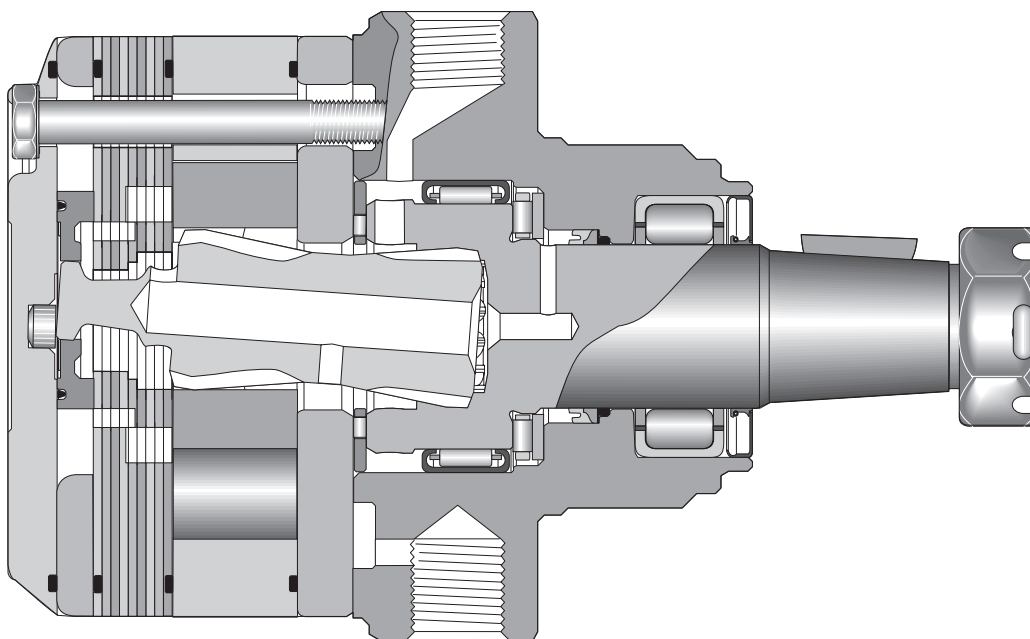


# TL Series Medium Duty Motor Service Manual

|                         |                                    |                |
|-------------------------|------------------------------------|----------------|
| 7 Displacements         | (8.6 to 22.2 in <sup>3</sup> /rev) |                |
| 7 Schluckvolumen        | 140 . . . 364 cm <sup>3</sup> /rev |                |
| 7 Cylindrée             |                                    |                |
| 7 Desplazamientos       |                                    |                |
|                         | <b>Cont.</b>                       | <b>Int.</b>    |
| Maximum Pressure        | (2750 psid)                        | (3500 psid)    |
| Eingangsdruck           | . . . 190 bar                      | . . . 241 bar  |
| Pression entrée         |                                    |                |
| Presion Maxima          |                                    |                |
| Maximum Oil Flow        | (25 gpm)                           |                |
| Schluckstrom            | . . . 95 lpm                       |                |
| Débit d'huile           |                                    |                |
| Caudal Maximo de Aceite |                                    |                |
| Maximum Speed           | (613 rpm)                          |                |
| Drehzahl                | 613 rpm                            |                |
| Vitesse de rotation     |                                    |                |
| Velocidad Maxima        |                                    |                |
|                         | <b>Cont.</b>                       | <b>Int.</b>    |
| Maximum Torque          | (8,650 lb in)                      | (10,300 lb in) |
| MaxDrehmoment           | 977 Nm                             | 1164 Nm        |
| Couple                  |                                    |                |
| Torque Maximo           |                                    |                |

## Exceptional Power Density and Durability

The heart of the new compact Torqmotor™ is the strongest drive train in its class. Coupled with this extra heavy-duty drive train are the high efficiencies and low speed performance for which the Parker Torqmotor™ is known. As with all Torqmotors™, high speed valving and full flow drive train lubrication are standard. Case drains are not required. Roller vanes and a sealed commutator maintain high efficiencies and provide smooth low speed performance.

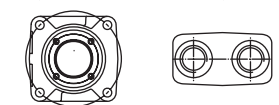
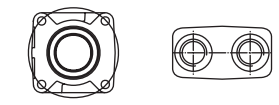


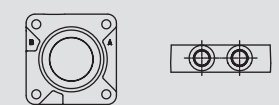
**TL**


Series

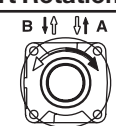

**XXXX**Displacement  
Schluckvolumen  
Cylindrée  
Desplazamiento**XX**Mounting/Ports  
Gehäuse/Anschluß  
Carter/Plan de raccordement  
Montaje/Lumbreras**XX**Shaft  
Welle  
Arbre  
Eje**X**Rotation  
Drehrichtung  
Direction de rotation  
Rotacion**XXXX**Options  
Opciones

| Code | cm <sup>3</sup> /tr<br>cm <sup>3</sup> /giro<br>cm <sup>3</sup> /U in <sup>3</sup> /rev |
|------|---|
| 0140 | 141 / 8.6   |
| 0170 | 169 / 10.3  |
| 0195 | 195 / 11.9  |
| 0240 | 238 / 14.5  |
| 0280 | 280 / 17.1  |
| 0310 | 310 / 18.9  |
| 0360 | 364 / 22.2  |

| Code | Mounting/Ports   |
|------|--|
| LS   | Wheel, Front Brake Nose, 7/8-14 SAE<br> |
| US   | Wheel, Standard, 7/8-14 SAE<br>         |

| Code | Mounting/Ports   |
|------|--|
| TS   | Wheel, 7/8-14 SAE<br> |

| Code | Shaft   |
|------|---|
| 08   | 1 1/4" Tapered<br> |

| Code | Front Port Rotation   |
|------|---|
| 0    | Standard<br>                     |
| 1    | Reverse<br>Timed<br>Manifold<br> |

