

Description

The FSPA flywheel clutch/brake package is designed primarily for stamping press applications. However, it can be easily adapted to other types of flywheel machines requiring cyclic operation. The major components of the package are:

1. An Airflex CB or VC clutch element.
2. An Airflex CS, CSA or CTE spring-applied air-released brake.
3. A flywheel or bullgear with anti-friction bearings.
4. Clutch and brake drums.
5. Airflex quick release valves.
6. An Airflex rotorseal or optional timing rotorseal.

The combination or separate clutch and brake drums are keyed to the driven shaft. The bearing mounted flywheel or bullgear rides on the outside diameter of the clutch drum hub. The clutch element is attached to the flywheel or bullgear. The brake is attached to and reacted by the machine frame.

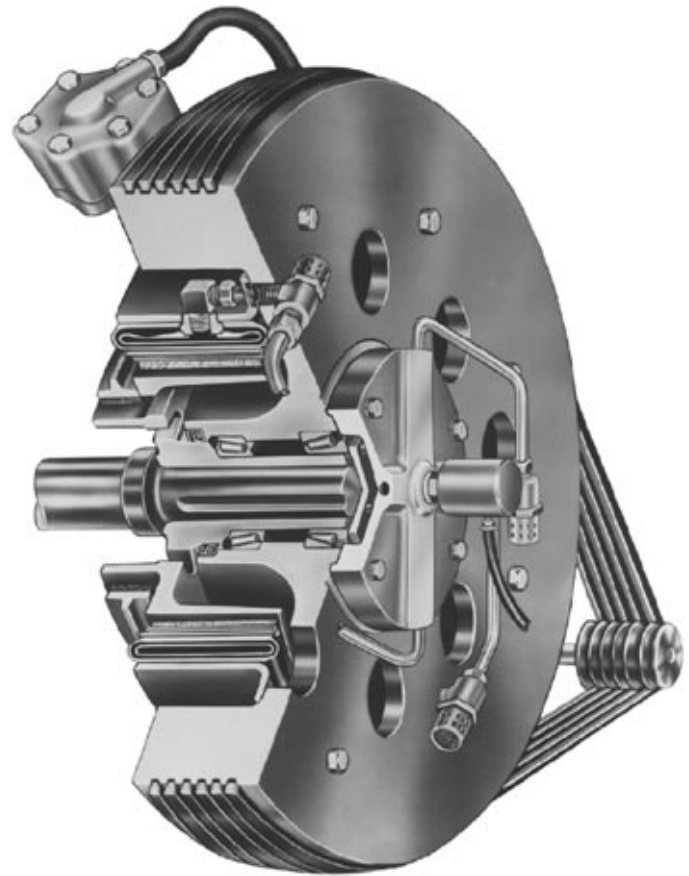
Operating air is introduced through a standard or timing rotorseal. Air to engage the clutch simultaneously releases the brake, allowing the driven shaft to rotate. When air pressure is released, air from the clutch exhausts through the quick release valves. The spring-applied brake engages, stopping the driven shaft.

The most frequently used mounting arrangement includes a combination clutch and brake drum as illustrated in the components parts figure. An alternate arrangement provides separate drums for the clutch and brake allowing the brake to be mounted at any convenient point along the driven shaft.

The flywheel can be grooved for drive belts and furnished with barring holes to facilitate die set-up for stamping presses. An optional bumping pin can be provided to mechanically connect the flywheel and clutch drum for manually freeing a stuck press die. Gear teeth can be provided in the flywheel blank for crankshaft mounting the package on geared presses.

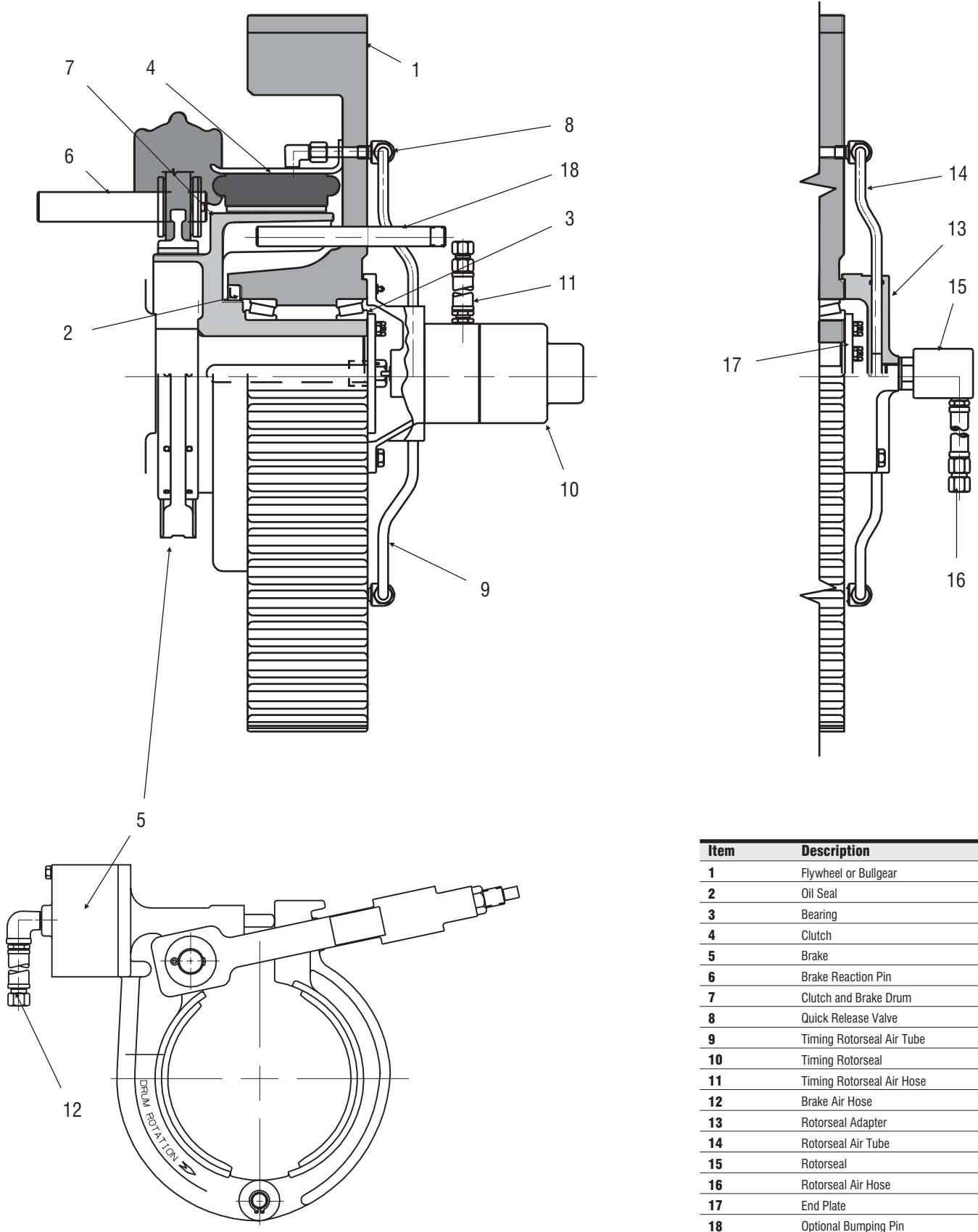
An Airflex rotorseal is furnished with the standard package. If the package is to be used on the crankshaft of a power press, an optional timing rotorseal can be substituted in place of the standard rotorseal. This device, in addition to providing an air passage to the clutch, incorporates a four cam rotary switch to control the operating functions of the press.

