



# Miniature Tubing & Miniature Fittings

Series *TU/M*

O.D.  $\varnothing 2$  X I.D.  $\varnothing 1.2$

Minimum bending radius: **4 mm**

Tubing Color Variations

Black White Red Blue Yellow Green Clear

Four types of fittings are available.

Barb fitting

| Port size |
|-----------|
| M3 x 0.5  |
| M5 x 0.8  |

Barb elbow

| Port size |
|-----------|
| M3 x 0.5  |
| M5 x 0.8  |

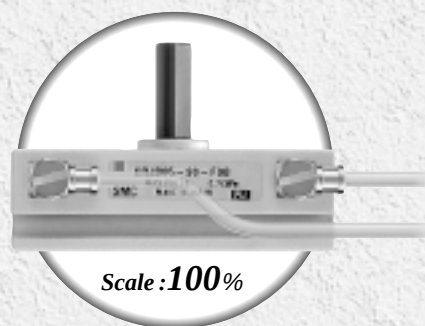
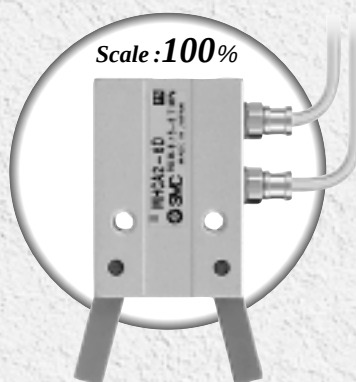
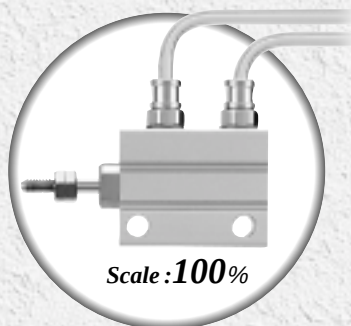
Barb one-touch

| Tubing size       |
|-------------------|
| $\varnothing 3.2$ |
| $\varnothing 4$   |

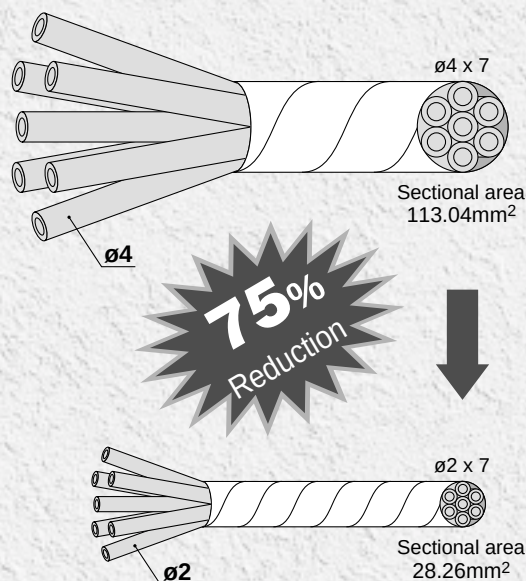
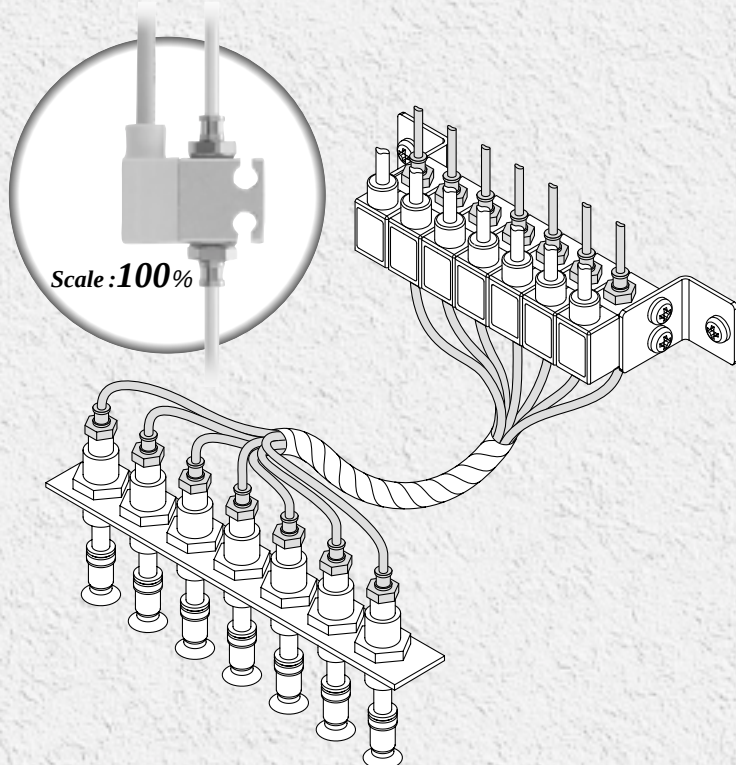
Reducer

