

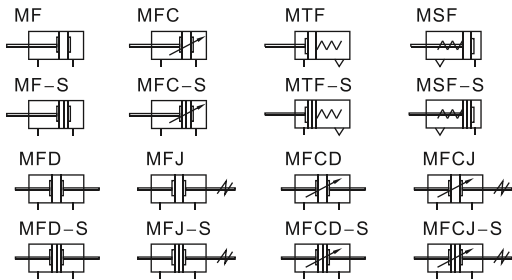
# Mini cylinder(Stainless steel)



## MF Series



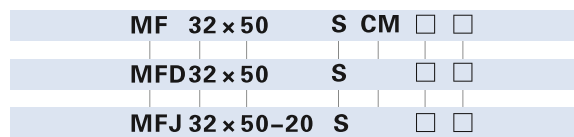
### Symbol



### Product feature

1. JIS standard is implemented.
2. Piston adopts heterogeneous two way seal structure. It has compact size and has the function of oil reservation.
3. Front cover owns fixed anti-impact pad which can reduce the impact of direction-change of the cylinder.
4. There are several modes of back cover, which makes the installation of cylinder more convenient.
5. Front and back cover and stainless steel block adopt riveted rolling packed structure to form a reliable connection.
6. The cylinder body has stainless steel pipes with high precision to produce high strength and corrosion resistance.
7. With the same bore size and stroke, cylinders of MF series are shorter than ISO6432 standard cylinders.
8. There are cylinders and mounting accessories with several specifications for your choice.

### Ordering code



| ① Model  | ② Bore size          | ③ Stroke                                   | ④ Adjustable stroke      | ⑤ Magnet                                   | ⑥ Back cover   | ⑦ Mounting type[Note1]  | ⑧ Thread type               |
|--|----------------------|--|--------------------------|--|--|---|-----------------------------|
| MF: Mini cylinder(Double acting)<br>MFC: Mini cylinder<br>(Double acting with cushion)<br>MSF: Mini cylinder<br>(Single acting_push)<br>MTF: Mini cylinder<br>(Single acting_pull) | 20<br>25<br>32<br>40 | Refer to<br>stroke<br>table for<br>details | No this code             | Blank: Without<br>magnet<br>S: With magnet | CA: Pivot type<br>U: Flat-end type<br>CM: Round-end type | Blank: No accessories<br>FA: FA type<br>SDB: SDB type<br>LB: LB type<br>TC: TC type | Blank: PT<br>G: G<br>T: NPT |
| MFD: Mini cylinder(Double rod)<br>MFCJ: Mini cylinder<br>(Double rod with cushion)   |                      |  |                          |  |  |   |                             |
| MFJ: Mini cylinder<br>(Adjustable stroke)<br>MFCJ: Mini cylinder<br>(Adjustable stroke with cushion)   |                      |  | 10 20 30 40<br>50 75 100 |  | No this code   | No this code  |                             |

[Note1] Please refer to page 79~80 for accessory parts.

### Specification

| Bore size(mm)      | 20  | 25 | 32 | 40   |
|--------------------|---|----|----|------|
| Acting type        | Double acting、Double acting with cushion、Single acting  |    |    |      |
| Fluid              | Air(to be filtered by 40 μm filter element)   |    |    |      |
| Operating pressure | Double acting: 0.15~1.0MPa(22~145psi)(1.5~10.0bar)<br>Single acting: 0.2~1.0MPa(28~145psi)(2.0~10.0bar) |    |    |      |
| Proof pressure     | 1.5MPa(215psi)(15bar)   |    |    |      |
| Temperature °C     | -20~70  |    |    |      |
| Speed range mm/s   | Double acting: 30~800 Single acting: 50~800   |    |    |      |
| Stroke tolerance   | 0~150 <sup>+1.0</sup> <sub>0</sub> >150 <sup>+1.5</sup> <sub>0</sub>                                    |    |    |      |
| Cushion type       | MFC/MFCD/MFCJ Series: Variable cushion; Other series: Bumper  |    |    |      |
| Port size [Note1]  | 1/8"  |    |    | 1/4" |

[Note1] PT thread, G thread and NPT thread are available.  
Add) Refer to P313 for detail of sensor switch.