| Code                | Options  |
|---------------------|--|
| AAAA <sup>2</sup>   | "Standard", Black Paint  |
| AAAB                | "Standard", No Paint   |
| AAAC <sup>2</sup>   | "Standard", Double Paint   |
| AABJ <sup>2</sup>   | Free Running Rotor Set, Black Paint  |
| AABT <sup>1,2</sup> | No Nut, Black Paint  |
| AAFA                | Fluorocarbon Seals, High Temp Commutator Seal, No Paint  |
| AAFW <sup>2</sup>   | Fluorocarbon Seals, High Temp Commutator Seal, Black Paint   |
| AAJH <sup>1,2</sup> | Fluorocarbon Seals, High Temp Commutator Seal, Black Paint   |
| AAJL <sup>1</sup>   | No Nut, No paint   |
| AAUP <sup>1</sup>   | Fluorocarbon Seals, High Temp Commutator Seal, No Nut, No Paint  |
| AAVE <sup>2</sup>   | Free Running Rotor Set, Fluorocarbon Seals, High Temp Commutator Seal, High Temp Section Seals, Black Paint  |
| ABCW <sup>1</sup>   | No Shaft Hardware, Fluorocarbon Seals, High Temperature Commutator Seal, High Temp Section Seals, Bidirectional shuttle (.062 Orifice) (11:00'), Black Paint |
| ABCZ <sup>2</sup>   | Fluorocarbon Seals, High Temp Commutator Seal, High Temp Section Seals, Double paint   |
| BBGV <sup>1,2</sup> | No Shaft Hardware, Fluorocarbon Seals, High Temperature Commutator Seal, 1015 PSI Int Bidirectional Relief, Black Paint                                      |
| BBGW <sup>1,2</sup> | No Shaft Hardware, Fluorocarbon Seals, High Temperature Commutator Seal, 1450 PSI Int Bidirectional Relief, Black Paint                                      |
| BBGX <sup>1,2</sup> | No Shaft Hardware, Fluorocarbon Seals, High Temperature Commutator Seal, 2031 PSI Int Bidirectional Relief, Black Paint                                      |
| BBGY <sup>1,2</sup> | No Shaft Hardware, Fluorocarbon Seals, High Temperature Commutator Seal, 3046 PSI Int Bidirectional Relief, Black Paint                                      |
| BBHC <sup>2</sup>   | No Shaft Hardware, Fluorocarbon Seals, High Temperature Commutator Seal, 725 PSI Int Bidirectional Relief, Black Paint                                       |
| BBHD <sup>2,3</sup> | No Shaft Hardware, Fluorocarbon Seals, High Temperature Commutator Seal, 2538 PSI Int Bidirectional Relief, Black Paint                                      |

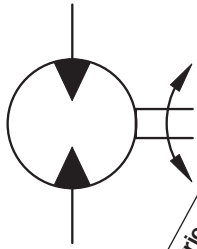
<sup>1</sup> No Nut with shaft code 08<sup>2</sup> Paint area all over except front and rear pilot and mounting flanges and shaft

Shaded areas indicate custom order components. Standard pricing and delivery terms may not apply to these components. Please refer to the price list for details, or consult your Parker Pump Motor division Sales Resource.



**WARNING**

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Geometric displacement  
 Geom. Schluckvolumen  
 Cylindrata  
 Max. speed @ Max. intermittent flow  
 Max. Drehzahl Intermittierender Betrieb:  
 Velocidad maxima a caudal intermitente maximo  
 Max. oil flow  
 Max. Schluckstrom  
 Portata max  
 Max. differential pressure  
 Max. Druckgefälle  
 Chute de pression maxi  
 Presion diferencial maxima  
 Max. supply pressure  
 Max. Eingangsdruk  
 Presion maxi entrée  
 Presion maxima de alimentacion  
 Max. torque  
 Max. Drehmoment  
 Couple maxi  
 Torque Maximo  
 Max. Performance  
 Max. Leistungabgabe  
 Puissance de sortie maxi  
 Potenza meccanica max  
 Min. starting torque  
 Min. Anlaufmoment  
 Couple min. fourni au démarrage  
 Torque minimo de arranque

| Motor Series TL | cm <sup>3</sup> /rev<br>in <sup>3</sup> /rev | rev/min | cont / int<br>l/min<br>g/min | cont / int<br>bar<br>psid | max<br>bar<br>psig | cont / int<br>Nm<br>lb-in | max<br>KW<br>HP | cont / int<br>Nm<br>lb-in |
|-----------------|--|---------|------------------------------|---------------------------|--------------------|---------------------------|-----------------|---------------------------|
| TL0140          | 140<br>8.6                                   | 613     | 68 95<br>18 25               | 190 241<br>2750 3500      | 300<br>4350        | 364 463<br>3226 4095      | 30<br>40        | 294 365<br>2606 3234      |
| TL0170          | 169<br>10.3                                  | 512     | 68 95<br>18 25               | 190 241<br>2750 3500      | 300<br>4350        | 449 570<br>3970 5042      | 31<br>41        | 354 445<br>3137 3943      |
| TL 0195         | 195<br>11.9                                  | 484     | 68 95<br>18 25               | 190 241<br>2750 3500      | 300<br>4350        | 511 648<br>4520 5739      | 34<br>46        | 414 526<br>3666 4654      |
| TL 0240         | 238<br>14.5                                  | 399     | 68 95<br>18 25               | 190 241<br>2750 3500      | 300<br>4350        | 620 790<br>5485 6990      | 34<br>46        | 536 679<br>4740 6011      |
| TL 0280         | 280<br>17.1                                  | 335     | 68 95<br>18 25               | 190 241<br>2750 3500      | 300<br>4350        | 730 929<br>6460 8218      | 34<br>45        | 619 787<br>5479 6967      |
| TL 0310         | 310<br>18.9                                  | 310     | 68 95<br>18 25               | 190 241<br>2750 3500      | 300<br>4350        | 847 1079<br>7499 9548     | 36<br>48        | 713 907<br>6309 8029      |
| TL 0360         | 364<br>22.2                                  | 255     | 68 95<br>18 25               | 172 224<br>2500 3250      | 300<br>4350        | 890 1163<br>7874 10293    | 31<br>42        | 778 1002<br>6882 8867     |

Performance data based on testing using 10W40 oil with a viscosity of 200 SUS at 54° C (130° F). Performance data is typical. Actual data may vary slightly from one production motor to another.

Les donnees sur les performances sont basees sur des tests utilisant de l'huile 10W40 d'une viscosite de 200 SUS a 54°C (130°F). Ces donnees correspondent a des situations typiques. Les donnees reelles peuvent varier legerement d'un moteur de production a l'autre.

Leistungsdaten sind gemessen mit SAE 10W40 bei einer Viskosität von 43,1 Cst bei 54°C. Geringfügige Abweichungen von den Katalogdaten sind möglich.

Datos tecnicos obtenidos con aceite 10W40 de 200 SUS de viscosidad a 54°C (130°F). Los datos proporcionados son valores tipicos. Los valores exactos reales podrian tener una pequena variacion entre distintos motores.

Intermittent operation rating applies to 10% of every minute.

Intermittierende Werte maximal 10% von jeder Betriebsminute.

Fonctionnement interm. 10% max. de chaque minute d'utilisation.

Capacidad de funcionamiento intermitente valida para 10% por cada minuto.

Peak operation rating applies to 1% max of every minute.