| Fitting size      |
|-------------------|
| $\varnothing 3.2$ |
| $\varnothing 4$   |

## *Piping for compact actuator*

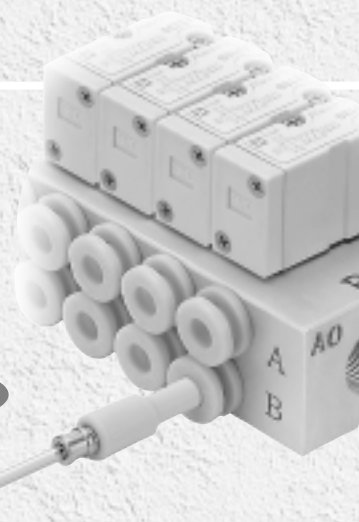
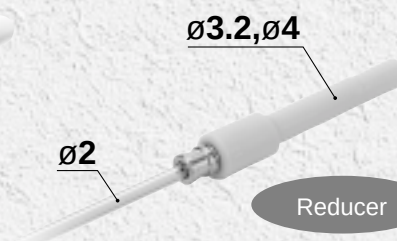
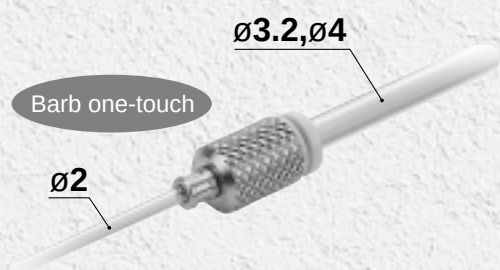


## *Piping for compact pressure sensor*



## *Easy size reduction*

Reduction of the tubing size from standard equipment is possible in a single step.



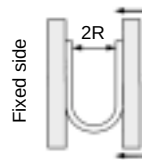
# Miniture Polyurethane Tubing

## Series TU

### Specifications

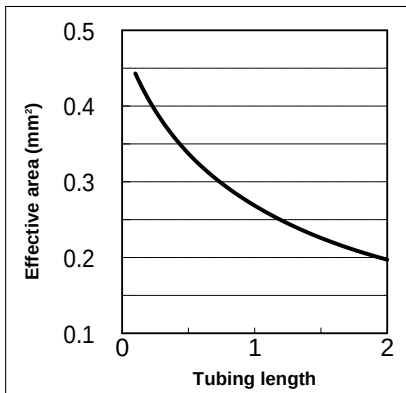


|                                           |                                                                     |
|-------------------------------------------|---------------------------------------------------------------------|
| Model                                     | TU0212                                                              |
| O.D. x I.D. (mm)                          | 2 x 1.2                                                             |
| Fluid                                     | Air, Water                                                          |
| Max. operating pressure (at 20 °C)        | 0.8MPa                                                              |
| Burst prssure                             | Refer to pressure characteristics curve.                            |
| Min. bending radius (mm) <sup>Note)</sup> | 4                                                                   |
| Operating temperature                     | -20 to +60 °C (Water: 0 to 40 °C) (No freezing)                     |
| Material                                  | Polyurethane                                                        |
| Color                                     | Black(B), White(W), Red(R), Blue(BU), Yellow(Y), Green(G), Clear(C) |

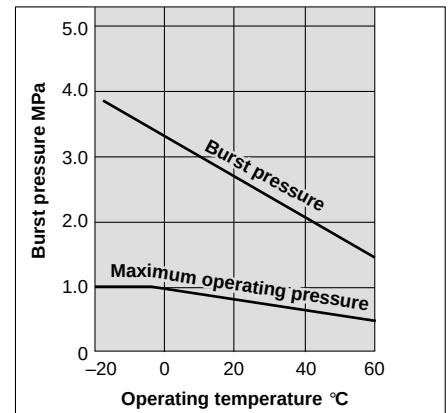


Note) At a temperature of 20 °C bend the tubing into a U shape. Then with one side fixed, gradually close the other side and measure 2R at the point where the tubing folds or flattens, etc.

