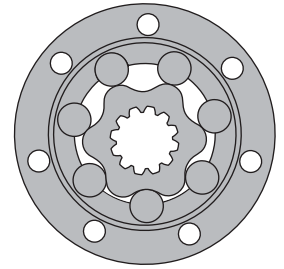


# HYDRAULIC MOTORS HW



## APPLICATION

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



## CONTENTS

Specification data .....86÷87  
Function diagrams ..... 88÷94  
Dimensions and mounting ..... 95÷96  
Permissible shaft Seal Pressure ... 96  
Shaft extensions ..... 97  
Permissible shaft loads ..... 98  
Order code ..... 98

## OPTIONS

- » Model - Spool valve, roll-gerotor
- » Wheel and flange mount
- » Shafts - straight, splined and tapered
- » BSPP ports
- » Other special features

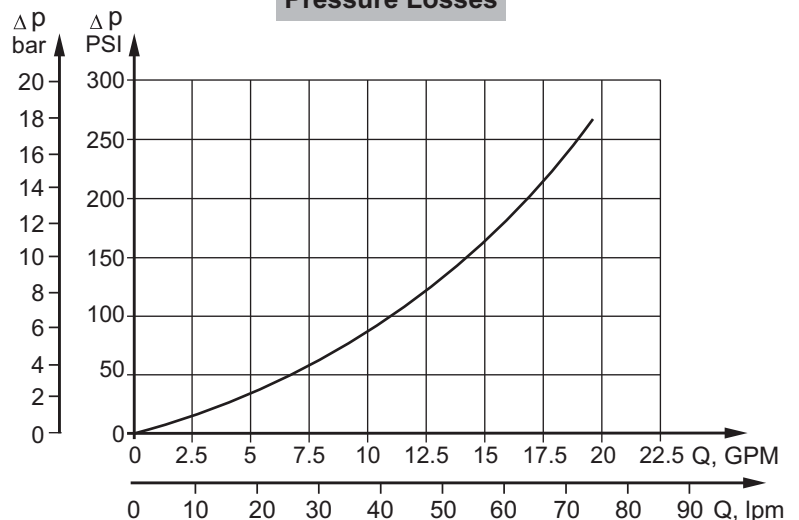
## GENERAL

|                                                                       |                                                                  |
|-----------------------------------------------------------------------|------------------------------------------------------------------|
| <b>Max. Displacement,</b> cm <sup>3</sup> /rev [in <sup>3</sup> /rev] | 550 [33.55]                                                      |
| <b>Max. Speed,</b> [RPM]                                              | 497                                                              |
| <b>Max. Torque,</b> daNm [in-lb]                                      | cont.: 96 [8500] int.: 105 [9293]                                |
| <b>Max. Output,</b> kW [HP]                                           | 23,1 [31]                                                        |
| <b>Max. Pressure Drop,</b> bar [PSI]                                  | cont.: 205 [3000] int.: 225 [3260]                               |
| <b>Max. Oil Flow,</b> lpm [GPM]                                       | 115 [30.4]                                                       |
| <b>Min. Speed,</b> [RPM]                                              | 10                                                               |
| <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 microns) |

### 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                                                         |                           | HW 125      | HW 160       | HW 200        | HW 235        | HW 250      | HW 300      | HW 315        |
|--------------------------------------------------------------|---------------------------|-------------|--------------|---------------|---------------|-------------|-------------|---------------|
| <b>Displacement, cm<sup>3</sup>/rev [in<sup>3</sup>/rev]</b> |                           | 126 [7.69]  | 157,8 [9.64] | 201,3 [12.28] | 235,3 [14.33] | 252 [15.37] | 300 [18.3]  | 314,9 [19.21] |
| <b>Max. Speed, [RPM]</b>                                     | cont.                     | 357         | 380          | 373           | 319           | 298         | 250         | 238           |
|                                                              | int.*                     | 476         | 475          | 497           | 425           | 397         | 333         | 318           |
| <b>Max. Torque daNm [in-lb]</b>                              | cont.                     | 35 [3098]   | 44 [3894]    | 55 [4868]     | 64,5 [5710]   | 69 [6107]   | 81 [7170]   | 85 [7523]     |
|                                                              | int.*                     | 38,5 [3408] | 48 [4248]    | 60 [5310]     | 70 [6196]     | 75 [6638]   | 89 [7877]   | 93 [8230]     |
| <b>Max. Output, kW [HP]</b>                                  | cont.                     | 16,2 [21.7] | 17,6 [23.6]  | 18,6 [24.9]   | 18,2 [24.4]   | 16,8 [22.5] | 16,5 [22]   | 16,4 [21.9]   |
|                                                              | int.*                     | 19,8 [26.6] | 21,6 [29]    | 23,1 [31]     | 22,6 [30.3]   | 20,8 [27.9] | 20,8 [27.9] | 20,8 [27.9]   |
| <b>Max. Pressure Drop, bar [PSI]</b>                         | cont.                     | 205 [2970]  | 205 [2970]   | 205 [2970]    | 205 [2970]    | 205 [2970]  | 205 [2970]  | 205 [2970]    |
|                                                              | int.*                     | 225 [3260]  | 225 [3260]   | 225 [3260]    | 225 [3260]    | 225 [3260]  | 225 [3260]  | 225 [3260]    |
| <b>Max. Oil Flow lpm [GPM]</b>                               | cont.                     | 45 [12]     | 60 [16]      | 75 [20]       | 75 [20]       | 75 [20]     | 75 [20]     | 75 [20]       |
|                                                              | int.*                     | 60 [16]     | 75 [20]      | 100 [26.4]    | 100 [26.4]    | 100 [26.4]  | 100 [26.4]  | 100 [26.4]    |
| <b>Max. Inlet Pressure, bar [PSI]</b>                        | cont.                     | 210 [3050]  | 210 [3050]   | 210 [3050]    | 210 [3050]    | 210 [3050]  | 210 [3050]  | 210 [3050]    |
|                                                              | int.*                     | 250 [3625]  | 250 [3625]   | 250 [3625]    | 250 [3625]    | 250 [3625]  | 250 [3625]  | 250 [3625]    |
| <b>Max. Starting Pressure with Unloaded Shaft, bar [PSI]</b> |                           | 10 [145]    | 10 [145]     | 10 [145]      | 10 [145]      | 10 [145]    | 10 [145]    | 10 [145]      |
| <b>Min. Starting Torque daNm [in-lb]</b>                     | at max. press. drop cont. | 28,7 [2540] | 36 [3186]    | 45,1 [3991]   | 52,8 [4673]   | 56,5 [5000] | 66,4 [5877] | 69,7 [6169]   |
|                                                              | at max. press. drop int.* | 31,5 [2788] | 39,3 [3478]  | 49,2 [4355]   | 57,4 [5080]   | 61,5 [5443] | 72,9 [6452] | 76,2 [6744]   |
| <b>Min. Speed**, [RPM]</b>                                   |                           | 10          | 10           | 10            | 10            | 10          | 10          | 10            |
| <b>Weight, avg. kg [lb]</b>                                  | HW                        | 14,3 [31.5] | 14,6 [32.2]  | 15,1 [33.3]   | 15,5 [34.2]   | 15,7 [34.6] | 16,1 [35.5] | 16,3 [35.9]   |
|                                                              | HWF                       | 12,8 [28.2] | 13,1 [28.9]  | 13,6 [30]     | 14,0 [30.9]   | 14,2 [31.3] | 14,6 [32.2] | 14,8 [32.6]   |
|                                                              | HWS                       | 14 [30.9]   | 14,3 [31.5]  | 14,8 [32.6]   | 15,2 [33.5]   | 15,4 [34]   | 15,8 [34.8] | 16 [35.3]     |

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

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

- Intermittent speed and intermittent pressure drop 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.

**SPECIFICATION DATA**

| Type                                                         |                           | HW<br>350     | HW<br>370     | HW<br>400    | HW<br>470     | HW<br>500     | HW<br>535   | HW<br>550   |
|--------------------------------------------------------------|---------------------------|---------------|---------------|--------------|---------------|---------------|-------------|-------------|
| <b>Displacement, cm<sup>3</sup>/rev [in<sup>3</sup>/rev]</b> |                           | 347,8 [21.21] | 369,2 [22.51] | 396,8 [24.2] | 470,6 [28.71] | 502,4 [30.65] | 535 [32.7]  | 550 [33.55] |
| <b>Max. Speed, [RPM]</b>                                     | cont.                     | 216           | 203           | 189          | 159           | 149           | 140         | 136         |
|                                                              | int.*                     | 288           | 271           | 252          | 244           | 229           | 215         | 209         |
| <b>Max. Torque daNm [in-lb]</b>                              | cont.                     | 94 [8320]     | 96 [8497]     | 96 [8497]    | 92 [8143]     | 91 [8054]     | 90 [7966]   | 89 [7877]   |
|                                                              | int.*                     | 102 [9028]    | 105 [9293]    | 98 [8674]    | 101 [8939]    | 101 [8939]    | 104 [9205]  | 105 [9293]  |
| <b>Max. Output, kW [HP]</b>                                  | cont.                     | 16,5 [22]     | 13,2 [17.7]   | 12,5 [16.8]  | 10,6 [14.2]   | 10,8 [14.5]   | 9,4 [12.6]  | 9 [12]      |
|                                                              | int.*                     | 20,8 [27.9]   | 19,2 [25.7]   | 18,5 [24.8]  | 17,4 [23.3]   | 17,8 [23.9]   | 16,4 [22]   | 15,8 [21.2] |
| <b>Max. Pressure Drop, bar [PSI]</b>                         | cont.                     | 205 [2970]    | 205 [2970]    | 185 [2680]   | 150 [2180]    | 140 [2030]    | 130 [1885]  | 125 [1815]  |
|                                                              | int.*                     | 225 [3260]    | 225 [3260]    | 190 [2760]   | 165 [2390]    | 155 [2250]    | 150 [2180]  | 145 [2105]  |
| <b>Max. Oil Flow lpm [GPM]</b>                               | cont.                     | 75 [20]       | 75 [20]       | 75 [20]      | 75 [20]       | 75 [20]       | 75 [20]     | 75 [20]     |
|                                                              | int.*                     | 100 [26.4]    | 100 [26.4]    | 100 [26.4]   | 115 [30.4]    | 115 [30.4]    | 115 [30.4]  | 115 [30.4]  |
| <b>Max. Inlet Pressure, bar [PSI]</b>                        | cont.                     | 210 [3050]    | 210 [3050]    | 210 [3050]   | 210 [3050]    | 210 [3050]    | 210 [3050]  | 210 [3050]  |
|                                                              | int.*                     | 250 [3625]    | 250 [3625]    | 250 [3625]   | 250 [3625]    | 250 [3625]    | 250 [3625]  | 250 [3625]  |
| <b>Max. Starting Pressure with Unloaded Shaft, bar [PSI]</b> |                           | 10 [145]      | 10 [145]      | 10 [145]     | 10 [145]      | 10 [145]      | 10 [145]    | 10 [145]    |
| <b>Min. Starting Torque daNm [in-lb]</b>                     | at max. press. drop cont. | 77 [6815]     | 79,5 [7036]   | 78,7 [6966]  | 75,4 [6674]   | 74,6 [6603]   | 73,8 [6532] | 72,9 [6452] |
|                                                              | at max. press. drop int.* | 83,6 [7400]   | 86 [7612]     | 80,3 [7107]  | 82,8 [7328]   | 82,8 [7328]   | 85,2 [7540] | 84,4 [7470] |
| <b>Min. Speed**, [RPM]</b>                                   |                           | 8             | 8             | 8            | 8             | 8             | 5           | 5           |
| <b>Weight, avg. kg [lb]</b>                                  | HW                        | 16,7 [36.8]   | 16,9 [37.3]   | 17,3 [38.1]  | 18,1 [39.9]   | 18,4 [40.6]   | 18,8 [41.5] | 18,9 [41.7] |
|                                                              | HWF                       | 15,2 [33.5]   | 15,4 [34]     | 15,8 [34.8]  | 16,6 [36.6]   | 16,9 [37.3]   | 17,3 [38.1] | 17,4 [38.3] |
|                                                              | HWS                       | 16,4 [36.2]   | 16,6 [36.6]   | 17 [37.5]    | 17,8 [39.2]   | 18,1 [39.9]   | 18,5 [40.8] | 18,6 [41]   |

