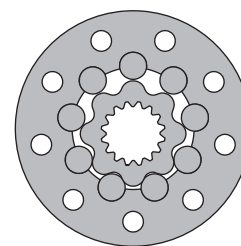
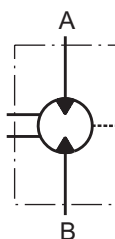


# HYDRAULIC MOTORS TMF



## APPLICATION

- » Marine equipment
- » Forestry equipment
- » Metal working machines
- » Agricultural machines
- » Road building machines
- » Mining machinery
- » Special vehicles etc.



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## OPTIONS

- » Model - Disc valve, roll-gerotor
- » Wheel mounting flange
- » Side ports
- » Shaft - thread hole flange
- » SAE and BSPP ports
- » Other special features

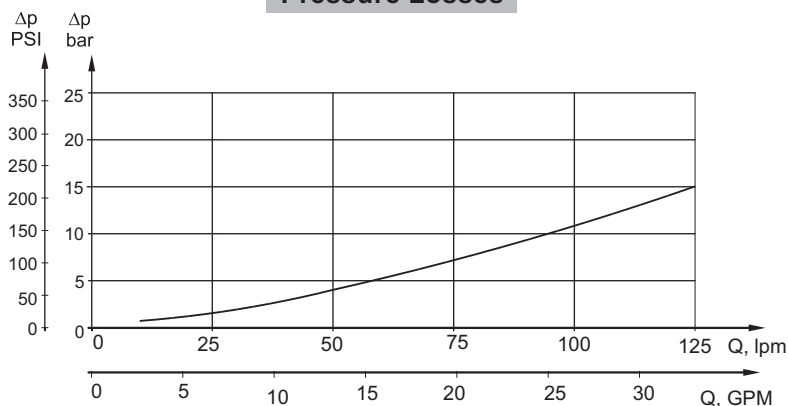
## GENERAL

|   |  |
|---|--|
| <b>Max. Displacement,</b> in <sup>3</sup> /rev [cm <sup>3</sup> /rev] | 44.2 [724,3]   |
| <b>Max. Speed,</b> [RPM]  | 750  |
| <b>Max. Torque,</b> lb-in [daNm]                                      | cont.: 16200 [183] int.: 20270 [229]                             |
| <b>Max. Output,</b> HP [kW]   | 94 [70]  |
| <b>Max. Pressure Drop,</b> PSI [bar]                                  | cont.: 3600 [250] int.: 5080 [350]                               |
| <b>Max. Oil Flow,</b> GPM [lpm]                                       | 40 [150]   |
| <b>Min. Speed,</b> [RPM]  | 5  |
| <b>Permissible Shaft Loads</b> lbs [daN]                              | P <sub>a</sub> =2250 [1000]                                      |
| <b>Pressure fluid</b>   | Mineral based- HLP(DIN 51524) or HM(ISO 6743/4)                  |
| <b>Temperature range,</b> °F [°C]                                     | -40÷284 [-40÷140]  |
| <b>Optimal Viscosity range, SUS [mm<sup>2</sup>/s]</b>                | 98÷347 [20÷75]   |
| <b>Filtration</b>   | ISO code 20/16 (Min. recommended fluid filtration of 25 microns) |

### Oil flow in drain line

| Pressure drop<br>PSI [bar] | Viscosity<br>SUS [mm <sup>2</sup> /s] | Oil flow in<br>drain line<br>GPM [lpm] |
|----------------------------|---------------------------------------|--|
| 2030 [140]                 | 98 [20]                               | .660 [2,5]                             |
|                            | 164 [35]                              | .396 [1,5]                             |
| 3045 [210]                 | 98 [20]                               | 1.321 [5]                              |
|                            | 164 [35]                              | .793 [3]                               |