Effective sectional area



Burst Pressure Characteristic Curve and Operating Pressure



### ⚠ Precautions

Be sure to read before handling.  
Refer to page 4 through 6 for Safety Instructions and common precautions on the products mentioned in this catalog.

### ⚠ Caution

- 1 Applicable for general industry water. Consult SMC if using for other kinds of fluids. Surge pressure must be under the max. operating pressure. If exceeding that value, fitting may be damaged and tubing may burst.
- 2 The value of the max. operating pressure is at a temperature of 20 °C. Refer to the burst pressure characteristics curve for other temperatures. Avoid abnormal temperature rises which may burst the tubing.
- 3 The values of the min. bending radius is at a temperature of 20 °C. Higher temperatures allow the tubing to bend more.

### How to Order

**TU0212 B 20**

Indication of tubing model

Color indication

| Symbol | Color  |
|--------|--------|
| B      | Black  |
| W      | White  |
| R      | Red    |
| BU     | Blue   |
| Y      | Yellow |
| G      | Green  |
| C      | Clear  |

Length per roll

| Symbol | Roll size |
|--------|-----------|
| 20     | 20m roll  |



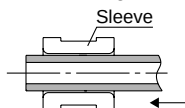
# Miniature Fittings (For exclusive Miniature tubing) *Series M*



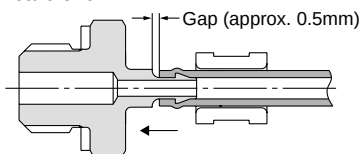
## Tubing connection and removal

### Installing tubing

1. Cut the tubing perpendicularly allowing additional length.
2. Insert the tubing into the sleeve.

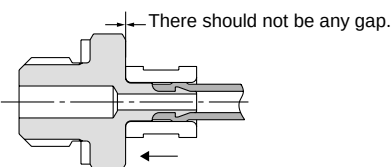


3. Insert the tubing slowly into the fittings. Make sure to secure a gap of approx. 0.5mm between the tubing end and the barb end.



4. Insert the sleeve slowly. Make sure not to allow any gap between the sleeve end side and the body end side. (Please refer to the illustration below.) If you feel any strong resistance and cannot push the sleeve completely to the end side, this may be caused due to jamming. Remove and repeat again by starting from step 1 making sure to secure a gap in the step 3.

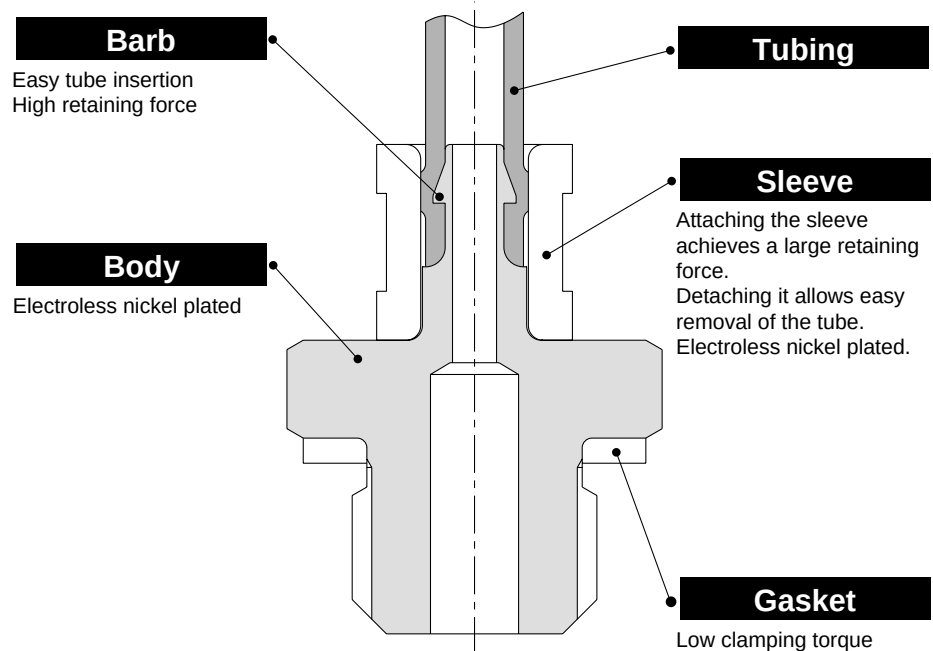
Note) When installing the tubing, the sleeve must be attached. Operation without attaching the sleeve may cause tubing disconnection.