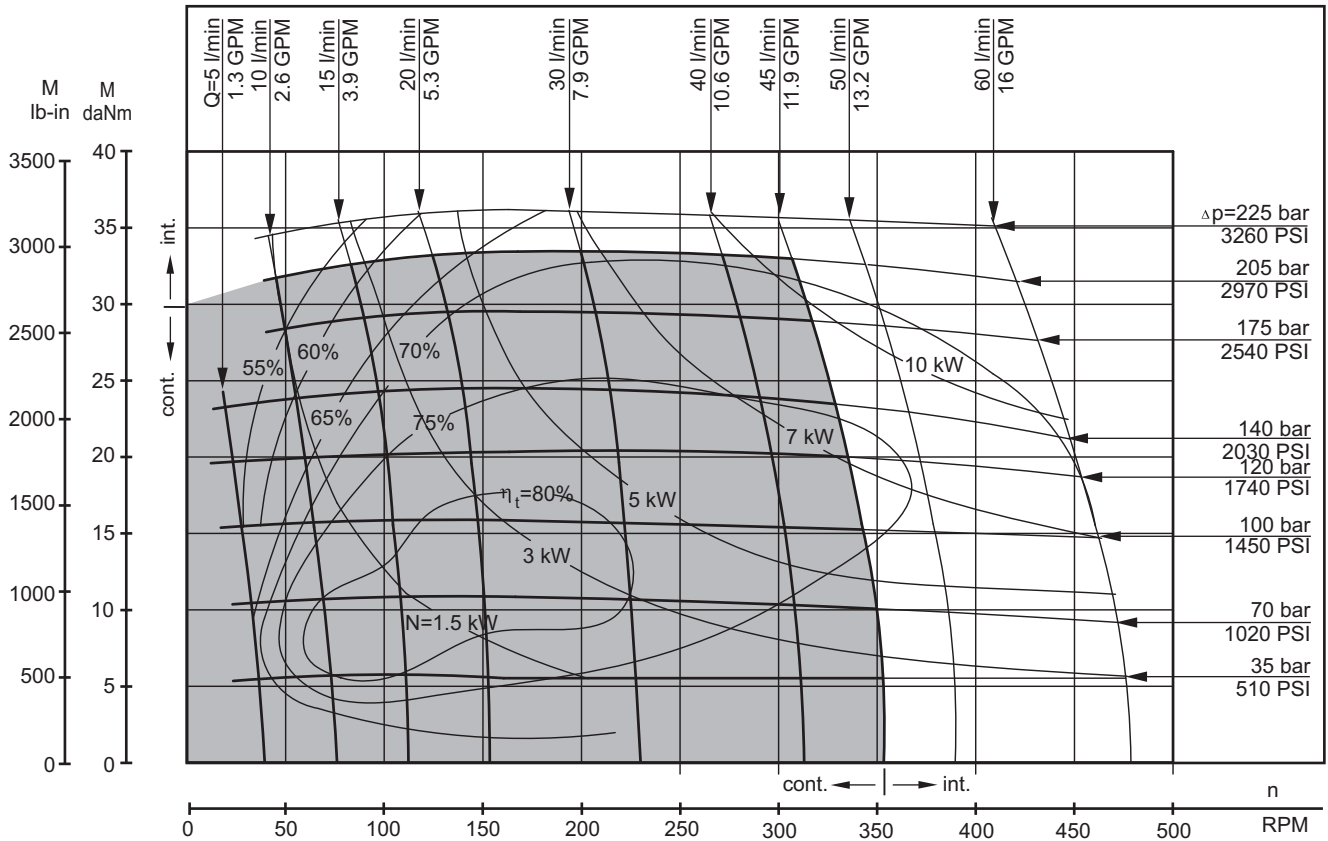
\* Intermittent operation: the permissible values may occur for max. 10% of every minute.

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

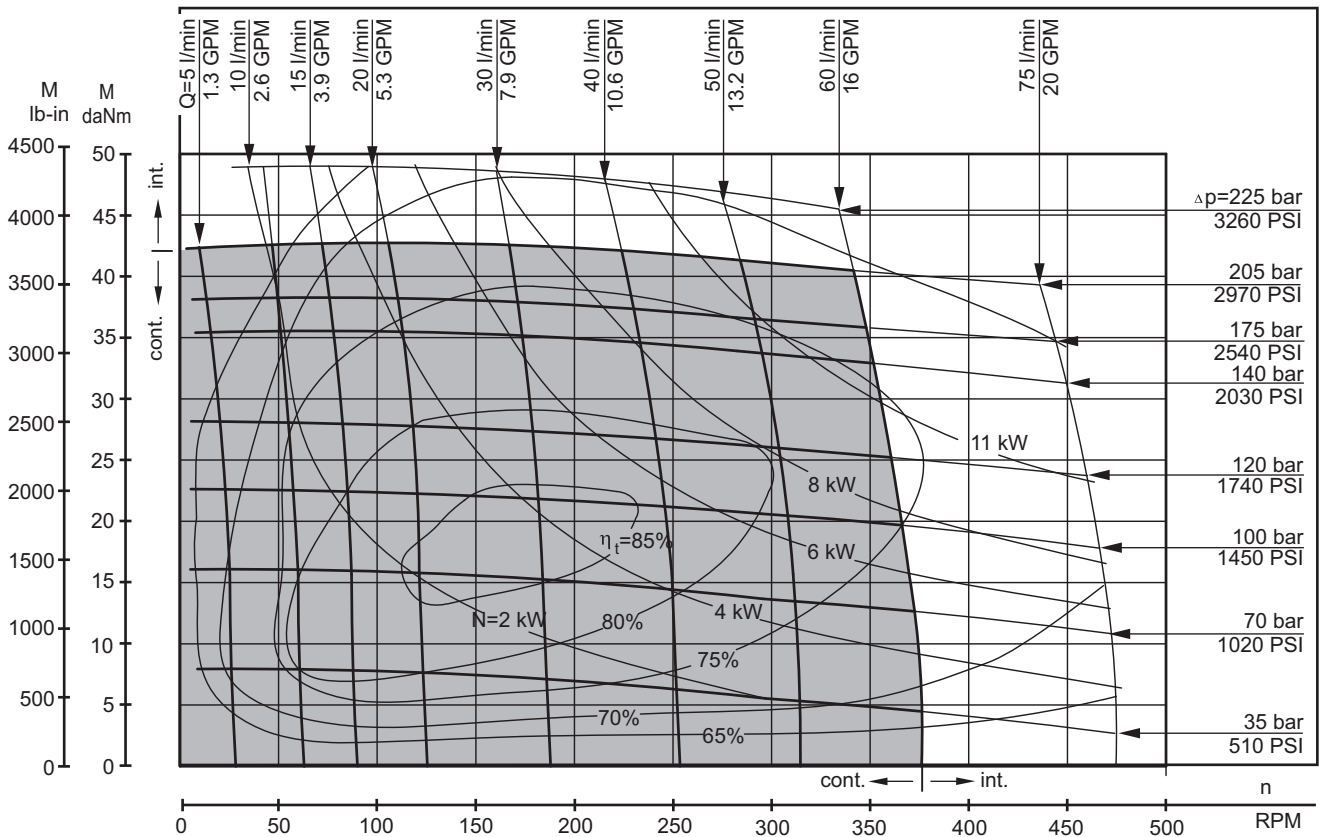
- Intermittent speed and intermittent pressure drop must not occur simultaneously.
- Recommended filtration is per ISO cleanliness code 20/16. A nominal filtration of 25 micron or better.
- Recommend using a premium quality, anti-wear type mineral based hydraulic oil HLP(DIN51524) or HM (ISO 6743/4). 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.

