13275 | 13452 |
| | Peak(2) | 8045 | 9027 | 11771 | 12744 | 14151 | 14355 | 14726 |
| Max. output (hp) | Cont | 44.9 | 44.9 | 44.8 | 40.2 | 35.4 | 24.5 | 20.5 |
| | Int(1) | 53.6 | 53.6 | 53.6 | 46.9 | 40.2 | 34.2 | 29.9 |
| Max. pressure drop (psi) | Cont | 2857 | 2857 | 2857 | 2571 | 2286 | 2000 | 1786 |
| | Int(1) | 3428 | 3428 | 3428 | 3000 | 2751 | 2286 | 1857 |
| | Peak(2) | 4000 | 4000 | 4000 | 3428 | 3000 | 2714 | 2286 |
| Max.oil flow (gpm) | Cont | 33 | 33 | 33 | 33 | 33 | 33 | 33 |
| | Int(1) | 40 | 40 | 40 | 40 | 40 | 40 | 40 |
| Max. Inlet pressure (psi) | Cont | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 |
| | Int(1) | 3751 | 3751 | 3751 | 3751 | 3751 | 3751 | 3751 |
| | Peak(2) | 4286 | 4286 | 4286 | 4286 | 4286 | 4286 | 4286 |
| Weight(lbs) | | 44.09 | 46.3 | 47.4 | 48.5 | 50.7 | 52.91 | 55.12 |

## DIMENSIONS AND MOUNTING DATA

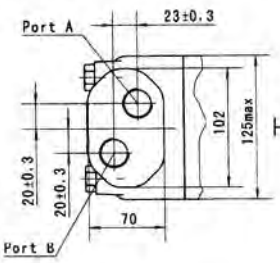
| Type | L | $L_1$ | $L_2$ |
|---|---|---|---|
| NMT 230 | 149 | 19 | 146 |
| NMT 250 | 201 | 21 | 148 |
| NMT 315 | 207 | 27 | 154 |
| NMT 400 | 214 | 34 | 161 |
| NMT 500 | 222 | 42 | 169 |
| NMT 630 | 234 | 54 | 181 |
| NMT 800 | 245 | 65 | 192 |




**PORTING** SIDE PORTS

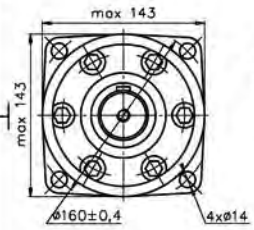



A,B: G 2 x G3/4, 15 depth T: G1/4, 12 depth
M 2 x M27 x2, 17 depth T: M14x1.5, 12 depth
C : 4 x M10-12mm depth

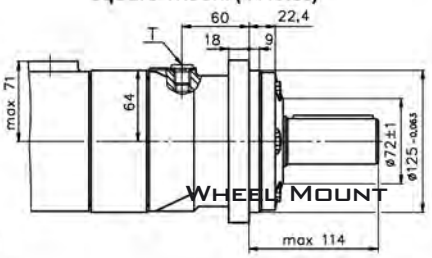



A,B: U 2 x 1 1/16 - 12UN T: 9/16-18UNF

**MOUNTING** SQUARE MOUNT (4) HOLES

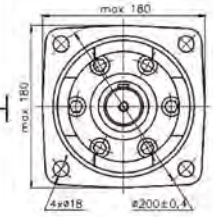


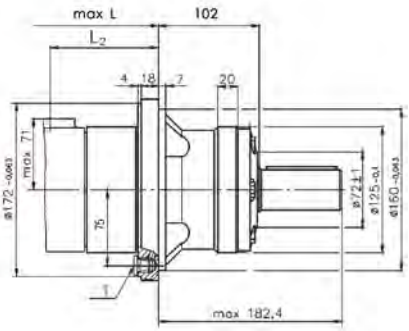

Square Mount (4 Holes)