### Pressure Losses



## SPECIFICATION DATA

| Type   | TMF 200           | TMF 250          | TMF 315         | TMF 400          | TMF 470        | TMF 500          | TMF 630          | TMF 725       |
|--|-------------------|------------------|-----------------|------------------|----------------|------------------|------------------|---------------|
| <b>Displacement, in<sup>3</sup>/rev [cm<sup>3</sup>/rev]</b>                             | 12.29<br>[201,4]  | 15.36<br>[251,8] | 19.9<br>[326,3] | 25.06<br>[410,9] | 28.97<br>[475] | 31.95<br>[523,6] | 38.52<br>[631,2] | 44.2<br>[724] |
| <b>Max. Speed, [RPM]</b>   | Cont.             | 625              | 500             | 380              | 305            | 260              | 240              | 190           |
|  | Int.*             | 750              | 600             | 460              | 365            | 315              | 285              | 230           |
| <b>Max. Torque lb-in [daNm]</b>  | Cont.             | 6550 [74]        | 7965[90]        | 10265[116]       | 13010[147]     | 15135[171]       | 15225[172]       | 16200[183]    |
|  | Int.*             | 9030[102]        | 11330[128]      | 14425[163]       | 18232[206]     | 16030[215]       | 19030[215]       | 20270[229]    |
|  | Peak**            | 10180[115]       | 12745[144]      | 16460[186]       | 20800[235]     | 21240[240]       | 21240[240]       | 24250[274]    |
| <b>Max. Output HP [kW]</b>   | Cont.             | 55 [41]          | 55 [41]         | 55 [41]          | 55 [41]        | 55 [41]          | 50[37,5]         | 37,5 [28]     |
|  | Int.*             | 87 [65]          | 94[70]          | 94[70]           | 94[70]         | 74[55]           | 68 [51]          | 56 [42]       |
| <b>Max. Pressure Drop PSI [bar]</b>  | Cont.             | 3600[250]        | 3600[250]       | 3600[250]        | 3600[250]      | 3600[250]        | 3340[230]        | 2900[200]     |
|  | Int.*             | 5080[350]        | 5080[350]       | 5080[350]        | 5080[350]      | 4570[315]        | 4060[280]        | 3625[250]     |
|  | Peak**            | 5800[400]        | 5800[400]       | 5800[400]        | 5800[400]      | 5080[350]        | 4640[320]        | 4350[300]     |
| <b>Max. Oil Flow GPM [lpm]</b>   | Cont.             | 33[125]          | 33[125]         | 33[125]          | 33[125]        | 33[125]          | 33[125]          | 33[125]       |
|  | Int.*             | 40[150]          | 40[150]         | 40[150]          | 40[150]        | 40[150]          | 40[150]          | 40[150]       |
| <b>Max. Inlet Pressure PSI [bar]</b>   | Cont.             | 3920[270]        | 3920[270]       | 3920[270]        | 3920[270]      | 3920[270]        | 3920[270]        | 3920[270]     |
|  | Int.*             | 5370[370]        | 5370[370]       | 5370[370]        | 5370[370]      | 5370[370]        | 5370[370]        | 5370[370]     |
|  | Peak**            | 6100[420]        | 6100[420]       | 6100[420]        | 6100[420]      | 6100[420]        | 6100[420]        | 6100[420]     |
| <b>Max. Return Pressure without Drain Line or Max. Pressure in Drain Line, PSI [bar]</b> | Cont. 0-100 RPM   | 1100 [75]        | 1100 [75]       | 1100 [75]        | 1100 [75]      | 1100 [75]        | 1100 [75]        | 1100 [75]     |
|  | Cont. 100-300 RPM | 580 [40]         | 580 [40]        | 580 [40]         | 580 [40]       | 580 [40]         | 580 [40]         | 580 [40]      |
|  | Cont. >300 RPM    | 290 [20]         | 290 [20]        | 290 [20]         | 290 [20]       | 290 [20]         | -                | -             |
|  | Int.* 0-max. RPM  | 1100 [75]        | 1100 [75]       | 1100 [75]        | 1100 [75]      | 1100 [75]        | 1100 [75]        | 1100 [75]     |
| <b>Max. Return Pressure with Drain Line PSI [bar]</b>                                    | Cont.             | 3920[270]        | 3920[270]       | 3920[270]        | 3920[270]      | 3920[270]        | 3920[270]        | 3920[270]     |
|  | Int.*             | 5370[370]        | 5370[370]       | 5370[370]        | 5370[370]      | 5370[370]        | 5370[370]        | 5370[370]     |
|  | Peak**            | 6100[420]        | 6100[420]       | 6100[420]        | 6100[420]      | 6100[420]        | 6100[420]        | 6100[420]     |
| <b>Max. Starting Pressure with Unloaded Shaft, PSI [bar]</b>                             | 90 [6]            | 90 [6]           | 90 [6]          | 90 [6]           | 90 [6]         | 90 [6]           | 90 [6]           | 90 [6]        |
| <b>Min. Starting Torque lb-in [daNm]</b>   | 5310[60]          | 6640[75]         | 8585[97]        | 10800[122]       | 12570[142]     | 12655[143]       | 12830[145]       | 13100[148]    |
| <b>Min. Speed***, [RPM]</b>  | 5                 | 5                | 5               | 5                | 5              | 5                | 5                | 5             |
| <b>Weight, lb [kg]</b>   | 59.3 [26,9]       | 60.2 [27,3]      | 62 [28,1]       | 64 [29]          | 65.5 [29,7]    | 66.6 [30,2]      | 65.5 [29,7]      | 68.4 [31]     |

