# Square body demonstrates powerful downsizing capacity. 

## JIG CYLINDERS C SERIES

## Ritcily sibundime sertes of 9 difiterent types amd 69 models

A rich series configuration spanning from $\phi 6$ [0.236in.] to $\boldsymbol{\phi} 100$ [3.940in.] responds to diverse needs far better than previous thin type cylinders.
Moreover, Non-ion specification is also available as standard.
(Excludes $\boldsymbol{\phi} 6$ [0.236in.], $\phi 8$ [0.315in.], and $\boldsymbol{\phi} 10$ [0.394in.])

## Provides powerful back-lp for device minitaturketion

Exhibits no protrusions in its external shape even after a sensor switch has been mounted, for easy mounting in tight spaces.
This cylinder is one step up on cylinders of the same class in terms of size, mass, and performance.


## New Line-Up Includes $\boldsymbol{\phi} 6$ [0.236in.], $\boldsymbol{\phi} 8$ [0.315in.], and $\boldsymbol{\phi} 10$ [0.394in.]

For a greater selection in response to needs for miniaturization, 3 new bore sizes at $\phi 6, \phi 8$, and $\phi 10$ have been added, increasing the range of sizes to choose from.


## The Jig Gylinders C Series Includes the 9 Types Shown Below.



Lateral Load Resistant Cylinders
p. 180


Mounting Brackets

$\square$ Sensor Switches
p. 199



Tandem Cylinders
p. 161


Long Stroke Cylinders
p. 185


Select a suitable bore size considering the load and air pressure to obtain the required thrust.
Since the figures in the table are calculated values, select a bore size that results in a load ratio (load ratio $=\frac{\text { Load }}{\text { Calculated value }}$ ) of $70 \%$
or less $(50 \%$ or less for high speed).

| Double acting type |  |  |  |  |  |  |  |  | N [lbf.] |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Bore size mm [in.] | Piston rod diameter mm [in.] | Operation | $\begin{aligned} & \text { Pressure area } \\ & \mathrm{mm}^{2} \text { [in? }{ }^{2} \text { ] } \end{aligned}$ | Air pressure MPa [psi.] |  |  |  |  |  |  |  |  |  |
|  |  |  |  | 0.1 [15] | 0.2 [29] | 0.3 [44] | 0.4 [58] | 0.5 [73] | 0.6 [87] | 0.7 [102] | 0.8 [116] | 0.9 [131] | 1.0 [145] |
| 6 [0.236] | 4 [0.157] | Push side | 28.3 [0.0439] | 2.8 [0.63] | 5.7 [1.28] | 8.5 [1.91] | 11.3 [2.54] | 14.1 [3.17] | 17.0 [3.82] | 19.8 [4.45] | 22.6 [5.08] | 25.4 [5.71] | - |
|  |  | Pull side | 15.7 [0.0243] | 1.6 [0.36] | 3.1 [0.7] | 4.7 [1.06] | 6.3 [1.42] | 7.9 [1.78] | 9.4 [2.11] | 11.0 [2.47] | 12.6 [2.83] | 14.1 [3.17] | - |
| 8 [0.315] | 5 [0.197] | Push side | 50.3 [0.0780] | 5.0 [1.12] | 10.1 [2.27] | 15.1 [3.39] | 20.1 [4.52] | 25.1 [5.64] | 30.2 [6.79] | 35.2 [7.91] | 40.2 [9.04] | 45.2 [10.2] | - |
|  |  | Pull side | 30.6 [0.0474] | 3.1 [0.70] | 6.1 [1.37] | 9.2 [2.07] | 12.3 [2.77] | 15.3 [3.44] | 18.4 [4.14] | 21.4 [4.81] | 24.5 [5.51] | 27.6 [6.20] | - |
| 10 [0.394] | 5 [0.197] | Push side | 78.5 [0.1217] | 7.9 [1.78] | 15.7 [3.53] | 23.6 [5.31] | 31.4 [7.06] | 39.3 [8.83] | 47.1 [10.6] | 55.0 [12.4] | 62.8 [14.1] | 70.7 [15.9] | - |
|  |  | Pull side | 58.9 [0.0913] | 5.9 [1.33] | 11.8 [2.65] | 17.7 [3.98] | 23.6 [5.31] | 29.5 [6.63] | 35.3 [7.94] | 41.2 [9.26] | 47.1 [10.6] | 53.0 [11.9] | - |
| 12 [0.472] | 6 [0.236] | Push side | 113.0 [0.175] | 11.3 [2.54] | 22.6 [5.08] | 33.9 [7.62] | 45.2 [10.2] | 56.5 [12.7] | 67.8 [15.2] | 79.1 [17.8] | 90.4 [20.3] | 101.7 [22.86] | 113.0 [25.40] |
|  |  | Pull side | 84.8 [0.131] | 8.5 [1.91] | 17.0 [3.82] | 25.4 [5.71] | 33.9 [7.62] | 42.4 [9.53] | 50.9 [11.4] | 59.3 [13.3] | 67.8 [15.2] | 76.3 [17.2] | 84.8 [19.1] |
| 16 [0.630] | 8 [0.315] | Push side | 201.0 [0.312] | 20.1 [4.52] | 40.2 [9.04] | 60.3 [13.6] | 80.4 [18.1] | 100.5 [22.59] | 120.6 [27.11] | 140.7 [31.63] | 160.8 [36.15] | 180.9 [40.67] | 201.0 [45.18] |
|  |  | Pull side | 150.0 [0.233] | 15.1 [3.39] | 30.1 [6.77] | 45.2 [10.2] | 60.3 [13.6] | 75.4 [16.9] | 90.4 [20.3] | 105.5 [23.72] | 120.6 [27.11] | 135.6 [30.48] | 150.7 [33.88] |
| 20 [0.787] | 10 [0.394] | Push side | 314.0 [0.487] | 31.4 [7.06] | 62.8 [14.1] | 94.2 [21.2] | 125.6 [28.23] | 157.0 [35.29] | 188.4 [42.35] | 219.8 [49.41] | 251.2 [56.47] | 282.6 [63.53] | 314.0 [70.59] |
|  |  | Pull side | 235.5 [0.365] | 23.6 [5.31] | 47.1 [10.6] | 70.7 [15.9] | 94.2 [21.2] | 117.8 [26.48] | 141.3 [31.76] | 164.9 [37.07] | 188.4 [42.35] | 212.0 [47.66] | 235.5 [52.94] |
| 25 [0.984] | 12 [0.472] | Push side | 490.6 [0.760] | 49.1 [11.0] | 98.1 [22.1] | 147.2 [33.09] | 196.3 [44.13] | 245.3 [55.14] | 294.4 [66.18] | 343.4 [77.20] | 392.5 [88.23] | 441.6 [99.27] | 490.6 [110.3] |
|  |  | Pull side | 377.6 [0.585] | 37.8 [8.50] | 75.5 [17.0] | 113.3 [25.47] | 151.0 [33.94] | 188.8 [42.44] | 226.6 [50.94] | 264.3 [59.41] | 302.1 [67.91] | 339.8 [76.39] | 377.6 [84.88] |
| 32 [1.260] | 16 [0.630] | Push side | 803.8 [1.246] | 80.4 [18.1] | 160.8 [36.15] | 241.2 [54.22] | 321.5 [72.27] | 401.9 [90.35] | 482.3 [108.4] | 562.7 [126.5] | 643.1 [144.6] | 723.5 [162.6] | 803.8 [180.7] |
|  |  | Pull side | 602.9 [0.934] | 60.3 [13.6] | 120.6 [27.11] | 180.9 [40.67] | 241.2 [54.22] | 301.4 [67.75] | 361.7 [81.31] | 422.0 [94.87] | 482.3 [108.4] | 542.6 [122.0] | 602.9 [135.5] |
| 40 [1.575] | 16 [0.630] | Push side | 1256.0 [1.947] | 125.6 [28.23] | 251.2 [56.47] | 376.8 [84.70] | 502.4 [112.9] | 628.0 [141.2] | 753.6 [169.4] | 879.2 [197.6] | 1004.8 [225.9] | 1130.4 [254.1] | 1256.0 [282.3] |
|  |  | Pull side | 1055.0 [1.635] | 105.5 [23.72] | 211.0 [47.43] | 316.5 [71.15] | 422.0 [94.87] | 527.5 [118.6] | 633.0 [142.3] | 738.5 [166.0] | 844.0 [189.7] | 949.5 [213.4] | 1055.0 [237.2] |
| 50 [1.969] | 20 [0.787] | Push side | 1962.5 [3.042] | 196.3 [44.13] | 392.5 [88.23] | 588.8 [132.4] | 785.0 [176.5] | 981.3 [220.6] | 1177.5 [264.7] | 1373.8 [308.8] | 1570.0 [352.9] | 1766.3 [397.1] | 1962.5 [441.2] |
|  |  | Pull side | 1648.5 [2.555] | 164.9 [37.07] | 329.7 [74.12] | 494.6 [111.2] | 659.4 [148.2] | 824.3 [185.3] | 989.1 [222.3] | 1154.0 [259.4] | 1318.8 [296.5] | 1483.7 [333.5] | 1648.5 [370.6] |
| 63 [2.480] | 20 [0.787] | Push side | 3115.7 [4.829] | 311.6 [70.05] | 623.1 [140.1] | 934.7 [210.1] | 1246.3 [280.2] | 1557.8 [350.2] | 1869.4 [420.2] | 2181.0 [490.3] | 2492.5 [560.3] | 2804.1 [630.4] | 3115.7 [700.4] |
|  |  | Pull side | 2801.7 [4.343] | 280.2 [62.99] | 560.3 [126.0] | 840.5 [188.9] | 1120.7 [251.9] | 1400.8 [314.9] | 1681.0 [377.9] | 1961.2 [440.9] | 2241.3 [503.8] | 2521.5 [566.8] | 2801.7 [629.8] |
| 80 [3.150] | 25 [0.984] | Push side | 5024.0 [7.787] | 502.4 [112.9] | 1004.8 [225.9] | 1507.2 [338.8] | 2009.6 [451.8] | 2512.0 [564.7] | 3014.4 [677.6] | 3516.8 [790.6] | 4019.2 [903.5] | 4521.6 [1016.5] | 5024.0 [1129.4] |
|  |  | Pull side | 4533.4 [7.027] | 453.3 [101.9] | 906.7 [203.8] | 1360.0 [305.7] | 1813.4 [407.7] | 2266.7 [509.6] | 2720.0 [611.5] | 3173.4 [713.4] | 3626.7 [815.3] | 4080.0 [917.2] | 4533.4 [1019.1] |
| 100 [3.940] | 32 [1.181] | Push side | 7850.0 [12.168] | 785.0 [176.5] | 1570.0 [352.9] | 2355.0 [529.4] | 3140.0 [705.9] | 3925.0 [882.3] | 4710.0 [1058.8] | 5495.0 [1235.3] | 6280.0 [1411.7] | 7065.0 [1588.2] | 7850.0 [1764.7] |
|  |  | Pull side | 7046.2 [10.922] | 704.6 [158.4] | 1409.2 [316.8] | 2113.8 [475.2] | 2818.5 [633.6] | 3523.1 [792.0] | 4227.7 [950.4] | 4932.3 [1108.8] | 5636.9 [1267.2] | 6341.5 [1425.6] | 7046.2 [1584.0] |


| Single acting push type <br> Single acting pull type <br> N [lbf.] |  |  |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Operation type | $\begin{array}{\|c} \hline \text { Bore size } \\ \mathrm{mm} \text { [in.] } \\ \hline \end{array}$ | Piston rod <br> diameter <br> mm [in.] | Pressure area $\mathrm{mm}^{2}$ [in.] | Air pressure |  |  |  |  |  |  |  |  |  |
|  |  |  |  | 0.1 [15] | 0.2 [29] | 0.3 [44] | 0.4 [58] | 0.5 [73] | 0.6 [87] | 0.7 [102] | 0.8 [116] | 0.9 [131] | 1.0 [145] |
| Single acting push type | 6 [0.236] | 4 [0.157] | 28.3 [0.0439] | - | - | 5.6 [1.26] | 8.4 [1.89] | 11.2 [2.52] | 14.1 [3.17] | 16.9 [3.80] | 19.7 [4.43] | 22.5 [5.06] | - |
|  | 8 [0.315] | $5[0.197]$ | 50.3 [0.0780] | - | - | 10.4 [2.34] | 15.4 [3.46] | 20.4 [4.59] | 25.5 [5.73] | 30.5 [6.86] | 35.5 [7.98] | 40.5 [9.10] | - |
|  | 10 [0.394] | 5 [0.197] | $78.5[0.1217]$ | - | - | 18.9 [4.25] | 26.7 [6.00] | 34.6 [7.78] | 42.4 [9.53] | 50.3 [11.3] | 58.1 [13.1] | 66.0 [14.8] | - |
|  | 12 [0.472] | 6 [0.236] | 113.0 [0.175] | - | 12.8 [2.88] | 24.1 [5.42] | 35.4 [7.96] | 46.7 [10.5] | 58.0 [13.0] | 69.3 [15.6] | 80.6 [18.1] | 91.9 [20.7] | 103.2 [23.20] |
|  | 16 [0.630] | $6[0.236]$ | 201.0 [0.312] | - | 26.1 [5.87] | 46.2 [10.4] | 66.3 [14.9] | 86.4 [19.4] | 106.5 [23.94] | 126.6 [28.46] | 146.7[32.98] | 166.8 [37.50] | 186.9 [42.02] |
|  | 20 [0.787] | 8 [0.315] | 314.0 [0.487] | - | 49.0 [11.0] | 80.4 [18.1] | 111.8 [25.13] | 143.2 [32.19] | 174.6 [39.25] | 206.0 [46.31] | 237.4 [53.37] | 268.8 [60.43] | 300.2 [67.48] |
|  | 25 [0.984] | 10 [0.394] | 490.6 [0.760] | - | 76.3 [17.2] | 125.4 [28.19] | 174.5 [39.23] | 223.5 [50.24] | 272.6 [61.28] | 321.6 [72.30] | 370.7 [83.33] | 419.8 [94.37] | 468.8 [105.4] |
|  | 32 [1.260] | 12 [0.472] | 803.8 [1.246] | - | 123.4 [27.74] | 203.8 [45.81] | 284.1 [63.87] | 364.5 [81.94] | 444.9 [100.0] | 525.3 [118.1] | 605.7 [136.2] | 686.1 [154.2] | 766.4 [172.3] |
|  | 40 [1.575] | 16 [0.630] | 1256.0 [1.947] | - | 205.9 [46.29] | 331.5 [74.52] | 457.1 [102.8] | 582.7 [131.0] | 708.3 [159.2] | 833.9 [187.5] | 959.5 [215.7] | 1085.1 [243.9] | 1210.5 [272.1] |
|  | 50 [1.969] | $20[0.787]$ | 1962.5[3.042] | 141.0[31.70] | 337.2 [75.80] | $533.5[119.9]$ | 729.7 [164.0] | 926.0 [208.2] | 1122.2 [252.3] | 1318.5 [296.4] | 1514.7 [340.5] | 1711.0 [384.6] | 1907.2[428.7] |
| Single acting pull type | 6 [0.236] | 4 [0.157] | 15.7 [0.0243] | - | - | 1.8 [0.40] | $3.4[0.76]$ | 5.0 [1.12] | 6.5 [1.46] | 8.1 [1.82] | 9.7 [2.18] | 11.2 [2.52] | - |
|  | 8 [0.315] | 5 [0.197] | 30.6 [0.0474] | - | - | 4.5 [1.01] | 7.6 [1.71] | 10.6 [2.38] | 13.7 [3.08] | 16.7 [3.75] | 19.8 [4.45] | 22.9 [5.15] | - |
|  | 10 [0.394] | 5 [0.197] | 58.9 [0.0913] | - | - | 13.0 [2.92] | 18.9 [4.25] | 24.8 [5.58] | 30.6 [6.88] | 36.5 [8.21] | 42.4 [9.53] | 48.3 [10.9] | - |
|  | 12 [0.472] | 6 [0.236] | 84.8 [0.131] | - | 7.2 [1.62] | 15.6 [3.51] | 24.1 [5.42] | 32.6 [7.33] | 41.1 [9.24] | 49.5 [11.1] | 58.0 [13.0] | 66.5 [14.9] | 75.0 [16.9] |
|  | 16 [0.630] | 6 [0.236] | 150.7 [0.234] | - | 16.0 [3.60] | 31.1 [6.99] | 46.2 [10.4] | 61.3 [13.8] | 76.3 [17.2] | 91.4 [20.5] | 106.5 [23.94] | 121.5 [27.31] | 136.6 [30.71] |
|  | 20 [0.787] | 8 [0.315] | $235.5[0.365]$ | - | 33.3 [7.49] | 56.9 [12.8] | 80.4 [18.1] | 104.0 [23.38] | 127.5 [28.66] | 151.1 [33.97] | 174.6 [39.25] | 198.2 [44.56] | 221.7 [49.84] |
|  | 25 [0.984] | 10 [0.394] | 377.6 [0.585] | - | 75.5 [17.0] | 113.3 [25.47] | 151.0 [33.94] | 188.8 [42.44] | 226.6 [50.94] | 264.3 [59.41] | 302.1 [67.91] | 339.8 [76.39] | 377.6 [84.88] |
|  | 32 [1.260] | 12 [0.472] | 602.9 [0.934] | - | 61.4 [13.8] | 121.7 [27.36] | 182.0 [40.91] | 242.2 [54.45] | 302.5 [68.00] | 362.8 [81.56] | 423.1 [95.11] | 483.4 [108.7] | 543.7 [122.2] |
|  | 40 [1.575] | 16 [0.630] | 1055.0 [1.635] | - | 165.7 [37.25] | 271.2 [60.97] | 376.7 [84.68] | 482.2 [108.4] | 587.7 [132.1] | 693.2 [155.8] | 798.7 [179.5] | 904.2 [203.3] | 1009.7 [227.0] |
|  | 50 [1.969] | 20 [0.787] | 1648.5 [2.555] | 109.6 [24.64] | 274.4 [61.69] | 439.3 [98.75] | 604.1 [135.8] | 769.0 [172.9] | 933.8 [209.9] | 1098.7 [247.0] | 1263.5 [284.0] | 1428.4 [321.1] | 1593.2 [358.2] |

Spring return force

| Bore size mm | Stroke mm | Zero stroke | End of stroke |
| :---: | :---: | :---: | :---: |
| 6 | $\begin{array}{r} \times 5 \\ \times 10 \\ \hline \end{array}$ | $\begin{array}{\|l\|l\|} \hline 2.1[0.47] \\ 1.2[0.27] \\ \hline \end{array}$ | 2.9 [0.65] |
| 8 | $\begin{array}{r} \times 5 \\ \times 10 \\ \hline \end{array}$ | $\begin{array}{\|l\|} \hline 3.3[0.74] \\ 1.9[0.43] \\ \hline \end{array}$ | 4.7 [1.06] |
| 10 | $\begin{array}{r} \times 5 \\ \times 10 \\ \hline \end{array}$ | $\begin{aligned} & 3.3[0.74] \\ & 1.9[0.43] \\ & \hline \end{aligned}$ | 4.7 [1.06] |
| 12 | $\begin{aligned} & \times 5 \\ & \times 10 \\ & \times 15 \\ & \times 20 \\ & \times 25 \\ & \times 30 \end{aligned}$ | $7.7[1.73]$ <br> $5.7[1.28]$ <br> $3.7[0.83]$ <br> $5.7[1.28]$ <br> $4.7[1.06]$ <br> $3.7[0.83]$ | 9.8 [2.20] |
| 16 | $\begin{array}{r} \times 5 \\ \times 10 \\ \times 15 \\ \times 20 \\ \times 25 \\ \times 30 \\ \hline \end{array}$ | $\begin{aligned} & 11.1[2.50] \\ & 8.2[1.84] \\ & 5.3[1.19] \\ & 8.2[1.84] \\ & 6.7[1.51] \\ & 5.3[1.19] \\ & \hline \end{aligned}$ | 14.1 [3.17] |
| 20 | $\begin{aligned} & \times 5 \\ & \times 10 \\ & \times 15 \\ & \times 20 \\ & \times 25 \\ & \times 30 \end{aligned}$ | $11.6[2.61]$ $9.5[2.14]$ $7.3[1.64$ $9.5[2.14]$ $8.4[1.89$ $7.3[1.64]$ | 13.8 [3.10] |

## How to read the thrust table

1. For the thrust of the double rod cylinder double acting type, see the pull side of the double acting type thrust table. For the thrust of the single acting type, see the single acting pull type thrust table.
2. The thrust of the tandem cylinder is double that of the standard type when air is supplied simultaneously to Port A and Port B, for any operation type before the stroke in Cylinder 1 is complete. When air is supplied to any of Ports $A$, $B$, or $C$ alone, then the thrust is the same as for the standard type.