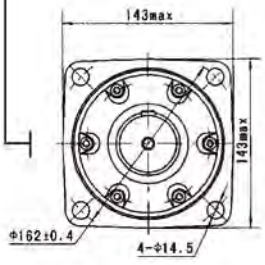

WHEEL MOUNT

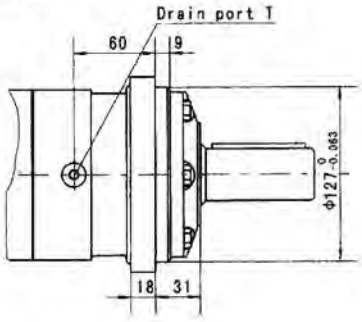
**W** WHEEL MOUNT



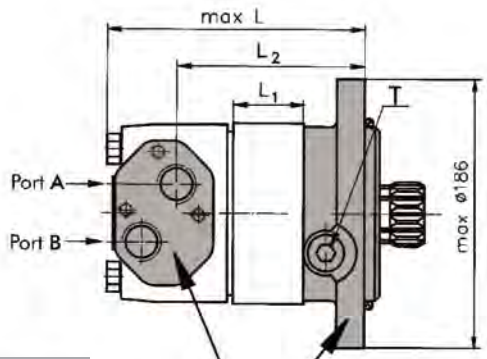

**C** SAE. C Mount (4 Holes)



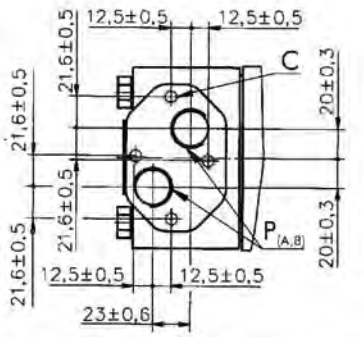
## Dimensions and Mounting Data

| Type | L | $L_1$ | $L_2$ |
|---|---|---|---|
| NMTS 160 | 157.5 | 20 | 107.5 |
| NMTS 200 | 162.5 | 25 | 112.5 |
| NMTS 250 | 168.5 | 31 | 118.5 |
| NMTS 315 | 177.5 | 40 | 127.5 |
| NMTS 400 | 187.5 | 50 | 137.5 |
| NMTS 500 | 200 | 65.2 | 150 |




