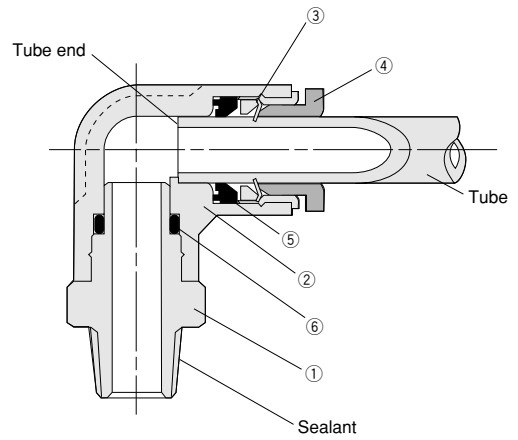


**Specifications**

|                             |  |
|-----------------------------|--|
| Media                       | Air  |
| Maximum operating pressure  | 0.9MPa [131psi.]                                       |
| Operating vacuum pressure   | -100kPa [-29.5in.Hg]                                   |
| Operating temperature range | 0~60°C [32~140°F]                                      |
| Recommended tube            | Nylon tube, urethane tube                              |
| Sales unit                  | 1 pack (10 pcs.) [For φ 16 [0.63in.], 1 pack (5 pcs.)] |

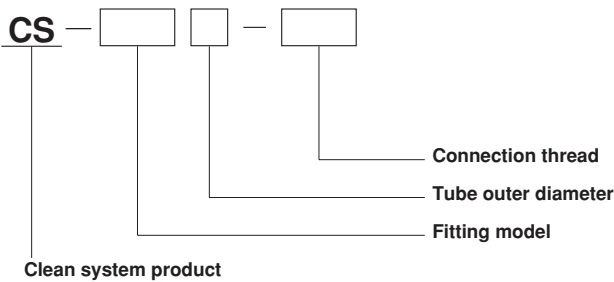
Caution: The tube outer diameter accuracy should be, for nylon tubes, within ±0.1mm [±0.004in.] of the nominal dimensions, and for urethane tubes, within ±0.15mm [±0.006in.] of the nominal dimensions, while the ovalness (difference between long diameter and short diameter) should be within 0.2mm [0.008in.].

**Inner Construction, Major Parts and Materials**



| No. | Parts          | Materials   |
|-----|----------------|---|
| ①   | Metal body     | Brass<br>(Stainless specification: SUS304)                            |
| ②   | Plastic body   | Polybutylene terephthalate  |
| ③   | Lock claw      | Stainless steel   |
| ④   | Release ring   | Polyacetal<br>(Stainless specification:<br>glass reinforced PBT)      |
| ⑤   | Elastic sleeve | Synthetic rubber (NBR)<br>(Stainless specification:<br>fluoro rubber) |
| ⑥   | O-ring         |   |

**Order Codes**



● CS-TS: Straight



| Tube size<br>mm | Thread size |    |      |      |      |      |      |
|-----------------|-------------|----|------|------|------|------|------|
|                 | M5×0.8      |    | M6×1 | R1/8 | R1/4 | R3/8 | R1/2 |
| 4               | M50         | M5 | M6   | 01   | 02   | —    | —    |
| 6               | —           | M5 | M6   | 01   | 02   | 03   | —    |
| 8               | —           | —  | —    | 01   | 02   | 03   | —    |
| 10              | —           | —  | —    | 01   | 02   | 03   | 04   |
| 12              | —           | —  | —    | —    | 02   | 03   | 04   |
| 16              | —           | —  | —    | —    | —    | 03   | 04   |

● CS-TSH: Hexagon socket head straight



| Tube size<br>mm | Thread size |    |      |      |      |      |
|-----------------|-------------|----|------|------|------|------|
|                 | M5×0.8      |    | M6×1 | R1/8 | R1/4 | R3/8 |
| 4               | M5          | M6 | 01   | —    | —    | —    |
| 6               | M5          | M6 | 01   | 02   | —    | —    |
| 8               | —           | —  | 01   | 02   | 03   | —    |
| 10              | —           | —  | —    | 02   | 03   | 04   |
| 12              | —           | —  | —    | —    | 03   | 04   |

● CS-TSM: Female straight



| Tube size<br>mm | Thread size |       |       |
|-----------------|-------------|-------|-------|
|                 | Rc1/8       | Rc1/4 | Rc3/8 |
| 4               | 01          | 02    | —     |
| 6               | 01          | 02    | —     |
| 8               | 01          | 02    | 03    |
| 10              | —           | 02    | 03    |
| 12              | —           | 02    | 03    |

● CS-US: Union straight



| Tube size<br>mm |
|-----------------|
| 4               |
| 6               |
| 8               |
| 10              |
| 12              |
| 16              |

● CS-USD: Different diameter union



| Tube size<br>mm |
|-----------------|
| 6-4             |
| 8-6             |
| 10-8            |
| 12-10           |
| 16-12           |

● CS-UK: Union for bulkhead



| Tube size<br>mm |
|-----------------|
| 4               |
| 6               |
| 8               |
| 10              |
| 12              |

● CS-UKM: Female union for bulkhead



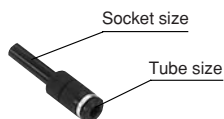
| Tube size<br>mm | Thread size |       |       |       |
|-----------------|-------------|-------|-------|-------|
|                 | Rc1/8       | Rc1/4 | Rc3/8 | Rc1/2 |
| 4               | 01          | —     | —     | —     |
| 6               | 01          | 02    | —     | —     |
| 8               | 01          | 02    | 03    | —     |
| 10              | —           | 02    | 03    | —     |
| 12              | —           | —     | 03    | 04    |

● CS-UKB: Union for bulkhead B



| Tube size<br>mm |
|-----------------|
| 4               |
| 6               |
| 8               |
| 10              |
| 12              |

● CS-UR: Reducer



| Tube size<br>mm | Socket size<br>mm |
|-----------------|-------------------|
| 4               | 6, 8              |
| 6               | 8, 10, 12         |
| 8               | 10, 12            |
| 10              | 12                |

● CS-TL: Elbow



| Tube size<br>mm | Thread size |    |      |      |      |      |
|-----------------|-------------|----|------|------|------|------|
|                 | M5×0.8      |    | M6×1 | R1/8 | R1/4 | R3/8 |
| 4               | M5          | M6 | 01   | 02   | —    | —    |
| 6               | M5          | M6 | 01   | 02   | 03   | —    |
| 8               | —           | —  | 01   | 02   | 03   | —    |
| 10              | —           | —  | —    | 01   | 02   | 03   |
| 12              | —           | —  | —    | —    | 02   | 03   |
| 16              | —           | —  | —    | —    | —    | 03   |

●CS-TLL: Long elbow



| Tube size<br>mm | Thread size |      |      |      |      |
|-----------------|-------------|------|------|------|------|
|                 | M5×0.8      | R1/8 | R1/4 | R3/8 | R1/2 |
| 4               | M5          | 01   | —    | —    | —    |
| 6               | —           | 01   | 02   | 03   | —    |
| 8               | —           | 01   | 02   | 03   | —    |
| 10              | —           | —    | 02   | 03   | 04   |
| 12              | —           | —    | 02   | 03   | 04   |

●CS-SL: Swing elbow



| Tube size<br>mm | Thread size |      |      |      |      |      |
|-----------------|-------------|------|------|------|------|------|
|                 | M5×0.8      | M6×1 | R1/8 | R1/4 | R3/8 | R1/2 |
| 4               | M5          | M6   | 01   | —    | —    | —    |
| 6               | M5          | M6   | 01   | 02   | —    | —    |
| 8               | —           | —    | 01   | 02   | 03   | —    |
| 10              | —           | —    | —    | 02   | 03   | —    |
| 12              | —           | —    | —    | —    | 03   | 04   |
| 16              | —           | —    | —    | —    | 03   | 04   |

●CS-SLH: Hexagon socket head swing elbow



| Tube size<br>mm | Thread size |      |      |      |      |
|-----------------|-------------|------|------|------|------|
|                 | M5×0.8      | R1/8 | R1/4 | R3/8 | R1/2 |
| 4               | M5          | —    | —    | —    | —    |
| 6               | —           | 01   | 02   | —    | —    |
| 8               | —           | 01   | 02   | 03   | —    |
| 10              | —           | —    | 02   | 03   | —    |
| 12              | —           | —    | —    | 03   | 04   |

●CS-SLM: Female swing elbow



| Tube size<br>mm | Thread size |         |         |         |         |
|-----------------|-------------|---------|---------|---------|---------|
|                 | M5×0.8      | R-Rc1/8 | R-Rc1/4 | R-Rc3/8 | R-Rc1/2 |
| 4               | M5          | 01      | —       | —       | —       |
| 6               | M5          | 01      | 02      | —       | —       |
| 8               | —           | 01      | 02      | 03      | —       |
| 10              | —           | —       | 02      | 03      | —       |
| 12              | —           | —       | —       | 03      | 04      |

●CS-UL: Union elbow



| Tube size<br>mm |
|-----------------|
| 4               |
| 6               |
| 8               |
| 10              |
| 12              |
| 16              |

●CS-UKBL: Union elbow for bulkhead



| Tube size<br>mm |
|-----------------|
| 4               |
| 6               |
| 8               |
| 10              |
| 12              |

●CS-ULA: Socket elbow



| Tube size<br>mm | Socket size<br>mm |
|-----------------|-------------------|
| 4               | 4                 |
| 6               | 6                 |
| 8               | 8                 |
| 10              | 10                |
| 12              | 12                |

●CS-ULAL: Long socket elbow



| Tube size<br>mm | Socket size<br>mm |
|-----------------|-------------------|
| 4               | 4                 |
| 6               | 6                 |
| 8               | 8                 |
| 10              | 10                |
| 12              | 12                |

●CS-ULAD: Different diameter socket elbow



| Tube size<br>mm | Socket size<br>mm |
|-----------------|-------------------|
| 4               | 6                 |
| 6               | 8                 |
| 8               | 10                |
| 10              | 12                |

●CS-TT: Tee



| Tube size<br>mm | Thread size |      |      |      |      |      |
|-----------------|-------------|------|------|------|------|------|
|                 | M5×0.8      | M6×1 | R1/8 | R1/4 | R3/8 | R1/2 |
| 4               | M5          | M6   | 01   | 02   | —    | —    |
| 6               | M5          | M6   | 01   | 02   | 03   | —    |
| 8               | —           | —    | 01   | 02   | 03   | —    |
| 10              | —           | —    | —    | 02   | 03   | 04   |
| 12              | —           | —    | —    | 02   | 03   | 04   |
| 16              | —           | —    | —    | —    | 03   | 04   |

●CS-TB: Branch tee



| Tube size<br>mm | Thread size |      |      |      |      |      |
|-----------------|-------------|------|------|------|------|------|
|                 | M5×0.8      | M6×1 | R1/8 | R1/4 | R3/8 | R1/2 |
| 4               | M5          | M6   | 01   | 02   | —    | —    |
| 6               | M5          | M6   | 01   | 02   | 03   | —    |
| 8               | —           | —    | 01   | 02   | 03   | —    |
| 10              | —           | —    | —    | 02   | 03   | 04   |
| 12              | —           | —    | —    | 02   | 03   | 04   |
| 16              | —           | —    | —    | —    | 03   | 04   |

●CS-UT: Union tee



| Tube size<br>mm |
|-----------------|
| 4               |
| 6               |
| 8               |
| 10              |
| 12              |
| 16              |

●CS-UTD: Different diameter union tee



| Tube size<br>mm |
|-----------------|
| 6-4             |
| 8-6             |
| 10-8            |
| 12-10           |

●CS-TBY: Branch Y



| Tube size<br>mm | Thread size |      |      |      |      |      |
|-----------------|-------------|------|------|------|------|------|
|                 | M5×0.8      | M6×1 | R1/8 | R1/4 | R3/8 | R1/2 |
| 4               | M5          | —    | 01   | 02   | —    | —    |
| 6               | M5          | M6   | 01   | 02   | 03   | —    |
| 8               | —           | —    | 01   | 02   | 03   | —    |
| 10              | —           | —    | —    | 02   | 03   | 04   |
| 12              | —           | —    | —    | 02   | 03   | 04   |

●CS-TBLY: Branch elbow Y



| Tube size<br>mm | Thread size |      |      |      |      |      |
|-----------------|-------------|------|------|------|------|------|
|                 | M5×0.8      | M6×1 | R1/8 | R1/4 | R3/8 | R1/2 |
| 4               | M5          | M6   | 01   | 02   | —    | —    |
| 6               | M5          | M6   | 01   | 02   | 03   | —    |
| 8               | —           | —    | 01   | 02   | 03   | —    |
| 10              | —           | —    | —    | 02   | 03   | 04   |
| 12              | —           | —    | —    | 02   | 03   | 04   |

●CS-SLY: Swing elbow Y



| Tube size<br>mm | Thread size |
|-----------------|-------------|
| 4               | M5(M5×0.8)  |
| 6               | 01(R1/8)    |
| 8               | 02(R1/4)    |
| 10              | 03(R3/8)    |
| 12              | 04(R1/2)    |

●CS-SLYM: Female swing elbow Y



| Tube size<br>mm | Thread size |
|-----------------|-------------|
| 4               | M5(M5×0.8)  |
| 6               | 01(R·Rc1/8) |
| 8               | 02(R·Rc1/4) |
| 10              | 03(R·Rc3/8) |
| 12              | 04(R·Rc1/2) |

●CS-UY: Union Y



| Tube size<br>mm |
|-----------------|
| 4               |
| 6               |
| 8               |
| 10              |
| 12              |

● CS-UYD: Different diameter union Y



| Tube size mm |
|--------------|
| 6-4          |
| 8-6          |
| 10-8         |
| 12-10        |

● CS-ULY: Union elbow Y



| Tube size mm |
|--------------|
| 4            |
| 6            |
| 8            |
| 10           |
| 12           |

● CS-UB: Branch union Y



| Tube size mm | Socket size mm |
|--------------|----------------|
| 4            | 4              |
| 6            | 6              |
| 8            | 8              |
| 10           | 10             |
| 12           | 12             |

● CS-UBD: Different diameter branch union Y



| Tube size mm | Socket size mm |
|--------------|----------------|
| 4            | 6              |
| 6            | 8              |
| 8            | 10             |
| 10           | 12             |

● CS-UZ: Tetra union



| Tube size mm |
|--------------|
| 4            |
| 6            |
| 8            |
| 10           |
| 12           |

● CS-TBZ: Branch tetra



| Tube size mm | Thread size |      |      |      |      |      |
|--------------|-------------|------|------|------|------|------|
|              | M5×0.8      | M6×1 | R1/8 | R1/4 | R3/8 | R1/2 |
| 4            | M5          | M6   | 01   | 02   | —    | —    |
| 6            | M5          | M6   | 01   | 02   | 03   | —    |
| 8            | —           | —    | 01   | 02   | 03   | —    |
| 10           | —           | —    | —    | 02   | 03   | 04   |
| 12           | —           | —    | —    | 02   | 03   | 04   |

● CS-UWD: Different diameter double Y



| Tube size mm |
|--------------|
| 6-4          |
| 8-6          |

● CS-TBW: Branch double Y



| Tube size mm | Thread size |      |
|--------------|-------------|------|
|              | R1/8        | R1/4 |
| 4            | 01          | 02   |
| 6            | 01          | —    |

● CS-UBW: Branch union double Y



| Tube size mm | Socket size mm |
|--------------|----------------|
| 4            | 6              |
| 6            | 8              |

● CS-UED: Different diameter triple



| Tube size mm |
|--------------|
| 6-4          |
| 8-4          |
| 8-6          |
| 10-6         |
| 10-8         |

● CS-TBE: Branch triple



| Tube size mm | Thread size |      |      |
|--------------|-------------|------|------|
|              | R1/8        | R1/4 | R3/8 |
| 6-4          | 01          | —    | —    |
| 8-4          | —           | 02   | —    |
| 8-6          | —           | 02   | —    |
| 10-8         | —           | —    | 03   |

●CS-UBE: Branch union triple



| Tube size<br>mm |
|-----------------|
| 6-4             |
| 8-4             |
| 8-6             |
| 10-8            |

●CS-TBEW: Branch triple double



| Tube size<br>mm | Thread size |      |      |
|-----------------|-------------|------|------|
|                 | R1/4        | R3/8 | R1/2 |
| 8-4             | 02          | 03   | —    |
| 8-6             | 02          | 03   | —    |
| 10-6            | —           | 03   | 04   |
| 10-8            | —           | 03   | 04   |

●CS-UEDW: Different diameter triple double



| Tube size<br>mm |
|-----------------|
| 8-4             |
| 8-6             |
| 10-6            |
| 10-8            |

●CS-TJ: Jack (Note: Cannot be used with mini type.)



| Tube size<br>mm | Thread size |      |      |      |
|-----------------|-------------|------|------|------|
|                 | M5×0.8      | R1/8 | R1/4 | R3/8 |
| 4               | M5          | 01   | —    | —    |
| 6               | M5          | 01   | 02   | —    |
| 8               | —           | 01   | 02   | 03   |
| 10              | —           | —    | —    | 03   |

●CS-AN: Socket nipple



| Socket size<br>mm |
|-------------------|
| 4                 |
| 6                 |
| 8                 |
| 10                |
| 12                |
| 16                |

●CS-AND: Different diameter socket nipple



| Socket size<br>mm |
|-------------------|
| 6-4               |
| 8-6               |
| 10-8              |
| 12-10             |
| 16-12             |

●CS-BB: Extension bushing



| Thread size | Thread size |       |       |       |       |
|-------------|-------------|-------|-------|-------|-------|
|             | M5×0.8      | Rc1/8 | Rc1/4 | Rc3/8 | Rc1/2 |
| M5×0.8 (M5) | M5, M5L     | 01    | —     | —     | —     |
| R1/8 (01)   | M5          | 01    | 02    | 03    | —     |
| R1/4 (02)   | M5          | 01    | 02    | 03    | 04    |
| R3/8 (03)   | —           | 01    | 02    | 03    | 04    |
| R1/2 (04)   | —           | —     | —     | —     | 04    |

●CS-BBD: Different diameter extension socket



| Thread size | Thread size |       |       |       |
|-------------|-------------|-------|-------|-------|
|             | M5×0.8      | Rc1/8 | Rc1/4 | Rc3/8 |
| Rc1/8 (01)  | M5          | —     | —     | —     |
| Rc1/4 (02)  | —           | 01    | —     | —     |
| Rc3/8 (03)  | —           | 01    | 02    | —     |
| Rc1/2 (04)  | —           | —     | 02    | 03    |

●CS-UP: Plug



| Tube size<br>mm |
|-----------------|
| 4               |
| 6               |
| 8               |
| 10              |
| 12              |
| 16              |

●CS-UC: Cap



| Tube size<br>mm |
|-----------------|
| 4               |
| 6               |
| 8               |
| 10              |
| 12              |

Note: For details of the dimensions, see the General Catalog of Air Treatment, Auxiliary, Vacuum.



●CS-TS: Straight



| Tube — Thread size |        |      |      |
|--------------------|--------|------|------|
| M3×0.5             | M5×0.8 | M6×1 | R1/8 |
| 3—M3               | 3—M5   | 3—M6 | —    |
| 4—M3               | 4—M5   | 4—M6 | 4—01 |
| —                  | 6—M5   | 6—M6 | 6—01 |

●CS-TSH: Straight with hexagon socket



| Tube — Thread size |        |      |      |
|--------------------|--------|------|------|
| M3×0.5             | M5×0.8 | M6×1 | R1/8 |
| 3—M3               | 3—M5   | —    | —    |
| 4—M3               | 4—M5   | 4—M6 | 4—01 |
| —                  | 6—M5   | 6—M6 | 6—01 |

●CS-TSK: Cartridge



| Tube — Thread size |         |
|--------------------|---------|
| M6×0.75            | M8×0.75 |
| 3—M6               | —       |
| 4—M6               | 4—M8    |
| —                  | 6—M8    |

●CS-TSM: Female straight



| Tube — Thread size |        |
|--------------------|--------|
| M3×0.5             | M5×0.8 |
| 3—M3               | 3—M5   |
| 4—M3               | 4—M5   |

●CS-US: Union straight



| Tube size mm |
|--------------|
| 3            |
| 4            |
| 6            |

●CS-USD: Different diameter union



| Tube size mm |
|--------------|
| 4—3          |
| 6—4          |

●CS-UK: Union for bulkhead



| Tube size mm |
|--------------|
| 3            |
| 4            |
| 6            |

●CS-UR: Reducer



| Socket — Tube size mm |
|-----------------------|
| 4—3                   |
| 6—3                   |
| 6—4                   |

●CS-TL: Elbow



| Tube — Thread size |        |      |      |
|--------------------|--------|------|------|
| M3×0.5             | M5×0.8 | M6×1 | R1/8 |
| 3—M3               | 3—M5   | 3—M6 | —    |
| 4—M3               | 4—M5   | 4—M6 | 4—01 |
| —                  | 6—M5   | 6—M6 | 6—01 |

●CS-TLL: Long elbow



| Tube — Thread size |        |      |      |
|--------------------|--------|------|------|
| M3×0.5             | M5×0.8 | M6×1 | R1/8 |
| 3—M3               | —      | —    | —    |
| 4—M3               | 4—M5   | 4—M6 | 4—01 |
| —                  | 6—M5   | 6—M6 | 6—01 |

●CS-UL: Union elbow



| Tube size mm |
|--------------|
| 3            |
| 4            |
| 6            |

●CS-ULA: Socket elbow



| Tube, socket size mm |
|----------------------|
| 3                    |
| 4                    |
| 6                    |

●CS-ULAD: Different diameter socket elbow



| Socket — Tube size mm |
|-----------------------|
| 4—3                   |
| 6—3                   |
| 6—4                   |

●CS-TLV: 45° elbow



| Tube – Thread size |      |      |
|--------------------|------|------|
| M5×0.8             | M6×1 | R1/8 |
| 4–M5               | 4–M6 | 4–01 |
| 6–M5               | 6–M6 | 6–01 |

●CS-ULAV: 45° socket elbow



| Tube, socket size mm |
|----------------------|
| 4                    |
| 6                    |

●CS-TT: Tee



| Tube – Thread size |        |      |      |
|--------------------|--------|------|------|
| M3×0.5             | M5×0.8 | M6×1 | R1/8 |
| 3–M3               | 3–M5   | 3–M6 | —    |
| 4–M3               | 4–M5   | 4–M6 | 4–01 |
| —                  | 6–M5   | 6–M6 | 6–01 |

●CS-TB: Branch tee



| Tube – Thread size |        |      |      |
|--------------------|--------|------|------|
| M3×0.5             | M5×0.8 | M6×1 | R1/8 |
| 3–M3               | 3–M5   | 3–M6 | —    |
| 4–M3               | 4–M5   | 4–M6 | 4–01 |
| —                  | 6–M5   | 6–M6 | 6–01 |

●CS-UT: Union tee



| Tube size mm |
|--------------|
| 3            |
| 4            |
| 6            |

●CS-UTD: Different diameter union tee



| Tube size mm |
|--------------|
| 4–3          |
| 6–4          |

●CS-UY: Union Y



| Tube size mm |
|--------------|
| 3            |
| 4            |
| 6            |

●CS-UYD: Different diameter union Y



| Tube size mm |
|--------------|
| 4–3          |
| 6–3          |
| 6–4          |

●CS-UB: Branch union Y



| Tube size mm |
|--------------|
| 3            |
| 4            |
| 6            |

●CS-UBD: Different diameter branch union Y



| Socket – Tube size mm |
|-----------------------|
| 4–3                   |
| 6–3                   |
| 6–4                   |

● **CS-UXA: Cross A**



| Tube size mm |
|--------------|
| 3            |
| 4            |
| 6            |

● **CS-UXB: Cross B (different diameter)**



| Tube size mm |
|--------------|
| 4-3          |
| 6-4          |

● **CS-UXC: Cross C (different diameter)**



| Tube size mm |
|--------------|
| 4-3          |
| 6-4          |

● **CS-UP3M: Plug**



For the 4mm and 6mm sizes, plugs for the standard type quick fittings can be used.

| Socket size mm |
|----------------|
| 3              |

● **CS-UC3M: Cap**



For the 4mm and 6mm sizes, caps for the standard type quick fittings can be used.

| Tube size mm |
|--------------|
| 3            |

Note: For details of the dimensions, see the General Catalog of Air Treatment, Auxiliary, Vacuum.

# QUICK FITTINGS(Smart type)

Straight

## ●ATS



(1 bag, 10 pcs.)

| in        |
|-----------|
| Tube size |
| 0.157     |
| 0.236     |
| 0.315     |
| 0.394     |
| 0.472     |
| 0.630     |

Straight with hexagon socket

## ●ATSH



(1 bag, 10 pcs.)

| in        |
|-----------|
| Tube size |
| 0.157     |
| 0.236     |
| 0.315     |
| 0.394     |
| 0.472     |

Female straight

## ●ATSM



(1 bag, 10 pcs.)

| in        |
|-----------|
| Tube size |
| 0.157     |
| 0.236     |
| 0.315     |
| 0.394     |
| 0.472     |

Union for bulkhead

## ●AUK



Main unit: Aluminum alloy (black almite)  
Nut: Mild steel (zinc plated)  
(1 bag, 10 pcs.)

| in        |
|-----------|
| Tube size |
| 0.157     |
| 0.236     |
| 0.315     |
| 0.394     |
| 0.472     |

Female union for bulkhead

## ●AUKM



Nut: Mild steel (zinc plated)  
(1 bag, 10 pcs.)

| in        |
|-----------|
| Tube size |
| 0.157     |
| 0.236     |
| 0.315     |
| 0.394     |
| 0.472     |

Elbow

## ●ATL



(1 bag, 10 pcs.)

| in        |
|-----------|
| Tube size |
| 0.157     |
| 0.236     |
| 0.315     |
| 0.394     |
| 0.472     |

Long elbow

## ●ATLL



(1 bag, 10 pcs.)

| in        |
|-----------|
| Tube size |
| 0.157     |
| 0.236     |
| 0.315     |
| 0.394     |
| 0.472     |

Tee

## ●ATT



(1 bag, 10 pcs.)

| in        |
|-----------|
| Tube size |
| 0.157     |
| 0.236     |
| 0.315     |
| 0.394     |
| 0.472     |

Branch tee

## ●ATB



(1 bag, 10 pcs.)

| in        |
|-----------|
| Tube size |
| 0.157     |
| 0.236     |
| 0.315     |
| 0.394     |
| 0.472     |

Branch Y

## ●ATBY



(1 bag, 10 pcs.)

| in        |
|-----------|
| Tube size |
| 0.157     |
| 0.236     |
| 0.315     |
| 0.394     |
| 0.472     |

Branch elbow Y

## ●ATBLY



(1 bag, 10 pcs.)

| in        |
|-----------|
| Tube size |
| 0.157     |
| 0.236     |
| 0.315     |
| 0.394     |
| 0.472     |

Branch double Y

## ●ATBW



(1 bag, 10 pcs.)

| in        |
|-----------|
| Tube size |
| 0.157     |
| 0.236     |

# QUICK FITTINGS(Smart type)

Branch triple

## ●ATBE



(1 bag, 10 pcs.)

| in        |       |
|-----------|-------|
| Tube size |       |
| 0.236     | 0.157 |
| 0.315     | 0.157 |
| 0.315     | 0.236 |
| 0.394     | 0.315 |

Branch triple double

## ●ATBEW



(1 bag, 10 pcs.)

| in        |       |
|-----------|-------|
| Tube size |       |
| 0.315     | 0.157 |
| 0.315     | 0.236 |
| 0.394     | 0.236 |
| 0.394     | 0.315 |

Branch tetra

## ●ATBZ



(1 bag, 10 pcs.)

| in        |  |
|-----------|--|
| Tube size |  |
| 0.157     |  |
| 0.236     |  |
| 0.315     |  |
| 0.394     |  |
| 0.472     |  |

Reducer for bulkhead

## ●ASKR



| Main side thread size | Sub-main side tube size |             |             |             |             |
|-----------------------|-------------------------|-------------|-------------|-------------|-------------|
|                       | in                      |             |             |             |             |
|                       | 0.157                   | 0.236       | 0.315       | 0.394       | 0.472       |
| M8x1 (8)              | 0.315-0.157             | 0.315-0.236 | —           | —           | —           |
| M12x1 (12)            | —                       | 0.472-0.236 | 0.472-0.315 | 0.472-0.394 | —           |
| M14x1 (14)            | —                       | —           | 0.551-0.315 | 0.551-0.394 | 0.551-0.472 |
| M18x1 (18)            | —                       | —           | —           | —           | 0.709-0.472 |

Straight

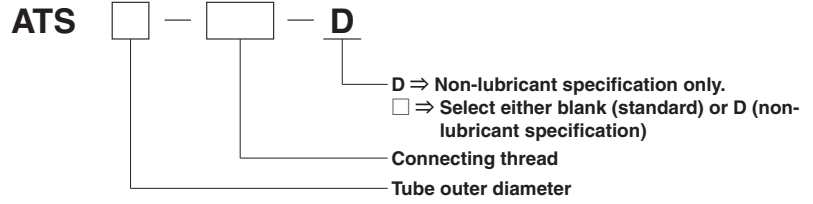
●ATS



(1 bag, 10 pcs.)