3. The thrust for dual stroke cylinders is the same as for the standard type, for any operation type.
4. When directly carrying a load, care must be exercised of a lateral load.
For details, see p. 206 "Lateral Load."

## -Square rod cylinders

| Bore size mm [in.] | $\begin{gathered} \hline \text { Piston rod } \\ \text { size } \\ \text { mm [in.] } \\ \hline \end{gathered}$ | Operation | Pressure area $\mathrm{mm}^{2}$ [in.] | Air pressure MPa |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | 0.1 [15] | 0.2 [29] | 0.3 [44] | 0.4 [58] | 0.5 [73] | 0.6 [87] | 0.7 [102] | 0.8 [116] | 0.9 [131] | 1.0 [145] |
| 20 [0.787] | $\begin{gathered} \square 7.4 \\ {[\square 0.291]} \end{gathered}$ | Push side | 314.0 [0.487] | 31.4 [7.06] | 62.8 [14.1] | 94.2 [21.2] | 125.6 [28.23] | 157.0 [35.29] | 188.4 [42.35] | 219.8 [49.41] | 251.2 [56.47] | 282.6 [63.53] | 314.0 [70.59] |
|  |  | Pull side | 259.2 [0.402] | 25.9 [5.82] | 51.8 [11.6] | 77.8 [17.5] | 103.7 [23.3] | 129.6 [29.13] | 155.5 [34.96] | 181.5[40.80] | 207.4 [46.62] | 233.3 [52.45] | 259.2 [58.27] |
| 25 [0.984] |  | Push side | 490.6 [0.760] | 49.1 [11.0] | 98.1 [22.1] | 147.2 [33.09] | 196.3[44.13] | 245.3 [55.14] | 294.4 [66.18] | 343.4 [77.20] | 392.5 [88.23] | 441.6 [99.27] | 490.6 [110.3] |
|  |  | Pull side | 435.9 [0.676] | 43.6 [9.80] | 87.2 [19.6] | 130.8 [29.40] | 174.3 [39.18] | 217.9 [48.98] | 261.5 [58.79] | 305.1 [68.59] | 348.7 [78.39] | 392.3 [88.19] | 435.9 [97.99] |
| 32 [1.260] | $\begin{gathered} \square 13 \\ \square 0.512] \end{gathered}$ | Push side | 803.8 [1.246] | 80.4 [18.1] | 160.8 [36.15] | 241.2 [54.22] | 321.5 [72.27] | 401.9 [90.35] | 482.3 [108.4] | 562.7 [126.5] | 643.1 [144.6] | 723.5 [162.6] | 803.8 [180.7] |
|  |  | Pull side | 634.8 [0.984] | 63.5 [14.3] | 127.0 [28.55] | 190.5 [42.82] | 253.9 [57.08] | 317.4 [71.35] | 380.9 [85.63] | 444.4 [99.90] | 507.9 [114.2] | 571.4 [128.5] | 634.8 [142.7] |
| 40 [1.575] |  | Push side | 1256.0 [1.947] | 125.6 [28.23] | 251.2 [56.47] | 376.8 [84.70] | 502.4 [112.9] | 628.0 [141.2] | 753.6 [169.4] | 879.2 [197.6] | 1004.8 [225.9] | 1130.4 [254.1] | 1256.0 [282.3] |
|  |  | Pull side | 1087.0 [1.685] | 108.7 [24.44] | 217.4 [48.87] | 326.1 [73.31] | 434.8 [97.74] | 543.5 [122.2] | 652.2 [146.6] | 760.9 [171.1] | 869.6 [195.5] | 978.3 [219.9] | 1087.0 [244.4] |
| 50 [1.969] | $\begin{gathered} \square 18 \\ {[\square 0.709]} \end{gathered}$ | Push side | 1962.5 [3.042] | 196.3 [44.13] | 392.5 [88.23] | 588.8 [132.4] | 785.0 [176.5] | 981.3 [220.6] | 1177.5 [264.7] | 1373.8 [308.8] | 1570.0 [352.9] | 1766.3 [397.1] | 1962.5 [441.2] |
|  |  | Pull side | 1638.5 [2.540] | 163.9 [36.84] | 327.7 [73.67] | 491.6 [110.5] | 655.4 [147.3] | 819.3 [184.2] | 983.1 [221.0] | 1147.0 [257.8] | 1310.8 [294.7] | 1474.7 [331.5] | 1638.5 [368.3] |
| 63 [2.480] |  | Push side | 3115.7 [4.829] | 311.6 [70.05] | 623.1 [140.1] | 934.7 [210.1] | 1246.3 [280.2] | 1557.8 [350.2] | 1869.4 [420.2] | 2181.0 [490.3] | 2492.5 [560.3] | 2804.1 [630.4] | 3115.7 [700.4] |
|  |  | Pull side | 2791.7 [4.327] | 279.2 [62.76] | 558.3 [125.5] | 837.5 [188.3] | 1116.7 [251.0] | 1395.8 [313.8] | 1675.0 [376.5] | 1954.2 [439.3] | 2233.3 [502.0] | 2512.5 [564.8] | 2791.7 [627.6] |

## JIG CYLINDERS C SERIES STANDARD CYLINDERS

Double Acting Type,<br>Single Acting Push Type, Single Acting Pull Type

## Symbols

Double acting type - Single acting push type - Single acting pull type


## Specifications

| Item Bore size mm [in.] |  | 6 [0.236] | 8 [0.315] | 10 [0.394] | 12 [0.472] | 16 [0.630] | 20 [0.787] | 25 [0.984] | 32 [1.260] | 40 [1.575] | 50 [1.969] | 63 [2.480] | 80 [3.150] | 100 [3.940] |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Operation type |  | Double acting type, Single acting push type, Single acting pull type |  |  |  |  |  |  |  |  |  | Double acting type |  |  |
| Media |  | Air |  |  |  |  |  |  |  |  |  |  |  |  |
| Operating pressure range MPa [psi.] | Double acting type | $\begin{aligned} & 0.15 \sim 0.9 \\ & {[22 \sim 131]} \end{aligned}$ |  |  | $\begin{gathered} 0.1 \sim 1.0 \\ {[15 \sim 145]} \end{gathered}$ |  |  |  |  |  | $\begin{gathered} 0.05 \sim 1.0 \\ {[7 \sim 145]} \end{gathered}$ |  |  |  |
|  | Single acting type | $\begin{aligned} & 0.25 \sim 0.9 \\ & {[36 \sim 131]} \end{aligned}$ |  |  | $\begin{gathered} 0.15 \sim 1.0 \text { Note } 1 \\ {[22 \sim 145]} \end{gathered}$ |  |  |  |  |  | $\left\lvert\, \begin{gathered} 0.1 \sim 1.0 \\ {[15 \sim 145]} \end{gathered}\right.$ | - |  |  |
| Proof pressure MPa [psi.] |  | 1.35 [196] |  |  | 1.5 [218] |  |  |  |  |  |  |  |  |  |
| Operating temperature range ${ }^{\circ} \mathrm{C}\left[{ }^{\circ} \mathrm{F}\right]$ |  | 0~60 [32~140] (The heat resistant specification is 120 [248]. Note2) |  |  |  |  |  |  |  |  |  |  |  |  |
| Operating speed range $\mathrm{mm} / \mathrm{s}$ [in./sec.] | Double acting type | 30~500 [1.2~19.7] |  |  | 30~500 [1.2~19.7] |  |  |  |  |  | 30~300 [1.2~11.8] |  |  |  |
|  | Single acting type | 50~500 [2.0~19.7] |  |  | 100~500 [3.9~19.7] |  |  |  |  |  | $\begin{gathered} 100 \sim 300 \\ {[3.9 \sim 11.8]} \end{gathered}$ | - |  |  |
| Cushion | Double acting type | None |  |  | Rubber bumper (Option ${ }^{\text {Note3) }}$ |  |  |  |  |  |  |  |  |  |
|  | Single acting type | None |  |  |  |  |  |  |  |  |  | - |  |  |
| Lubrication |  | Not required (If lubrication is required, use Turbine Oil Class 1 [ISO VG32] or equivalent.) |  |  |  |  |  |  |  |  |  |  |  |  |
| Port size |  | M3 $\times 0.5$ |  |  | M5 $\times 0.8$ |  |  |  | Rc1/8 |  | Rc1/4 |  | Rc3/8 |  |

Remark: For Handling Instructions and Precautions, see p. 205.
Notes: 1. The single acting pull type of $\phi 12$ is $0.18 \sim 1.0 \mathrm{MPa}$ [26~145psi.].
2. For heat resistant specification, it is not available with the sensor switch. Not available for bore sizes $\phi 6, \phi 8$, and $\phi 10$.
3. Not available for bore sizes $\phi 6, \phi 8$, and $\phi 10$, and heat resistant specification.

Note: For strokes that exceed the maximum standard strokes for each double acting type cylinder's bore size, use the long stroke cylinders on p.185~189.
Bore Size and Stroke


Remarks: 1. Stroke tolerance ${ }_{0}^{+1}$ [ ${ }_{0}^{+0.039 i n}$.]
2. In most cases, body cutting is used for the non-standard strokes. However, body cutting is not used for strokes of less than 5 mm for $\phi 12 \sim \phi 40$, and strokes of less than 10 mm for $\phi 50 \sim \phi 100$. The collar packed is used for these cases.

Order Codes for Standard Cylinders


## Additional Parts (To be ordered separately)



Foot mounting
bracket
(p.197)


Flange mounting bracket (p.198)


Mounting
screws
(p.209)

## Double acting type (CDA)

$\phi 6 \sim \phi 10$


Single acting push type (CSA)
$\phi 6 \sim \phi 10$


## Single acting pull type (CTA)

$\phi 6 \sim \phi 10$



Cylinder with magnet


The diagram is for $\phi 12 \sim \phi 100$.

With bumper


- The diagram is for $\phi 12 \sim \phi 100$.

Major Parts and Materials


## Seals

| Bore <br> Barts <br> mm | Rod seal | Piston seal | Tube gasket |  |
| :---: | :---: | :---: | :---: | :---: |
|  |  |  | Rod side | Head side |
| $\phi \mathbf{1 2}$ | MYR-6 | COP-12 | Y090260 | None |
| $\phi \mathbf{1 6}$ | MYR-8 | COP-16 | Y090207 | None |
| $\phi \mathbf{2 0}$ | MYR-10 | COP-20(MYA-16) | Y090216 | None |
| $\phi \mathbf{2 5}$ | MYR-12 | COP-25(MYA-21) | Y090210 | None |
| $\phi \mathbf{3 2}$ | MYR-16 | COP-32 | L090084 | None |
| $\phi \mathbf{4 0}$ | MYR-16 | COP-40 | L090151 | None |
| $\phi \mathbf{5 0}$ | MYR-20 | COP-50 | L090174 | L090106 |
| $\phi \mathbf{6 3}$ | MYR-20 | COP-63 | L090180 | L090107 |
| $\phi \mathbf{8 0}$ | PNY-25 | COP-80 | L090171 | L090108 |
| $\phi \mathbf{1 0 0}$ | PNY-32 | COP-100 | L090172 | L090109 |

Note: Items in parentheses ( ) are for the single acting type.

Mass

## －Double acting type

g［oz．］

| Bore size mm ［in．］ | Zero stroke mass | Additional mass for each 1 mm ［0．0394in．］stroke | Additional mass of cylinder with bumper | Additional mass of cylinder with magnet | Mass of mounting bracket |  | Additional mass of sensor switch ${ }^{\text {Note }}$ |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  |  | Foot bracket | Flange bracket | ZE $\square \square \square \mathbf{A}$ | ZE $\square \square \square \mathbf{B}$ |
| 6 ［0．236］ | 9.2 ［0．325］ | 0.74 ［0．0261］ | － | 3.9 ［0．138］ | － | － | 15 ［0．53］ | 35 ［1．23］ |
| 8 ［0．315］ | 13.1 ［0．462］ | 0.95 ［0．0335］ | － | 5.4 ［0．190］ | － | － |  |  |
| 10 ［0．394］ | 18.1 ［0．638］ | 1.12 ［0．0395］ | － | 6.8 ［0．240］ | － | － |  |  |
| 12 ［0．472］ | 20.59 ［0．726］ | 1.28 ［0．0451］ | 6.42 ［0．226］ | 6.59 ［0．232］ | 50 ［1．76］ | 55 ［1．94］ |  |  |
| 16 ［0．630］ | 28.93 ［1．020］ | 1.62 ［0．0571］ | 8.08 ［0．285］ | 9.93 ［0．350］ | 62 ［2．19］ | 71 ［2．50］ |  |  |
| 20 ［0．787］ | 46.71 ［1．648］ | 2.26 ［0．0797］ | 11.29 ［0．398］ | 25.71 ［0．907］ | 84 ［2．96］ | 101 ［3．56］ |  |  |
| 25 ［0．984］ | 70.47 ［2．486］ | 3.11 ［0．110］ | 15.53 ［0．548］ | 37.47 ［1．322］ | 104 ［3．67］ | 160 ［5．64］ |  |  |
| 32 ［1．260］ | 106.43 ［3．754］ | 4.11 ［0．145］ | 20.57 ［0．726］ | 52.43 ［1．849］ | 126 ［4．44］ | 186 ［6．56］ |  |  |
| 40 ［1．575］ | 166.15 ［5．861］ | 4.77 ［0．168］ | 0 | 69.15 ［2．439］ | 160 ［5．64］ | 335 ［11．82］ |  |  |
| 50 ［1．969］ | 271.69 ［9．583］ | 7.03 ［0．248］ | 0 | 108 ［3．81］ | 220 ［7．76］ | 447 ［15．77］ |  |  |
| 63 ［2．480］ | 435.06 ［15．35］ | 8.69 ［0．307］ | 0 | 159 ［5．61］ | 300 ［10．58］ | 591 ［20．85］ |  |  |
| 80 ［3．150］ | 861.44 ［30．39］ | 13.06 ［0．461］ | 0 | 245 ［8．64］ | 644 ［22．72］ | 1414 ［49．88］ |  |  |
| 100 ［3．940］ | 1583.88 ［55．87］ | 18.61 ［0．656］ | 0 | 360 ［12．70］ | 1172 ［41．34］ | 2606 ［91．92］ |  |  |

Note：Sensor switch codes $A$ and $B$ show the lead wire lengths．
A： 1000 mm ［39in．］B： 3000 mm ［118in．］

## －Single acting push type

| Item | Basic mass ${ }^{\text {Note1 }}$ |  |  |  |  |  |  |  | Additional mass of cylinder with magnet | Mass of mounting bracket |  | Additional mass of sensor switch Note2 |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Bore mm Stroke mm | 5 | 10 | 15 | 20 | 25 | 30 | 35 | 40 |  | Foot bracket | Flange bracket | ZE $\square \square \square \mathbf{A}$ | ZE $\square \square \square \mathrm{B}$ |
| 6 | $20.80 .734]$ | 24.50 .8884 | － | － | － | － | － | － | 3.9 ［0．138］ | － | － | 15 ［0．53］ | 35 ［1．23］ |
| 8 | 28．3［0．998］ | 33．1［1．167］ | － | － | － | － | － | － | 5.4 ［0．190］ | － | － |  |  |
| 10 | $36.2[1.277]$ | 41．8［1．1774 | － | － | － | － | － | － | 6.8 ［0．240］ | － | － |  |  |
| 12 | $32881[1.157]$ | $39.22[1.383]$ | 45.64 ［1．610］ | $6772.36]$ | 73．42［2．500］ | 79．83［2816］ | － | － | 7.78 ［0．274］ | 50 ［1．76］ | 55 ［1．94］ |  |  |
| 16 | $46.6[1.644]$ | 54.88 ［1．229］ | 62．75［2．23］ | $91[3.21]$ | 99．08［［3，45］ | 107．15［3．780］ | － | － | 10.32 ［0．364］ | 62 ［2．19］ | 71 ［2．50］ |  |  |
| 20 | 58.33 ［2．057］ | 69．62［2．456］ | 80.91 ［2．854］ | $121[4.27]$ | $1332.294 .4666]$ | 14．588［5065］ | － | － | 25.38 ［0．895］ | 84 ［2．96］ | 101 ［3．56］ |  |  |
| 25 | 86．37［3．04］ | 101．9［1．534］ | 117．43［4．142］ | 17336．10］ | 188．53［6．650］ | 200．06［7．198］ | － | － | 39.1 ［1．379］ | 104 ［3．67］ | 160 ［5．64］ |  |  |
| 32 | $128.85[4.545]$ | 149．42［5．271］ | 169．99［5．906］ | $276[9.74]$ | 288.57 ［10．461］ | 317．14［11．187］ | － | － | 50.58 ［1．784］ | 126 ［4．44］ | 186 ［6．56］ |  |  |
| 40 | 190．73［6．728］ | 214．58［7．569］ | 238.43 ［8．40］ | $373[13.16]$ | 398．85［13．998］ | 420．7［14．84］ | － | － | 69.42 ［2．449］ | 160 ［5．64］ | 335 ［11．82］ |  |  |
| 50 | － | 343．95［12．132］ | ［79．111［13．372］ | 414．26［14．61］ | 588［20．53］ | 617．16［1．7．69］ | 655．31［23．009］ | 99］［68．77［24．249］ | 106.05 ［3．741］ | 220 ［7．76］ | 447 ［15．77］ |  |  |

Notes：1．The above table is for the standard strokes．
2．Sensor switch codes $A$ and $B$ show the lead wire lengths．
A： 1000 mm ［39in．］B：3000mm［118in．］

## －Single acting pull type

| Item | Basic mass Note1 |  |  |  |  |  |  |  | Additional mass of cylinder with magnet | Mass of mounting bracket |  | Additional mass of sensor switch ${ }^{\text {Note2 }}$ |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Bore mm Stroke mm | 5 | 10 | 15 | 20 | 25 | 30 | 35 | 40 |  | Foot bracket | Flange bracket | ZE $\square \square \square \mathbf{A}$ | ZE $\square \square \square \mathbf{B}$ |
| 6 | 20．5［0．723］ | $24.2[0.854]$ | － | － | － | － | － | － | 3.9 ［0．138］ | － | － | 15 ［0．53］ | 35 ［1．23］ |
| 8 | 27.6 ［0．74］ | 324［1．143］ | － | － | － | － | － | － | 5.5 ［0．194］ | － | － |  |  |
| 10 | 35．1［1．238］ | 40．7［1．436］ | － | － | － | － | － | － | 6.7 ［0．236］ | － | － |  |  |
| 12 | 32003［1．130］ | 38．44［1．36］］ | 44．80［1．58］ | $64[2.26]$ | 70.42 ［2484］ | $76.83[2.710]$ | － | － | 8.56 ［0．302］ | 50 ［1．76］ | 55 ［1．94］ |  |  |
| 16 | $45.55[1.607]$ | $53.65[1.892]$ | $61.7[2.176]$ | $86[3.03]$ | 940．08［3．319］ | 102．15［3．003］ | － | － | 11.37 ［0．401］ | 62 ［2．19］ | 71 ［2．50］ |  |  |
| 20 | 68．4［2413］ | 79.69 ［2811］ | 90．08［3．209］ | $125[4.41]$ | 136.29 ［．807］ | 147．58［5．206］ | － | － | 26.31 ［0．928］ | 84 ［2．96］ | 101 ［3．56］ |  |  |
| 25 | 100．02［3．528］ | 115．55［4．076］ | 131．08［4．623］ | 178［6．28］ | 199．53［6．826］ | 209．06 7.374 ］ | － | － | 38.45 ［1．356］ | 104 ［3．67］ | 160 ［5．64］ |  |  |
| 32 | 144．73［5．105］ | 165．3［5．831］ | 185．87［6．56］ | 26909．49］ | 289.57 ［10．214］ | 310．14［10．940］ | － | － | 51.71 ［1．824］ | 126 ［4．44］ | 186 ［6．56］ |  |  |
| 40 | $215.247 .7 .52]$ | 239．09［8．434］ | 262．9490．275］ | 374［13．19］ | $397.85[14.034]$ | 421．7［14．875］ | － | － | 67.91 ［2．395］ | 160 ［5．64］ | 335 ［11．82］ |  |  |
| 50 | － | 377．94［13．366］ | 414．1［14．61］ | ｜49．25［15．847］ | 580［20．46］ | 615．16［12．699］ | 650．31［22．339］ | ［68547［24．179］ | 70.06 ［2．471］ | 220 ［7．76］ | 447 ［15．77］ |  |  |