### Porting

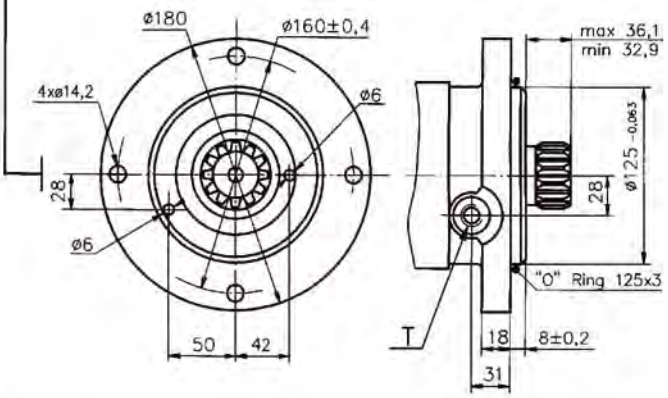
Side Ports

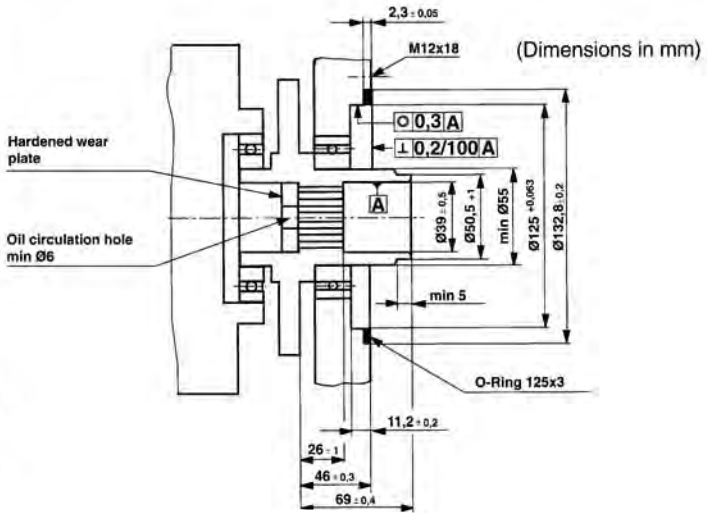



P(A,B) : 2 x G 3/4 or 2xM27x2-17
T : G 1/4 or M14 x 1.5-12
C : 4 x M10-10

### Mounting

S Short Mount



## TECHNICAL INFORMATION

The NMTS short motor has no output shaft bearing and is designed to be mounted directly in to the a gear box.

The work cycle of a short motor can be described as a tumbling motion, why the motor itself can not be assembled with a integrated shaft seal. Therefore, must the leakage oil from the motor be collected in a sealed gear box unit. This oil is then used to lubricate the moving parts of the gear box unit itself.

The maximum permissible back flow pressure is dependent on the load capacity of the shaft seal. It is recommended that a tank drain line is always used in these applications.

When this unit is first fitted it important that it is first filled with oil and the shaft turned a number of times in order for the oil to reach and lubricate all internal components

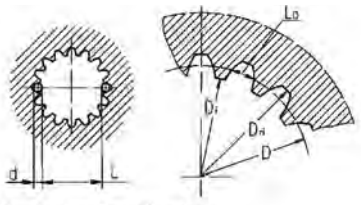
| **Technical Specifications:** | **Europe** | **USA** |
|---|---|---|
| Displacements : | 226,5 -801 cc/rev | 13.8 -48.9 in3/r |
| Max Speed : | 720 rpm | 720 rpm |
| Max Flow : | 150 LPM | 40 GPM |
| Max Torque : | 79,5-152 da Nm | 7036-13452 lb-in |
| Max Pressure : | 250 bar | 3625 psi |
| Weight : | 20-25 kg | 44-55 lbs |

**Build Options :**

4 Output shafts
4 Mounting Options
3 Porting Options

## INTERNAL SPLINE DATA FOR THE ATTACHED COMPONENT

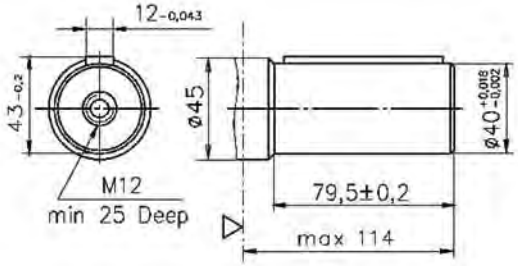
| Fillet Root Side Fit | | mm |
|---|---|---|
| Number of Tech | z | 16 |
| Diametral Pitch | DP | 12/24 |
| Pressure Angle | | 30° |
| Pitch Dia. | D | 33.8656 |
| Major Dia. | Dri | 38.4 $^{+0.4}$ |
| Minor Dia. | Di | 32.15 $^{+0.04}$ |
| Space Width [Circular] | Lo | 4.516±0.021 |