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

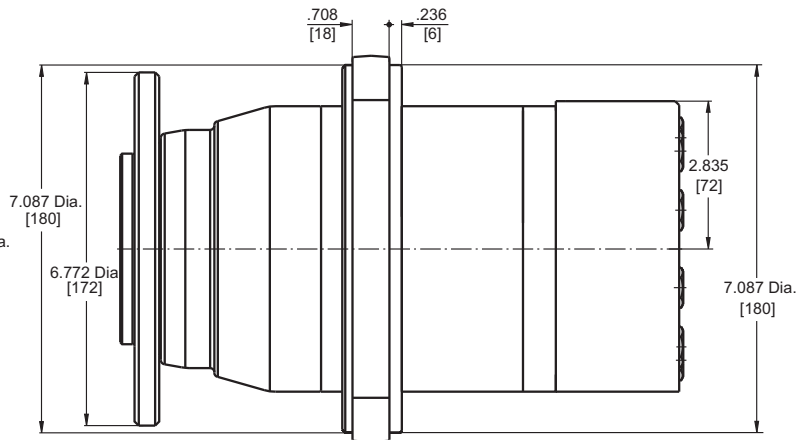
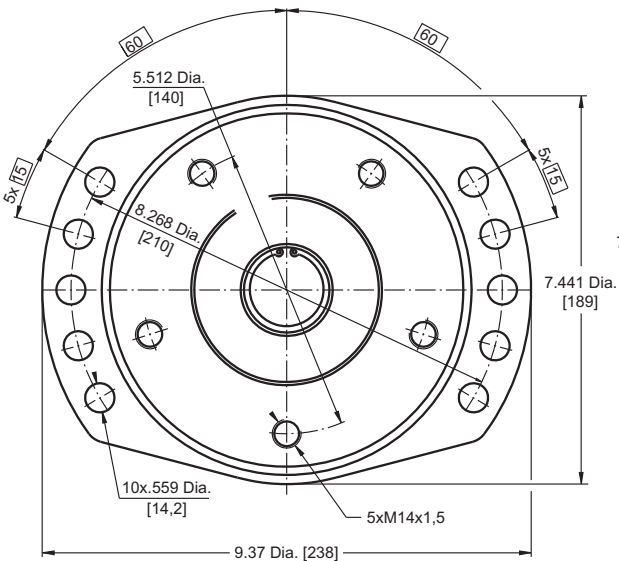
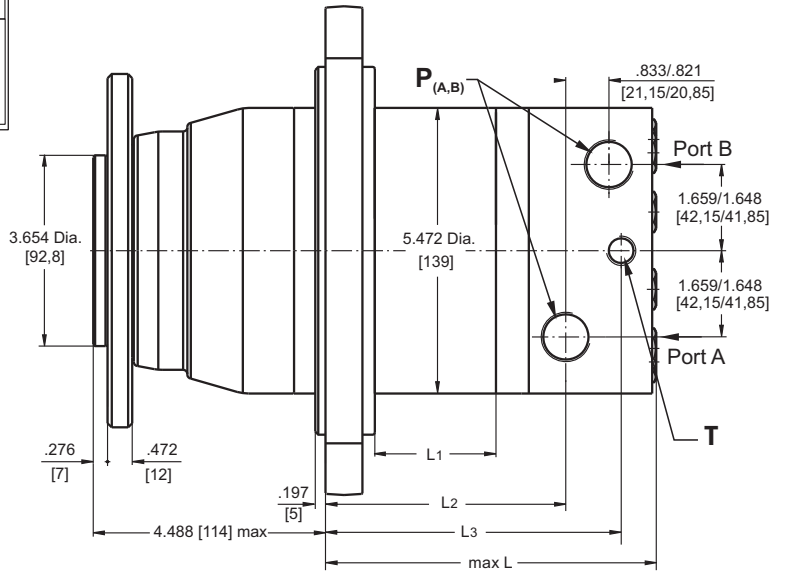
\*\* Peak load: the permissible values may occur for max. 1% of every minute.

