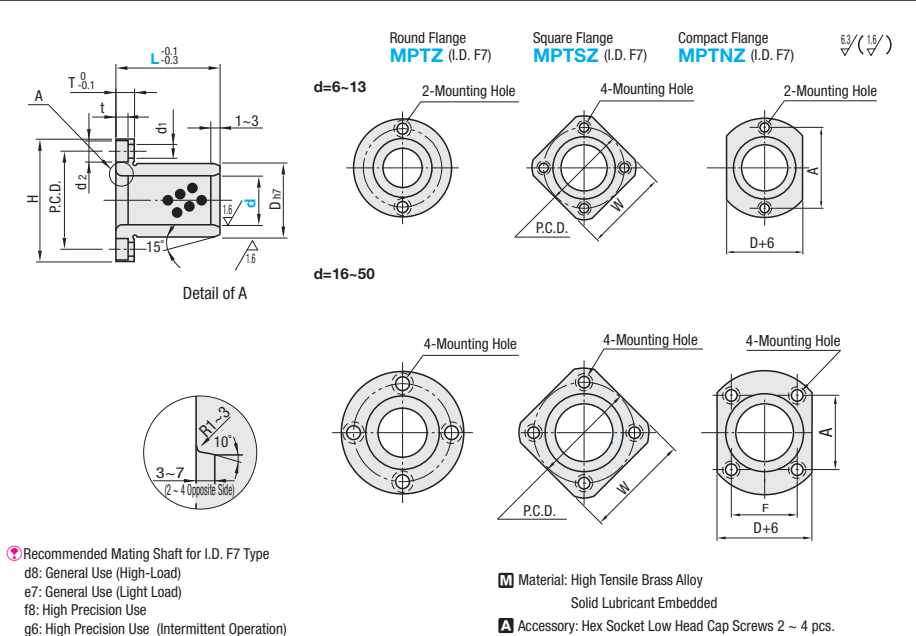


# Flange Integrated Oil Free Bushings

Copper Alloy, Standard Flanged, I.D. F7

■ **Features:** Flange Integrated Oil Free Bushings can reduce the time of assembling.

■ **Standard Flanged, I.D. F7**



| Part Number                       |     | L                |    |    |     |             |             |    |             |     |     | Dh7 |     | H  | T  | t               | d1      | d2      | P.C.D. | W | F | A | Accessory: Hex Socket<br>Low Head Cap Screw |
|-----------------------------------|-----|------------------|----|----|-----|-------------|-------------|----|-------------|-----|-----|-----|-----|----|----|-----------------|---------|---------|--------|---|---|---|---------------------------------------------|
| Type                              | df7 |                  |    |    |     |             |             |    |             |     |     | Dh7 | H   | T  | t  | d1              | d2      | P.C.D.  | W      | F | A |   |                                             |
| I.D. F7<br>MPTZ<br>MPTSZ<br>MPTNZ | 6   | +0.022<br>+0.010 | 15 | 20 | 10  | 0<br>-0.015 | 25          |    |             |     |     | 17  | 20  |    | 17 | M3-10x2<br>*(4) |         |         |        |   |   |   |                                             |
|                                   | 8   | +0.028<br>+0.013 | 20 | 25 | 12  | 0<br>-0.018 | 27          | 4  | 2.2         | 3.5 | 6   | 19  | 22  |    | 19 |                 |         |         |        |   |   |   |                                             |
|                                   | 10  |                  | 20 | 25 | 30  |             | 29          |    |             |     |     | 21  | 23  | -  | 21 |                 |         |         |        |   |   |   |                                             |
|                                   | 12  |                  | 20 | 25 | 30  | 18          |             | 36 |             |     |     | 26  | 28  |    | 26 | M4-12x2<br>*(4) |         |         |        |   |   |   |                                             |
|                                   | 13  | +0.034<br>+0.016 | 20 | 25 | 30  | 35          | 19          | 37 | 5           | 3   | 4.5 | 7.5 | 27  | 29 |    |                 | 27      |         |        |   |   |   |                                             |
|                                   | 16  |                  | 20 | 25 | 30  | 35          | 40          | 22 | 0<br>-0.021 | 40  |     |     | 30  | 31 | 18 |                 | 24      |         |        |   |   |   |                                             |
|                                   | 20  |                  | 25 | 30 | 35  | 40          | 50          | 28 |             | 49  |     |     | 38  | 38 | 22 | 31              | M5-16x4 |         |        |   |   |   |                                             |
|                                   | 25  | +0.041<br>+0.020 | 30 | 35 | 40  | 50          | 60          | 33 | 54          | 6   | 3.7 | 5.5 | 9   | 43 | 42 | 25              |         | 35      |        |   |   |   |                                             |
|                                   | 30  |                  | 35 | 40 | 50  | 60          | 70          | 38 | 0<br>-0.025 | 63  | 8   | 4.2 | 6.6 | 11 | 50 | 50              |         | 30      | 40     |   |   |   |                                             |
|                                   | 35  |                  | 50 | 60 | 70  | 44          |             | 69 |             |     |     |     | 56  | 54 | 36 | 43              | M6-20x4 |         |        |   |   |   |                                             |
|                                   | 40  | +0.050<br>+0.025 | 60 | 70 | 80  | 50          |             | 82 |             |     |     |     | 66  | 64 | 38 | 54              |         |         |        |   |   |   |                                             |
|                                   | 50  |                  | 70 | 80 | 100 | 62          | 0<br>-0.030 | 94 | 10          | 5.2 | 9   | 14  | 78  | 73 | 50 | 60              |         | M8-25x4 |        |   |   |   |                                             |