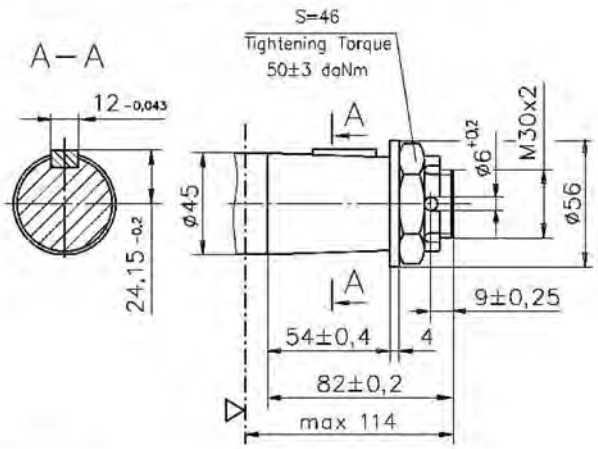

*Hardening Specification:*
HRC 60±2
0,7±0,2 mm effective case depth

## SHAFT EXTENSIONS FOR NMV MOTOR

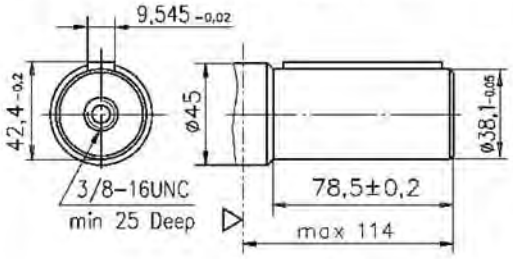
**C** -ø40 straight, Parallel key A12x8x70 DIN 6885
Max. Torque 132,8 daNm



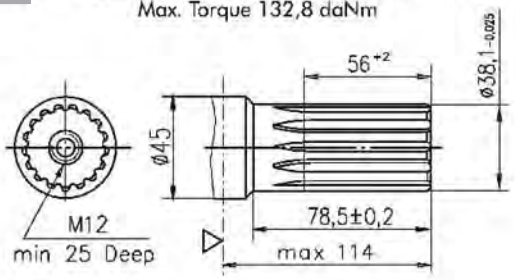

**K** -tapered 1:10, Parallel key B12x8x28 DIN 6885
Max. Torque 210,7 daNm



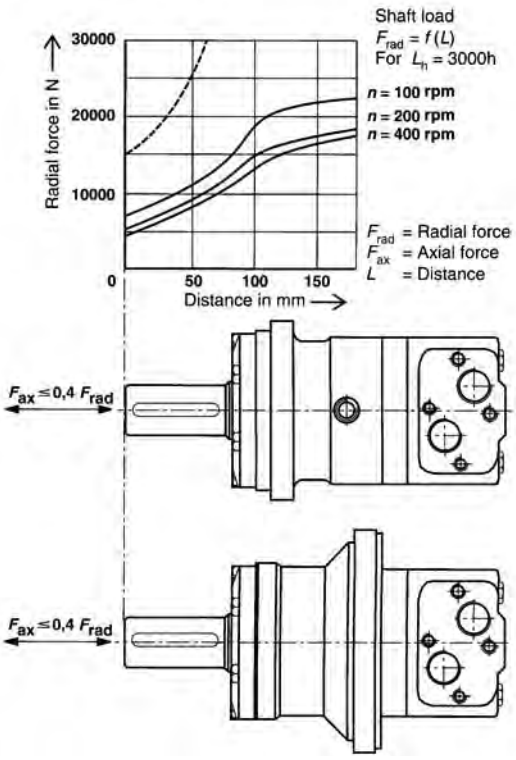

**CO** -ø1½" straight, Parallel key ⅜"x ⅜"x 2¼" BS46
Max. Torque 132,8 daNm




**SH** -ø1½" splined 17T, DP 12/24 ANSI B92.1-1976
Max. Torque 132,8 daNm




## SHAFT LOADS




The tapered roller bearings on the output shaft can accept high levels of axial and radial shaft load. The broken curve plots the maximum permissible radial load.

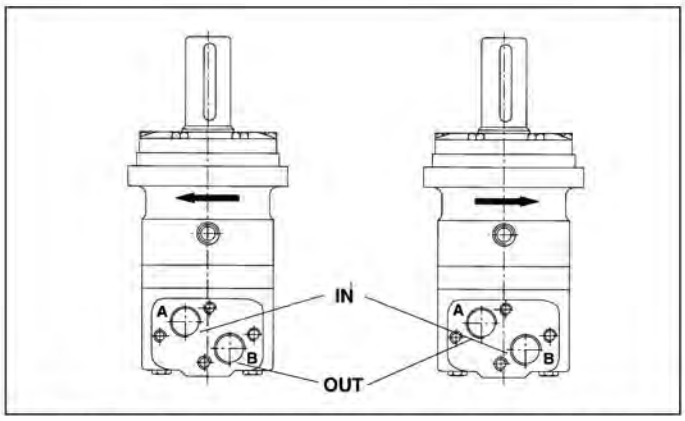
The curves marked plot the maximum permissible radial load at any speed. Loads above and beyond this level can lead to the product breaking.