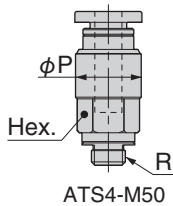
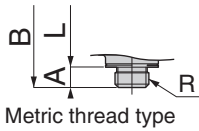
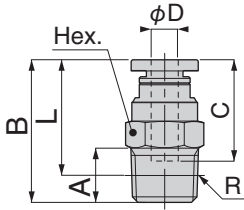
| Tube size |
|-----------|
| 0.157     |
| 0.236     |
| 0.315     |
| 0.394     |
| 0.472     |
| 0.630     |

Order codes



Dimensions in

Straight  
ATS



| Model      | Tube outer diameter φ D | R      | A     | B     | L     | C     | Width across flats Hex. | φ P   | Orifice diameter (φ in) | Mass oz |
|------------|-------------------------|--------|-------|-------|-------|-------|-------------------------|-------|-------------------------|---------|
| ATS4-M5-D  | 0.157                   | M5×0.8 | 0.110 | 0.780 | 0.669 | 0.587 | 0.394                   | -     | 0.094                   | 0.198   |
| ATS4-M50-□ | 0.157                   | M5×0.8 | 0.110 | 0.894 | 0.783 | 0.587 | 0.315                   | 0.382 | 0.094                   | 0.215   |
| ATS4-M6-D  | 0.157                   | M6×1   | 0.150 | 0.819 | 0.669 | 0.587 | 0.394                   | -     | 0.118                   | 0.212   |
| ATS4-01-D  | 0.157                   | R1/8   | 0.315 | 0.827 | 0.669 | 0.587 | 0.394                   | -     | 0.118                   | 0.261   |
| ATS4-02-□  | 0.157                   | R1/4   | 0.433 | 0.886 | 0.650 | 0.587 | 0.551                   | -     | 0.118                   | 0.564   |
| ATS6-M5-D  | 0.236                   | M5×0.8 | 0.110 | 0.862 | 0.752 | 0.669 | 0.472                   | -     | 0.094                   | 0.286   |
| ATS6-M6-D  | 0.236                   | M6×1   | 0.150 | 0.902 | 0.752 | 0.669 | 0.472                   | -     | 0.118                   | 0.300   |
| ATS6-01-D  | 0.236                   | R1/8   | 0.315 | 0.878 | 0.720 | 0.669 | 0.472                   | -     | 0.197                   | 0.289   |
| ATS6-02-□  | 0.236                   | R1/4   | 0.433 | 0.933 | 0.693 | 0.669 | 0.551                   | -     | 0.197                   | 0.529   |
| ATS6-03-□  | 0.236                   | R3/8   | 0.472 | 0.965 | 0.713 | 0.669 | 0.669                   | -     | 0.197                   | 0.988   |
| ATS8-01-□  | 0.315                   | R1/8   | 0.315 | 1.098 | 0.941 | 0.717 | 0.551                   | -     | 0.236                   | 0.494   |
| ATS8-02-□  | 0.315                   | R1/4   | 0.433 | 1.047 | 0.811 | 0.717 | 0.551                   | -     | 0.276                   | 0.494   |
| ATS8-03-□  | 0.315                   | R3/8   | 0.472 | 1.004 | 0.756 | 0.717 | 0.669                   | -     | 0.276                   | 0.882   |
| ATS10-01-□ | 0.394                   | R1/8   | 0.315 | 1.193 | 1.035 | 0.815 | 0.669                   | -     | 0.236                   | 0.741   |
| ATS10-02-□ | 0.394                   | R1/4   | 0.433 | 1.173 | 0.937 | 0.815 | 0.669                   | -     | 0.335                   | 0.670   |
| ATS10-03-□ | 0.394                   | R3/8   | 0.472 | 1.154 | 0.906 | 0.815 | 0.669                   | -     | 0.354                   | 0.847   |
| ATS10-04-□ | 0.394                   | R1/2   | 0.591 | 1.197 | 0.874 | 0.815 | 0.827                   | -     | 0.354                   | 1.623   |
| ATS12-02-□ | 0.472                   | R1/4   | 0.433 | 1.413 | 1.177 | 0.917 | 0.827                   | -     | 0.335                   | 1.305   |
| ATS12-03-□ | 0.472                   | R3/8   | 0.472 | 1.256 | 1.008 | 0.917 | 0.827                   | -     | 0.433                   | 1.058   |
| ATS12-04-□ | 0.472                   | R1/2   | 0.591 | 1.335 | 1.012 | 0.917 | 0.827                   | -     | 0.433                   | 1.552   |
| ATS16-03-□ | 0.630                   | R3/8   | 0.472 | 1.547 | 1.299 | 0.976 | 0.945                   | -     | 0.433                   | 1.905   |
| ATS16-04-□ | 0.630                   | R1/2   | 0.591 | 1.626 | 1.303 | 0.976 | 0.945                   | -     | 0.512                   | 2.222   |

\* -D ⇒ Non-lubricant specification only. - □ ⇒ Select either blank (standard) or D (non-lubricant specification)

\* The L dimension for the tapered thread types is a reference dimension when mated and tightened.

Straight with hexagon socket

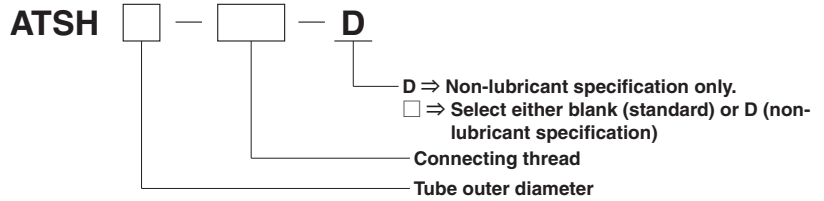
● ATSH



(1 bag, 10 pcs.)

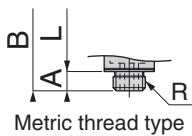
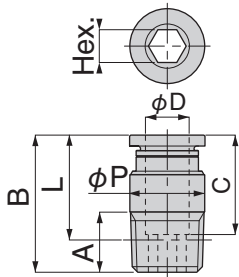
| Tube size |
|-----------|
| 0.157     |
| 0.236     |
| 0.315     |
| 0.394     |
| 0.472     |

Order codes



Dimensions in

Straight with hexagon socket  
ATSH



| Model       | Tube outer diameter φ D | R      | A     | B     | L     | C     | Width across flats Hex. | φ P   | Orifice diameter (φ in) | Mass oz |
|-------------|-------------------------|--------|-------|-------|-------|-------|-------------------------|-------|-------------------------|---------|
| ATSH4-M5-D  | 0.157                   | M5×0.8 | 0.110 | 0.776 | 0.665 | 0.587 | 0.098                   | 0.382 | 0.102                   | 0.162   |
| ATSH4-M6-D  | 0.157                   | M6×1   | 0.150 | 0.815 | 0.665 | 0.587 | 0.098                   | 0.382 | 0.102                   | 0.190   |
| ATSH4-01-D  | 0.157                   | R1/8   | 0.315 | 0.787 | 0.630 | 0.587 | 0.098                   | 0.382 | 0.102                   | 0.233   |
| ATSH6-M5-D  | 0.236                   | M5×0.8 | 0.110 | 0.839 | 0.728 | 0.669 | 0.098                   | 0.465 | 0.102                   | 0.198   |
| ATSH6-M6-D  | 0.236                   | M6×1   | 0.150 | 0.878 | 0.728 | 0.669 | 0.118                   | 0.465 | 0.126                   | 0.222   |
| ATSH6-01-D  | 0.236                   | R1/8   | 0.315 | 0.870 | 0.713 | 0.669 | 0.157                   | 0.465 | 0.165                   | 0.268   |
| ATSH6-02-□  | 0.236                   | R1/4   | 0.433 | 0.839 | 0.598 | 0.669 | 0.157                   | 0.539 | 0.165                   | 0.459   |
| ATSH8-01-□  | 0.315                   | R1/8   | 0.315 | 1.020 | 0.862 | 0.717 | 0.197                   | 0.539 | 0.209                   | 0.310   |
| ATSH8-02-□  | 0.315                   | R1/4   | 0.433 | 0.988 | 0.752 | 0.717 | 0.236                   | 0.539 | 0.248                   | 0.459   |
| ATSH8-03-□  | 0.315                   | R3/8   | 0.472 | 0.874 | 0.626 | 0.717 | 0.236                   | 0.661 | 0.248                   | 0.670   |
| ATSH10-02-□ | 0.394                   | R1/4   | 0.433 | 1.173 | 0.937 | 0.815 | 0.236                   | 0.689 | 0.248                   | 0.705   |
| ATSH10-03-□ | 0.394                   | R3/8   | 0.472 | 1.154 | 0.906 | 0.815 | 0.236                   | 0.689 | 0.248                   | 0.917   |
| ATSH10-04-□ | 0.394                   | R1/2   | 0.591 | 1.193 | 0.870 | 0.815 | 0.236                   | 0.819 | 0.248                   | 1.587   |
| ATSH12-03-□ | 0.472                   | R3/8   | 0.472 | 1.256 | 1.008 | 0.917 | 0.315                   | 0.819 | 0.331                   | 1.093   |
| ATSH12-04-□ | 0.472                   | R1/2   | 0.591 | 1.335 | 1.012 | 0.917 | 0.315                   | 0.819 | 0.331                   | 1.587   |

\* Changed width across flats of inner diameter of hex nut and diameter of orifice to correct the problem of lock hook interference with hex wrench.

\* -D ⇒ Non-lubricant specification only. - □ ⇒ Select either blank (standard) or D (non-lubricant specification)

\* The L dimension for the tapered thread types is a reference dimension when mated and tightened.

Female straight

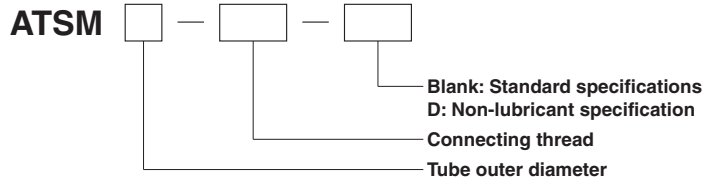
● ATSM



(1 bag, 10 pcs.)

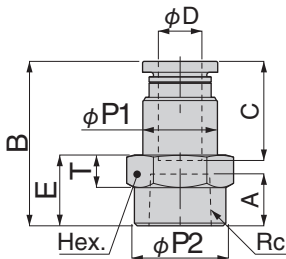
| Tube size |
|-----------|
| 0.157     |
| 0.236     |
| 0.315     |
| 0.394     |
| 0.472     |

Order codes



Dimensions in

Female straight  
ATSM



| Model                               | Tube outer diameter $\phi D$ | Rc    | A     | B     | E     | $\phi P1$ | $\phi P2$ | C     | Width across flats Hex. | T     | Orifice diameter ( $\phi$ in) | Mass oz |
|-------------------------------------|------------------------------|-------|-------|-------|-------|-----------|-----------|-------|-------------------------|-------|-------------------------------|---------|
| ATSM4-01- <input type="checkbox"/>  | 0.157                        | Rc1/8 | 0.276 | 0.941 | 0.394 | 0.382     | 0.543     | 0.587 | 0.551                   | 0.197 | 0.118                         | 0.459   |
| ATSM4-02- <input type="checkbox"/>  | 0.157                        | Rc1/4 | 0.374 | 1.059 | 0.512 | 0.382     | 0.661     | 0.587 | 0.669                   | 0.236 | 0.118                         | 0.670   |
| ATSM6-01- <input type="checkbox"/>  | 0.236                        | Rc1/8 | 0.276 | 1.024 | 0.394 | 0.465     | 0.543     | 0.669 | 0.551                   | 0.197 | 0.197                         | 0.529   |
| ATSM6-02- <input type="checkbox"/>  | 0.236                        | Rc1/4 | 0.374 | 1.142 | 0.512 | 0.465     | 0.661     | 0.669 | 0.669                   | 0.236 | 0.197                         | 0.741   |
| ATSM8-01- <input type="checkbox"/>  | 0.315                        | Rc1/8 | 0.276 | 1.071 | 0.394 | 0.539     | 0.543     | 0.717 | 0.551                   | 0.197 | 0.276                         | 0.564   |
| ATSM8-02- <input type="checkbox"/>  | 0.315                        | Rc1/4 | 0.374 | 1.189 | 0.512 | 0.539     | 0.661     | 0.717 | 0.669                   | 0.236 | 0.276                         | 0.776   |
| ATSM8-03- <input type="checkbox"/>  | 0.315                        | Rc3/8 | 0.413 | 1.228 | 0.551 | 0.539     | 0.819     | 0.717 | 0.827                   | 0.256 | 0.276                         | 1.058   |
| ATSM10-02- <input type="checkbox"/> | 0.394                        | Rc1/4 | 0.374 | 1.287 | 0.512 | 0.689     | 0.661     | 0.815 | 0.669                   | 0.236 | 0.354                         | 0.988   |
| ATSM10-03- <input type="checkbox"/> | 0.394                        | Rc3/8 | 0.413 | 1.327 | 0.551 | 0.689     | 0.819     | 0.815 | 0.827                   | 0.256 | 0.354                         | 1.305   |
| ATSM12-02- <input type="checkbox"/> | 0.472                        | Rc1/4 | 0.374 | 1.370 | 0.531 | 0.819     | 0.661     | 0.917 | 0.827                   | 0.256 | 0.433                         | 1.482   |
| ATSM12-03- <input type="checkbox"/> | 0.472                        | Rc3/8 | 0.413 | 1.429 | 0.551 | 0.819     | 0.819     | 0.917 | 0.827                   | 0.256 | 0.433                         | 1.552   |

\* -  ⇒ Select either blank (standard) or D (non-lubricant specification)

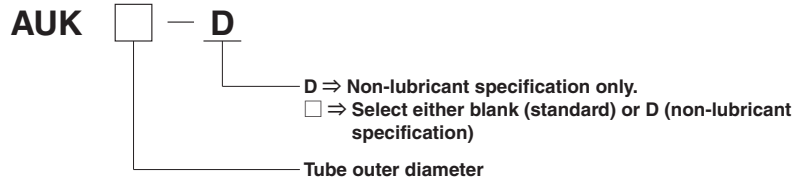
● AUK



Main unit: Aluminum alloy (black almite)  
 Nut: Mild steel (zinc plated)  
 (1 bag, 10 pcs.)

| Tube size |
|-----------|
| 0.157     |
| 0.236     |
| 0.315     |
| 0.394     |
| 0.472     |

Order codes



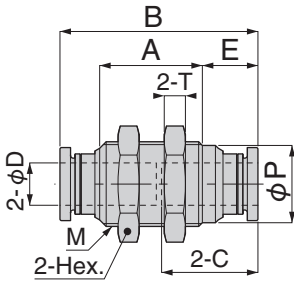
Dimensions in

Union for bulkhead  
 AUK



| Model                                 | Tube outer diameter $\phi D$ | M     | B     | E     | A     | $\phi P$ | C     | Width across flats Hex. | T     | Orifice diameter ( $\phi$ in) | Mass oz |
|---------------------------------------|------------------------------|-------|-------|-------|-------|----------|-------|-------------------------|-------|-------------------------------|---------|
| <b>AUK4-D</b>                         | 0.157                        | M12×1 | 1.213 | 0.374 | 0.583 | 0.425    | 0.587 | 0.551                   | 0.157 | 0.118                         | 0.388   |
| <b>AUK6-D</b>                         | 0.236                        | M14×1 | 1.374 | 0.374 | 0.748 | 0.492    | 0.669 | 0.669                   | 0.157 | 0.197                         | 0.564   |
| <b>AUK8-<input type="checkbox"/></b>  | 0.315                        | M16×1 | 1.472 | 0.413 | 0.764 | 0.575    | 0.717 | 0.748                   | 0.157 | 0.276                         | 0.670   |
| <b>AUK10-<input type="checkbox"/></b> | 0.394                        | M20×1 | 1.669 | 0.469 | 0.850 | 0.728    | 0.815 | 0.945                   | 0.197 | 0.354                         | 1.235   |
| <b>AUK12-<input type="checkbox"/></b> | 0.472                        | M22×1 | 1.874 | 0.520 | 0.953 | 0.803    | 0.917 | 1.063                   | 0.236 | 0.433                         | 1.834   |

\* -D ⇒ Non-lubricant specification only. -  ⇒ Select either blank (standard) or D (non-lubricant specification)



● AUKM

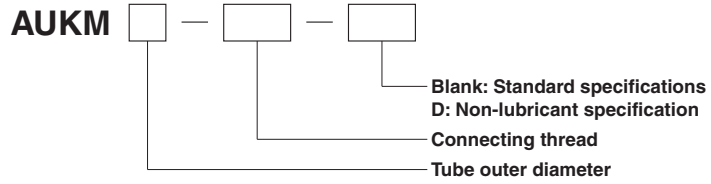


Nut: Mild steel (zinc plated)

(1 bag, 10 pcs.)

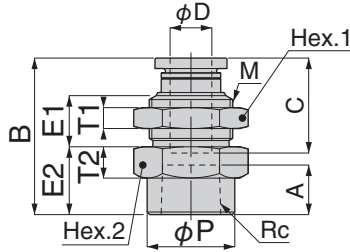
| Tube size |
|-----------|
| 0.157     |
| 0.236     |
| 0.315     |
| 0.394     |
| 0.472     |

Order codes



Dimensions in

Female union for bulkhead  
 AUKM



| Model                               | Tube outer diameter ϕ D | Rc    | M     | B     | E1    | E2    | A     | C     | ϕ P   | Width across flats Hex.1 | Width across flats Hex.2 | T1    | T2    | Orifice diameter (ϕ in) | Mass oz |
|-------------------------------------|-------------------------|-------|-------|-------|-------|-------|-------|-------|-------|--------------------------|--------------------------|-------|-------|-------------------------|---------|
| AUKM4-01- <input type="checkbox"/>  | 0.157                   | Rc1/8 | M12×1 | 0.953 | 0.354 | 0.354 | 0.276 | 0.587 | 0.543 | 0.551                    | 0.551                    | 0.157 | 0.197 | 0.118                   | 0.600   |
| AUKM6-01- <input type="checkbox"/>  | 0.236                   | Rc1/8 | M14×1 | 1.039 | 0.402 | 0.394 | 0.276 | 0.669 | 0.543 | 0.669                    | 0.669                    | 0.157 | 0.236 | 0.197                   | 0.882   |
| AUKM6-02- <input type="checkbox"/>  | 0.236                   | Rc1/4 | M14×1 | 1.130 | 0.402 | 0.484 | 0.374 | 0.669 | 0.661 | 0.669                    | 0.669                    | 0.157 | 0.236 | 0.197                   | 0.917   |
| AUKM8-01- <input type="checkbox"/>  | 0.315                   | Rc1/8 | M16×1 | 1.063 | 0.386 | 0.394 | 0.276 | 0.717 | 0.543 | 0.748                    | 0.748                    | 0.157 | 0.236 | 0.276                   | 1.058   |
| AUKM8-02- <input type="checkbox"/>  | 0.315                   | Rc1/4 | M16×1 | 1.181 | 0.386 | 0.512 | 0.374 | 0.717 | 0.661 | 0.748                    | 0.748                    | 0.157 | 0.236 | 0.276                   | 1.129   |
| AUKM8-03- <input type="checkbox"/>  | 0.315                   | Rc3/8 | M16×1 | 1.220 | 0.386 | 0.551 | 0.413 | 0.717 | 0.768 | 0.748                    | 0.748                    | 0.157 | 0.236 | 0.276                   | 1.058   |
| AUKM10-02- <input type="checkbox"/> | 0.394                   | Rc1/4 | M20×1 | 1.287 | 0.437 | 0.512 | 0.374 | 0.815 | 0.661 | 0.945                    | 0.945                    | 0.197 | 0.276 | 0.354                   | 1.940   |
| AUKM10-03- <input type="checkbox"/> | 0.394                   | Rc3/8 | M20×1 | 1.327 | 0.437 | 0.551 | 0.413 | 0.815 | 0.819 | 0.945                    | 0.945                    | 0.197 | 0.276 | 0.354                   | 1.975   |
| AUKM12-03- <input type="checkbox"/> | 0.472                   | Rc3/8 | M22×1 | 1.429 | 0.488 | 0.551 | 0.413 | 0.917 | 0.819 | 1.063                    | 0.945                    | 0.236 | 0.276 | 0.433                   | 2.293   |
| AUKM12-04- <input type="checkbox"/> | 0.472                   | Rc1/2 | M22×1 | 1.547 | 0.488 | 0.669 | 0.512 | 0.917 | 0.984 | 1.063                    | 0.945                    | 0.236 | 0.276 | 0.433                   | 2.363   |

\* -  ⇒ Select either blank (standard) or D (non-lubricant specification)

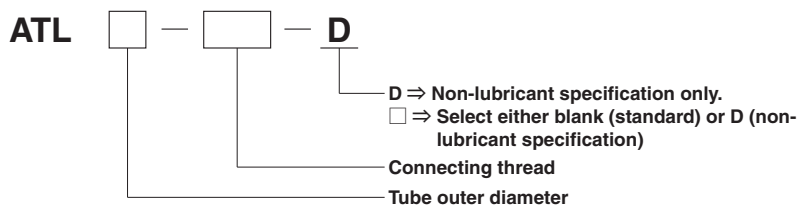
● ATL



| Tube size |
|-----------|
| 0.157     |
| 0.236     |
| 0.315     |
| 0.394     |
| 0.472     |

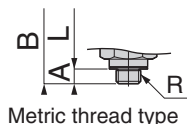
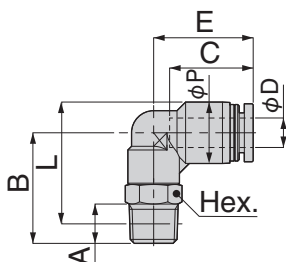
(1 bag, 10 pcs.)

Order codes



Dimensions in

Elbow  
ATL



| Model                              | Tube outer diameter φ D | R      | A     | B     | L     | φ P   | C     | E     | Width across flats Hex. | Orifice diameter (φin) | Mass oz |
|------------------------------------|-------------------------|--------|-------|-------|-------|-------|-------|-------|-------------------------|------------------------|---------|
| ATL4-M5-D                          | 0.157                   | M5×0.8 | 0.110 | 0.630 | 0.717 | 0.394 | 0.587 | 0.697 | 0.315                   | 0.094                  | 0.201   |
| ATL4-M6-D                          | 0.157                   | M6×1   | 0.150 | 0.787 | 0.835 | 0.394 | 0.587 | 0.736 | 0.394                   | 0.094                  | 0.282   |
| ATL4-01-D                          | 0.157                   | R1/8   | 0.315 | 0.866 | 0.906 | 0.394 | 0.587 | 0.736 | 0.394                   | 0.110                  | 0.353   |
| ATL4-02- <input type="checkbox"/>  | 0.157                   | R1/4   | 0.433 | 1.142 | 1.102 | 0.394 | 0.587 | 0.815 | 0.551                   | 0.110                  | 0.635   |
| ATL6-M5-D                          | 0.236                   | M5×0.8 | 0.110 | 0.768 | 0.906 | 0.492 | 0.669 | 0.799 | 0.394                   | 0.094                  | 0.314   |
| ATL6-M6-D                          | 0.236                   | M6×1   | 0.150 | 0.807 | 0.906 | 0.492 | 0.669 | 0.799 | 0.394                   | 0.118                  | 0.282   |
| ATL6-01-D                          | 0.236                   | R1/8   | 0.315 | 0.886 | 0.976 | 0.492 | 0.669 | 0.799 | 0.394                   | 0.169                  | 0.388   |
| ATL6-02- <input type="checkbox"/>  | 0.236                   | R1/4   | 0.433 | 1.102 | 1.110 | 0.492 | 0.669 | 0.858 | 0.551                   | 0.169                  | 0.670   |
| ATL6-03- <input type="checkbox"/>  | 0.236                   | R3/8   | 0.472 | 1.240 | 1.236 | 0.492 | 0.669 | 0.937 | 0.669                   | 0.169                  | 1.058   |
| ATL8-01- <input type="checkbox"/>  | 0.315                   | R1/8   | 0.315 | 0.945 | 1.075 | 0.571 | 0.713 | 0.894 | 0.472                   | 0.236                  | 0.494   |
| ATL8-02- <input type="checkbox"/>  | 0.315                   | R1/4   | 0.433 | 1.102 | 1.150 | 0.571 | 0.713 | 0.933 | 0.551                   | 0.264                  | 0.705   |
| ATL8-03- <input type="checkbox"/>  | 0.315                   | R3/8   | 0.472 | 1.220 | 1.256 | 0.571 | 0.713 | 0.972 | 0.669                   | 0.264                  | 1.093   |
| ATL10-01- <input type="checkbox"/> | 0.394                   | R1/8   | 0.315 | 0.984 | 1.173 | 0.689 | 0.795 | 1.004 | 0.472                   | 0.236                  | 0.635   |
| ATL10-02- <input type="checkbox"/> | 0.394                   | R1/4   | 0.433 | 1.122 | 1.228 | 0.689 | 0.795 | 1.024 | 0.551                   | 0.315                  | 0.811   |
| ATL10-03- <input type="checkbox"/> | 0.394                   | R3/8   | 0.472 | 1.260 | 1.354 | 0.689 | 0.795 | 1.063 | 0.669                   | 0.327                  | 1.199   |
| ATL10-04- <input type="checkbox"/> | 0.394                   | R1/2   | 0.591 | 1.417 | 1.441 | 0.689 | 0.795 | 1.083 | 0.827                   | 0.327                  | 2.011   |
| ATL12-02- <input type="checkbox"/> | 0.472                   | R1/4   | 0.433 | 1.173 | 1.346 | 0.827 | 0.921 | 1.142 | 0.551                   | 0.315                  | 0.952   |
| ATL12-03- <input type="checkbox"/> | 0.472                   | R3/8   | 0.472 | 1.280 | 1.445 | 0.827 | 0.921 | 1.169 | 0.669                   | 0.394                  | 1.340   |
| ATL12-04- <input type="checkbox"/> | 0.472                   | R1/2   | 0.591 | 1.437 | 1.528 | 0.827 | 0.921 | 1.209 | 0.827                   | 0.406                  | 2.152   |

\* -D ⇒ Non-lubricant specification only. -  ⇒ Select either blank (standard) or D (non-lubricant specification)

\* The L dimension for the tapered thread types is a reference dimension when mated and tightened.

Long elbow

● ATLL

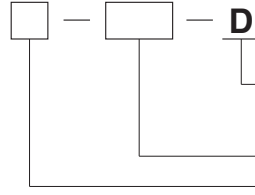


| Tube size |
|-----------|
| 0.157     |
| 0.236     |
| 0.315     |
| 0.394     |
| 0.472     |

(1 bag, 10 pcs.)

Order codes

ATLL



D ⇒ Non-lubricant specification only.