FSPA units are available in a large variety of sizes and mounting arrangements with clutch torques to 320000 lb-in (36200 N-m).



Where Used:

- **Can making machines**
- **Press brakes**
- **Shears**
- **Stamping and forming presses**



| Item | Description |
|------|---------------------------|
| 1 | Flywheel or Bullgear |
| 2 | Oil Seal |
| 3 | Bearing |
| 4 | Clutch |
| 5 | Brake |
| 6 | Brake Reaction Pin |
| 7 | Clutch and Brake Drum |
| 8 | Quick Release Valve |
| 9 | Timing Rotorseal Air Tube |
| 10 | Timing Rotorseal |
| 11 | Timing Rotorseal Air Hose |
| 12 | Brake Air Hose |
| 13 | Rotorseal Adapter |
| 14 | Rotorseal Air Tube |
| 15 | Rotorseal |
| 16 | Rotorseal Air Hose |
| 17 | End Plate |
| 18 | Optional Bumping Pin |

Form PP 301

Technical Data

| English | lbft ² | lb | rpm | lb | in | | |
|-----------|-------------------|--------|-----------------|--------|-----------------|----------------------------------|---------------------------|
| L1 | 9 | 34 | 1700 | 85 | 2.7 | N/A | 104776 |
| 00 | 18 | 46 | 1430 | 150 | 3.7 | N/A | 104777 |
| 0 | 41 | 68 | 1150 | 190 | 3.8 | N/A | 104778 |
| 01 | 41 | 68 | 1150 | 210 | 3.8 | 104779 | 104779 |
| 1 | 106 | 138 | 950 | 350 | 4.3 | 104780 | 104780 |
| 2 | 239 | 235 | 850 | 460 | 4.3 | 104781 | 104781 |
| 103 | 239 | 235 | 820 | 500 | 4.6 | 104782 | 104782 |
| 104 | 424 | 309 | 740 | 620 | 4.6 | 104783 | 104783 |
| 105 | 942 | 522 | 640 | 890 | 4.6 | 104784 | 104784 |
| 6 | 424 | 309 | 715 | 690 | 5.9 | 104785 | 104785 |
| 7 | 942 | 522 | 640 | 950 | 5.9 | 104786 | 104786 |
| 8 | 1604 | 705 | 570 | 1250 | 5.9 | 104787 | 104787 |
| 109 | 942 | 522 | 570 | 1070 | 5.6 | 104788 | 104788 |
| 110 | 1604 | 705 | 570 | 1370 | 5.6 | 104789 | 104789 |
| 111 | 2415 | 825 | 510 | 1450 | 5.6 | 104790 | 104790 |
| 112 | 1604 | 705 | 480 | 1440 | 5.8 | 104791 | 104791 |
| 113 | 2415 | 825 | 480 | 1660 | 5.8 | 104792 | 104792 |
| 114 | 4238 | 1170 | 460 | 2190 | 5.8 | 104793 | 104793 |
| 115 | 2415 | 825 | 410 | 1770 | 5.6 | 104794 | 104794 |
| 116 | 4238 | 1170 | 410 | 2300 | 5.6 | 104795 | 104795 |
| 117 | 6630 | 1456 | 410 | 2750 | 5.6 | 104796 | 104796 |
| 118 | 4238 | 1170 | 360 | 2490 | 5.8 | 106992 | 106995 |
| 119 | 6630 | 1456 | 360 | 2940 | 5.9 | 106993 | 106996 |
| 120 | 11331 | 2028 | 360 | 3690 | 6.5 | 106994 | 106997 |
| 121 | 6630 | 1456 | 320 | 3080 | 5.4 | 106998 | 107000 |
| 122 | 11331 | 2028 | 320 | 3790 | 6.2 | 106999 | 107001 |
| FSPA Size | Wk ² | Weight | ① Maximum Speed | Weight | D ₃₇ | Part Number w/Timing Rotorseal ② | Part Number w/Rotorseal ② |
| | Flywheel Rim | | | Mass | | | |
| | J | Mass | | | | | |
| L1 | 0,38 | 15 | 1700 | 39 | 69 | N/A | 104776 |
| 00 | 0,76 | 21 | 1430 | 68 | 94 | N/A | 104777 |
| 0 | 1,72 | 31 | 1150 | 86 | 97 | N/A | 104778 |
| 01 | 1,72 | 31 | 1150 | 95 | 97 | 104779 | 104779 |
| 1 | 4,45 | 63 | 950 | 159 | 109 | 104780 | 104780 |
| 2 | 10,04 | 106 | 850 | 208 | 109 | 104781 | 104781 |
| 103 | 10,04 | 106 | 820 | 227 | 117 | 104782 | 104782 |
| 104 | 17,81 | 140 | 740 | 281 | 117 | 104783 | 104783 |
| 105 | 39,56 | 236 | 640 | 403 | 117 | 104784 | 104784 |
| 6 | 17,81 | 140 | 715 | 313 | 150 | 104785 | 104785 |
| 7 | 39,56 | 236 | 640 | 430 | 150 | 104786 | 104786 |
| 8 | 67,37 | 319 | 570 | 566 | 150 | 104787 | 104787 |
| 109 | 39,56 | 236 | 570 | 485 | 142 | 104788 | 104788 |
| 110 | 67,37 | 319 | 570 | 621 | 142 | 104789 | 104789 |
| 111 | 101,4 | 374 | 510 | 657 | 142 | 104790 | 104790 |
| 112 | 67,37 | 319 | 480 | 652 | 147 | 104791 | 104791 |
| 113 | 101,4 | 374 | 480 | 752 | 147 | 104792 | 104792 |
| 114 | 178,0 | 530 | 460 | 992 | 147 | 104793 | 104793 |
| 115 | 101,4 | 374 | 410 | 802 | 142 | 104794 | 104794 |
| 116 | 178,0 | 530 | 410 | 1042 | 142 | 104795 | 104795 |
| 117 | 278,5 | 660 | 410 | 1246 | 142 | 104796 | 104796 |
| 118 | 178,0 | 530 | 360 | 1128 | 147 | 106992 | 106995 |
| 119 | 278,5 | 660 | 360 | 1332 | 150 | 106993 | 106996 |
| 120 | 475,9 | 919 | 360 | 1672 | 165 | 106994 | 106997 |
| 121 | 278,5 | 660 | 320 | 1395 | 137 | 106998 | 107000 |
| 122 | 475,9 | 919 | 320 | 1717 | 157 | 106999 | 107001 |
| SI | kg·m ² | kg | rpm | kg | mm | | |