The central solid curves plot the permissible radial loads for a theoritical service life of 3000 hours at 200 rpm.

The expected service life can be calculated for different speeds and/or radial loads.

Information is based on the use of a hydraulic fluid with a sufficent anti-wear additive content.

## ROTATION SELECTION



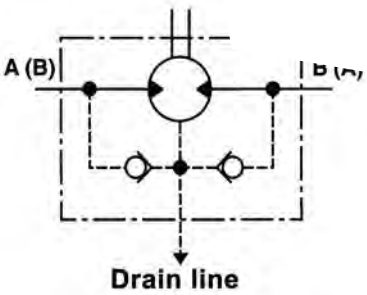

The NMT has built-in check valves. The pressure on the shaft seal is never greater than back flow pressure because of the built-in check valves. In the short motor, pressure is determinated based on the technical data of the add-on components.

Max. return pressure without drain line or/ Max. pressure in drain line

| rpm | Cont. (bar) |
|---|---|
| 0 - 100 rpm | 75 |
| 100 - 300 rpm | 40 |
| 300 - 810 rpm | 20 |

Max. return pressure with drain line

| | |
|---|---|
| Continuous | 140 bar |
| Intermittent | 175 bar |



## ORDERING INFORMATION

| | 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|---|
| NMT | | | | | | |

### POS. 1
SHORT MOTOR

S - Short Motor

### POS. 2
DISPLACEMENT CODE

230 - 226.5cc/13.8 [in.3/r]
250 - 250.4cc/15.3 [in.3/r]
315 - 319.5cc/19.5 [in.3/r]
400 - 401.8cc/24.5 [in.3/r]
500 - 523.5cc/31.9 [in.3/r]
630 - 629.0cc/38.4 [in.3/r]
800 - 801.0cc/48.9 [in.3/r]

### POS. 3
MOUNTING FLANGE

Omit - Square Mount (4 holes)
C - SAE. C Mount (4 holes)
W - Wheel Mount (not available)

### POS. 4
SHAFT EXTENSIONS

C - ϕ40 straight, Parallel key A12x8x70
CO - ϕ1 1/2" straight, Parallel key 3/8" x 3/8" x 2 1/4"
K - Tapered 1:10, Parallel key B12x8x28 (not available)
SH - ϕ1 1/2" splined 17T

### POS. 5
PORTING

Omit - G3/4
M - Metric
U - 2 x 1 1/16 - 12UN T : 9/16-18UNF

### POS. 6
ROTATION

Omit - Standard Rotation
R - Reverse Rotation

## APPLICATION

The NMV motor is a heavy duty motor which offers its user the optimal of high efficiency and durability. It is available in five large displacements and has tapered roller bearings in the output shaft to sustain both high axial and radial loads. Its high torque low speed makes it suitable for heavy duty applications.

Its advanced valve design where the high pressure is efficiently isolated from the low pressure allows for high over all efficiencies over the whole pressure and flow range.

It can also be mounted directly as a wheel drive unit or used as a standard motor. It has an external drain line capacity and can have any type of external valve mounted in a block on top of the in connection with the Pump and Tank Line.