**WARNING**

This product can expose you to chemicals including lead which is known to the State of California to cause cancer, and DEHP which is known to the State of California to cause birth defects or other reproductive harm. For more information go to [www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov).

**Performance Data / Leistungsdaten  
Puissance / Datos Tecnicos**

**TL 0140**

**8.6 cu in / rev**

|           | PRESSURE (PSID) |             |             |             |             |             |             |             |
|-----------|-----------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
|           | 500             | 1000        | 1500        | 2000        | 2500        | 2750        | 3000        | 3500        |
| <b>.5</b> | 364<br>12       | 955<br>11   | 1531<br>10  | 2115<br>9   | 2719<br>7   | 3016<br>6   | 3288<br>5   | 3803<br>2   |
| <b>1</b>  | 395<br>25       | 1014<br>24  | 1599<br>23  | 2174<br>21  | 2761<br>19  | 3056<br>17  | 3352<br>16  | 3871<br>13  |
| <b>2</b>  | 408<br>51       | 1011<br>49  | 1634<br>47  | 2229<br>45  | 2828<br>42  | 3127<br>40  | 3421<br>38  | 3943<br>35  |
| <b>3</b>  | 411<br>77       | 1029<br>74  | 1659<br>72  | 2257<br>69  | 2856<br>65  | 3191<br>63  | 3459<br>62  | 4006<br>57  |
| <b>4</b>  | 414<br>103      | 1040<br>99  | 1675<br>96  | 2286<br>93  | 2900<br>89  | 3226<br>86  | 3509<br>83  | 4054<br>78  |
| <b>5</b>  | 407<br>129      | 1039<br>126 | 1685<br>123 | 2285<br>119 | 2899<br>113 | 3210<br>110 | 3532<br>108 | 4075<br>102 |
| <b>7</b>  | 381<br>182      | 1004<br>177 | 1646<br>172 | 2250<br>168 | 2862<br>162 | 3180<br>158 | 3499<br>155 | 4095<br>147 |
| <b>9</b>  | 338<br>235      | 951<br>231  | 1599<br>226 | 2208<br>220 | 2802<br>213 | 3117<br>208 | 3422<br>203 | 4041<br>193 |
| <b>12</b> | 263<br>308      | 856<br>303  | 1485<br>297 | 2093<br>290 | 2693<br>283 | 2983<br>278 | 3314<br>272 | 3957<br>260 |
| <b>15</b> | 170<br>380      | 771<br>376  | 1381<br>371 | 1983<br>364 | 2587<br>356 | 2898<br>350 | 3219<br>343 | 3838<br>328 |
| <b>20</b> | 65<br>454       | 659<br>446  | 1242<br>437 | 1864<br>430 | 2443<br>422 | 2748<br>418 | 3100<br>413 | 3744<br>399 |
| <b>25</b> |                 | 361<br>613  | 896<br>601  | 1464<br>588 | 2046<br>575 | 2363<br>567 | 2770<br>558 | 3455<br>539 |

**Flow (GPM)**

TORQUE (LB IN) 2770  
SPEED (RPM) 558

Cont.  Int.

Intermittent operation rating applies to 10% of every minute.

Fonctionnement interm. 10% max. de chaque minute d'utilisation.

Performance data based on testing using 10W40 oil with a viscosity of 200 SUS at 54° C (130° F). Performance data is typical. Actual data may vary slightly from one production motor to another.

Les donnees sur les performances sont basees sur des tests utilisant de l'huile 10W40 d'une viscosite de 200 SUS a 54°C (130°F). Ces donnees correspondent a des situations typiques. Les donnees reelles peuvent varier legerement d'un moteur de production a l'autre.

010 TL.indd, b

Intermittierende Werte maximal 10% von jeder Betriebsminute.

Capacidad de funcionamiento intermitente valida para 10% por cada minuto. Leistungsdaten sind gemessen mit SAE 10W40 bei einer Viskositat von 43,1 Cst bei 54°C. Geringfuegige Abweichungen von den Katalogdaten sind moeglich.

Datos tecnicos obtenidos con aceite 10W40 de 200 SUS de viscosidad a 54°C (130°F). Los datos proporcionados son valores tipcos. Los valores exactos reales podrian tener una pequena variacion entre distintos motores.



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**Performance Data / Leistungsdaten  
Puissance / Datos Tecnicos**

**TL 0170**

**10.3 cu in / rev**

|           | PRESSURE (PSID)   |                    |                    |                    |                    |                    |                    |                    |
|-----------|-------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
|           | 500               | 1000               | 1500               | 2000               | 2500               | 2750               | 3000               | 3500               |
| <b>.5</b> | 499<br><b>10</b>  | 1226<br><b>10</b>  | 1937<br><b>9</b>   | 2656<br><b>7</b>   | 3395<br><b>6</b>   | 3760<br><b>5</b>   | 4100<br><b>4</b>   | 4750<br><b>2</b>   |
| <b>1</b>  | 530<br><b>21</b>  | 1285<br><b>20</b>  | 2005<br><b>19</b>  | 2715<br><b>17</b>  | 3437<br><b>16</b>  | 3800<br><b>15</b>  | 4164<br><b>13</b>  | 4818<br><b>11</b>  |
| <b>2</b>  | 543<br><b>43</b>  | 1282<br><b>41</b>  | 2040<br><b>39</b>  | 2770<br><b>38</b>  | 3504<br><b>35</b>  | 3871<br><b>34</b>  | 4233<br><b>32</b>  | 4890<br><b>29</b>  |
| <b>3</b>  | 546<br><b>64</b>  | 1300<br><b>62</b>  | 2065<br><b>60</b>  | 2798<br><b>58</b>  | 3532<br><b>55</b>  | 3935<br><b>53</b>  | 4271<br><b>52</b>  | 4953<br><b>48</b>  |
| <b>4</b>  | 549<br><b>86</b>  | 1311<br><b>83</b>  | 2081<br><b>80</b>  | 2827<br><b>78</b>  | 3576<br><b>74</b>  | 3970<br><b>72</b>  | 4321<br><b>70</b>  | 5001<br><b>66</b>  |
| <b>5</b>  | 542<br><b>108</b> | 1310<br><b>105</b> | 2091<br><b>102</b> | 2826<br><b>99</b>  | 3575<br><b>95</b>  | 3954<br><b>92</b>  | 4344<br><b>90</b>  | 5022<br><b>85</b>  |
| <b>7</b>  | 516<br><b>152</b> | 1275<br><b>148</b> | 2052<br><b>144</b> | 2791<br><b>140</b> | 3538<br><b>135</b> | 3924<br><b>132</b> | 4311<br><b>129</b> | 5042<br><b>123</b> |
| <b>9</b>  | 473<br><b>196</b> | 1222<br><b>193</b> | 2005<br><b>189</b> | 2749<br><b>184</b> | 3478<br><b>178</b> | 3861<br><b>174</b> | 4234<br><b>169</b> | 4988<br><b>162</b> |
| <b>12</b> | 398<br><b>257</b> | 1127<br><b>253</b> | 1891<br><b>248</b> | 2634<br><b>242</b> | 3369<br><b>236</b> | 3727<br><b>232</b> | 4126<br><b>227</b> | 4904<br><b>217</b> |
| <b>15</b> | 305<br><b>317</b> | 1042<br><b>314</b> | 1787<br><b>310</b> | 2524<br><b>304</b> | 3263<br><b>297</b> | 3642<br><b>293</b> | 4031<br><b>286</b> | 4785<br><b>274</b> |
| <b>20</b> | 200<br><b>379</b> | 930<br><b>372</b>  | 1648<br><b>365</b> | 2405<br><b>359</b> | 3119<br><b>352</b> | 3492<br><b>349</b> | 3912<br><b>345</b> | 4691<br><b>333</b> |
| <b>25</b> |                   | 632<br><b>512</b>  | 1302<br><b>502</b> | 2005<br><b>491</b> | 2722<br><b>480</b> | 3107<br><b>474</b> | 3582<br><b>466</b> | 4402<br><b>450</b> |