### Stroke

| Bore size (mm)     | Standard stroke (mm) |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     | Max.std stroke | Max. stroke |     |     |     |     |     |     |     |
|--------------------|----------------------|----|----|----|----|----|----|----|----|----|-----|-----|-----|-----|-----|-----|----------------|-------------|-----|-----|-----|-----|-----|-----|-----|
| MF<br>MFC          | 20                   | 10 | 15 | 20 | 25 | 30 | 40 | 50 | 60 | 75 | 80  | 100 | 125 | 150 | 160 | 175 | 200            | 250         | 300 | 350 | 400 | 450 | 500 | 500 | 800 |
|                    | 25                   | 10 | 15 | 20 | 25 | 30 | 40 | 50 | 60 | 75 | 80  | 100 | 125 | 150 | 160 | 175 | 200            | 250         | 300 | 350 | 400 | 450 | 500 | 500 | 800 |
|                    | 32                   | 10 | 15 | 20 | 25 | 30 | 40 | 50 | 60 | 75 | 80  | 100 | 125 | 150 | 160 | 175 | 200            | 250         | 300 | 350 | 400 | 450 | 500 | 500 | 800 |
|                    | 40                   | 10 | 15 | 20 | 25 | 30 | 40 | 50 | 60 | 75 | 80  | 100 | 125 | 150 | 160 | 175 | 200            | 250         | 300 | 350 | 400 | 450 | 500 | 500 | 800 |
| MFD<br>MFCJ<br>MFJ | 20                   | 10 | 15 | 20 | 25 | 30 | 40 | 50 | 60 | 75 | 80  | 100 | 125 | 150 | 160 | 175 | 200            | 250         | 300 | 300 | -   | -   | -   | 300 | -   |
|                    | 25                   | 10 | 15 | 20 | 25 | 30 | 40 | 50 | 60 | 75 | 80  | 100 | 125 | 150 | 160 | 175 | 200            | 250         | 300 | 300 | -   | -   | -   | 300 | -   |
|                    | 32                   | 10 | 15 | 20 | 25 | 30 | 40 | 50 | 60 | 75 | 80  | 100 | 125 | 150 | 160 | 175 | 200            | 250         | 300 | 350 | 400 | 450 | 500 | 500 | -   |
|                    | 40                   | 10 | 15 | 20 | 25 | 30 | 40 | 50 | 60 | 75 | 80  | 100 | 125 | 150 | 160 | 175 | 200            | 250         | 300 | 350 | 400 | 450 | 500 | 500 | -   |
| MSF<br>MTF         | 20                   | 10 | 15 | 20 | 25 | 30 | 40 | 50 | 60 | 75 | 80  | 100 | 125 | 150 | -   | -   | -              | -           | -   | -   | -   | -   | -   | -   | -   |
|                    | 25                   | 10 | 15 | 20 | 25 | 30 | 40 | 50 | 60 | 75 | 80  | 100 | 125 | 150 | -   | -   | -              | -           | -   | -   | -   | -   | -   | -   | -   |
|                    | 32                   | 10 | 15 | 20 | 25 | 30 | 40 | 50 | 60 | 75 | 80  | 100 | 125 | 150 | -   | -   | -              | -           | -   | -   | -   | -   | -   | -   | -   |
| 40                 | 10                   | 15 | 20 | 25 | 30 | 40 | 50 | 60 | 75 | 80 | 100 | 125 | 150 | -   | -   | -   | -              | -           | -   | -   | -   | -   | -   | -   | -   |

[Note] Consult us for non-standard stroke.





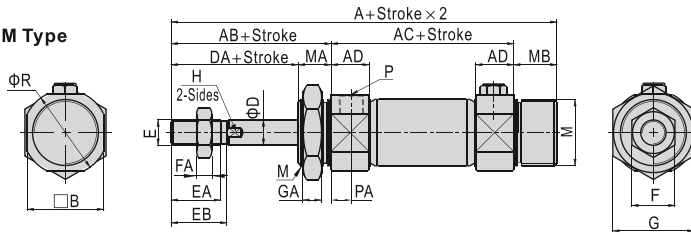
# Mini cylinder(Stainless steel)