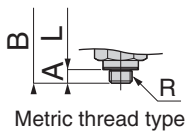
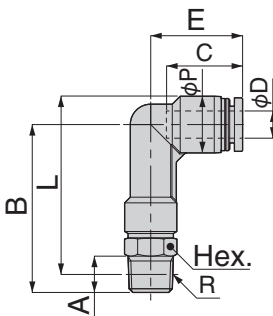
□ ⇒ Select either blank (standard) or D (non-lubricant specification)

Connecting thread

Tube outer diameter

Dimensions in

Long elbow  
ATLL



| Model       | Tube outer diameter φ D | R      | A     | B     | L     | φ P   | C     | E     | Width across flats Hex. | Orifice diameter (φin) | Mass oz |
|-------------|-------------------------|--------|-------|-------|-------|-------|-------|-------|-------------------------|------------------------|---------|
| ATLL4-M5-D  | 0.157                   | M5×0.8 | 0.110 | 1.102 | 1.189 | 0.394 | 0.587 | 0.736 | 0.315                   | 0.094                  | 0.226   |
| ATLL4-01-D  | 0.157                   | R1/8   | 0.315 | 1.339 | 1.378 | 0.394 | 0.587 | 0.736 | 0.394                   | 0.110                  | 0.388   |
| ATLL6-01-D  | 0.236                   | R1/8   | 0.315 | 1.457 | 1.547 | 0.492 | 0.669 | 0.799 | 0.394                   | 0.169                  | 0.459   |
| ATLL6-02-□  | 0.236                   | R1/4   | 0.433 | 1.673 | 1.681 | 0.492 | 0.669 | 0.858 | 0.551                   | 0.169                  | 0.705   |
| ATLL6-03-□  | 0.236                   | R3/8   | 0.472 | 1.811 | 1.807 | 0.492 | 0.669 | 0.937 | 0.669                   | 0.169                  | 1.164   |
| ATLL8-01-□  | 0.315                   | R1/8   | 0.315 | 1.594 | 1.724 | 0.571 | 0.713 | 0.894 | 0.472                   | 0.236                  | 0.564   |
| ATLL8-02-□  | 0.315                   | R1/4   | 0.433 | 1.752 | 1.799 | 0.571 | 0.713 | 0.933 | 0.551                   | 0.264                  | 0.776   |
| ATLL8-03-□  | 0.315                   | R3/8   | 0.472 | 1.870 | 1.906 | 0.571 | 0.713 | 0.972 | 0.669                   | 0.264                  | 1.235   |
| ATLL10-02-□ | 0.394                   | R1/4   | 0.433 | 1.890 | 1.996 | 0.689 | 0.795 | 1.024 | 0.551                   | 0.315                  | 0.917   |
| ATLL10-03-□ | 0.394                   | R3/8   | 0.472 | 2.028 | 2.122 | 0.689 | 0.795 | 1.063 | 0.669                   | 0.327                  | 1.340   |
| ATLL10-04-□ | 0.394                   | R1/2   | 0.591 | 2.185 | 2.209 | 0.689 | 0.795 | 1.063 | 0.827                   | 0.327                  | 2.222   |
| ATLL12-02-□ | 0.472                   | R1/4   | 0.433 | 2.079 | 2.252 | 0.827 | 0.921 | 1.142 | 0.551                   | 0.315                  | 1.058   |
| ATLL12-03-□ | 0.472                   | R3/8   | 0.472 | 2.185 | 2.350 | 0.827 | 0.921 | 1.169 | 0.669                   | 0.394                  | 1.482   |
| ATLL12-04-□ | 0.472                   | R1/2   | 0.591 | 2.343 | 2.433 | 0.827 | 0.921 | 1.169 | 0.827                   | 0.406                  | 2.399   |

\* -D ⇒ Non-lubricant specification only. - □ ⇒ Select either blank (standard) or D (non-lubricant specification)

\* The L dimension for the tapered thread types is a reference dimension when mated and tightened.

## ●ATT



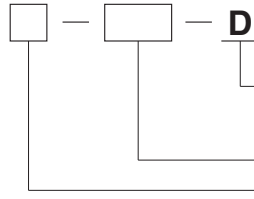
## Tube size

|       |
|-------|
| 0.157 |
| 0.236 |
| 0.315 |
| 0.394 |
| 0.472 |

(1 bag, 10 pcs.)

## Order codes

ATT



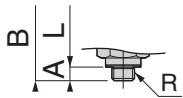
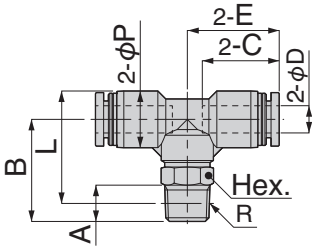
D =&gt; Non-lubricant specification only.

[ ] =&gt; Select either blank (standard) or D (non-lubricant specification)

Connecting thread

Tube outer diameter

## Dimensions in

Tee  
ATT

Metric thread type

| Model        | Tube outer diameter $\phi D$ | R      | A     | B     | L     | $\phi P$ | C     | E     | Width across flats Hex. | Orifice diameter ( $\phi$ in) | Mass oz |
|--------------|------------------------------|--------|-------|-------|-------|----------|-------|-------|-------------------------|-------------------------------|---------|
| ATT4-M5-D    | 0.157                        | M5×0.8 | 0.110 | 0.630 | 0.717 | 0.394    | 0.587 | 0.697 | 0.315                   | 0.094                         | 0.282   |
| ATT4-M6-D    | 0.157                        | M6×1   | 0.150 | 0.787 | 0.835 | 0.394    | 0.587 | 0.736 | 0.394                   | 0.094                         | 0.388   |
| ATT4-01-D    | 0.157                        | R1/8   | 0.315 | 0.866 | 0.906 | 0.394    | 0.587 | 0.736 | 0.394                   | 0.110                         | 0.459   |
| ATT4-02-[ ]  | 0.157                        | R1/4   | 0.433 | 1.142 | 1.102 | 0.394    | 0.587 | 0.815 | 0.551                   | 0.110                         | 0.705   |
| ATT6-M5-D    | 0.236                        | M5×0.8 | 0.110 | 0.768 | 0.906 | 0.492    | 0.669 | 0.797 | 0.394                   | 0.094                         | 0.423   |
| ATT6-M6-D    | 0.236                        | M6×1   | 0.150 | 0.807 | 0.906 | 0.492    | 0.669 | 0.797 | 0.394                   | 0.118                         | 0.459   |
| ATT6-01-D    | 0.236                        | R1/8   | 0.315 | 0.886 | 0.976 | 0.492    | 0.669 | 0.797 | 0.394                   | 0.169                         | 0.494   |
| ATT6-02-[ ]  | 0.236                        | R1/4   | 0.433 | 1.102 | 1.110 | 0.492    | 0.669 | 0.856 | 0.551                   | 0.169                         | 0.776   |
| ATT6-03-[ ]  | 0.236                        | R3/8   | 0.472 | 1.240 | 1.236 | 0.492    | 0.669 | 0.935 | 0.669                   | 0.169                         | 1.164   |
| ATT8-01-[ ]  | 0.315                        | R1/8   | 0.315 | 0.945 | 1.075 | 0.571    | 0.713 | 0.894 | 0.472                   | 0.236                         | 0.670   |
| ATT8-02-[ ]  | 0.315                        | R1/4   | 0.433 | 1.102 | 1.150 | 0.571    | 0.713 | 0.933 | 0.551                   | 0.264                         | 0.882   |
| ATT8-03-[ ]  | 0.315                        | R3/8   | 0.472 | 1.220 | 1.256 | 0.571    | 0.713 | 0.972 | 0.669                   | 0.264                         | 1.235   |
| ATT10-02-[ ] | 0.394                        | R1/4   | 0.433 | 1.122 | 1.228 | 0.689    | 0.795 | 1.024 | 0.551                   | 0.315                         | 1.093   |
| ATT10-03-[ ] | 0.394                        | R3/8   | 0.472 | 1.260 | 1.354 | 0.689    | 0.795 | 1.063 | 0.669                   | 0.327                         | 1.482   |
| ATT10-04-[ ] | 0.394                        | R1/2   | 0.591 | 1.417 | 1.441 | 0.689    | 0.795 | 1.083 | 0.827                   | 0.327                         | 2.293   |
| ATT12-02-[ ] | 0.472                        | R1/4   | 0.433 | 1.173 | 1.346 | 0.827    | 0.921 | 1.140 | 0.551                   | 0.315                         | 1.340   |
| ATT12-03-[ ] | 0.472                        | R3/8   | 0.472 | 1.280 | 1.445 | 0.827    | 0.921 | 1.169 | 0.669                   | 0.394                         | 1.693   |
| ATT12-04-[ ] | 0.472                        | R1/2   | 0.591 | 1.437 | 1.528 | 0.827    | 0.921 | 1.209 | 0.827                   | 0.406                         | 2.540   |

\* -D =&gt; Non-lubricant specification only. - [ ] =&gt; Select either blank (standard) or D (non-lubricant specification)

\* The L dimension for the tapered thread types is a reference dimension when mated and tightened.

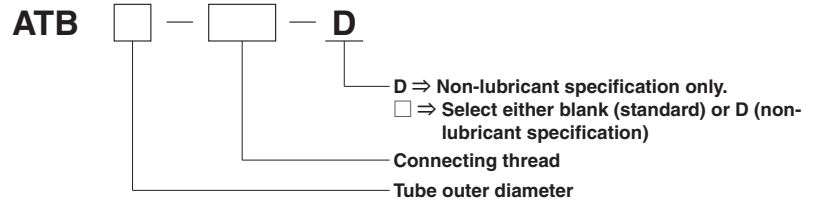
● **ATB**



(1 bag, 10 pcs.)

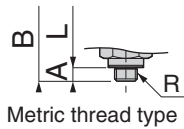
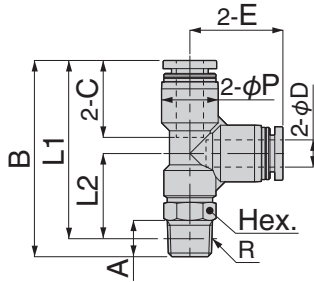
| Tube size |
|-----------|
| 0.157     |
| 0.236     |
| 0.315     |
| 0.394     |
| 0.472     |

**Order codes**



**Dimensions** in

**Branch tee**  
**ATB**



| Model                                    | Tube outer diameter $\phi D$ | R      | A     | B     | L1    | L2    | $\phi P$ | C     | E     | Width across flats Hex. | Orifice diameter ( $\phi$ in) | Mass oz |
|--|------------------------------|--------|-------|-------|-------|-------|----------|-------|-------|-------------------------|-------------------------------|---------|
| <b>ATB4-M5-D</b>                         | 0.157                        | M5×0.8 | 0.110 | 1.327 | 1.217 | 0.539 | 0.394    | 0.587 | 0.677 | 0.315                   | 0.094                         | 0.275   |
| <b>ATB4-M6-D</b>                         | 0.157                        | M6×1   | 0.150 | 1.504 | 1.354 | 0.677 | 0.394    | 0.587 | 0.677 | 0.394                   | 0.094                         | 0.388   |
| <b>ATB4-01-D</b>                         | 0.157                        | R1/8   | 0.315 | 1.583 | 1.425 | 0.748 | 0.394    | 0.587 | 0.677 | 0.394                   | 0.110                         | 0.459   |
| <b>ATB4-02-<input type="checkbox"/></b>  | 0.157                        | R1/4   | 0.433 | 1.819 | 1.583 | 0.906 | 0.394    | 0.587 | 0.756 | 0.551                   | 0.110                         | 0.705   |
| <b>ATB6-M5-D</b>                         | 0.236                        | M5×0.8 | 0.110 | 1.587 | 1.476 | 0.669 | 0.492    | 0.669 | 0.807 | 0.394                   | 0.094                         | 0.423   |
| <b>ATB6-M6-D</b>                         | 0.236                        | M6×1   | 0.150 | 1.626 | 1.476 | 0.669 | 0.492    | 0.669 | 0.807 | 0.394                   | 0.118                         | 0.423   |
| <b>ATB6-01-D</b>                         | 0.236                        | R1/8   | 0.315 | 1.705 | 1.547 | 0.740 | 0.492    | 0.669 | 0.807 | 0.394                   | 0.169                         | 0.494   |
| <b>ATB6-02-<input type="checkbox"/></b>  | 0.236                        | R1/4   | 0.433 | 1.921 | 1.681 | 0.874 | 0.492    | 0.669 | 0.807 | 0.551                   | 0.169                         | 0.776   |
| <b>ATB6-03-<input type="checkbox"/></b>  | 0.236                        | R3/8   | 0.472 | 2.047 | 1.799 | 0.992 | 0.492    | 0.669 | 0.846 | 0.669                   | 0.169                         | 1.129   |
| <b>ATB8-01-<input type="checkbox"/></b>  | 0.315                        | R1/8   | 0.315 | 1.846 | 1.689 | 0.787 | 0.571    | 0.713 | 0.902 | 0.472                   | 0.236                         | 0.670   |
| <b>ATB8-02-<input type="checkbox"/></b>  | 0.315                        | R1/4   | 0.433 | 2.035 | 1.799 | 0.898 | 0.571    | 0.713 | 0.902 | 0.551                   | 0.264                         | 0.882   |
| <b>ATB8-03-<input type="checkbox"/></b>  | 0.315                        | R3/8   | 0.472 | 2.181 | 1.933 | 1.031 | 0.571    | 0.713 | 0.902 | 0.669                   | 0.264                         | 1.235   |
| <b>ATB10-02-<input type="checkbox"/></b> | 0.394                        | R1/4   | 0.433 | 2.154 | 1.917 | 0.886 | 0.689    | 0.795 | 1.031 | 0.551                   | 0.315                         | 1.093   |
| <b>ATB10-03-<input type="checkbox"/></b> | 0.394                        | R3/8   | 0.472 | 2.291 | 2.043 | 1.012 | 0.689    | 0.795 | 1.031 | 0.669                   | 0.327                         | 1.482   |
| <b>ATB10-04-<input type="checkbox"/></b> | 0.394                        | R1/2   | 0.591 | 2.449 | 2.126 | 1.094 | 0.689    | 0.795 | 1.075 | 0.827                   | 0.327                         | 2.293   |
| <b>ATB12-02-<input type="checkbox"/></b> | 0.472                        | R1/4   | 0.433 | 2.374 | 2.134 | 0.933 | 0.827    | 0.921 | 1.181 | 0.551                   | 0.315                         | 1.340   |
| <b>ATB12-03-<input type="checkbox"/></b> | 0.472                        | R3/8   | 0.472 | 2.500 | 2.252 | 1.051 | 0.827    | 0.921 | 1.201 | 0.669                   | 0.394                         | 1.693   |
| <b>ATB12-04-<input type="checkbox"/></b> | 0.472                        | R1/2   | 0.591 | 2.657 | 2.335 | 1.134 | 0.827    | 0.921 | 1.209 | 0.827                   | 0.406                         | 2.540   |

\* -D ⇒ Non-lubricant specification only. -  ⇒ Select either blank (standard) or D (non-lubricant specification)

\* The L dimension for the tapered thread types is a reference dimension when mated and tightened.

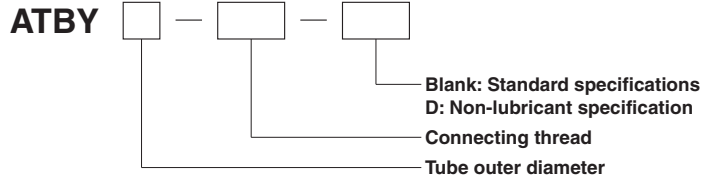
● ATBY



| Tube size |
|-----------|
| 0.157     |
| 0.236     |
| 0.315     |
| 0.394     |
| 0.472     |

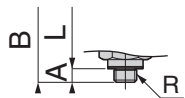
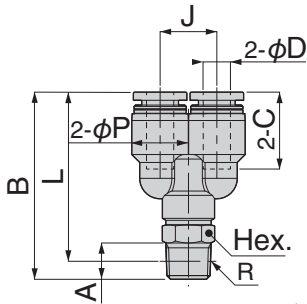
(1 bag, 10 pcs.)

Order codes



Dimensions in

Branch Y  
ATBY



Metric thread type

| Model                               | Tube outer diameter φD | R      | A     | B     | L     | φP    | C     | J     | Width across flats Hex. | Orifice diameter (φin) | Mass oz |
|-------------------------------------|------------------------|--------|-------|-------|-------|-------|-------|-------|-------------------------|------------------------|---------|
| ATBY4-M5- <input type="checkbox"/>  | 0.157                  | M5×0.8 | 0.110 | 1.295 | 1.185 | 0.394 | 0.587 | 0.406 | 0.315                   | 0.094                  | 0.282   |
| ATBY4-01- <input type="checkbox"/>  | 0.157                  | R1/8   | 0.315 | 1.512 | 1.354 | 0.394 | 0.587 | 0.406 | 0.394                   | 0.110                  | 0.459   |
| ATBY4-02- <input type="checkbox"/>  | 0.157                  | R1/4   | 0.433 | 1.709 | 1.472 | 0.394 | 0.587 | 0.406 | 0.551                   | 0.110                  | 0.705   |
| ATBY6-M5- <input type="checkbox"/>  | 0.236                  | M5×0.8 | 0.110 | 1.508 | 1.398 | 0.492 | 0.669 | 0.492 | 0.394                   | 0.094                  | 0.459   |
| ATBY6-M6- <input type="checkbox"/>  | 0.236                  | M6×1   | 0.150 | 1.547 | 1.398 | 0.492 | 0.669 | 0.492 | 0.394                   | 0.118                  | 0.459   |
| ATBY6-01- <input type="checkbox"/>  | 0.236                  | R1/8   | 0.315 | 1.626 | 1.469 | 0.492 | 0.669 | 0.492 | 0.394                   | 0.169                  | 0.529   |
| ATBY6-02- <input type="checkbox"/>  | 0.236                  | R1/4   | 0.433 | 1.902 | 1.661 | 0.492 | 0.669 | 0.492 | 0.551                   | 0.169                  | 0.776   |
| ATBY6-03- <input type="checkbox"/>  | 0.236                  | R3/8   | 0.472 | 2.020 | 1.768 | 0.492 | 0.669 | 0.492 | 0.669                   | 0.169                  | 1.164   |
| ATBY8-01- <input type="checkbox"/>  | 0.315                  | R1/8   | 0.315 | 1.815 | 1.657 | 0.571 | 0.713 | 0.571 | 0.472                   | 0.236                  | 0.705   |
| ATBY8-02- <input type="checkbox"/>  | 0.315                  | R1/4   | 0.433 | 1.941 | 1.705 | 0.571 | 0.713 | 0.571 | 0.551                   | 0.264                  | 0.882   |
| ATBY8-03- <input type="checkbox"/>  | 0.315                  | R3/8   | 0.472 | 2.067 | 1.819 | 0.571 | 0.713 | 0.571 | 0.669                   | 0.264                  | 1.270   |
| ATBY10-02- <input type="checkbox"/> | 0.394                  | R1/4   | 0.433 | 2.110 | 1.874 | 0.689 | 0.795 | 0.689 | 0.551                   | 0.315                  | 1.129   |
| ATBY10-03- <input type="checkbox"/> | 0.394                  | R3/8   | 0.472 | 2.232 | 1.984 | 0.689 | 0.795 | 0.689 | 0.669                   | 0.327                  | 1.517   |
| ATBY10-04- <input type="checkbox"/> | 0.394                  | R1/2   | 0.591 | 2.370 | 2.047 | 0.689 | 0.795 | 0.689 | 0.827                   | 0.327                  | 2.328   |
| ATBY12-02- <input type="checkbox"/> | 0.472                  | R1/4   | 0.433 | 2.307 | 2.071 | 0.827 | 0.921 | 0.827 | 0.551                   | 0.315                  | 1.411   |
| ATBY12-03- <input type="checkbox"/> | 0.472                  | R3/8   | 0.472 | 2.386 | 2.138 | 0.827 | 0.921 | 0.827 | 0.669                   | 0.394                  | 1.799   |
| ATBY12-04- <input type="checkbox"/> | 0.472                  | R1/2   | 0.591 | 2.547 | 2.224 | 0.827 | 0.921 | 0.827 | 0.827                   | 0.406                  | 2.610   |

\* -  ⇒ Select either blank (standard) or D (non-lubricant specification)

\* The L dimension for the tapered thread types is a reference dimension when mated and tightened.

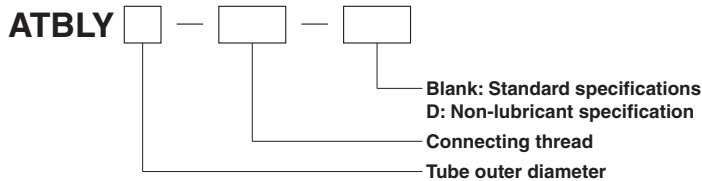
● **ATBLY**



(1 bag, 10 pcs.)

| Tube size |
|-----------|
| 0.157     |
| 0.236     |
| 0.315     |
| 0.394     |
| 0.472     |

**Order codes**



**Dimensions in**

**Branch elbow Y  
ATBLY**

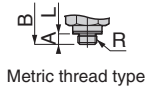
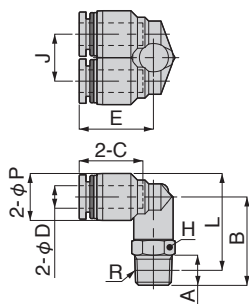


| Model                                       | Tube outer diameter $\phi D$ | R      | A     | B     | L     | $\phi P$ | C     | J     | E     | Width across flats Hex. | Orifice diameter ( $\phi$ in) | Mass oz |
|---|------------------------------|--------|-------|-------|-------|----------|-------|-------|-------|-------------------------|-------------------------------|---------|
| <b>ATBLY4-M5-</b> <input type="checkbox"/>  | 0.157                        | M5×0.8 | 0.110 | 0.787 | 0.874 | 0.394    | 0.587 | 0.406 | 0.716 | 0.394                   | 0.094                         | 0.388   |
| <b>ATBLY4-M6-</b> <input type="checkbox"/>  | 0.157                        | M6×1   | 0.150 | 0.827 | 0.874 | 0.394    | 0.587 | 0.406 | 0.716 | 0.394                   | 0.118                         | 0.38    |
| <b>ATBLY4-01-</b> <input type="checkbox"/>  | 0.157                        | R1/8   | 0.315 | 0.906 | 0.945 | 0.394    | 0.587 | 0.406 | 0.716 | 0.394                   | 0.154                         | 0.459   |
| <b>ATBLY4-02-</b> <input type="checkbox"/>  | 0.157                        | R1/4   | 0.433 | 1.063 | 1.024 | 0.394    | 0.587 | 0.406 | 0.756 | 0.551                   | 0.154                         | 0.705   |
| <b>ATBLY6-M5-</b> <input type="checkbox"/>  | 0.236                        | M5×0.8 | 0.110 | 0.807 | 0.945 | 0.492    | 0.669 | 0.492 | 0.756 | 0.394                   | 0.094                         | 0.423   |
| <b>ATBLY6-M6-</b> <input type="checkbox"/>  | 0.236                        | M6×1   | 0.150 | 0.846 | 0.945 | 0.492    | 0.669 | 0.492 | 0.756 | 0.394                   | 0.118                         | 0.459   |
| <b>ATBLY6-01-</b> <input type="checkbox"/>  | 0.236                        | R1/8   | 0.315 | 0.925 | 1.016 | 0.492    | 0.669 | 0.492 | 0.756 | 0.394                   | 0.165                         | 0.529   |
| <b>ATBLY6-02-</b> <input type="checkbox"/>  | 0.236                        | R1/4   | 0.433 | 1.142 | 1.150 | 0.492    | 0.669 | 0.492 | 0.858 | 0.551                   | 0.209                         | 0.776   |
| <b>ATBLY6-03-</b> <input type="checkbox"/>  | 0.236                        | R3/8   | 0.472 | 1.240 | 1.236 | 0.492    | 0.669 | 0.492 | 0.937 | 0.669                   | 0.209                         | 1.199   |
| <b>ATBLY8-01-</b> <input type="checkbox"/>  | 0.315                        | R1/8   | 0.315 | 0.984 | 1.114 | 0.571    | 0.713 | 0.571 | 0.894 | 0.472                   | 0.224                         | 0.705   |
| <b>ATBLY8-02-</b> <input type="checkbox"/>  | 0.315                        | R1/4   | 0.433 | 1.142 | 1.189 | 0.571    | 0.713 | 0.571 | 0.933 | 0.551                   | 0.287                         | 0.882   |
| <b>ATBLY8-03-</b> <input type="checkbox"/>  | 0.315                        | R3/8   | 0.472 | 1.260 | 1.295 | 0.571    | 0.713 | 0.571 | 0.972 | 0.670                   | 0.287                         | 1.305   |
| <b>ATBLY10-02-</b> <input type="checkbox"/> | 0.394                        | R1/4   | 0.433 | 1.161 | 1.268 | 0.689    | 0.795 | 0.689 | 1.024 | 0.551                   | 0.315                         | 1.129   |
| <b>ATBLY10-03-</b> <input type="checkbox"/> | 0.394                        | R3/8   | 0.472 | 1.280 | 1.374 | 0.689    | 0.795 | 0.689 | 1.063 | 0.670                   | 0.362                         | 1.517   |
| <b>ATBLY10-04-</b> <input type="checkbox"/> | 0.394                        | R1/2   | 0.590 | 1.457 | 1.480 | 0.689    | 0.795 | 0.689 | 1.102 | 0.827                   | 0.362                         | 2.328   |
| <b>ATBLY12-02-</b> <input type="checkbox"/> | 0.472                        | R1/4   | 0.433 | 1.161 | 1.339 | 0.827    | 0.921 | 0.827 | 1.110 | 0.551                   | 0.315                         | 1.376   |
| <b>ATBLY12-03-</b> <input type="checkbox"/> | 0.472                        | R3/8   | 0.472 | 1.319 | 1.484 | 0.827    | 0.921 | 0.827 | 1.150 | 0.670                   | 0.382                         | 1.799   |
| <b>ATBLY12-04-</b> <input type="checkbox"/> | 0.472                        | R1/2   | 0.591 | 1.496 | 1.587 | 0.827    | 0.921 | 0.827 | 1.189 | 0.827                   | 0.417                         | 2.610   |

\* -  ⇒ Select either blank (standard) or D (non-lubricant specification)

\* The L dimension for the tapered thread types is a reference dimension when mated and tightened.

\* Prices are the same.



Branch double Y

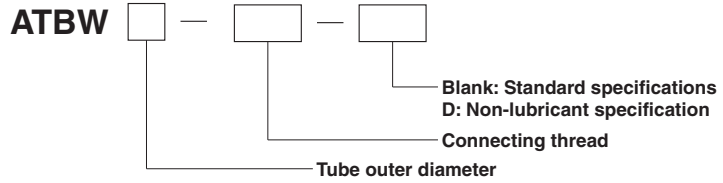
● **ATBW**



(1 bag, 10 pcs.)

| Tube size |
|-----------|
| 0.157     |
| 0.236     |

**Order codes**



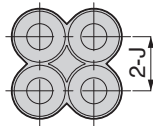
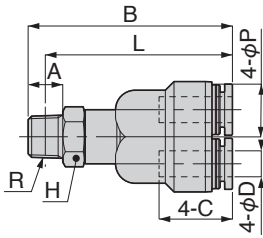
**Dimensions** in

**Branch double Y  
ATBW**



| Model                                     | Tube outer diameter $\phi D$ | R    | A     | B     | L     | $\phi P$ | C     | J     | Width across flats Hex. | Orifice diameter ( $\phi$ in) | Mass oz |
|---|------------------------------|------|-------|-------|-------|----------|-------|-------|-------------------------|-------------------------------|---------|
| <b>ATBW4-01-</b> <input type="checkbox"/> | 0.157                        | R1/8 | 0.315 | 1.531 | 1.374 | 0.413    | 0.587 | 0.406 | 0.472                   | 0.102                         | 0.564   |
| <b>ATBW4-02-</b> <input type="checkbox"/> | 0.157                        | R1/4 | 0.433 | 1.670 | 1.433 | 0.413    | 0.587 | 0.406 | 0.472                   | 0.102                         | 0.741   |
| <b>ATBW6-01-</b> <input type="checkbox"/> | 0.236                        | R1/8 | 0.315 | 1.858 | 1.701 | 0.512    | 0.670 | 0.492 | 0.472                   | 0.205                         | 0.882   |

- \* -   $\Rightarrow$  Select either blank (standard) or D (non-lubricant specification)
- \* The L dimension for the tapered thread types is a reference dimension when mated and tightened.
- \* Prices are the same.