**Flow (GPM)**

TORQUE (LB IN) 3582  
SPEED (RPM) 466

Cont.  Int.

Intermittent operation rating applies to 10% of every minute.

Fonctionnement interm. 10% max. de chaque minute d'utilisation.

Performance data based on testing using 10W40 oil with a viscosity of 200 SUS at 54° C (130° F). Performance data is typical. Actual data may vary slightly from one production motor to another.

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010 TL.indd, b

Intermittierende Werte maximal 10% von jeder Betriebsminute.

Capacidad de funcionamiento intermitente valida para 10% por cada minuto. Leistungsdaten sind gemessen mit SAE 10W40 bei einer Viskositat von 43,1 Cst bei 54°C. Geringfuegige Abweichungen von den Katalogdaten sind moeglich.

Datos tecnicos obtenidos con aceite 10W40 de 200 SUS de viscosidad a 54°C (130°F). Los datos proporcionados son valores tipcos. Los valores exactos reales podrian tener una pequena variacion entre distintos motores.



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# Performance Data / Leistungsdaten Puissance / Datos Tecnicos

TL 0195

## 11.9 cu in / rev

PRESSURE (PSID)

|           | 500        | 1000        | 1500        | 2000        | 2500        | 2750          | 3000        | 3500         |
|-----------|------------|-------------|-------------|-------------|-------------|---------------|-------------|--------------|
| <b>.5</b> | 571<br>9   | 1353<br>7   | 2148<br>5   | 2938<br>3   |             |               |             |              |
| <b>1</b>  | 609<br>18  | 1417<br>16  | 2234<br>14  | 3032<br>12  | 3873<br>10  | 4250<br>8.5   | 4641<br>7   | 5400<br>4    |
| <b>2</b>  | 621<br>37  | 1443<br>35  | 2267<br>33  | 3086<br>30  | 3923<br>27  | 4300<br>25.5  | 4712<br>24  | 5450<br>19   |
| <b>3</b>  | 619<br>56  | 1448<br>54  | 2279<br>52  | 3104<br>49  | 3952<br>46  | 4331<br>44    | 4727<br>42  | 5490<br>37   |
| <b>4</b>  | 615<br>75  | 1456<br>73  | 2303<br>71  | 3142<br>68  | 3963<br>64  | 4371<br>61.5  | 4761<br>59  | 5535<br>53.5 |
| <b>5</b>  | 604<br>94  | 1448<br>92  | 2301<br>90  | 3148<br>87  | 3980<br>82  | 4400<br>79.5  | 4792<br>77  | 5587<br>72   |
| <b>7</b>  | 571<br>132 | 1419<br>130 | 2272<br>127 | 3125<br>123 | 3965<br>119 | 4370<br>116   | 4784<br>113 | 5590<br>107  |
| <b>9</b>  | 518<br>170 | 1364<br>168 | 2223<br>165 | 3072<br>161 | 3911<br>155 | 4310<br>152   | 4738<br>149 | 5549<br>142  |
| <b>12</b> | 437<br>226 | 1264<br>224 | 2113<br>221 | 2956<br>216 | 3792<br>210 | 4191<br>206.8 | 4620<br>203 | 5433<br>195  |
| <b>15</b> | 344<br>283 | 1164<br>281 | 2003<br>277 | 2835<br>272 | 3668<br>265 | 4062<br>261   | 4498<br>257 | 5314<br>248  |
| <b>20</b> | 189<br>343 | 1013<br>340 | 1833<br>333 | 2633<br>325 | 3461<br>319 | 3876<br>315   | 4295<br>310 | 5116<br>300  |
| <b>25</b> |            | 613<br>468  | 1397<br>460 | 2100<br>452 | 2903<br>443 | 3302<br>438   | 3750<br>433 | 4542<br>422  |

Flow (GPM)

TORQUE (LB IN) 3750  
SPEED (RPM) 433

Cont.  Int.

Intermittent operation rating applies to 10% of every minute.

Fonctionnement interm. 10% max. de chaque minute d'utilisation.

Performance data based on testing using 10W40 oil with a viscosity of 200 SUS at 54° C (130° F). Performance data is typical. Actual data may vary slightly from one production motor to another.

Les donnees sur les performances sont basees sur des tests utilisant de l'huile 10W40 d'une viscosite de 200 SUS a 54°C (130°F). Ces donnees correspondent a des situations typiques. Les donnees reelles peuvent varier legerement d'un moteur de production a l'autre.

010 TL.indd, b

Intermittierende Werte maximal 10% von jeder Betriebsminute.

Capacidad de funcionamiento intermitente valida para 10% por cada minuto.

Leistungsdaten sind gemessen mit SAE 10W40 bei einer Viskosität von 43,1 Cst bei 54°C. Geringfügige Abweichungen von den Katalogdaten sind möglich.

Datos tecnicos obtenidos con aceite 10W40 de 200 SUS de viscosidad a 54°C (130°F). Los datos proporcionados son valores tipicos. Los valores exactos reales podrian tener una pequena variacion entre distintos motores.