## SPECIFICATION

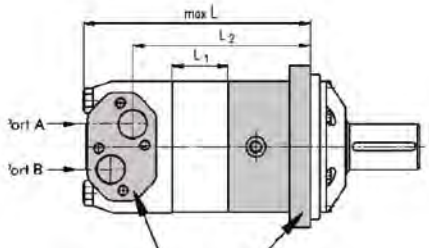
| TYPE | | NMV 315 | NMV 400 | NMV 500 | NMV 630 | NMV 800 |
|---|---|---|---|---|---|---|
| Displacement (c.c/rev) | | 333 | 419 | 518 | 666 | 801 |
| Max. speed (rpm) | Cont | 510 | 490 | 395 | 315 | 240 |
| | Int(3) | 650 | 590 | 470 | 375 | 300 |
| Max. Torque (da Nm) | Cont | 92.7 | 122.3 | 145 | 163.8 | 182 |
| | Int(3) | 110.3 | 144.1 | 178.6 | 200.5 | 211.2 |
| | Peak(4) | 135 | 170.5 | 212.3 | 233.8 | 247.5 |
| Max. output (Kw) | Cont | 43.2 | 45.3 | 58.6 | 38.2 | 35.2 |
| | Int(3) | 52 | 52 | 52 | 46 | 40 |
| Max. pressure drop (bar) | Cont | 200 | 200 | 200 | 180 | 160 |
| | Int(3) | 240 | 240 | 240 | 210 | 180 |
| | Peak(4) | 280 | 280 | 280 | 240 | 210 |
| Max.oil flow (l/min) | Cont | 150 | 170 | 200 | 200 | 200 |
| | Int(3) | 220 | 225 | 225 | 225 | 225 |
| Max. Inlet pressure (bar) | Cont | 210 | 210 | 210 | 210 | 210 |
| | Int(3) | 250 | 250 | 250 | 250 | 250 |
| | Peak(4) | 300 | 300 | 300 | 300 | 300 |
| Weight (kg) | | 31.8 | 32.6 | 33.5 | 34.9 | 36.5 |

(1) Intermittent operation rating applies to 6 sec. of every minute
(2) Peak load rating applies to 0.6 sec of every minute

| TYPE | | NMV 315 | NMV 400 | NMV 500 | NMV 630 | NMV 800 |
|---|---|---|---|---|---|---|
| Displacement (in.3/r ) | | 20.3 | 25.6 | 31.6 | 40.6 | 48.9 |
| Max. speed (rpm) | Cont | 448 | 388 | 386 | 224 | 185 |
| | Int(3) | 650 | 527 | 428 | 332 | 275 |
| Max. Torque (lb-in) | Cont | 8204 | 10824 | 12833 | 14496 | 16107 |
| | Int(3) | 9762 | 12753 | 15806 | 17744 | 18691 |
| | Peak(4) | 11948 | 15089 | 18789 | 20691 | 21904 |
| Max. output (hp) | Cont | 57.9 | 60.7 | 78.6 | 51.2 | 47.2 |
| | Int(3) | 69.7 | 69.7 | 69.7 | 61.7 | 53.6 |
| Max. pressure drop (psi) | Cont | 2900 | 2900 | 2900 | 2610 | 2320 |
| | Int(3) | 3480 | 3480 | 3480 | 3045 | 2610 |
| | Peak(4) | 4060 | 4060 | 4060 | 3480 | 3045 |
| Max.oil flow (gpm) | Cont | 40 | 45 | 53 | 53 | 53 |
| | Int(3) | 58 | 60 | 60 | 60 | 60 |
| Max. Inlet pressure (psi) | Cont | 3045 | 3045 | 3045 | 3045 | 3045 |
| | Int(3) | 3625 | 3625 | 3625 | 3625 | 3625 |
| | Peak(4) | 4350 | 4350 | 4350 | 4350 | 4350 |
| Weight (lbs) | | 70.11 | 71.87 | 73.85 | 76.94 | 80.47 |

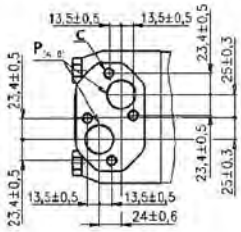
## DIMENSIONS AND MOUNTING DATA

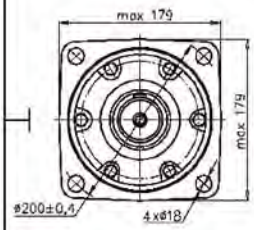
| Type | L | $L_1$ | $L_2$ |
|---|---|---|---|
| NMV 315 | 203 | 22 | 160 |
| NMV 400 | 210 | 29 | 167 |
| NMV 500 | 218 | 37 | 175 |
| NMV 630 | 230 | 49 | 187 |
| NMV 800 | 241 | 60 | 198 |