Branch triple

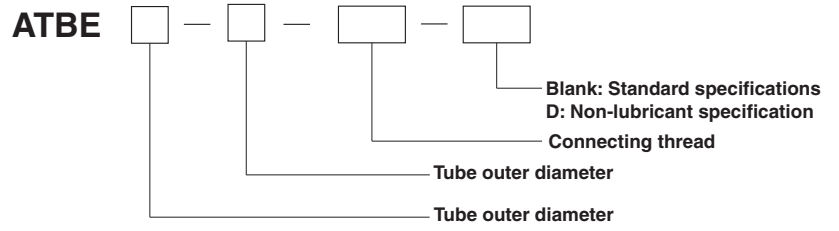
● ATBE



| Tube size   |
|-------------|
| 0.236-0.157 |
| 0.315-0.157 |
| 0.315-0.236 |
| 0.394-0.315 |

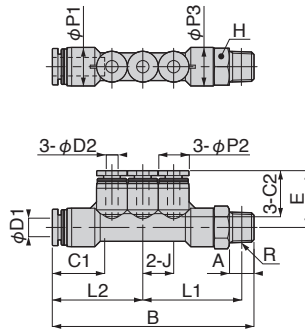
(1 bag, 10 pcs.)

Order codes



Dimensions in

Branch triple  
ATBE



| Model         | Tube outer diameter $\phi D1$ | Tube outer diameter $\phi D2$ | R    | A     | B     | E     | L1    | L2    | J     | $\phi P1$ | $\phi P2$ | $\phi P3$ | C1    | C2    | Width across flats Hex. | Orifice diameter ( $\phi$ in) | Mass oz |
|---------------|-------------------------------|-------------------------------|------|-------|-------|-------|-------|-------|-------|-----------|-----------|-----------|-------|-------|-------------------------|-------------------------------|---------|
| ATBE6-4-01-□  | 0.236                         | 0.157                         | R1/8 | 0.315 | 2.575 | 0.724 | 1.264 | 1.534 | 0.394 | 0.492     | 0.394     | 0.492     | 0.669 | 0.587 | 0.472                   | 0.118                         | 0.741   |
| ATBE8-4-02-□  | 0.315                         | 0.157                         | R1/4 | 0.433 | 2.724 | 0.756 | 1.260 | 1.228 | 0.394 | 0.571     | 0.394     | 0.571     | 0.713 | 0.587 | 0.551                   | 0.118                         | 0.988   |
| ATBE8-6-02-□  | 0.315                         | 0.236                         | R1/4 | 0.433 | 3.028 | 0.839 | 1.437 | 1.354 | 0.492 | 0.571     | 0.492     | 0.571     | 0.713 | 0.670 | 0.551                   | 0.181                         | 1.235   |
| ATBE10-8-03-□ | 0.394                         | 0.315                         | R3/8 | 0.472 | 3.457 | 0.933 | 1.634 | 1.575 | 0.571 | 0.689     | 0.571     | 0.709     | 0.795 | 0.713 | 0.670                   | 0.264                         | 1.764   |

\* - □ ⇒ Select either blank (standard) or D (non-lubricant specification)

\* The L1 dimension for the tapered thread types is a reference dimension when mated and tightened.

\* Prices are the same.

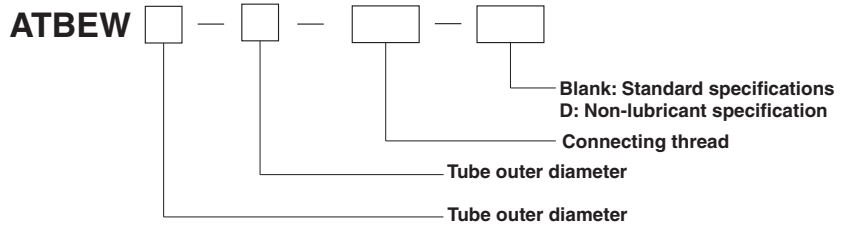
● **ATBEW**



(1 bag, 10 pcs.)

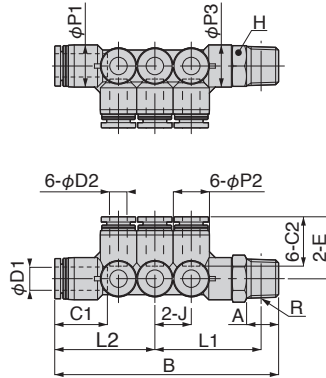
| Tube size   |
|-------------|
| 0.315-0.157 |
| 0.315-0.236 |
| 0.394-0.236 |
| 0.394-0.315 |

**Order codes**



**Dimensions in**

**Branch triple double  
ATBEW**



| Model                                  | Tube outer diameter<br>$\phi D1$ | Tube outer diameter<br>$\phi D2$ | R    | A     | B     | E     | L1    | L2    | J     | $\phi P1$ | $\phi P2$ | $\phi P3$ | C1    | C2    | Width across flats<br>Hex. | Orifice diameter<br>( $\phi$ in) | Mass<br>oz |
|--|----------------------------------|----------------------------------|------|-------|-------|-------|-------|-------|-------|-----------|-----------|-----------|-------|-------|----------------------------|----------------------------------|------------|
| ATBEW8-4-02- <input type="checkbox"/>  | 0.315                            | 0.157                            | R1/4 | 0.433 | 2.724 | 0.756 | 1.260 | 1.228 | 0.394 | 0.571     | 0.394     | 0.571     | 0.713 | 14.9  | 0.551                      | 0.118                            | 1.129      |
| ATBEW8-4-03- <input type="checkbox"/>  | 0.315                            | 0.157                            | R3/8 | 0.472 | 2.843 | 0.756 | 1.366 | 1.228 | 0.394 | 0.571     | 0.394     | 0.709     | 0.713 | 14.9  | 0.669                      | 0.118                            | 1.623      |
| ATBEW8-6-02- <input type="checkbox"/>  | 0.315                            | 0.236                            | R1/4 | 0.433 | 3.028 | 0.839 | 1.437 | 1.354 | 0.492 | 0.571     | 0.492     | 0.571     | 0.713 | 0.669 | 0.551                      | 0.181                            | 1.446      |
| ATBEW8-6-03- <input type="checkbox"/>  | 0.315                            | 0.236                            | R3/8 | 0.472 | 3.177 | 0.839 | 1.571 | 1.354 | 0.492 | 0.571     | 0.492     | 0.709     | 0.713 | 0.669 | 0.669                      | 0.181                            | 1.834      |
| ATBEW10-6-03- <input type="checkbox"/> | 0.394                            | 0.236                            | R3/8 | 0.472 | 3.209 | 0.878 | 1.504 | 1.457 | 0.492 | 0.689     | 0.492     | 0.709     | 0.795 | 0.669 | 0.669                      | 0.181                            | 1.975      |
| ATBEW10-6-04- <input type="checkbox"/> | 0.394                            | 0.236                            | R1/2 | 0.591 | 3.366 | 0.878 | 1.587 | 1.457 | 0.492 | 0.689     | 0.492     | 0.787     | 0.795 | 0.669 | 0.827                      | 0.181                            | 2.751      |
| ATBEW10-8-03- <input type="checkbox"/> | 0.394                            | 0.315                            | R3/8 | 0.472 | 3.457 | 0.933 | 1.634 | 1.575 | 0.492 | 0.689     | 0.571     | 0.709     | 0.795 | 0.713 | 0.669                      | 0.264                            | 2.293      |
| ATBEW10-8-04- <input type="checkbox"/> | 0.394                            | 0.315                            | R1/2 | 0.591 | 3.617 | 0.933 | 1.717 | 1.575 | 0.492 | 0.689     | 0.571     | 0.787     | 0.795 | 0.713 | 0.827                      | 0.264                            | 3.069      |

\* -  ⇒ Select either blank (standard) or D (non-lubricant specification)

● **ATBZ**

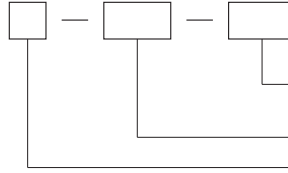


(1 bag, 10 pcs.)

| Tube size |
|-----------|
| 0.157     |
| 0.236     |
| 0.315     |
| 0.394     |
| 0.472     |

**Order codes**

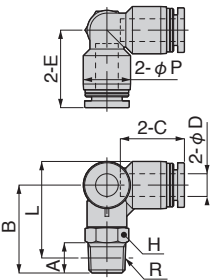
**ATBZ**



Blank: Standard specifications  
 D: Non-lubricant specification  
 Connecting thread  
 Tube outer diameter

**Dimensions in**

**Branch tetra  
 ATBZ**



Metric thread type

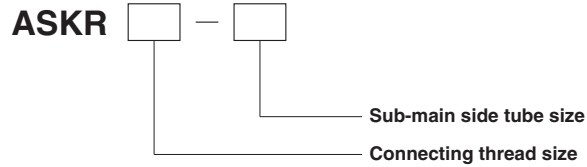
| Model       | Tube outer diameter $\phi D$ | R      | A     | B     | L     | $\phi P$ | C     | E     | Width across flats Hex. | Orifice diameter ( $\phi$ in) | Mass oz |
|-------------|------------------------------|--------|-------|-------|-------|----------|-------|-------|-------------------------|-------------------------------|---------|
| ATBZ4-M5-□  | 0.157                        | M5×0.8 | 0.110 | 0.799 | 0.886 | 0.394    | 0.587 | 0.717 | 0.394                   | 0.094                         | 0.353   |
| ATBZ4-M6-□  | 0.157                        | M6×1   | 0.150 | 0.839 | 0.886 | 0.394    | 0.587 | 0.717 | 0.394                   | 0.118                         | 0.388   |
| ATBZ4-01-□  | 0.157                        | R1/8   | 0.315 | 0.917 | 0.957 | 0.394    | 0.587 | 0.717 | 0.394                   | 0.118                         | 0.459   |
| ATBZ4-02-□  | 0.157                        | R1/4   | 0.433 | 1.142 | 1.102 | 0.394    | 0.587 | 0.815 | 0.551                   | 0.118                         | 0.705   |
| ATBZ6-M5-□  | 0.236                        | M5×0.8 | 0.110 | 0.799 | 0.933 | 0.492    | 0.669 | 0.807 | 0.394                   | 0.094                         | 0.423   |
| ATBZ6-M6-□  | 0.236                        | M6×1   | 0.150 | 0.839 | 0.933 | 0.492    | 0.669 | 0.807 | 0.394                   | 0.118                         | 0.423   |
| ATBZ6-01-□  | 0.236                        | R1/8   | 0.315 | 0.917 | 1.004 | 0.492    | 0.669 | 0.807 | 0.394                   | 0.181                         | 0.529   |
| ATBZ6-02-□  | 0.236                        | R1/4   | 0.433 | 1.102 | 1.110 | 0.492    | 0.669 | 0.858 | 0.551                   | 0.181                         | 0.776   |
| ATBZ6-03-□  | 0.236                        | R3/8   | 0.472 | 1.240 | 1.236 | 0.492    | 0.669 | 0.937 | 0.669                   | 0.181                         | 1.164   |
| ATBZ8-01-□  | 0.315                        | R1/8   | 0.315 | 0.984 | 1.114 | 0.571    | 0.713 | 0.894 | 0.472                   | 0.236                         | 0.705   |
| ATBZ8-02-□  | 0.315                        | R1/4   | 0.433 | 1.142 | 1.189 | 0.571    | 0.713 | 0.933 | 0.551                   | 0.264                         | 0.882   |
| ATBZ8-03-□  | 0.315                        | R3/8   | 0.472 | 1.260 | 1.295 | 0.571    | 0.713 | 0.972 | 0.669                   | 0.264                         | 1.270   |
| ATBZ10-02-□ | 0.394                        | R1/4   | 0.433 | 1.157 | 1.264 | 0.689    | 0.795 | 1.024 | 0.551                   | 0.315                         | 1.093   |
| ATBZ10-03-□ | 0.394                        | R3/8   | 0.472 | 1.299 | 1.394 | 0.689    | 0.795 | 1.063 | 0.669                   | 0.327                         | 1.482   |
| ATBZ10-04-□ | 0.394                        | R1/2   | 0.591 | 1.457 | 1.480 | 0.689    | 0.795 | 1.083 | 0.827                   | 0.327                         | 2.328   |
| ATBZ12-02-□ | 0.472                        | R1/4   | 0.433 | 1.213 | 1.386 | 0.827    | 0.921 | 1.189 | 0.551                   | 0.315                         | 1.305   |
| ATBZ12-03-□ | 0.472                        | R3/8   | 0.472 | 1.319 | 1.484 | 0.827    | 0.921 | 1.189 | 0.669                   | 0.394                         | 1.728   |
| ATBZ12-04-□ | 0.472                        | R1/2   | 0.591 | 1.496 | 1.587 | 0.827    | 0.921 | 1.228 | 0.827                   | 0.406                         | 2.610   |

\* - □ ⇒ Select either blank (standard) or D (non-lubricant specification)

● ASKR



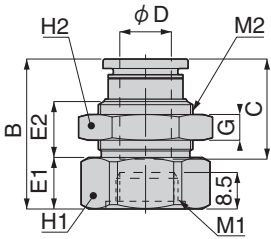
Order codes



| Main side thread size | Sub-main side tube size |             |             |             |             |
|-----------------------|-------------------------|-------------|-------------|-------------|-------------|
|                       | 0.157                   | 0.236       | 0.315       | 0.394       | 0.472       |
| M8×1 (8)              | 0.315-0.157             | 0.315-0.236 | —           | —           | —           |
| M12×1 (12)            | —                       | 0.472-0.236 | 0.472-0.315 | 0.472-0.394 | —           |
| M14×1 (14)            | —                       | —           | 0.551-0.315 | 0.551-0.394 | 0.551-0.472 |
| M18×1 (18)            | —                       | —           | —           | —           | 0.709-0.472 |

Dimensions in

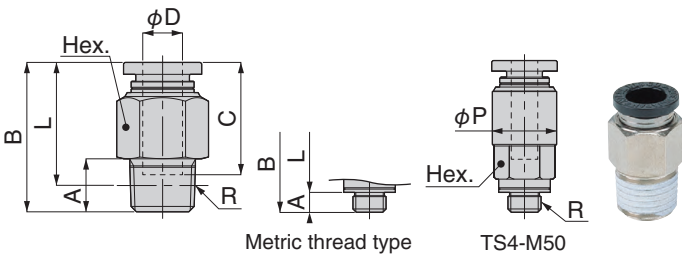
Reducer for bulkhead ASKR



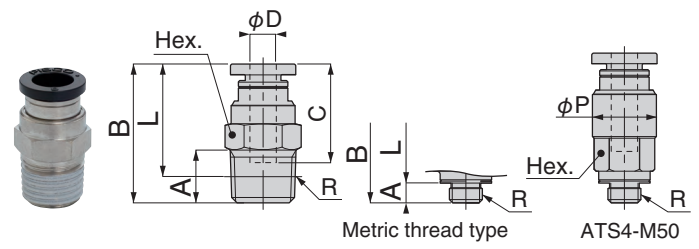
| Model            | Tube outer diameter φ D | M1    | M2    | B     | E1    | E2    | C     | G     | H1    | H2    | Effective area Cv | Mass oz |
|------------------|-------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------------------|---------|
| <b>ASKR8-4</b>   | 0.157                   | M8×1  | M12×1 | 1.024 | 0.315 | 0.465 | 0.587 | 0.157 | 0.551 | 0.551 | 103.320           | 0.635   |
| <b>ASKR8-6</b>   | 0.236                   | M8×1  | M14×1 | 1.106 | 0.315 | 0.547 | 0.669 | 0.157 | 0.669 | 0.669 | 212.175           | 1.023   |
| <b>ASKR12-6</b>  | 0.236                   | M12×1 | M14×1 | 1.106 | 0.472 | 0.390 | 0.669 | 0.157 | 0.669 | 0.669 | 243.540           | 0.988   |
| <b>ASKR12-8</b>  | 0.315                   | M12×1 | M16×1 | 1.138 | 0.394 | 0.461 | 0.717 | 0.157 | 0.748 | 0.748 | 505.530           | 1.164   |
| <b>ASKR12-10</b> | 0.394                   | M12×1 | M20×1 | 1.272 | 0.394 | 0.539 | 0.815 | 0.197 | 0.866 | 0.945 | 642.060           | 2.011   |
| <b>ASKR14-8</b>  | 0.315                   | M14×1 | M16×1 | 1.138 | 0.472 | 0.382 | 0.717 | 0.157 | 0.748 | 0.748 | 511.065           | 1.129   |
| <b>ASKR14-10</b> | 0.394                   | M14×1 | M20×1 | 1.272 | 0.394 | 0.539 | 0.815 | 0.197 | 0.945 | 0.945 | 769.365           | 2.116   |
| <b>ASKR14-12</b> | 0.472                   | M14×1 | M22×1 | 1.374 | 0.472 | 0.512 | 0.917 | 0.236 | 0.945 | 1.063 | 1009.215          | 2.610   |
| <b>ASKR18-12</b> | 0.472                   | M18×1 | M22×1 | 1.374 | 0.472 | 0.512 | 0.917 | 0.236 | 1.063 | 1.063 | 1230.615          | 2.787   |

# TS/ATS Straight

## ● Existing model TS



## ● New model ATS



■ indicates portion of new models (new shapes) that have changed in dimension.

Unit: mm

| Model      | Tube outer diameter $\phi D$ | R      | A    | B         | L    | C    | Width across flats Hex. | $\phi P$ | Orifice diameter ( $\phi$ mm) | Mass g [oz] |
|------------|------------------------------|--------|------|-----------|------|------|-------------------------|----------|-------------------------------|-------------|
| TS4-M5-D   | 4                            | M5×0.8 | 3    | 20        | 17   | 14.9 | 10                      | -        | 1.8                           | 6.3 [0.22]  |
| ATS4-M5-D  |                              |        | 2.8  | 19.8      |      |      |                         |          | 2.4                           | 5.6 [0.2]   |
| TS4-M50-□  | 4                            | M5×0.8 | 3    | 22.9      | 19.9 | 14.9 | 8                       | 9.7      | 1.8                           | 6.6 [0.23]  |
| ATS4-M50-□ |                              |        | 2.8  | 22.7      |      |      |                         |          | 2.4                           | 6.1 [0.22]  |
| TS4-M6-D   | 4                            | M6×1   | 4    | 21        | 17   | 14.9 | 10                      | -        | 3                             | 6.4 [0.23]  |
| ATS4-M6-D  |                              |        | 3.8  | 20.8      |      |      |                         |          | 6                             | 0.21        |
| TS4-01-D   | 4                            | R1/8   | 8    | 21        | 17   | 14.9 | 10                      | -        | 3                             | 8.3 [0.29]  |
| ATS4-01-D  |                              |        | 7.4  | 0.26      |      |      |                         |          |                               |             |
| TS4-02-□   | 4                            | R1/4   | 11   | 21        | 15   | 14.9 | 14                      | -        | 3                             | 16 [0.56]   |
| ATS4-02-□  |                              |        | 22.5 | 16.5      |      |      |                         |          |                               |             |
| TS6-M5-D   | 6                            | M5×0.8 | 3    | 22.1      | 19.1 | 17   | 12                      | -        | 1.8                           | 9.2 [0.32]  |
| ATS6-M5-D  |                              |        | 2.8  | 21.9      |      |      |                         |          | 2.4                           | 8.1 [0.29]  |
| TS6-M6-D   | 6                            | M6×1   | 4    | 23.1      | 19.1 | 17   | 12                      | -        | 3                             | 9.4 [0.33]  |
| ATS6-M6-D  |                              |        | 3.8  | 22.9      |      |      |                         |          | 8.5                           | 0.3         |
| TS6-01-D   | 6                            | R1/8   | 8    | 22.6      | 18.6 | 17   | 12                      | -        | 4.6                           | 9.3 [0.33]  |
| ATS6-01-D  |                              |        | 22.3 | 18.3      | 5    |      |                         |          | 8.2 [0.29]                    |             |
| TS6-02-□   | 6                            | R1/4   | 11   | 24.6      | 18.5 | 17   | 14                      | -        | 4.6                           | 18 [0.63]   |
| ATS6-02-□  |                              |        | 23.7 | 17.6      | 5    |      |                         |          | 15 [0.53]                     |             |
| TS6-03-□   | 6                            | R3/8   | 12   | 23.6      | 17.2 | 17   | 17                      | -        | 4.6                           | 28 [0.99]   |
| ATS6-03-□  |                              |        | 24.5 | 18.1      | 5    |      |                         |          |                               |             |
| TS8-01-□   | 8                            | R1/8   | 8    | 27.9      | 23.9 | 18.2 | 14                      | -        | 6                             | 16 [0.56]   |
| ATS8-01-□  |                              |        | 14   | 0.49      |      |      |                         |          |                               |             |
| TS8-02-□   | 8                            | R1/4   | 11   | 26.6      | 20.6 | 18.2 | 14                      | -        | 7                             | 16 [0.56]   |
| ATS8-02-□  |                              |        | 14   | 0.49      |      |      |                         |          |                               |             |
| TS8-03-□   | 8                            | R3/8   | 12   | 23.9      | 17.6 | 18.2 | 17                      | -        | 7                             | 24 [0.85]   |
| ATS8-03-□  |                              |        | 25.5 | 19.2      | 25   |      |                         |          | 0.88                          |             |
| TS10-01-□  | 10                           | R1/8   | 8    | 30.3      | 26.3 | 20.7 | 17                      | -        | 6                             | 24 [0.85]   |
| ATS10-01-□ |                              |        | 21   | 0.74      |      |      |                         |          |                               |             |
| TS10-02-□  | 10                           | R1/4   | 11   | 29.8      | 23.8 | 20.7 | 17                      | -        | 8.5                           | 21 [0.74]   |
| ATS10-02-□ |                              |        | 19   | 0.67      |      |      |                         |          |                               |             |
| TS10-03-□  | 10                           | R3/8   | 12   | 29.3      | 23   | 20.7 | 17                      | -        | 8.5                           | 27 [0.95]   |
| ATS10-03-□ |                              |        | 9    | 24 [0.85] |      |      |                         |          |                               |             |
| TS10-04-□  | 10                           | R1/2   | 15   | 30.3      | 22.1 | 20.7 | 21                      | -        | 8.5                           | 50 [1.76]   |
| ATS10-04-□ |                              |        | 30.4 | 22.2      | 9    |      |                         |          | 46 [1.62]                     |             |
| TS12-02-□  | 12                           | R1/4   | 11   | 35.9      | 29.9 | 23.3 | 21                      | -        | 8.5                           | 44 [1.55]   |
| ATS12-02-□ |                              |        | 37   | 1.31      |      |      |                         |          |                               |             |
| TS12-03-□  | 12                           | R3/8   | 12   | 31.9      | 25.6 | 23.3 | 21                      | -        | 11                            | 36 [1.27]   |
| ATS12-03-□ |                              |        | 30   | 1.06      |      |      |                         |          |                               |             |
| TS12-04-□  | 12                           | R1/2   | 15   | 33.9      | 25.7 | 23.3 | 21                      | -        | 11                            | 50 [1.76]   |
| ATS12-04-□ |                              |        | 44   | 1.55      |      |      |                         |          |                               |             |
| TS16-03-□  | 16                           | R3/8   | 12   | 39.3      | 33   | 24.8 | 24                      | -        | 11                            | 58 [2.05]   |
| ATS16-03-□ |                              |        | 54   | 1.9       |      |      |                         |          |                               |             |
| TS16-04-□  | 16                           | R1/2   | 15   | 41.3      | 33.1 | 24.8 | 24                      | -        | 13                            | 66 [2.33]   |
| ATS16-04-□ |                              |        | 63   | 2.22      |      |      |                         |          |                               |             |

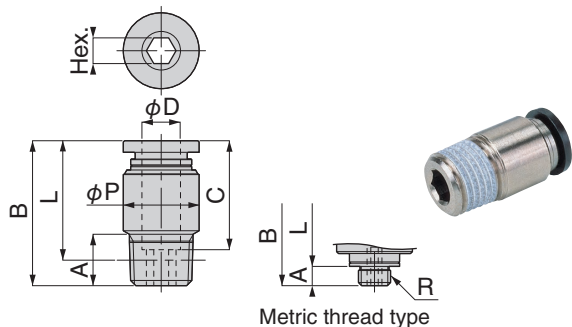
\* -D ⇒ Non-lubricant specification only. -□ ⇒ Select either blank (standard) or D (non-lubricant specification)

\* The L dimension for the tapered thread types is a reference dimension when mated and tightened.

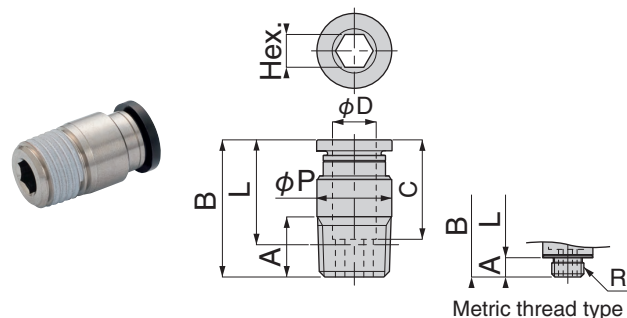
\* Prices are the same.

## TSH/ATSH Straight with hexagon socket

● Existing model **TSH**



● New model **ATSH**



Unit: mm

| Model       | Tube outer diameter φ D | R        | A    | B         | L          | C    | Width across flats Hex. | φ P       | Orifice diameter (φ mm) | Mass g [oz] |
|-------------|-------------------------|----------|------|-----------|------------|------|-------------------------|-----------|-------------------------|-------------|
| TSH4-M5-D   | 4                       | M5 × 0.8 | 3    | 19.9      | 16.9       | 14.9 | 2                       | 9.7       | 2                       | 5.6 [0.2]   |
| ATSH4-M5-D  |                         |          | 2.8  | 19.7      |            |      | 2.5                     |           | 2.6                     | 4.6 [0.16]  |
| TSH4-M6-D   | 4                       | M6 × 1   | 4    | 20.9      | 16.9       | 14.9 | 3                       | 9.7       | 3.1                     | 5.9 [0.21]  |
| ATSH4-M6-D  |                         |          | 3.8  | 20.7      |            |      | 2.5                     |           | 2.6                     | 5.4 [0.19]  |
| TSH4-01-D   | 4                       | R1/8     | 8    | 21        | 17         | 14.9 | 2.5                     | 9.7       | 2.6                     | 7.6 [0.27]  |
| ATSH4-01-D  |                         |          | 20   | 16        | 6.6 [0.23] |      |                         |           |                         |             |
| TSH6-M5-D   | 6                       | M5 × 0.8 | 3    | 23        | 20         | 17   | 2                       | 11.8      | 2                       | 8.5 [0.3]   |
| ATSH6-M5-D  |                         |          | 2.8  | 21.3      |            |      | 18.5                    |           | 2.5                     | 2.6         |
| TSH6-M6-D   | 6                       | M6 × 1   | 4    | 22.5      | 18.5       | 17   | 3                       | 11.8      | 3.2                     | 6.9 [0.24]  |
| ATSH6-M6-D  |                         |          | 3.8  | 22.3      |            |      |                         |           | 18.5                    | 3           |
| TSH6-01-D   | 6                       | R1/8     | 8    | 22.6      | 18.6       | 17   | 4                       | 11.8      | 4.2                     | 8.1 [0.29]  |
| ATSH6-01-D  |                         |          | 22.1 | 18.1      | 7.6 [0.27] |      |                         |           |                         |             |
| TSH6-02-□   | 6                       | R1/4     | 11   | 22.6      | 16.5       | 17   | 4                       | 14        | 4.2                     | 15 [0.53]   |
| ATSH6-02-□  |                         |          | 21.3 | 15.2      | 13.7       |      |                         | 13 [0.46] |                         |             |
| TSH8-01-□   | 8                       | R1/8     | 8    | 27.9      | 23.9       | 18.2 | 5                       | 13.7      | 5.3                     | 14 [0.49]   |
| ATSH8-01-□  |                         |          | 25.9 | 21.9      | 8.8 [0.31] |      |                         |           |                         |             |
| TSH8-02-□   | 8                       | R1/4     | 11   | 26.6      | 20.6       | 18.2 | 6                       | 13.7      | 6.3                     | 15 [0.53]   |
| ATSH8-02-□  |                         |          | 25.1 | 19.1      | 13 [0.46]  |      |                         |           |                         |             |
| TSH8-03-□   | 8                       | R3/8     | 12   | 23.9      | 17.6       | 18.2 | 6                       | 16.8      | 6.3                     | 23 [0.81]   |
| ATSH8-03-□  |                         |          | 22.2 | 15.9      | 19 [0.67]  |      |                         |           |                         |             |
| TSH10-02-□  | 10                      | R1/4     | 11   | 29.8      | 23.8       | 20.7 | 6                       | 17.7      | 6.3                     | 23 [0.81]   |
| ATSH10-02-□ |                         |          | 17.5 | 20        | 20 [0.71]  |      |                         |           |                         |             |
| TSH10-03-□  | 10                      | R3/8     | 12   | 29.3      | 23         | 20.7 | 6                       | 17.7      | 6.3                     | 28 [0.99]   |
| ATSH10-03-□ |                         |          | 17.5 | 26        | 26 [0.92]  |      |                         |           |                         |             |
| TSH10-04-□  | 10                      | R1/2     | 15   | 30.3      | 22.1       | 20.7 | 6                       | 20.8      | 6.3                     | 49 [1.73]   |
| ATSH10-04-□ |                         |          | 45   | 45 [1.59] |            |      |                         |           |                         |             |
| TSH12-03-□  | 12                      | R3/8     | 12   | 31.9      | 25.6       | 23.3 | 8                       | 20.8      | 8.4                     | 34 [1.2]    |
| ATSH12-03-□ |                         |          | 31   | 31 [1.09] |            |      |                         |           |                         |             |
| TSH12-04-□  | 12                      | R1/2     | 15   | 33.9      | 25.7       | 23.3 | 8                       | 20.8      | 8.4                     | 49 [1.73]   |
| ATSH12-04-□ |                         |          | 45   | 45 [1.59] |            |      |                         |           |                         |             |

Changed width across flats of inner diameter of hex nut and diameter of orifice to correct the problem of lock hook interference with hex wrench.