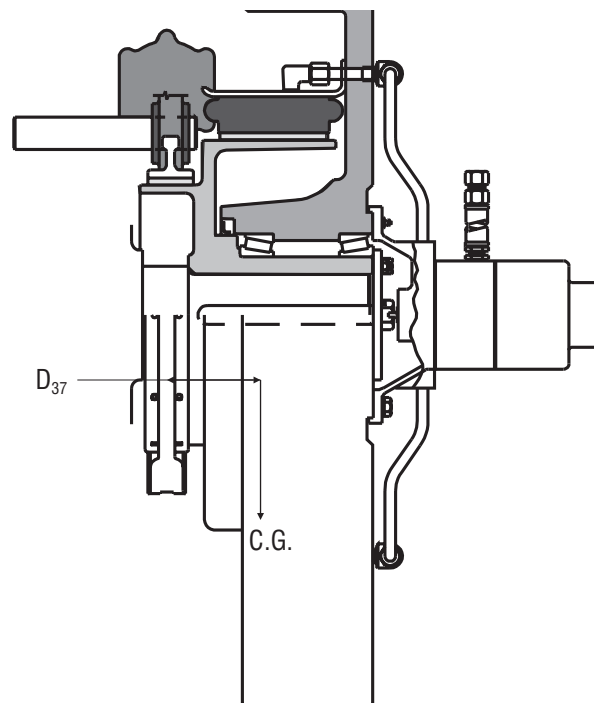
| English | lb in @ 75 psi | lb in | lb ft ² | in ² | | in ³ | Model | |
|---------------|-------------------|--------|--------------------|-----------------|-----|-----------------|---------|----------|
| L1 | 2040 | 3000 | 0.4 | 36 | 9 | 30 | 6CB200 | 4CS150 |
| 00 & 0 | 4290 | 6000 | 1.4 | 61 | 20 | 55 | 8CB250 | 6CSA200 |
| 01 | 8150 | 6000 | 3 | 91 | 20 | 75 | 10CB300 | 6CSA200 |
| 1 & 2 | 13300 | 13000 | 8 | 128 | 33 | 105 | 12CB350 | 9CSA200 |
| 103, 104, 105 | 19700 | 13000 | 13 | 170 | 33 | 95 | 14CB400 | 9CSA200 |
| 6, 7, 8 | 35200 | 18000 | 28 | 241 | 45 | 165 | 16CB500 | 12CSA200 |
| 109, 110, 111 | 53600 | 22000 | 61 | 288 | 89 | 210 | 20CB500 | 15CS300 |
| 112, 113, 114 | 75000 | 27000 | 115 | 338 | 108 | 245 | 24CB500 | 18CS300 |
| 115, 116, 117 | 106000 | 27000 | 178 | 430 | 108 | 325 | 28CB525 | 18CS300 |
| 118, 119, 120 | 137000 | 111200 | 365 | 483 | 328 | 410 | 32CB525 | 24CTE500 |
| 121, 122 | 172000 | 111200 | 451 | 550 | 328 | 450 | 36CB525 | 24CTE500 |

| Size | Clutch Torque | Forward Brake Torque | Wk ² | | | Air Volume | Clutch Size | Brake Size |
|---------------|---------------|----------------------|-----------------|--------|-------|------------|-------------|------------|
| | | | Friction Area | | | | | |
| | | | Drum | Clutch | Brake | | | |
| L1 | 231 | 339 | 0,02 | 232 | 58 | 0,5 | 6CB200 | 4CS150 |
| 00 & 0 | 485 | 678 | 0,06 | 393 | 129 | 0,9 | 8CB250 | 6CSA200 |
| 01 | 921 | 678 | 0,13 | 587 | 129 | 1,2 | 10CB300 | 6CSA200 |
| 1 & 2 | 1500 | 1470 | 0,34 | 826 | 213 | 1,7 | 12CB350 | 9CSA200 |
| 103, 104, 105 | 2230 | 1470 | 0,55 | 1097 | 213 | 1,6 | 14CB400 | 9CSA200 |
| 6, 7, 8 | 3980 | 2030 | 1,18 | 1554 | 290 | 2,7 | 16CB500 | 12CSA200 |
| 109, 110, 111 | 6060 | 2490 | 2,56 | 1858 | 574 | 3,4 | 20CB500 | 15CS300 |
| 112, 113, 114 | 8480 | 3050 | 4,83 | 2180 | 697 | 4,0 | 24CB500 | 18CS300 |
| 115, 116, 117 | 12000 | 3050 | 7,48 | 2774 | 697 | 5,3 | 28CB525 | 18CS300 |
| 118, 119, 120 | 15500 | 12600 | 15,33 | 3115 | 2116 | 6,7 | 32CB525 | 24CTE500 |
| 121, 122 | 19400 | 12600 | 18,94 | 3548 | 2116 | 7,4 | 36CB525 | 24CTE500 |