[^0]2．Sensor switch codes $A$ and $B$ show the lead wire lengths．
A： 1000 mm ［39in．］B： 3000 mm ［118in．］
Calculation example：For the mass of a double acting type cylinder with magnet，bore size of 25 mm ，stroke

$\phi 32 \sim \phi 100$

$\phi 6, \phi 8, \phi 10, \phi 12$


| $\square_{\text {Type }}$ | Standard cylinder (CDA) |  |  | Cylinder with magnet (CDAS) |  |  | Standard cylinder with bumper (CDA-R) |  |  | Clinder with magnet and bumper (CDAS-R) |  |  | D | E | K1 | M | $\mathrm{N}_{1}$ | $\mathrm{N}_{2}$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| $\underset{\substack{\text { Bore } \\ \mathrm{mm} \text { [in] }]}}{ }$ Code | A | B1 | C | A | B1 | C | A | B1 | C | A | B1 | C |  |  |  |  |  |  |
| 6 [0.236] | 19 | 5 | 14 | 24 | 5 | 19 | - | - | - | - | - | - | - | - | M2.5X0.45 Depth | 3 | 6.5 | 3.5 |
| 8 [0.315] | 20 | 5 | 15 | 25 | 5 | 20 | - | - | - | - | - | - | - | - | M3X0.5 Deph5 | 3 | 7.5 | 3.5 |
| 10 [0.394] | 21 | 5 | 16 | 26 | 5 | 21 | - | - | - | - | - | - | - | - | M3X0.5 Deph5 | 3 | 8 | 4 |
| 12 [0.472] | 22 | 5 | 17 | 27 | 5 | 22 | 27 | 5 | 22 | 32 | 5 | 27 | - | - | M3X0.5 Dephn6 | 3.5 | 8 | 5 |
| 16 [0.630] | 22.5 | 5.5 | 17 | 27.5 | 5.5 | 22 | 27.5 | 5.5 | 22 | 32.5 | 5.5 | 27 | - | 6.2 | M4X0.7 Deph8 | 3.5 | 8 | 5 |
| 20 [0.787] | 25 | 5.5 | 19.5 | 35 | 5.5 | 29.5 | 30 | 5.5 | 24.5 | 40 | 5.5 | 34.5 | - | 12.2 | M5X0.8 Depthio | 4.5 | 9.5 | 5 |
| 25 [0.984] | 27 | 6 | 21 | 37 | 6 | 31 | 32 | 6 | 26 | 42 | 6 | 36 | - | 12.2 | M6X1 Deptito | 5 | 10.5 | 5 |
| 32 [1.260] | 30 | 7 | 23 | 40 | 7 | 33 | 35 | 7 | 28 | 40 | 7 | 33 | 48.5 | 18.2 | MBX1.25 Deptit 12 | 6 | 9.5 | 7.5[6] |
| 40 [1.575] | 33 | 7 | 26 | 43 | 7 | 36 | 33 | 7 | 26 | 43 | 7 | 36 | 56.5 | 18.2 | M8X1.25 Depith12 | 6 | 10.5 | 7.5 |
| 50 [1.969] | 37 | 9 | 28 | 47 | 9 | 38 | 37 | 9 | 28 | 47 | 9 | 38 | 70 | 24.8 | M10X1.5 Depth 15 | 7 | 11 | 9.5 |
| 63 [2.480] | 41 | 9 | 32 | 51 | 9 | 42 | 41 | 9 | 32 | 51 | 9 | 42 | 83 | 26.8 | M10X1.5 Depth15 | 7 | 12.5 | 11 |
| 80 [3.150] | 52 | 11 | 41 | 62 | 11 | 51 | 52 | 11 | 41 | 62 | 11 | 51 | 102 | 32.8 | M14X2 Deph20 | 9 | 18 | 12 |
| 100 [3.940] | 63 | 12 | 51 | 73 | 12 | 61 | 63 | 12 | 51 | 73 | 12 | 61 | 122 | 32.8 | M18X2.5 Deph20 | 9 | 22.5 | 16.5 |


| $\underset{\substack{\text { Bore } \\ \text { mm [in] }}}{\text { Type }}$ | 0 | $\mathrm{P}_{1}$ | $\mathrm{P}_{3}$ | P4 | R | S | T1 | U | V | W | X | Y | Z | Appropriate through bolt |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 6 [0.236] | M3 $\times 0.5$ | $\phi 3.3$ (Thru hole) Cbore $\phi 6$ (Both sides) and M4X0.7 (Both sides) | 9.5 | 3.5 | - | 19 | 11 | R12 | 4 | 3.5 | - | - | - | M3 |
| 8 [0.315] | M3 $\times 0.5$ | $\phi 3.3$ (Thru hole) C'bore $\phi 6.2$ (Both sides) and M M $\times 0.7$ (Both sides) | 9.5 | 3.5 | - | 21 | 13 | R13.5 | 5 | 4 | - | - | - | M3 |
| 10 [0.394] | M3 $\times 0.5$ | $\phi 3.3$ (Thru hole) C'bore $\phi 6.2$ (Both sides) and M M $\times 0.7$ (Both sides) | 9.5 | 3.5 | - | 23 | 15 | R15 | 5 | 4 | - | - | - | M3 |
| 12 [0.472] | M5 $\times 0.8$ | \$4.3 (Thru hole) C'bore $\phi 6.5$ (Both ides) and M5 $\times 0.8$ (Both sides) | 9.5 | 4.5 | - | 25 | 16.3 | R16 | 6 | 5 | - | - | 1 | M3 |
| 16 [0.630] | M5 $\times 0.8$ | \$4.3 (Thru hole) C'bore $\phi 6.5$ (Both sides) and M5 $\times 0.8$ (Both sides) | 9.5 | 4.5 | - | 29 | 19.8 | R19 | 8 | 6 | - | - | 1 | M3 |
| 20 [0.787] | M5 $\times 0.8$ | \$4.3 (Thur hole) C'bore $\phi 6.5$ (Both sides) and M5 $\times 0.8$ (Both sides) | 9.5 | 4.5 | - | 34 | 24 | R22 | 10 | 8 | - | - | 1 | M3 |
| 25 [0.984] | M5 $\times 0.8$ | \$5.1 (Thu hole) Cbore $\$ 8$ (Both sides) and M6X1 (Both sides) | 11.5 | 5.5 | - | 40 | 28 | R25 | 12 | 10 | - | - | 1 | M4 |
| 32 [1.260] | Rc1/8 | \$5.1 (Thu hole) Cbore $\$ 8$ (Both sides) and M6X1 (Both sides) | 11.5 | 5.5 | 4.5 | 44 | 34 | R29.5 | 16 | 14 | 15 | 13.6 | 1 | M4 |
| 40 [1.575] | Rc1/8 | $\phi 6.9$ (Thu hole) Cbore $\phi .5$ (Both sides) and M8X1.25 (Both sides) | 15.5 | 7.5 | 4.5 | 52 | 40 | R35 | 16 | 14 | 15 | 13.6 | 1.6 | M5 |
| 50 [1.969] | Rc1/4 | $\phi 6.9$ (Thu hole) C'bore $\phi 11$ (Both sides) and M8X1.25 (Both sides) | 16.5 | 8.5 | 8 | 62 | 48 | R41 | 20 | 17 | 21.6 | 19 | 1.6 | M6 |
| 63 [2.480] | Rc1/4 | $\phi 6.9$ (Thu hole) Cbore $\phi 11$ (Both sides) and M8X1.25 (Both sides) | 16.5 | 8.5 | 8 | 75 | 60 | R50 | 20 | 17 | 21.6 | 19 | 1.6 | M6 |
| 80 [3.150] | Rc3/8 | $\phi 10.5$ (Thru hole) C'bore $\phi 14$ (Both sides) and M12X1.75 (Both sides) | 22.5 | 10.5 | 8 | 94 | 74 | R62 | 25 | 22 | 27.6 | 25 | 1.6 | M8 |
| 100 [3.940] | Rc3/8 | $\phi 12.3$ (Thru hole) Cbore $\phi 17.5$ (Both sides) and M14X2 (Both sides) | 27 | 13 | 8 | 114 | 90 | R75 | 32 | 27 | 27.6 | 25 | 2 | M10 |

Note: Figure in parentheses [ ] is for the standard cylinder (CDA) with 5 mm stroke.
Remark: If using a through bolt to directly mount the body in place, see p.205.


Note: Bore sizes $\phi 6, \phi 8$, and $\phi 10$ are not available with washers.
The drawing is for $\phi 12$.


|  | Standard cylinder (CSA) |  |  |  |  |  | Cylinder with magnet (CSAS) |  |  |  |  |  | D | E | K1 |  | M | $\mathrm{N}_{2}$ | 0 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 5~15 ( $\phi$ 50: 10~20) |  |  | 16~30 ( $\phi 50: 21 \sim 40$ ) |  |  | 5~15 ( $\phi$ 50: 10~20) |  |  | 16~30 ( $\phi$ 50: 21~40) |  |  |  |  |  |  |  |  |  |
|  | A | B1 | C | A | B ${ }_{1}$ | C | A | $\mathrm{B}_{1}$ | C | A | B1 | C |  |  |  |  |  |  |  |
| 6 [0.236] | 29 | 5 | 24 | - | - | - | 34 | 5 | 29 | - | - | - | - | - | M2.5X0.45 | Depth | 3 | 3.5 | M3 $\times 0.5$ |
| 8 [0.315] | 30 | 5 | 25 | - | - | - | 35 | 5 | 30 | - | - | - | - | - | M3X0.5 | Depth | 3 | 3.5 | M $3 \times 0.5$ |
| 10 [0.394] | 31 | 5 | 26 | - | - | - | 36 | 5 | 31 | - | - | - | - | - | M3X0.5 | Depth | 3 | 4 | M $3 \times 0.5$ |
| 12 [0.472] | 27 | 5 | 22 | 37 | 5 | 32 | 32 | 5 | 27 | 42 | 5 | 37 | - | - | M3X0.5 | Depth6 | 3.5 | 5 | M5 $\times 0.8$ |
| 16 [0.630] | 27.5 | 5.5 | 22 | 37.5 | 5.5 | 32 | 32.5 | 5.5 | 27 | 42.5 | 5.5 | 37 | - | 6.2 | m4X0.7 | Dephr | 3.5 | 5 | M $5 \times 0.8$ |
| 20 [0.787] | 25 | 5.5 | 19.5 | 35 | 5.5 | 29.5 | 35 | 5.5 | 29.5 | 45 | 5.5 | 39.5 | - | 12.2 | M5X0.8 | Dephtio | 4.5 | 5 | M5 $\times 0.8$ |
| 25 [0.984] | 27 | 6 | 21 | 37 | 6 | 31 | 37 | 6 | 31 | 47 | 6 | 41 | - | 12.2 | m6X1 | Dephtio | 5 | 5 | M5 $\times 0.8$ |
| 32 [1.260] | 30 | 7 | 23 | 45 | 7 | 38 | 40 | 7 | 33 | 55 | 7 | 48 | 48.5 | 18.2 | M8X1.25 | Depth 12 | 6 | 7.5[6] | Rc1/8 |
| 40 [1.575] | 33 | 7 | 26 | 48 | 7 | 41 | 43 | 7 | 36 | 58 | 7 | 51 | 56.5 | 18.2 | M8X1.25 | Depth12 | 6 | 7.5 | Rc1/8 |
| 50 [1.969] | 37 | 9 | 28 | 52 | 9 | 43 | 47 | 9 | 38 | 62 | 9 | 53 | 70 | 24.8 | M10X1.5 | Depht15 | 7 | 9.5 | Rc1/4 |


| $\overline{\substack{\text { Bore } \\ \text { mm }[\text { in. }]}} \text { Code }$ |  | $\mathrm{P}_{1}$ | $\mathrm{P}_{3}$ | P4 | R | S | T1 | U | V | W | X | Y | Z | Appropriate through bolt $\%$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 6 [0.236] | \$3.3 (Thru hole) | C'bore $\phi 6$ (Both sides) and M4X0.7 (Both sides) | 9.5 | 3.5 | - | 19 | 11 | R12 | 4 | 3.5 | - | - | - | M3 |
| 8 [0.315] | \$3.3 (Thru hole) | Cbore $\phi 6.2$ (Both sides) and M4X0.7 (Both sides) | 9.5 | 3.5 | - | 21 | 13 | R13.5 | 5 | 4 | - | - | - | M3 |
| 10 [0.394] | \$3.3 (Thru hole) | Cbore $\phi 6.2$ (Both sides) and M4X0.7 (Both sides) | 9.5 | 3.5 | - | 23 | 15 | R15 | 5 | 4 | - | - | - | M3 |
| 12 [0.472] | \$4.3 (Thru hole) | Cbore $\phi 6.5$ (Both sides) and M5 $\times 0.8$ (Both sides) | 9.5 | 4.5 | - | 25 | 16.3 | R16 | 6 | 5 | - | - | 1 | M3 |
| 16 [0.630] | \$4.3 (Thru hole) | Cbore $\phi 6.5$ (Both sides) and M5 $\times 0.8$ (Both sides) | 9.5 | 4.5 | - | 29 | 19.8 | R19 | 8 | 6 | - | - | 1 | M3 |
| 20 [0.787] | \$4.3 (Thru hole) | Cbore $\phi 6.5$ (Both sides) and M5 $\times 0.8$ (Both sides) | 9.5 | 4.5 | - | 34 | 24 | R22 | 10 | 8 | - | - | 1 | M3 |
| 25 [0.984] | \$5.1 (Thru hole) | Cbore $\phi 8$ (Both sides) and M6 $\times 1$ (Both sides) | 11.5 | 5.5 | - | 40 | 28 | R25 | 12 | 10 | - | - | 1 | M4 |
| 32 [1.260] | \$5.1 (Thru hole) | Cbore $\phi 8$ (Both sides) and M6 $\times 1$ (Both sides) | 11.5 | 5.5 | 4.5 | 44 | 34 | R29.5 | 16 | 14 | 15 | 13.6 | 1 | M4 |
| 40 [1.575] | \$6.9 (Thru hole) | C'bore $\phi 9.5$ (Both sides) and M8×1.25 (Both sides) | 15.5 | 7.5 | 4.5 | 52 | 40 | R35 | 16 | 14 | 15 | 13.6 | 1.6 | M5 |
| 50 [1.969] | \$6.9 (Thru hole) | C'bore $\phi 11$ (Both sides) and M8×1.25 (Both sides) | 16.5 | 8.5 | 8 | 62 | 48 | R41 | 20 | 17 | 21.6 | 19 | 1.6 | M6 |

Note: Figure in parentheses [ ] is for the standard cylinder (CSA) with 5 mm stroke.
Remark: If using a through bolt to directly mount the body in place, see p. 205 .
※Some types of mounting screws are available (to be ordered separately). See p. 209.

CTA Bore size


Note: Bore sizes $\phi 6, \phi 8$, and $\phi 10$ are not available with washers.

- The drawing is for $\phi 12$.

$\frac{\mathrm{W}}{\text { Width across flats }}$


| $\underbrace{\text { Stroke }}_{\substack{\text { Bore } \\ \text { mm } \\ \text { Sin.] }}}$ Code | Standard cylinder (CTA) |  |  |  |  |  | Cylinder with magnet (CTAS) |  |  |  |  |  | D | E | K1 |  | M | $\mathrm{N}_{1}$ | 0 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 5~15 ( $\phi$ 50: 10~20) ${ }^{\text {\%1 }}$ |  |  | 16~30 ( $\phi$ 50: 21~40) |  |  | 5~15 ( $\phi$ 50: 10~20)*1 |  |  | 16~30 ( $\phi$ 50: 21~40) |  |  |  |  |  |  |  |  |  |
|  | A | B1 | C | A | B1 | C | A | B1 | C | A | B1 | C |  |  |  |  |  |  |  |
| 6 [0.236] | 29 | 5 | 24 | - | - | - | 34 | 5 | 29 | - | - | - | - | - | M2.5X0.45 | Depth | 3 | 6.5 | M $3 \times 0.5$ |
| 8 [0.315] | 30 | 5 | 25 | - | - | - | 35 | 5 | 30 | - | - | - | - | - | M3X0.5 | Depth | 3 | 7.5 | M $3 \times 0.5$ |
| 10 [0.394] | 31 | 5 | 26 | - | - | - | 36 | 5 | 31 | - | - | - | - | - | M3X0.5 | Depth | 3 | 8 | M $3 \times 0.5$ |
| 12 [0.472] | 27 | 5 | 22 | 37 | 5 | 32 | 32 | 5 | 27 | 42 | 5 | 37 | - | - | M3X0.5 | Depth | 3.5 | 8 | M $5 \times 0.8$ |
| 16 [0.630] | 27.5 | 5.5 | 22 | 37.5 | 5.5 | 32 | 32.5 | 5.5 | 27 | 42.5 | 5.5 | 37 | - | 6.2 | M4X0.7 | Deph8 | 3.5 | 8 | M5 $\times 0.8$ |
| 20 [0.787] | 30 | 5.5 | 24.5 | 40 | 5.5 | 34.5 | 40 | 5.5 | 34.5 | 50 | 5.5 | 44.5 | - | 12.2 | M5 0.8 | Depthio | 4.5 | 9.5 | M $5 \times 0.8$ |
| 25 [0.984] | 32 | 6 | 26 | 42 | 6 | 36 | 42 | 6 | 36 | 52 | 6 | 46 | - | 12.2 | M6X1 | Depthio | 5 | 10.5 | M $5 \times 0.8$ |
| 32 [1.260] | 35 | 7 | 28 | 50 | 7 | 43 | 45 | 7 | 38 | 60 | 7 | 53 | 48.5 | 18.2 | M8X1.25 | Deptit 2 | 6 | 9.5 | Rc1/8 |
| 40 [1.575] | 38 | 7 | 31 | 53 | 7 | 46 | 48 | 7 | 41 | 63 | 7 | 56 | 56.5 | 18.2 | M8X1.25 | Depth12 | 6 | 10.5 | Rc1/8 |
| 50 [1.969] | 37 | 9 | 28 | 52 | 9 | 43 | 47 | 9 | 38 | 62 | 9 | 53 | 70 | 24.8 | M10X1.5 | Depth15 | 7 | 11 | Rc1/4 |


| $\overline{\substack{\text { Bore } \\ m m[\text { [in. }]}} \text { Code }$ |  | P1 | $\mathrm{P}_{3}$ | $\mathrm{P}_{4}$ | R | S | T1 | U | V | W | X | Y | Z | Appropriate through bolt $\% 2$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 6 [0.236] | \$3.3 (Thru hole) | C'bore $\phi 6$ (Both sides) and M4X0.7 (Both sides) | 9.5 | 3.5 | - | 19 | 11 | R12 | 4 | 3.5 | - | - | - | M3 |
| 8 [0.315] | $\phi 3.3$ (Thru hole) | C'bore $\phi 6.2$ (Both sides) and M4X0.7 (Both sides) | 9.5 | 3.5 | - | 21 | 13 | R13.5 | 5 | 4 | - | - | - | M3 |
| 10 [0.394] | $\phi 3.3$ (Thru hole) | C'bore $\phi 6.2$ (Both sides) and M4×0.7 (Both sides) | 9.5 | 3.5 | - | 23 | 15 | R15 | 5 | 4 | - | - | - | M3 |
| 12 [0.472] | $\phi 4.3$ (Thru hole) | C'bore $\phi 6.5$ (Both sides) and M5 0.8 (Both sides) | 9.5 | 4.5 | - | 25 | 16.3 | R16 | 6 | 5 | - | - | 1 | M3 |
| 16 [0.630] | \$4.3 (Thru hole) | C'bore $\phi 6.5$ (Both sides) and M5 0.8 .8 (Both sides) | 9.5 | 4.5 | - | 29 | 19.8 | R19 | 8 | 6 | - | - | 1 | M3 |
| 20 [0.787] | \$4.3 (Thru hole) | Cbore $\phi 6.5$ (Both sides) and M5 X0.8 (Both sides) | 9.5 | 4.5 | - | 34 | 24 | R22 | 10 | 8 | - | - | 1 | M3 |
| 25 [0.984] | \$5.1 (Thru hole) | C'bore $\phi 8$ (Both sides) and M6X1 (Both sides) | 11.5 | 5.5 | - | 40 | 28 | R25 | 12 | 10 | - | - | 1 | M4 |
| 32 [1.260] | \$5.1 (Thru hole) | Cbore $\phi 8$ (Both sides) and M6X1 (Both sides) | 11.5 | 5.5 | 4.5 | 44 | 34 | R29.5 | 16 | 14 | 15 | 13.6 | 1 | M4 |
| 40 [1.575] | $\phi 6.9$ (Thru hole) | Cbore $\phi 9.5$ (Both sides) and M8×1.25 (Both sides) | 15.5 | 7.5 | 4.5 | 52 | 40 | R35 | 16 | 14 | 15 | 13.6 | 1.6 | M5 |
| 50 [1.969] | $\phi 6.9$ (Thru hole) | Cbore $\phi 11$ (Both sides) and M8×1.25 (Both sides) | 16.5 | 8.5 | 8 | 62 | 48 | R41 | 20 | 17 | 21.6 | 19 | 1.6 | M6 |

Remark: If using a through bolt to directly mount the body in place, see p. 205 .
※ 1. Bore sizes $\phi 6, \phi 8$, and $\phi 10$ are $5 \sim 10$ strokes.
2. Some types of mounting screws are available (to be ordered separately). See p.209.