\* Values in ( ) are the number of screws included in MPTSZ.

| Part Number            |       | Unit Price |       |       |       | Unit Price |       |       |       | Unit Price |       |       |       | Unit Price |       |       |
|------------------------|-------|------------|-------|-------|-------|------------|-------|-------|-------|------------|-------|-------|-------|------------|-------|-------|
| Type                   | d-L   | MPTZ       | MPTSZ | MPTNZ | d-L   | MPTZ       | MPTSZ | MPTNZ | d-L   | MPTZ       | MPTSZ | MPTNZ | d-L   | MPTZ       | MPTSZ | MPTNZ |
| MPTZ<br>MPTSZ<br>MPTNZ | 6-15  |            |       |       | 13-25 |            |       |       | 20-40 |            |       |       | 30-70 |            |       |       |
|                        | 20    |            |       |       | 30    |            |       |       | 50    |            |       |       | 35-50 |            |       |       |
|                        | 8-20  |            |       |       | 35    |            |       |       | 25-30 |            |       |       | 60    |            |       |       |
|                        | 25    |            |       |       | 16-20 |            |       |       | 35    |            |       |       | 70    |            |       |       |
|                        | 10-20 |            |       |       | 25    |            |       |       | 40    |            |       |       | 40-60 |            |       |       |
|                        | 25    |            |       |       | 30    |            |       |       | 50    |            |       |       | 70    |            |       |       |
|                        | 30    |            |       |       | 35    |            |       |       | 60    |            |       |       | 80    |            |       |       |
|                        | 12-20 |            |       |       | 40    |            |       |       | 30-35 |            |       |       | 50-70 |            |       |       |
|                        | 25    |            |       |       | 20-25 |            |       |       | 40    |            |       |       | 80    |            |       |       |
|                        | 30    |            |       |       | 30    |            |       |       | 50    |            |       |       | 100   |            |       |       |
| 13-20                  |       |            |       | 35    |       |            |       | 60    |       |            |       |       |       |            |       |       |

Ordering Example: Part Number - L  
MPTZ12 - 30

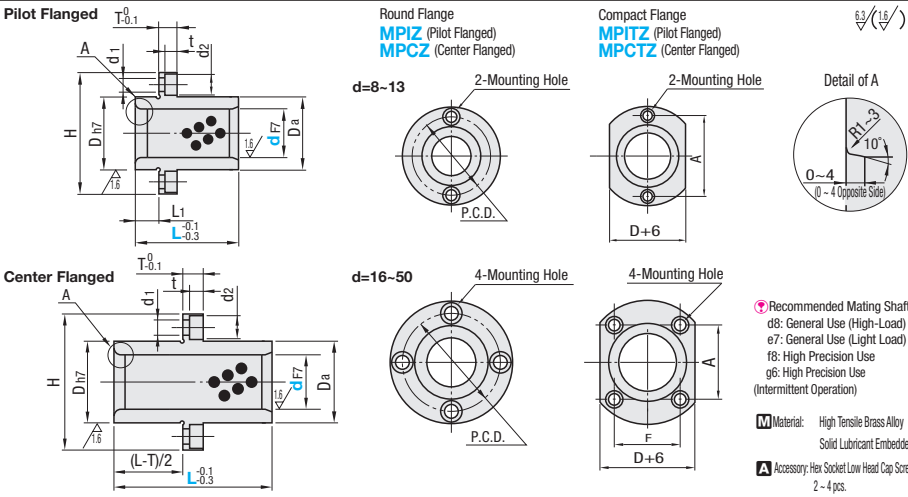
# Flange Integrated Oil Free Bushings / Oil Free Copper Alloy Washers