### Removing tubing

Withdraw the sleeve straight along the tubing. Use a tool such as long-nose pliers if it is difficult to pull out by hand.

1. Withdraw the tubing straight.
2. When reusing the tubing, cut off the previously installed portion of the tubing to avoid possible leakage and/or disconnection of the tubing.



## Specifications

|                                   |                                          |
|-----------------------------------|------------------------------------------|
| Applicable tube material          | Polyurethane                             |
| Applicable tube dia.              | ø2/ø1.2                                  |
| Max. operating pressure (at 20°C) | 1MPa                                     |
| Port size                         | M3, M5, ø3.2, ø4                         |
| Thread                            | JIS B0209 Class 2 (Metric coarse thread) |

## How to order

**M-5 AU-2**

Miniature fitting • Application tubing (O.D. / I.D.)  
2 ø2/ø1.2

### Model

|      |                |          |
|------|----------------|----------|
| AU   | Barb fitting   | M3, M5   |
| ALU  | Barb elbow     | M3       |
| ALHU | Barb elbow     | M5       |
| F    | Barb one-touch | ø3.2, ø4 |
| R    | Reducer        |          |

### Port size

|    |          |
|----|----------|
| 3  | M3 x 0.5 |
| 5  | M5 x 0.8 |
| 32 | ø3.2     |
| 04 | ø4       |

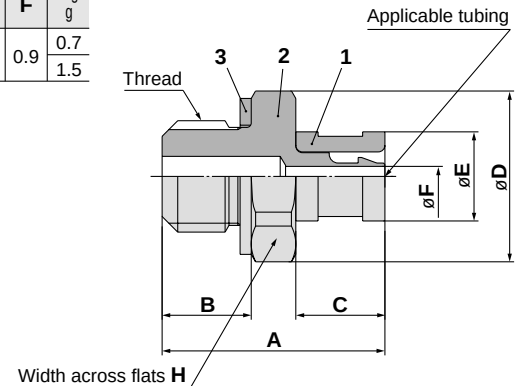
## Barb fitting: M-3AU-2, M-5AU-2



| Applicable tubing<br>O.D. x I.D. (mm) | Thread   | Model   | H   | A  | B | C | D   | E | F   | Weight<br>g |
|---------------------------------------|----------|---------|-----|----|---|---|-----|---|-----|-------------|
| ø2 x ø12                              | M3 x 0.5 | M-3AU-2 | 4.5 | 9  | 3 | 4 | 5   | 4 | 0.9 | 0.7         |
|                                       | M5 x 0.8 | M-5AU-2 | 7   | 10 | 4 |   | 7.7 |   |     | 1.5         |

### Parts list

| No. | Description  | Material             | Note                      |
|-----|--------------|----------------------|---------------------------|
| 1   | Sleeve       | Brass                | Electroless nickel plated |
| 2   | Barb fitting | Brass                | Electroless nickel plated |
| 3   | Gasket       | NBR, Stainless steel | —                         |



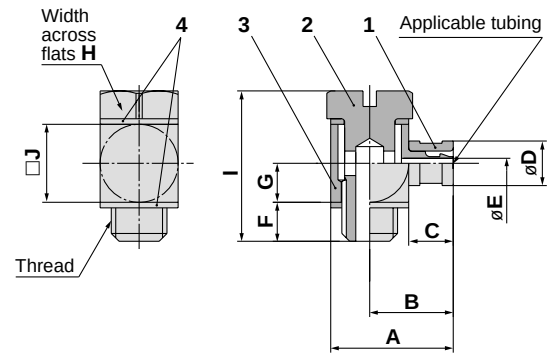
## Barb elbow: M-3ALU-2, M-5ALHU-2



| Applicable tubing<br>O.D. x I.D. (mm) | Thread   | Model     | H | A  | B   | C | D | E   | F   | G   | I    | J | Weight<br>g |
|---------------------------------------|----------|-----------|---|----|-----|---|---|-----|-----|-----|------|---|-------------|
| ø2 x ø12                              | M3 x 0.5 | M-3ALU-2  | 5 | 9  | 6.5 | 4 | 4 | 0.9 | 2.5 | 2.5 | 9.4  | 5 | 1.6         |
|                                       | M5 x 0.8 | M-5ALHU-2 | 7 | 11 | 7.5 |   |   |     | 3   | 3.5 | 13.5 | 7 | 3.5         |