Double acting type, Single acting push type, Single acting pull type
$\phi 6 \sim \phi 25$
$\phi 32 \sim \phi 100$
(Single acting type available up to $\phi 50$ )

| $\underset{\substack{\text { Brae } \\ \text { mmin]] }}}{ }$ Code | B2 | F | H | I | J | K2 | M | V | W |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 6 [0.236] | 15 | 5 | 8 | 5.5 | 1.8 | M3 $\times 0.5$ | 3 | 4 | 3.5 |
| 8 [0.315] | 15 | 5 | 8 | 7 | 2.4 | $\mathrm{M} 4 \times 0.7$ | 3 | 5 | 4 |
| 10 [0.394] | 15 | 5 | 8 | 7 | 2.4 | M $4 \times 0.7$ | 3 | 5 | 4 |
| 12 [0.472] | 17 | 5 | 10 | 8 | 4 | M $5 \times 0.8$ | 3.5 | 6 | 5 |
| 16 [0.630] | 20.5 | 5.5 | 13 | 10 | 5 | M6×1 | 3.5 | 8 | 6 |
| 20 [0.787] | 22.5 | 5.5 | 15 | 12 | 5 | M $8 \times 1$ | 4.5 | 10 | 8 |
| 25 [0.984] | 24 | 6 | 15 | 14 | 6 | M10×1.25 | 5 | 12 | 10 |
| 32 [1.260] | 35 | 7 | 25 | 19 | 8 | $\mathrm{M} 14 \times 1.5$ | 6 | 16 | 14 |
| 40 [1.575] | 35 | 7 | 25 | 19 | 8 | M14×1.5 | 6 | 16 | 14 |
| 50 [1.969] | 37 | 9 | 25 | 27 | 11 | M18×1.5 | 7 | 20 | 17 |
| 63 [2.480] | 37 | 9 | 25 | 27 | 11 | $\mathrm{M} 18 \times 1.5$ | 7 | 20 | 17 |
| 80 [3.150] | 44 | 11 | 30 | 32 | 13 | $\mathrm{M} 22 \times 1.5$ | 9 | 25 | 22 |
| 100 [3.940] | 50 | 12 | 35 | 36 | 14 | M $26 \times 1.5$ | 9 | 32 | 27 |

Remark: Cylinder joints and cylinder rod ends are available for mounting with the rod end male thread specification. For details, see p. 1568.
Dimensions of Centering Location (mm)


ONot available for bore sizes $\phi 6, \phi 8, \phi 10$ and $\phi 12$.

| Bore <br> mm [in.] <br> 160.630$]$ | B1 | G | L |
| :---: | :---: | :---: | :---: |
| 16 [0.630] | 5.5 | 1.5 | 9.4 |
| 20 [0.787] | 5.5 | 1.5 | 12 |
| 25 [0.984] | 6 | 2 | 15 |
| 32 [1.260] | 7 | 2 | 21 |
| 40 [1.575] | 7 | 2 | 29 |
| 50 [1.969] | 9 | 2 | 38 |
| 63 [2.480] | 9 | 2 | 40 |
| 80 [3.150] | 11 | 2 | 45 |
| 100 [3.940] | 12 | 2 | 55 |

# JIG CYLINDERS C SERIES MOUNTING BRACKETS 

Foot Mounting Bracket, Flange Mounting Bracket, Clevis Mounting Bracket

Order Codes of Mounting Bracket Only
$\square$ - CDA $\square$ Bore size $\phi 12 \sim \phi 100$ Note5

Cylinder type
CDA - For standard, double rod end, tandem, dual stroke, long stroke, lateral load resistant, and end keep cylinder
CDAL ——For square rod cylinder Note4
Notes: 1. Cannot be mounted on tandem or dual stroke cylinders.
And cannot be mounted on the 5 mm strokes of $\phi 16$ and $\phi 25$, and 10 mm strokes of $\phi 50, \phi 63$, and $\phi 80$ of the standard cylinders.

## Mounting bracket

1 - Foot bracket Note1

- One set consists of 2 brackets.

3 Flange bracket ${ }^{\text {Note2 }}$
7 ——Clevis bracket Note3
2. Cannot be mounted on the head side of the tandem cylinder, cylinder 1 side of the dual stroke cylinder, the rod side of the square rod cylinder with centering location, or the bore size $\phi 40$ with centering location (-G).
3. Cannot be used with anything other than the long stroke cylinder, the lateral load resistant cylinder, or the end keep cylinder.
4. Applicable to the foot mounting bracket only.
5. Not available for $\phi 6$ [0.236in.], $\phi 8$ [0.315in.], and $\phi 10$ [0.394in.].
$\phi 12 \sim \phi 16$


$\phi 20 \sim \phi 100$


Note: Only for $\phi 50$

- Mounting screw

For $\phi 12 \sim \phi 80$


For $\phi 100$

Material: Steel

| $\underset{\substack{\text { Bore } \\ \mathrm{mm} \text { [in.] }}}{ }$ Code | A | B | C | D | E | F | G | H | I | J | K | L | N | 0 | P | Q | R | S | Mass g [oz.] |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 12 [0.472] | 44 | 34 | 25 | 16.3 | 12.5 | 8 | 2 | 29.5 | 4.5 | 4.5 | 5.5 | 11 | 12 | 2.7 | 9.5 | M5 | 17 | 8.9 | 50 [1.76] |
| 16 [0.630] | 48 | 38 | 29 | 19.8 | 13 | 8 | 2 | 33.5 | 4.5 | 4.5 | 5.5 | 11 | 12 | 2.7 | 9.5 | M5 | 19 | 9.1 | 62 [2.19] |
| 20 [0.787] | 54 | 44 | 34 | 24 | 15 | 9.2 | 3.2 | 16.5 | 7 | 4.5 | 5.5 | - | $12(12,20)$ | 2.7 | 9.5 | M5 | 24 | 12 | 84 [2.96] (87 [3.07]) |
| 25 [0.984] | 64 | 52 | 40 | 28 | 16.5 | 10.7 | 3.2 | 17.5 | 6 | 5.5 | 6.6 | - | $14(14,22)$ | 3.3 | 10.5 | M6 | 26 | 12 | 104 [3.67] (108 [3.81]) |
| 32 [1.260] | 68 | 56 | 44 | 34 | 17 | 11.2 | 3.2 | 19 | 8 | 5.5 | 6.6 | - | $14(14,25)$ | 3.3 | 10.5 | M6 | 30 | 13 | 126 [4.44] (131 [4.62]) |
| 40 [1.575] | 78 | 64 | 52 | 40 | 18.2 | 11.2 | 3.2 | 19 | 7 | 6.6 | 9 | - | $20(20,30)$ | 4.4 | 14 | M8 | 33 | 13 | 160 [5.64] (168 [5.93]) |
| 50 [1.969] | 96 | 78 | 62 | 48 | 22.7 | 14.7 | 3.2 | 22 | 8 | 9 | 9 | - | $20(20,35)$ | 4.4 | 14 | M8 | 39 | 15 | 220 [7.76] (232 [8.18]) |
| 63 [2.480] | 108 | 90 | 75 | 60 | 25.2 | 16.2 | 3.2 | 24 | 8.5 | 9 | 9 | - | $20(20,35)$ | 4.4 | 14 | M8 | 46 | 16 | 300 [10.58] (312 [11.01]) |
| 80 [3.150] | 134 | 112 | 94 | 74 | 30.5 | 19.5 | 4.5 | 33 | 12 | 11 | 14 | - | 25 | 6.6 | 21 | M12 | 59 | 22 | 644 [22.72] |
| 100 [3.940] | 160 | 134 | 114 | 90 | 35.5 | 23 | 6 | 40 | 14 | 14 | 16 | - | 30 | 14 | 21 | M14 | 71 | 26 | 1172 [41.34] |

Remark: Figures in parentheses ( ) are for square rod cylinders.

[^1]Mounting screw
For $\phi$ 12~ $\boldsymbol{\phi} 80$
$\phi 20 \sim \phi 100$
Mounting screw

For $\phi 100$





| $\underset{\substack{\text { Borem } \\ m \mathrm{~mm} \text { [in] }}}{ }$ Code | N | P | Q | T | BB | BC | BD | BE | BF | BG | BJ | BK | BL | BP | Mass g [oz.] |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 12 [0.472] | 12 | 9.5 | M5 | 16.3 | 6 | 28 | - | 50 | 38 | 11 | 10 | 5.5 | 3.6 | 4.5 | 55 [1.94] |
| 16 [0.630] | 12 | 9.5 | M5 | 19.8 | 6 | 32 | - | 54 | 42 | 11 | 10 | 5.5 | 3.6 | 4.5 | 71 [2.50] |
| 20 [0.787] | 12(18) | 9.5 | M5 | 24 | 6 | 36 | 24 | 58 | 46 | 15 | 10 | 5.5 | 3.6 | 4.5 | 101 [3.56] (105 [3.70)) |
| 25 [0.984] | 14(22) | 10.5 | M6 | 28 | 8 | 42 | 28 | 68 | 54 | 17 | 11 | 6.6 | 4.3 | 5.5 | $160[5.64)^{(1655[5.82)}$ |
| 32 [1.260] | 14(25) | 10.5 | M6 | 34 | 8 | 48 | 34 | 72 | 58 | 22 | 11 | 6.6 | 4.3 | 5.5 | $186[6.56]$ (196] [6.11)) |
| 40 [1.575] | 20(30) | 14 | M8 | 40 | 8 | 58 | 40 | 84 | 68 | 28 | 15 | 9 | 5.3 | 6.6 | $335[11.82]$ (351 [12.38) |
| 50 [1.969] | 20(35) | 14 | M8 | 48 | 8 | 66 | 40 | 102 | 82 | 38 | 15 | 9 | 5.3 | 9 | 477 [15.77] (471 [16.61]) |
| 63 [2.480] | 20(35) | 14 | M8 | 60 | 8 | 78 | 50 | 116 | 96 | 40 | 15 | 9 | 5.3 | 9 | $591[20.85]$ [615 [21.69) |
| 80 [3.150] | 25 | 21 | M12 | 74 | 12 | 100 | 70 | 142 | 118 | 45 | 22 | 14 | 7.3 | 11 | 1414 [49.88] |
| 100 [3.940] | 30 | 21 | M14 | 90 | 20 | 116 | 80 | 170 | 142 | 55 | 23 | 16 | 15.2 | 14 | 2606 [91.92] |

Remark: Figures in parentheses ( ) are for square rod cylinders.

$\phi 50 \sim \phi 100$


Material: Steel

| $\underset{\substack{\text { Brare } \\ \mathrm{mm} \text { [in.] }}}{ }$ Code | N | 0 | P | Q | T | CA | CB | CC | CD | CE | CF | CG | CJ | CK | CP | CS | CT | CU | PA ${ }_{1}$ | PB1 | PC | PD | PE1 | Mass [02] |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 12 [0.472] | 12 | 5 | 8.5 | M5 | 16.3 | 15 | 12 | 11 | R 7.5 | $4^{+0.03}$ | R5 | 4 | 4 | 5.5 | $4_{+0.1}^{+0.2}$ | 25 | 3 | R16 | 15 | 10.6 | 0.7 | 488 | 2.5 | 30 [1.06] |
| 16 [0.630] | 12 | 5 | 8.5 | M5 | 19.8 | 17 | 16 | 12 | R10 | $5^{+0.03}$ | R6 | 4 | 5 | 5.5 | $5{ }_{+0.1}^{+0.2}$ | 29 | 3.5 | R19 | 17 | 12.6 | 0.7 | 588 | 3 | 40 [1.41] |
| 20 [0.787] | 12 | 5 | 8.5 | M5 | 24 | 25 | 22 | 17 | R14 | $8^{+0.04}$ | R11 | 4 | 8 | 5.5 | $8_{+0.2}^{+0.4}$ | 34 | 5.2 | R22 | 24.4 | 19.6 | 0.9 | 8*8 | 6 | 75 [2.65] |
| 25 [0.984] | 16 | 6 | 10 | M6 | 28 | 25 | 26 | 17 | R16 | 8+0.04 | R11 | 4 | 8 | 6.6 | $8_{+0.2}^{+0.4}$ | 40 | 5.2 | R25 | 24.4 | 19.6 | 0.9 | 8+8 | 6 | 53] |
| 32 [1.260] | 16 | 6 | 10 | M6 | 34 | 29 | 34 | 19 | R20 | $10^{+0.04}$ | R12.5 | 4 | 10 | 6.6 | $12_{+0.2}^{+0.4}$ | 44 | 8 | R29.5 | 34 | 29.2 | 0.9 | 10ヶ8 | 8 | 165 [5.82] |
| 40 [1.575] | 20 | 8 | 13 | M8 | 40 | 29 | 34 | 19 | R20 | $10^{+0.04}$ | R12.5 | 4 | 10 | 9 | $12_{+0.2}^{+0.4}$ | 52 | 8 | R35 | 34 | 29.2 | 0.9 | 10ヶ8 | 8 | 200 [7.05] |
| 50 [1.969] | 22 | 8 | 13 | M8 | 48 | 32 | - | 19 | R17 | $14_{0}^{+0.08}$ | R14 | 5 | 13 | $\begin{array}{\|c\|} \hline 9 \text { Counterbore } \\ \phi 17 \end{array}$ | $20_{+0.3}^{+0.6}$ | 63 | 12.5 | R41.5 | 55 | 47 | 1.15 | 14-0.070 | 13 |  |
| 63 [2.480] | 20 | 8 | 13 | M8 | 60 | 32 | - | 19 | R17 | $14^{+0.08}$ | R14 | 6 | 13 | $\begin{array}{\|c} 9 \text { Counterbore } \\ \phi 20 \end{array}$ | $20_{+0.3}^{+0.6}$ | 76 | 15 | R50.5 | 60 | 52 | 1.15 | $14_{-0.070}^{-0.030}$ | 13 |  |
| 80 [3.150] | 30 | 12 | 18 | M12 | 74 | 52 | - | 32 | R24 | $20^{+0.1}$ | R20 | 7 | 20 | $\begin{array}{\|c\|c\|} \hline 14 \text { Counterbore } \\ \phi 22 \end{array}$ | $32_{+0.3}^{+0.6}$ | 95 | 16 | R62.5 | 74 | 66 | 1.35 | 20-0.084 | 19 | 1110 |
| 100 [3.940] | 30 | 14 | 21 | M14 | 90 | 52 | - | 32 | R24 | 20+0.1 | R21 | 7 | 20 | $\begin{array}{\|c\|} \hline 16 \text { Counterbore } \\ \$ 26 \end{array}$ | $32_{+0.3}^{+0.6}$ | 115 | 16 | R75.5 | 74 | 66 | 1.35 | 20-0.084 | 19 | 1490 [5 |

Notes: 1. CD = Swing range of clevis mounting bracket itself.
2. $C F=$ Maximum radius of swing for mating bracket.

Remark: $\phi 12 \sim \phi 50$ are mounted with 2 bolts.

# JIG CYLINDERS C SERIES SENSOR SWITCHES 

Solid State Type, Reed Switch Type

## Order Codes



## Moving Sensor Switch

- Loosening mounting screw allows the sensor switch to be moved along the switch mounting groove on the cylinder body.
- Tighten the mounting screw with a tightening torque of $0.1 \sim$ $0.2 \mathrm{~N} \cdot \mathrm{~m}[0.9 \sim 1.8 \mathrm{in} \cdot \mathrm{lbf}]$.



## Minimum Cylinder Strokes When Using Sensor Switches

| Solid state type |  |  | mm | Reed switch type |  |  | mm |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Bore size | 2 pcs. mounting Note |  | 1 pc. mounting | Bore size | 2 pcs. mounting |  | 1 pc. mounting |
|  | 1-surface mounting | 2-surface mounting |  |  | 1-surface mounting | 2-surface mounting |  |
| $6 \sim 12[0.236 \sim 0.472 \mathrm{in}$. | 30 | 10 | 5 | 12 .] | 30 | 10 | 10 |
| 16~100 [0.630~3.940in.] | 10 |  |  | 16~100 [0.630~3.940in.] | 10 |  |  |

Note: Two pieces can be mounted with 5 mm stroke.
Take note that overlapping may occur, however.

## Sensor Switch Operating Range, Response Differential, and Maximum Sensing Location

Operating range : $\ell$
The distance the piston travels in one direction, while the switch is in the ON position.
-Response differential : C
The distance between the point where the piston turns the switch ON and the point where the switch is turned OFF as the piston travels in the opposite direction.

$\phi 16$
$\phi 20 \sim \phi 100$


Mounting on any of surfaces (A), B), or (C) allows detection of the end of stroke on the rod side and head side.
(The sensor switch may sometimes protrude from the cylinder body.)



Connection port

Mounting on any of surfaces (A), (B), (C), or (D) allows detection of the end of stroke on the rod side and head side.
(The sensor switch may sometimes protrude from the cylinder body.)
However, the ZE2 $\square \square$ sensor switches cannot be mounted on the (D) position in $\phi 32, \phi 40$, and $\phi 50$.

The standard mounting positions at shipping for the end of stroke detection on the rod side is either surface ${ }^{\star}$ ) or surface $(\subset$, while the end of stroke detection on the head side is surface (B). If mounting sensor switches on the same surface for detection of both ends is required, consult us. (The sensor switch may sometimes protrude from the cylinder body.)

## Mounting Location of End of Stroke Detection Sensor Switch

When the sensor switch is mounted in the position shown in the diagram below (figures in the tables are reference values), the magnet reaches the sensor switch's maximum sensing location at the end of the stroke.