Copper Alloy, Pilot Flanged / Center Flanged

Flat Head Screw / Low Head Cap Screw

■ **Features:** Flange Integrated Oil Free Bushings can reduce the time of assembling. Pilot Flanged: Oil Free Bushings do not project from bushing mounting position. Saves space on the opposite side. Center Flanged: Workpiece located near the center of the bushing provides balanced load and clearance on both sides of the flange.

■ **Pilot Flanged / Center Flanged**



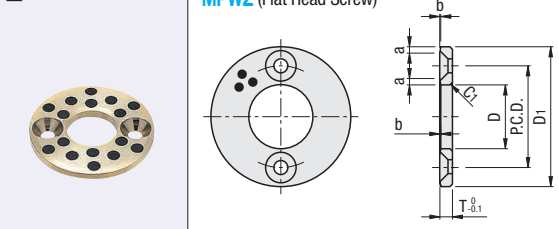
| Part Number                     |     | L      |      |      |      |      |    |  |  |  |    | Dh7         |        | D <sub>a</sub> | L <sub>1</sub> | H  | T   | t   | d <sub>1</sub> | d <sub>2</sub> | P.C.D. | F  | A       | Accessory: Hex Socket<br>Low Head Cap Screw |
|---------------------------------|-----|--------|------|------|------|------|----|--|--|--|----|-------------|--------|----------------|----------------|----|-----|-----|----------------|----------------|--------|----|---------|---------------------------------------------|
| Type                            | dF7 |        |      |      |      |      |    |  |  |  |    |             |        |                |                |    |     |     |                |                |        |    |         |                                             |
| Pilot Flanged<br>MPIZ<br>MPITZ  | 8   | +0.028 | 20   | (25) |      |      |    |  |  |  | 12 | 0<br>-0.018 | 11.5   | 5              | 27             |    |     |     |                |                | 19     |    | 19      | M3-10x2                                     |
|                                 | 10  | +0.013 | 25   | 30   |      |      |    |  |  |  | 14 |             | 13.5   |                | 29             | 4  | 2.2 | 3.5 | 6              | 21             | 21     |    |         |                                             |
|                                 | 12  |        | 25   | 30   |      |      |    |  |  |  | 18 |             | 17.5   | 6              | 36             |    |     |     |                | 26             | 26     |    |         |                                             |
| Center Flanged<br>MPCZ<br>MPCTZ | 13  | +0.034 | (25) | (30) | 35   |      |    |  |  |  | 19 | 18.5        |        |                | 37             | 5  | 3   | 4.5 | 7.5            | 27             |        | 27 | M4-12x2 |                                             |
|                                 | 16  | +0.016 | 25   | 30   | 35   | 40   |    |  |  |  | 22 | 0<br>-0.021 | 21.5   |                |                | 40 |     |     |                |                | 30     | 18 | 24      | M4-12x4                                     |
|                                 | 20  |        | 30   | 35   | 40   | 50   |    |  |  |  | 28 |             | 27.5   | 8              | 49             | 6  | 3.7 | 5.5 | 9              | 38             | 22     | 31 | M5-16x4 |                                             |
|                                 | 25  | +0.041 | (30) | (35) | (40) | (50) | 60 |  |  |  | 33 | 0           | 32.5   | 8              | 54             |    |     |     |                | 43             | 25     | 35 |         |                                             |
|                                 | 30  | +0.020 | (35) | (40) | (50) | (60) | 70 |  |  |  |    | 38          | -0.025 | 37.5           | 10             | 63 | 8   | 4.2 | 6.6            | 11             | 50     | 30 | 40      | M6-20x4                                     |