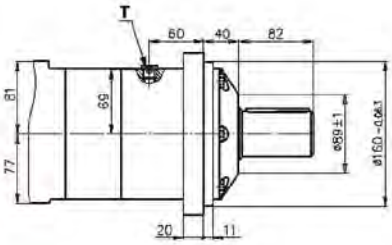



**MOUNTING** SQUARE MOUNT (4) HOLES

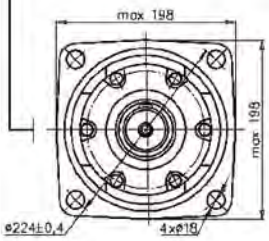
**PORTING** SIDE PORTS

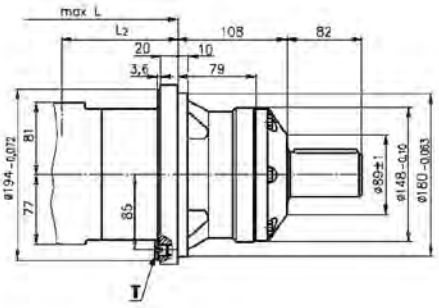


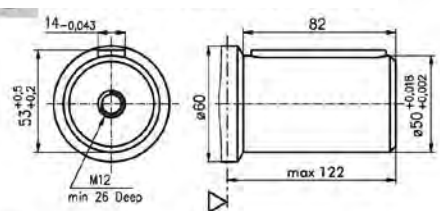

**W** WHEEL MOUNT



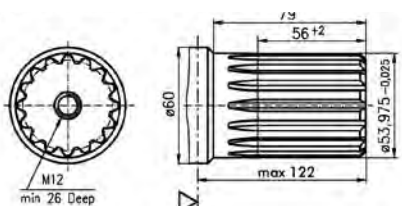




## SHAFT EXTENSIONS FOR NMV MOTOR

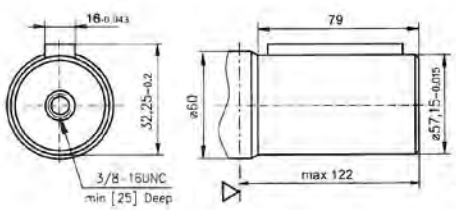
**C** - ø50 straight, Parallel key A14x9x70