### Parts list

| No. | Description | Material             | Note                      |
|-----|-------------|----------------------|---------------------------|
| 1   | Sleeve      | Brass                | Electroless nickel plated |
| 2   | Stud        | Brass                | Electroless nickel plated |
| 3   | Barb elbow  | Brass                | Electroless nickel plated |
| 4   | Gasket      | NBR, Stainless steel | —                         |



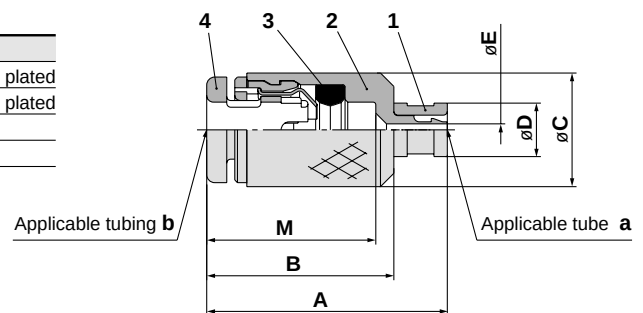
## Barb one-touch: M-32F-2, M-04F-2



| Applicable tubing (mm) |          | Model   | A    | B    | C   | D | E   | M    | Weight<br>g |
|------------------------|----------|---------|------|------|-----|---|-----|------|-------------|
| a (O.D. x I.D.)        | b (O.D.) |         |      |      |     |   |     |      |             |
| ø2 x ø12               | ø3.2     | M-32F-2 | 17.7 | 13.7 | 7.5 | 4 | 0.9 | 12.7 | 2.4         |
|                        | ø4       | M-04F-2 | 18   | 14   | 8.5 |   |     |      | 2.9         |

### Parts list

| No. | Description | Material             | Note                      |
|-----|-------------|----------------------|---------------------------|
| 1   | Sleeve      | Brass                | Electroless nickel plated |
| 2   | Body        | Brass                | Electroless nickel plated |
| 3   | Seal        | NBR                  | —                         |
| 4   | Cassette    | POM, Stainless steel | —                         |



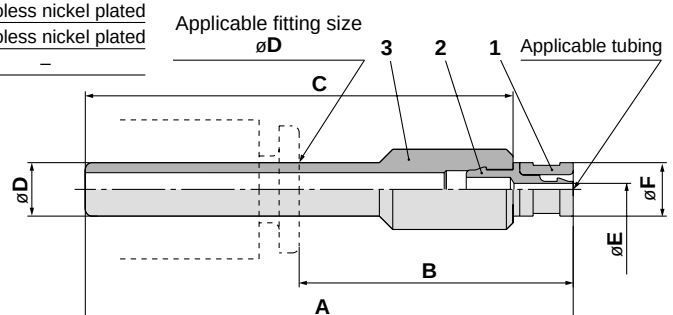
## Reducer: M-32R-2, M-04R-2



| Applicable tubing<br>O.D. x I.D. (mm) | Fitting size<br>øD | Model   | A    | B    | C    | E   | F | Weight<br>g |
|---------------------------------------|--------------------|---------|------|------|------|-----|---|-------------|
| ø2 x ø12                              | ø3.2               | M-32R-2 | 36   | 20.5 | 31.5 | 0.9 | 4 | 0.7         |
|                                       | ø4                 | M-04R-2 | 36.5 |      | 32   |     |   | 0.8         |

### Parts list

| No. | Description  | Material | Note                      |
|-----|--------------|----------|---------------------------|
| 1   | Sleeve       | Brass    | Electroless nickel plated |
| 2   | Studded body | Brass    | Electroless nickel plated |
| 3   | Stem         | PP       | —                         |



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