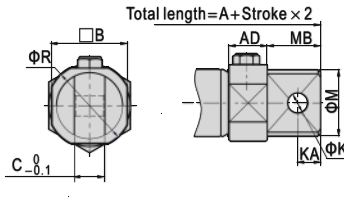
## MF Series

### MTF

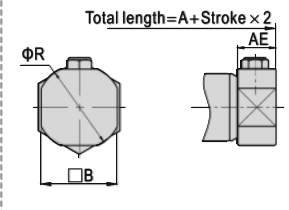
#### CM Type



#### CA Type



#### U Type



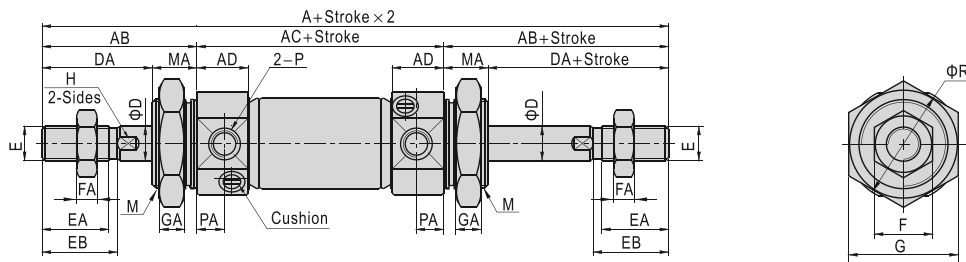
| Bore size\Item | CM     |      |        | A       |      |        | U       |       |        | AC      |      |        | M       | MA | MB |    |    |
|----------------|--------|------|--------|---------|------|--------|---------|-------|--------|---------|------|--------|---------|----|----|----|----|
|                | Stroke | 1~50 | 51~100 | 101~150 | 1~50 | 51~100 | 101~150 | 1~50  | 51~100 | 101~150 | 1~50 | 51~100 | 101~150 | CM | CA | CM |    |
| 20             | 141    | 166  | 191    | 149     | 174  | 199    | 128     | 153   | 178    | 87      | 112  | 137    | M20×1.5 | 20 | 14 | 21 | 13 |
| 25             | 145    | 170  | 195    | 153     | 178  | 203    | 133     | 158   | 183    | 87      | 112  | 137    | M26×1.5 | 26 | 14 | 21 | 13 |
| 32             | 147    | 172  | 197    | 161     | 186  | 211    | 135     | 160   | 185    | 89      | 114  | 139    | M26×1.5 | 26 | 14 | 27 | 13 |
| 40             | 179    | 204  | 229    | 190     | 215  | 240    | 163.5   | 188.5 | 213.5  | 113     | 138  | 163    | M32×2.0 | 32 | 16 | 27 | 16 |

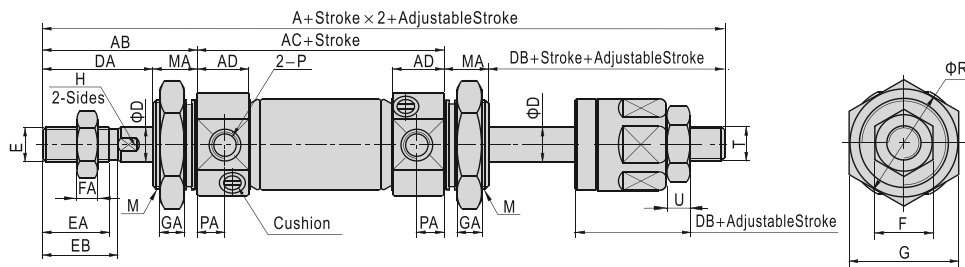
| Bore size\Item | AB | AD   | AE   | B    | C  | D  | DA | E        | EA   | EB | F  | FA | G  | GA | H  | K  | KA | P    | PA  | R    |
|----------------|----|------|------|------|----|----|----|----------|------|----|----|----|----|----|----|----|----|------|-----|------|
| 20             | 41 | 14.5 | 14.5 | 25   | 12 | 8  | 27 | M8×1.25  | 15.5 | 18 | 13 | 5  | 26 | 8  | 6  | 8  | 9  | 1/8" | 7.5 | 29   |
| 25             | 45 | 14.5 | 15.5 | 30   | 12 | 10 | 31 | M10×1.25 | 19.5 | 22 | 17 | 6  | 32 | 8  | 8  | 8  | 9  | 1/8" | 7.5 | 33.5 |
| 32             | 45 | 14.5 | 15.5 | 34.5 | 20 | 12 | 31 | M10×1.25 | 19.5 | 22 | 17 | 6  | 32 | 8  | 10 | 10 | 12 | 1/8" | 7.5 | 37.5 |
| 40             | 50 | 21.5 | 22   | 42.5 | 20 | 16 | 34 | M14×1.5  | 21   | 24 | 19 | 8  | 41 | 10 | 14 | 10 | 12 | 1/4" | 11  | 46.5 |

Remark: The dimensions of magnet type cylinder are the same as non-magnet type cylinder.