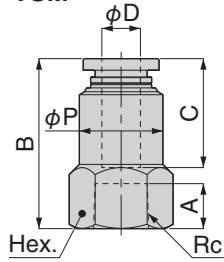
\* -D ⇒ Non-lubricant specification only. -□ ⇒ Select either blank (standard) or D (non-lubricant specification)

\* The L dimension for the tapered thread types is a reference dimension when mated and tightened.

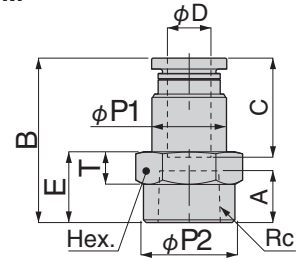
\* Prices are the same.

## TSM/ATSM Female straight

● Existing model **TSM**



● New model **ATSM**



Unit: mm

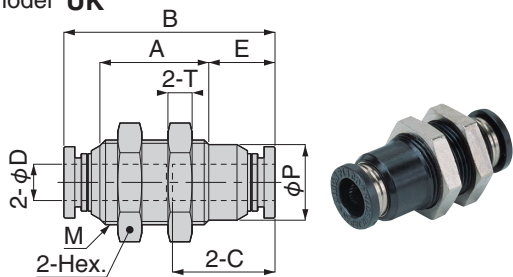
| Model       | Tube outer diameter<br>φD | Rc    | A    | B    | E    | φP1  | φP2  | C    | Width<br>across flats<br>Hex. | T         | Orifice<br>diameter<br>(φ mm) | Mass<br>g [oz] |
|-------------|---------------------------|-------|------|------|------|------|------|------|-------------------------------|-----------|-------------------------------|----------------|
| TSM4-01-□   | 4                         | Rc1/8 | 7    | 24.4 | -    | 11   | -    | 14.9 | 14                            | -         | 3                             | 16 [0.56]      |
| ATSM4-01-□  |                           |       |      | 23.9 | 10   | 9.7  | 13.8 |      |                               | 13 [0.46] |                               |                |
| TSM4-02-□   | 4                         | Rc1/4 | 9.5  | 27.4 | -    | 12   | -    | 14.9 | 17                            | -         | 3                             | 24 [0.85]      |
| ATSM4-02-□  |                           |       |      | 26.9 | 13   | 9.7  | 16.8 |      |                               | 19 [0.67] |                               |                |
| TSM6-01-□   | 6                         | Rc1/8 | 7    | 26.5 | -    | 13   | -    | 17   | 14                            | -         | 4.6                           | 18 [0.63]      |
| ATSM6-01-□  |                           |       |      | 26   | 10   | 11.8 | 13.8 |      |                               | 5         | 5                             | 15 [0.53]      |
| TSM6-02-□   | 6                         | Rc1/4 | 9.5  | 29.5 | -    | 13   | -    | 17   | 17                            | -         | 4.6                           | 25 [0.88]      |
| ATSM6-02-□  |                           |       |      | 29   | 13   | 11.8 | 16.8 |      |                               | 6         | 5                             | 21 [0.74]      |
| TSM8-01-□   | 8                         | Rc1/8 | 7    | 28   | -    | 14.5 | -    | 18.2 | 14                            | -         | 6                             | 20 [0.71]      |
| ATSM8-01-□  |                           |       |      | 27.2 | 10   | 13.7 | 13.8 |      |                               | 5         | 7                             | 16 [0.56]      |
| TSM8-02-□   | 8                         | Rc1/4 | 9.5  | 31   | -    | 15   | -    | 18.2 | 17                            | -         | 6                             | 27 [0.95]      |
| ATSM8-02-□  |                           |       |      | 30.2 | 13   | 13.7 | 16.8 |      |                               | 6         | 7                             | 22 [0.78]      |
| TSM8-03-□   | 8                         | Rc3/8 | 10.5 | 32   | -    | 15.5 | -    | 18.2 | 21                            | -         | 6                             | 37 [1.31]      |
| ATSM8-03-□  |                           |       |      | 31.2 | 14   | 13.7 | 20.8 |      |                               | 6.5       | 7                             | 30 [1.06]      |
| TSM10-02-□  | 10                        | Rc1/4 | 9.5  | 33.7 | -    | 17.5 | -    | 20.7 | 17                            | -         | 8.5                           | 33 [1.16]      |
| ATSM10-02-□ |                           |       |      | 32.7 | 13   | 17.5 | 16.8 |      |                               | 6         | 9                             | 28 [0.99]      |
| TSM10-03-□  | 10                        | Rc3/8 | 10.5 | 34.7 | -    | 17.5 | -    | 20.7 | 21                            | -         | 8.5                           | 42 [1.48]      |
| ATSM10-03-□ |                           |       |      | 33.7 | 14   | 17.5 | 20.8 |      |                               | 6.5       | 9                             | 37 [1.31]      |
| TSM12-02-□  | 12                        | Rc1/4 | 9.5  | 35.8 | -    | 20.8 | -    | 23.3 | 21                            | -         | 11                            | 57 [2.01]      |
| ATSM12-02-□ |                           |       |      | 34.8 | 13.5 | 20.8 | 16.8 |      |                               | 6.5       | 11                            | 42 [1.48]      |
| TSM12-03-□  | 12                        | Rc3/8 | 10.5 | 36.8 | -    | 20.8 | -    | 23.3 | 21                            | -         | 11                            | 51 [1.8]       |
| ATSM12-03-□ |                           |       |      | 36.3 | 14   | 20.8 | 20.8 |      |                               | 6.5       | 11                            | 44 [1.55]      |

\* -□ ⇒ Select either blank (standard) or D (non-lubricant specification)

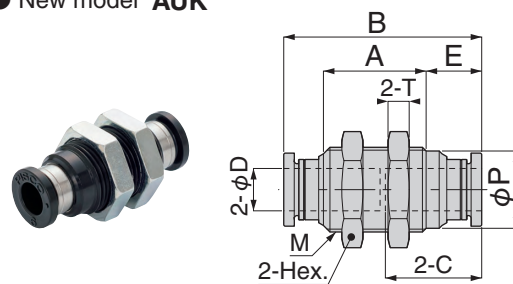
\* Prices are the same.

## UK/AUK Union for bulkhead

● Existing model **UK**



● New model **AUK**



Unit: mm

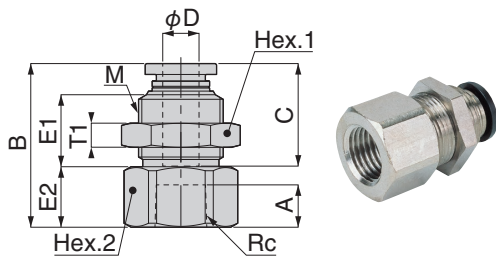
| Model   | Tube outer diameter<br>$\phi D$ | M     | B    | E    | A    | $\phi P$ | C    | Width across flats<br>Hex. | T | Orifice diameter<br>( $\phi$ mm) | Mass<br>g [oz] |
|---------|---------------------------------|-------|------|------|------|----------|------|----------------------------|---|----------------------------------|----------------|
| UK4-D   | 4                               | M12×1 | 30.8 | 10.4 | 15   | 10.8     | 14.9 | 14                         | 4 | 3                                | 11 [0.39]      |
| AUK4-D  |                                 |       |      | 9.5  | 14.8 |          |      |                            |   |                                  |                |
| UK6-D   | 6                               | M14×1 | 34.9 | 11   | 18   | 12.5     | 17   | 17                         | 4 | 4.6                              | 16 [0.56]      |
| AUK6-D  |                                 |       |      | 9.5  | 19   |          |      |                            |   | 5                                |                |
| UK8-□   | 8                               | M16×1 | 37.4 | 14.3 | 16.8 | 14.6     | 18.2 | 19                         | 4 | 6                                | 20 [0.71]      |
| AUK8-□  |                                 |       |      | 10.5 | 19.4 |          |      |                            |   | 7                                | 19 [0.67]      |
| UK10-□  | 10                              | M20×1 | 42.4 | 12.7 | 23   | 18.5     | 20.7 | 24                         | 5 | 8                                | 39 [1.38]      |
| AUK10-□ |                                 |       |      | 11.9 | 21.6 |          |      |                            |   | 9                                | 35 [1.23]      |
| UK12-□  | 12                              | M22×1 | 47.6 | 12.3 | 29   | 20.4     | 23.3 | 27                         | 6 | 11                               | 57 [2.01]      |
| AUK12-□ |                                 |       |      | 13.2 | 24.2 |          |      |                            |   | 11                               | 52 [1.83]      |

\* -D ⇒ Non-lubricant specification only. -□ ⇒ Select either blank (standard) or D (non-lubricant specification)

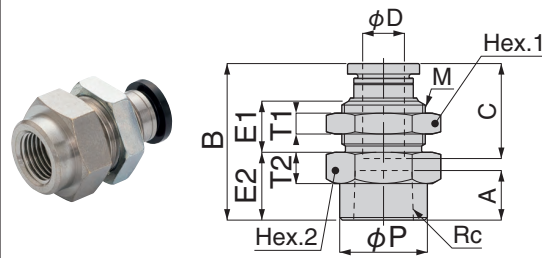
\* Prices are the same.

# UKM/AUKM Female union for bulkhead

● Existing model **UKM**



● New model **AUKM**



Unit: mm

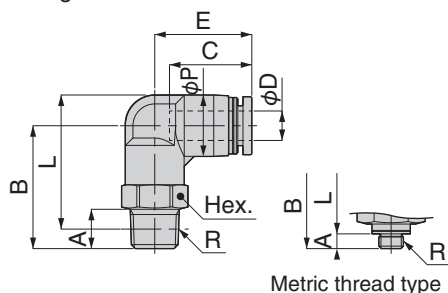
| Model       | Tube outer diameter<br>$\phi D$ | Rc    | M     | B    | E1   | E2   | A    | C    | $\phi P$ | Width<br>across flats<br>Hex.1 | Width<br>across flats<br>Hex.2 | T1 | T2 | Orifice<br>diameter<br>( $\phi$ mm) | Mass<br>g [oz] |
|-------------|---------------------------------|-------|-------|------|------|------|------|------|----------|--------------------------------|--------------------------------|----|----|-------------------------------------|----------------|
| UKM4-01-□   | 4                               | Rc1/8 | M12×1 | 24.5 | 9.9  | 10   | 7    | 14.9 | -        | 14                             | 14                             | 4  | -  | 3                                   | 19<br>[0.67]   |
| AUKM4-01-□  |                                 |       |       | 24.2 | 9    | 9    |      |      | 13.8     |                                |                                |    | 5  |                                     | 17<br>[0.6]    |
| UKM6-01-□   | 6                               | Rc1/8 | M14×1 | 27.1 | 11.9 | 10   | 7    | 17   | -        | 17                             | 17                             | 4  | -  | 4.6                                 | 29<br>[1.02]   |
| AUKM6-01-□  |                                 |       |       | 26.4 | 10.2 | 13.8 |      |      | 6        |                                |                                |    | 5  |                                     | 25<br>[0.88]   |
| UKM6-02-□   | 6                               | Rc1/4 | M14×1 | 30.1 | 11.9 | 13   | 9.5  | 17   | -        | 17                             | 17                             | 4  | -  | 4.6                                 | 29<br>[1.02]   |
| AUKM6-02-□  |                                 |       |       | 28.7 | 10.2 | 12.3 |      |      | 16.8     |                                |                                |    | 6  |                                     | 5              |
| UKM8-01-□   | 8                               | Rc1/8 | M16×1 | 29   | 13.5 | 10   | 7    | 18.2 | -        | 19                             | 19                             | 4  | -  | 6                                   | 39<br>[1.38]   |
| AUKM8-01-□  |                                 |       |       | 27   | 9.8  | 13.8 |      |      | 6        |                                |                                |    | 7  |                                     | 30<br>[1.06]   |
| UKM8-02-□   | 8                               | Rc1/4 | M16×1 | 32   | 13.5 | 13   | 9.5  | 18.2 | -        | 19                             | 19                             | 4  | -  | 6                                   | 41<br>[1.45]   |
| AUKM8-02-□  |                                 |       |       | 30   | 9.8  | 16.8 |      |      | 6        |                                |                                |    | 7  |                                     | 32<br>[1.13]   |
| UKM8-03-□   | 8                               | Rc3/8 | M16×1 | 33   | 13.5 | 14   | 10.5 | 18.2 | -        | 19                             | 19                             | 4  | -  | 6                                   | 35<br>[1.23]   |
| AUKM8-03-□  |                                 |       |       | 31   | 9.8  | 19.5 |      |      | 6        |                                |                                |    | 7  |                                     | 30<br>[1.06]   |
| UKM10-02-□  | 10                              | Rc1/4 | M20×1 | 34.8 | 14.9 | 14   | 9.5  | 20.7 | -        | 24                             | 24                             | 5  | -  | 8.5                                 | 78<br>[2.75]   |
| AUKM10-02-□ |                                 |       |       | 32.7 | 11.1 | 13   |      |      | 16.8     |                                |                                |    | 7  |                                     | 9              |
| UKM10-03-□  | 10                              | Rc3/8 | M20×1 | 35.8 | 14.9 | 15   | 10.5 | 20.7 | -        | 24                             | 24                             | 5  | -  | 8.5                                 | 73<br>[2.57]   |
| AUKM10-03-□ |                                 |       |       | 33.7 | 11.1 | 14   |      |      | 20.8     |                                |                                |    | 7  |                                     | 9              |
| UKM12-03-□  | 12                              | Rc3/8 | M22×1 | 38.9 | 18.4 | 15   | 10.5 | 23.3 | -        | 27                             | 24                             | 6  | -  | 11                                  | 86<br>[3.03]   |
| AUKM12-03-□ |                                 |       |       | 36.3 | 12.4 | 14   |      |      | 20.8     |                                |                                |    | 7  |                                     | 11             |
| UKM12-04-□  | 12                              | Rc1/2 | M22×1 | 41.9 | 18.4 | 18   | 13   | 23.3 | -        | 27                             | 24                             | 6  | -  | 11                                  | 80<br>[2.82]   |
| AUKM12-04-□ |                                 |       |       | 39.3 | 12.4 | 17   |      |      | 25       |                                |                                |    | 7  |                                     | 11             |

\* -□ ⇒ Select either blank (standard) or D (non-lubricant specification)

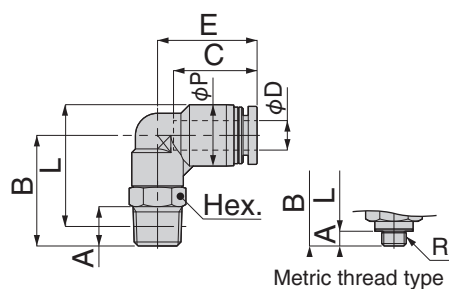
\* Prices are the same.

## TL/ATL Elbow

● Existing model **TL**



● New model **ATL**



Unit: mm

| Model      | Tube outer diameter ϕ D | R      | A   | B    | L    | ϕ P  | C    | E    | Width across flats Hex. | Orifice diameter (ϕ mm) | Mass g [oz] |
|------------|-------------------------|--------|-----|------|------|------|------|------|-------------------------|-------------------------|-------------|
| TL4-M5-D   | 4                       | M5×0.8 | 3   | 20.3 | 22.3 | 10   | 14.9 | 18   | 10                      | 1.8                     | 8 [0.28]    |
| ATL4-M5-D  |                         |        | 2.8 | 16   | 18.2 |      |      | 17.7 | 8                       | 2.4                     | 5.7 [0.2]   |
| TL4-M6-D   | 4                       | M6×1   | 4   | 21.3 | 22.3 | 10   | 14.9 | 18   | 10                      | 2.4                     | 8.3 [0.29]  |
| ATL4-M6-D  |                         |        | 3.8 | 20   | 21.2 |      |      | 18.7 |                         |                         | 8 [0.28]    |
| TL4-01-D   | 4                       | R1/8   | 8   | 23.3 | 24.3 | 10   | 14.9 | 18   | 10                      | 2.8                     | 11 [0.39]   |
| ATL4-01-D  |                         |        |     | 22   | 23   |      |      | 18.7 |                         |                         | 10 [0.35]   |
| TL4-02-□   | 4                       | R1/4   | 11  | 26.3 | 25.3 | 10   | 14.9 | 18   | 14                      | 2.8                     | 21 [0.74]   |
| ATL4-02-□  |                         |        |     | 29   | 28   |      |      | 20.7 |                         |                         | 18 [0.63]   |
| TL6-M5-D   | 6                       | M5×0.8 | 3   | 22   | 25.3 | 12.5 | 16.8 | 19.8 | 12                      | 1.8                     | 13 [0.46]   |
| ATL6-M5-D  |                         |        | 2.8 | 19.5 | 23   |      | 17   | 20.3 | 10                      | 2.4                     | 8.9 [0.31]  |
| TL6-M6-D   | 6                       | M6×1   | 4   | 23   | 25.3 | 12.5 | 16.8 | 19.8 | 12                      | 3                       | 13 [0.46]   |
| ATL6-M6-D  |                         |        | 3.8 | 20.5 | 23   |      | 17   | 20.3 | 10                      |                         | 8 [0.28]    |
| TL6-01-D   | 6                       | R1/8   | 8   | 25   | 27.3 | 12.5 | 16.8 | 19.8 | 12                      | 4.3                     | 14 [0.49]   |
| ATL6-01-D  |                         |        |     | 22.5 | 24.8 |      | 17   | 20.3 | 10                      |                         | 11 [0.39]   |
| TL6-02-□   | 6                       | R1/4   | 11  | 28   | 28.2 | 12.5 | 16.8 | 19.8 | 14                      | 4.3                     | 22 [0.78]   |
| ATL6-02-□  |                         |        |     |      |      |      | 17   | 21.8 |                         |                         | 19 [0.67]   |
| TL6-03-□   | 6                       | R3/8   | 12  | 29.8 | 29.7 | 12.5 | 16.8 | 19.8 | 17                      | 4.3                     | 35 [1.23]   |
| ATL6-03-□  |                         |        |     | 31.5 | 31.4 |      | 17   | 23.8 |                         |                         | 30 [1.06]   |
| TL8-01-□   | 8                       | R1/8   | 8   | 28   | 31.3 | 14.5 | 18.1 | 22.7 | 14                      | 6                       | 19 [0.67]   |
| ATL8-01-□  |                         |        |     | 24   | 27.3 |      |      |      | 12                      |                         | 14 [0.49]   |
| TL8-02-□   | 8                       | R1/4   | 11  | 31   | 32.2 | 14.5 | 18.1 | 22.7 | 14                      | 6                       | 24 [0.85]   |
| ATL8-02-□  |                         |        |     | 28   | 29.2 |      |      | 23.7 |                         | 6.7                     | 20 [0.71]   |
| TL8-03-□   | 8                       | R3/8   | 12  | 32.8 | 33.7 | 14.5 | 18.1 | 22.7 | 17                      | 6                       | 37 [1.31]   |
| ATL8-03-□  |                         |        |     | 31   | 31.9 |      |      | 24.7 |                         | 6.7                     | 31 [1.09]   |
| TL10-01-□  | 10                      | R1/8   | 8   | 33   | 37.8 | 17.5 | 20.2 | 26.2 | 17                      | 6                       | 31 [1.09]   |
| ATL10-01-□ |                         |        |     | 25   | 29.8 |      |      | 25.5 | 12                      |                         | 18 [0.63]   |
| TL10-02-□  | 10                      | R1/4   | 11  | 36   | 38.7 | 17.5 | 20.2 | 26.2 | 17                      | 8                       | 34 [1.2]    |
| ATL10-02-□ |                         |        |     | 28.5 | 31.2 |      |      | 26   | 14                      |                         | 23 [0.81]   |
| TL10-03-□  | 10                      | R3/8   | 12  | 37   | 39.4 | 17.5 | 20.2 | 26.2 | 17                      | 8                       | 43 [1.52]   |
| ATL10-03-□ |                         |        |     | 32   | 34.4 |      |      | 27   |                         | 8.3                     | 34 [1.2]    |
| TL10-04-□  | 10                      | R1/2   | 15  | 40   | 40.6 | 17.5 | 20.2 | 26.2 | 21                      | 8                       | 65 [2.29]   |
| ATL10-04-□ |                         |        |     | 36   | 36.6 |      |      | 27.5 |                         | 8.3                     | 57 [2.01]   |
| TL12-02-□  | 12                      | R1/4   | 11  | 38   | 42.5 | 21   | 23.4 | 29.4 | 21                      | 8                       | 51 [1.8]    |
| ATL12-02-□ |                         |        |     | 29.8 | 34.2 |      |      | 29   | 14                      |                         | 27 [0.95]   |
| TL12-03-□  | 12                      | R3/8   | 12  | 39   | 43.2 | 21   | 23.4 | 29.4 | 21                      | 10                      | 52 [1.83]   |
| ATL12-03-□ |                         |        |     | 32.5 | 36.7 |      |      | 29.7 | 17                      |                         | 38 [1.34]   |
| TL12-04-□  | 12                      | R1/2   | 15  | 42   | 44.3 | 21   | 23.4 | 29.4 | 21                      | 10                      | 67 [2.36]   |
| ATL12-04-□ |                         |        |     | 36.5 | 38.8 |      |      | 30.7 |                         | 10.3                    | 61 [2.15]   |

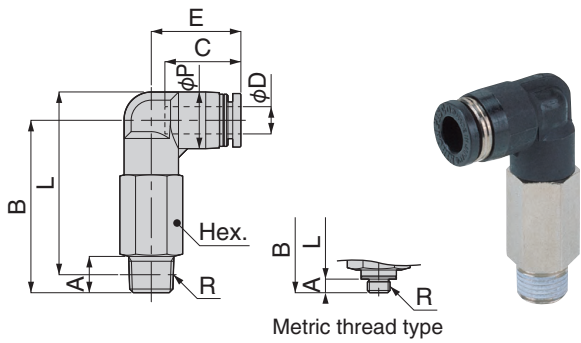
\* -D ⇒ Non-lubricant specification only. -□ ⇒ Select either blank (standard) or D (non-lubricant specification)

\* The L dimension for the tapered thread types is a reference dimension when mated and tightened.

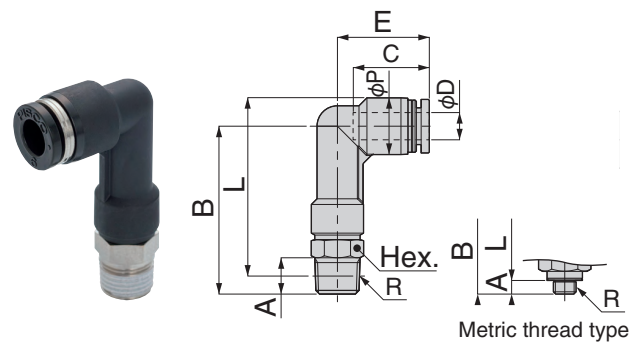
\* Prices are the same.

# TLL/ATLL Long elbow

● Existing model **TLL**



● New model **ATLL**



Unit: mm

| Model       | Tube outer diameter<br>φ D | R      | A   | B    | L    | φ P  | C    | E    | Width<br>across flats<br>Hex. | Orifice<br>diameter<br>(φ mm) | Mass<br>g [oz] |
|-------------|----------------------------|--------|-----|------|------|------|------|------|-------------------------------|-------------------------------|----------------|
| TLL4-M5-D   | 4                          | M5×0.8 | 3   | 32.3 | 34.3 | 10   | 14.9 | 18   | 10                            | 1.8                           | 8.4 [0.3]      |
| ATLL4-M5-D  |                            |        | 2.8 | 28   | 30.2 |      |      | 18.7 | 8                             | 2.4                           | 6.4 [0.23]     |
| TLL4-01-D   | 4                          | R1/8   | 8   | 35.3 | 36.3 | 10   | 14.9 | 18   | 10                            | 2.8                           | 17 [0.6]       |
| ATLL4-01-D  |                            |        |     | 34   | 35   |      |      | 18.7 |                               |                               | 11 [0.39]      |
| TLL6-01-D   | 6                          | R1/8   | 8   | 38   | 40.3 | 12.5 | 16.8 | 19.8 | 12                            | 4.3                           | 26 [0.92]      |
| ATLL6-01-D  |                            |        |     | 37   | 39.3 |      | 17   | 20.3 |                               |                               | 10             |
| TLL6-02-□   | 6                          | R1/4   | 11  | 41   | 41.2 | 12.5 | 16.8 | 19.8 | 14                            | 4.3                           | 39 [1.38]      |
| ATLL6-02-□  |                            |        |     | 42.5 | 42.7 |      | 17   | 21.8 |                               |                               | 20 [0.71]      |
| TLL6-03-□   | 6                          | R3/8   | 12  | 43.3 | 43.2 | 12.5 | 16.8 | 19.8 | 17                            | 4.3                           | 62 [2.19]      |
| ATLL6-03-□  |                            |        |     | 46   | 45.9 |      | 17   | 23.8 |                               |                               | 33 [1.16]      |
| TLL8-01-□   | 8                          | R1/8   | 8   | 43.5 | 46.8 | 14.5 | 18.1 | 22.7 | 14                            | 6                             | 37 [1.31]      |
| ATLL8-01-□  |                            |        |     | 40.5 | 43.8 |      |      |      | 12                            |                               | 16 [0.56]      |
| TLL8-02-□   | 8                          | R1/4   | 11  | 46.5 | 47.7 | 14.5 | 18.1 | 22.7 | 14                            | 6                             | 43 [1.52]      |
| ATLL8-02-□  |                            |        |     | 44.5 | 45.7 |      |      | 23.7 |                               |                               | 6.7            |
| TLL8-03-□   | 8                          | R3/8   | 12  | 48.3 | 49.2 | 14.5 | 18.1 | 22.7 | 17                            | 6                             | 66 [2.33]      |
| ATLL8-03-□  |                            |        |     | 47.5 | 48.4 |      |      | 24.7 |                               |                               | 6.7            |
| TLL10-02-□  | 10                         | R1/4   | 11  | 54.5 | 57.2 | 17.5 | 20.2 | 26.2 | 17                            | 8                             | 65 [2.29]      |
| ATLL10-02-□ |                            |        |     | 48   | 50.7 |      |      | 26   |                               |                               | 14             |
| TLL10-03-□  | 10                         | R3/8   | 12  | 55.5 | 57.9 | 17.5 | 20.2 | 26.2 | 17                            | 8                             | 74 [2.61]      |
| ATLL10-03-□ |                            |        |     | 51.5 | 53.9 |      |      | 27   |                               |                               | 8.3            |
| TLL10-04-□  | 10                         | R1/2   | 15  | 60   | 60.6 | 17.5 | 20.2 | 26.2 | 21                            | 8                             | 121 [4.27]     |
| ATLL10-04-□ |                            |        |     | 55.5 | 56.1 |      |      | 27   |                               |                               | 8.3            |
| TLL12-02-□  | 12                         | R1/4   | 11  | 60   | 64.5 | 21   | 23.4 | 29.4 | 21                            | 8                             | 112 [3.95]     |
| ATLL12-02-□ |                            |        |     | 52.8 | 57.2 |      |      | 29   |                               |                               | 14             |
| TLL12-03-□  | 12                         | R3/8   | 12  | 61   | 65.2 | 21   | 23.4 | 29.4 | 21                            | 10                            | 107 [3.77]     |
| ATLL12-03-□ |                            |        |     | 55.5 | 59.7 |      |      | 29.7 |                               |                               | 17             |
| TLL12-04-□  | 12                         | R1/2   | 15  | 64   | 66.3 | 21   | 23.4 | 29.4 | 21                            | 10                            | 123 [4.34]     |
| ATLL12-04-□ |                            |        |     | 59.5 | 61.8 |      |      | 29.7 |                               |                               | 10.3           |

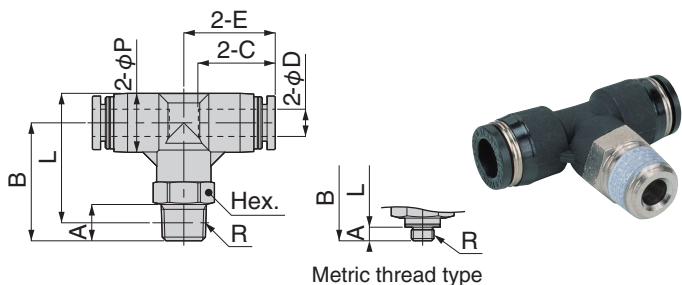
\* -D ⇒ Non-lubricant specification only. -□ ⇒ Select either blank (standard) or D (non-lubricant specification)

\* The L dimension for the tapered thread types is a reference dimension when mated and tightened.