FUNCTION DIAGRAMS

HW 125



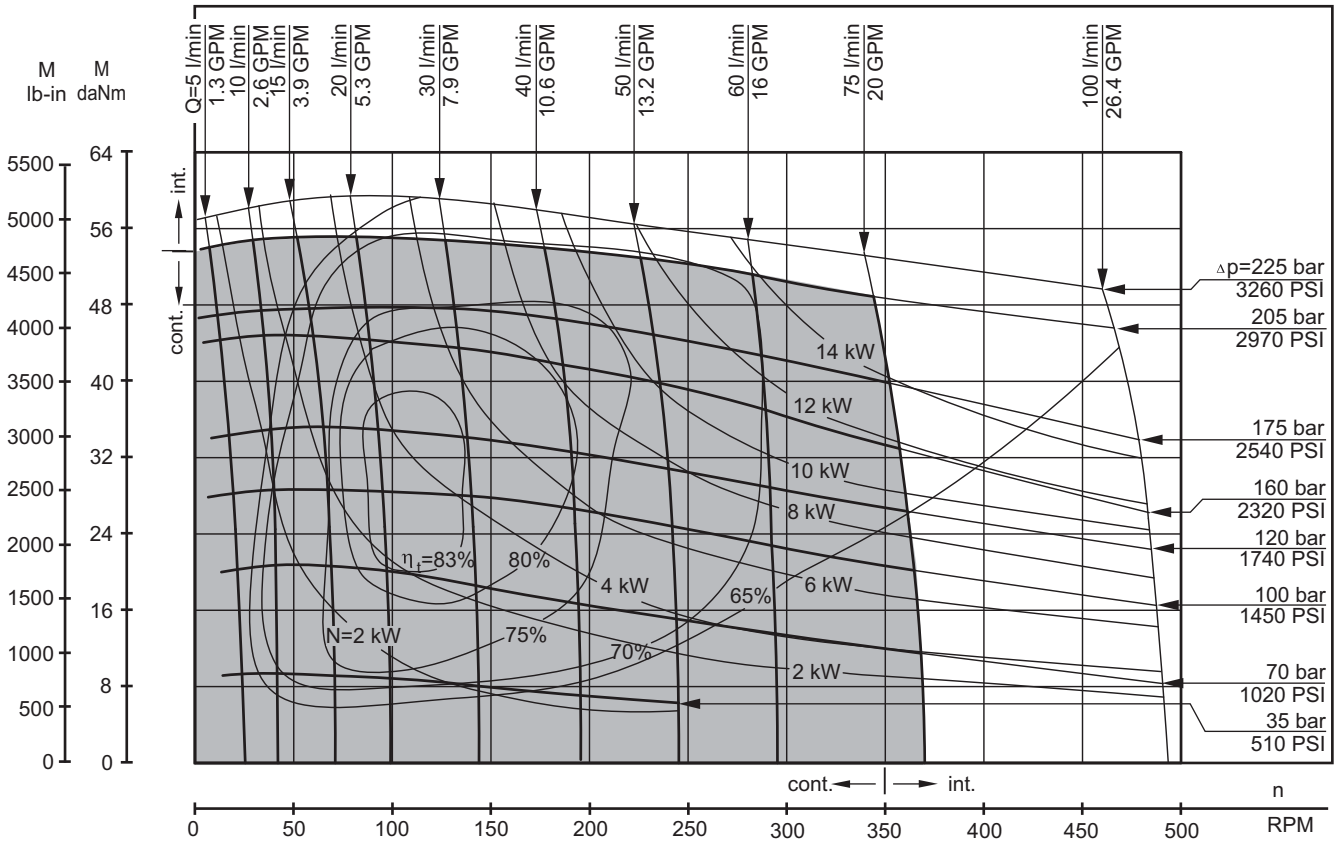
HW 160



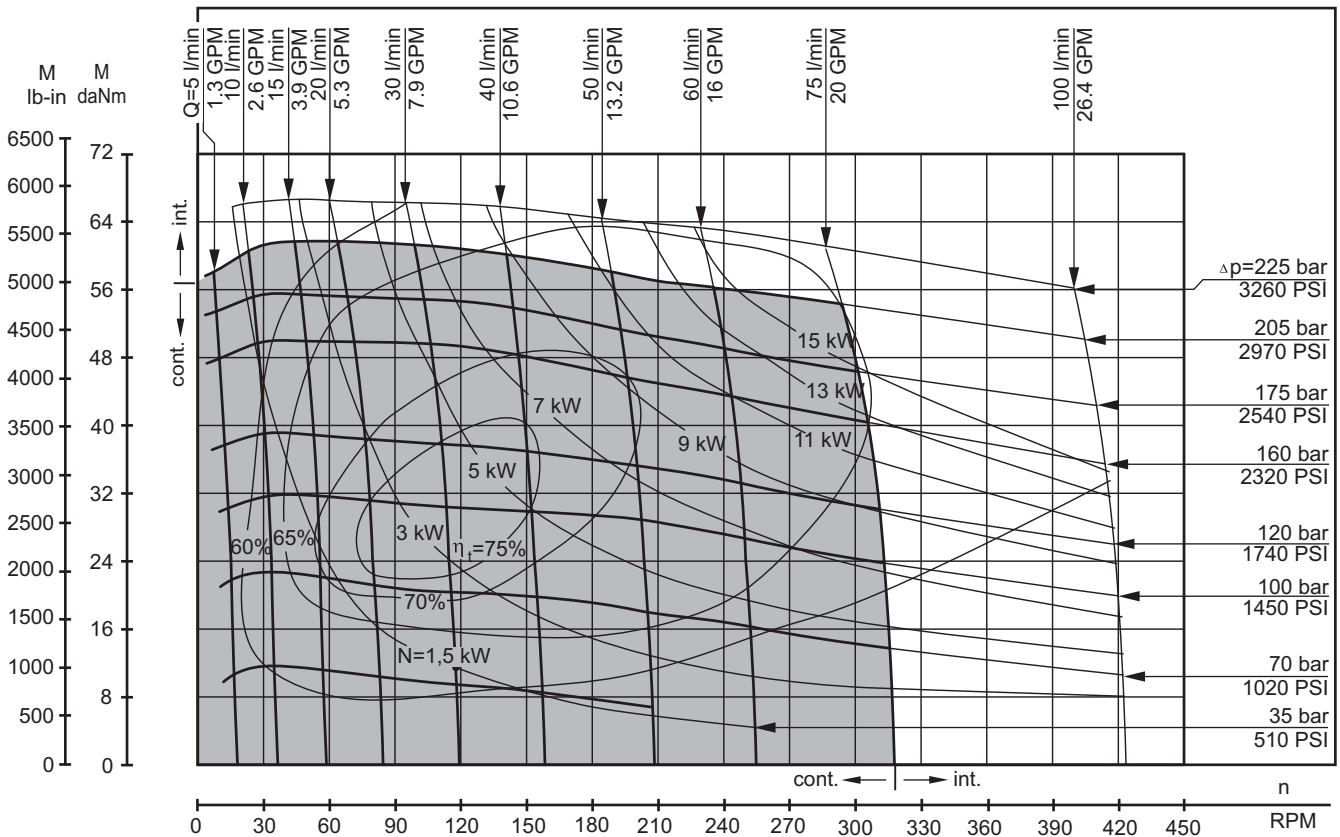
The function diagrams data is for average performance of randomly selected motors at back pressure 5±10 bar [72.5±145 PSI] and oil with viscosity of 32 mm<sup>2</sup>/s [150 SUS] at 50°C [122°F].

**FUNCTION DIAGRAMS**

**HW 200**



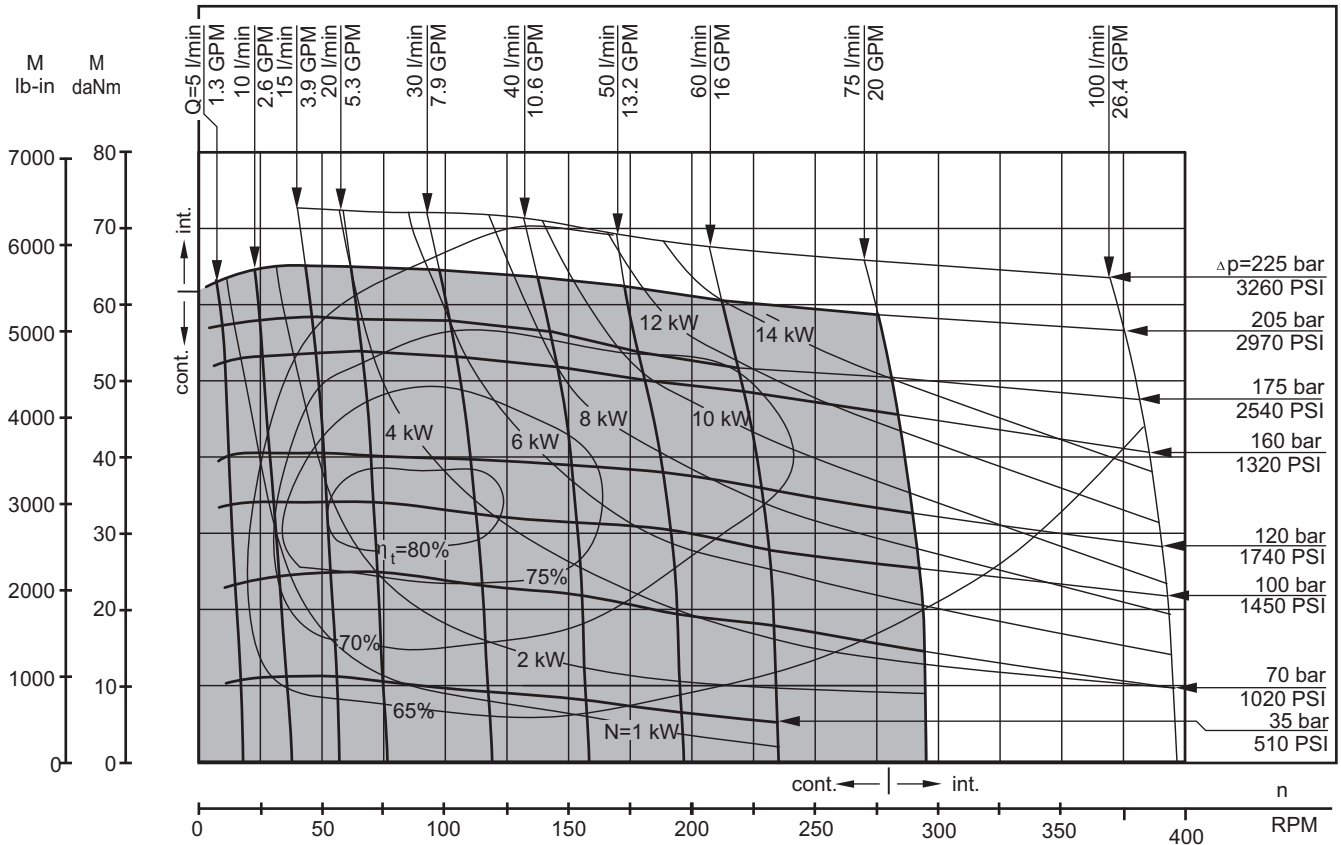
**HW 235**



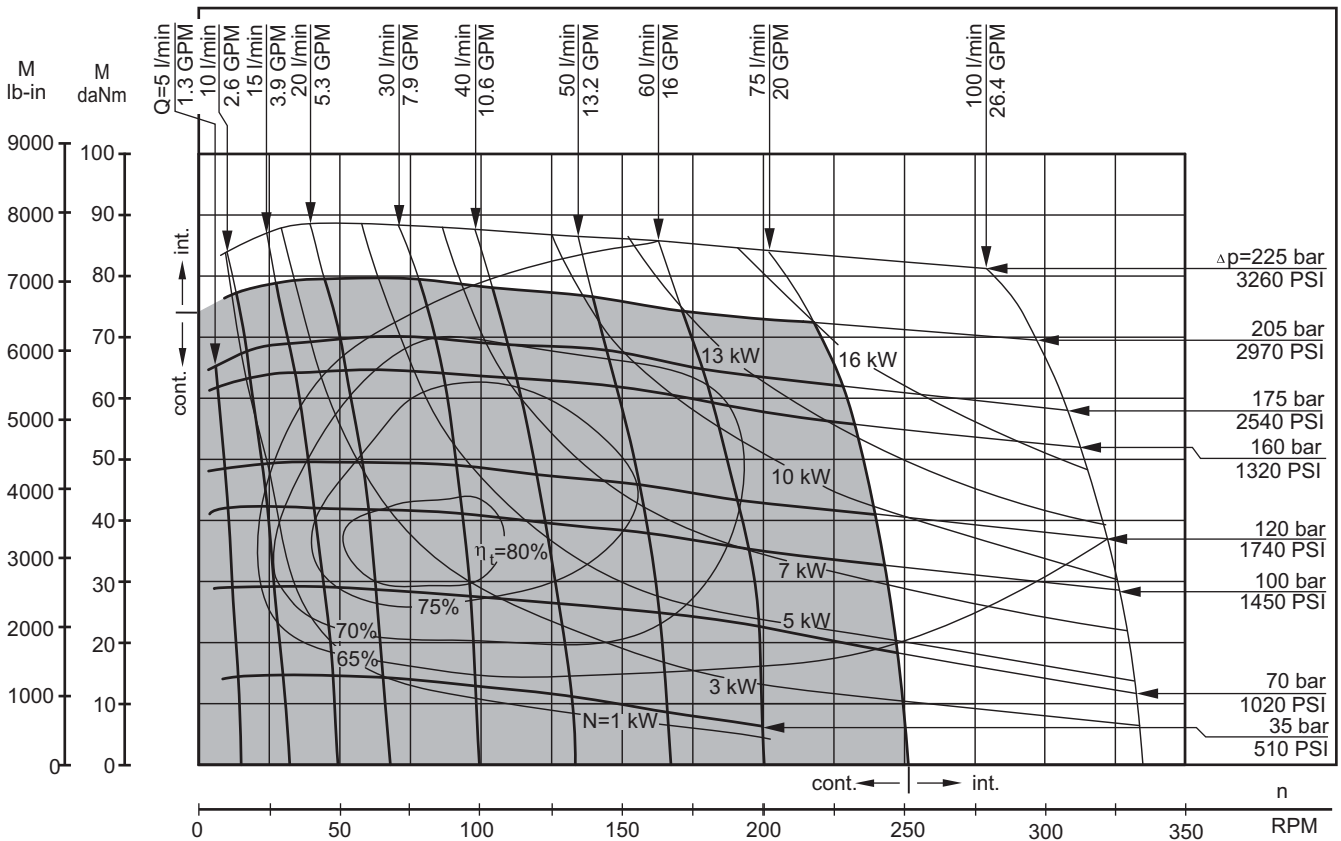
The function diagrams data is for average performance of randomly selected motors at back pressure 5±10 bar [72.5±145 PSI] and oil with viscosity of 32 mm<sup>2</sup>/s [150 SUS] at 50°C [122°F].