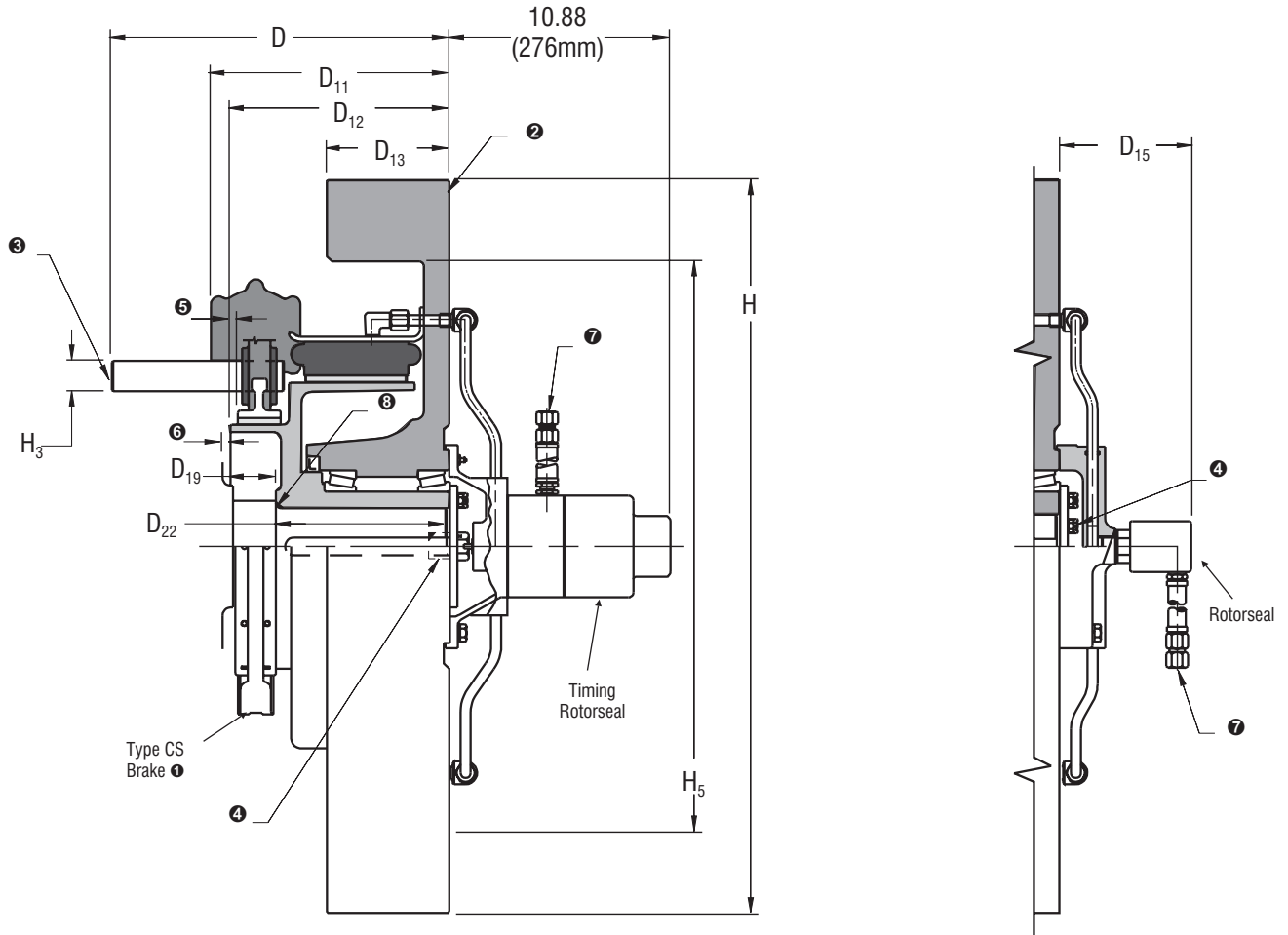
| SI | Nm @ 5,2 bar | Nm | kg m ² | cm ² | cm ² | dm ³ | Model | |
|----|-----------------|----|-------------------|-----------------|-----------------|-----------------|-------|--|
|----|-----------------|----|-------------------|-----------------|-----------------|-----------------|-------|--|

Notes:

- ① Maximum speed for non-cyclic operation. Maximum speed for single stroke operation is dependent upon clutch and brake thermal requirements.
- ② Basic part number only. Complete part number is dependent upon bore, direction of rotation and optional features.
- ③ Clutch torque dependent upon operating pressure and speed. See Section B for torque adjustment.
- ④ Absolute volume required per engagement.



