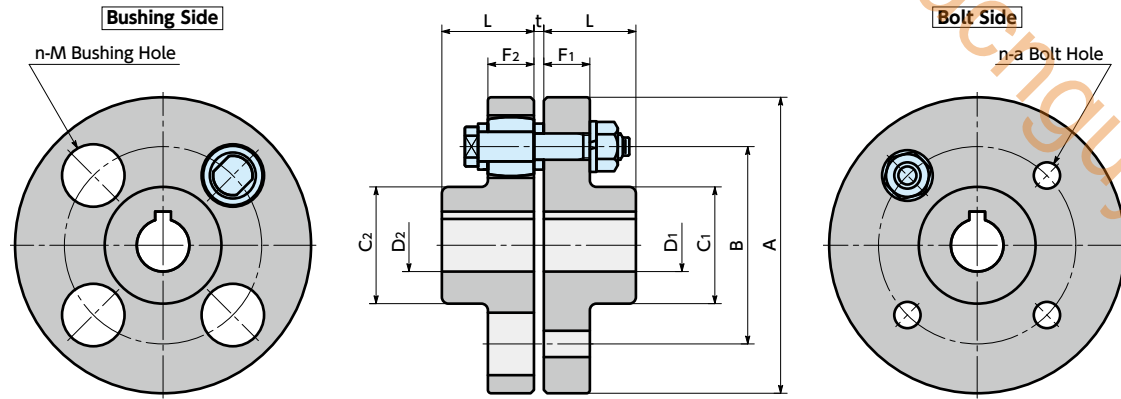


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• The bolt hole positions are roughly arranged for the keyway.