**FUNCTION DIAGRAMS**

**HW 250**



**HW 300**

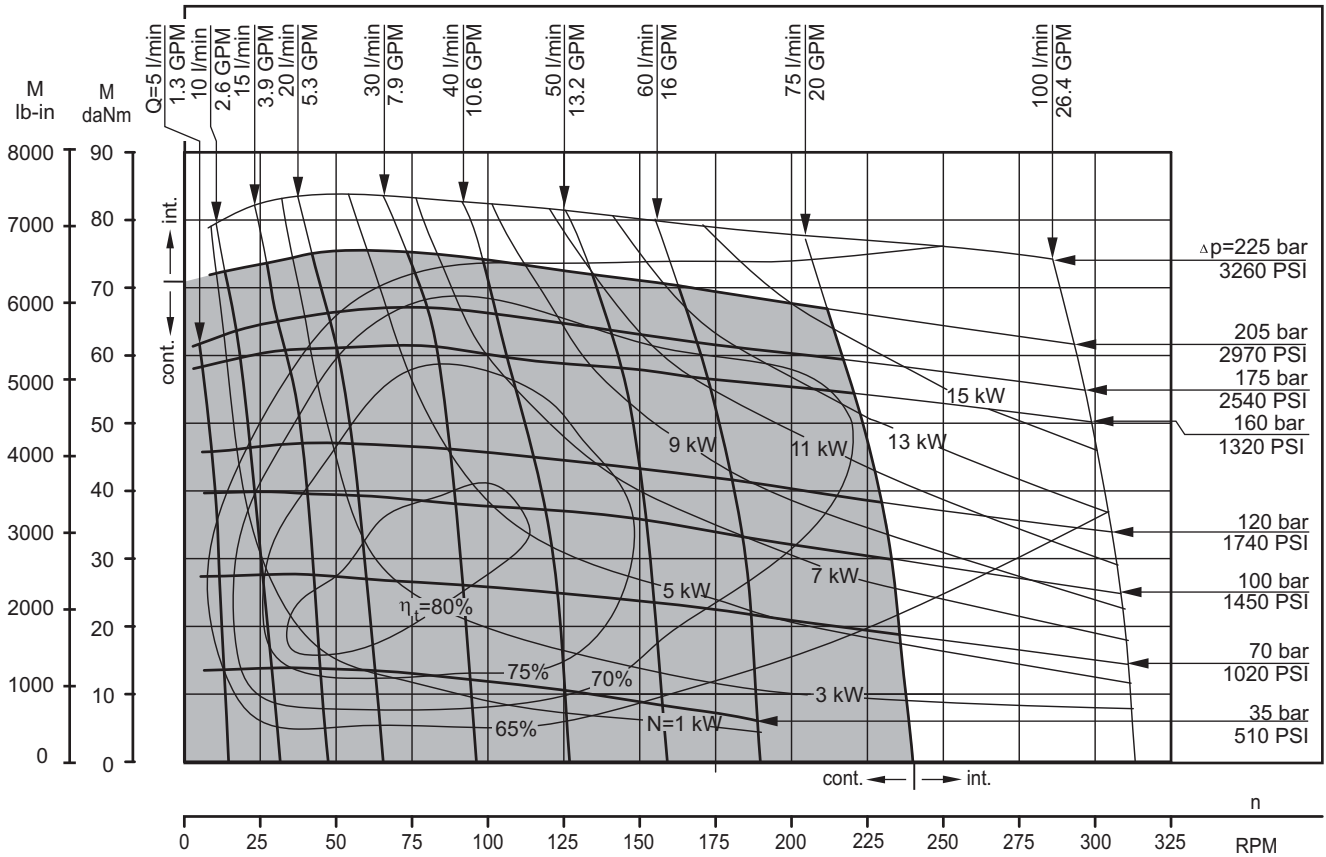


The function diagrams data is for average performance of randomly selected motors at back pressure 5÷10 bar [72.5÷145 PSI] and oil with viscosity of 32 mm<sup>2</sup>/s [150 SUS] at 50°C [122°F].