### MFD/MFCD



### MFJ/MFCJ



| Bore size\Item | A        |          | AB | AC | AD   | D  | DA | DB | E        | EA   | EB | F  | FA | G  | GA | H  | M       | MA | P    | PA  | R    | T        | U |
|----------------|----------|----------|----|----|------|----|----|----|----------|------|----|----|----|----|----|----|---------|----|------|-----|------|----------|---|
|                | MFD\MFCD | MFJ\MFCJ |    |    |      |    |    |    |          |      |    |    |    |    |    |    |         |    |      |     |      |          |   |
| 20             | 144      | 141      | 41 | 62 | 14.5 | 8  | 27 | 24 | M8×1.25  | 15.5 | 18 | 13 | 5  | 26 | 8  | 6  | M20×1.5 | 14 | 1/8" | 7.5 | 29   | M8×1.25  | 5 |
| 25             | 152      | 148      | 45 | 62 | 14.5 | 10 | 31 | 27 | M10×1.25 | 19.5 | 22 | 17 | 6  | 32 | 8  | 8  | M26×1.5 | 14 | 1/8" | 7.5 | 33.5 | M10×1.25 | 6 |
| 32             | 154      | 150      | 45 | 64 | 14.5 | 12 | 31 | 27 | M10×1.25 | 19.5 | 22 | 17 | 6  | 32 | 8  | 10 | M26×1.5 | 14 | 1/8" | 7.5 | 37.5 | M10×1.25 | 6 |
| 40             | 188      | 182      | 50 | 88 | 21.5 | 16 | 34 | 28 | M14×1.5  | 21   | 24 | 19 | 8  | 41 | 10 | 14 | M32×2.0 | 16 | 1/4" | 11  | 46.5 | M12×1.25 | 7 |

Remark: The dimensions of magnet type cylinder are the same as non-magnet type cylinder.



# Mini cylinder(Stainless steel)



## MF Series—Accessories

### List for ordering code of accessories

| Accessories<br>Bore size | Mounting accessories |          |          |           | Knuckle |         |            |            | Sensor switch |           |
|--------------------------|----------------------|----------|----------|-----------|---------|---------|------------|------------|---------------|-----------|
|                          | LB                   | FA       | TC       | SDB       | I       | Y       | F          | U          | CS1-M□        | DS1-M□    |
| 20                       | F-MF20LB             | F-MF20FA | F-MF20TC | F-MF20SDB | F-MF20I | F-MF20Y | F-M8X125F  | F-M8X125U  | CS1-M-S20     | DS1-M-S20 |
| 25                       | F-MF32LB             | F-MF32FA | F-MF32TC |           | F-MF25I | F-MF25Y | F-M10X125F | F-M10X125U | CS1-M-S25     | DS1-M-S25 |
| 32                       | F-MF40LB             | F-MF40FA | F-MF40TC | F-MF32SDB | F-MF40I | F-MF40Y | F-M14X150F | F-M14X150U | CS1-M-S32     | DS1-M-S32 |
| 40                       |                      |          |          |           |         |         |            |            | CS1-M-S40     | DS1-M-S40 |

### Accessory selection

| Cylinder model | Accessories | Mounting accessories |    |     |    | Knuckle |   |       |   | Sensor switch |       |
|----------------|-------------|----------------------|----|-----|----|---------|---|-------|---|---------------|-------|
|                |             | LB                   | FA | SDB | TC | I       | Y | U [1] | F | CS1-M         | DS1-M |
| MF             | Standard    | ●                    | ●  | ●   | ●  | ●       | ● | ●     | ● | ×             | ×     |
| MFC            | With magnet | ●                    | ●  | ●   | ●  | ●       | ● | ●     | ● | ●             | ●     |
| MSF            | Standard    | ●                    | ●  | ●   | ●  | ●       | ● | ●     | ● | ×             | ×     |
| MTF            | With magnet | ●                    | ●  | ●   | ●  | ●       | ● | ●     | ● | ●             | ●     |
| MFD            | Standard    | ●                    | ●  | ×   | ●  | ●       | ● | ●     | ● | ×             | ×     |
| MFCJ           | With magnet | ●                    | ●  | ×   | ●  | ●       | ● | ●     | ● | ●             | ●     |
| MFJ            | Standard    | ●                    | ●  | ×   | ●  | ●       | ● | ●     | ● | ×             | ×     |
| MFCJ           | With magnet | ●                    | ●  | ×   | ●  | ●       | ● | ●     | ● | ●             | ●     |