| English | Dimensions in inches | | | | | | | | | | | | |
|-----------|---------------------------|------|------|-------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-------|------------------|----------------|
| L1 | 1.250 | 1.13 | 1.50 | 11.44 | 6.91 | 6.13 | 3.00 | 6.38 | 2.31 | 3.56 | 13.50 | 0.749 | 11.38 |
| 00 | 2.000 | 1.44 | 2.00 | 12.06 | 8.25 | 7.38 | 3.00 | 5.28 | 2.25 | 5.00 | 16.00 | 0.999 | 13.50 |
| 0 | 2.000 | 1.44 | 2.00 | 12.06 | 8.25 | 7.38 | 3.00 | 5.28 | 2.25 | 5.00 | 20.00 | 0.999 | 17.00 |
| 01 | 2.000 | 1.44 | 2.00 | 12.69 | 8.88 | 8.00 | 3.00 | 5.28 | 2.88 | 5.00 | 20.00 | 0.999 | 17.00 |
| 1 | 2.000 | 1.75 | 3.00 | 14.53 | 9.75 | 8.88 | 4.00 | 5.41 | 2.63 | 6.13 | 23.00 | 1.249 | 19.00 |
| 2 | 2.000 | 1.75 | 3.00 | 14.53 | 9.75 | 8.88 | 4.00 | 5.41 | 2.63 | 6.13 | 27.00 | 1.249 | 21.00 |
| 103 | 2.375 | 1.75 | 3.00 | 15.47 | 10.69 | 9.81 | 4.00 | 5.41 | 3.06 | 6.63 | 27.00 | 1.249 | 21.00 |
| 104 | 2.375 | 1.75 | 3.00 | 15.47 | 10.69 | 9.81 | 4.50 | 5.41 | 3.06 | 6.63 | 31.00 | 1.249 | 25.00 |
| 105 | 2.375 | 1.75 | 3.00 | 15.47 | 10.69 | 9.81 | 5.00 | 5.41 | 3.06 | 6.63 | 36.00 | 1.249 | 28.00 |
| 6 | 3.000 | 2.63 | 3.75 | 16.63 | 11.75 | 10.75 | 4.50 | 6.47 | 2.25 | 8.38 | 31.00 | 1.499 | 25.00 |
| 7 | 3.000 | 2.63 | 3.75 | 16.63 | 11.75 | 10.75 | 5.00 | 6.47 | 2.25 | 8.38 | 36.00 | 1.499 | 28.00 |
| 8 | 3.000 | 2.63 | 3.75 | 16.63 | 11.75 | 10.75 | 6.00 | 6.47 | 2.25 | 8.38 | 40.00 | 1.499 | 32.00 |
| 109 | 3.250 | 3.00 | 3.50 | 16.63 | 13.25 | 12.13 | 5.00 | 6.47 | 3.50 | 8.50 | 36.00 | 1.499 | 28.00 |
| 110 | 3.250 | 3.00 | 3.50 | 16.63 | 13.25 | 12.13 | 6.00 | 6.47 | 3.50 | 8.50 | 40.00 | 1.499 | 32.00 |
| 111 | 3.250 | 3.00 | 3.50 | 16.63 | 13.25 | 12.13 | 6.00 | 6.47 | 3.50 | 8.50 | 45.00 | 1.499 | 36.75 |
| 112 | 3.625 | 3.00 | 4.00 | 16.88 | 13.50 | 12.38 | 6.00 | 6.59 | 3.50 | 8.75 | 40.00 | 1.499 | 32.00 |
| 113 | 3.625 | 3.00 | 4.00 | 16.88 | 13.50 | 12.38 | 6.00 | 6.59 | 3.50 | 8.75 | 45.00 | 1.499 | 36.75 |
| 114 | 3.625 | 3.00 | 4.00 | 16.88 | 13.50 | 12.38 | 7.00 | 6.59 | 3.50 | 8.75 | 50.00 | 1.499 | 41.00 |
| 115 | 4.125 | 3.00 | 4.25 | 17.53 | 14.25 | 13.13 | 6.00 | 6.59 | 4.25 | 8.75 | 45.00 | 1.499 | 36.75 |
| 116 | 4.125 | 3.00 | 4.25 | 17.53 | 14.25 | 13.13 | 7.00 | 6.59 | 4.25 | 8.75 | 50.00 | 1.499 | 41.00 |
| 117 | 4.125 | 3.00 | 4.25 | 17.53 | 14.25 | 13.13 | 7.00 | 6.59 | 4.25 | 8.75 | 56.00 | 1.499 | 46.00 |
| 118 | 4.500 | 3.25 | 4.75 | 24.06 | 17.31 | 16.69 | 7.00 | 7.78 | 7.38 | 10.38 | 50.00 | 1.998 | 41.00 |
| 119 | 4.500 | 3.25 | 4.75 | 24.06 | 17.31 | 16.69 | 7.00 | 7.78 | 7.38 | 10.38 | 56.00 | 1.998 | 46.00 |
| 120 | 4.500 | 3.25 | 4.75 | 25.25 | 18.50 | 17.88 | 8.00 | 7.78 | 7.38 | 10.38 | 62.00 | 1.998 | 51.00 |
| 121 | 4.750 | 3.25 | 4.75 | 24.06 | 17.31 | 16.69 | 7.00 | 7.78 | 7.38 | 10.38 | 56.00 | 1.998 | 46.00 |
| 122 | 4.750 | 3.25 | 4.75 | 25.25 | 18.50 | 17.88 | 8.00 | 7.78 | 7.38 | 10.38 | 62.00 | 1.998 | 51.00 |
| FSPA Size | Standard | Min. | Max. | D | D ₁₁ | D ₁₂ | D ₁₃ | D ₁₅ | D ₁₉ | D ₂₂ | H | ⊕ H ₃ | H ₅ |
| | Bore Range | | | | | | | | | | | | |
| | Standard | Min. | Max. | | | | | | | | | | |
| L1 | 31,8 | 29 | 38 | 291 | 175 | 156 | 76 | 162 | 59 | 90 | 343 | 19,0 | 289 |
| 00 | 50,8 | 37 | 51 | 306 | 210 | 187 | 76 | 134 | 57 | 127 | 406 | 25,4 | 343 |
| 0 | 50,8 | 37 | 51 | 306 | 210 | 187 | 76 | 134 | 57 | 127 | 508 | 25,4 | 432 |
| 01 | 50,8 | 37 | 51 | 322 | 225 | 203 | 76 | 134 | 73 | 127 | 508 | 25,4 | 432 |
| 1 | 50,8 | 44 | 76 | 369 | 248 | 225 | 102 | 137 | 67 | 156 | 584 | 31,7 | 483 |
| 2 | 50,8 | 44 | 76 | 369 | 248 | 225 | 102 | 137 | 67 | 156 | 686 | 31,7 | 533 |
| 103 | 60,3 | 44 | 76 | 393 | 271 | 249 | 102 | 137 | 78 | 168 | 686 | 31,7 | 533 |
| 104 | 60,3 | 44 | 76 | 393 | 271 | 249 | 114 | 137 | 78 | 168 | 787 | 31,7 | 635 |
| 105 | 60,3 | 44 | 76 | 393 | 271 | 249 | 127 | 137 | 78 | 168 | 914 | 31,7 | 711 |
| 6 | 76,2 | 67 | 95 | 422 | 298 | 273 | 114 | 164 | 57 | 213 | 787 | 38,1 | 635 |
| 7 | 76,2 | 67 | 95 | 422 | 298 | 273 | 127 | 164 | 57 | 213 | 914 | 38,1 | 711 |
| 8 | 76,2 | 67 | 95 | 422 | 298 | 273 | 152 | 164 | 57 | 213 | 1016 | 38,1 | 813 |
| 109 | 82,6 | 76 | 89 | 422 | 337 | 308 | 127 | 164 | 89 | 216 | 914 | 38,1 | 711 |
| 110 | 82,6 | 76 | 89 | 422 | 337 | 308 | 152 | 164 | 89 | 216 | 1016 | 38,1 | 813 |
| 111 | 82,6 | 76 | 89 | 422 | 337 | 308 | 152 | 164 | 89 | 216 | 1143 | 38,1 | 933 |
| 112 | 92,1 | 76 | 102 | 429 | 343 | 314 | 152 | 167 | 89 | 222 | 1016 | 38,1 | 813 |
| 113 | 92,1 | 76 | 102 | 429 | 343 | 314 | 152 | 167 | 89 | 222 | 1143 | 38,1 | 933 |
| 114 | 92,1 | 76 | 102 | 429 | 343 | 314 | 178 | 167 | 89 | 222 | 1270 | 38,1 | 1041 |
| 115 | 104,8 | 76 | 108 | 445 | 362 | 333 | 152 | 167 | 108 | 222 | 1143 | 38,1 | 933 |
| 116 | 104,8 | 76 | 108 | 445 | 362 | 333 | 178 | 167 | 108 | 222 | 1270 | 38,1 | 1041 |
| 117 | 104,8 | 76 | 108 | 445 | 362 | 333 | 178 | 167 | 108 | 222 | 1422 | 38,1 | 1168 |
| 118 | 114,3 | 83 | 121 | 611 | 440 | 424 | 178 | 198 | 187 | 264 | 1270 | 50,7 | 1041 |
| 119 | 114,3 | 83 | 121 | 611 | 440 | 424 | 178 | 198 | 187 | 264 | 1422 | 50,7 | 1168 |
| 120 | 114,3 | 83 | 121 | 641 | 470 | 454 | 203 | 198 | 187 | 264 | 1575 | 50,7 | 1295 |
| 121 | 120,7 | 83 | 121 | 611 | 440 | 424 | 178 | 198 | 187 | 264 | 1422 | 50,7 | 1168 |
| 122 | 120,7 | 83 | 121 | 641 | 470 | 454 | 203 | 198 | 187 | 264 | 1575 | 50,7 | 1295 |
| SI | Dimensions in millimeters | | | | | | | | | | | | |



Notes:

- ❶ Refer to Section G for brake dimensional data.
- ❷ Timing rotorseal not furnished for sizes L1, 00 & 0.
1/4-18 for size L1 and 1/2-14 American National Pipe Thread for all other sizes.
- ❸ Customer to locate and mount reaction pin.
- ❹ Customer to provide tapped holes in shaft end for timing rotorseal drive screw and/or end plate cap screws.
- ❺ 0.25 in (6 mm) for size L1.
0.38 in (10 mm) for all other sizes.
- ❻ 0.38 in (10 mm) minimum, all sizes.
- ❼ Shaft radius 0.06 in (1,5 mm) for size L1; 0.25 in (6 mm) for all other sizes.
- ❽ Tolerance +0.001/-0.000 in
(+0,03/-0,00 mm).