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**Performance Data / Leistungsdaten  
Puissance / Datos Tecnicos**

**TL 0240**

**14.5 cu in / rev**

|           | PRESSURE (PSID) |             |             |             |             |             |             |             |
|-----------|-----------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
|           | 500             | 1000        | 1500        | 2000        | 2500        | 2750        | 3000        | 3500        |
| <b>.5</b> | 705<br>8        | 1662<br>8   | 2641<br>7   | 3635<br>6   | 4620<br>5   | 5095<br>5   | 5585<br>4   | 6536<br>3   |
| <b>1</b>  | 752<br>16       | 1740<br>15  | 2740<br>14  | 3746<br>14  | 4739<br>13  | 5200<br>12  | 5712<br>11  | 6661<br>10  |
| <b>2</b>  | 772<br>31       | 1783<br>30  | 2799<br>30  | 3818<br>29  | 4830<br>27  | 5300<br>26  | 5823<br>25  | 6793<br>23  |
| <b>3</b>  | 769<br>47       | 1784<br>46  | 2812<br>45  | 3844<br>44  | 4863<br>42  | 5362<br>41  | 5857<br>40  | 6828<br>37  |
| <b>4</b>  | 766<br>62       | 1797<br>62  | 2840<br>61  | 3887<br>59  | 4923<br>57  | 5384<br>56  | 5932<br>55  | 6910<br>51  |
| <b>5</b>  | 751<br>78       | 1790<br>77  | 2842<br>76  | 3895<br>75  | 4933<br>72  | 5438<br>71  | 5951<br>69  | 6946<br>66  |
| <b>7</b>  | 710<br>109      | 1758<br>108 | 2816<br>107 | 3875<br>105 | 4920<br>102 | 5425<br>101 | 5947<br>99  | 6958<br>95  |
| <b>9</b>  | 649<br>141      | 1697<br>139 | 2762<br>138 | 3826<br>136 | 4875<br>132 | 5387<br>130 | 5908<br>128 | 6922<br>124 |
| <b>12</b> | 553<br>188      | 1583<br>186 | 2633<br>184 | 3675<br>182 | 4706<br>178 | 5219<br>175 | 5725<br>172 | 6734<br>167 |
| <b>15</b> | 438<br>235      | 1471<br>233 | 2499<br>230 | 3513<br>227 | 4520<br>223 | 4998<br>220 | 5526<br>217 | 6534<br>211 |
| <b>20</b> | 312<br>282      | 1350<br>279 | 2300<br>276 | 3305<br>273 | 4310<br>267 | 4732<br>264 | 5250<br>261 | 6200<br>254 |
| <b>25</b> |                 | 1021<br>388 | 1837<br>384 | 2710<br>380 | 3735<br>373 | 4060<br>370 | 4500<br>365 | 5423<br>354 |

**Flow (GPM)**

TORQUE (LB IN) 4500  
SPEED (RPM) 365

Cont.  Int.

Intermittent operation rating applies to 10% of every minute.

Fonctionnement interm. 10% max. de chaque minute d'utilisation.

Performance data based on testing using 10W40 oil with a viscosity of 200 SUS at 54° C (130° F). Performance data is typical. Actual data may vary slightly from one production motor to another.

Les donnees sur les performances sont basees sur des tests utilisant de l'huile 10W40 d'une viscosite de 200 SUS a 54°C (130°F). Ces donnees correspondent a des situations typiques. Les donnees reelles peuvent varier legerement d'un moteur de production a l'autre.

010 TL.indd, b

Intermittierende Werte maximal 10% von jeder Betriebsminute.

Capacidad de funcionamiento intermitente valida para 10% por cada minuto.

Leistungsdaten sind gemessen mit SAE 10W40 bei einer Viskositat von 43,1 Cst bei 54°C. Geringfuegige Abweichungen von den Katalogdaten sind moeglich.

Datos tecnicos obtenidos con aceite 10W40 de 200 SUS de viscosidad a 54°C (130°F). Los datos proporcionados son valores tipcos. Los valores exactos reales podrian tener una pequena variacion entre distintos motores.



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**Performance Data / Leistungsdaten  
Puissance / Datos Tecnicos**

**TL 0280**

**17.1 cu in / rev**

|           | PRESSURE (PSID) |             |             |             |             |             |             |             |
|-----------|-----------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
|           | 500             | 1000        | 1500        | 2000        | 2500        | 2750        | 3000        | 3500        |
| <b>.5</b> | 887<br>7        | 2008<br>6   | 3147<br>5   | 4299<br>4   | 5458<br>3   | 6022<br>2   | 6599<br>2   | 7724<br>0   |
| <b>1</b>  | 947<br>13       | 2093<br>13  | 3262<br>12  | 4424<br>11  | 5582<br>10  | 6144<br>9   | 6715<br>8   | 7812<br>6   |
| <b>2</b>  | 982<br>27       | 2164<br>26  | 3361<br>25  | 4561<br>24  | 5745<br>22  | 6315<br>21  | 6902<br>19  | 8033<br>15  |
| <b>3</b>  | 982<br>40       | 2167<br>39  | 3366<br>39  | 4570<br>37  | 5757<br>36  | 6356<br>34  | 6943<br>32  | 8070<br>28  |
| <b>4</b>  | 984<br>53       | 2184<br>52  | 3397<br>51  | 4612<br>50  | 5820<br>48  | 6435<br>46  | 6985<br>45  | 8147<br>40  |
| <b>5</b>  | 975<br>66       | 2185<br>65  | 3409<br>64  | 4634<br>62  | 5841<br>60  | 6417<br>58  | 7031<br>56  | 8201<br>52  |
| <b>7</b>  | 931<br>93       | 2149<br>92  | 3381<br>90  | 4614<br>88  | 5829<br>85  | 6420<br>83  | 7029<br>81  | 8200<br>76  |
| <b>9</b>  | 865<br>119      | 2083<br>118 | 3319<br>117 | 4556<br>114 | 5780<br>110 | 6396<br>108 | 6992<br>106 | 8193<br>101 |
| <b>12</b> | 746<br>159      | 1956<br>158 | 3190<br>156 | 4428<br>153 | 5661<br>149 | 6270<br>147 | 6885<br>143 | 8089<br>137 |
| <b>15</b> | 581<br>199      | 1800<br>198 | 3025<br>196 | 4255<br>192 | 5494<br>187 | 6128<br>184 | 6721<br>181 | 7912<br>174 |
| <b>20</b> | 415<br>239      | 1650<br>238 | 2850<br>235 | 4120<br>230 | 5350<br>224 | 5995<br>221 | 6570<br>217 | 7750<br>209 |
| <b>25</b> | 50<br>332       | 1240<br>330 | 2450<br>327 | 3700<br>320 | 5000<br>312 | 5650<br>307 | 6170<br>302 | 7340<br>290 |

**Flow (GPM)**

TORQUE (LB IN) 6170  
SPEED (RPM) 302

Cont.  Int.