Standard cylinder, Non-rotating cylinder


Solid state type
Double acting type

| Code - Bore |  | 6 | 8 | 10 | 12 | 16 | 20 | 25 | 32 | 40 | 50 | 63 | 80 | 100 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| X | Standard type | $\left.\begin{gathered} 7.2 \\ {[0.833} \end{gathered} \right\rvert\,$ | $\left[\begin{array}{c} 8 \\ {[0.315]} \end{array}\right.$ | $\left.\begin{aligned} & 8.3 \\ & {[0.327} \end{aligned} \right\rvert\,$ | $\begin{array}{\|c\|} \hline 7 \\ {[0.276]} \end{array}$ | $\begin{gathered} 7 \\ \hline 0.276 \\ \hline \end{gathered}$ | $\begin{gathered} 11 \\ {[0.433]} \end{gathered}$ | $\begin{gathered} \hline 11 \\ {[0.433]} \end{gathered}$ | $\begin{array}{\|c\|} \hline 13.5 \\ {[0.5311} \end{array}$ | $\left\lvert\, \begin{gathered} 14.5 \\ {[0.571]} \end{gathered}\right.$ | $\begin{array}{\|l\|} \hline 12.5 \\ 0.492] \\ \hline \end{array}$ | $\left.\begin{array}{c} 15 \\ {[0.591]} \end{array}\right]$ | $\begin{gathered} 20 \\ {[0.88]} \end{gathered}$ | $\begin{gathered} 25 \\ {[0.984]} \end{gathered}$ |
|  | With bumper (-R) | - | - | - | $\left.\begin{array}{c} 10 \\ {[0.394]} \end{array}\right]$ | $\left\|\begin{array}{c} 10 \\ {[0.394]} \end{array}\right\|$ | $\begin{gathered} 15 \\ {[0.591]} \end{gathered}$ | $\left[\begin{array}{c} 16 \\ {[0.630]} \end{array}\right]$ | $\left[\begin{array}{l} 15.5 \\ {[0.610]} \end{array}\right]$ | $\left[\begin{array}{c} 16.5 \\ {[0.650]} \end{array}\right]$ | $\left.\begin{array}{c} 15.5 \\ {[0.60]} \end{array}\right]$ | $\left[\begin{array}{c} 15 \\ {[0.591]} \end{array}\right]$ | $\begin{gathered} 20 \\ {[0.78]} \end{gathered}$ | $\begin{gathered} 25 \\ {[0.984]} \end{gathered}$ |
| Y | Standard type | $\left[\begin{array}{c} 1 \\ {[0.039]} \end{array}\right]$ | $\left[\begin{array}{c} 0.3 \\ {[0.012]} \end{array}\right.$ | $\left[\begin{array}{c} 1 \\ {[0.039} \end{array}\right]$ | $\begin{gathered} 4 \\ {[0.57]} \\ \hline \end{gathered}$ | $\begin{gathered} 4 \\ {[0.157]} \\ \hline \end{gathered}$ | $\begin{gathered} 7.5 \\ {[0.295]} \end{gathered}$ | $\left.\begin{gathered} 9 \\ 0.354 \end{gathered} \right\rvert\,$ | $\begin{gathered} 8.5 \\ {[0.335]} \end{gathered}$ | $\left[\left.\begin{array}{\|c\|} \hline 10.5 \\ {[0.413]} \end{array} \right\rvert\,\right.$ | $\left[\begin{array}{c} 14.5 \\ {[0.571]} \end{array}\right.$ | $\left[\begin{array}{c} 16 \\ {[0.630} \end{array}\right]$ | $\left[\begin{array}{c} 20 \\ {[0.78]} \end{array}\right]$ | $\begin{gathered} 25 \\ {[0.984]} \end{gathered}$ |
|  | With bumper (-R) | - | - | - | $\begin{gathered} 6 \\ {[0.236]} \end{gathered}$ | $\begin{gathered} 6 \\ {[0.236]} \end{gathered}$ | $\begin{gathered} 8.5 \\ {[0.355]} \end{gathered}$ | $\begin{gathered} 9 \\ 0.354 \end{gathered}$ | $\begin{gathered} 6.5 \\ {[0.256]} \end{gathered}$ | $\begin{gathered} 8.5 \\ \hline 0.335] \end{gathered}$ | $\begin{array}{\|c\|} \hline 11.5 \\ {[0.533]} \end{array}$ | $\left.\begin{array}{c} 16 \\ 0.6300 \end{array}\right]$ | $\begin{gathered} 20 \\ {[0.787]} \end{gathered}$ | $\begin{aligned} & 25 \\ & {[0.984]} \end{aligned}$ |

Single acting push type

| Code Bore | 6 | 8 | 10 | 12 | 16 | 20 | 25 | 32 | 40 | 50 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| X | $\begin{aligned} & 17.2 \\ & {[0.677]} \end{aligned}$ | $\left.\begin{array}{\|c\|} \hline 18 \\ {[0.709]} \end{array}\right]$ | $\left.\begin{array}{\|c\|} \hline 18.3 \\ 10.7201 \end{array} \right\rvert\,$ | $\begin{array}{\|c\|} \hline 15 \\ {[0.591]} \end{array}$ | $\begin{array}{\|c\|} \hline 15 \\ {[0.591]} \end{array}$ | $\begin{gathered} 14 \\ {[0.551]} \end{gathered}$ | $\begin{aligned} & 14.5 \\ & {[0.571]} \end{aligned}$ | $\begin{aligned} & 15.5 \\ & {[0.610]} \end{aligned}$ | $\begin{array}{\|c\|} \hline 17.5 \\ {[0.689]} \end{array}$ | $\begin{gathered} 17 \\ {[0.669]} \end{gathered}$ |
| Y | $\begin{array}{\|c\|} \hline 1 \\ {[0.039]} \end{array}$ | $\begin{array}{\|c\|} \hline 0.3 \\ {[0.012]} \\ \hline \end{array}$ | $\begin{gathered} 1 \\ {[0.039]} \end{gathered}$ | $\begin{gathered} 1 \\ {[0.039]} \end{gathered}$ | $\begin{array}{\|c\|} \hline 1 \\ {[0.039]} \end{array}$ | $\begin{array}{\|c\|} \hline 4.5 \\ {[0.177]} \\ \hline \end{array}$ | $\begin{array}{\|c\|} \hline 5.5 \\ {[0.217]} \\ \hline \end{array}$ | $\begin{array}{\|c\|} \hline 6.5 \\ {[0.256]} \\ \hline \end{array}$ | $\begin{array}{\|c\|} \hline 7.5 \\ {[0.295]} \end{array}$ | $\begin{aligned} & 10.5 \\ & {[0.413]} \\ & \hline \end{aligned}$ |

## Single acting pull type

| Code | Bore | $\mathbf{6}$ | $\mathbf{8}$ | $\mathbf{1 0}$ | $\mathbf{1 2}$ | $\mathbf{1 6}$ | $\mathbf{2 0}$ | $\mathbf{2 5}$ | $\mathbf{3 2}$ | $\mathbf{4 0}$ | $\mathbf{5 0}$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| $\mathbf{X}$ | 7.2 | 8 | 8.3 | 7 | 7 | 11 | 11 | 13.5 | 14.5 | 12.5 |  |
|  |  | $[0.283]$ | $[0.315]$ | $[0.327]$ | $[0.276]$ | $[0.276]$ | $[0.433]$ | $[0.433]$ | $[0.531]$ | $[0.571]$ | $[0.492]$ |
| $\mathbf{Y}$ | 11 | 10.3 | 11 | 9 | 9 | 12.5 | 14 | 13.5 | 15.5 | 14.5 |  |
|  |  | $[0.433]$ | $[0.406]$ | $[0.433]$ | $[0.354]$ | $[0.354]$ | $[0.492]$ | $[0.551]$ | $[0.531]$ | $[0.610]$ | $[0.571]$ |

Reed switch type
Double acting type

| Code - Bore |  | 12 | 16 | 20 | 25 | 32 | 40 | 50 | 63 | 80 | 10 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| X | Standard type | $\begin{array}{\|c\|} \hline 2.5 \\ {[0.098]} \\ \hline \end{array}$ | $\begin{array}{\|c\|} \hline 2.5 \\ {[0.098]} \end{array}$ | $\begin{array}{\|c\|} \hline 6.5 \\ {[0.256]} \\ \hline \end{array}$ | $\begin{array}{\|c\|} \hline 6.5 \\ {[0.256]} \\ \hline \end{array}$ | $\begin{gathered} 9 \\ {[0.354]} \end{gathered}$ | $\begin{array}{\|c\|} \hline 10 \\ {[0.394]} \\ \hline \end{array}$ | $\begin{array}{\|c\|} \hline 8 \\ {[0.315]} \end{array}$ | $\begin{array}{\|c\|} \hline 10.5 \\ {[0.413]} \end{array}$ | $\begin{aligned} & 15.5 \\ & {[0.610]} \\ & \hline \end{aligned}$ | $\begin{aligned} & 20.5 \\ & {[0.807]} \end{aligned}$ |
|  | With bumper (-R) | $\begin{gathered} 5.5 \\ {[0.217]} \end{gathered}$ | $\begin{gathered} 5.5 \\ {[0.217]} \end{gathered}$ | $\begin{aligned} & 10.5 \\ & {[0.413]} \end{aligned}$ | $\begin{aligned} & 11.5 \\ & {[0.453]} \end{aligned}$ | $\begin{gathered} 11 \\ {[0.433]} \end{gathered}$ | $\begin{gathered} 12 \\ {[0.472]} \end{gathered}$ | $\left.\begin{array}{c} 11 \\ {[0.433]} \end{array}\right]$ | $\begin{aligned} & 10.5 \\ & {[0.413]} \end{aligned}$ | $\begin{aligned} & 15.5 \\ & {[0.610]} \\ & \hline \end{aligned}$ | $\begin{aligned} & 20.5 \\ & {[0.807]} \end{aligned}$ |
| Y | Standard type | $\begin{array}{\|c\|} \hline-0.5 \\ {[-0.020]} \\ \hline \end{array}$ | $\begin{aligned} & -0.5 \\ & {[-0.020]} \\ & \hline \end{aligned}$ | $\begin{array}{\|c\|} \hline 3 \\ {[0.118]} \end{array}$ | $\begin{gathered} 4.5 \\ {[0.177]} \end{gathered}$ | $\begin{gathered} 4 \\ {[0.157]} \\ \hline \end{gathered}$ | $\left.\begin{array}{c} 6 \\ {[0.236]} \end{array}\right]$ | $\begin{gathered} 10 \\ {[0.394]} \end{gathered}$ | $\begin{aligned} & 11.5 \\ & {[0.453]} \end{aligned}$ | $\begin{aligned} & 15.5 \\ & {[0.610]} \\ & \hline \end{aligned}$ | $\begin{aligned} & 20.5 \\ & {[0.807]} \\ & \hline \end{aligned}$ |
|  | With bumper (-R) | $\begin{gathered} 1.5 \\ {[0.059]} \end{gathered}$ | $\begin{gathered} 1.5 \\ {[0.059]} \end{gathered}$ | $\begin{array}{\|c\|} \hline 4 \\ {[0.157]} \\ \hline \end{array}$ | $\begin{array}{\|c\|} \hline 4.5 \\ {[0.177]} \\ \hline \end{array}$ | $\begin{gathered} 2 \\ {[0.079]} \end{gathered}$ | $\begin{array}{\|c\|} \hline 4 \\ {[0.157]} \end{array}$ | $\begin{array}{\|c\|} \hline 7 \\ {[0.276]} \end{array}$ | $\begin{array}{\|c\|} \hline 11.5 \\ {[0.453]} \end{array}$ | $\begin{aligned} & 15.5 \\ & {[0.610]} \\ & \hline \end{aligned}$ | $\begin{aligned} & 20.5 \\ & {[0.807]} \\ & \hline \end{aligned}$ |

-Single acting push type

|  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Code | Bore | $\mathbf{1 2}$ | $\mathbf{1 6}$ | $\mathbf{2 0}$ | $\mathbf{2 5}$ | $\mathbf{3 2}$ | $\mathbf{4 0}$ | $\mathbf{5 0}$ |
| $\mathbf{X}$ | 10.5 | 10.5 | 9.5 | 10 | 11 | 13 | 12.5 |  |
|  | $[0.413]$ | $[0.413]$ | $[0.374]$ | $[0.394]$ | $[0.433]$ | $[0.512]$ | $[0.492]$ |  |
| $\mathbf{Y}$ |  | -3.5 | -3.5 | 0 | 1 | 2 | 3 | 6 |
|  | $[-0.138]$ | $[-0.138]$ | $[0]$ | $[0.039]$ | $[0.079]$ | $[0.118]$ | $[0.236]$ |  |

Single acting pull type
mm [in.]

| Code Bore | 12 | 16 | 20 | 25 | 32 | 40 | 50 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| X | $\begin{gathered} 2.5 \\ {[0.098]} \end{gathered}$ | $\begin{gathered} 2.5 \\ {[0.098]} \end{gathered}$ | $\begin{gathered} 6.5 \\ {[0.256]} \end{gathered}$ | $\begin{array}{\|c} \hline 6.5 \\ {[0.256]} \\ \hline \end{array}$ | $\begin{gathered} 9 \\ {[0.354]} \end{gathered}$ | $\begin{array}{\|c} \hline 10 \\ {[0.394]} \\ \hline \end{array}$ | $\begin{array}{\|c} \hline 8 \\ {[0.315]} \\ \hline \end{array}$ |
| Y | $\begin{gathered} \hline 4.5 \\ {[0.177]} \\ \hline \end{gathered}$ | $\begin{array}{\|c} \hline 4.5 \\ {[0.177]} \end{array}$ | $\begin{gathered} 8 \\ {[0.315]} \end{gathered}$ | $\begin{gathered} 9.5 \\ {[0.374]} \\ \hline \end{gathered}$ | $\begin{gathered} 9 \\ {[0.354]} \\ \hline \end{gathered}$ | $\begin{gathered} 11 \\ {[0.433]} \\ \hline \end{gathered}$ | $\begin{gathered} 10 \\ {[0.394]} \end{gathered}$ |

Square rod cylinders with magnet


Solid state type

- Double acting type

| Code Bre Bore |  | 20 | 25 | 32 | 40 | 50 | 63 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| X | Standard type | $\begin{gathered} 17.5 \\ {[0.689]} \\ \hline \end{gathered}$ | $\begin{gathered} 17.5 \\ {[0.689]} \\ \hline \end{gathered}$ | $\begin{gathered} 22.5 \\ {[0.886]} \\ \hline \end{gathered}$ | $\begin{gathered} 24.5 \\ {[0.965]} \end{gathered}$ | $\begin{gathered} 27.5 \\ {[1.083]} \end{gathered}$ | $\begin{gathered} 30 \\ {[1.181]} \end{gathered}$ |
|  | With bumper (-R) | $\begin{gathered} 21.5 \\ {[0.846]} \\ \hline \end{gathered}$ | $\begin{gathered} 22.5 \\ {[0.886]} \\ \hline \end{gathered}$ | $\begin{gathered} 24.5 \\ {[0.965]} \\ \hline \end{gathered}$ | $\begin{gathered} 26.5 \\ {[1.043]} \\ \hline \end{gathered}$ | $\begin{gathered} 30.5 \\ {[1.201]} \\ \hline \end{gathered}$ | $\begin{gathered} 30 \\ {[1.181]} \\ \hline \end{gathered}$ |
| Y | Standard type | $\begin{gathered} 10 \\ {[0.394]} \end{gathered}$ | $\begin{gathered} 9 \\ {[0.354]} \end{gathered}$ | $\begin{gathered} 14 \\ {[0.551]} \end{gathered}$ | $\begin{gathered} 14.5 \\ {[0.571]} \end{gathered}$ | $\begin{gathered} 14.5 \\ {[0.571]} \\ \hline \end{gathered}$ | $\begin{gathered} 16 \\ {[0.630]} \end{gathered}$ |
|  | With bumper (-R) | $\begin{gathered} 8.5 \\ {[0.335]} \\ \hline \end{gathered}$ | $\begin{gathered} 9 \\ {[0.354]} \\ \hline \end{gathered}$ | $\begin{gathered} 6.5 \\ {[0.256]} \\ \hline \end{gathered}$ | $\begin{gathered} 8.5 \\ {[0.335]} \\ \hline \end{gathered}$ | $\begin{gathered} 11.5 \\ {[0.453]} \\ \hline \end{gathered}$ | $\begin{gathered} 16 \\ {[0.630]} \end{gathered}$ |

Reed switch type
Double acting type

| Code Bore |  | 20 | 25 | 32 | 40 | 50 | 63 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| X | Standard type | $\begin{gathered} 13 \\ {[0.512]} \\ \hline \end{gathered}$ | $\begin{gathered} 13 \\ {[0.512]} \\ \hline \end{gathered}$ | $\begin{gathered} 18 \\ {[0.709]} \end{gathered}$ | $\begin{gathered} 20 \\ {[0.787]} \\ \hline \end{gathered}$ | $\begin{gathered} 23 \\ {[0.906]} \\ \hline \end{gathered}$ | $\begin{gathered} 25.5 \\ {[1.004]} \end{gathered}$ |
|  | With bumper (-R) | $\begin{gathered} 17 \\ {[0.669]} \end{gathered}$ | $\begin{gathered} 18 \\ {[0.709]} \\ \hline \end{gathered}$ | $\begin{gathered} 20 \\ {[0.787]} \\ \hline \end{gathered}$ | $\begin{gathered} 22 \\ {[0.866]} \end{gathered}$ | $\begin{gathered} 26 \\ {[1.024]} \end{gathered}$ | $\begin{gathered} 25.5 \\ {[1.004]} \\ \hline \end{gathered}$ |
| Y | Standard type | $\begin{gathered} 5 \\ {[0.197]} \\ \hline \end{gathered}$ | $\begin{gathered} 4.5 \\ {[0.177]} \end{gathered}$ | $\begin{gathered} 4 \\ {[0.157]} \end{gathered}$ | $\begin{gathered} 6 \\ {[0.236]} \\ \hline \end{gathered}$ | $\begin{gathered} 10 \\ {[0.394]} \\ \hline \end{gathered}$ | $\begin{gathered} 11.5 \\ {[0.453]} \end{gathered}$ |
|  | With bumper (-R) | $\begin{gathered} 4 \\ {[0.157]} \end{gathered}$ | $\begin{gathered} 4.5 \\ {[0.177]} \end{gathered}$ | $\begin{gathered} 2 \\ {[0.079]} \end{gathered}$ | $\begin{gathered} 4 \\ {[0.157]} \end{gathered}$ | $\begin{gathered} 7 \\ {[0.276]} \end{gathered}$ | $\begin{gathered} 11.5 \\ {[0.453]} \\ \hline \end{gathered}$ |

## Double rod cylinders with magnet



Solid state type
ODouble acting type

| Code - Bore |  | 6 | 8 | 10 | 12 | 16 | 20 | 25 | 32 | 40 | 50 | 63 | 80 | 100 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| X | Standard type | $\left[\begin{array}{c} 7.2 \\ {[0.833]} \end{array}\right]$ | $\begin{array}{\|c\|} \hline 8 \\ {[0.315]} \end{array}$ | $\begin{aligned} & 8.3 \\ & {[0.327} \end{aligned}$ | $\begin{gathered} 7 \\ {[0.276]} \end{gathered}$ | $\begin{gathered} 7 \\ 0.276] \end{gathered}$ | $\begin{gathered} \hline 11 \\ {[0.433]} \end{gathered}$ | $\begin{gathered} 111 \\ {[0.433]} \end{gathered}$ | $\begin{array}{\|c\|} \hline 13.5 \\ {[0.5311} \end{array}$ | $\begin{array}{\|l\|} \hline 14.5 \\ {[0.571]} \end{array}$ | $\left[\begin{array}{l} 12.5 \\ {[0.922]} \end{array}\right.$ | $\left.\begin{array}{l} 15.5 \\ {[0.60]} \end{array}\right]$ | $\left[\begin{array}{l} 20.5 \\ {[0.007]} \end{array}\right]$ | $\left[\begin{array}{c} 25 \\ {[0.984]} \end{array}\right.$ |
|  | With bumper (-R) | - | - | - | $\begin{gathered} 10 \\ {[0.394]} \end{gathered}$ | $\begin{gathered} 10 \\ {[0.394]} \end{gathered}$ | $\begin{gathered} 15 \\ {[0.591]} \end{gathered}$ | $\begin{gathered} 16 \\ {[0.630]} \end{gathered}$ | $\begin{array}{\|c\|} \hline 15.5 \\ {[0.610]} \end{array}$ | $\begin{array}{\|c\|} \hline 16.5 \\ {[0.650]} \\ \hline \end{array}$ | $\begin{gathered} \hline 14 \\ {[0.551]} \\ \hline \end{gathered}$ | $\begin{gathered} 15 \\ {[0.591]} \end{gathered}$ | $\begin{array}{\|c\|} \hline 20.5 \\ {[0.007]} \end{array}$ | $\begin{aligned} & 25 \\ & {[0.984} \\ & \hline \end{aligned}$ |
| Y | Standard type | $\left[\begin{array}{c} 5.5 \\ {[0.217]} \end{array}\right]$ | $\begin{aligned} & 5.8 \\ & {[0.288]} \end{aligned}$ | $\begin{gathered} 6 \\ {[0.360]} \end{gathered}$ | $\begin{gathered} 10 \\ {[0.394]} \end{gathered}$ | $\left[\begin{array}{c} 10 \\ {[0.344]} \end{array}\right.$ | $\begin{array}{\|c\|} \hline 14 \\ {[0.551]} \\ \hline \end{array}$ | $\left.\begin{array}{\|c\|c\|} \hline 14.5 \\ {[0.571]} \end{array}\right]$ | $\begin{gathered} 15.5 \\ {[0.600} \end{gathered}$ | $\left.\begin{array}{l} 17.5 \\ {[0.689]} \end{array}\right]$ | $\left.\begin{array}{l} 16.5 \\ {[0.650} \end{array}\right]$ | $\left[\begin{array}{c} 18 \\ {[0.709} \end{array}\right]$ | $\left.\begin{array}{\|c\|} 26.5 \\ {[1.043]} \end{array} \right\rvert\,$ | $\left\{\begin{array}{l} 31.5 \\ {[1.20]} \end{array}\right.$ |
|  | With bumper (-R) | - | - | - | $\begin{gathered} 12 \\ {[0.472]} \end{gathered}$ | $\begin{gathered} 12 \\ {[0.472]} \end{gathered}$ | $\begin{gathered} 15 \\ {[0.591]} \end{gathered}$ | $\begin{aligned} & 14.5 \\ & {[0.571]} \end{aligned}$ | $\begin{gathered} 6.5 \\ {[0.56]} \end{gathered}$ | $\left.\begin{array}{\|c\|} 15.5 \\ {[0.60]} \end{array}\right]$ | $\begin{gathered} 15 \\ {[0.591]} \end{gathered}$ | $\left.\begin{gathered} 18 \\ 10.090 \end{gathered} \right\rvert\,$ | $\begin{aligned} & 26.5 \\ & {[1.043]} \\ & \hline \end{aligned}$ | $\left\{\begin{array}{l} 31.5 \\ {[1.20]} \end{array}\right.$ |