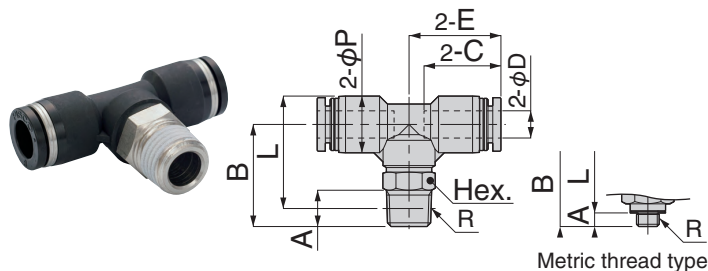
\* Prices are the same.

## TT/ATT Tee

● Existing model **TT**



● New model **ATT**



Unit: mm

| Model      | Tube outer diameter<br>φ D | R      | A   | B    | L    | φ P  | C    | E     | Width<br>across flats<br>Hex. | Orifice<br>diameter<br>(φ mm) | Mass<br>g [oz] |
|------------|----------------------------|--------|-----|------|------|------|------|-------|-------------------------------|-------------------------------|----------------|
| TT4-M5-D   | 4                          | M5×0.8 | 3   | 20.2 | 22.2 | 10   | 14.9 | 16.9  | 10                            | 1.8                           | 11 [0.39]      |
| ATT4-M5-D  |                            |        | 2.8 | 16   | 18.2 |      |      | 17.7  | 8                             | 2.4                           | 8 [0.28]       |
| TT4-M6-D   | 4                          | M6×1   | 4   | 21.2 | 22.2 | 10   | 14.9 | 16.9  | 10                            | 2.4                           | 11 [0.39]      |
| ATT4-M6-D  |                            |        | 3.8 | 20   | 21.2 |      |      | 18.7  |                               |                               |                |
| TT4-01-D   | 4                          | R1/8   | 8   | 23.2 | 24.2 | 10   | 14.9 | 16.9  | 10                            | 2.8                           | 14 [0.49]      |
| ATT4-01-D  |                            |        |     | 22   | 23   |      |      | 18.7  |                               |                               | 13 [0.46]      |
| TT4-02-□   | 4                          | R1/4   | 11  | 26.2 | 25.2 | 10   | 14.9 | 16.9  | 14                            | 2.8                           | 23 [0.81]      |
| ATT4-02-□  |                            |        |     | 29   | 28   |      |      | 20.7  |                               |                               | 20 [0.71]      |
| TT6-M5-D   | 6                          | M5×0.8 | 3   | 23   | 26.5 | 13   | 17   | 20.15 | 12                            | 1.8                           | 16 [0.56]      |
| ATT6-M5-D  |                            |        | 2.8 | 19.5 | 23   |      |      | 12.5  | 20.25                         | 10                            | 2.4            |
| TT6-M6-D   | 6                          | M6×1   | 4   | 24   | 26.5 | 13   | 17   | 20.15 | 12                            | 3                             | 16 [0.56]      |
| ATT6-M6-D  |                            |        | 3.8 | 20.5 | 23   |      |      | 12.5  | 20.25                         |                               | 10             |
| TT6-01-D   | 6                          | R1/8   | 8   | 26   | 28.5 | 13   | 17   | 20.15 | 12                            | 4.3                           | 18 [0.63]      |
| ATT6-01-D  |                            |        |     | 22.5 | 24.8 |      |      | 12.5  | 20.25                         |                               | 10             |
| TT6-02-□   | 6                          | R1/4   | 11  | 29   | 29.5 | 13   | 17   | 20.15 | 14                            | 4.3                           | 26 [0.92]      |
| ATT6-02-□  |                            |        |     | 28   | 28.2 |      |      | 12.5  |                               |                               | 21.75          |
| TT6-03-□   | 6                          | R3/8   | 12  | 30.8 | 31   | 13   | 17   | 20.15 | 17                            | 4.3                           | 39 [1.38]      |
| ATT6-03-□  |                            |        |     | 31.5 | 31.4 |      |      | 12.5  |                               |                               | 23.75          |
| TT8-01-□   | 8                          | R1/8   | 8   | 26.3 | 29.8 | 15   | 18.1 | 22.4  | 14                            | 5.8                           | 23 [0.81]      |
| ATT8-01-□  |                            |        |     | 24   | 27.3 |      |      | 14.5  | 22.7                          | 12                            | 6              |
| TT8-02-□   | 8                          | R1/4   | 11  | 29.3 | 30.8 | 15   | 18.1 | 22.4  | 14                            | 5.8                           | 29 [1.02]      |
| ATT8-02-□  |                            |        |     | 28   | 29.2 |      |      | 14.5  |                               | 23.7                          | 6.7            |
| TT8-03-□   | 8                          | R3/8   | 12  | 31.1 | 32.3 | 15   | 18.1 | 22.4  | 17                            | 5.8                           | 42 [1.48]      |
| ATT8-03-□  |                            |        |     | 31   | 31.9 |      |      | 14.5  |                               | 24.7                          | 6.7            |
| TT10-02-□  | 10                         | R1/4   | 11  | 36   | 38.7 | 17.5 | 20.2 | 25.2  | 17                            | 8                             | 42 [1.48]      |
| ATT10-02-□ |                            |        |     | 28.5 | 31.2 |      |      | 17.5  | 26                            | 14                            | 31 [1.09]      |
| TT10-03-□  | 10                         | R3/8   | 12  | 37   | 39.4 | 17.5 | 20.2 | 25.2  | 17                            | 8                             | 50 [1.76]      |
| ATT10-03-□ |                            |        |     | 32   | 34.4 |      |      | 17.5  |                               | 27                            | 8.3            |
| TT10-04-□  | 10                         | R1/2   | 15  | 40   | 40.6 | 17.5 | 20.2 | 25.2  | 21                            | 8                             | 72 [2.54]      |
| ATT10-04-□ |                            |        |     | 36   | 36.6 |      |      | 17.5  |                               | 27.5                          | 8.3            |
| TT12-02-□  | 12                         | R1/4   | 11  | 38   | 42.5 | 21   | 22.9 | 28.4  | 21                            | 8                             | 61 [2.15]      |
| ATT12-02-□ |                            |        |     | 29.8 | 34.2 |      |      | 21    | 23.4                          | 28.95                         | 14             |
| TT12-03-□  | 12                         | R3/8   | 12  | 39   | 43.2 | 21   | 22.9 | 28.4  | 21                            | 10                            | 62 [2.19]      |
| ATT12-03-□ |                            |        |     | 32.5 | 36.7 |      |      | 21    | 23.4                          | 29.7                          | 17             |
| TT12-04-□  | 12                         | R1/2   | 15  | 42   | 44.3 | 21   | 22.9 | 28.4  | 21                            | 10                            | 78 [2.75]      |
| ATT12-04-□ |                            |        |     | 36.5 | 38.8 |      |      | 21    |                               | 23.4                          | 30.7           |

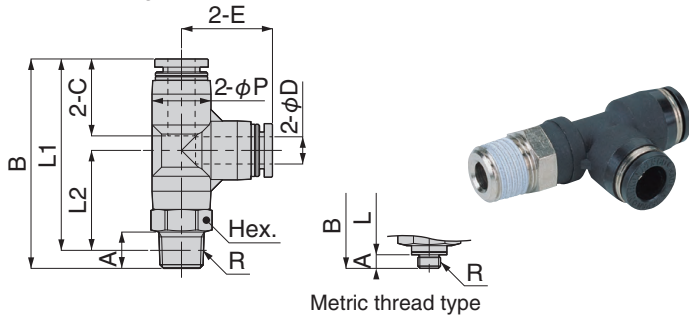
\* -D ⇒ Non-lubricant specification only. -□ ⇒ Select either blank (standard) or D (non-lubricant specification)

\* The L dimension for the tapered thread types is a reference dimension when mated and tightened.

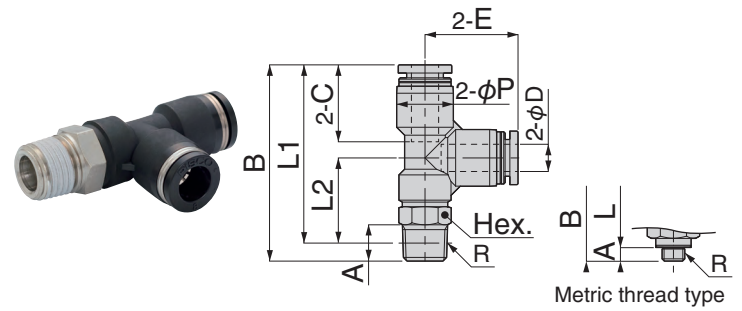
\* Prices are the same.

## TB/ATB Branch tee

### ● Existing model TB



### ● New model ATB



Unit: mm

| Model      | Tube outer diameter<br>φ D | R      | A    | B    | L1   | L2   | φ P  | C    | E    | Width<br>across flats<br>Hex. | Orifice<br>diameter<br>(φ mm) | Mass<br>g [oz] |
|------------|----------------------------|--------|------|------|------|------|------|------|------|-------------------------------|-------------------------------|----------------|
| TB4-M5-D   | 4                          | M5×0.8 | 3    | 37.1 | 34.1 | 17.2 | 10   | 14.9 | 16.9 | 10                            | 1.8                           | 11 [0.39]      |
| ATB4-M5-D  |                            |        | 2.8  | 33.7 | 30.9 | 13.7 |      |      | 17.2 |                               | 8                             | 2.4            |
| TB4-M6-D   | 4                          | M6×1   | 4    | 38.1 | 34.1 | 17.2 | 10   | 14.9 | 16.9 | 10                            | 2.4                           | 11 [0.39]      |
| ATB4-M6-D  |                            |        | 3.8  | 38.2 | 34.4 | 17.2 |      |      | 17.2 |                               | 10                            | 2.4            |
| TB4-01-D   | 4                          | R1/8   | 8    | 40.1 | 36.1 | 19.2 | 10   | 14.9 | 16.9 | 10                            | 2.8                           | 14 [0.49]      |
| ATB4-01-D  |                            |        | 40.2 | 36.2 | 19   | 17.2 |      |      | 17.2 |                               | 10                            | 2.8            |
| TB4-02-□   | 4                          | R1/4   | 11   | 43.1 | 37.1 | 20.2 | 10   | 14.9 | 16.9 | 14                            | 2.8                           | 23 [0.81]      |
| ATB4-02-□  |                            |        | 46.2 | 40.2 | 23   | 19.2 |      |      | 19.2 |                               | 14                            | 2.8            |
| TB6-M5-D   | 6                          | M5×0.8 | 3    | 43.2 | 40.2 | 20   | 13   | 17   | 20.1 | 12                            | 1.8                           | 16 [0.56]      |
| ATB6-M5-D  |                            |        | 2.8  | 40.3 | 37.5 | 17   |      |      | 12.5 |                               | 20.5                          | 10             |
| TB6-M6-D   | 6                          | M6×1   | 4    | 44.2 | 40.2 | 20   | 13   | 17   | 20.1 | 12                            | 3                             | 17 [0.6]       |
| ATB6-M6-D  |                            |        | 3.8  | 41.3 | 37.5 | 17   |      |      | 12.5 |                               | 20.5                          | 10             |
| TB6-01-D   | 6                          | R1/8   | 8    | 46.2 | 42.2 | 22   | 13   | 17   | 20.1 | 12                            | 4.3                           | 18 [0.63]      |
| ATB6-01-D  |                            |        | 43.3 | 39.3 | 18.8 | 12.5 |      |      | 20.5 |                               |                               | 10             |
| TB6-02-□   | 6                          | R1/4   | 11   | 49.2 | 43.1 | 23   | 13   | 17   | 20.1 | 14                            | 4.3                           | 26 [0.92]      |
| ATB6-02-□  |                            |        | 48.8 | 42.7 | 22.2 | 12.5 |      |      | 20.5 |                               |                               | 14             |
| TB6-03-□   | 6                          | R3/8   | 12   | 51   | 44.6 | 24.5 | 13   | 17   | 20.1 | 17                            | 4.3                           | 39 [1.38]      |
| ATB6-03-□  |                            |        | 52   | 45.7 | 25.2 | 12.5 |      |      | 21.5 |                               |                               | 17             |
| TB8-01-□   | 8                          | R1/8   | 8    | 50.4 | 46.4 | 24.2 | 15   | 18.1 | 22.2 | 14                            | 6                             | 23 [0.81]      |
| ATB8-01-□  |                            |        | 46.9 | 42.9 | 20   | 14.5 |      |      | 22.9 |                               |                               | 12             |
| TB8-02-□   | 8                          | R1/4   | 11   | 53.4 | 47.4 | 25.2 | 15   | 18.1 | 22.2 | 14                            | 6                             | 29 [1.02]      |
| ATB8-02-□  |                            |        | 51.7 | 45.7 | 22.8 | 14.5 |      |      | 22.9 |                               |                               | 14             |
| TB8-03-□   | 8                          | R3/8   | 12   | 55.2 | 48.9 | 26.7 | 15   | 18.1 | 22.2 | 17                            | 6                             | 42 [1.48]      |
| ATB8-03-□  |                            |        | 55.4 | 49.1 | 26.2 | 14.5 |      |      | 22.9 |                               |                               | 17             |
| TB10-02-□  | 10                         | R1/4   | 11   | 61.2 | 55.2 | 30   | 17.5 | 20.2 | 25.2 | 17                            | 8                             | 42 [1.48]      |
| ATB10-02-□ |                            |        | 54.7 | 48.7 | 22.5 | 17.5 |      |      | 26.2 |                               |                               | 14             |
| TB10-03-□  | 10                         | R3/8   | 12   | 62.2 | 55.9 | 30.7 | 17.5 | 20.2 | 25.2 | 17                            | 8                             | 50 [1.76]      |
| ATB10-03-□ |                            |        | 58.2 | 51.9 | 25.7 | 17.5 |      |      | 26.2 |                               |                               | 17             |
| TB10-04-□  | 10                         | R1/2   | 15   | 65.2 | 57   | 31.8 | 17.5 | 20.2 | 25.2 | 21                            | 8                             | 72 [2.54]      |
| ATB10-04-□ |                            |        | 62.2 | 54   | 27.8 | 17.5 |      |      | 27.3 |                               |                               | 21             |
| TB12-02-□  | 12                         | R1/4   | 11   | 66.6 | 60.6 | 32.2 | 21   | 22.9 | 28.2 | 21                            | 8                             | 62 [2.19]      |
| ATB12-02-□ |                            |        | 60.3 | 54.2 | 23.7 | 21   |      |      | 23.4 |                               |                               | 30             |
| TB12-03-□  | 12                         | R3/8   | 12   | 67.6 | 61.3 | 32.9 | 21   | 22.9 | 28.2 | 21                            | 10                            | 78 [2.75]      |
| ATB12-03-□ |                            |        | 63.5 | 57.2 | 26.7 | 21   |      |      | 23.4 |                               |                               | 30.5           |
| TB12-04-□  | 12                         | R1/2   | 15   | 70.6 | 62.4 | 34   | 21   | 22.9 | 28.2 | 21                            | 10                            | 78 [2.75]      |
| ATB12-04-□ |                            |        | 67.5 | 59.3 | 28.8 | 21   |      |      | 23.4 |                               |                               | 30.7           |

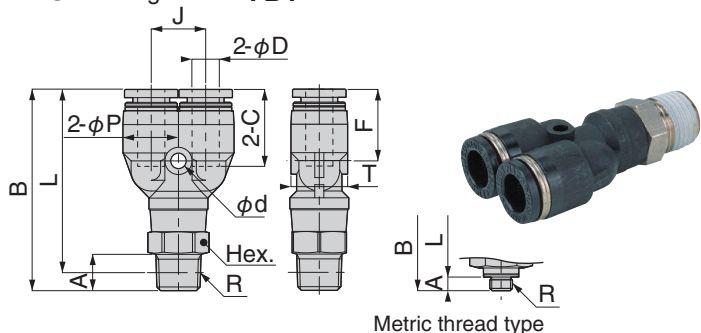
\* -D ⇒ Non-lubricant specification only. -□ ⇒ Select either blank (standard) or D (non-lubricant specification)

\* The L dimension for the tapered thread types is a reference dimension when mated and tightened.

\* Prices are the same.

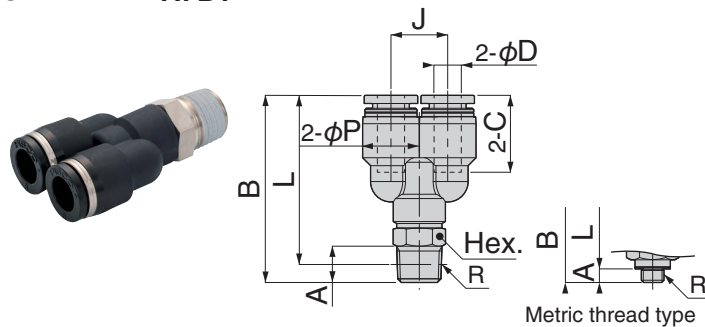
## TBY/ATBY Branch Y

● Existing model **TBY**



Metric thread type

● New model **ATBY**



Metric thread type

Unit: mm

| Model       | Tube outer diameter $\phi D$ | R      | A   | B    | L    | $\phi P$ | C    | J    | $\phi d$ | F    | T    | Width across flats Hex. | Orifice diameter ( $\phi$ mm) | Mass g [oz] |
|-------------|------------------------------|--------|-----|------|------|----------|------|------|----------|------|------|-------------------------|-------------------------------|-------------|
| TBY4-M5-□   | 4                            | M5×0.8 | 3   | 37.6 | 34.6 | 10       | 14.9 | 11   | 3.2      | 14.1 | 10.4 | 10                      | 1.8                           | 11 [0.39]   |
| ATBY4-M5-□  |                              |        | 2.8 | 32.9 | 30.1 |          |      | 10.3 | -        | -    | 8    |                         | 2.4                           | 8 [0.28]    |
| TBY4-01-□   | 4                            | R1/8   | 8   | 40.6 | 36.6 | 10       | 14.9 | 11   | 3.2      | 14.1 | 10.4 | 10                      | 2.7                           | 14 [0.49]   |
| ATBY4-01-□  |                              |        |     | 38.4 | 34.4 |          |      | 10.3 | -        | -    | 2.8  |                         | 13 [0.46]                     |             |
| TBY4-02-□   | 4                            | R1/4   | 11  | 43.6 | 37.6 | 10       | 14.9 | 11   | 3.2      | 14.1 | 10.4 | 14                      | 2.7                           | 23 [0.81]   |
| ATBY4-02-□  |                              |        |     | 43.4 | 37.4 |          |      | 10.3 | -        | -    | 2.8  |                         | 20 [0.71]                     |             |
| TBY6-M5-□   | 6                            | M5×0.8 | 3   | 41.4 | 38.4 | 12.5     | 17   | 12   | 3.4      | 15.8 | 13.5 | 12                      | 1.8                           | 16 [0.56]   |
| ATBY6-M5-□  |                              |        | 2.8 | 38.3 | 35.5 |          |      | 12.5 | -        | -    | 10   |                         | 2.4                           | 13 [0.46]   |
| TBY6-M6-□   | 6                            | M6×1   | 4   | 42.4 | 38.4 | 12.5     | 17   | 12   | 3.4      | 15.8 | 13.5 | 12                      | 3                             | 17 [0.6]    |
| ATBY6-M6-□  |                              |        | 3.8 | 39.3 | 35.5 |          |      | 12.5 | -        | -    | 10   |                         | 3                             | 13 [0.46]   |
| TBY6-01-□   | 6                            | R1/8   | 8   | 44.4 | 40.4 | 12.5     | 17   | 12   | 3.4      | 15.8 | 13.5 | 12                      | 4.4                           | 18 [0.63]   |
| ATBY6-01-□  |                              |        |     | 41.3 | 37.3 |          |      | 12.5 | -        | -    | 10   |                         | 4.3                           | 15 [0.53]   |
| TBY6-02-□   | 6                            | R1/4   | 11  | 47.4 | 41.3 | 12.5     | 17   | 12   | 3.4      | 15.8 | 13.5 | 14                      | 4.4                           | 26 [0.92]   |
| ATBY6-02-□  |                              |        |     | 48.3 | 42.2 |          |      | 12.5 | -        | -    | 4.3  |                         | 22 [0.78]                     |             |
| TBY6-03-□   | 6                            | R3/8   | 12  | 49.2 | 42.8 | 12.5     | 17   | 12   | 3.4      | 15.8 | 13.5 | 17                      | 4.4                           | 40 [1.41]   |
| ATBY6-03-□  |                              |        |     | 51.3 | 44.9 |          |      | 12.5 | -        | -    | 4.3  |                         | 33 [1.16]                     |             |
| TBY8-01-□   | 8                            | R1/8   | 8   | 48.7 | 44.7 | 14.5     | 18.1 | 14   | 3.4      | 17.2 | 15.1 | 14                      | 5.9                           | 24 [0.85]   |
| ATBY8-01-□  |                              |        |     | 46.1 | 42.1 |          |      | 14.5 | -        | -    | 12   |                         | 6                             | 20 [0.71]   |
| TBY8-02-□   | 8                            | R1/4   | 11  | 51.7 | 45.7 | 14.5     | 18.1 | 14   | 3.4      | 17.2 | 15.1 | 14                      | 5.9                           | 29 [1.02]   |
| ATBY8-02-□  |                              |        |     | 49.3 | 43.3 |          |      | 14.5 | -        | -    | 6.7  |                         | 25 [0.88]                     |             |
| TBY8-03-□   | 8                            | R3/8   | 12  | 53.5 | 47.2 | 14.5     | 18.1 | 14   | 3.4      | 17.2 | 15.1 | 17                      | 5.9                           | 43 [1.52]   |
| ATBY8-03-□  |                              |        |     | 52.5 | 46.2 |          |      | 14.5 | -        | -    | 6.7  |                         | 36 [1.27]                     |             |
| TBY10-02-□  | 10                           | R1/4   | 11  | 58.3 | 52.3 | 18       | 20.7 | 18   | 4.5      | 19.5 | 18   | 17                      | 6.7                           | 44 [1.55]   |
| ATBY10-02-□ |                              |        |     | 53.6 | 47.6 |          |      | 17.5 | 20.2     | 17.5 | -    |                         | -                             | 14          |
| TBY10-03-□  | 10                           | R3/8   | 12  | 59.3 | 53   | 18       | 20.7 | 18   | 4.5      | 19.5 | 18   | 17                      | 6.7                           | 52 [1.83]   |
| ATBY10-03-□ |                              |        |     | 56.7 | 50.4 |          |      | 17.5 | 20.2     | 17.5 | -    |                         | -                             | 17          |
| TBY10-04-□  | 10                           | R1/2   | 15  | 62.3 | 54.1 | 18       | 20.7 | 18   | 4.5      | 19.5 | 18   | 21                      | 6.7                           | 74 [2.61]   |
| ATBY10-04-□ |                              |        |     | 60.2 | 52   |          |      | 17.5 | 20.2     | 17.5 | -    |                         | -                             | 8.3         |
| TBY12-02-□  | 12                           | R1/4   | 11  | 63.5 | 57.5 | 21       | 23.4 | 20   | 4.2      | 22.2 | 21   | 21                      | 8                             | 64 [2.26]   |
| ATBY12-02-□ |                              |        |     | 58.6 | 52.6 |          |      | 21   | 23.4     | 21   | -    |                         | -                             | 14          |
| TBY12-03-□  | 12                           | R3/8   | 12  | 64.5 | 58.2 | 21       | 23.4 | 20   | 4.2      | 22.2 | 21   | 21                      | 8                             | 65 [2.29]   |
| ATBY12-03-□ |                              |        |     | 60.6 | 54.3 |          |      | 21   | 23.4     | 21   | -    |                         | -                             | 17          |
| TBY12-04-□  | 12                           | R1/2   | 15  | 67.5 | 59.3 | 21       | 23.4 | 20   | 4.2      | 22.2 | 21   | 21                      | 8                             | 81 [2.86]   |
| ATBY12-04-□ |                              |        |     | 64.7 | 56.5 |          |      | 21   | 23.4     | 21   | -    |                         | -                             | 10.3        |

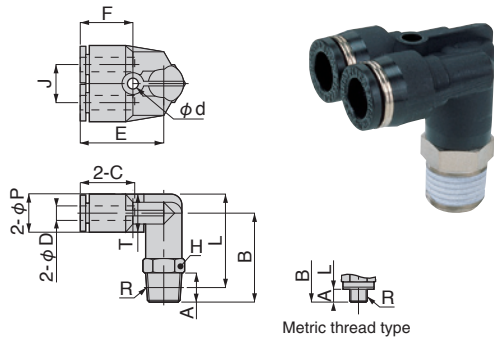
\* -□ ⇒ Select either blank (standard) or D (non-lubricant specification)

\* The L dimension for the tapered thread types is a reference dimension when mated and tightened.

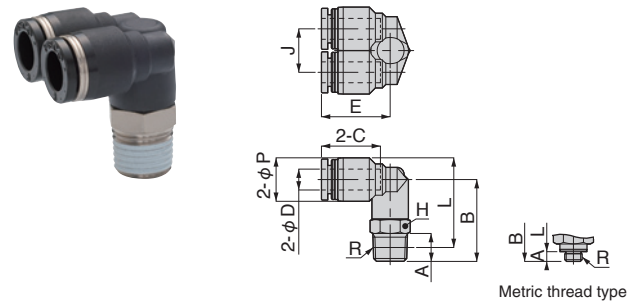
\* Prices are the same.