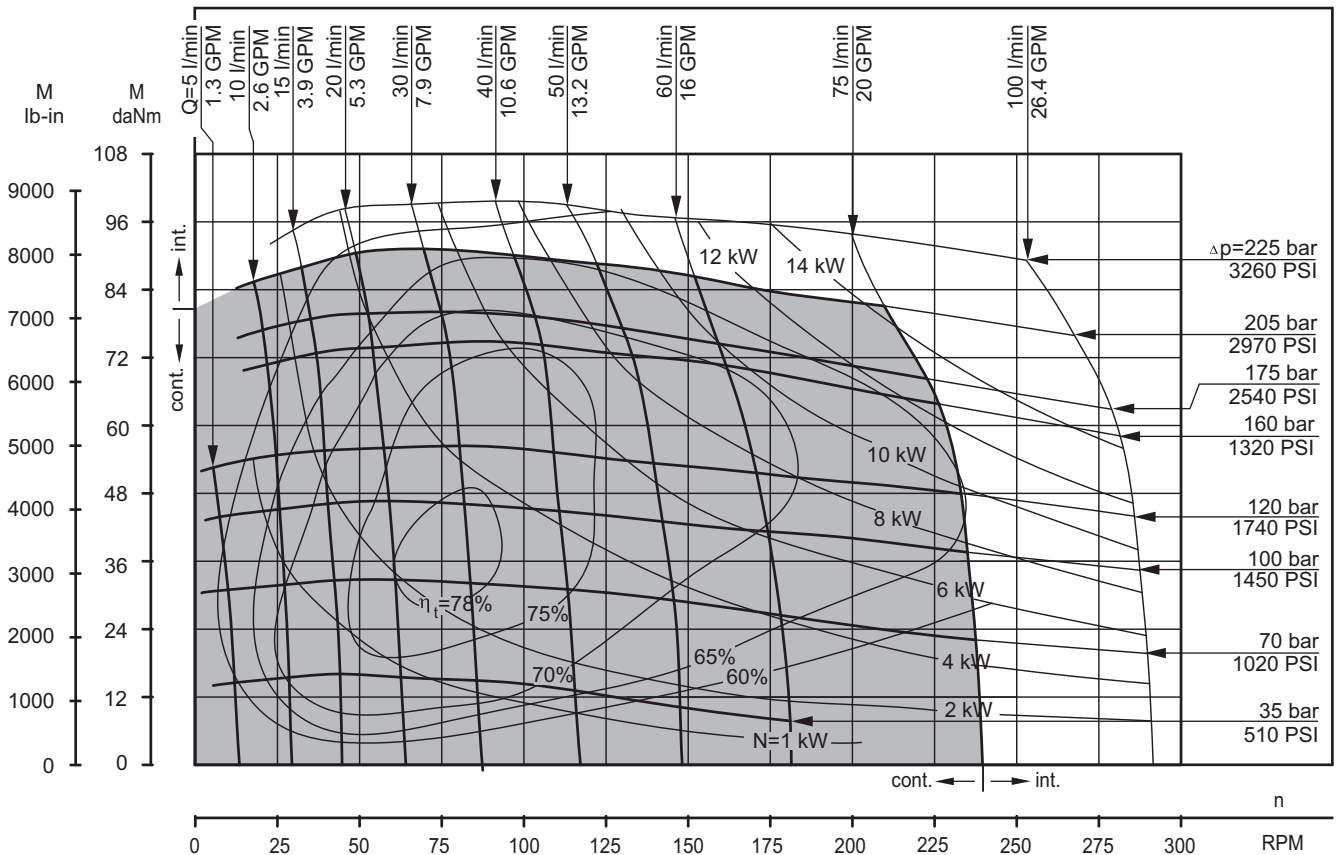


**FUNCTION DIAGRAMS**

**HW 315**



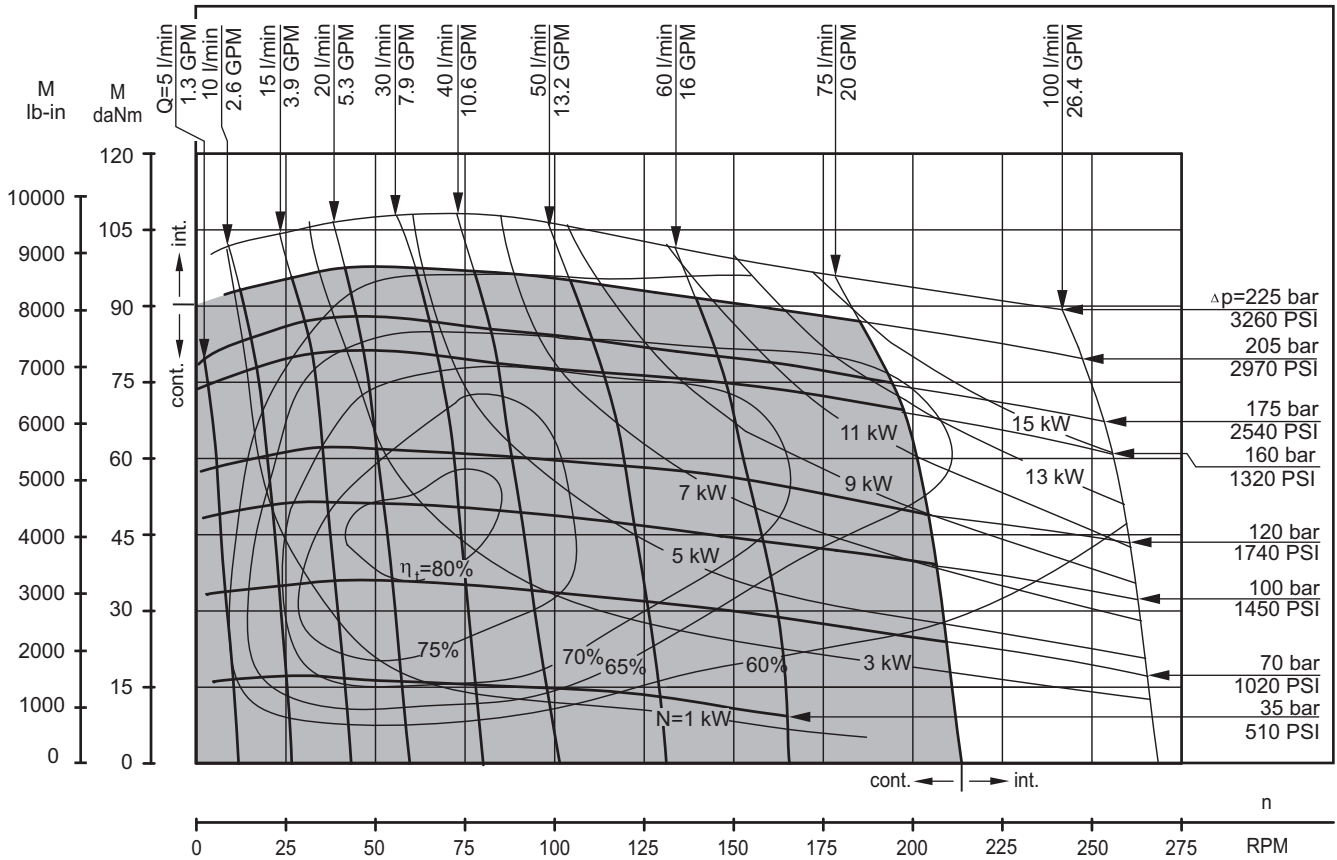
**HW 350**



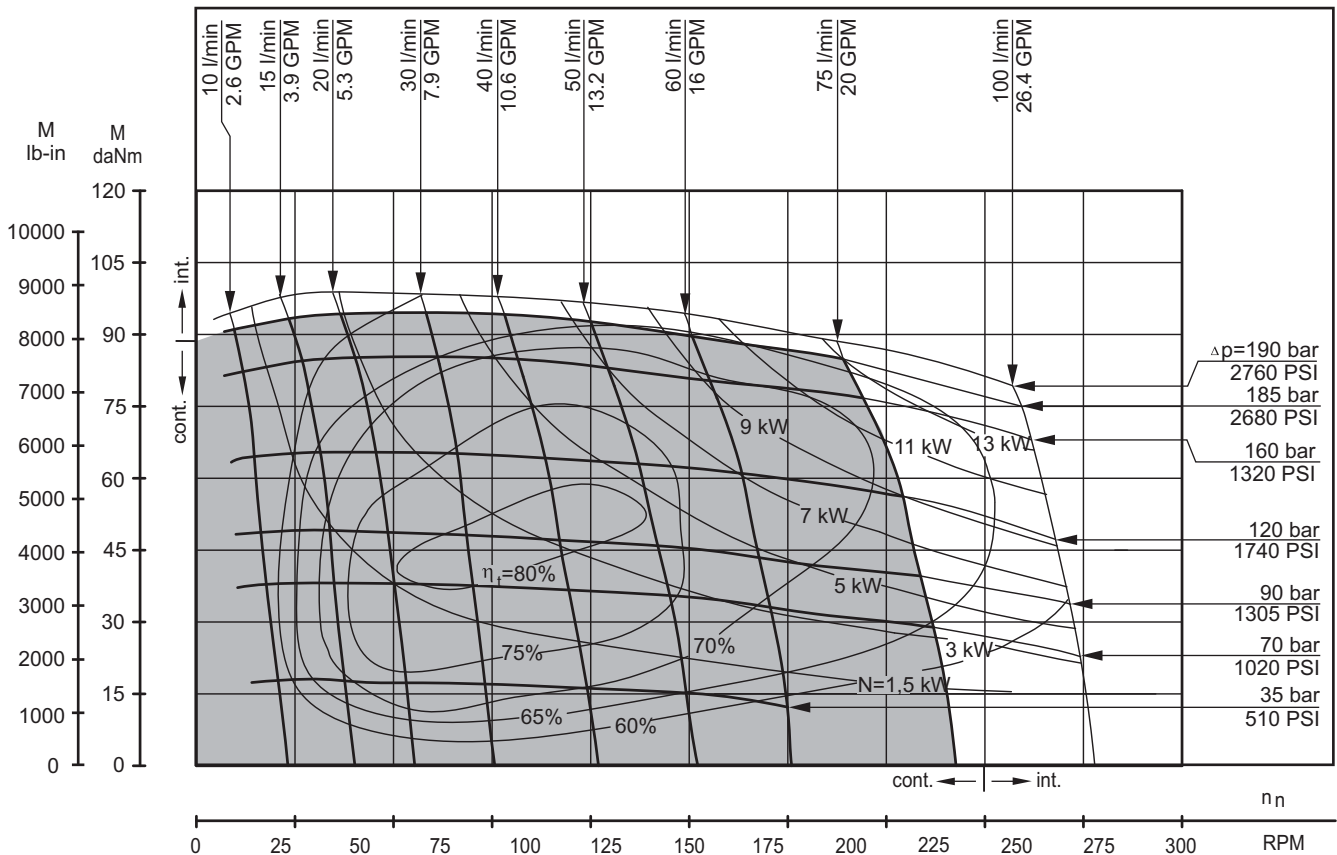
The function diagrams data is for average performance of randomly selected motors at back pressure 5±10 bar [72.5±145 PSI] and oil with viscosity of 32 mm<sup>2</sup>/s [150 SUS] at 50°C [122°F].

FUNCTION DIAGRAMS

HW 370



HW 400

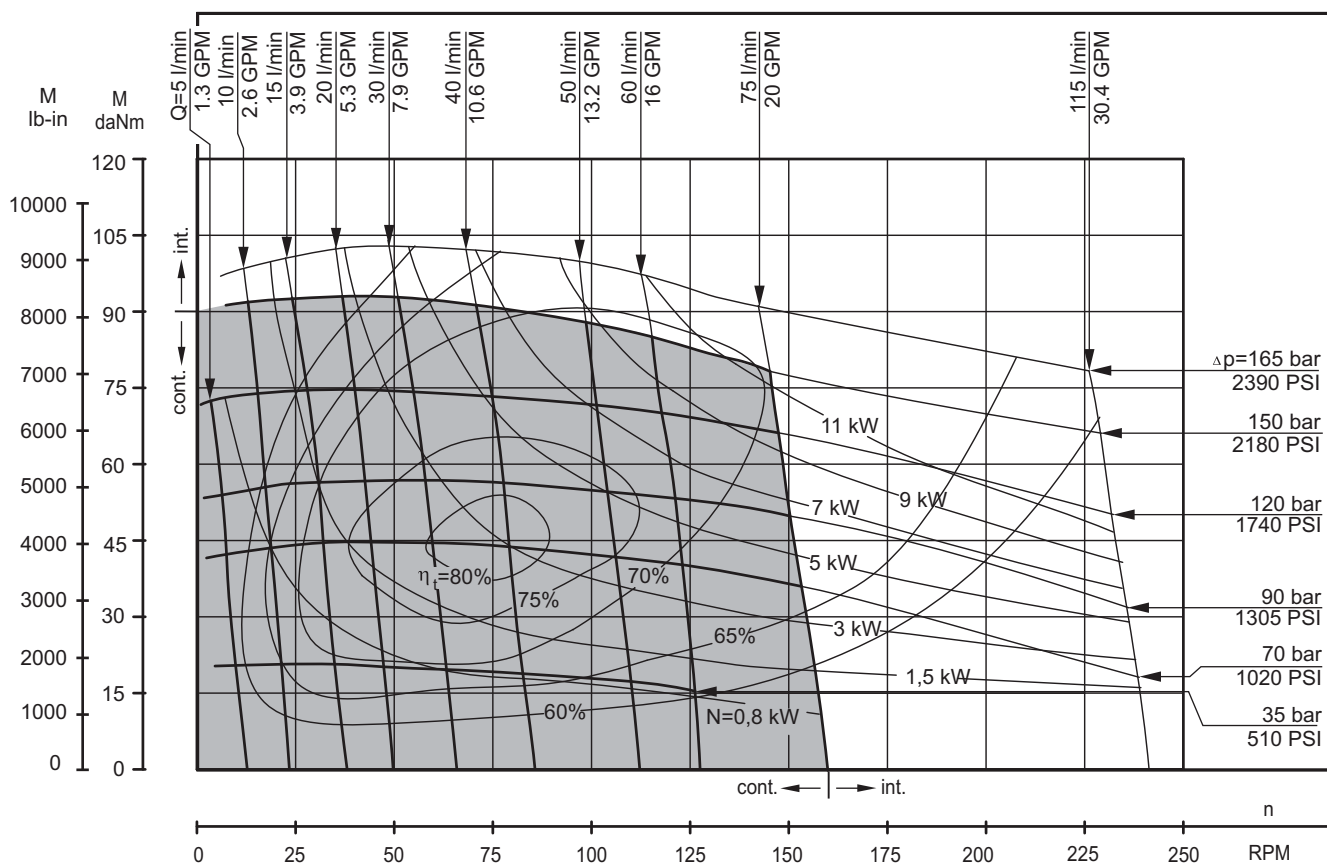


The function diagrams data is for average performance of randomly selected motors at back pressure  $5 \pm 10$  bar [72.5  $\pm$  145 PSI] and oil with viscosity of 32 mm<sup>2</sup>/s [150 SUS] at 50°C [122°F].