## Single acting type

| Code Bore | 12 | 16 | 20 | 25 | 32 | 40 | 50 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| X | $\begin{gathered} 15 \\ {[0.591]} \end{gathered}$ | $\begin{gathered} 15 \\ {[0.591]} \end{gathered}$ | $\begin{gathered} 14 \\ {[0.551]} \\ \hline \end{gathered}$ | $\begin{gathered} 14.5 \\ {[0.571]} \end{gathered}$ | $\begin{gathered} 15.5 \\ {[0.610]} \end{gathered}$ | $\begin{array}{\|c\|} \hline 17.5 \\ {[0.689]} \end{array}$ | $\begin{gathered} 16.5 \\ {[0.650]} \end{gathered}$ |
| Y | $\begin{array}{\|c\|} \hline 7 \\ {[0.276]} \end{array}$ | $\begin{gathered} 7 \\ {[0.276]} \end{gathered}$ | $\begin{gathered} 11 \\ {[0.433]} \end{gathered}$ | $\begin{gathered} 11 \\ {[0.433]} \end{gathered}$ | $\begin{array}{\|c\|} \hline 13.5 \\ {[0.531]} \end{array}$ | $\begin{gathered} 14.5 \\ {[0.571]} \end{gathered}$ | $\begin{gathered} 12.5 \\ {[0.492]} \end{gathered}$ |

Reed switch type
Double acting type

| Code $\quad$ Bore |  | 12 | 16 | 20 | 25 | 32 | 40 | 50 | 63 | 80 | 100 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| X | Standard type | $\left.\begin{array}{\|c\|} \hline 2.5 \\ {[0.098]} \end{array} \right\rvert\,$ | $\begin{gathered} 2.5 \\ {[0.098]} \end{gathered}$ | $\left.\begin{array}{\|c\|} \hline 6.5 \\ {[0.256]} \end{array} \right\rvert\,$ | $\left.\begin{array}{\|c\|} \hline 6.5 \\ {[0.256]} \end{array} \right\rvert\,$ | $\left\|\begin{array}{c} 9 \\ {[0.354]} \end{array}\right\|$ | $\begin{array}{\|c\|} \hline 10 \\ {[0.394]} \end{array}$ | $\left.\begin{array}{\|c\|} \hline 8 \\ {[0.315]} \end{array} \right\rvert\,$ | $\left.\begin{array}{\|l\|} \hline 10.5 \\ {[0.413]} \end{array} \right\rvert\,$ | $\begin{array}{\|c\|} \hline 16 \\ {[0.630]} \end{array}$ | $\begin{array}{\|l\|} \hline 20.5 \\ {[0.807]} \end{array}$ |
|  | With bumper (-R) | $\begin{array}{\|c\|} \hline 5.5 \\ {[0.217]} \\ \hline \end{array}$ | $\begin{array}{\|c\|} \hline 5.5 \\ {[0.217]} \end{array}$ | $\begin{array}{\|l\|} \hline 10.5 \\ {[0.413]} \\ \hline \end{array}$ | $\begin{array}{\|l\|} \hline 11.5 \\ {[0.453]} \\ \hline \end{array}$ | $\begin{array}{\|c\|} \hline 11 \\ {[0.433]} \\ \hline \end{array}$ | $\begin{array}{\|c\|} \hline 12 \\ {[0.472]} \end{array}$ | $\begin{array}{\|c\|} \hline 9.5 \\ {[0.374]} \end{array}$ | $\begin{array}{\|c\|} \hline 10.5 \\ {[0.413]} \end{array}$ | $\begin{array}{\|c\|} \hline 16 \\ {[0.630]} \\ \hline \end{array}$ | $\begin{array}{\|c} 20.5 \\ {[0.807]} \\ \hline \end{array}$ |
| Y | Standard type | $\begin{array}{\|c\|} \hline 5.5 \\ {[0.217]} \end{array}$ | $\begin{array}{\|c\|} \hline 5.5 \\ {[0.217]} \end{array}$ | $\begin{gathered} 9.5 \\ {[0.374]} \end{gathered}$ | $\left.\left\lvert\, \begin{array}{c} 10 \\ {[0.394]} \end{array}\right.\right]$ | $\begin{array}{\|c\|} \hline 11 \\ {[0.433]} \\ \hline \end{array}$ | $\begin{array}{\|c\|} \hline 13 \\ {[0.512]} \end{array}$ | $\begin{array}{\|c\|} \hline 12 \\ {[0.472]} \end{array}$ | $\left.\begin{array}{\|c\|} \hline 13.5 \\ {[0.531]} \end{array}\right]$ | $\begin{array}{\|c\|} \hline 22 \\ {[0.866]} \\ \hline \end{array}$ | $\begin{array}{\|c} \hline 27 \\ {[1.063]} \\ \hline \end{array}$ |
|  | With bumper (-R) | $\begin{array}{\|c\|} \hline 7.5 \\ {[0.295]} \\ \hline \end{array}$ | $\begin{array}{\|c\|} \hline 7.5 \\ {[0.295]} \end{array}$ | $\begin{array}{\|l} 10.5 \\ {[0.413]} \\ \hline \end{array}$ | $\left.\begin{array}{\|c\|} \hline 10 \\ {[0.394]} \end{array}\right]$ | $\left.\begin{array}{\|c\|} \hline 2 \\ {[0.079]} \end{array}\right]$ | $\begin{array}{\|c\|} \hline 11 \\ {[0.433]} \\ \hline \end{array}$ | $\begin{array}{\|c\|} \hline 10.5 \\ {[0.413]} \\ \hline \end{array}$ | $\begin{array}{\|c\|} \hline 13.5 \\ {[0.531]} \end{array}$ | $\begin{array}{\|c\|} \hline 22 \\ {[0.866]} \\ \hline \end{array}$ | $\begin{array}{\|c} \hline 27 \\ {[1.063]} \\ \hline \end{array}$ |


| -Single acting type |  |  |  |  |  |  | mm [in.] |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Code Bore | 12 | 16 | 20 | 25 | 32 | 40 | 50 |
| X | $\begin{gathered} 10.5 \\ {[0.413]} \end{gathered}$ | $\begin{gathered} 10.5 \\ {[0.413]} \end{gathered}$ | $\begin{gathered} 9.5 \\ {[0.374]} \end{gathered}$ | $\begin{gathered} 10 \\ {[0.394]} \end{gathered}$ | $\begin{gathered} 11 \\ {[0.433]} \end{gathered}$ | $\begin{gathered} \hline 13 \\ {[0.512]} \end{gathered}$ | $\begin{gathered} \hline 12 \\ {[0.472]} \end{gathered}$ |
| Y | $\left[\begin{array}{c} 2.5 \\ {[0.098]} \end{array}\right.$ | $\begin{gathered} 2.5 \\ {[0.098]} \end{gathered}$ | $\begin{gathered} 6.5 \\ {[0.256]} \end{gathered}$ | $\begin{gathered} 6.5 \\ {[0.256]} \end{gathered}$ | $\begin{gathered} 9 \\ {[0.354]} \end{gathered}$ | $\left[\begin{array}{c} 10 \\ {[0.394]} \end{array}\right.$ | $\begin{gathered} 8 \\ {[0.315]} \\ \hline \end{gathered}$ |

Tandem cylinders with magnet


## Solid state type

- Double acting type

| Code Bore |  | 12 | 16 | 20 | 25 | 32 | 40 | 50 | 63 | 80 | 100 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| X | Standard type | $\begin{array}{\|c} 7 \\ {[0.276]} \end{array}$ | $\left.\begin{array}{\|c\|} \hline 7 \\ {[0.276]} \end{array} \right\rvert\,$ | $\begin{array}{\|c\|} \hline 11 \\ {[0.433]} \end{array}$ | $\begin{array}{\|c\|} \hline 11 \\ {[0.433]} \end{array}$ | $\left.\begin{array}{\|c\|} \hline 13.5 \\ {[0.531]} \end{array} \right\rvert\,$ | $\begin{array}{\|c\|} \hline 14.5 \\ {[0.571]} \end{array}$ | $\begin{array}{\|c\|} \hline 12.5 \\ {[0.492]} \end{array}$ | $\begin{array}{\|c\|} \hline 15 \\ {[0.591]} \\ \hline \end{array}$ | $\left.\left\lvert\, \begin{array}{c} 20 \\ {[0.787]} \end{array}\right.\right]$ | $\begin{gathered} 25 \\ {[0.984]} \end{gathered}$ |
|  | With bumper (-R) | $\begin{array}{\|c\|} \hline 10 \\ {[0.394]} \end{array}$ | $\left.\left\lvert\, \begin{array}{c} 10 \\ {[0.394]} \end{array}\right.\right]$ | $\left.\begin{array}{\|c\|} \hline 15 \\ {[0.591]} \end{array}\right]$ | $\left.\begin{array}{\|c\|} \hline 16 \\ {[0.630]} \end{array}\right]$ | $\begin{array}{\|c\|} \hline 15.5 \\ {[0.610]} \end{array}$ | $\left.\begin{array}{\|c\|} \hline 16.5 \\ {[0.650]} \end{array}\right]$ | $\left.\begin{array}{\|c\|} \hline 15.5 \\ {[0.610]} \end{array}\right]$ | $\left\lvert\, \begin{array}{c\|} \hline 15 \\ {[0.591]} \end{array}\right.$ | $\left\|\begin{array}{c} 20 \\ {[0.787]} \end{array}\right\|$ | $\begin{gathered} 25 \\ {[0.984]} \end{gathered}$ |
| Y | Standard type | $\begin{array}{\|c} \hline 4 \\ {[0.157]} \end{array}$ | $\left.\left\lvert\, \begin{array}{c} 4 \\ {[0.157]} \end{array}\right.\right]$ | $\begin{gathered} 7.5 \\ {[0.295]} \end{gathered}$ | $\left[\begin{array}{c} 9 \\ {[0.354]} \end{array}\right.$ | $\begin{gathered} 8.5 \\ {[0.335]} \end{gathered}$ | $\begin{aligned} & 10.5 \\ & {[0.413]} \end{aligned}$ | $\begin{array}{\|c\|} \hline 14.5 \\ {[0.571]} \\ \hline \end{array}$ | $\left[\begin{array}{c} 16 \\ {[0.630]} \end{array}\right]$ | $\begin{array}{\|c\|} \hline 20 \\ {[0.787]} \\ \hline \end{array}$ | $\begin{gathered} \hline 25 \\ {[0.984]} \\ \hline \end{gathered}$ |
|  | With bumper (-R) | $\left[\begin{array}{c} 6 \\ {[0.236]} \end{array}\right]$ | $\begin{array}{\|c\|} \hline 6 \\ {[0.236]} \\ \hline \end{array}$ | $\left.\left\lvert\, \begin{array}{c} 8.5 \\ {[0.335]} \end{array}\right.\right]$ | $\left.\begin{array}{\|c\|} 9 \\ {[0.354]} \end{array}\right]$ | $\begin{array}{\|c\|} \hline 6.5 \\ {[0.256]} \\ \hline \end{array}$ | $\begin{array}{\|c\|} \hline 8.5 \\ {[0.335]} \\ \hline \end{array}$ | $\begin{array}{\|l\|} \hline 11.5 \\ {[0.453]} \end{array}$ | $\left[\begin{array}{c\|} \hline 16 \\ {[0.630]} \end{array}\right.$ | $\begin{array}{\|c\|} \hline 20 \\ {[0.787]} \\ \hline \end{array}$ | $\begin{gathered} 25 \\ {[0.984]} \\ \hline \end{gathered}$ |

Single acting push type

| Code Bore | 12 | 16 | 20 | 25 | 32 | 40 | 50 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| X | $\begin{array}{\|c} 15 \\ {[0.591]} \\ \hline \end{array}$ | $\begin{gathered} 15 \\ {[0.591]} \end{gathered}$ | $\begin{gathered} 14 \\ {[0.551]} \\ \hline \end{gathered}$ | $\begin{gathered} 14.5 \\ {[0.571]} \\ \hline \end{gathered}$ | $\begin{array}{\|c\|} \hline 15.5 \\ {[0.610]} \\ \hline \end{array}$ | $\begin{array}{\|c\|} \hline 17.5 \\ {[0.689]} \end{array}$ | $\begin{gathered} 16.5 \\ {[0.650]} \end{gathered}$ |
| Y | $\begin{gathered} 1 \\ {[0.039]} \end{gathered}$ | $\begin{gathered} 1 \\ {[0.039]} \end{gathered}$ | $\begin{gathered} 4.5 \\ {[0.177]} \\ \hline \end{gathered}$ | $\begin{gathered} 5.5 \\ {[0.217]} \end{gathered}$ | $\begin{gathered} 6.5 \\ {[0.256]} \\ \hline \end{gathered}$ | $\begin{array}{\|c} \hline 7.5 \\ {[0.295]} \\ \hline \end{array}$ | $\begin{gathered} 10.5 \\ {[0.413]} \\ \hline \end{gathered}$ |



## Reed switch type

Double acting type

| Code - Bore |  | 12 | 16 | 20 | 25 | 32 | 40 | 50 | 63 | 80 | 100 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| X | Standard type | $\begin{array}{\|c\|} \hline 2.5 \\ {[0.098]} \end{array}$ | $\begin{array}{\|c\|} \hline 2.5 \\ {[0.098]} \end{array}$ | $\begin{array}{c\|} \hline 6.5 \\ {[0.256]} \end{array}$ | $\begin{gathered} 6.5 \\ {[0.256]} \end{gathered}$ | $\left[\begin{array}{c} 9 \\ {[0.354]} \end{array}\right]$ | $\begin{array}{\|c\|} \hline 10 \\ {[0.394]} \end{array}$ | $\left.\begin{array}{\|c\|} \hline 8 \\ {[0.315]} \end{array}\right]$ | $\begin{aligned} & 10.5 \\ & {[0.413]} \end{aligned}$ | $\begin{aligned} & \hline 15.5 \\ & {[0.610]} \end{aligned}$ | $\begin{aligned} & 20.5 \\ & {[0.807]} \end{aligned}$ |
|  | With bumper (-R) | $\begin{array}{\|c\|} \hline 5.5 \\ {[0.217]} \\ \hline \end{array}$ | $\begin{array}{\|c\|} \hline 5.5 \\ {[0.217]} \\ \hline \end{array}$ | $\begin{array}{\|l\|} \hline 10.5 \\ {[0.413]} \end{array}$ | $\begin{array}{\|l\|} \hline 11.5 \\ {[0.453]} \end{array}$ | $\begin{array}{\|c\|} \hline 11 \\ {[0.433]} \\ \hline \end{array}$ | $\begin{array}{\|c\|} \hline 12 \\ {[0.472]} \\ \hline \end{array}$ | $\begin{array}{\|c\|} \hline 11 \\ {[0.433]} \\ \hline \end{array}$ | $\begin{array}{\|l\|} \hline 10.5 \\ {[0.413]} \end{array}$ | $\begin{array}{\|l} \hline 15.5 \\ {[0.610]} \\ \hline \end{array}$ | $\begin{array}{\|l} 20.5 \\ {[0.807]} \\ \hline \end{array}$ |
| Y | Standard type | $\left[\begin{array}{c} -0.5 \\ {[-0.020]} \end{array}\right]$ | $\left[\begin{array}{c} -0.5 \\ {[-0.020]} \end{array}\right]$ | $\begin{gathered} 3 \\ {[0.118]} \end{gathered}$ | $\begin{array}{\|c\|} \hline 4.5 \\ {[0.177]} \\ \hline \end{array}$ | $\left.\left\lvert\, \begin{array}{c} 4 \\ {[0.157]} \end{array}\right.\right]$ | $\left[\begin{array}{c} 6 \\ {[0.236]} \end{array}\right]$ | $\left.\begin{array}{c} 10 \\ {[0.394]} \end{array}\right]$ | $\begin{aligned} & 11.5 \\ & {[0.453]} \end{aligned}$ | $\begin{aligned} & 15.5 \\ & {[0.610]} \end{aligned}$ | $\begin{aligned} & 20.5 \\ & {[0.807]} \\ & \hline \end{aligned}$ |
|  | With bumper (-R) | $\left.\begin{array}{\|c\|} \hline 1.5 \\ {[0.059]} \end{array} \right\rvert\,$ | $\left.\begin{array}{\|c\|} \hline 1.5 \\ {[0.059]} \end{array} \right\rvert\,$ | $\begin{array}{\|c\|} \hline 4 \\ {[0.157]} \end{array}$ | $\left.\begin{array}{\|c\|} \hline 4.5 \\ {[0.177]} \end{array} \right\rvert\,$ | $\left\|\begin{array}{c\|} \hline 2 \\ {[0.079]} \end{array}\right\|$ | $\left.\begin{array}{\|c\|} \hline 4 \\ {[0.157]} \end{array} \right\rvert\,$ | $\left.\begin{array}{\|c\|} \hline 7 \\ {[0.276]} \end{array}\right]$ | $\left.\begin{array}{\|c\|} \hline 11.5 \\ {[0.453]} \end{array} \right\rvert\,$ | $\begin{aligned} & \hline 15.5 \\ & {[0.610]} \end{aligned}$ | $\begin{aligned} & 20.5 \\ & {[0.807]} \end{aligned}$ |