## TBLY/ATBLY Branch elbow Y

### ● Existing model TBLY



### ● New model ATBLY



indicates portion of new models (new shapes) that have changed in dimension.

Unit: mm

| Model        | Tube outer diameter<br>$\phi D$ | R      | A   | B    | L    | $\phi P$ | C    | J    | E    | Width<br>across flats<br>Hex. | $\phi d$ | F    | T    | Orifice<br>diameter<br>( $\phi$ mm) | Mass<br>g [oz] |
|--------------|---------------------------------|--------|-----|------|------|----------|------|------|------|-------------------------------|----------|------|------|-------------------------------------|----------------|
| TBLY4-M5-□   | 4                               | M5×0.8 | 3   | 21.7 | 23.7 | 10       | 14.9 | 11   | 22.7 | 10                            | 3.2      | 14.2 | 10   | 1.8                                 | 12 [0.423]     |
| ATBLY4-M5-□  |                                 |        | 2.8 | 20   | 22.2 |          |      | 10.3 | 18.2 |                               |          |      |      |                                     | 2.4            |
| TBLY4-M6-□   | 4                               | M6×1   | 4   | 22.7 | 23.7 | 10       | 14.9 | 11   | 22.7 | 10                            | 3.2      | 14.2 | 10   | 2.8                                 | 12 [0.423]     |
| ATBLY4-M6-□  |                                 |        | 3.8 | 21   | 22.2 |          |      | 10.3 | 18.2 |                               |          |      |      |                                     | 3              |
| TBLY4-01-□   | 4                               | R1/8   | 8   | 24.7 | 25.7 | 10       | 14.9 | 11   | 22.7 | 10                            | 3.2      | 14.2 | 10   | 2.8                                 | 15 [0.529]     |
| ATBLY4-01-□  |                                 |        |     | 23   | 24   |          |      | 10.3 | 18.2 |                               |          |      |      |                                     | 3.9            |
| TBLY4-02-□   | 4                               | R1/4   | 11  | 27.7 | 26.7 | 10       | 14.9 | 11   | 22.7 | 14                            | 3.2      | 14.2 | 10   | 2.8                                 | 24 [0.847]     |
| ATBLY4-02-□  |                                 |        |     | 27   | 26   |          |      | 10.3 | 19.2 |                               |          |      |      |                                     | 3.9            |
| TBLY6-M5-□   | 6                               | M5×0.8 | 3   | 25   | 28.3 | 12.5     | 17   | 12   | 26.2 | 12                            | 4.2      | 15.5 | 12.5 | 1.8                                 | 17 [0.600]     |
| ATBLY6-M5-□  |                                 |        | 2.8 | 20.5 | 24   |          |      | 12.5 | 19.8 |                               |          |      |      |                                     | 10             |
| TBLY6-M6-□   | 6                               | M6×1   | 4   | 26   | 28.3 | 12.5     | 17   | 12   | 26.2 | 12                            | 4.2      | 15.5 | 12.5 | 3                                   | 18 [0.635]     |
| ATBLY6-M6-□  |                                 |        | 3.8 | 21.5 | 24   |          |      | 12.5 | 19.8 |                               |          |      |      |                                     | 10             |
| TBLY6-01-□   | 6                               | R1/8   | 8   | 28   | 30.3 | 12.5     | 17   | 12   | 26.2 | 12                            | 4.2      | 15.5 | 12.5 | 4                                   | 19 [0.670]     |
| ATBLY6-01-□  |                                 |        |     | 23.5 | 25.8 |          |      | 10   | 19.8 |                               |          |      |      |                                     | 10             |
| TBLY6-02-□   | 6                               | R1/4   | 11  | 31   | 31.2 | 12.5     | 17   | 12   | 26.2 | 14                            | 4.2      | 15.5 | 12.5 | 4                                   | 27 [0.952]     |
| ATBLY6-02-□  |                                 |        |     | 29   | 29.2 |          |      | 12.5 | 21.8 |                               |          |      |      |                                     | 14             |
| TBLY6-03-□   | 6                               | R3/8   | 12  | 32.8 | 32.7 | 12.5     | 17   | 12   | 26.2 | 17                            | 4.2      | 15.5 | 12.5 | 4                                   | 40 [1.411]     |
| ATBLY6-03-□  |                                 |        |     | 31.5 | 31.4 |          |      | 12.5 | 23.8 |                               |          |      |      |                                     | 17             |
| TBLY8-01-□   | 8                               | R1/8   | 8   | 31   | 34.3 | 14.5     | 18.1 | 14   | 29.4 | 14                            | 4.2      | 16.9 | 14.5 | 4.1                                 | 25 [0.882]     |
| ATBLY8-01-□  |                                 |        |     | 25   | 28.3 |          |      | 12   | 22.7 |                               |          |      |      |                                     | 12             |
| TBLY8-02-□   | 8                               | R1/4   | 11  | 34   | 35.2 | 14.5     | 18.1 | 14   | 29.4 | 14                            | 4.2      | 16.9 | 14.5 | 4.1                                 | 31 [1.093]     |
| ATBLY8-02-□  |                                 |        |     | 29   | 30.2 |          |      | 12   | 23.7 |                               |          |      |      |                                     | 14             |
| TBLY8-03-□   | 8                               | R3/8   | 12  | 35.8 | 36.7 | 14.5     | 18.1 | 14   | 29.4 | 17                            | 4.2      | 16.9 | 14.5 | 4.1                                 | 44 [1.552]     |
| ATBLY8-03-□  |                                 |        |     | 32   | 32.9 |          |      | 12   | 24.7 |                               |          |      |      |                                     | 17             |
| TBLY10-02-□  | 10                              | R1/4   | 11  | 37   | 39.7 | 17.5     | 20.2 | 18   | 33.5 | 17                            | 4.2      | 18.5 | 17.5 | 7.5                                 | 46 [1.623]     |
| ATBLY10-02-□ |                                 |        |     | 29.5 | 32.2 |          |      | 17.5 | 26   |                               |          |      |      |                                     | 14             |
| TBLY10-03-□  | 10                              | R3/8   | 12  | 38   | 40.4 | 17.5     | 20.2 | 18   | 33.5 | 17                            | 4.2      | 18.5 | 17.5 | 7.5                                 | 54 [1.905]     |
| ATBLY10-03-□ |                                 |        |     | 32.5 | 34.9 |          |      | 17.5 | 27   |                               |          |      |      |                                     | 17             |
| TBLY10-04-□  | 10                              | R1/2   | 15  | 41   | 41.6 | 17.5     | 20.2 | 18   | 33.5 | 21                            | 4.2      | 18.5 | 17.5 | 7.5                                 | 76 [2.681]     |
| ATBLY10-04-□ |                                 |        |     | 37   | 37.6 |          |      | 17.5 | 28   |                               |          |      |      |                                     | 21             |
| TBLY12-02-□  | 12                              | R1/4   | 11  | 41.2 | 45.7 | 21       | 23.4 | 20   | 35.2 | 21                            | 4.2      | 20.4 | 21   | 8                                   | 67 [2.363]     |
| ATBLY12-02-□ |                                 |        |     | 29.5 | 34   |          |      | 14   | 28.2 |                               |          |      |      |                                     | 14             |
| TBLY12-03-□  | 12                              | R3/8   | 12  | 42.2 | 46.4 | 21       | 23.4 | 20   | 35.2 | 21                            | 4.2      | 20.4 | 21   | 9.8                                 | 68 [2.399]     |
| ATBLY12-03-□ |                                 |        |     | 33.5 | 37.7 |          |      | 17   | 29.2 |                               |          |      |      |                                     | 17             |
| TBLY12-04-□  | 12                              | R1/2   | 15  | 45.2 | 47.5 | 21       | 23.4 | 20   | 35.2 | 21                            | 4.2      | 20.4 | 21   | 9.8                                 | 83 [2.928]     |
| ATBLY12-04-□ |                                 |        |     | 38   | 40.3 |          |      | 21   | 30.2 |                               |          |      |      |                                     | 21             |

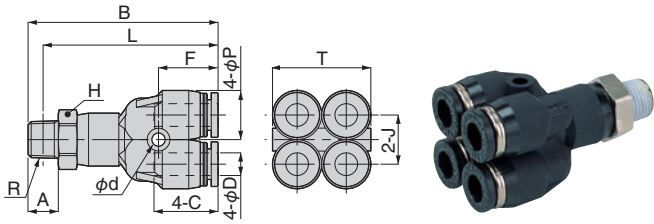
\* - □ ⇒ Select either blank (standard) or D (non-lubricant specification)

\* The L dimension for the tapered thread types is a reference dimension when mated and tightened.

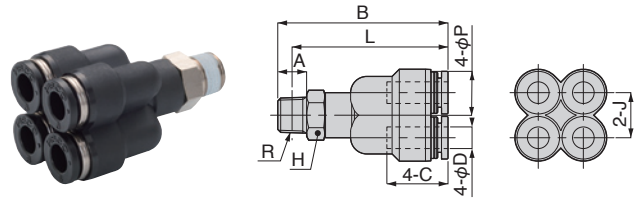
\* Prices are the same.

## TBW/ATBW Branch double Y

### Existing model TBW



### New model ATBW



indicates portion of new models (new shapes) that have changed in dimension.

Unit: mm

| Model      | Tube outer diameter $\phi D$ | R    | A  | B    | L    | $\phi P$ | C    | J    | Width across flats Hex. | $\phi d$ | F    | T    | Orifice diameter ( $\phi$ mm) | Mass g [oz] |
|------------|------------------------------|------|----|------|------|----------|------|------|-------------------------|----------|------|------|-------------------------------|-------------|
| TBW4-01-□  | 4                            | R1/8 | 8  | 45.7 | 41.7 | 10.5     | 14.9 | 10   | 12                      | 3.2      | 14.2 | 20.5 | 2.1                           | 22 [0.776]  |
| ATBW4-01-□ |                              |      |    | 38.9 | 34.9 |          |      | 10.3 |                         | —        | —    | —    | 2.6                           | 16 [0.564]  |
| TBW4-02-□  | 4                            | R1/4 | 11 | 48.7 | 42.7 | 10.5     | 14.9 | 10   | 14                      | 3.2      | 14.2 | 20.5 | 2.1                           | 30 [1.058]  |
| ATBW4-02-□ |                              |      |    | 42.4 | 36.4 |          |      | 10.3 |                         | —        | —    | —    | 2.6                           | 21 [0.741]  |
| TBW6-01-□  | 6                            | R1/8 | 8  | 50.3 | 46.3 | 13       | 17   | 13   | 14                      | 3.5      | 15.8 | 26   | 4.3                           | 29 [1.023]  |
| ATBW6-01-□ |                              |      |    | 47.2 | 43.2 |          |      | 12.5 |                         | 12       | —    | —    | —                             | 5.2         |

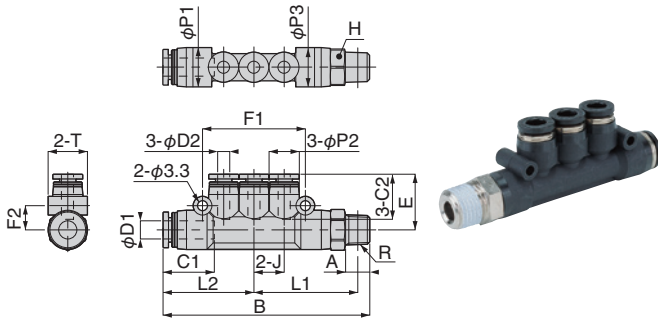
\* - □ ⇒ Select either blank (standard) or D (non-lubricant specification)

\* The L dimension for the tapered thread types is a reference dimension when mated and tightened.

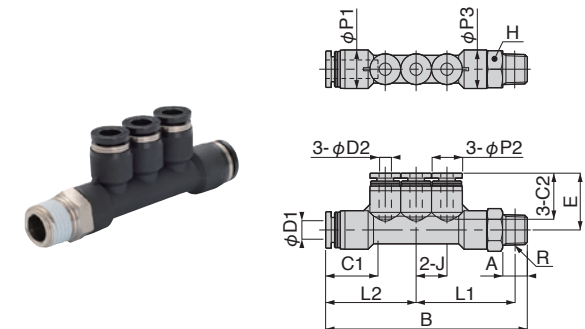
\* Prices are the same.

## TBE/ATBE Branch triple

### Existing model TBE



### New model ATBE



indicates portion of new models (new shapes) that have changed in dimension.

Unit: mm

| Model         | Tube outer diameter $\phi D1$ | Tube outer diameter $\phi D2$ | R    | A  | B    | E    | L1   | L2   | J  | $\phi P1$ | $\phi P2$ | $\phi P3$ | C1   | C2   | F1   | F2   | Width across flats Hex. | T    | Orifice diameter ( $\phi$ mm) | Mass g [oz] |
|---------------|-------------------------------|-------------------------------|------|----|------|------|------|------|----|-----------|-----------|-----------|------|------|------|------|-------------------------|------|-------------------------------|-------------|
| TBE6-4-01-□   | 6                             | 4                             | R1/8 | 8  | 68.4 | 18.4 | 34.3 | 30.1 | 10 | 13        | 10        | 13        | 17   | 14.9 | 34   | 8    | 12                      | 13   | 3                             | 24 [0.847]  |
| ATBE6-4-01-□  |                               |                               |      |    | 65.4 |      | 32.1 | 29.3 |    | 12.5      |           | 12.5      |      |      | —    | —    |                         |      |                               | —           |
| TBE8-4-02-□   | 8                             | 4                             | R1/4 | 11 | 73.7 | 19.2 | 36.5 | 31.2 | 10 | 15        | 10        | 15        | 18.1 | 14.9 | 34   | 9.2  | 14                      | 15   | 3                             | 34 [1.199]  |
| ATBE8-4-02-□  |                               |                               |      |    | 69.2 |      | 32   | 14.5 |    | 14.5      |           | —         |      |      | —    | —    |                         |      |                               | —           |
| TBE8-6-02-□   | 8                             | 6                             | R1/4 | 11 | 80.7 | 21.3 | 40   | 34.7 | 12 | 15        | 13        | 15        | 18.1 | 17   | 40.2 | 9    | 14                      | 15   | 4.6                           | 37 [1.305]  |
| ATBE8-6-02-□  |                               |                               |      |    | 76.9 |      | 36.5 | 34.4 |    | 12.5      |           | 14.5      |      |      | 12.5 | 14.5 |                         |      |                               | —           |
| TBE10-8-03-□  | 10                            | 8                             | R3/8 | 12 | 93   | 23.7 | 46.7 | 40   | 14 | 15        | 15        | 17.5      | 20.7 | 18.1 | 46.2 | 10.5 | 17                      | 17.5 | 7                             | 60 [2.116]  |
| ATBE10-8-03-□ |                               |                               |      |    | 87.8 |      | 41.5 | 14.5 |    | 14.5      |           | 18        |      |      | 20.2 | —    |                         |      |                               | —           |

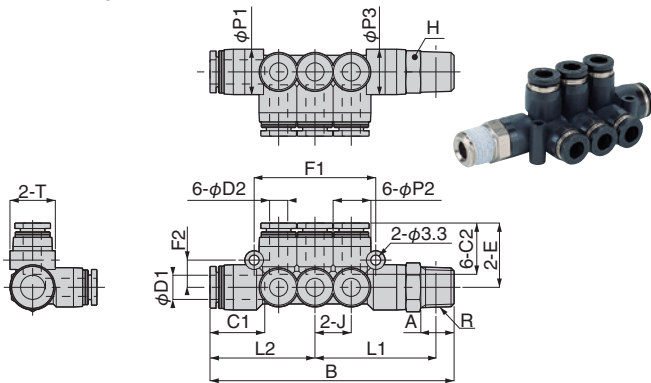
\* - □ ⇒ Select either blank (standard) or D (non-lubricant specification)

\* The L1 dimension for the tapered thread types is a reference dimension when mated and tightened.

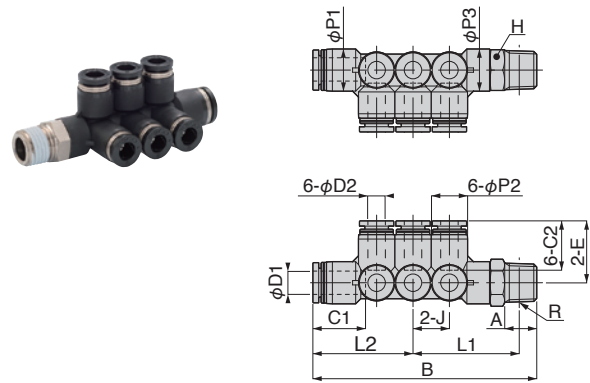
\* Prices are the same.

# TBEW/ATBEW Branch triple double

## Existing model TBEW



## New model ATBEW



indicates portion of new models (new shapes) that have changed in dimension.

Unit: mm

| Model          | Tube outer diameter φD1 | Tube outer diameter φD2 | R    | A  | B    | E    | L1   | L2   | J    | φP1  | φP2  | φP3  | C1   | C2   | F1   | F2   | Width across flats Hex. | T    | Orifice diameter (φmm) | Mass g [oz] |
|----------------|-------------------------|-------------------------|------|----|------|------|------|------|------|------|------|------|------|------|------|------|-------------------------|------|------------------------|-------------|
| TBEW8-4-02-□   | 8                       | 4                       | R1/4 | 11 | 80.7 | 20.7 | 40   | 34.7 | 12   | 15   | 13   | 15   | 18.1 | 14.9 | 40.2 | 9    | 14                      | 15   | 3                      | 45 [1.587]  |
| ATBEW8-4-02-□  |                         |                         |      |    | 69.2 | 19.2 | 32   | 31.2 | 10   | 14.5 | 10   | 14.5 |      |      | —    | —    |                         |      |                        | —           |
| TBEW8-4-03-□   | 8                       | 4                       | R3/8 | 12 | 82.5 | 20.7 | 41.5 | 34.7 | 12   | 15   | 13   | 15   | 18.1 | 14.9 | 40.2 | 9    | 17                      | 15   | 3                      | 58 [2.046]  |
| ATBEW8-4-03-□  |                         |                         |      |    | 72.2 | 19.2 | 34.7 | 31.2 | 10   | 14.5 | 10   | 18   |      |      | —    | —    |                         |      |                        | —           |
| TBEW8-6-02-□   | 8                       | 6                       | R1/4 | 11 | 80.7 | 21.3 | 40   | 34.7 | 12   | 15   | 13   | 15   | 18.1 | 17   | 40.2 | 9    | 14                      | 15   | 4.6                    | 47 [1.658]  |
| ATBEW8-6-02-□  |                         |                         |      |    | 76.9 |      | 36.5 | 34.4 | 12.5 | 14.5 | 12.5 | 14.5 |      |      | —    | —    |                         |      |                        | —           |
| TBEW8-6-03-□   | 8                       | 6                       | R3/8 | 12 | 82.5 | 21.3 | 41.5 | 34.7 | 12   | 15   | 13   | 15   | 18.1 | 17   | 40.2 | 9    | 17                      | 15   | 4.6                    | 60 [2.116]  |
| ATBEW8-6-03-□  |                         |                         |      |    | 80.7 |      | 39.9 | 34.4 | 12.5 | 14.5 | 12.5 | 18   |      |      | —    | —    |                         |      |                        | —           |
| TBEW10-6-03-□  | 10                      | 6                       | R3/8 | 12 | 93   | 23.8 | 46.7 | 40   | 14   | 17.5 | 15   | 17.5 | 20.2 | 17   | 46.2 | 10.5 | 17                      | 17.5 | 4.6                    | 70 [2.469]  |
| ATBEW10-6-03-□ |                         |                         |      |    | 81.5 | 22.3 | 38.2 | 37   | 12.5 |      | 12.5 | 18   |      |      | —    | —    |                         |      |                        | —           |
| TBEW10-6-04-□  | 10                      | 6                       | R1/2 | 15 | 96   | 23.8 | 47.8 | 40   | 14   | 17.5 | 15   | 17.5 | 20.2 | 17   | 46.2 | 10.5 | 21                      | 17.5 | 4.6                    | 93 [3.280]  |
| ATBEW10-6-04-□ |                         |                         |      |    | 85.5 | 22.3 | 40.3 | 37   | 12.5 |      | 12.5 | 20   |      |      | —    | —    |                         |      |                        | —           |
| TBEW10-8-03-□  | 10                      | 8                       | R3/8 | 12 | 93   | 23.7 | 46.7 | 40   | 14   | 17.5 | 15   | 17.5 | 20.2 | 18.1 | 46.2 | 10.5 | 17                      | 17.5 | 7                      | 74 [2.610]  |
| ATBEW10-8-03-□ |                         |                         |      |    | 87.8 |      | 41.5 |      | 14.5 |      | 14.5 | 18   |      |      | —    | —    |                         |      |                        | —           |
| TBEW10-8-04-□  | 10                      | 8                       | R1/2 | 15 | 96   | 23.7 | 47.8 | 40   | 14   | 17.5 | 15   | 17.5 | 20.2 | 18.1 | 46.2 | 10.5 | 21                      | 17.5 | 7                      | 96 [3.386]  |
| ATBEW10-8-04-□ |                         |                         |      |    | 91.8 |      | 43.6 |      | 14.5 |      | 14.5 | 20   |      |      | —    | —    |                         |      |                        | —           |

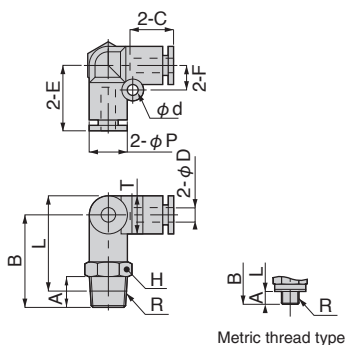
\* - □ ⇒ Select either blank (standard) or D (non-lubricant specification)

\* The L1 dimension for the tapered thread types is a reference dimension when mated and tightened.

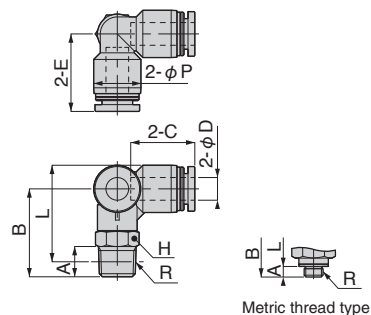
\* Prices are the same.

## TBZ/ATBZ Branch tetra

### Existing model TBZ



### New model ATBZ



indicates portion of new models (new shapes) that have changed in dimension.

Unit: mm

| Model       | Tube outer diameter $\phi D$ | R      | A   | B    | L    | $\phi P$ | C    | E    | Width across flats Hex. | $\phi d$ | F   | T    | Orifice diameter ( $\phi$ mm) | Mass g [oz] |
|-------------|------------------------------|--------|-----|------|------|----------|------|------|-------------------------|----------|-----|------|-------------------------------|-------------|
| TBZ4-M5-□   | 4                            | M5×0.8 | 3   | 21.7 | 23.7 | 10       | 14.9 | 16.9 | 10                      | 3.2      | 6.5 | 10   | 1.8                           | 11 [0.388]  |
| ATBZ4-M5-□  |                              |        | 2.8 | 20.3 | 22.5 |          |      | 18.2 |                         |          |     |      |                               | 2.4         |
| TBZ4-M6-□   | 4                            | M6×1   | 4   | 22.7 | 23.7 | 10       | 14.9 | 16.9 | 10                      | 3.2      | 6.5 | 10   | 3                             | 11 [0.388]  |
| ATBZ4-M6-□  |                              |        | 3.8 | 21.3 | 22.5 |          |      | 18.2 |                         |          |     |      |                               | 11 [0.388]  |
| TBZ4-01-□   | 4                            | R1/8   | 8   | 24.7 | 25.7 | 10       | 14.9 | 16.9 | 10                      | 3.2      | 6.5 | 10   | 3                             | 14 [0.494]  |
| ATBZ4-01-□  |                              |        |     | 23.3 | 24.3 |          |      | 18.2 |                         |          |     |      |                               | 13 [0.459]  |
| TBZ4-02-□   | 4                            | R1/4   | 11  | 27.7 | 26.7 | 10       | 14.9 | 16.9 | 14                      | 3.2      | 6.5 | 10   | 3                             | 23 [0.811]  |
| ATBZ4-02-□  |                              |        |     | 29   | 28   |          |      | 20.7 |                         |          |     |      |                               | 20 [0.705]  |
| TBZ6-M5-□   | 6                            | M5×0.8 | 3   | 25.3 | 28.6 | 12.5     | 17   | 20.1 | 12                      | 4.2      | 8   | 12.5 | 1.8                           | 17 [0.600]  |
| ATBZ6-M5-□  |                              |        | 2.8 | 20.3 | 23.7 |          |      | 20.5 |                         |          |     |      |                               | 10          |
| TBZ6-M6-□   | 6                            | M6×1   | 4   | 26.3 | 28.6 | 12.5     | 17   | 20.1 | 12                      | 4.2      | 8   | 12.5 | 3                             | 17 [0.600]  |
| ATBZ6-M6-□  |                              |        | 3.8 | 21.3 | 23.7 |          |      | 20.5 |                         |          |     |      |                               | 10          |
| TBZ6-01-□   | 6                            | R1/8   | 8   | 28.3 | 30.6 | 12.5     | 17   | 20.1 | 12                      | 4.2      | 8   | 12.5 | 4.6                           | 18 [0.635]  |
| ATBZ6-01-□  |                              |        |     | 23.3 | 25.5 |          |      | 20.5 |                         |          |     |      |                               | 10          |
| TBZ6-02-□   | 6                            | R1/4   | 11  | 31.3 | 31.5 | 12.5     | 17   | 20.1 | 14                      | 4.2      | 8   | 12.5 | 4.6                           | 26 [0.917]  |
| ATBZ6-02-□  |                              |        |     | 28   | 28.2 |          |      | 21.8 |                         |          |     |      |                               | 22 [0.776]  |
| TBZ6-03-□   | 6                            | R3/8   | 12  | 33.1 | 33   | 12.5     | 17   | 20.1 | 17                      | 4.2      | 8   | 12.5 | 4.6                           | 39 [1.376]  |
| ATBZ6-03-□  |                              |        |     | 31.5 | 31.4 |          |      | 23.8 |                         |          |     |      |                               | 33 [1.164]  |
| TBZ8-01-□   | 8                            | R1/8   | 8   | 30.4 | 33.7 | 14.5     | 18.1 | 22.1 | 14                      | 4.2      | 10  | 14.5 | 6                             | 24 [0.847]  |
| ATBZ8-01-□  |                              |        |     | 25   | 28.3 |          |      | 22.7 |                         |          |     |      |                               | 12          |
| TBZ8-02-□   | 8                            | R1/4   | 11  | 33.4 | 34.6 | 14.5     | 18.1 | 22.1 | 14                      | 4.2      | 10  | 14.5 | 6                             | 30 [1.058]  |
| ATBZ8-02-□  |                              |        |     | 29   | 30.2 |          |      | 23.7 |                         |          |     |      |                               | 14          |
| TBZ8-03-□   | 8                            | R3/8   | 12  | 35.2 | 36.1 | 14.5     | 18.1 | 22.1 | 17                      | 4.2      | 10  | 14.5 | 6                             | 42 [1.482]  |
| ATBZ8-03-□  |                              |        |     | 32   | 32.9 |          |      | 24.7 |                         |          |     |      |                               | 17          |
| TBZ10-02-□  | 10                           | R1/4   | 11  | 38.2 | 40.9 | 17.5     | 20.2 | 26.2 | 17                      | 4.2      | 12  | 17.5 | 8                             | 44 [1.552]  |
| ATBZ10-02-□ |                              |        |     | 29.4 | 32.1 |          |      | 26   |                         |          |     |      |                               | 14          |
| TBZ10-03-□  | 10                           | R3/8   | 12  | 39.2 | 41.6 | 17.5     | 20.2 | 26.2 | 17                      | 4.2      | 12  | 17.5 | 8                             | 52 [1.834]  |
| ATBZ10-03-□ |                              |        |     | 33   | 35.4 |          |      | 27   |                         |          |     |      |                               | 17          |
| TBZ10-04-□  | 10                           | R1/2   | 15  | 42.2 | 42.8 | 17.5     | 20.2 | 26.2 | 21                      | 4.2      | 12  | 17.5 | 8                             | 74 [2.610]  |
| ATBZ10-04-□ |                              |        |     | 37   | 37.6 |          |      | 27.5 |                         |          |     |      |                               | 21          |
| TBZ12-02-□  | 12                           | R1/4   | 11  | 41.2 | 45.7 | 21       | 23.4 | 29.4 | 21                      | 4.2      | 14  | 21   | 8                             | 64 [2.258]  |
| ATBZ12-02-□ |                              |        |     | 30.8 | 35.2 |          |      | 30.2 |                         |          |     |      |                               | 14          |
| TBZ12-03-□  | 12                           | R3/8   | 12  | 42.2 | 46.4 | 21       | 23.4 | 29.4 | 21                      | 4.2      | 14  | 21   | 10                            | 65 [2.293]  |
| ATBZ12-03-□ |                              |        |     | 33.5 | 37.7 |          |      | 30.2 |                         |          |     |      |                               | 17          |
| TBZ12-04-□  | 12                           | R1/2   | 15  | 45.2 | 47.5 | 21       | 23.4 | 29.4 | 21                      | 4.2      | 14  | 21   | 10                            | 81 [2.857]  |
| ATBZ12-04-□ |                              |        |     | 38   | 40.3 |          |      | 31.2 |                         |          |     |      |                               | 21          |

\* - □ ⇒ Select either blank (standard) or D (non-lubricant specification)

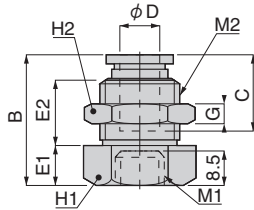
\* The L dimension for the tapered thread types is a reference dimension when mated and tightened.