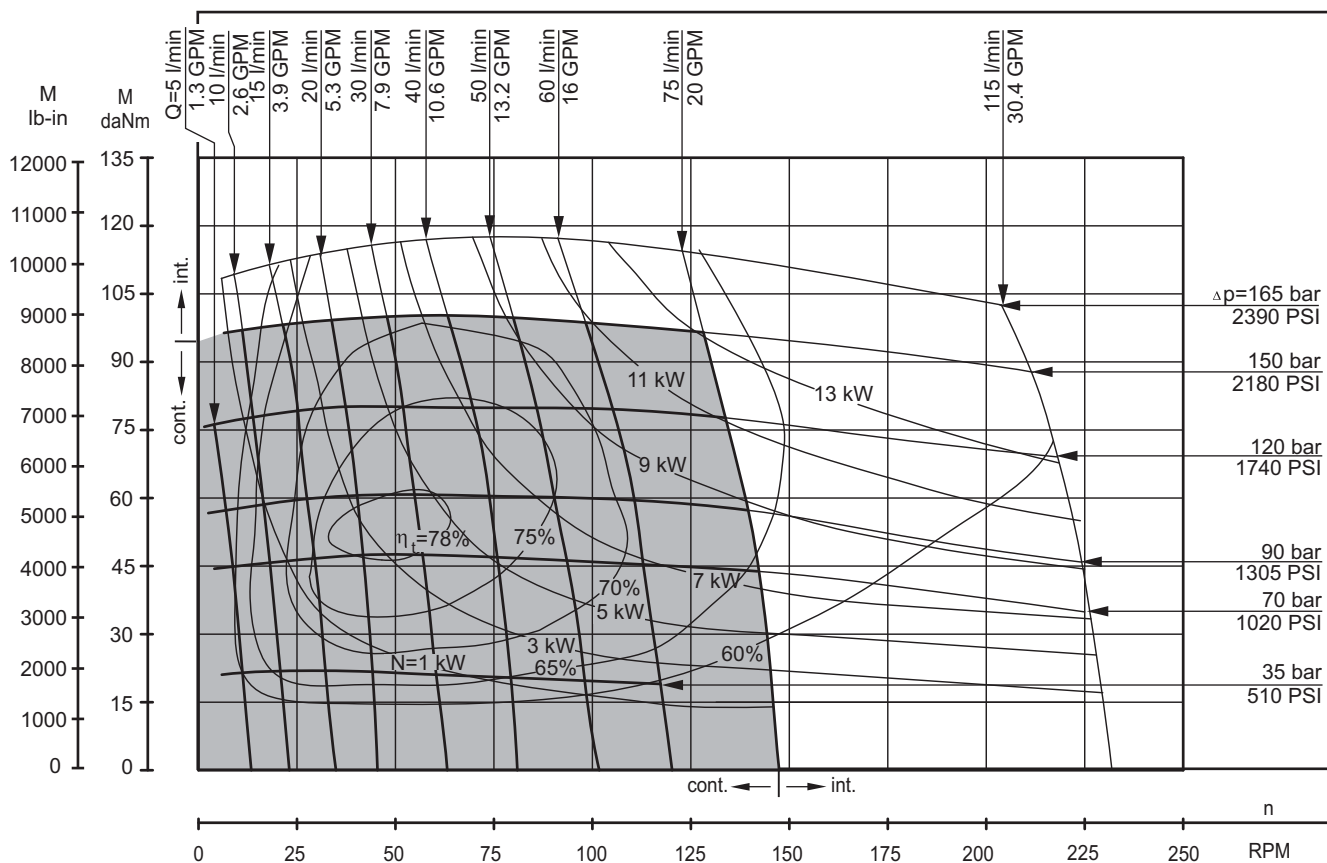


**FUNCTION DIAGRAMS**

**HW 470**



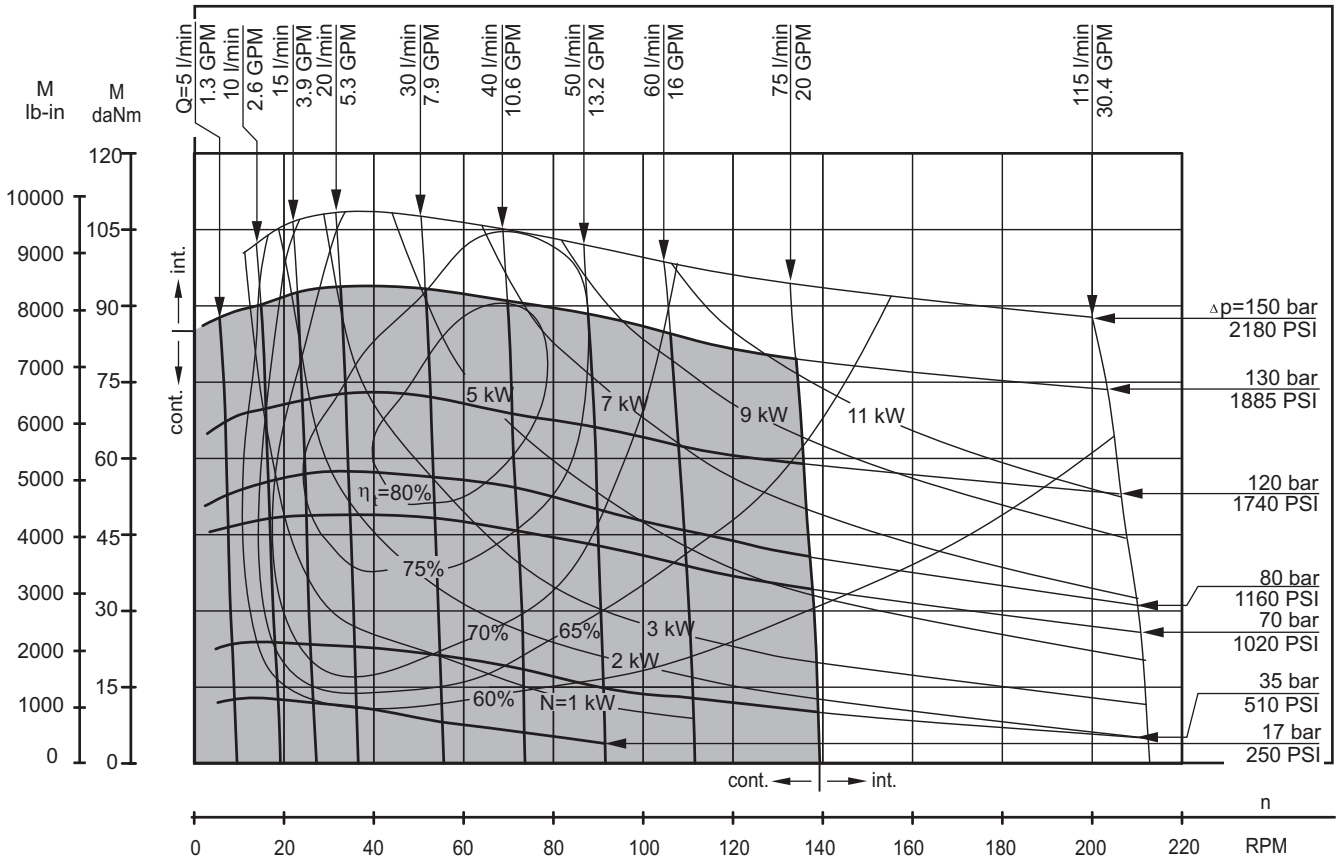
**HW 500**



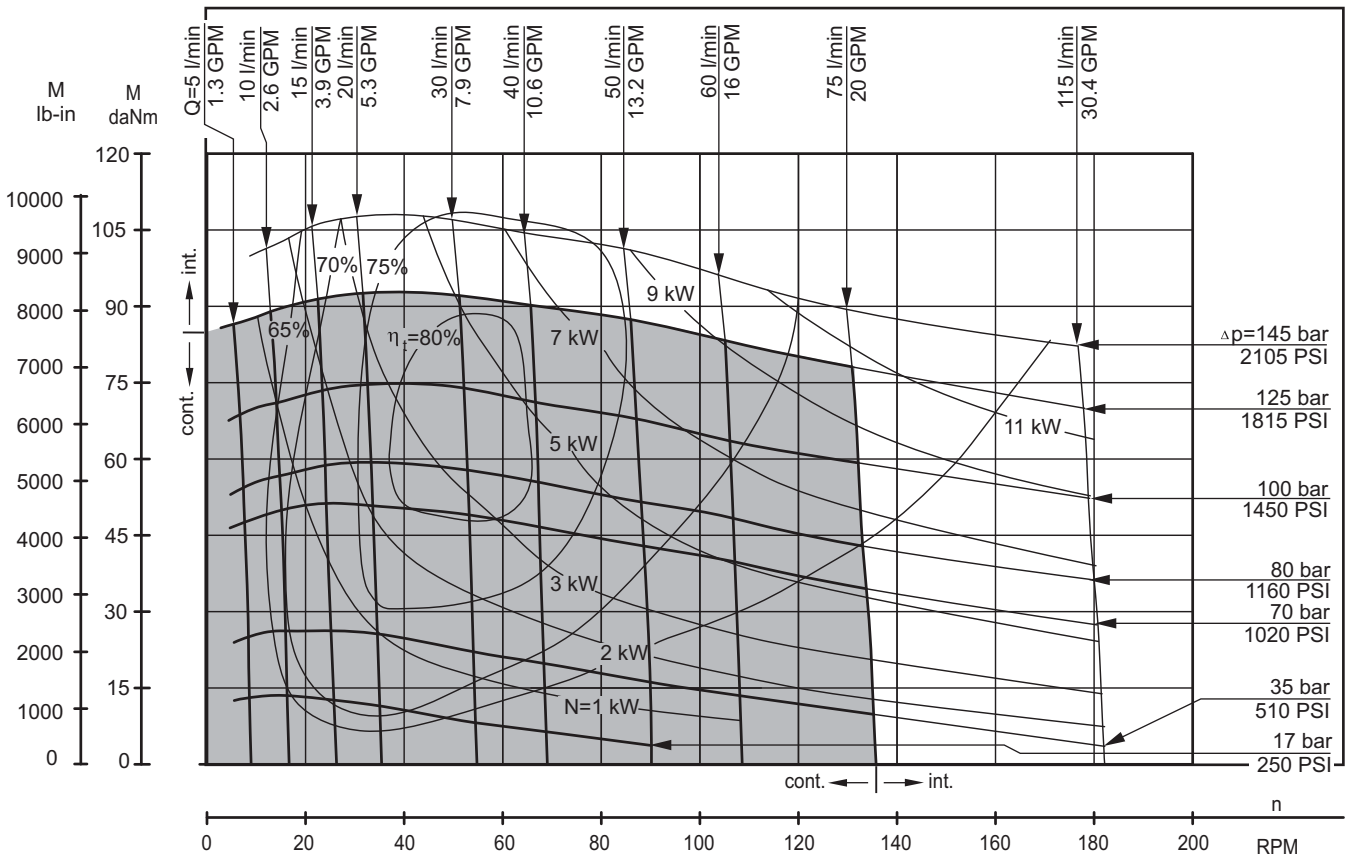
The function diagrams data is for average performance of randomly selected motors at back pressure 5±10 bar [72.5±145 PSI] and oil with viscosity of 32 mm<sup>2</sup>/s [150 SUS] at 50°C [122°F].