### Material of accessories

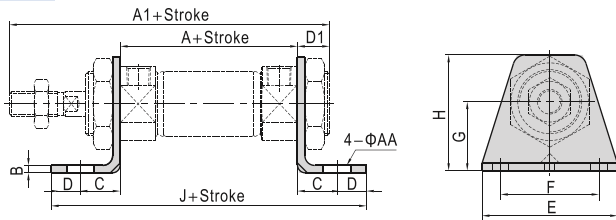
| Accessories<br>Bore size | Mounting accessories |    |     |    | Knuckle |   |   |   |
|--------------------------|----------------------|----|-----|----|---------|---|---|---|
|                          | LB                   | FA | SDB | TC | I       | Y | F | U |
| 20~40                    | △                    | △  | △   | ■  | □       | □ | □ | □ |

■—Cast steel; △—SPCC; □—Carbon steel;

[Note 1] Please refer to P302~305 for knuckle detail.

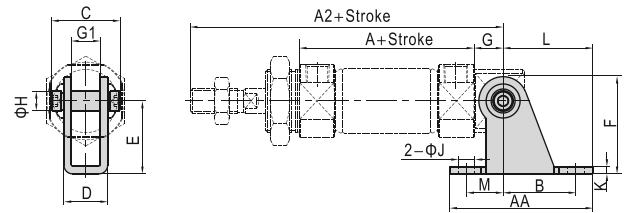
### Dimensions

#### LB



| Bore size\Item | A  | A1  | AA | B   | C  | D  | D1 | E  | F  | G  | H  | J   |
|----------------|----|-----|----|-----|----|----|----|----|----|----|----|-----|
| 20             | 62 | 116 | 7  | 3   | 20 | 8  | 13 | 55 | 40 | 25 | 40 | 118 |
| 25             | 62 | 120 | 7  | 3.5 | 20 | 8  | 13 | 55 | 40 | 28 | 47 | 118 |
| 32             | 64 | 122 | 7  | 3.5 | 20 | 8  | 13 | 55 | 40 | 28 | 47 | 120 |
| 40             | 88 | 154 | 7  | 3.5 | 23 | 10 | 16 | 75 | 55 | 30 | 54 | 154 |

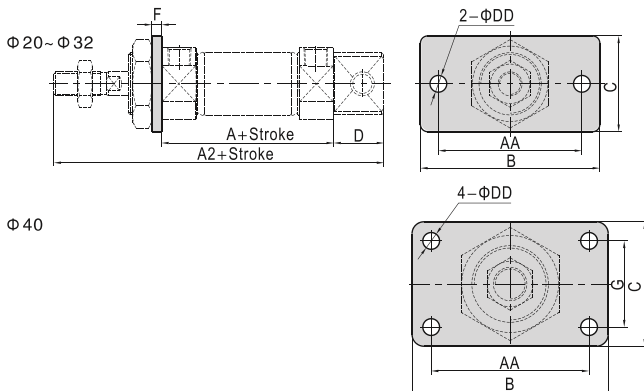
#### SDB



| Bore size\Item | A  | A2  | AA | B  | C  | D    | E  | F  | G  | G1   | H  | K   | J   | L  | M  |
|----------------|----|-----|----|----|----|------|----|----|----|------|----|-----|-----|----|----|
| 20             | 62 | 115 | 59 | 30 | 32 | 18.1 | 30 | 40 | 12 | 12.1 | 8  | 2.5 | 6.8 | 37 | 15 |
| 25             | 62 | 119 | 59 | 30 | 32 | 18.1 | 30 | 40 | 12 | 12.1 | 8  | 2.5 | 6.8 | 37 | 15 |
| 32             | 64 | 124 | 75 | 40 | 44 | 28.1 | 40 | 53 | 15 | 20.1 | 10 | 3   | 9   | 50 | 15 |
| 40             | 88 | 153 | 75 | 40 | 44 | 28.1 | 40 | 53 | 15 | 20.1 | 10 | 3   | 9   | 50 | 15 |

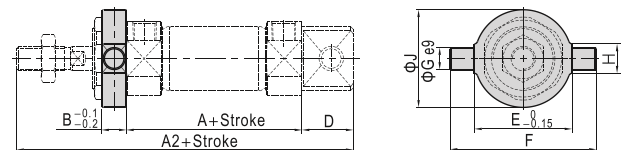
[Note] SDB is attached with relevant PIN.