Form PP 305

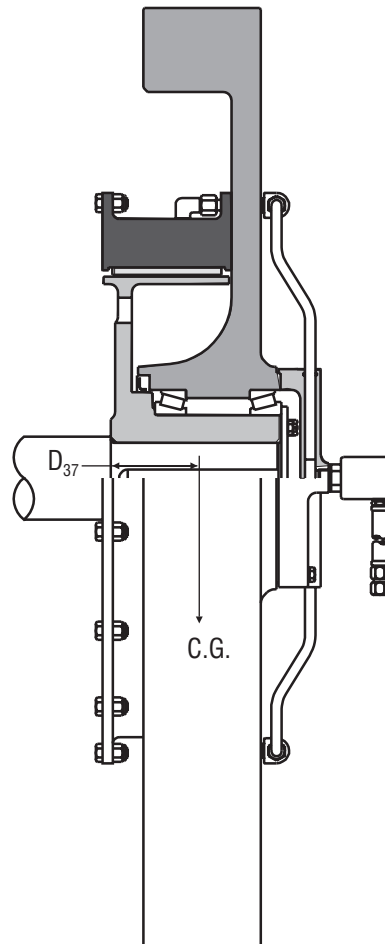
Technical Data

| English | lb ft ² | lb | rpm | lb | in | |
|-----------|--------------------|--------|-----------------|--------|-----------------|---------------|
| 1127 | 239 | 235 | 850 | 525 | 5.3 | 104802 |
| 1131 | 424 | 309 | 740 | 650 | 4.3 | 104803 |
| 1136 | 942 | 522 | 640 | 915 | 4.3 | 104804 |
| 1431 | 424 | 309 | 740 | 765 | 5.6 | 104805 |
| 1436 | 942 | 522 | 640 | 1030 | 5.7 | 104806 |
| 1440 | 1604 | 705 | 570 | 1320 | 5.6 | 104807 |
| 1445 | 2415 | 825 | 510 | 1540 | 5.8 | 104808 |
| 1636 | 942 | 522 | 640 | 1080 | 5.4 | 104809 |
| 1640 | 1604 | 705 | 570 | 1370 | 5.5 | 104810 |
| 1645 | 2415 | 825 | 510 | 1590 | 5.6 | 104811 |
| 1650 | 4238 | 1170 | 460 | 2075 | 5.5 | 104812 |
| 2040 | 1604 | 705 | 570 | 1425 | 5.7 | 104813 |
| 2045 | 2415 | 825 | 510 | 1650 | 5.9 | 104814 |
| 2050 | 4238 | 1170 | 460 | 2175 | 5.8 | 104815 |
| 2056 | 6630 | 1456 | 410 | 2620 | 5.9 | 104816 |
| 2445 | 2415 | 825 | 480 | 1715 | 5.6 | 104817 |
| 2450 | 4238 | 1170 | 460 | 2415 | 5.4 | 104818 |
| 2456 | 6630 | 1456 | 410 | 2750 | 5.7 | 104819 |
| 2850 | 4238 | 1170 | 410 | 2685 | 6.6 | 104820 |
| 2856 | 6630 | 1456 | 410 | 3260 | 6.8 | 104821 |
| 2862 | 11331 | 2028 | 370 | 4080 | 6.6 | 104822 |
| 2868 | 20695 | 3300 | 340 | 4690 | 6.5 | 104823 |
| 3356 | 6630 | 1456 | 350 | 3465 | 6.5 | 104824 |
| 3362 | 11331 | 2028 | 350 | 4360 | 6.4 | 104825 |
| 3368 | 20695 | 3300 | 340 | 5640 | 6.3 | 104826 |
| 3762 | 11331 | 2028 | 310 | 4455 | 6.3 | 104827 |
| 3768 | 20695 | 3300 | 310 | 5735 | 6.2 | 104828 |
| FSPA Size | Wk ² | Weight | ① Maximum Speed | Weight | D ₃₇ | ② Part Number |
| | Flywheel Rim | | | Mass | | |
| | J | Mass | | Mass | | |
| 1127 | 10,04 | 106 | 850 | 238 | 135 | 104802 |
| 1131 | 17,81 | 140 | 740 | 294 | 109 | 104803 |
| 1136 | 39,56 | 236 | 640 | 414 | 109 | 104804 |
| 1431 | 17,81 | 140 | 740 | 347 | 142 | 104805 |
| 1436 | 39,56 | 236 | 640 | 467 | 145 | 104806 |
| 1440 | 67,37 | 319 | 570 | 598 | 142 | 104807 |
| 1445 | 101,4 | 374 | 510 | 698 | 147 | 104808 |
| 1636 | 39,56 | 236 | 640 | 489 | 137 | 104809 |
| 1640 | 67,37 | 319 | 570 | 621 | 140 | 104810 |
| 1645 | 101,4 | 374 | 510 | 720 | 142 | 104811 |
| 1650 | 178,0 | 530 | 460 | 940 | 140 | 104812 |
| 2040 | 67,37 | 319 | 570 | 646 | 145 | 104813 |
| 2045 | 101,4 | 374 | 510 | 747 | 150 | 104814 |
| 2050 | 178,0 | 530 | 460 | 985 | 147 | 104815 |
| 2056 | 278,5 | 660 | 410 | 1187 | 150 | 104816 |
| 2445 | 101,4 | 374 | 480 | 777 | 142 | 104817 |
| 2450 | 178,0 | 530 | 460 | 1094 | 137 | 104818 |
| 2456 | 278,5 | 660 | 410 | 1246 | 145 | 104819 |
| 2850 | 178,0 | 530 | 410 | 1216 | 168 | 104820 |
| 2856 | 278,5 | 660 | 410 | 1477 | 173 | 104821 |
| 2862 | 475,9 | 919 | 370 | 1848 | 168 | 104822 |
| 2868 | 869,2 | 1495 | 340 | 2125 | 165 | 104823 |
| 3356 | 278,5 | 660 | 350 | 1570 | 165 | 104824 |
| 3362 | 475,9 | 919 | 350 | 1975 | 163 | 104825 |
| 3368 | 869,2 | 1495 | 340 | 2555 | 160 | 104826 |
| 3762 | 475,9 | 919 | 310 | 2018 | 160 | 104827 |
| 3768 | 869,2 | 1495 | 310 | 2598 | 157 | 104828 |
| SI | kg m ² | kg | rpm | kg | mm | |

| English | lb in | lb ft ² | in ² | in ³ | |
|----------------|-----------------|--------------------|-----------------|-----------------|-------------|
| 1127 thru 1136 | 27000 | 8 | 166 | 70 | 11.5VC500 |
| 1431 thru 1445 | 39000 | 14 | 205 | 95 | 14VC500 |
| 1636 thru 1650 | 65000 | 28 | 283 | 120 | 16VC600 |
| 2040 thru 2056 | 93000 | 61 | 380 | 140 | 20VC600 |
| 2445 thru 2456 | 135000 | 105 | 466 | 200 | 24VC650 |
| 2850 thru 2868 | 182000 | 180 | 548 | 270 | 28VC650 |
| 3356 thru 3368 | 255000 | 370 | 643 | 360 | 33VC650 |
| 3762 thru 3768 | 320000 | 670 | 720 | 400 | 37VC650 |
| FSPA Size | ③ Clutch Torque | Wk ² | Friction Area | ④ Air Volume | Clutch Size |
| | | Drum | | | |
| | | J | | | |
| 1127 thru 1136 | 3050 | 0,34 | 1071 | 1,15 | 11.5VC500 |
| 1431 thru 1445 | 4410 | 0,59 | 1322 | 1,56 | 14VC500 |
| 1636 thru 1650 | 7350 | 1,18 | 1825 | 1,97 | 16VC600 |
| 2040 thru 2056 | 10500 | 2,56 | 2451 | 2,30 | 20VC600 |
| 2445 thru 2456 | 15300 | 4,41 | 3006 | 3,28 | 24VC650 |
| 2850 thru 2868 | 20600 | 7,56 | 3535 | 4,43 | 28VC650 |
| 3356 thru 3368 | 28800 | 15,54 | 4147 | 5,90 | 33VC650 |
| 3762 thru 3768 | 36200 | 28,14 | 4644 | 6,56 | 37VC650 |
| SI | Nm | kg m ² | cm ² | dm ³ | |

Notes:

- ① Maximum speed for non-cyclic operation. Maximum speed for single stroke operation is dependent upon clutch and brake thermal requirements.
- ② Basic part number only. Complete part number is dependent upon bore and optional features.
- ③ Clutch torque dependent upon operating pressure and speed. See Section B for torque adjustment.
- ④ Absolute volume required per engagement. Brake releasing volume must be added.