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

- Intermittent speed and intermittent pressure 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 70 SUS [13 mm<sup>2</sup>/s] at 122°F [50°C].
- Recommended maximum system operating temperature is 180°F [82°C].
- To assure optimum motor life fill with fluid prior to loading and run at moderate load and speed for 10-15 minutes.

**DIMENSIONS AND MOUNTING DATA - TMF**

| Versions                 |   |   |
|--------------------------|---|---|
|                          | 2   | 4   |
| <b>P<sub>(A,B)</sub></b> | 2xG3/4<br>.669 in [17 mm] depth<br>O-ring | 2x1 <sup>1</sup> / <sub>16</sub> -12 UN<br>.669 in [17 mm] dept<br>O-ring |
| <b>T</b>                 | G1/4<br>.472 in [12 mm] depth<br>O-ring   | <sup>9</sup> / <sub>16</sub> -18 UN<br>.472 in [12 mm] depth<br>O-ring    |



**Warning:** Drain line should always be used.

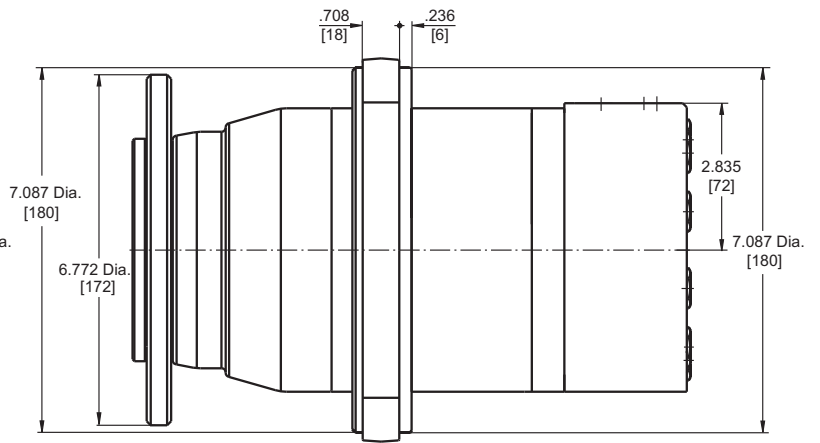
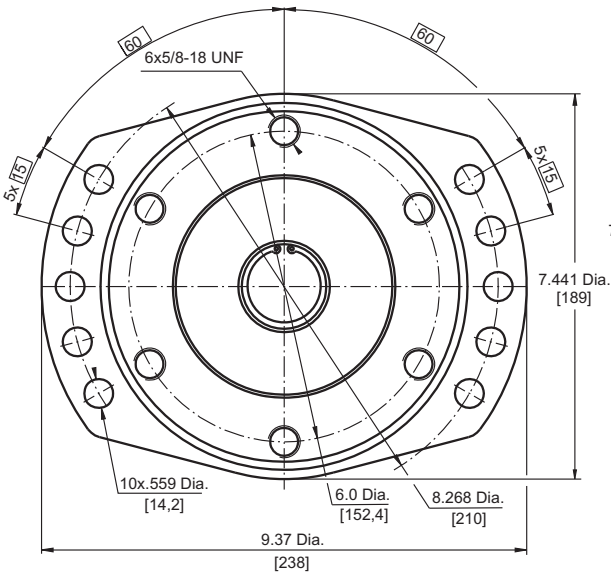
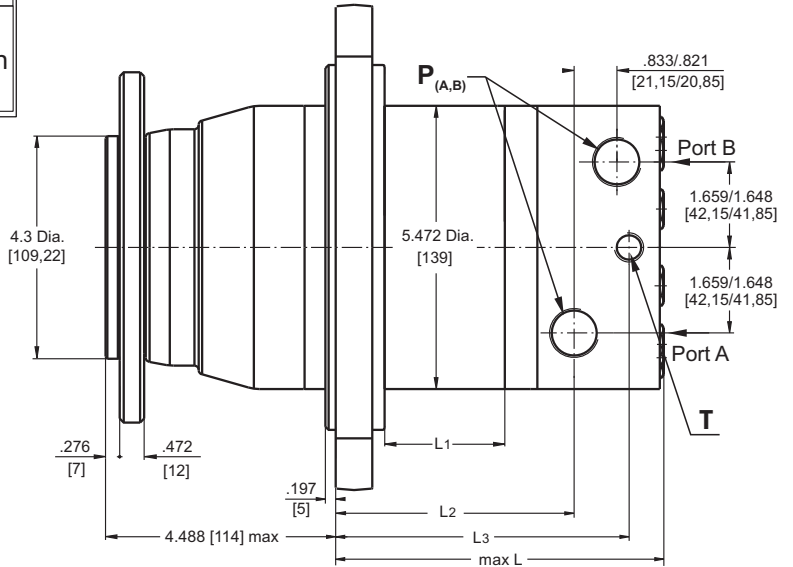
**Standard Rotation**  
Viewed from Shaft End  
Port **A** Pressurized - **CW**  
Port **B** Pressurized - **CCW**