Single acting push type

| Code Bore | 12 | 16 | 20 | 25 | 32 | 40 | 50 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| X | $\begin{array}{\|c\|} \hline 10.5 \\ {[0.413]} \end{array}$ | $\begin{array}{\|c\|} \hline 10.5 \\ {[0.413]} \end{array}$ | $\begin{array}{\|c\|} \hline 9.5 \\ {[0.374]} \\ \hline \end{array}$ | $\begin{gathered} 10 \\ {[0.394]} \end{gathered}$ | $\begin{gathered} 11 \\ {[0.433]} \end{gathered}$ | $\begin{array}{\|c} 13 \\ {[0.512]} \\ \hline \end{array}$ | $\begin{gathered} 12 \\ {[0.472]} \end{gathered}$ |
| Y | $\begin{gathered} -3.5 \\ {[-0.138]} \\ \hline \end{gathered}$ | $\begin{gathered} -3.5 \\ {[-0.138]} \end{gathered}$ | $\begin{gathered} 0 \\ {[0]} \\ \hline \end{gathered}$ | $\begin{gathered} 1 \\ {[0.039]} \end{gathered}$ | $\begin{gathered} 2 \\ {[0.079]} \end{gathered}$ | $\begin{gathered} 3 \\ {[0.118]} \end{gathered}$ | $\begin{gathered} 6 \\ {[0.236]} \\ \hline \end{gathered}$ |



| Double acting type |  |  |  |  |  |  |  |  |  |  | mm [in.] |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Code Bore |  | 12 | 16 | 20 | 25 | 32 | 40 | 50 | 63 | 80 | 100 |
| x | Standard type | $\begin{gathered} 7 \\ {[0.276]} \end{gathered}$ | $\begin{array}{c\|} \hline 7 \\ \hline[0.276] \end{array}$ | $\begin{gathered} 11 \\ \hline 10.433] \\ \hline 10 \end{gathered}$ | $\begin{array}{c\|} \hline 11 \\ {[0.433]} \\ \hline \end{array}$ | $\begin{array}{\|c\|} \hline 13.5 \\ {[0.531]} \end{array}$ | $\begin{array}{\|c\|} \hline 14.5 \\ {[0.571]} \end{array}$ | $\begin{array}{\|l\|} \hline 12.5 \\ {[0.492]} \end{array}$ | $\begin{gathered} 15 \\ {[0.591]} \end{gathered}$ | $\begin{gathered} \hline 20 \\ {[0.787]} \end{gathered}$ | $\begin{gathered} 25 \\ {[0.984]} \end{gathered}$ |
|  | With bumper (-R) | $\text { 3) } \left.\begin{array}{c} 10 \\ {[0.394]} \end{array}\right]$ | $\begin{gathered} 10 \\ y[0.394] \end{gathered}$ | $\begin{gathered} 15 \\ {[0.591]} \end{gathered}$ | $\left.\begin{array}{c} 16 \\ \hline[0.630] \end{array}\right]$ | $\left\lvert\, \begin{gathered} 15.5 \\ {[0.610]} \end{gathered}\right.$ | $\begin{gathered} 16.5 \\ {[0.650]} \end{gathered}$ | $\left.\begin{array}{\|c\|c} \hline 14 \\ {[0.551]} \end{array}\right]$ | $\begin{gathered} 15 \\ \hline \text { [0.591] } \end{gathered}$ | $\begin{gathered} 20 \\ {[0.887]} \end{gathered}$ | $\begin{gathered} 25 \\ {[0.984]} \end{gathered}$ |
| Y | Standard type | $\left[\begin{array}{c} 4 \\ {[0.157]} \end{array}\right]$ | $\begin{gathered} 4 \\ 4 \\ {[0.157]} \end{gathered}$ | $\begin{gathered} 7.5 \\ {[0.295]} \end{gathered}$ | $\begin{gathered} 9 \\ {[0.354]} \end{gathered}$ | $\left[\begin{array}{c} 8.5 \\ {[0.335]} \end{array}\right.$ | $\begin{array}{l\|} 10.5 \\ {[0.413]} \end{array}$ | $\begin{array}{\|l\|} \hline 14.5 \\ {[0.571]} \end{array}$ | $\begin{gathered} 16 \\ {[0.630]} \end{gathered}$ | $\begin{gathered} 20 \\ {[0.787]} \end{gathered}$ | $\begin{gathered} 25 \\ {[0.984]} \end{gathered}$ |
|  | With bumper (-R) | $\text { 4) } \left.\begin{array}{c} 6 \\ {[0.236]} \end{array}\right]$ | $\left[\begin{array}{c} 6 \\ {[0.236]} \end{array}\right.$ | $\begin{gathered} 8.5 \\ {[0.335]} \end{gathered}$ | $\left[\begin{array}{c} 9 \\ {[0.354]} \end{array}\right.$ | $\left[\begin{array}{c} 6.5 \\ {[0.256]} \end{array}\right]$ | $\left[\begin{array}{c} 8.5 \\ {[0.335]} \end{array}\right]$ | $\begin{aligned} & 13.5 \\ & {[0.531]} \end{aligned}$ | $\left.\begin{array}{c} 16 \\ {[0.630]} \end{array}\right]$ | $\begin{gathered} 20 \\ {[0.787]} \end{gathered}$ | $\begin{gathered} 25 \\ {[0.984]} \end{gathered}$ |

Single acting push type

| Code Bore | 12 | 16 | 20 | 25 | 32 | 40 | 50 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| X | $\begin{gathered} 15 \\ {[0.591]} \end{gathered}$ | $\begin{gathered} 15 \\ {[0.591]} \end{gathered}$ | $\begin{gathered} \hline 14 \\ {[0.551]} \end{gathered}$ | $\begin{array}{\|c\|} \hline 14.5 \\ {[0.571]} \end{array}$ | $\begin{array}{\|c\|} \hline 15.5 \\ {[0.610]} \end{array}$ | $\begin{gathered} \hline 17.5 \\ {[0.689]} \end{gathered}$ | $\begin{gathered} 16.5 \\ {[0.650]} \end{gathered}$ |
| Y | $\begin{gathered} 1 \\ {[0.039]} \end{gathered}$ | $\begin{gathered} 1 \\ {[0.039]} \end{gathered}$ | $\begin{gathered} \hline 7.5 \\ {[0.295]} \\ \hline \end{gathered}$ | $\begin{array}{\|c\|} \hline 5.5 \\ {[0.217]} \\ \hline \end{array}$ | $\begin{array}{\|c\|} \hline 6.5 \\ {[0.256]} \\ \hline \end{array}$ | $\begin{array}{\|c\|} \hline 7.5 \\ {[0.295]} \\ \hline \end{array}$ | $\begin{gathered} 10.5 \\ {[0.413]} \end{gathered}$ |

Single acting pull type

| Code Bore | 12 | 16 | 20 | 25 | 32 | 40 | 50 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| X | $\begin{gathered} 7 \\ {[0.276]} \\ \hline \end{gathered}$ | $\begin{gathered} 7 \\ {[0.276]} \end{gathered}$ | $\begin{gathered} 11 \\ {[0.433]} \end{gathered}$ | $\begin{gathered} 11 \\ {[0.433]} \end{gathered}$ | $\begin{array}{\|c\|} \hline 13.5 \\ {[0.531]} \end{array}$ | $\begin{array}{\|c\|} \hline 14.5 \\ {[0.571]} \end{array}$ | $\begin{array}{\|c\|} \hline 12.5 \\ {[0.492]} \\ \hline \end{array}$ |
| Y | $\begin{gathered} 9 \\ {[0.354]} \end{gathered}$ | $\begin{gathered} 9 \\ {[0.354]} \end{gathered}$ | $\begin{gathered} 12.5 \\ {[0.492]} \end{gathered}$ | $\begin{gathered} 14 \\ {[0.551]} \end{gathered}$ | $\begin{array}{\|c\|} \hline 13.5 \\ {[0.531]} \\ \hline \end{array}$ | $\begin{gathered} 15.5 \\ {[0.610]} \end{gathered}$ | $\begin{gathered} 14.5 \\ {[0.571]} \\ \hline \end{gathered}$ |

$\square$ Reed switch type
Double acting type

| Code - Bore |  | 12 | 16 | 20 | 25 | 32 | 40 | 50 | 63 | 80 | 100 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| X | Standard type | $\begin{gathered} 2.5 \\ {[0.098]} \end{gathered}$ | $\begin{gathered} 2.5 \\ {[0.098]} \end{gathered}$ | $\begin{array}{\|c\|} \hline 6.5 \\ {[0.256]} \end{array}$ | $\begin{array}{\|c\|} \hline 6.5 \\ {[0.256]} \end{array}$ | $\begin{gathered} 9 \\ {[0.354]} \end{gathered}$ | $\begin{array}{\|c\|} \hline 10 \\ {[0.394]} \end{array}$ | $\begin{array}{\|c\|} \hline 8 \\ {[0.315]} \end{array}$ | $\begin{array}{\|c\|} \hline 10.5 \\ {[0.413]} \end{array}$ | $\begin{array}{\|c\|} \hline 15.5 \\ {[0.610]} \end{array}$ | $\begin{aligned} & 20.5 \\ & {[0.807]} \\ & \hline \end{aligned}$ |
|  | With bumper (-R) | $\begin{array}{\|c\|} \hline 5.5 \\ {[0.217]} \\ \hline \end{array}$ | $\begin{array}{\|c\|} \hline 5.5 \\ {[0.217]} \end{array}$ | $\begin{array}{\|c\|} \hline 10.5 \\ {[0.413]} \end{array}$ | $\begin{array}{\|c\|} \hline 11.5 \\ {[0.453]} \end{array}$ | $\left.\begin{array}{c} 11 \\ {[0.433]} \end{array}\right]$ | $\begin{array}{c\|} \hline 12 \\ {[0.472]} \end{array}$ | $\begin{array}{\|c\|} \hline 9.5 \\ {[0.374]} \end{array}$ | $\begin{array}{\|c\|} \hline 10.5 \\ {[0.413]} \end{array}$ | $\begin{gathered} 15.5 \\ {[0.610]} \end{gathered}$ | $\begin{aligned} & 20.5 \\ & {[0.807]} \\ & \hline \end{aligned}$ |
| Y | Standard type | $\left[\begin{array}{c} -0.5 \\ {[-0.020]} \end{array}\right]$ | $\left[\begin{array}{l} -0.5 \\ {[-0.020]} \end{array}\right.$ | $\left[\begin{array}{c} 3 \\ {[0.118]} \end{array}\right]$ | $\left[\begin{array}{c} 4.5 \\ {[0.177]} \end{array}\right.$ | $\begin{gathered} 4 \\ {[0.157]} \end{gathered}$ | $\begin{gathered} 6 \\ {[0.236]} \end{gathered}$ | $\left[\begin{array}{c} 10 \\ {[0.394]} \end{array}\right]$ | $\begin{gathered} 11.5 \\ {[0.453]} \end{gathered}$ | $\begin{gathered} 15.5 \\ {[0.610]} \end{gathered}$ | $\begin{aligned} & 20.5 \\ & {[0.807]} \end{aligned}$ |
|  | With bumper (-R) | $\begin{gathered} 1.5 \\ {[0.059]} \end{gathered}$ | $\begin{gathered} 1.5 \\ {[0.059]} \end{gathered}$ | $\begin{gathered} 4 \\ {[0.157]} \end{gathered}$ | $\begin{gathered} 4.5 \\ {[0.177]} \end{gathered}$ | $\begin{gathered} 2 \\ {[0.079]} \end{gathered}$ | $\begin{array}{\|c\|} \hline 4 \\ {[0.157]} \\ \hline \end{array}$ | $\begin{array}{\|c\|} 9 \\ {[0.354]} \end{array}$ | $\begin{array}{\|c\|} \hline 11.5 \\ {[0.453]} \end{array}$ | $\begin{array}{\|c\|} \hline 15.5 \\ {[0.610]} \end{array}$ | $\begin{aligned} & 20.5 \\ & {[0.807]} \\ & \hline \end{aligned}$ |

Single acting push type

| Code Bore | 12 | 16 | 20 | 25 | 32 | 40 | 50 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| X | $\begin{array}{\|c\|} \hline 10.5 \\ {[0.413]} \\ \hline \end{array}$ | $\begin{gathered} 10.5 \\ {[0.413]} \end{gathered}$ | $\begin{gathered} 9.5 \\ {[0.374]} \\ \hline \end{gathered}$ | $\begin{gathered} 10 \\ {[0.394]} \end{gathered}$ | $\begin{gathered} 11 \\ {[0.433]} \end{gathered}$ | $\begin{gathered} 13 \\ {[0.512]} \\ \hline \end{gathered}$ | $\begin{gathered} 12 \\ {[0.472]} \end{gathered}$ |
| Y | $\begin{gathered} -3.5 \\ {[-0.138]} \\ \hline \end{gathered}$ | $\begin{array}{\|c\|} \hline-3.5 \\ {[-0.138]} \end{array}$ | $\begin{gathered} 3 \\ {[0.118]} \end{gathered}$ | $\begin{gathered} 1 \\ {[0.039]} \end{gathered}$ | $\begin{array}{\|c} 2 \\ {[0.079]} \end{array}$ | $\begin{gathered} 3 \\ {[0.118]} \end{gathered}$ | $\begin{gathered} 6 \\ {[0.236]} \end{gathered}$ |


| mm [in.] |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Code Bore | 12 | 16 | 20 | 25 | 32 | 40 | 50 |
| x | $\begin{gathered} 2.5 \\ {[0.098]} \end{gathered}$ | $\begin{gathered} 2.5 \\ {[0.098]} \end{gathered}$ | $\begin{gathered} 6.5 \\ {[0.256]} \\ \hline \end{gathered}$ | $\begin{gathered} 6.5 \\ {[0.256]} \end{gathered}$ | $\begin{gathered} 9 \\ {[0.354]} \end{gathered}$ | $\begin{gathered} 10 \\ {[0.394]} \end{gathered}$ | $\begin{gathered} 8 \\ {[0.315]} \end{gathered}$ |
| Y | $\left[\begin{array}{c} 4.5 \\ {[0.177]} \end{array}\right.$ | $\begin{gathered} 4.5 \\ {[0.177]} \end{gathered}$ | $\begin{gathered} 8 \\ {[0.315]} \end{gathered}$ | $\begin{gathered} 9.5 \\ {[0.374]} \end{gathered}$ | $\begin{gathered} 9 \\ {[0.354]} \end{gathered}$ | $\left[\begin{array}{c} 11 \\ {[0.433]} \end{array}\right.$ | $\begin{gathered} 10 \\ {[0.394]} \end{gathered}$ |

## Lateral load resistant cylinders with magnet



Solid state type
Double acting type

| Code Bore | 12 | 16 | 20 | 25 | 32 | 40 | 50 | 63 | 80 | 100 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| X | $\begin{array}{c\|} \hline 10 \\ {[0.394]} \end{array}$ | $\begin{array}{c\|} \hline 10 \\ {[0.394]} \end{array}$ | $\begin{array}{\|c\|} \hline 15 \\ {[0.591]} \end{array}$ | $\left\lvert\, \begin{gathered} 16 \\ {[0.630]} \end{gathered}\right.$ | $\begin{array}{\|c\|} \hline 15.5 \\ {[0.610]} \end{array}$ | $\begin{array}{\|c\|} \hline 16.5 \\ {[0.650]} \end{array}$ | $\begin{array}{\|c\|} \hline 15.5 \\ {[0.610]} \end{array}$ | $\begin{array}{c\|} \hline 17.5 \\ {[0.689]} \end{array}$ | $\begin{array}{\|l\|} \hline 26.5 \\ {[1.043]} \end{array}$ | $\begin{aligned} & \hline 31.5 \\ & {[1.240]} \\ & \hline \end{aligned}$ |
| Y | $\begin{gathered} \hline 6 \\ {[0.236]} \end{gathered}$ | $\begin{gathered} \hline 6 \\ {[0.236]} \end{gathered}$ | $\begin{array}{\|c\|} \hline 8.5 \\ {[0.335]} \end{array}$ | $\left\lvert\, \begin{gathered} 9 \\ {[0.354]} \end{gathered}\right.$ | $\begin{array}{\|c\|} \hline 6.5 \\ {[0.256]} \\ \hline \end{array}$ | $\begin{array}{\|c\|} \hline 8.5 \\ {[0.335]} \end{array}$ | $\begin{array}{\|c\|} \hline 11.5 \\ {[0.453]} \end{array}$ | $\begin{aligned} & 13.5 \\ & {[0.5311]} \end{aligned}$ | $\begin{array}{\|c\|} \hline 18.5 \\ {[0.728]} \end{array}$ | $\begin{aligned} & 23.5 \\ & {[0.925]} \\ & \hline \end{aligned}$ |

Reed switch type
Double acting type

| Code | Bore |  | $\mathbf{1 2}$ | $\mathbf{1 6}$ | $\mathbf{2 0}$ | $\mathbf{2 5}$ | $\mathbf{3 2}$ | $\mathbf{4 0}$ | $\mathbf{5 0}$ | $\mathbf{6 3}$ | $\mathbf{8 0}$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| $\mathbf{1 0 0}$ |  |  |  |  |  |  |  |  |  |  |  |
|  | 5.5 | 5.5 | 10.5 | 11.5 | 11 | 12 | 11 | 13 | 22 | 27 |  |
|  |  | $[0.217]$ | $[0.217]$ | $[0.413]$ | $[0.453]$ | $[0.433]$ | $[0.472]$ | $[0.433]$ | $[0.512]$ | $[0.866]$ | $[1.063]$ |
| $\mathbf{Y}$ | 1.5 | 1.5 | 4 | 4.5 | 2 | 4 | 7 | 9 | 14 | 19 |  |
|  |  | $[0.059]$ | $[0.059]$ | $[0.157]$ | $[0.177]$ | $[0.079]$ | $[0.157]$ | $[0.276]$ | $[0.354]$ | $[0.551]$ | $[0.748]$ |

## Long stroke cylinders with magnet



Solid state type
Double acting type

| Code Bore | 12 | 16 | 20 | 25 | 32 | 40 | 50 | 63 | 80 | 100 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| X | 15 | 15 | 20 | 21 | 20.5 | 21.5 | 20.5 | 22.5 | 31.5 | 36.5 |
|  | ［0．591］ | ［0．591］ | ［0．787］ | ［0．827］ | ［0．807］ | ［0．846］ | ［0．807］ | ［0．886］ | ［1．240］ | ［1．437］ |
| Y | 12 | 12 | 15 | 14.5 | 13.5 | 15.5 | 12.5 | 13.5 | 18.5 | 23.5 |
|  | ［0．472］ | ［0．472］ | ［0．591］ | ［0．571］ | ［0．531］ | ［0．610］ | ［0．492］ | ［0．531］ | ［0．728］ | ［0．925］ |

Reed switch type
Double acting type

| Code Bore | 12 | 16 | 20 | 25 | 32 | 40 | 50 | 63 | 80 | 100 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| X | $\left.\begin{array}{\|l\|} \hline 10.5 \\ {[0.413]} \end{array}\right]$ | $\left.\begin{array}{\|c\|} \hline 10.5 \\ {[0.413]} \end{array} \right\rvert\,$ | $\left.\begin{array}{\|c\|} \hline 15.5 \\ {[0.610]} \end{array} \right\rvert\,$ | $\left.\begin{array}{\|l\|} \hline 16.5 \\ {[0.650} \end{array} \right\rvert\,$ | $\left\|\begin{array}{c\|} \hline 16 \\ {[0.630]} \end{array}\right\|$ | $\left\|\begin{array}{c} 17 \\ {[0.669]} \end{array}\right\|$ | $\begin{array}{\|c\|} \hline 16 \\ 10.6301 \end{array}$ | $\left.\begin{array}{\|c\|} \hline 18 \\ {[0.709]} \end{array} \right\rvert\,$ | $\left.\begin{array}{\|c\|} \hline 27 \\ {[1.063]} \end{array} \right\rvert\,$ | $\begin{gathered} 32 \\ {[1.260]} \end{gathered}$ |
| Y | $\begin{array}{\|c\|} \hline 7.5 \\ {[0.295]} \end{array}$ | $\begin{array}{\|c\|} \hline 7.5 \\ {[0.295]} \\ \hline \end{array}$ | $\begin{array}{\|c\|} \hline 10.5 \\ {[0.413]} \\ \hline \end{array}$ | $\begin{array}{\|c\|} \hline 10 \\ {[0.394]} \end{array}$ | $\left.\begin{array}{c} 9 \\ {[0.354]} \end{array}\right]$ | $\begin{array}{\|c\|} \hline 11 \\ {[0.433]} \end{array}$ | $\begin{array}{\|c} \hline 8 \\ {[0.315]} \\ \hline \end{array}$ | $\left[\begin{array}{c} 9 \\ {[0.354]} \end{array}\right]$ | $\begin{gathered} 14 \\ {[0.551]} \end{gathered}$ | $\begin{gathered} \hline 19 \\ {[0.748]} \\ \hline \end{gathered}$ |