Dimensions

Unit : mm

| Part Number | A | Prepared hole diameter | L | C | | B | F | | n (item) | a | M | t | Bolt Draft | Coupling bolt Part Number |
|-------------|-----|------------------------|------|------|------|-----|------|------|----------|------|----|---|------------|---------------------------|
| | | | | C1 | C2 | | F1 | F2 | | | | | | |
| FCL-90 | 90 | — | 28 | 35.5 | 35.5 | 60 | 14 | 14 | 4 | 8 | 19 | 3 | 50 | F1 |
| FCL-100 | 100 | — | 35.5 | 42.5 | 42.5 | 67 | 16 | 16 | 4 | 10 | 23 | 3 | 56 | F2 |
| FCL-112 | 112 | — | 40 | 50 | 50 | 75 | 16 | 16 | 4 | 10 | 23 | 3 | 56 | F2 |
| FCL-125 | 125 | — | 45 | 56 | 50 | 85 | 18 | 18 | 4 | 14 | 32 | 3 | 64 | F3 |
| FCL-140 | 140 | — | 50 | 71 | 63 | 100 | 18 | 18 | 6 | 14 | 32 | 3 | 64 | F3 |
| FCL-160 | 160 | — | 56 | 80 | 80 | 115 | 18 | 18 | 8 | 14 | 32 | 3 | 64 | F3 |
| FCL-180 | 180 | — | 63 | 90 | 90 | 132 | 18 | 18 | 8 | 14 | 32 | 3 | 64 | F3 |
| FCL-200 | 200 | 18 | 71 | 100 | 100 | 145 | 22.4 | 22.4 | 8 | 20 | 41 | 4 | 85 | F4 |
| FCL-224 | 224 | 18 | 80 | 112 | 112 | 170 | 22.4 | 22.4 | 8 | 20 | 41 | 4 | 85 | F4 |
| FCL-250 | 250 | 20 | 90 | 125 | 125 | 180 | 28 | 28 | 8 | 25 | 51 | 4 | 100 | F5 |
| FCL-280 | 280 | 30 | 100 | 140 | 140 | 200 | 28 | 40 | 8 | 28 | 57 | 4 | 116 | F6 |
| FCL-315 | 315 | 30 | 112 | 160 | 160 | 236 | 28 | 40 | 10 | 28 | 57 | 4 | 116 | F6 |
| FCL-355 | 355 | 30 | 125 | 180 | 180 | 260 | 35.5 | 56 | 8 | 35.5 | 72 | 5 | 150 | F7 |
| FCL-400 | 400 | 48 | 125 | 200 | 200 | 300 | 35.5 | 56 | 10 | 35.5 | 72 | 5 | 150 | F7 |
| FCL-450 | 450 | 58 | 140 | 224 | 224 | 355 | 35.5 | 56 | 12 | 35.5 | 72 | 5 | 150 | F7 |
| FCL-560 | 560 | 78 | 160 | 250 | 250 | 450 | 35.5 | 56 | 14 | 35.5 | 72 | 5 | 150 | F7 |
| FCL-630 | 630 | 90 | 180 | 280 | 280 | 530 | 35.5 | 56 | 18 | 35.5 | 72 | 5 | 150 | F7 |
| FCL-710B | 710 | 110 | 224 | 315 | 315 | 600 | 56 | 56 | 24 | 35.5 | 72 | 5 | 174 | F7L |
| FCL-711B | 710 | 120 | 250 | 355 | 355 | 580 | 80 | 80 | 20 | 45 | 87 | 7 | 240 | F8 |
| FCL-800B | 800 | 130 | 265 | 375 | 375 | 670 | 80 | 80 | 22 | 45 | 87 | 7 | 240 | F8 |
| FCLS-112 | 112 | 13 | 40 | 50 | 50 | 75 | 16 | 16 | 4 | 10 | 23 | 3 | 56 | F2 |
| FCLS-125 | 125 | 13 | 45 | 56 | 50 | 85 | 18 | 18 | 4 | 14 | 32 | 3 | 64 | F3 |
| FCLS-140 | 140 | 13 | 50 | 71 | 63 | 100 | 18 | 18 | 6 | 14 | 32 | 3 | 64 | F3 |
| FCLS-160 | 160 | 14 | 56 | 80 | 80 | 115 | 18 | 18 | 8 | 14 | 32 | 3 | 64 | F3 |
| FCLS-180 | 180 | 14 | 63 | 90 | 90 | 132 | 18 | 18 | 8 | 14 | 32 | 3 | 64 | F3 |
| FCLS-200 | 200 | 18 | 71 | 100 | 100 | 145 | 22.4 | 22.4 | 8 | 20 | 41 | 4 | 85 | F4 |
| FCLS-224 | 224 | 18 | 80 | 112 | 112 | 170 | 22.4 | 22.4 | 8 | 20 | 41 | 4 | 85 | F4 |
| FCLS-250 | 250 | 20 | 90 | 125 | 125 | 180 | 28 | 28 | 8 | 25 | 51 | 4 | 100 | F5 |
| FCLS-280 | 280 | 30 | 100 | 140 | 140 | 200 | 28 | 40 | 8 | 28 | 57 | 4 | 116 | F6 |
| FCLS-315 | 315 | 32 | 112 | 160 | 160 | 236 | 28 | 40 | 10 | 28 | 57 | 4 | 116 | F6 |
| FCLS-355 | 355 | 32 | 125 | 180 | 180 | 260 | 35.5 | 56 | 8 | 35.5 | 72 | 5 | 150 | F7 |
| FCLS-400 | 400 | 50 | 125 | 200 | 200 | 300 | 35.5 | 56 | 10 | 35.5 | 72 | 5 | 150 | F7 |
| FCLS-450 | 450 | 60 | 140 | 224 | 224 | 355 | 35.5 | 56 | 12 | 35.5 | 72 | 5 | 150 | F7 |
| FCLS-560 | 560 | 80 | 160 | 250 | 250 | 450 | 35.5 | 56 | 14 | 35.5 | 72 | 5 | 150 | F7 |
| FCLS-630 | 630 | 90 | 180 | 280 | 280 | 530 | 35.5 | 56 | 18 | 35.5 | 72 | 5 | 150 | F7 |