**Reverse Rotation**  
Viewed from Shaft End  
Port **A** Pressurized - **CCW**  
Port **B** Pressurized - **CW**

| Type    | L <sub>max</sub> , in [mm] | L <sub>1</sub> , in [mm] | L <sub>2</sub> , in [mm] | L <sub>3</sub> , in [mm] |
|---------|----------------------------|--------------------------|--------------------------|--------------------------|
| TMF 200 | 4.96 [126]                 | .98 [25]                 | 3.268 [83]               | 4.34 [110,3]             |
| TMF 250 | 5.21 [132,3]               | 1.23 [31,3]              | 3.516 [89,3]             | 4.59 [116,6]             |
| TMF 315 | 5.57 [141,5]               | 1.59 [40,5]              | 3.878 [98,5]             | 4.95 [125,8]             |
| TMF 400 | 5.98 [152]                 | 2.01 [51]                | 4.291 [109]              | 5.37 [136,3]             |
| TMF 470 | 6.30 [160]                 | 2.32 [59]                | 4.606 [117]              | 5.68 [144,3]             |
| TMF 500 | 6.54 [166]                 | 2.56 [65]                | 4.843 [123]              | 5.92 [150,3]             |
| TMF 630 | 6.38 [162]                 | 2.40 [61]                | 4.69 [119]               | 5.76 [146,3]             |
| TMF 725 | 6.73 [171]                 | 2.76 [70]                | 5.04 [128]               | 6.11 [155,3]             |

**DIMENSIONS AND MOUNTING DATA - TMFA**

| Versions                 |   |   |
|--------------------------|---|---|
|                          | 2   | 4   |
| <b>P<sub>(A,B)</sub></b> | 2xG3/4<br>.669 in [17 mm] depth<br>O-ring | 2x1 <sup>1</sup> / <sub>16</sub> -12 UN<br>.669 in [17 mm] dept<br>O-ring |
| <b>T</b>                 | G1/4<br>.472 in [12 mm] depth<br>O-ring   | <sup>9</sup> / <sub>16</sub> -18 UN<br>.472 in [12 mm] depth<br>O-ring    |



**Warning:** Drain line should always be used.



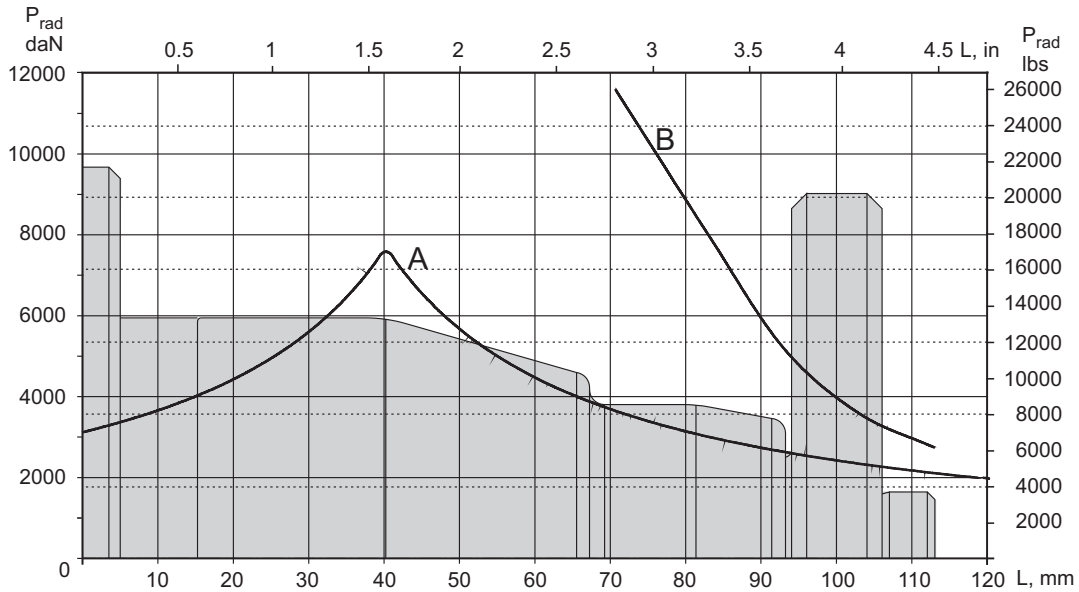
**Standard Rotation**  
Viewed from Shaft End  
Port A Pressurized - CW  
Port B Pressurized - CCW