## End keep cylinder with magnet



Solid state type
OHead side end keep

| Code Bore | 16 | 20 | 25 | 32 | 40 | 50 | 63 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| X | $\begin{array}{\|c\|} \hline 15.5 \\ {[0.610]} \end{array}$ | $\begin{array}{\|c\|} \hline 20.5 \\ {[0.807]} \end{array}$ | $\begin{gathered} 21.5 \\ {[0.846]} \end{gathered}$ | $\begin{array}{\|c\|} \hline 20.5 \\ {[0.807]} \end{array}$ | $\begin{array}{\|c\|} \hline 21.5 \\ {[0.846]} \\ \hline \end{array}$ | $\begin{array}{\|c\|} \hline 20.5 \\ {[0.807]} \end{array}$ | $\begin{gathered} 22.5 \\ {[0.886]} \end{gathered}$ |
| Y | $\begin{array}{\|c\|} \hline 36.5 \\ {[1.437]} \\ \hline \end{array}$ | $\begin{array}{\|c\|} \hline 34.5 \\ {[1.358]} \\ \hline \end{array}$ | $\begin{array}{\|c\|} \hline 34.5 \\ {[1.358]} \\ \hline \end{array}$ | $\begin{array}{\|c\|} \hline 43.5 \\ {[1.713]} \\ \hline \end{array}$ | $\begin{array}{\|c\|} \hline 45.5 \\ {[1.791]} \\ \hline \end{array}$ | $\begin{array}{\|c\|} \hline 51.5 \\ {[2.028]} \\ \hline \end{array}$ | $\begin{gathered} 54.5 \\ {[2.146]} \\ \hline \end{gathered}$ |

Reed switch type
－Head side end keep

| Code Bore | 16 | 20 | 25 | 32 | 40 | 50 | 63 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| X | $\begin{array}{\|c} 11 \\ {[0.433]} \\ \hline \end{array}$ | $\begin{gathered} 16 \\ {[0.630]} \end{gathered}$ | $\begin{array}{\|c\|} \hline 17 \\ {[0.669]} \\ \hline \end{array}$ | $\begin{gathered} 16 \\ {[0.630]} \end{gathered}$ | $\begin{array}{\|c\|} \hline 17 \\ {[0.669]} \\ \hline \end{array}$ | $\begin{array}{\|c\|} \hline 16 \\ {[0.630]} \\ \hline \end{array}$ | $\begin{gathered} 16 \\ {[0.630]} \\ \hline \end{gathered}$ |
| Y | $\begin{gathered} 32 \\ {[1.260]} \\ \hline \end{gathered}$ | $\begin{gathered} 30 \\ {[1.181]} \end{gathered}$ | $\begin{gathered} 30 \\ {[1.181]} \end{gathered}$ | $\begin{array}{\|c} 39 \\ {[1.535]} \\ \hline \end{array}$ | $\begin{array}{\|c\|} \hline 41 \\ {[1.614]} \\ \hline \end{array}$ | $\begin{array}{\|c\|} \hline 47 \\ {[1.850]} \\ \hline \end{array}$ | $\begin{gathered} 50 \\ {[1.969]} \end{gathered}$ |

Solid state type
Rod side end keep

| Code Bore | 16 | 20 | 25 | 32 | 40 | 50 | 63 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| X | $\begin{gathered} 35.5 \\ {[1.398]} \end{gathered}$ | $\begin{gathered} 35.5 \\ {[1.398]} \end{gathered}$ | $\begin{gathered} \hline 36.5 \\ {[1.437]} \end{gathered}$ | $\begin{array}{\|c\|} \hline 45.5 \\ {[1.791]} \\ \hline \end{array}$ | $\begin{gathered} 46.5 \\ {[1.831]} \end{gathered}$ | $\begin{array}{\|c\|} \hline 55.5 \\ {[2.185]} \end{array}$ | $\begin{gathered} 57.5 \\ {[2.264]} \end{gathered}$ |
| Y | $\begin{gathered} \hline 11.5 \\ {[0.453]} \\ \hline \end{gathered}$ | $\begin{array}{\|c\|} \hline 14.5 \\ {[0.571]} \\ \hline \end{array}$ | $\begin{gathered} \hline 14.5 \\ {[0.571]} \\ \hline \end{gathered}$ | $\begin{array}{\|c\|} \hline 13.5 \\ {[0.531]} \\ \hline \end{array}$ | $\begin{array}{\|c\|} \hline 15.5 \\ {[0.610]} \\ \hline \end{array}$ | $\begin{array}{\|c\|} \hline 11.5 \\ {[0.453]} \\ \hline \end{array}$ | $\begin{gathered} 13.5 \\ {[0.531]} \\ \hline \end{gathered}$ |

Reed switch type
Rod side end keep

| Code Bore | 16 | 20 | 25 | 32 | 40 | 50 | 63 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| X | $\begin{gathered} 31 \\ {[1.220]} \\ \hline \end{gathered}$ | $\begin{array}{\|c} 31 \\ {[1.220]} \\ \hline \end{array}$ | $\begin{array}{\|c} \hline 32 \\ {[1.260]} \\ \hline \end{array}$ | $\begin{array}{\|c} 41 \\ {[1.614]} \\ \hline \end{array}$ | $\begin{array}{\|c} 42 \\ {[1.654]} \\ \hline \end{array}$ | $\begin{gathered} 51 \\ {[2.008]} \end{gathered}$ | $\begin{gathered} 53 \\ {[2.087]} \\ \hline \end{gathered}$ |
| Y | $\begin{gathered} 7 \\ {[0.276]} \end{gathered}$ | $\begin{gathered} 10 \\ {[0.394]} \end{gathered}$ | $\begin{gathered} 10 \\ {[0.394]} \end{gathered}$ | $\begin{gathered} 9 \\ {[0.354]} \end{gathered}$ | $\begin{gathered} 11 \\ {[0.433]} \end{gathered}$ | $\begin{gathered} 7 \\ {[0.276]} \end{gathered}$ | $\begin{gathered} 9 \\ {[0.354]} \end{gathered}$ |

## Body mounting

Jig cylinder mounting holes include both through holes with female mounting thread, and dedicated female mounting threads, for a variety of mountings. For details, see the diagrams below.

Standard cylinders, Double rod cylinders
Standard cylinders
Double rod cylinders
End keep cylinders
${ }_{\phi} 6 \sim \phi 12$
$\phi 16$
$\phi 20, \phi 25$
Lateral load resistant cylinders
$\phi 32 \sim \phi 100$


Remark: Mounting methods are the same regardless of bore sizes.

Non-rotating cylinders
$\phi 6, \phi 8, \phi 10$


Tandem cylinders
申 12

Square rod cylinders
$\phi$ 20, $\phi 25$ - 32~ 63


regardless of bore sizes.
However, the mounting method for "with centering location" differs from the figure above. See p. 153.
$\phi 32 \sim \phi 100$

Through hole with female thread.
Female thread on back side as well.



Remark: Mounting methods are the same regardless of bore sizes.

Dual stroke cylinders
$\phi 12$
Through hole with female thread


Notes: 1. Avoid applying lateral loads on the piston rod, with the exception of Lateral load resistant cylinders, Long stroke cylinders, and End keep cylinders.
2. When using through holes for mounting, always use the supplied dedicated washers. (except $\phi 6, \phi 8$, and $\phi 10$ )
3. Mount an external stopper, etc., to prevent the cylinder from being subjected to direct shocks during operation.

## Tightening thread of the end of piston rod

Since a tool (thin wrench) has been prepared for holding the piston rod when tightening the rod end thread, consult us.



Remark: Mounting methods are the same regardless of bore sizes.

- Always use the supplied dedicated washer whenever using a through bolt to directly mount the cylinder body in place.* Use the bolts shown in the table below to mount in place.
And for bolts used for direct mounting, see p.209.

※Washer not available for bore sizes $\phi 6, \phi 8$, and $\phi 10$.

| Bore size <br> $m m$ <br> [in. $]$ | 6 <br> $[0.236]$ | 8 <br> $[0.315]$ | 10 <br> $[0.394]$ | 12 <br> $0.472]$ | 16 <br> $[0.630]$ | 20 <br> $[0.787]$ | 25 <br> $[0.984]$ | 32 <br> $[1.260]$ | 40 <br> $[1.575]$ | 50 <br> $[1.969]$ | 63 <br> $[2.480]$ | 80 <br> $[3.150]$ | 100 <br> $[3.940]$ |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Hexagon socket <br> head bolt <br> nominal size | M 3 | M 3 | M 3 | M 3 | M 3 | M 3 | M 4 | M 4 | M 5 | M 6 | M 6 | M 8 | M 10 |

## Bracket mounting

Foot mounting brackets cannot be installed on tandem cylinders and dual stroke cylinders.

- Flange mounting brackets cannot be installed on the head side of tandem cylinders and the stroke 1 side of dual stroke cylinders.
- Clevis mounting brackets cannot be installed on anything except for lateral load resistant cylinders, long stroke cylinders, and end keep cylinders.


## Non-standard stroke

- In most cases, body cutting is used for the manufacturing for non-standard strokes.
However, body cutting is not used for strokes of less than 5 mm for $\phi 12$ [0.472in.] $\sim 40$ [1.575in.], and strokes of less than 10 mm for $\phi 50$ [1.969in.] $\sim \phi 100$ [3.940in.]. The collar packed is used for these cases. Moreover, sizes $\phi 6$ [0.236in.] $\sim \phi 10$ [0.394in.] are collar packed only. For delivery, consult us.
Rod side end keep cylinders cannot be collar packed.
- Dimensions

1. Additional strokes obtained by body cutting remain classed as non-standard strokes.
2. Additional strokes obtained by collar packed are classed as standard strokes in the longer one.

## Lateral Load

Keep the lateral load on the rod end of the lateral load resistant cylinder, long stroke cylinder, and end keep cylinder, at or below the values shown in the graphs below.
Note: Avoid applying lateral load on any cylinder types other than the lateral load resistant cylinder, long stroke cylinder, and end keep cylinder.

## Lateral load resistant cylinders

## Standard type (CBDA)

$\phi 12$ [0.472in.] $\phi 20$ [0.787in.]
$\phi 25$ [0.984in.] $\boldsymbol{\phi} 40$ [1.575in.]


Cylinder with magnet (CBDAS)
$\phi 12$ [0.472in.]~ $\phi 20$ [0.787in.]

- $\phi 25$ [0.984in.] $\quad \phi 50$ [1.969in.]



Long stroke cylinders, End keep cylinders

- Standard type (CCDA,CCDAK)
$\phi 12$ [0.472in.] $\phi 20$ [0.787in.]



Cylinder with magnet (CCDAS, CCDAKS)
$\phi 12$ [0.472in.]~ $\phi 20$ [0.787in.]
$\phi 25$ [0.984in.] $\phi 40$ [1.575in.]


$\phi 50$ [1.969in.] $\boldsymbol{\phi} 100$ [3.940in.]

$1 \mathrm{~N}=0.2248 \mathrm{lbf}$.
$1 \mathrm{~mm}=0.0394 \mathrm{in}$.
$\phi 63$ [2.480in.]~ $\phi 100$ [3.940in.]

$1 \mathrm{~N}=0.2248 \mathrm{lbf}$.
$1 \mathrm{~mm}=0.0394 \mathrm{in}$.
$\phi 63$ [2.480in.] $\sim 100$ [3.940in.]

$1 \mathrm{~N}=0.2248 \mathrm{lbf}$.
$1 \mathrm{~mm}=0.0394 \mathrm{in}$.
$\phi 50$ [1.969in.]~ $\phi 100$ [3.940in.]


## Single acting cylinders

Standard cylinders single acting push type Standard cylinders single acting pull type Double rod cylinders single acting type Tandem cylinders single acting push type Dual stroke cylinders single acting push type Dual stroke cylinders single acting pull type

If in the above types' application, air is being continuously applied from a connection port, and the spring remains in a compressed state for long periods of time, the piston may sometimes fail to return to its original position even after the air is exhausted. If equipment is to be used in this way over long periods of time, consult us.

## End keep cylinder

Control circuit

1. For control of Jig end keep cylinders, we recommend the use of 2-position, 4-, 5-port valves. Avoid the use of a control circuit of ABR connections (exhaust centers) with 3position valves that exhaust air from 2 ports.
2. Always use meter-out control for speed control. Meter-in control may result in failure of the locking mechanism to release.

Notes: 1 . It is dangerous to supply air to a connection port on a side with a locking mechanism while already exhausted, because the piston rod could suddenly extend (retract). In addition, it could also cause galling of the lock piston and piston rod, resulting in defective operation. Always supply air to the connection port on the opposite side to ensure back pressure is applied.
2. When restarting operations after air has been exhausted from the cylinder due to completion of operations or to an emergency stop, always start by supplying air to the connection port on the opposite side of the locking mechanism.
3. Connect the valve port $A(N C)$ to the connection port on the side with the locking mechanism.

## Manual operation of the locking

 mechanismWhile the locking mechanism is normally released automatically through cylinder operations, it can also be released manually. For manual release, insert an M3 $\times 0.5$ screw that has 30 mm [1.18in.] below head length into the manual override opening, thread it in about 3 turns into the internal lock piston, and then pull up the screw. To maintain the manual override for adjustment, etc., thread the locknut onto the screw and, with the locking mechanism in a released state, tighten


Notes:1.It is dangerous to release the lock when a load (weight) is present on the piston rod, because it may cause a sudden fall or cause the unintended piston rod's extension (retraction). In this case, always supply air to the connection port opposite the one adjacent to the locking mechanism before releasing the locking mechanism.
2. If the locking mechanism cannot easily be released even with manual override, it could be the result of galling of the lock piston and piston rod. In this case, supply air to the connection port opposite the one adjacent to the locking mechanism before releasing the locking mechanism.
3. Because water, oil, dust, etc., entering via the manual override opening could be a cause of defective locking or other erratic operation, use a cover, etc., for protection when using in locations subject to dripping water, dripping oil, or to large amounts of dust, etc.

## Sensor switch

In the standard cylinder, a magnet for the sensor switch is not built-in.
To install a sensor switch, a cylinder with a built-in magnet for the sensor switch is required.

Notes:1.For the sensor switch mounting location and moving ranges, see p. 199.
2. Contact protection measures are required for connecting inductive loads to reed sensor switches or for when capacitive surges are generated. For contact protection measures, see p. 1566.

## Piping

Always thoroughly blow off (use compressed air) the tubing before connecting it to the cylinder. Entering chips, sealing tape, rust, etc., generated during piping work could result in air leaks or other defective operation.

## Atmosphere

1. If using in locations subject to dripping water, dripping oil, etc., or to large amounts of dust, use a cover to protect the unit.
2. The product cannot be used when the media or ambient atmosphere contains any of the substances listed below.
Organic solvents, phosphate ester type hydraulic oil, sulphur dioxide, chlorine gas, or acids, etc.

## Lubrication

The product can be used without lubrication, if lubrication is required, use Turbine Oil Class 1 (ISO VG32) or equivalent.
Avoid using spindle oil or machine oil.

## OPTIONAL ROD END SHAPE PATTERNS

Use an order form of rod end pattern and fill the items on the selected one from among 22 types of optional patterned shapes to obtain made－to－order cylinders of non－standard rod end shapes．The optional rod end shapes can be applied to the entire Jig Cylinders C Series．For the order form containing the optional patterned shapes，contact us．
（Except $\phi 6, \phi 8, \phi 10$ ）

## Order Codes

C

$\square$



（For tandem and dual cylinders，use Bore size $\times$ Stroke1 $\times$ Stroke2）
Cylinder specification
Cylinder type

Piston Rod End Shape Pattern Diagrams（22 Types）


## MOUNTING SCREWS FOR JIG CYLINDERS

Some types of mounting screws specifically for the Jig Cylinders are available.
Use the order codes below to place orders.
(1) Mounting screw type: JIS B 1176 Hexagon socket head cap screws

List of Order Codes (2) Surface treatment: Nickel plated

| Applicable cylinder bore size mm [in.] | Mounting screw order code | Screw size | Number of supplied screws |
| :---: | :---: | :---: | :---: |
| $6 \text { [0.236] }$ | CRK124 | M3×25 | 2 |
|  | CRK125 | M $3 \times 30$ |  |
|  | CRK126 | M $3 \times 35$ |  |
| $\begin{array}{r} 8[0.315] \\ 10[0.394] \end{array}$ | CRK127 | M $3 \times 40$ |  |
|  | CRK128 | M $3 \times 45$ |  |
|  | CRK129 | M3×50 |  |
| $\begin{aligned} & 12[0.472] \\ & 16[0.630] \\ & 20[0.787] \end{aligned}$ | CRK130 | M $3 \times 30$ | 4 |
|  | CRK131 | M3 $\times 35$ |  |
| $20 \text { [0.787] }$ | CRK132 | M $3 \times 40$ |  |
|  | CRK133 | M3 $\times 45$ |  |
|  | CRK134 | M $3 \times 50$ |  |
| $\begin{aligned} & 25[0.984] \\ & 32[1.260] \end{aligned}$ | CRK135 | M $4 \times 30$ | 4 |
|  | CRK136 | M4×35 |  |
|  | CRK137 | M $4 \times 40$ |  |
|  | CRK138 | M $4 \times 45$ |  |
|  | CRK139 | M $4 \times 50$ |  |
|  | CRK140 | M $4 \times 55$ |  |
|  | CRK141 | M $4 \times 60$ |  |
|  | CRK142 | M $4 \times 65$ |  |
|  | CRK143 | M $4 \times 70$ |  |
|  | CRK144 | M $4 \times 75$ |  |
| 40 [1.575] | CRK145 | M $5 \times 35$ | 4 |
|  | CRK146 | M5 $\times 40$ |  |
|  | CRK147 | M $5 \times 45$ |  |
|  | CRK148 | M $5 \times 50$ |  |
|  | CRK149 | M $5 \times 55$ |  |
|  | CRK150 | M5 $\times 60$ |  |
|  | CRK151 | M5 $\times 65$ |  |
|  | CRK152 | M $5 \times 70$ |  |
|  | CRK153 | M $5 \times 75$ |  |
|  | CRK154 | M $5 \times 80$ |  |
|  | CRK155 | M $5 \times 85$ |  |
|  | CRK156 | M $5 \times 90$ |  |
|  | CRK157 | M5 $\times 100$ |  |
|  | CRK158 | M5 $\times 110$ |  |
| $\begin{aligned} & 50[1.969] \\ & 63[2.480] \end{aligned}$ | CRK159 | M6×40 | 4 |
|  | CRK160 | M6×45 |  |
|  | CRK161 | M6×50 |  |
|  | CRK162 | M6×55 |  |
|  | CRK163 | M6×60 |  |
|  | CRK164 | M6×65 |  |
|  | CRK165 | M6×70 |  |
|  | CRK166 | M6×75 |  |
|  | CRK167 | M6×80 |  |
|  | CRK168 | M6×85 |  |
|  | CRK169 | M6×90 |  |
|  | CRK170 | M6×100 |  |
|  | CRK171 | M6×110 |  |
|  | CRK172 | M6×120 |  |
|  | CRK173 | M6×130 |  |
|  | CRK174 | M6×140 |  |
|  | CRK175 | M6×150 |  |


| Applicable cylinder bore size mm [in.] | Mounting screw order code | Screw size | Number of supplied screws |
| :---: | :---: | :---: | :---: |
| 80 [3.150] | CRK176 | M8×60 | 4 |
|  | CRK177 | M8×65 |  |
|  | CRK178 | M8×70 |  |
|  | CRK179 | M8×75 |  |
|  | CRK180 | M8×80 |  |
|  | CRK181 | M8×85 |  |
|  | CRK182 | M8×90 |  |
|  | CRK183 | M8×95 |  |
|  | CRK184 | M8×100 |  |
|  | CRK185 | M8×110 |  |
|  | CRK186 | M8×120 |  |
|  | CRK187 | M8×130 |  |
|  | CRK188 | M8×140 |  |
|  | CRK189 | M8×150 |  |
|  | CRK190 | M8×160 |  |
|  | CRK191 | M8×170 |  |
| 100 [3.940] | CRK192 | M10×65 | 4 |
|  | CRK193 | M10×70 |  |
|  | CRK194 | M10×75 |  |
|  | CRK195 | M10×80 |  |
|  | CRK196 | M10×85 |  |
|  | CRK197 | M10×90 |  |
|  | CRK198 | M10×95 |  |
|  | CRK199 | $\mathrm{M} 10 \times 100$ |  |
|  | CRK200 | $\mathrm{M} 10 \times 110$ |  |
|  | CRK201 | $\mathrm{M} 10 \times 120$ |  |
|  | CRK202 | $\mathrm{M} 10 \times 130$ |  |
|  | CRK203 | $\mathrm{M} 10 \times 140$ |  |
|  | CRK204 | $\mathrm{M} 10 \times 150$ |  |
|  | CRK205 | M10×160 |  |
|  | CRK206 | $\mathrm{M} 10 \times 170$ |  |


[^0]:    Notes：1．The above table is for the standard strokes．

[^1]:    Two figures in parentheses ( ), Left side: for head side; Right side: for rod side