Intermittent operation rating applies to 10% of every minute.

Fonctionnement interm. 10% max. de chaque minute d'utilisation.

Performance data based on testing using 10W40 oil with a viscosity of 200 SUS at 54° C (130° F). Performance data is typical. Actual data may vary slightly from one production motor to another.

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010 TL.indd, b

Intermittierende Werte maximal 10% von jeder Betriebsminute.

Capacidad de funcionamiento intermitente valida para 10% por cada minuto.

Leistungsdaten sind gemessen mit SAE 10W40 bei einer Viskosität von 43,1 Cst bei 54°C. Geringfügige Abweichungen von den Katalogdaten sind möglich.

Datos tecnicos obtenidos con aceite 10W40 de 200 SUS de viscosidad a 54°C (130°F). Los datos proporcionados son valores tipicos. Los valores exactos reales podrian tener una pequena variacion entre distintos motores.



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**Performance Data / Leistungsdaten**  
**Puissance / Datos Tecnicos**

**TL 0310**

**18.9 cu in / rev**

PRESSURE (PSID)

|           | 500         | 1000        | 1500        | 2000        | 2500        | 2750        | 3000        | 3500        |
|-----------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| <b>.5</b> | 1031<br>6   | 2296<br>5   | 3579<br>5   | 4875<br>4   | 6178<br>3   | 6814<br>2   | 7463<br>2   | 8732<br>0   |
| <b>1</b>  | 1091<br>12  | 2381<br>11  | 3694<br>11  | 5000<br>10  | 6302<br>9   | 6936<br>8   | 7579<br>7   | 8820<br>5   |
| <b>2</b>  | 1126<br>24  | 2452<br>24  | 3793<br>23  | 5137<br>22  | 6465<br>20  | 7107<br>19  | 7766<br>17  | 9041<br>14  |
| <b>3</b>  | 1126<br>36  | 2455<br>36  | 3798<br>35  | 5146<br>34  | 6477<br>32  | 7148<br>31  | 7807<br>29  | 9078<br>25  |
| <b>4</b>  | 1128<br>48  | 2472<br>47  | 3829<br>46  | 5188<br>45  | 6540<br>43  | 7227<br>42  | 7849<br>40  | 9155<br>36  |
| <b>5</b>  | 1119<br>60  | 2473<br>59  | 3841<br>58  | 5210<br>56  | 6561<br>54  | 7209<br>52  | 7895<br>51  | 9209<br>47  |
| <b>7</b>  | 1075<br>84  | 2437<br>83  | 3813<br>81  | 5190<br>80  | 6549<br>77  | 7212<br>75  | 7893<br>73  | 9208<br>69  |
| <b>9</b>  | 1009<br>108 | 2371<br>107 | 3751<br>106 | 5132<br>103 | 6500<br>99  | 7188<br>98  | 7856<br>96  | 9201<br>91  |
| <b>12</b> | 890<br>144  | 2244<br>143 | 3622<br>141 | 5004<br>138 | 6381<br>135 | 7062<br>132 | 7749<br>129 | 9097<br>124 |
| <b>15</b> | 725<br>180  | 2088<br>179 | 3457<br>177 | 4831<br>174 | 6214<br>169 | 6920<br>166 | 7585<br>164 | 8920<br>157 |
| <b>20</b> | 559<br>216  | 1938<br>215 | 3282<br>213 | 4696<br>208 | 6070<br>203 | 6787<br>200 | 7434<br>196 | 8758<br>189 |
| <b>25</b> | 194<br>300  | 1528<br>298 | 2882<br>295 | 4276<br>289 | 5720<br>282 | 6442<br>277 | 7034<br>273 | 8348<br>262 |

**Flow (GPM)**

TORQUE (LB IN) 7034  
 SPEED (RPM) 273

Cont.  Int.

Intermittent operation rating applies to 10% of every minute.

Fonctionnement interm. 10% max. de chaque minute d'utilisation.

Performance data based on testing using 10W40 oil with a viscosity of 200 SUS at 54° C (130° F). Performance data is typical. Actual data may vary slightly from one production motor to another.

Les donnees sur les performances sont basees sur des tests utilisant de l'huile 10W40 d'une viscosite de 200 SUS a 54°C (130°F). Ces donnees correspondent a des situations typiques. Les donnees reelles peuvent varier legerement d'un moteur de production a l'autre.

010 TL.indd, b

Intermittierende Werte maximal 10% von jeder Betriebsminute.

Capacidad de funcionamiento intermitente valida para 10% por cada minuto.

Leistungsdaten sind gemessen mit SAE 10W40 bei einer Viskosität von 43,1 Cst bei 54°C. Geringfügige Abweichungen von den Katalogdaten sind möglich.

Datos tecnicos obtenidos con aceite 10W40 de 200 SUS de viscosidad a 54°C (130°F). Los datos proporcionados son valores tipicos. Los valores exactos reales podrian tener una pequena variacion entre distintos motores.



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# Performance Data / Leistungsdaten Puissance / Datos Tecnicos

TL 0360

**22.2 cu in / rev**

|           | PRESSURE (PSID) |             |             |             |             |             |             |              |
|-----------|-----------------|-------------|-------------|-------------|-------------|-------------|-------------|--------------|
|           | 500             | 1000        | 1500        | 2000        | 2500        | 2750        | 3000        | 3250         |
| <b>.5</b> | 1294<br>5       | 2821<br>5   | 4367<br>4   | 5926<br>3   | 7491<br>2   | 8259<br>2   | 9039<br>1   | 9810<br>1    |
| <b>1</b>  | 1354<br>10      | 2906<br>10  | 4482<br>9   | 6051<br>8   | 7615<br>8   | 8381<br>7   | 9155<br>6   | 9947<br>6    |
| <b>2</b>  | 1389<br>20      | 2977<br>20  | 4581<br>19  | 6188<br>18  | 7778<br>17  | 8552<br>16  | 9342<br>15  | 10152<br>14  |
| <b>3</b>  | 1389<br>31      | 2980<br>30  | 4586<br>30  | 6197<br>29  | 7790<br>27  | 8593<br>26  | 9383<br>25  | 10190<br>24  |
| <b>4</b>  | 1391<br>41      | 2997<br>40  | 4617<br>39  | 6239<br>38  | 7853<br>37  | 8672<br>36  | 9425<br>34  | 10262<br>33  |
| <b>5</b>  | 1382<br>51      | 2998<br>50  | 4629<br>49  | 6261<br>48  | 7874<br>46  | 8654<br>45  | 9471<br>43  | 10288<br>42  |
| <b>7</b>  | 1338<br>72      | 2962<br>71  | 4601<br>69  | 6241<br>68  | 7862<br>65  | 8657<br>64  | 9469<br>62  | 10293<br>61  |
| <b>9</b>  | 1272<br>92      | 2896<br>91  | 4539<br>90  | 6183<br>88  | 7813<br>85  | 8633<br>83  | 9432<br>82  | 10261<br>79  |
| <b>12</b> | 1153<br>122     | 2769<br>122 | 4410<br>120 | 6055<br>118 | 7694<br>115 | 8507<br>113 | 9325<br>110 | 10144<br>108 |
| <b>15</b> | 988<br>153      | 2613<br>152 | 4245<br>151 | 5882<br>148 | 7527<br>144 | 8365<br>142 | 9161<br>139 | 9985<br>136  |
| <b>20</b> | 822<br>184      | 2463<br>183 | 4070<br>181 | 5747<br>177 | 7383<br>173 | 8232<br>170 | 9010<br>167 | 9847<br>164  |
| <b>25</b> | 457<br>255      | 2053<br>254 | 3670<br>251 | 5327<br>246 | 7033<br>240 | 7887<br>236 | 8610<br>232 | 9472<br>227  |