#### FA



| Bore size\Item | A  | A2  | AA | B  | C  | D  | DD | F   | G  |
|----------------|----|-----|----|----|----|----|----|-----|----|
| 20             | 62 | 124 | 60 | 75 | 34 | 21 | 7  | 3.5 | -  |
| 25             | 62 | 128 | 60 | 75 | 40 | 21 | 7  | 4   | -  |
| 32             | 64 | 136 | 60 | 75 | 40 | 27 | 7  | 4   | -  |
| 40             | 88 | 165 | 66 | 82 | 52 | 27 | 7  | 4   | 36 |

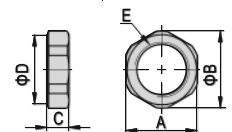
#### TC



| Bore size\Item | A  | A2  | B  | D  | E  | F  | G  | H  | J  |
|----------------|----|-----|----|----|----|----|----|----|----|
| 20             | 62 | 124 | 10 | 21 | 32 | 52 | 8  | 12 | 32 |
| 25             | 62 | 128 | 10 | 21 | 40 | 60 | 9  | 12 | 40 |
| 32             | 64 | 136 | 10 | 27 | 40 | 60 | 9  | 12 | 40 |
| 40             | 88 | 165 | 11 | 27 | 53 | 77 | 10 | 14 | 53 |

#### Special nut for TC

| Bore size\Item | A  | B  | C  | D  | E       |
|----------------|----|----|----|----|---------|
| 20             | 26 | 28 | 8  | 25 | M20×1.5 |
| 25             | 32 | 34 | 8  | 31 | M26×1.5 |
| 32             | 32 | 34 | 8  | 31 | M26×1.5 |
| 40             | 41 | 45 | 10 | 40 | M32×2.0 |



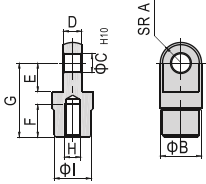
# Mini cylinder(Stainless steel)



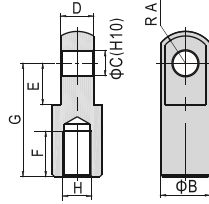
## MF Series—Accessories

### I Knuckle

F-MF20I、F-MF25I



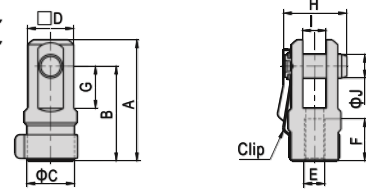
F-MF40I



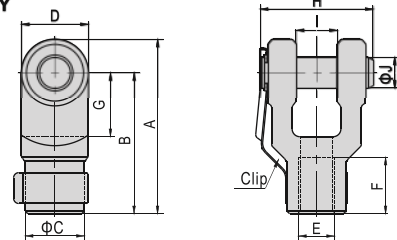
| Type\Item | A   | B  | C  | D  | E  | F  | G  | H        | I  |
|-----------|-----|----|----|----|----|----|----|----------|----|
| F-MF20I   | 9.5 | 20 | 9  | 9  | 14 | 16 | 36 | M8×1.25  | 18 |
| F-MF25I   | 9.5 | 20 | 9  | 9  | 14 | 18 | 38 | M10×1.25 | 18 |
| F-MF40I   | 15  | 24 | 12 | 16 | 20 | 22 | 55 | M14×1.5  | -  |

### Y Knuckle

F-MF20Y  
F-MF25Y



F-MF40Y



| Type\Item | A  | B  | C  | D    | E        | F  | G  | H  | I  | J  |
|-----------|----|----|----|------|----------|----|----|----|----|----|
| F-MF20Y   | 46 | 36 | 18 | 17.5 | M8×1.25  | 16 | 16 | 24 | 9  | 9  |
| F-MF25Y   | 48 | 38 | 18 | 17.5 | M10×1.25 | 18 | 16 | 24 | 9  | 9  |
| F-MF40Y   | 68 | 55 | 23 | 26   | M14×1.5  | 22 | 25 | 44 | 16 | 12 |