**FUNCTION DIAGRAMS**

**HW 535**



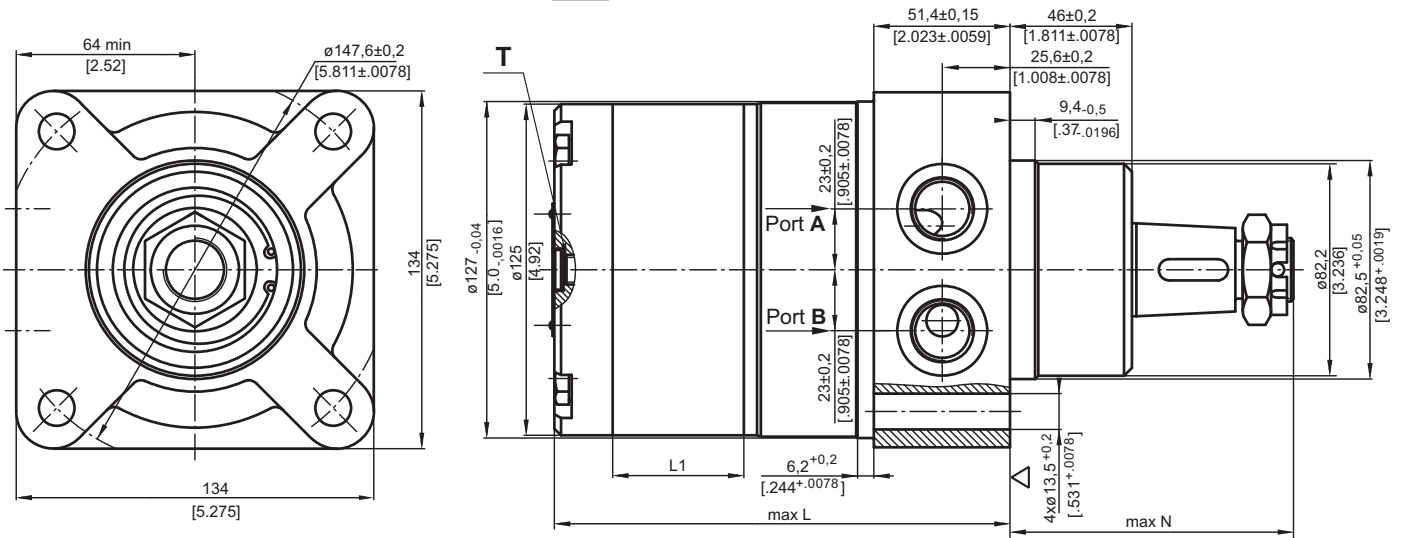
**HW 550**



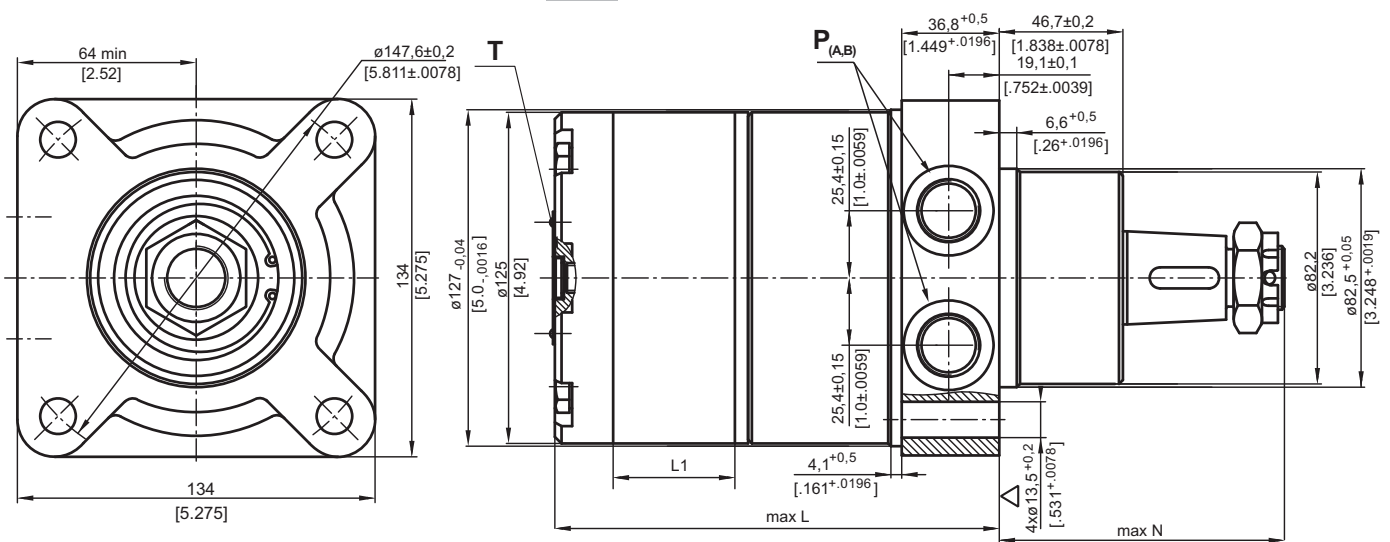
The function diagrams data is for average performance of randomly selected motors at back pressure  $5 \pm 10$  bar [72.5  $\pm$  145 PSI] and oil with viscosity of  $32 \text{ mm}^2/\text{s}$  [150 SUS] at  $50^\circ\text{C}$  [122 $^\circ\text{F}$ ].

DIMENSIONS AND MOUNTING DATA

HW - Wheel Mount



HWS - Wheel Mount



| Type   | *L, mm [in.] | L <sub>1</sub> , mm [in.] |
|--------|--------------|---------------------------|
| HW 125 | 140,5 [5.51] | 17,4 [.68]                |
| HW 160 | 145,0 [5.71] | 21,8 [.86]                |
| HW 200 | 151,0 [5.95] | 27,8 [1.09]               |
| HW 235 | 155,5 [6.12] | 32,5 [1.28]               |
| HW 250 | 158,0 [6.22] | 34,8 [1.37]               |
| HW 300 | 164,5 [6.48] | 41,4 [1.63]               |
| HW 315 | 166,5 [6.56] | 43,5 [1.71]               |
| HW 350 | 171,0 [6.73] | 48,0 [1.89]               |
| HW 370 | 174,0 [6.85] | 51,0 [2.01]               |
| HW 400 | 178,0 [7.01] | 54,8 [2.16]               |
| HW 470 | 188,0 [7.40] | 65,0 [2.56]               |
| HW 500 | 192,5 [7.58] | 69,4 [2.73]               |
| HW 535 | 197,0 [7.76] | 74,1 [2.92]               |
| HW 550 | 199,0 [7.84] | 76,0 [2.99]               |

Note: For N see page 96.

▽ - Motor Mounting Surface

|                    | Versions |                        |
|--------------------|----------|------------------------|
|                    | 2        | 4                      |
| P <sub>(A,B)</sub> | 2xG½     | 2x7/8-14UNF,<br>O-ring |
| T                  | G ¼      | 7/16-20UNF,<br>O-ring  |

Standard Rotation

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

Reverse Rotation

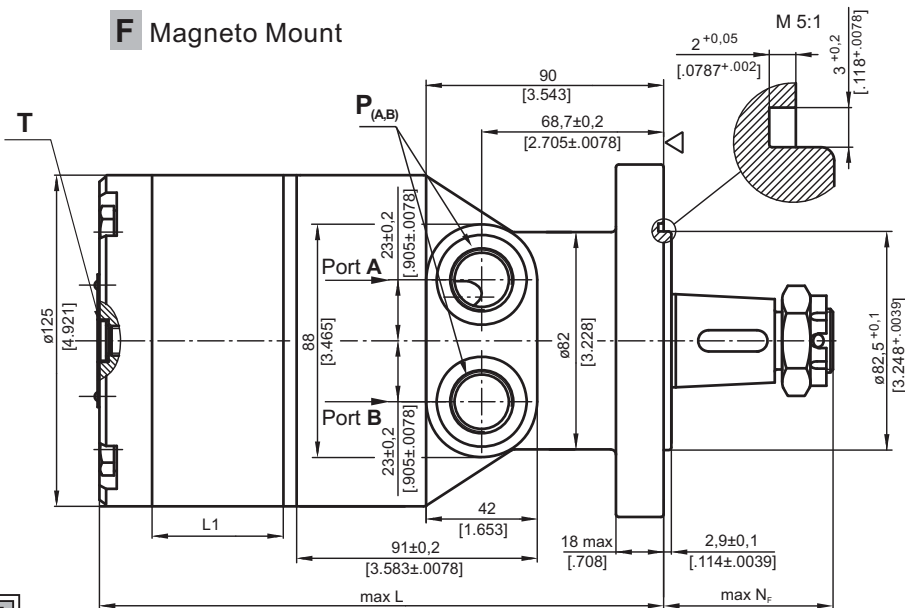
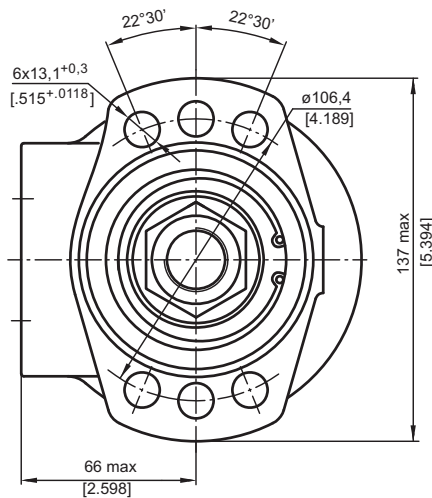
Viewed from Shaft End  
Port A Pressurized - CCW  
Port B Pressurized - CW



\* For LSV option the dimension L is 3 mm [1.18 in] greater.

**DIMENSIONS AND MOUNTING DATA - HWF**

**F Magneto Mount**



Note: For N<sub>F</sub> see page 96.

▽ - Motor Mounting Surface

| Type    | *L, mm [in.] | L <sub>1</sub> , mm [in.] |
|---------|--------------|---------------------------|
| HWF 125 | 184,0 [7.24] | 17,4 [.68]                |
| HWF 160 | 188,5 [7.42] | 21,8 [.86]                |
| HWF 200 | 194,5 [7.66] | 27,8 [1.09]               |
| HWF 235 | 199,0 [7.84] | 32,5 [1.28]               |
| HWF 250 | 201,5 [7.93] | 34,8 [1.37]               |
| HWF 300 | 208,0 [8.20] | 41,4 [1.63]               |
| HWF 315 | 210,0 [8.27] | 43,5 [1.71]               |
| HWF 350 | 214,5 [8.45] | 48,0 [1.89]               |
| HWF 370 | 217,5 [8.56] | 51,0 [2.01]               |
| HWF 400 | 221,5 [8.72] | 54,8 [2.16]               |
| HWF 470 | 231,5 [9.11] | 65,0 [2.56]               |
| HWF 500 | 236,0 [9.29] | 69,4 [2.73]               |
| HWF 535 | 240,5 [9.47] | 74,1 [2.92]               |
| HWF 550 | 242,5 [9.55] | 76,0 [2.99]               |

|                    | Versions |                      |
|--------------------|----------|----------------------|
|                    | 2        | 4                    |
| P <sub>(A,B)</sub> | 2xG½     | 2x½-14UNF,<br>O-ring |
| T                  | G ¼      | ¼-20UNF,<br>O-ring   |

**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

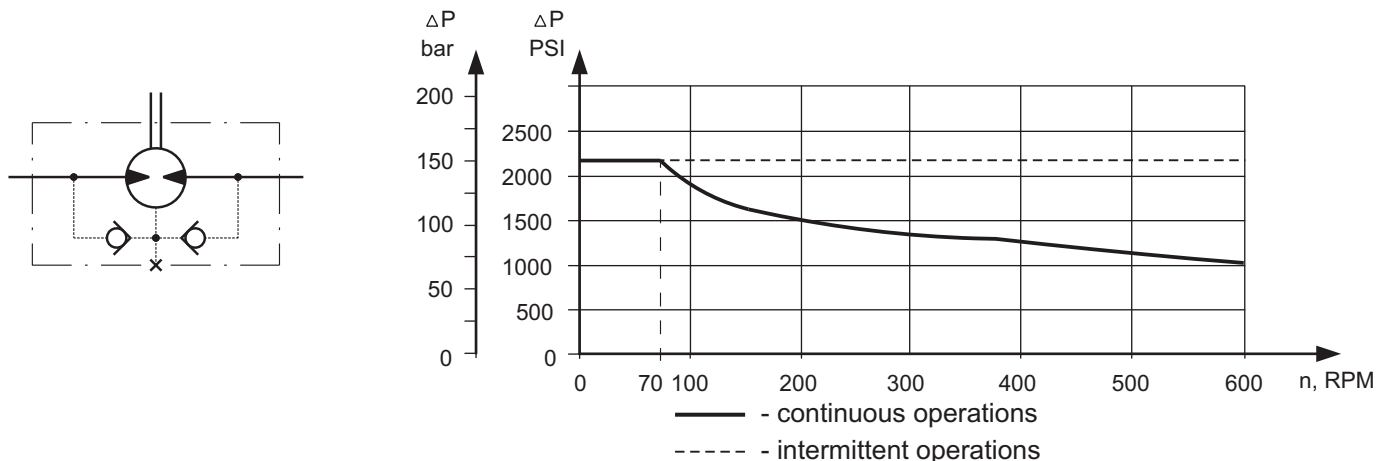


\* For LSV option the dimension L is 3 mm [.118 in] greater.

**MAX. PERMISSIBLE SHAFT SEAL PRESSURE**

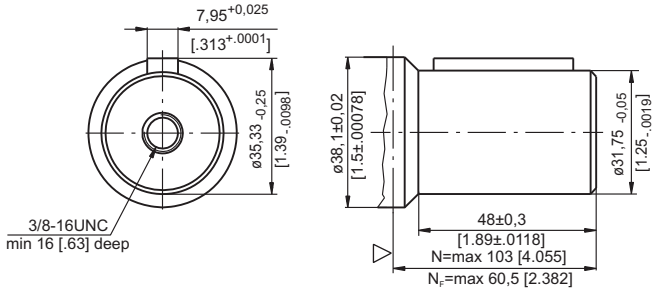
**HW... motors with drain connection:**

The shaft seal pressure equals the pressure in the drain line.