Flow (GPM)

TORQUE (LB IN) 8610  
SPEED (RPM) 232

Cont.  Int.

Intermittent operation rating applies to 10% of every minute.

Fonctionnement interm. 10% max. de chaque minute d'utilisation.

Performance data based on testing using 10W40 oil with a viscosity of 200 SUS at 54° C (130° F). Performance data is typical. Actual data may vary slightly from one production motor to another.

Les donnees sur les performances sont basees sur des tests utilisant de l'huile 10W40 d'une viscosite de 200 SUS a 54°C (130°F). Ces donnees correspondent a des situations typiques. Les donnees reelles peuvent varier legerement d'un moteur de production a l'autre.

010 TL.indd, b

Intermittierende Werte maximal 10% von jeder Betriebsminute.

Capacidad de funcionamiento intermitente valida para 10% por cada minuto. Leistungsdaten sind gemessen mit SAE 10W40 bei einer Viskositat von 43,1 Cst bei 54°C. Geringfuegige Abweichungen von den Katalogdaten sind moeglich.

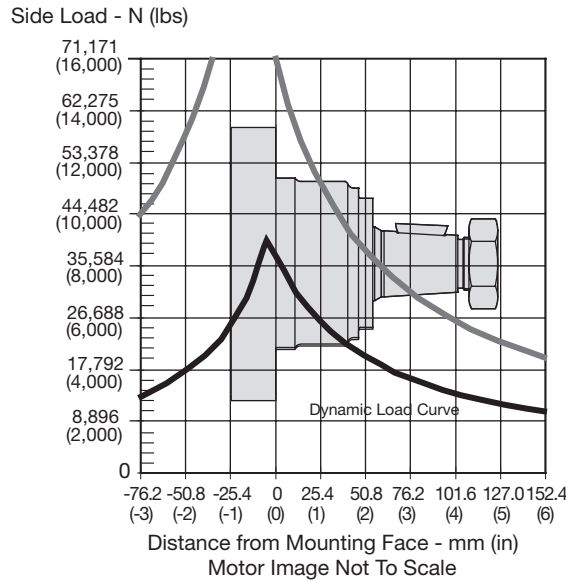
Datos tecnicos obtenidos con aceite 10W40 de 200 SUS de viscosidad a 54°C (130°F). Los datos proporcionados son valores tipcos. Los valores exactos reales podrian tener una pequena variacion entre distintos motores.



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**Wheel Mount / Radnabengehäuse**  
**Monture à roue/ Montaje de rueda**



The dynamic side load curve is based on uni-directional steady state loads for  $L_{10}$  bearing life at  $3 \times 10^6$  revolutions.

Die zulässige auslegbare radiale

Wellenbelastungskurve ist unter ruhenden, einseitig statisch gerichteten Lastverhältnissen auf eine  $L_{10}$  Lebensdauer mit  $3 \times 10^6$  Umdrehungen kalkuliert.

La courbe de charge latérale permise se base sur des charges unidirectionnelles en régime permanent pour le roulement  $L_{10}$  à  $3 \times 10^6$  révolutions.

La curva de valores admisibles de carga lateral está basada en cargas constantes para cojinetes  $L_{10}$  a  $3 \times 10^6$  revoluciones.

The maximum load curve is defined by bearing static load capacity. This curve should not be exceeded at any time including shock loads.

Die maximale radiale Wellenbelastungskurve ist definiert als maximale statische Last ohne Drehzahl. Sie gilt als Grenze und sollte keinesfalls überschritten werden.

La courbe de charge maximale est définie par la capacité de charge statique portante. Cette courbe ne devrait être dépassée en aucun moment y compris pour les charges par à-coups.

La curva de carga máxima queda definida por la capacidad de carga estática del cojinete. No se deben superar los valores de esta curva, ni siquiera con cargas provisorias de impacto.

**Equation to Calculate the Expected Radial Bearing Life**  
**Gleichung zur Ermittlung der Lagerlebensdauer**

Equation to calculate the dynamic bearing life for a given load:

Bestimmung der erlaubten radialen Wellenbelastung mit vorgegebener Last

Use  $F_a$ ,  $F_b$  and  $S$  in equation to determine hours of  $L_{10}$  bearing life.

Die Lebensdauer in Stunden ergibt sich durch einsetzen von  $F_a$ ,  $F_b$ , und  $S$  in die nachstehende Formel.

$$L = \frac{3 \times 10^6}{60 \times S} \left\{ \frac{F_a}{F_b} \right\}^{3.33}$$

Where / Mit:

$S$  = Shaft Speed RPM / Abtriebswellendrehzahl in  $\text{min}^{-1}$

$L$  = Life In Hours / Lebensdauer in Stunden

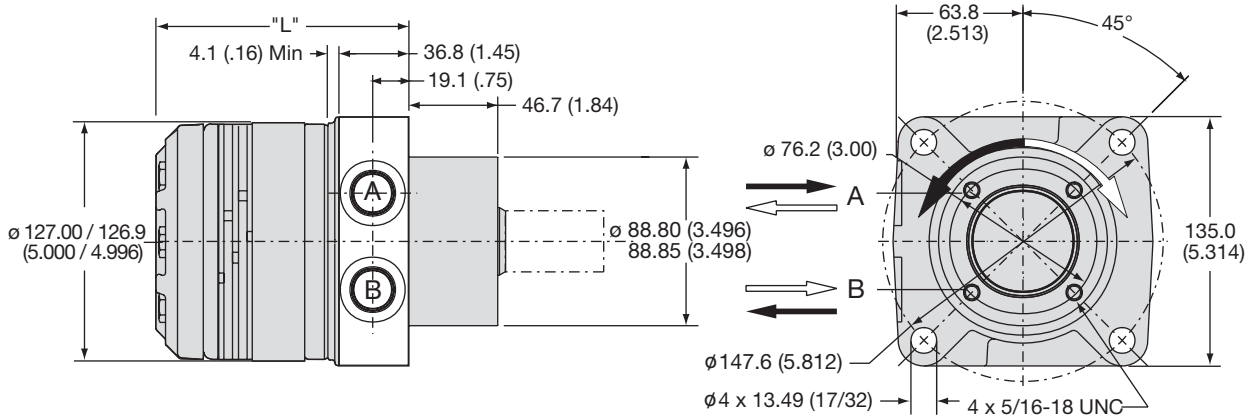
$F_a$  = Dynamic side load defined by above curve at a distance from mounting flange. / Erlaubte radiale Wellenbelastung als Function der Laenge