Performance

| Part Number | Max. Bore Diameter (mm) | | Maximum Torque (N·m) | Max. Rotational Frequency (min ⁻¹) | Moment of Inertia *1 (kg·m ²) | Max. Eccentricity (mm) | Max. Angular Alignment (°) | Max. End-Play (mm) | Mass *2 (kg) |
|-------------|-------------------------|-----|----------------------|--|---|------------------------|----------------------------|--------------------|--------------|
| | D1 | D2 | | | | | | | |
| FCL-90 | 20 | 20 | 15 | 4000 | 1.4×10 ⁻³ | 0.1 | 1 / 6 | ±2.1 | 1.55 |
| FCL-100 | 25 | 25 | 29 | 4000 | 2.4×10 ⁻³ | 0.1 | 1 / 6 | ±2.1 | 2.32 |
| FCL-112 | 28 | 28 | 33 | 4000 | 3.9×10 ⁻³ | 0.1 | 1 / 6 | ±2.1 | 3.10 |
| FCL-125 | 32 | 28 | 73 | 4000 | 6.6×10 ⁻³ | 0.1 | 1 / 6 | ±2.1 | 4.18 |
| FCL-140 | 38 | 35 | 130 | 4000 | 1.1×10 ⁻² | 0.2 | 1 / 6 | ±2.1 | 5.80 |
| FCL-160 | 45 | 45 | 200 | 4000 | 1.9×10 ⁻² | 0.2 | 1 / 6 | ±2.1 | 8.22 |
| FCL-180 | 50 | 50 | 230 | 3500 | 3.1×10 ⁻² | 0.2 | 1 / 6 | ±2.1 | 11.1 |
| FCL-200 | 56 | 56 | 440 | 3200 | 6.2×10 ⁻² | 0.2 | 1 / 6 | ±2.8 | 16.6 |
| FCL-224 | 63 | 63 | 510 | 2850 | 9.9×10 ⁻² | 0.2 | 1 / 6 | ±2.8 | 22.0 |
| FCL-250 | 71 | 71 | 850 | 2550 | 1.9×10 ⁻¹ | 0.2 | 1 / 6 | ±2.8 | 32.2 |
| FCL-280 | 80 | 80 | 1500 | 2300 | 3.3×10 ⁻¹ | 0.3 | 1 / 6 | ±2.8 | 45.0 |
| FCL-315 | 90 | 90 | 2200 | 2050 | 5.4×10 ⁻¹ | 0.3 | 1 / 6 | ±2.8 | 61.4 |
| FCL-355 | 100 | 100 | 3500 | 1800 | 1.1 | 0.3 | 1 / 6 | ±3.5 | 94.7 |
| FCL-400 | 110 | 110 | 5000 | 1600 | 1.8 | 0.3 | 1 / 6 | ±3.5 | 118 |
| FCL-450 | 125 | 125 | 7100 | 1400 | 3 | 0.3 | 1 / 6 | ±3.5 | 157 |
| FCL-560 | 140 | 140 | 10000 | 1150 | 7 | 0.3 | 1 / 6 | ±3.5 | 238 |
| FCL-630 | 160 | 160 | 16000 | 1000 | 11 | 0.3 | 1 / 6 | ±3.5 | 316 |
| FCL-710B | 180 | 180 | 25000 | 900 | 22 | 0.3 | 1 / 6 | ±3.5 | 492 |
| FCL-711B | 200 | 200 | 34000 | 900 | 29 | 0.3 | 1 / 6 | ±4.9 | 683 |
| FCL-800B | 210 | 210 | 45000 | 800 | 52 | 0.3 | 1 / 6 | ±4.9 | 855 |
| FCLS-112 | 30 | 30 | 33 | 6000 | 4.0×10 ⁻³ | 0.1 | 1 / 6 | ±2.1 | 3.13 |
| FCLS-125 | 35 | 30 | 73 | 6000 | 6.8×10 ⁻³ | 0.1 | 1 / 6 | ±2.1 | 4.23 |
| FCLS-140 | 42 | 38 | 130 | 6000 | 1.1×10 ⁻² | 0.2 | 1 / 6 | ±2.1 | 5.90 |
| FCLS-160 | 48 | 48 | 200 | 6000 | 2.0×10 ⁻² | 0.2 | 1 / 6 | ±2.1 | 8.38 |
| FCLS-180 | 55 | 55 | 230 | 5250 | 3.2×10 ⁻² | 0.2 | 1 / 6 | ±2.1 | 11.4 |
| FCLS-200 | 60 | 60 | 440 | 4800 | 6.3×10 ⁻² | 0.2 | 1 / 6 | ±2.8 | 17.1 |
| FCLS-224 | 70 | 70 | 510 | 4300 | 1.0×10 ⁻¹ | 0.2 | 1 / 6 | ±2.8 | 22.8 |
| FCLS-250 | 75 | 75 | 850 | 3800 | 1.9×10 ⁻¹ | 0.2 | 1 / 6 | ±2.8 | 33.3 |
| FCLS-280 | 85 | 85 | 1500 | 3450 | 3.4×10 ⁻¹ | 0.3 | 1 / 6 | ±2.8 | 46.6 |
| FCLS-315 | 100 | 100 | 2200 | 3050 | 5.6×10 ⁻¹ | 0.3 | 1 / 6 | ±2.8 | 63.3 |
| FCLS-355 | 110 | 110 | 3500 | 2700 | 1.2 | 0.3 | 1 / 6 | ±3.5 | 97.8 |
| FCLS-400 | 125 | 125 | 5000 | 2400 | 1.9 | 0.3 | 1 / 6 | ±3.5 | 122 |
| FCLS-450 | 140 | 140 | 7100 | 2150 | 3 | 0.3 | 1 / 6 | ±3.5 | 162 |
| FCLS-560 | 150 | 150 | 10000 | 1700 | 7.2 | 0.3 | 1 / 6 | ±3.5 | 246 |
| FCLS-630 | 170 | 170 | 16000 | 1500 | 12 | 0.3 | 1 / 6 | ±3.5 | 328 |