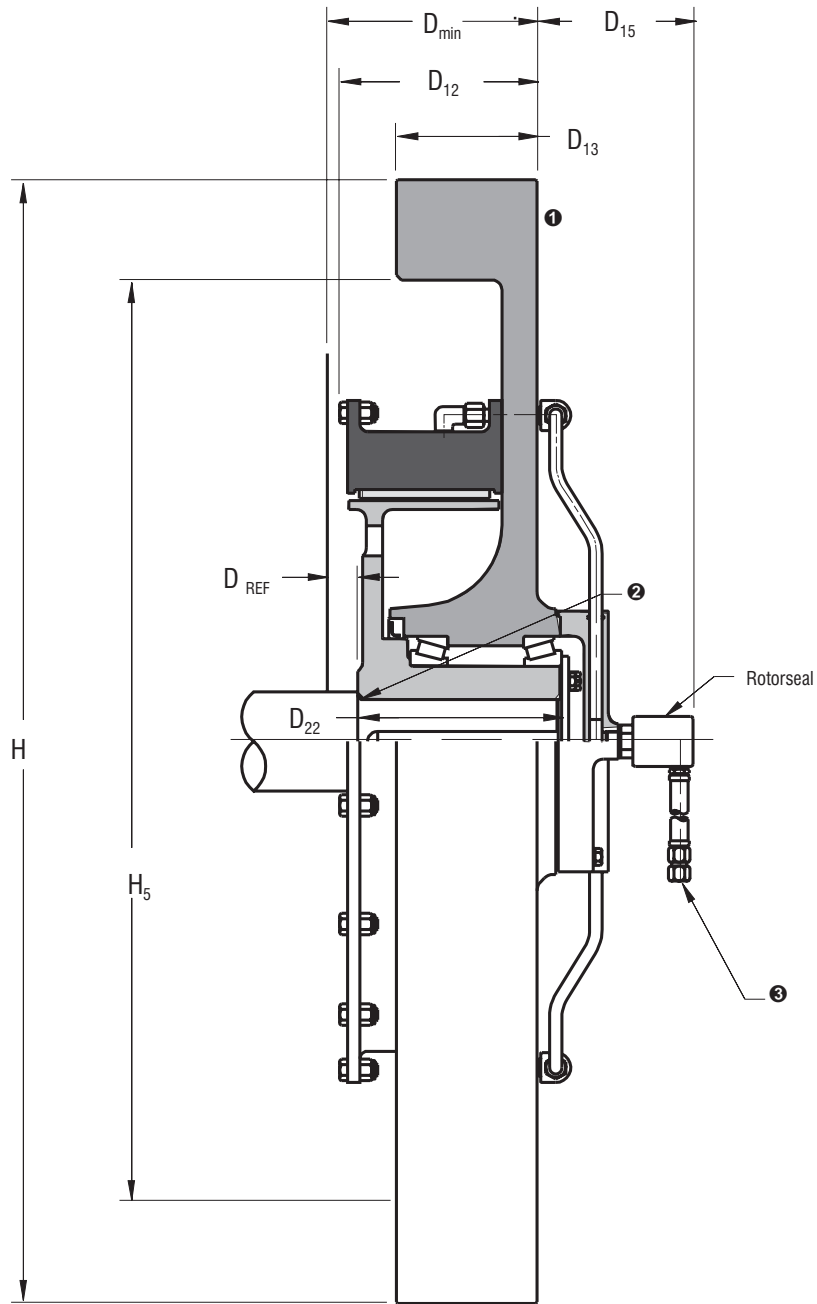


Form PP 305

Dimensional Data

| English | Dimensions in inches | | | | | | | | | | |
|-----------|---------------------------|------|------|-------------------|-------------------|-----------------|-----------------|-----------------|-----------------|-------|----------------|
| 1127 | 2.500 | 2.00 | 3.00 | 7.75 | 1.00 | 7.38 | 4.00 | 5.41 | 6.63 | 27.00 | 21.00 |
| 1131 | 2.500 | 2.00 | 3.00 | 7.88 | 1.13 | 7.50 | 4.50 | 5.41 | 6.63 | 31.00 | 25.00 |
| 1136 | 2.500 | 2.00 | 3.00 | 8.00 | 1.25 | 7.63 | 5.00 | 5.41 | 6.63 | 36.00 | 28.00 |
| 1431 | 3.000 | 1.75 | 3.00 | 8.88 | 0.38 | 7.56 | 4.50 | 6.47 | 8.38 | 31.00 | 25.00 |
| 1436 | 3.000 | 1.75 | 3.00 | 8.88 | 0.38 | 7.68 | 5.00 | 6.47 | 8.38 | 36.00 | 28.00 |
| 1440 | 3.000 | 1.75 | 3.00 | 8.88 | 0.38 | 7.94 | 6.00 | 6.47 | 8.38 | 40.00 | 32.00 |
| 1445 | 3.000 | 1.75 | 3.00 | 8.88 | 0.38 | 7.94 | 6.00 | 6.47 | 8.38 | 45.00 | 36.75 |
| 1636 | 3.500 | 2.50 | 3.75 | 9.31 | 1.06 | 8.94 | 5.00 | 6.47 | 8.38 | 36.00 | 28.00 |
| 1640 | 3.500 | 2.50 | 3.75 | 9.56 | 1.31 | 9.19 | 6.00 | 6.47 | 8.38 | 40.00 | 32.00 |
| 1645 | 3.500 | 2.50 | 2.50 | 9.56 | 1.31 | 9.19 | 6.00 | 6.47 | 8.38 | 45.00 | 36.75 |
| 1650 | 3.500 | 2.50 | 2.50 | 9.69 | 1.44 | 9.31 | 7.00 | 6.47 | 8.38 | 50.00 | 41.00 |
| 2040 | 4.000 | 3.00 | 4.00 | 9.56 | 0.69 | 9.19 | 6.00 | 6.44 | 8.75 | 40.00 | 32.00 |
| 2045 | 4.000 | 3.00 | 4.00 | 9.56 | 0.69 | 9.19 | 6.00 | 6.44 | 8.75 | 45.00 | 36.75 |
| 2050 | 4.000 | 3.00 | 4.00 | 9.81 | 0.94 | 9.44 | 7.00 | 6.44 | 8.75 | 50.00 | 41.00 |
| 2056 | 4.000 | 3.00 | 4.00 | 9.81 | 0.94 | 9.44 | 7.00 | 6.44 | 8.75 | 56.00 | 46.00 |
| 2445 | 4.500 | 3.75 | 4.75 | 9.94 | 1.00 | 9.56 | 6.00 | 7.78 | 10.00 | 45.00 | 36.75 |
| 2450 | 4.500 | 3.75 | 4.75 | 10.19 | 1.25 | 9.81 | 7.00 | 7.78 | 10.00 | 50.00 | 41.00 |
| 2456 | 4.500 | 3.75 | 4.75 | 10.19 | 1.25 | 9.81 | 7.00 | 7.78 | 10.00 | 56.00 | 46.00 |
| 2850 | 5.000 | 4.75 | 5.50 | 10.38 | 0.38 | 9.81 | 7.00 | 12.50 | 11.88 | 50.00 | 41.00 |
| 2856 | 5.000 | 4.75 | 5.50 | 10.38 | 0.38 | 10.06 | 7.00 | 12.50 | 11.88 | 56.00 | 46.00 |
| 2862 | 5.000 | 4.75 | 5.50 | 10.38 | 0.38 | 10.06 | 8.00 | 12.50 | 11.88 | 62.00 | 51.00 |
| 2868 | 5.000 | 4.75 | 5.50 | 10.38 | 0.38 | 10.06 | 8.00 | 12.50 | 11.88 | 68.00 | 51.00 |
| 3356 | 5.500 | 4.75 | 6.00 | 10.53 | 0.59 | 10.16 | 7.00 | 12.50 | 11.81 | 56.00 | 46.00 |
| 3362 | 5.500 | 4.75 | 6.00 | 10.53 | 0.59 | 10.16 | 8.00 | 12.50 | 11.81 | 62.00 | 51.00 |
| 3368 | 5.500 | 4.75 | 6.00 | 10.53 | 0.59 | 10.16 | 8.00 | 12.50 | 11.81 | 68.00 | 51.00 |
| 3762 | 6.000 | 5.50 | 6.50 | 10.53 | 0.53 | 10.16 | 8.00 | 12.50 | 11.88 | 62.00 | 51.00 |
| 3768 | 6.000 | 5.50 | 6.50 | 10.53 | 0.53 | 10.16 | 8.00 | 12.50 | 11.88 | 68.00 | 51.00 |