**Reverse Rotation**  
Viewed from Shaft End  
Port A Pressurized - CCW  
Port B Pressurized - CW

| Type     | L <sub>max</sub> , in [mm] | L <sub>1</sub> , in [mm] | L <sub>2</sub> , in [mm] | L <sub>3</sub> , in [mm] |
|----------|----------------------------|--------------------------|--------------------------|--------------------------|
| TMFA 200 | 4.96 [126]                 | .98 [25]                 | 3.268 [83]               | 4.34 [110,3]             |
| TMFA 250 | 5.21 [132,3]               | 1.23 [31,3]              | 3.516 [89,3]             | 4.59 [116,6]             |
| TMFA 315 | 5.57 [141,5]               | 1.59 [40,5]              | 3.878 [98,5]             | 4.95 [125,8]             |
| TMFA 400 | 5.98 [152]                 | 2.01 [51]                | 4.291 [109]              | 5.37 [136,3]             |
| TMFA 470 | 6.30 [160]                 | 2.32 [59]                | 4.606 [117]              | 5.68 [144,3]             |
| TMFA 500 | 6.54 [166]                 | 2.56 [65]                | 4.843 [123]              | 5.92 [150,3]             |
| TMFA 630 | 6.38 [162]                 | 2.40 [61]                | 4.69 [119]               | 5.76 [146,3]             |
| TMFA 725 | 6.73 [171]                 | 2.76 [70]                | 5.04 [128]               | 6.11 [155,3]             |

**PERMISSIBLE SHAFT LOADS**

The load diagram is valid for an average bearings life of 2000 hours at 100 RPM



**A** - Permissible radial shaft load.  
**B** - Max. radial shaft load. Any shaft load exceeding the values shown by the curve will involve a risk of breakage.

**ORDER CODE**

|            |   |   |   |           |   |
|------------|---|---|---|-----------|---|
|            | 1 | 2 | 3 | 4         | 5 |
| <b>TMF</b> |   |   |   | <b>HD</b> |   |

**Pos.1 - Mounting Flange**

omit - Thread hole flange, 5xM14x1,5 on 5.512 Dia. [140]

**A** - Thread hole flange, 6x5/8-18 UNF on 6.0 Dia. [152,4]

**Pos.2 - Displacement code**

**200** - 12.29 in<sup>3</sup>/rev [201,4 cm<sup>3</sup>/rev]

**250** - 15.36 in<sup>3</sup>/rev [251,8 cm<sup>3</sup>/rev]

**315** - 19.90 in<sup>3</sup>/rev [326,3 cm<sup>3</sup>/rev]

**400** - 25.06 in<sup>3</sup>/rev [410,9 cm<sup>3</sup>/rev]

**470** - 28.97 in<sup>3</sup>/rev [475,0 cm<sup>3</sup>/rev]

**500** - 31.95 in<sup>3</sup>/rev [523,6 cm<sup>3</sup>/rev]

**630** - 38.52 in<sup>3</sup>/rev [631,2 cm<sup>3</sup>/rev]

**725** - 44.20 in<sup>3</sup>/rev [724,3 cm<sup>3</sup>/rev]

**Pos.3 - Ports**

**2** - side ports, 2xG3/4, G1/4, BSP thread, ISO 228

**4** - side ports, 2x1 1/16-12 UN, O-ring, 9/16-18 UNF

**Pos.4 - Special Features**

**HD** - Reinforced motor HD\*

For Other **Special Features** see page 48

**Pos.5 - Design Series**

omit - Factory specified

\* Drain line should always be used.

The hydraulic motors are mangano-phosphatized as standard.