*1 : These are values with max. bore diameter.

*2 : These are pilot hole values.

- Full bore alteration service capability. We modify for individual shaft requirement that will allow you for immediate use.



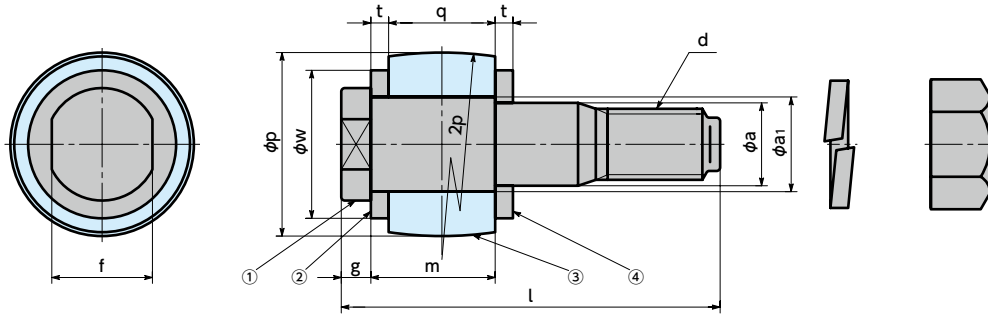
- Part number specification

FCL - 200

Product Code Outside Diameter

Additional Setscrew at Shaft Hole / Keyway → P.xxxx

Available / Add'l charge



Bolt Set Dimensions

Unit : mm

| Bolt set Part Number | Bush Part Number | Nominal a×l | 1) Bolt | | | | | | | 2), 4) Washer | | 3) Bush | | Tightening torque (N·m) |
|----------------------|------------------|-------------|---------|----------------|------|----|----|------|-----|---------------|---|---------|------|-------------------------|
| | | | d | a ₁ | a | f | g | m | l | w | t | p | q | |
| F1-SET | F1-G | 8×50 | M8 | 9 | 8 | 10 | 4 | 17 | 50 | 14 | 3 | 18 | 14 | 11 |
| F2-SET | F2-G | 10×56 | M10 | 12 | 10 | 13 | 4 | 19 | 56 | 18 | 3 | 22 | 16 | 22 |
| F3-SET | F3-G | 14×64 | M12 | 16 | 14 | 17 | 5 | 21 | 64 | 25 | 3 | 31 | 18 | 39 |
| F4-SET | F4-G | 20×85 | M20 | 22.4 | 20 | 24 | 5 | 26.4 | 85 | 32 | 4 | 40 | 22.4 | 190 |
| F5-SET | F5-G | 25×100 | M24 | 28 | 25 | 30 | 6 | 32 | 100 | 40 | 4 | 50 | 28 | 330 |
| F6-SET | F6-G | 28×116 | M24 | 31.5 | 28 | 32 | 6 | 44 | 116 | 45 | 4 | 56 | 40 | 330 |
| F7-SET | F7-G | 35.5×150 | M30 | 40 | 35.5 | 41 | 8 | 61 | 150 | 56 | 5 | 71 | 56 | 650 |
| F7L-SET | F7-G | 35.5×174 | M30 | 40 | 35.5 | 41 | 8 | 61 | 174 | 56 | 5 | 71 | 56 | 650 |
| F8-SET | F8-G | 45×240 | M42 | 50 | 45 | 50 | 10 | 87 | 240 | 71 | 7 | 85 | 80 | 1800 |