| FSPA Size | Standard | Min. | Max. | D _{min.} | D _{ref.} | D ₁₂ | D ₁₃ | D ₁₅ | D ₂₂ | H | H ₅ |
| | Bore Range | | | | | | | | | | |
| | Standard | Min. | Max. | | | | | | | | |
| 1127 | 63,5 | 51 | 76 | 197 | 25 | 187 | 102 | 137 | 168 | 686 | 533 |
| 1131 | 63,5 | 51 | 76 | 200 | 29 | 191 | 114 | 137 | 168 | 787 | 635 |
| 1136 | 63,5 | 51 | 76 | 203 | 32 | 194 | 127 | 137 | 168 | 914 | 711 |
| 1431 | 76,2 | 44 | 76 | 225 | 10 | 192 | 114 | 164 | 213 | 787 | 635 |
| 1436 | 76,2 | 44 | 76 | 225 | 10 | 195 | 127 | 164 | 213 | 914 | 711 |
| 1440 | 76,2 | 44 | 76 | 225 | 10 | 202 | 152 | 164 | 213 | 1016 | 813 |
| 1445 | 76,2 | 44 | 76 | 225 | 10 | 202 | 152 | 164 | 213 | 1143 | 933 |
| 1636 | 88,9 | 64 | 95 | 237 | 27 | 227 | 127 | 164 | 213 | 914 | 711 |
| 1640 | 88,9 | 64 | 95 | 243 | 33 | 233 | 152 | 164 | 213 | 1016 | 813 |
| 1645 | 88,9 | 64 | 64 | 243 | 33 | 233 | 152 | 164 | 213 | 1143 | 933 |
| 1650 | 88,9 | 64 | 64 | 246 | 37 | 237 | 178 | 164 | 213 | 1270 | 1041 |
| 2040 | 101,6 | 76 | 102 | 243 | 18 | 233 | 152 | 164 | 222 | 1016 | 813 |
| 2045 | 101,6 | 76 | 102 | 243 | 18 | 233 | 152 | 164 | 222 | 1143 | 933 |
| 2050 | 101,6 | 76 | 102 | 249 | 24 | 240 | 178 | 164 | 222 | 1270 | 1041 |
| 2056 | 101,6 | 76 | 102 | 249 | 24 | 240 | 178 | 164 | 222 | 1422 | 1168 |
| 2445 | 114,3 | 95 | 121 | 252 | 25 | 243 | 152 | 198 | 254 | 1143 | 933 |
| 2450 | 114,3 | 95 | 121 | 259 | 32 | 249 | 178 | 198 | 254 | 1270 | 1041 |
| 2456 | 114,3 | 95 | 121 | 259 | 32 | 249 | 178 | 198 | 254 | 1422 | 1168 |
| 2850 | 127,0 | 121 | 140 | 264 | 10 | 249 | 178 | 318 | 302 | 1270 | 1041 |
| 2856 | 127,0 | 121 | 140 | 264 | 10 | 256 | 178 | 318 | 302 | 1422 | 1168 |
| 2862 | 127,0 | 121 | 140 | 264 | 10 | 256 | 203 | 318 | 302 | 1575 | 1295 |
| 2868 | 127,0 | 121 | 140 | 264 | 10 | 256 | 203 | 318 | 302 | 1727 | 1295 |
| 3356 | 139,7 | 121 | 152 | 267 | 15 | 258 | 178 | 318 | 300 | 1422 | 1168 |
| 3362 | 139,7 | 121 | 152 | 267 | 15 | 258 | 203 | 318 | 300 | 1575 | 1295 |
| 3368 | 139,7 | 121 | 152 | 267 | 15 | 258 | 203 | 318 | 300 | 1727 | 1295 |
| 3762 | 152,4 | 140 | 165 | 267 | 13 | 258 | 203 | 318 | 302 | 1575 | 1295 |
| 3768 | 152,4 | 140 | 165 | 267 | 13 | 258 | 203 | 318 | 302 | 1727 | 1295 |
| SI | Dimensions in millimeters | | | | | | | | | | |

See Section G for various types of spring-applied brakes which can be used with this fly-wheel/clutch package.



Notes:

- ① Optional belt grooving or gear teeth can be machined in the flywheel rim at additional cost.
- ② Shaft radius 0.25 in (6 mm) for all sizes.
- ③ American National Pipe Thread
 1/4-18 for sizes 1127 thru 1136
 1/2-14 for sizes 1431 thru 2456
 1-11 1/2 for all other sizes