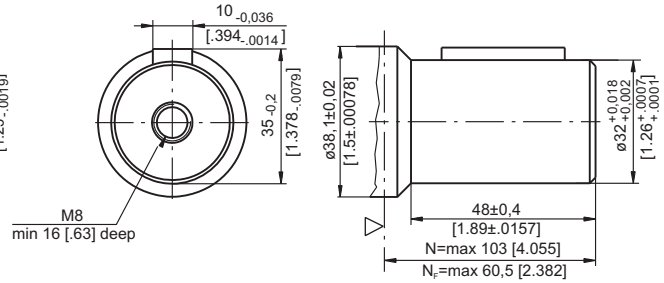


**SHAFT EXTENSIONS**

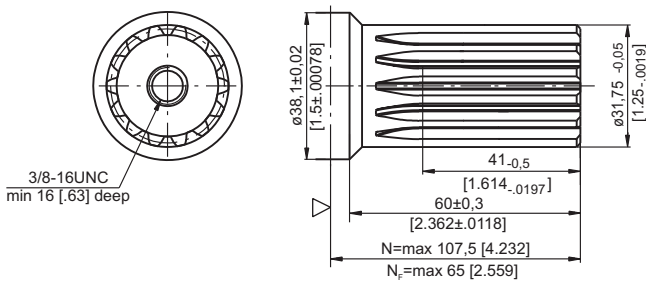
**K** - 1 1/4" straight, Parallel key 5/16"x5/16"x1 1/2" BS46  
Max. Torque 77 daNm [6815 lb-in]



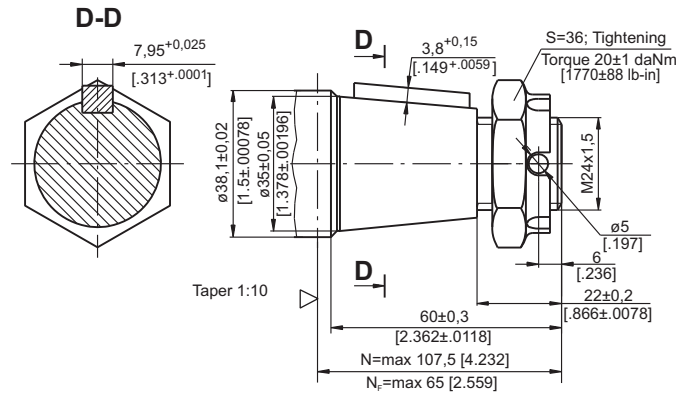
**M** - ø32 straight, Parallel key A10x8x32 DIN 6885  
Max. Torque 77 daNm [6815 lb-in]



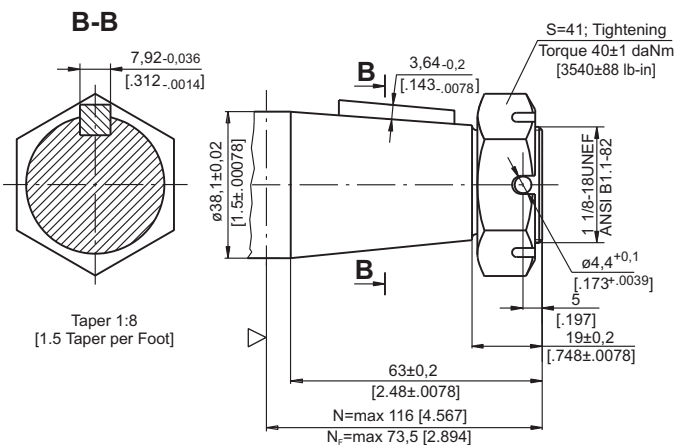
**L** - ø1 1/4" splined 14T, DP12/24 ANSI B92.1-1976 Norm  
Max. Torque 77 daNm [6815 lb-in]



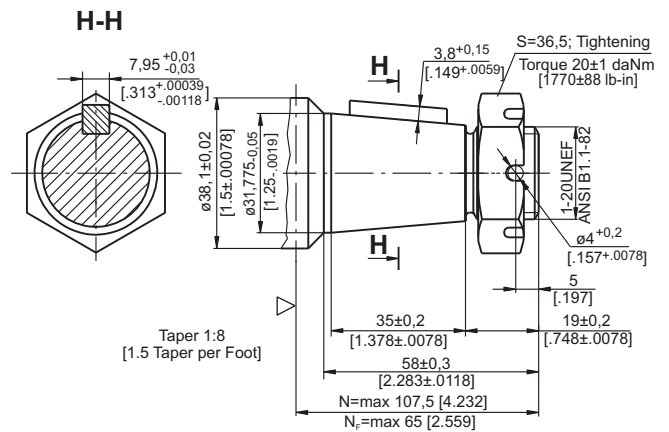
**KB** - ø35 tapered 1:10, Parallel key 5/16"x5/16"x1 1/4" BS46  
Max. Torque 95 daNm [8410 lb-in]



**T** - 1 1/2" tapered 1:8, Parallel key 5/16"x5/16"x1 1/4" BS46  
Max. Torque 120 daNm [10620 lb-in]



**R** - 1 1/4" tapered 1:8, Parallel key 5/16"x5/16"x1" BS46  
Max. Torque 77 daNm [6815 lb-in]



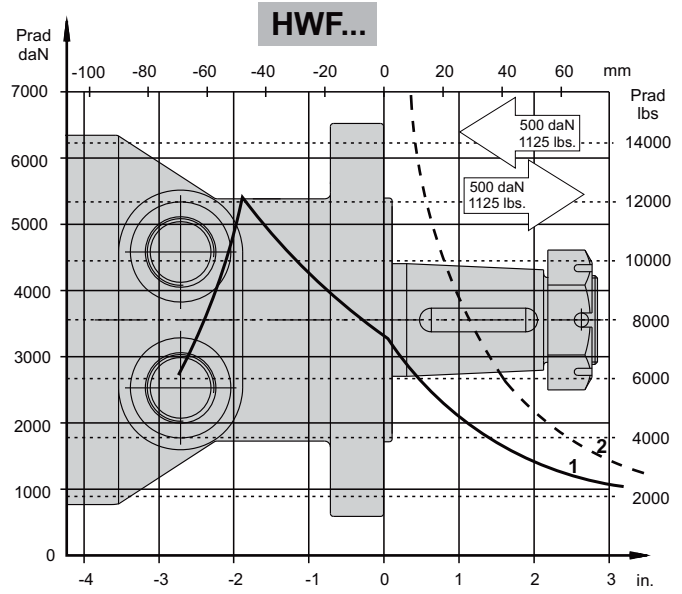
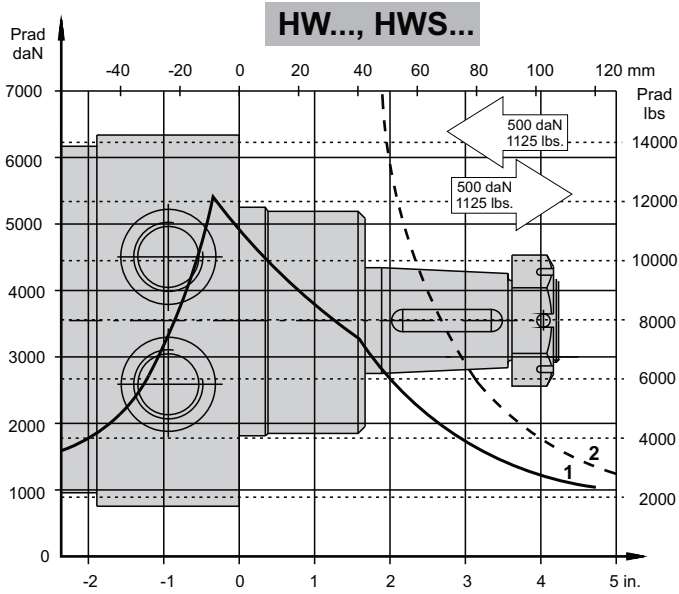
▽ - Motor Mounting Surface

N - for standart and S flange

Nf - for F flange



**PERMISSIBLE SHAFT LOADS**



1 - Bearing curve: The curve applies to a B10 bearing life of 2000 hours at 100 RPM.  
2 - Shaft curve: The curve represents Max. permissible radial shaft load with safety factor 3:1.

**ORDER CODE**

|           |   |   |   |   |   |   |
|-----------|---|---|---|---|---|---|
|           | 1 | 2 | 3 | 4 | 5 | 6 |
| <b>HW</b> |   |   |   |   |   |   |

**Pos.1 - Mounting Flange**

omit - Wheel mount, four holes

|          |                           |
|----------|---------------------------|
| <b>F</b> | -Oval mount, six holes    |
| <b>S</b> | - Wheel mount, four holes |

**Pos.2 - Displacement code**

|            |                                                           |
|------------|-----------------------------------------------------------|
| <b>125</b> | - 126,0 cm <sup>3</sup> /rev [7.69 in <sup>3</sup> /rev]  |
| <b>160</b> | - 158,0 cm <sup>3</sup> /rev [9.64 in <sup>3</sup> /rev]  |
| <b>200</b> | - 201,3 cm <sup>3</sup> /rev [12.28 in <sup>3</sup> /rev] |
| <b>235</b> | - 235,0 cm <sup>3</sup> /rev [14.33 in <sup>3</sup> /rev] |
| <b>250</b> | - 252,0 cm <sup>3</sup> /rev [15.37 in <sup>3</sup> /rev] |
| <b>300</b> | - 300,0 cm <sup>3</sup> /rev [18.30 in <sup>3</sup> /rev] |
| <b>315</b> | - 314,9 cm <sup>3</sup> /rev [19.21 in <sup>3</sup> /rev] |
| <b>350</b> | - 347,8 cm <sup>3</sup> /rev [21.21 in <sup>3</sup> /rev] |
| <b>370</b> | - 369,0 cm <sup>3</sup> /rev [22.51 in <sup>3</sup> /rev] |
| <b>400</b> | - 396,8 cm <sup>3</sup> /rev [24.20 in <sup>3</sup> /rev] |
| <b>470</b> | - 470,6 cm <sup>3</sup> /rev [28.71 in <sup>3</sup> /rev] |
| <b>500</b> | - 502,4 cm <sup>3</sup> /rev [30.65 in <sup>3</sup> /rev] |
| <b>535</b> | - 536,0 cm <sup>3</sup> /rev [32.70 in <sup>3</sup> /rev] |
| <b>550</b> | - 550,0 cm <sup>3</sup> /rev [33.55 in <sup>3</sup> /rev] |

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

|           |                                                            |
|-----------|------------------------------------------------------------|
| <b>K</b>  | - 1¼"[31,75] straight, Parallel key 5/16"x5/16"x1½" BS46   |
| <b>KB</b> | - ø35 tapered 1:10, Parallel key 5/16"x5/16"x1¼" BS46      |
| <b>L</b>  | - 1¼"[31,75] splined 14T, ANSI B92.1-1976                  |
| <b>M</b>  | - ø32 straight, Parallel key A10x8x32 DIN 6885             |
| <b>R</b>  | - 1¼"[31,75] Tapered 1:8, Parallel key 5/16"x5/16"x1" BS46 |
| <b>T</b>  | - 1½"[38,1] Tapered 1:8, Parallel key 5/16"x5/16"x1¼" BS46 |

**Pos.4 - Ports**

|          |                        |
|----------|------------------------|
| <b>2</b> | - BSPP (ISO 228)       |
| <b>4</b> | - SAE (ANSI B1.1-1982) |

**Pos.5 - Special Features [see page 99]**

**Pos.6 - Design Series**

omit - Factory specified

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

The hydraulic motors are manganophosphatized as standard.