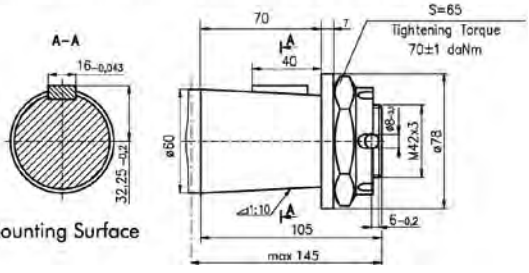

**SH** -ø2 1/8"splined, 16 DP 8/16 ANSI B92.1-1976




**CO** - ϕ2¼" [57,15] straight, Parallel key 1/2" x 1/2" x 2¼"

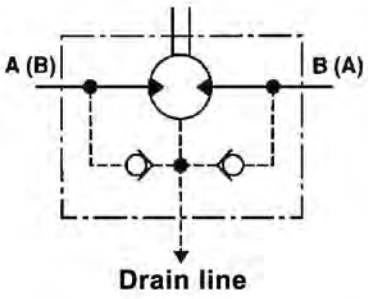


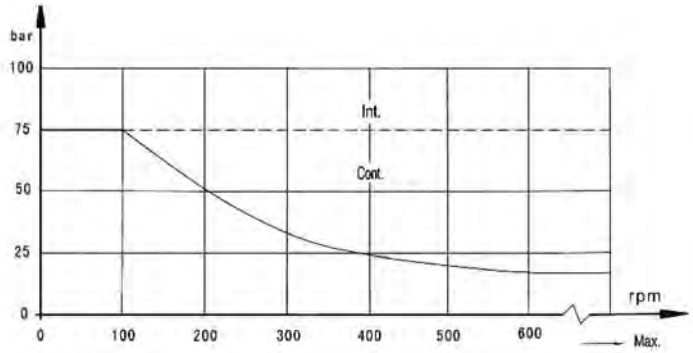

**K** -tapered 1:10, Parallel key B16x10x32 DIN 6885




▽- Motor Mounting Surface

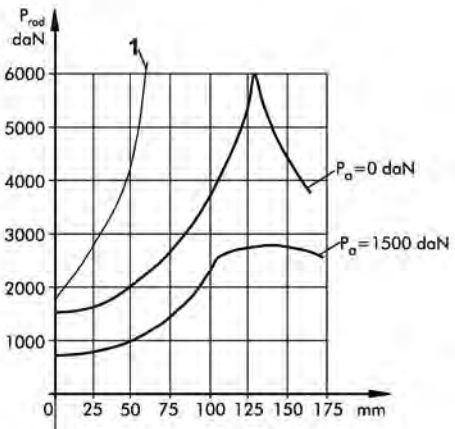
## PERMISSIBLE SHAFT SEAL PRESSURE



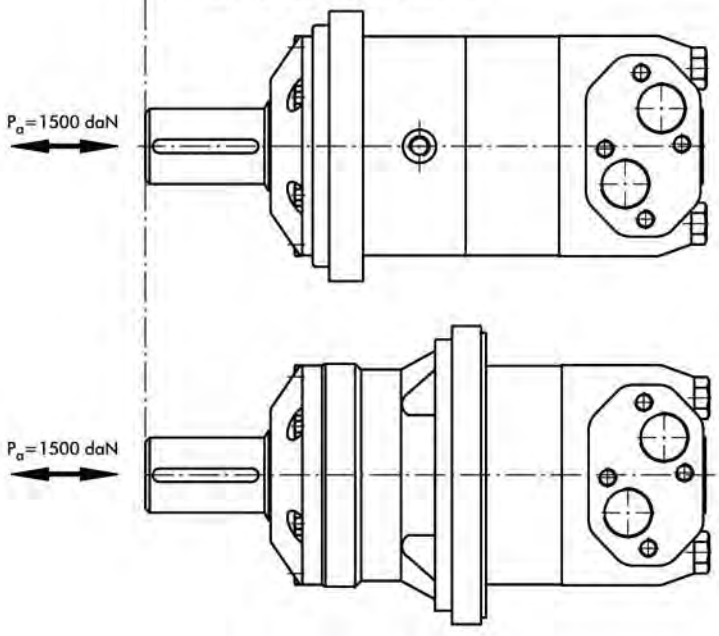




In applications without a drain line, the output shaft seal absorbs some of the pressure in the return line. When applications use the drain line, the pressure of output shaft seal equals the pressure in the drain line.

## SHAFT LOADS




The output shaft runs with tapered bearings that permit high axial and radial forces. Curve “1“ shows max. radial shaft load. Any shaft load exceeding the values quoted in this curve will seriously reduce the motor life. The two other curves apply to a B10 type bearing life of 3000 hours at 2000 RPM.



## ORDERING INFORMATION

| | 1 | 2 | 3 | 4 |
|---|---|---|---|---|
| NMV | | | | |

### POS. 1
DISPLACEMENT CODE

315 - 333cc/19.2 [in.3/r]
400 - 419cc/24.5 [in.3/r]
500 - 518cc/30.5 [in.3/r]
630 - 666cc/38.6 [in.3/r]
800 - 801cc/49.0 [in.3/r]

### POS. 2
MOUNTING FLANGE

Omit - Square Mount (4 holes)
W - Wheel Mount (not available)

### POS. 3
SHAFT EXTENSIONS

C - ϕ 50 straight, Parallel key A14x9x70
CO - ϕ 2 1/4" [57.15] straight, Parallel key 1/2" x 1/2" x 2 1/4"
K - Tapered 1:10, Parallel key B16x10x32 (not available)
SH - ϕ 2 1/8" splined 17T (not available)

### POS. 4
ROTATION

Omit - Standard Rotation
R - Reverse Rotation

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