| Unit Price |                       | Unit Price |                       | Unit Price |                       |
|------------|-----------------------|------------|-----------------------|------------|-----------------------|
| d-L        | MPIZ MPTIZ MPCZ MPCTZ | d-L        | MPIZ MPTIZ MPCZ MPCTZ | d-L        | MPIZ MPTIZ MPCZ MPCTZ |
| 8-20       |                       | 16-40      |                       | 30-50      |                       |
| 25         |                       | 20-30      |                       | 60         |                       |
| 10-25      |                       | 35         |                       | 70         |                       |
| 30         |                       | 40         |                       |            |                       |
| 12-25      |                       | 50         |                       |            |                       |
| 30         |                       | 25-30      |                       |            |                       |
| 13-25      |                       | 35         |                       |            |                       |
| 30         |                       | 40         |                       |            |                       |
| 35         |                       | 50         |                       |            |                       |
| 16-25      |                       | 60         |                       |            |                       |
| 30         |                       | 30-35      |                       |            |                       |
| 35         |                       | 40         |                       |            |                       |

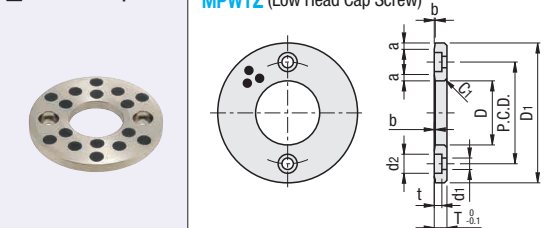
Part Number - L  
MPIZ12 - 30  
MPCZ16 - 30

■ **Features:** Supports a thrust load.

■ **Flat Head Screw**



■ **Low Head Cap Screw**



| Part Number   |     | Mounting Hole |      |     |        |          |      |      |      |      |      | Chamfer |     | Unit Price |      |
|---------------|-----|---------------|------|-----|--------|----------|------|------|------|------|------|---------|-----|------------|------|
| Type          | No. | T             | D    | D1  | P.C.D. | Quantity | MPTZ | MPTZ | MPTZ | MPTZ | MPTZ | a       | b   | MPTZ       | MPTZ |
| MPWZ<br>MPWTZ | 6   |               | 6.2  | 25  | 15     |          |      |      |      |      |      | 1.5     | 0.3 |            |      |
|               | 8   |               | 8.2  | 28  | 18     |          |      |      |      |      |      |         |     |            |      |
|               | 10  |               | 10.2 | 30  | 20     |          |      |      |      |      |      |         |     |            |      |
|               | 12  | 3(4)          | 12.2 | 40  | 28     |          |      |      |      |      |      |         |     |            |      |
|               | 13  |               | 13.2 |     |        |          |      |      |      |      |      |         |     |            |      |
|               | 15  |               | 15.2 |     |        |          |      |      |      |      |      |         |     |            |      |
|               | 16  |               | 16.2 | 50  | 35     | 2        |      |      |      |      |      |         |     |            |      |
|               | 18  | 0<br>-0.1     | 18.2 |     |        |          |      |      |      |      |      |         |     |            |      |
|               | 20  |               | 20.2 |     |        |          |      |      |      |      |      |         |     |            |      |
|               | 25  |               | 25.2 | 55  | 40     |          |      |      |      |      |      |         |     |            |      |
| MPWZ<br>MPWTZ | 30  | 5             | 30.2 | 60  | 45     |          |      |      |      |      |      |         |     |            |      |
|               | 35  |               | 35.2 | 70  | 50     |          |      |      |      |      |      |         |     |            |      |
|               | 40  |               | 40.2 | 80  | 60     |          |      |      |      |      |      |         |     |            |      |
|               | 50  | 8             | 50.3 | 100 | 75     | 4        |      |      |      |      |      |         |     |            |      |
|               |     |               |      |     |        |          |      |      |      |      |      |         |     |            |      |
|               |     |               |      |     |        |          |      |      |      |      |      |         |     |            |      |
|               |     |               |      |     |        |          |      |      |      |      |      |         |     |            |      |
|               |     |               |      |     |        |          |      |      |      |      |      |         |     |            |      |
|               |     |               |      |     |        |          |      |      |      |      |      |         |     |            |      |
|               |     |               |      |     |        |          |      |      |      |      |      |         |     |            |      |
|               |     |               |      |     |        |          |      |      |      |      |      |         |     |            |      |

\* For MPWTZ, T dimensions of No.6 - 18 are values in ( ). \* For Hex Socket Low Head Cap Screws, refer to P.2-194. \* Indicated dimensions of Flat Head Screws are recommended dimensions.

Part Number  
MPWZ18  
MPWTZ15