$F_b$  = Application side load. / Anwendungsseitige Wellenbelastung

# Mounting / Gehäuse Carter / Montaje

Code: L 

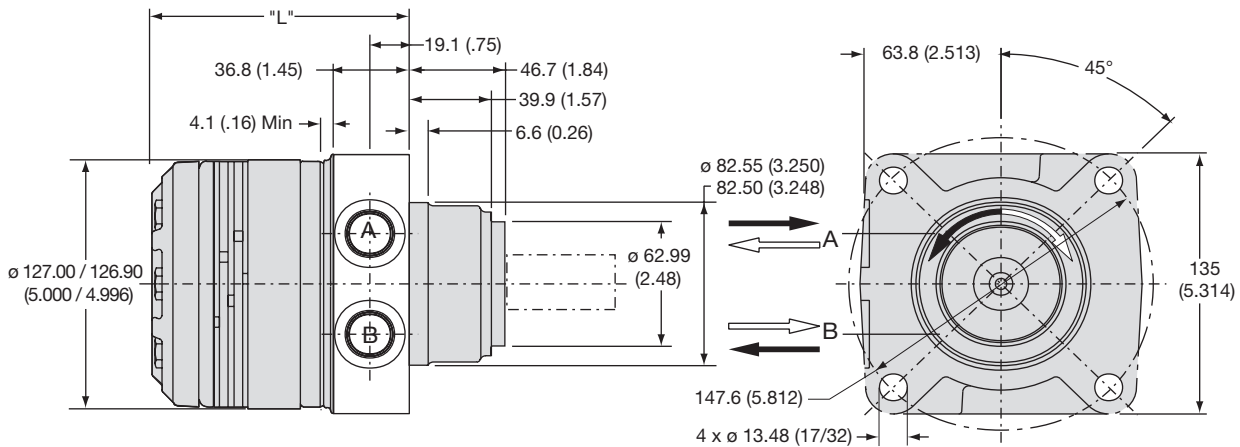
## Wheel, Front Brake Nose



| Code L         | disp.    | 0140   | 0170   | 0195   | 0240   | 0280   | 0310   | 0360   |
|----------------|----------|--------|--------|--------|--------|--------|--------|--------|
| Weight/Gewicht | kg       | 10.9   | 11.1   | 11.4   | 11.8   | 12.2   | 12.4   | 12.9   |
| Poids/Peso     | (lb)     | (24.1) | (24.6) | (25.2) | (26.0) | (26.9) | (27.4) | (28.4) |
| Length         | "L" mm   | 122.7  | 122.7  | 122.7  | 126.7  | 131.1  | 134.6  | 141.7  |
|                | "L" (in) | (4.83) | (4.83) | (4.83) | (4.99) | (5.16) | (5.30) | (5.58) |

Code: U 

## Wheel, Standard



| Code U         | disp.    | 0140   | 0170   | 0195   | 0240   | 0280   | 0310   | 0360   |
|----------------|----------|--------|--------|--------|--------|--------|--------|--------|
| Weight/Gewicht | kg       | 10.9   | 11.1   | 11.4   | 11.8   | 12.2   | 12.4   | 12.9   |
| Poids/Peso     | (lb)     | (24.1) | (24.6) | (25.2) | (26.0) | (26.9) | (27.4) | (28.4) |
| Length         | "L" mm   | 122.7  | 122.7  | 122.7  | 126.7  | 131.1  | 134.6  | 141.7  |
|                | "L" (in) | (4.83) | (4.83) | (4.83) | (4.99) | (5.16) | (5.30) | (5.58) |

English equivalents for metric specifications are shown in ( ).

010 TL.indd, b

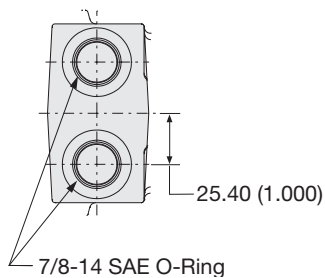


### WARNING

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Code: S 

7/8-14 SAE O-Ring



English equivalents for metric specifications are shown in ( ).

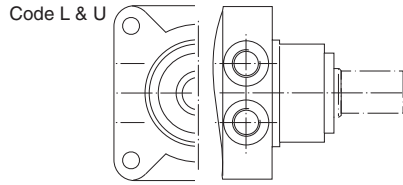
010 TL.indd, b



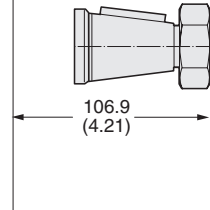
 **WARNING**

This product can expose you to chemicals including lead which is known to the State of California to cause cancer, and DEHP which is known to the State of California to cause birth defects or other reproductive harm. For more information go to [www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov).

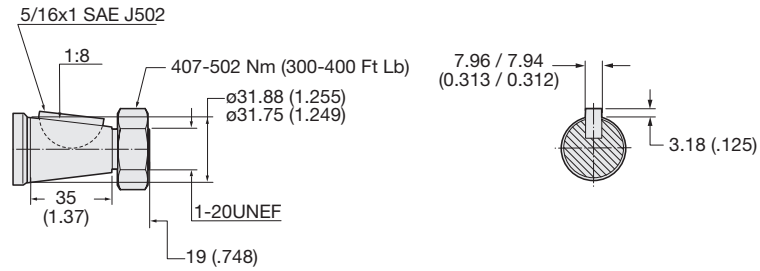
**Shafts / Abtriebswellen**  
**Arbre / Ejes**



**Code: 08 EU US**  
**1 1/4" Tapered**



**Code: 08 EU US**  
**1 1/4" Tapered**



English equivalents for metric specifications are shown in ( ).

010 TL.indd, b



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