Reference Material

- Surface pressure of the bushing and the bending stress of the bolt

| Joint Outside Diameter A (mm) | Rated Torque (N·m) | Pitch Circle Diameter B (mm) | Number of Bolts n (pc) | Load per Piece*1 (N) | Area in Bushing q×a ₁ (mm ²) | Inner Periphery Pressure P ₁ (MPa) | Bushing Width q (mm) | Clearance t (mm) | Arm t+q/2 (mm) | Bending Moment (N·m) | Bolt Diameter a (mm) | Section Modulus πa ³ /32 (mm ³) | Bending Stress σ (MPa) |
|-------------------------------|--------------------|------------------------------|------------------------|----------------------|---|---|----------------------|------------------|----------------|----------------------|----------------------|--|------------------------|
| 90 | 4.9 | 60 | 4 | 82 | 14×9 | 0.65 | 14 | 3 | 10 | 0.82 | 8 | 50.3 | 16.2 |
| 100 | 9.8 | 67 | 4 | 146 | 16×12 | 0.76 | 16 | 3 | 11 | 1.61 | 10 | 98.2 | 16.4 |
| 112 | 15.7 | 75 | 4 | 209 | 16×12 | 1.09 | 16 | 3 | 11 | 2.30 | 10 | 98.2 | 23.4 |
| 125 | 24.5 | 85 | 4 | 288 | 18×16 | 1.00 | 18 | 3 | 12 | 3.46 | 14 | 269.4 | 12.8 |
| 140 | 49 | 100 | 6 | 327 | 18×16 | 1.13 | 18 | 3 | 12 | 3.92 | 14 | 269.4 | 14.6 |
| 160 | 110 | 115 | 8 | 478 | 18×16 | 1.66 | 18 | 3 | 12 | 5.74 | 14 | 269.4 | 21.3 |
| 180 | 157 | 132 | 8 | 595 | 18×16 | 2.06 | 18 | 3 | 12 | 7.14 | 14 | 269.4 | 26.5 |
| 200 | 245 | 145 | 8 | 845 | 22.4×22.4 | 1.68 | 22.4 | 4 | 15.2 | 12.8 | 20 | 785.4 | 16.4 |
| 224 | 392 | 170 | 8 | 1150 | 22.4×22.4 | 2.30 | 22.4 | 4 | 15.2 | 17.5 | 20 | 785.4 | 22.3 |
| 250 | 618 | 180 | 8 | 1720 | 28×28 | 2.19 | 28 | 4 | 18 | 30.9 | 25 | 1535 | 20.1 |
| 280 | 980 | 200 | 8 | 2450 | 40×32 | 1.94 | 40 | 4 | 24 | 58.8 | 28 | 2155 | 27.3 |
| 315 | 1570 | 236 | 10 | 2660 | 40×32 | 2.11 | 40 | 4 | 24 | 63.9 | 28 | 2155 | 29.6 |
| 355 | 2450 | 260 | 8 | 4710 | 56×40 | 2.10 | 56 | 5 | 33 | 155 | 35.5 | 4390 | 35.4 |
| 400 | 3920 | 300 | 10 | 5230 | 56×40 | 2.33 | 56 | 5 | 33 | 172 | 35.5 | 4390 | 39.3 |
| 450 | 6180 | 355 | 12 | 5800 | 56×40 | 2.59 | 56 | 5 | 33 | 191 | 35.5 | 4390 | 43.6 |
| 560 | 9800 | 450 | 14 | 6220 | 56×40 | 2.78 | 56 | 5 | 33 | 205 | 35.5 | 4390 | 46.8 |
| 630 | 15700 | 530 | 18 | 6580 | 56×40 | 2.94 | 56 | 5 | 33 | 217 | 35.5 | 4390 | 49.5 |
| 710B | 24500 | 600 | 24 | 6810 | 56×40 | 3.04 | 56 | 5 | 33 | 225 | 35.5 | 4390 | 51.3 |
| 711B | 33300 | 580 | 20 | 11500 | 80×50 | 2.88 | 80 | 7 | 47 | 541 | 45 | 8950 | 60.4 |
| 800B | 45000 | 670 | 22 | 12200 | 80×50 | 3.05 | 80 | 7 | 47 | 573 | 45 | 8950 | 64.0 |

*1: The effective number of bolts is calculated as half of the actual number of bolts "n".