\* Prices are the same.

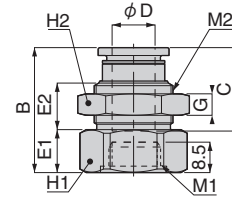
# Supply joint

## SKR/ASKR Reducer for bulkhead

● Existing model **SKR**



● New model **ASKR**



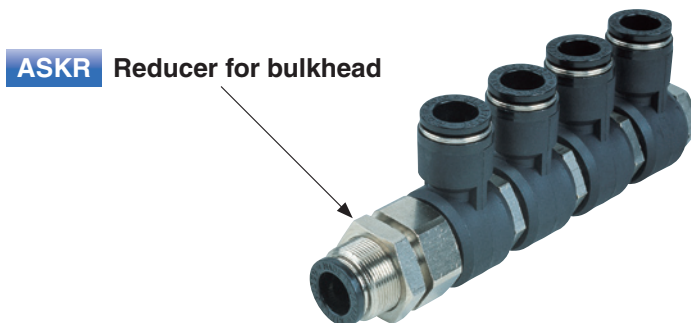
indicates portion of new models (new shapes) that have changed in dimension.

Unit: mm

| Model     | Tube outer diameter $\phi D$ | M1    | M2    | B    | E1 | E2   | C    | G | H1 | H2 | Effective cross section area (mm <sup>2</sup> ) | Mass g [oz] |
|-----------|------------------------------|-------|-------|------|----|------|------|---|----|----|---|-------------|
| SKR8-4    | 4                            | M8×1  | M12×1 | 26   | 8  | 13.4 | 14.9 | 4 | 14 | 14 | 5.6   | 19 [0.670]  |
| ASKR8-4   |                              |       |       |      |    | 11.8 |      |   |    |    |   | 18 [0.635]  |
| SKR8-6    | 6                            | M8×1  | M14×1 | 28.1 | 8  | 14.9 | 17   | 4 | 17 | 17 | 11.5  | 29 [1.023]  |
| ASKR8-6   |                              |       |       |      |    | 13.9 |      |   |    |    |   |             |
| SKR12-6   | 6                            | M12×1 | M14×1 | 28.1 | 12 | 10.9 | 17   | 4 | 17 | 17 | 13.2  | 28 [0.988]  |
| ASKR12-6  |                              |       |       |      |    | 9.9  |      |   |    |    |   |             |
| SKR12-8   | 8                            | M12×1 | M16×1 | 28.9 | 10 | 13.4 | 18.2 | 4 | 19 | 19 | 27.4  | 34 [1.199]  |
| ASKR12-8  |                              |       |       |      |    | 11.7 |      |   |    |    |   | 33 [1.164]  |
| SKR12-10  | 10                           | M12×1 | M20×1 | 32.3 | 10 | 16.4 | 20.7 | 5 | 22 | 24 | 34.8  | 60 [2.116]  |
| ASKR12-10 |                              |       |       |      |    | 13.7 |      |   |    |    |   | 57 [2.011]  |
| SKR14-8   | 8                            | M14×1 | M16×1 | 28.9 | 12 | 11.4 | 18.2 | 4 | 19 | 19 | 27.7  | 33 [1.164]  |
| ASKR14-8  |                              |       |       |      |    | 9.7  |      |   |    |    |   | 32 [1.129]  |
| SKR14-10  | 10                           | M14×1 | M20×1 | 32.3 | 10 | 16.4 | 20.7 | 5 | 24 | 24 | 41.7  | 64 [2.258]  |
| ASKR14-10 |                              |       |       |      |    | 13.7 |      |   |    |    |   | 60 [2.116]  |
| SKR14-12  | 12                           | M14×1 | M22×1 | 34.9 | 12 | 17.4 | 23.3 | 6 | 24 | 27 | 54.7  | 78 [2.751]  |
| ASKR14-12 |                              |       |       |      |    | 13   |      |   |    |    |   | 74 [2.610]  |
| SKR18-12  | 12                           | M18×1 | M22×1 | 34.9 | 12 | 17.4 | 23.3 | 6 | 27 | 27 | 66.7  | 83 [2.928]  |
| ASKR18-12 |                              |       |       |      |    | 13   |      |   |    |    |   | 79 [2.787]  |

\* Prices are the same.

## Supply joint (assembly side)



# List of models and their specifications

\* See the following table for combinations of models of fittings, tube size, and thread size.

Regarding NCU specifications, the "←" indicates that the standard model can be used as NCU specifications, so order the standard model.

- The dimension diagram for the following NCU specifications and the CS specifications are the same as the standard model or the non-lubricant specifications. Refer to the dimension diagrams on pages ① to ⑩.

## ● Table of models

| Name                                 | Tube outer diameter     | Thread size | Standard model or non-lubricant specifications | NCU Specification | CS Specification |             |
|--------------------------------------|-------------------------|-------------|--|-------------------|------------------|-------------|
| Straight<br>ATS                      | 4                       | M5 × 0.8    | ATS4-M5-D                                      | —                 | CS-ATS4-M5       |             |
|                                      |                         |             | ATS4-M50-□                                     | ←                 | CS-ATS4-M50      |             |
|                                      |                         | M6 × 1      | ATS4-M6-D                                      | —                 | CS-ATS4-M6       |             |
|                                      |                         |             | R1/8   | ATS4-01-D         | NCU-ATS4-01      | CS-ATS4-01  |
|                                      |                         |             | R1/4   | ATS4-02-□         | NCU-ATS4-02      | CS-ATS4-02  |
|                                      | 6                       | M5 × 0.8    | ATS6-M5-D                                      | —                 | CS-ATS6-M5       |             |
|                                      |                         |             | ATS6-M6-D                                      | —                 | CS-ATS6-M6       |             |
|                                      |                         | R1/8        | ATS6-01-D                                      | NCU-ATS6-01       | CS-ATS6-01       |             |
|                                      |                         |             | R1/4   | ATS6-02-□         | NCU-ATS6-02      | CS-ATS6-02  |
|                                      |                         |             | R3/8   | ATS6-03-□         | NCU-ATS6-03      | CS-ATS6-03  |
|                                      | 8                       | R1/8        | ATS8-01-□                                      | NCU-ATS8-01       | CS-ATS8-01       |             |
|                                      |                         | R1/4        | ATS8-02-□                                      | NCU-ATS8-02       | CS-ATS8-02       |             |
|                                      |                         | R3/8        | ATS8-03-□                                      | NCU-ATS8-03       | CS-ATS8-03       |             |
|                                      | 10                      | R1/8        | ATS10-01-□                                     | NCU-ATS10-01      | CS-ATS10-01      |             |
|                                      |                         | R1/4        | ATS10-02-□                                     | NCU-ATS10-02      | CS-ATS10-02      |             |
|                                      |                         | R3/8        | ATS10-03-□                                     | NCU-ATS10-03      | CS-ATS10-03      |             |
|                                      |                         | R1/2        | ATS10-04-□                                     | NCU-ATS10-04      | CS-ATS10-04      |             |
|                                      | 12                      | R1/4        | ATS12-02-□                                     | NCU-ATS12-02      | CS-ATS12-02      |             |
|                                      |                         | R3/8        | ATS12-03-□                                     | NCU-ATS12-03      | CS-ATS12-03      |             |
|                                      |                         | R1/2        | ATS12-04-□                                     | NCU-ATS12-04      | CS-ATS12-04      |             |
| 16                                   | R3/8                    | ATS16-03-□  | NCU-ATS16-03                                   | CS-ATS16-03       |                  |             |
|                                      | R1/2                    | ATS16-04-□  | NCU-ATS16-04                                   | CS-ATS16-04       |                  |             |
| Straight with hexagon socket<br>ATSH | 4                       | M5 × 0.8    | ATSH4-M5-D                                     | —                 | CS-ATSH4-M5      |             |
|                                      |                         |             | ATSH4-M6-D                                     | —                 | CS-ATSH4-M6      |             |
|                                      |                         | R1/8        | ATSH4-01-D                                     | NCU-ATSH4-01      | CS-ATSH4-01      |             |
|                                      | 6                       | M5 × 0.8    | ATSH6-M5-D                                     | —                 | CS-ATSH6-M5      |             |
|                                      |                         |             | ATSH6-M6-D                                     | —                 | CS-ATSH6-M6      |             |
|                                      |                         | R1/8        | ATSH6-01-D                                     | NCU-ATSH6-01      | CS-ATSH6-01      |             |
|                                      | 8                       | R1/4        | ATSH6-02-□                                     | NCU-ATSH6-02      | CS-ATSH6-02      |             |
|                                      |                         | R1/8        | ATSH8-01-□                                     | NCU-ATSH8-01      | CS-ATSH8-01      |             |
|                                      |                         | R1/4        | ATSH8-02-□                                     | NCU-ATSH8-02      | CS-ATSH8-02      |             |
|                                      | 10                      | R3/8        | ATSH8-03-□                                     | NCU-ATSH8-03      | CS-ATSH8-03      |             |
|                                      |                         | R1/4        | ATSH10-02-□                                    | NCU-ATSH10-02     | CS-ATSH10-02     |             |
|                                      |                         | R3/8        | ATSH10-03-□                                    | NCU-ATSH10-03     | CS-ATSH10-03     |             |
|                                      | 12                      | R1/2        | ATSH10-04-□                                    | NCU-ATSH10-04     | CS-ATSH10-04     |             |
|                                      |                         | R3/8        | ATSH12-03-□                                    | NCU-ATSH12-03     | CS-ATSH12-03     |             |
|                                      |                         | R1/2        | ATSH12-04-□                                    | NCU-ATSH12-04     | CS-ATSH12-04     |             |
|                                      | Female straight<br>ATSM | 4           | Rc1/8  | ATSM4-01-□        | ←                | CS-ATSM4-01 |
|                                      |                         |             | Rc1/4  | ATSM4-02-□        | ←                | CS-ATSM4-02 |
|                                      |                         | 6           | Rc1/8  | ATSM6-01-□        | ←                | CS-ATSM6-01 |
|                                      |                         |             | Rc1/4  | ATSM6-02-□        | ←                | CS-ATSM6-02 |
|                                      |                         | 8           | Rc1/8  | ATSM8-01-□        | ←                | CS-ATSM8-01 |
| Rc1/4                                |                         |             | ATSM8-02-□                                     | ←                 | CS-ATSM8-02      |             |
| Rc3/8                                |                         |             | ATSM8-03-□                                     | ←                 | CS-ATSM8-03      |             |
| 10                                   |                         | Rc1/4       | ATSM10-02-□                                    | ←                 | CS-ATSM10-02     |             |
|                                      |                         | Rc3/8       | ATSM10-03-□                                    | ←                 | CS-ATSM10-03     |             |
| 12                                   |                         | Rc1/4       | ATSM12-02-□                                    | ←                 | CS-ATSM12-02     |             |
|                                      |                         | Rc3/8       | ATSM12-03-□                                    | ←                 | CS-ATSM12-03     |             |

\* -D ⇒ Non-lubricant specification only. -□ ⇒ Select either blank (standard) or D (non-lubricant specification)

| Name                              | Tube outer diameter | Thread size | Standard model or non-lubricant specifications | NCU Specification | CS Specification |             |
|-----------------------------------|---------------------|-------------|--|-------------------|------------------|-------------|
| Union for bulkhead<br>AUK         | 4                   | —           | AUK4-D   | —                 | CS-AUK4          |             |
|                                   | 6                   | —           | AUK6-D   | —                 | CS-AUK6          |             |
|                                   | 8                   | —           | AUK8-□   | ←                 | CS-AUK8          |             |
|                                   | 10                  | —           | AUK10-□  | ←                 | CS-AUK10         |             |
|                                   | 12                  | —           | AUK12-□  | ←                 | CS-AUK12         |             |
| Female union for bulkhead<br>AUKM | 4                   | Rc1/8       | AUKM4-01-□                                     | ←                 | CS-AUKM4-01      |             |
|                                   |                     | Rc1/8       | AUKM6-01-□                                     | ←                 | CS-AUKM6-01      |             |
|                                   | 6                   | Rc1/4       | AUKM6-02-□                                     | ←                 | CS-AUKM6-02      |             |
|                                   |                     | Rc1/8       | AUKM8-01-□                                     | ←                 | CS-AUKM8-01      |             |
|                                   | 8                   | Rc1/4       | AUKM8-02-□                                     | ←                 | CS-AUKM8-02      |             |
|                                   |                     | Rc3/8       | AUKM8-03-□                                     | ←                 | CS-AUKM8-03      |             |
|                                   | 10                  | Rc1/4       | AUKM10-02-□                                    | ←                 | CS-AUKM10-02     |             |
|                                   |                     | Rc3/8       | AUKM10-03-□                                    | ←                 | CS-AUKM10-03     |             |
|                                   | 12                  | Rc3/8       | AUKM12-03-□                                    | ←                 | CS-AUKM12-03     |             |
|                                   |                     | Rc1/2       | AUKM12-04-□                                    | ←                 | CS-AUKM12-04     |             |
|                                   | Elbow<br>ATL        | 4           | M5 × 0.8                                       | ATL4-M5-D         | —                | CS-ATL4-M5  |
|                                   |                     |             |  | ATL4-M6-D         | —                | CS-ATL4-M6  |
| R1/8                              |                     |             | ATL4-01-D                                      | NCU-ATL4-01       | CS-ATL4-01       |             |
| 6                                 |                     | M5 × 0.8    | ATL6-M5-D                                      | —                 | CS-ATL6-M5       |             |
|                                   |                     |             | ATL6-M6-D                                      | —                 | CS-ATL6-M6       |             |
|                                   |                     | R1/8        | ATL6-01-D                                      | NCU-ATL6-01       | CS-ATL6-01       |             |
| 8                                 |                     | R1/4        | ATL6-02-□                                      | NCU-ATL6-02       | CS-ATL6-02       |             |
|                                   |                     | R3/8        | ATL6-03-□                                      | NCU-ATL6-03       | CS-ATL6-03       |             |
|                                   |                     | R1/8        | ATL8-01-□                                      | NCU-ATL8-01       | CS-ATL8-01       |             |
| 10                                |                     | R1/4        | ATL8-02-□                                      | NCU-ATL8-02       | CS-ATL8-02       |             |
|                                   |                     | R3/8        | ATL8-03-□                                      | NCU-ATL8-03       | CS-ATL8-03       |             |
|                                   |                     | R1/8        | ATL10-01-□                                     | NCU-ATL10-01      | CS-ATL10-01      |             |
| 12                                |                     | R1/4        | ATL10-02-□                                     | NCU-ATL10-02      | CS-ATL10-02      |             |
|                                   |                     | R3/8        | ATL10-03-□                                     | NCU-ATL10-03      | CS-ATL10-03      |             |
|                                   |                     | R1/2        | ATL10-04-□                                     | NCU-ATL10-04      | CS-ATL10-04      |             |
| Long elbow<br>ATLL                | 4                   | M5 × 0.8    | ATLL4-M5-D                                     | —                 | CS-ATLL4-M5      |             |
|                                   |                     |             | R1/8   | ATLL4-01-D        | NCU-ATLL4-01     | CS-ATLL4-01 |
|                                   | 6                   | R1/8        | ATLL6-01-D                                     | NCU-ATLL6-01      | CS-ATLL6-01      |             |
|                                   |                     | R1/4        | ATLL6-02-□                                     | NCU-ATLL6-02      | CS-ATLL6-02      |             |
|                                   |                     | R3/8        | ATLL6-03-□                                     | NCU-ATLL6-03      | CS-ATLL6-03      |             |
|                                   | 8                   | R1/8        | ATLL8-01-□                                     | NCU-ATLL8-01      | CS-ATLL8-01      |             |
|                                   |                     | R1/4        | ATLL8-02-□                                     | NCU-ATLL8-02      | CS-ATLL8-02      |             |
|                                   |                     | R3/8        | ATLL8-03-□                                     | NCU-ATLL8-03      | CS-ATLL8-03      |             |
|                                   | 10                  | R1/4        | ATLL10-02-□                                    | NCU-ATLL10-02     | CS-ATLL10-02     |             |
|                                   |                     | R3/8        | ATLL10-03-□                                    | NCU-ATLL10-03     | CS-ATLL10-03     |             |
|                                   |                     | R1/2        | ATLL10-04-□                                    | NCU-ATLL10-04     | CS-ATLL10-04     |             |
|                                   | 12                  | R1/4        | ATLL12-02-□                                    | NCU-ATLL12-02     | CS-ATLL12-02     |             |
|                                   |                     | R3/8        | ATLL12-03-□                                    | NCU-ATLL12-03     | CS-ATLL12-03     |             |
|                                   |                     | R1/2        | ATLL12-04-□                                    | NCU-ATLL12-04     | CS-ATLL12-04     |             |

\* -D ⇒ Non-lubricant specification only. -□ ⇒ Select either blank (standard) or D (non-lubricant specification)

## List of models and their specifications

\* See the following table for combinations of models of fittings, tube size, and thread size.

Regarding NCU specifications, the "←" indicates that the standard model can be used as NCU specifications, so order the standard model.

- The dimension diagram for the following NCU specifications and the CS specifications are the same as the standard model or the non-lubricant specifications. Refer to the dimension diagrams on pages ① to ⑩.

### ● Table of models

| Name       | Tube outer diameter | Thread size | Standard model or non-lubricant specifications | NCU Specification | CS Specification |
|------------|---------------------|-------------|--|-------------------|------------------|
| Tee<br>ATT | 4                   | M5×0.8      | ATT4-M5-D                                      | —                 | CS-ATT4-M5       |
|            |                     | M6×1        | ATT4-M6-D                                      | —                 | CS-ATT4-M6       |
|            |                     | R1/8        | ATT4-01-D                                      | NCU-ATT4-01       | CS-ATT4-01       |
|            |                     | R1/4        | ATT4-02-□                                      | NCU-ATT4-02       | CS-ATT4-02       |
|            | 6                   | M5×0.8      | ATT6-M5-D                                      | —                 | CS-ATT6-M5       |
|            |                     | M6×1        | ATT6-M6-D                                      | —                 | CS-ATT6-M6       |
|            |                     | R1/8        | ATT6-01-D                                      | NCU-ATT6-01       | CS-ATT6-01       |
|            |                     | R1/4        | ATT6-02-□                                      | NCU-ATT6-02       | CS-ATT6-02       |
|            |                     | R3/8        | ATT6-03-□                                      | NCU-ATT6-03       | CS-ATT6-03       |
|            |                     | R1/8        | ATT8-01-□                                      | NCU-ATT8-01       | CS-ATT8-01       |
|            | 8                   | R1/4        | ATT8-02-□                                      | NCU-ATT8-02       | CS-ATT8-02       |
|            |                     | R3/8        | ATT8-03-□                                      | NCU-ATT8-03       | CS-ATT8-03       |
|            |                     | R1/4        | ATT10-02-□                                     | NCU-ATT10-02      | CS-ATT10-02      |
|            | 10                  | R3/8        | ATT10-03-□                                     | NCU-ATT10-03      | CS-ATT10-03      |
|            |                     | R1/2        | ATT10-04-□                                     | NCU-ATT10-04      | CS-ATT10-04      |
|            |                     | R1/4        | ATT12-02-□                                     | NCU-ATT12-02      | CS-ATT12-02      |
|            | 12                  | R3/8        | ATT12-03-□                                     | NCU-ATT12-03      | CS-ATT12-03      |
|            |                     | R1/2        | ATT12-04-□                                     | NCU-ATT12-04      | CS-ATT12-04      |
|            |                     | M5×0.8      | ATB4-M5-D                                      | —                 | CS-ATB4-M5       |
|            | 4                   | M6×1        | ATB4-M6-D                                      | —                 | CS-ATB4-M6       |
| R1/8       |                     | ATB4-01-D   | NCU-ATB4-01                                    | CS-ATB4-01        |                  |
| R1/4       |                     | ATB4-02-□   | NCU-ATB4-02                                    | CS-ATB4-02        |                  |
| M5×0.8     |                     | ATB6-M5-D   | —  | CS-ATB6-M5        |                  |
| 6          | M6×1                | ATB6-M6-D   | —  | CS-ATB6-M6        |                  |
|            | R1/8                | ATB6-01-D   | NCU-ATB6-01                                    | CS-ATB6-01        |                  |
|            | R1/4                | ATB6-02-□   | NCU-ATB6-02                                    | CS-ATB6-02        |                  |
|            | R3/8                | ATB6-03-□   | NCU-ATB6-03                                    | CS-ATB6-03        |                  |
|            | R1/8                | ATB8-01-□   | NCU-ATB8-01                                    | CS-ATB8-01        |                  |
| 8          | R1/4                | ATB8-02-□   | NCU-ATB8-02                                    | CS-ATB8-02        |                  |
|            | R3/8                | ATB8-03-□   | NCU-ATB8-03                                    | CS-ATB8-03        |                  |
|            | R1/4                | ATB10-02-□  | NCU-ATB10-02                                   | CS-ATB10-02       |                  |
| 10         | R3/8                | ATB10-03-□  | NCU-ATB10-03                                   | CS-ATB10-03       |                  |
|            | R1/2                | ATB10-04-□  | NCU-ATB10-04                                   | CS-ATB10-04       |                  |
|            | R1/4                | ATB12-02-□  | NCU-ATB12-02                                   | CS-ATB12-02       |                  |
| 12         | R3/8                | ATB12-03-□  | NCU-ATB12-03                                   | CS-ATB12-03       |                  |
|            | R1/2                | ATB12-04-□  | NCU-ATB12-04                                   | CS-ATB12-04       |                  |
|            | M5×0.8              | ATBY4-M5-□  | ←  | CS-ATBY4-M5       |                  |
| 4          | R1/8                | ATBY4-01-□  | NCU-ATBY4-01                                   | CS-ATBY4-01       |                  |
|            | R1/4                | ATBY4-02-□  | NCU-ATBY4-02                                   | CS-ATBY4-02       |                  |
|            | M5×0.8              | ATBY6-M5-□  | ←  | CS-ATBY6-M5       |                  |
| 6          | M6×1                | ATBY6-M6-□  | ←  | CS-ATBY6-M6       |                  |
|            | R1/8                | ATBY6-01-□  | NCU-ATBY6-01                                   | CS-ATBY6-01       |                  |
|            | R1/4                | ATBY6-02-□  | NCU-ATBY6-02                                   | CS-ATBY6-02       |                  |
|            | R3/8                | ATBY6-03-□  | NCU-ATBY6-03                                   | CS-ATBY6-03       |                  |
|            | R1/8                | ATBY8-01-□  | NCU-ATBY8-01                                   | CS-ATBY8-01       |                  |
| 8          | R1/4                | ATBY8-02-□  | NCU-ATBY8-02                                   | CS-ATBY8-02       |                  |
|            | R3/8                | ATBY8-03-□  | NCU-ATBY8-03                                   | CS-ATBY8-03       |                  |
|            | R1/4                | ATBY10-02-□ | NCU-ATBY10-02                                  | CS-ATBY10-02      |                  |
| 10         | R3/8                | ATBY10-03-□ | NCU-ATBY10-03                                  | CS-ATBY10-03      |                  |
|            | R1/2                | ATBY10-04-□ | NCU-ATBY10-04                                  | CS-ATBY10-04      |                  |
|            | R1/4                | ATBY12-02-□ | NCU-ATBY12-02                                  | CS-ATBY12-02      |                  |
| 12         | R3/8                | ATBY12-03-□ | NCU-ATBY12-03                                  | CS-ATBY12-03      |                  |
|            | R1/2                | ATBY12-04-□ | NCU-ATBY12-04                                  | CS-ATBY12-04      |                  |

\* -D ⇒ Non-lubricant specification only. -□ ⇒ Select either blank (standard) or D (non-lubricant specification)

● Tightening torque (reference value), sealant color, and gasket material for targeted models

| Thread type                | Thread size | Tightening torque N·m [in·lbf]  | Sealant color | Gasket material |
|----------------------------|-------------|---------------------------------|---------------|-----------------|
| Metric thread              | M5 × 0.8    | 1 to 1.5 [8.85 to 13.28]        | —             | SUS304<br>NBR   |
|                            | M6 × 1      | 2 to 2.7 [17.70 to 23.90]       |               |                 |
| Tapered threads for pipes* | R1/8        | 4.5 to 6.5 [39.83 to 57.53]     | White         | —               |
|                            | R1/4        | 7 to 9 [61.96 to 79.66]         |               |                 |
|                            | R3/8        | 12.5 to 14.5 [110.64 to 128.34] |               |                 |
|                            | R1/2        | 20 to 22 [177.02 to 194.72]     |               |                 |

\* The tightening torque is the same for all products with tapered threads for quick fitting pipes.

## List of models and their specifications

\* See the following table for combinations of models of fittings, tube size, and thread size.

Regarding NCU specifications, the "←" indicates that the standard model can be used as NCU specifications, so order the standard model.

● The dimension diagram for the following NCU specifications and the CS specifications are the same as the standard model or the non-lubricant specifications. Refer to the dimension diagrams on pages ① to ⑤.

### ● Standard type models of quick fittings

| Name                           | Tube outer diameter                  | Thread size                  | Standard model or non-lubricant specifications | NCU Specification | CS Specification |                |
|--------------------------------|--------------------------------------|------------------------------|--|-------------------|------------------|----------------|
| Branch elbow Y<br><b>ATBLY</b> | 4                                    | M5×0.8                       | ATBLY4-M5-□                                    | ←                 | CS-ATBLY4-M5     |                |
|                                |                                      | M6×1                         | ATBLY4-M6-□                                    | ←                 | CS-ATBLY4-M6     |                |
|                                |                                      | R1/8                         | ATBLY4-01-□                                    | NCU-ATBLY4-01     | CS-ATBLY4-01     |                |
|                                |                                      | R1/4                         | ATBLY4-02-□                                    | NCU-ATBLY4-02     | CS-ATBLY4-02     |                |
|                                | 6                                    | M5×0.8                       | ATBLY6-M5-□                                    | ←                 | CS-ATBLY6-M5     |                |
|                                |                                      | M6×1                         | ATBLY6-M6-□                                    | ←                 | CS-ATBLY6-M6     |                |
|                                |                                      | R1/8                         | ATBLY6-01-□                                    | NCU-ATBLY6-01     | CS-ATBLY6-01     |                |
|                                |                                      | R1/4                         | ATBLY6-02-□                                    | NCU-ATBLY6-02     | CS-ATBLY6-02     |                |
|                                |                                      | R3/8                         | ATBLY6-03-□                                    | NCU-ATBLY6-03     | CS-ATBLY6-03     |                |
|                                |                                      | R1/8                         | ATBLY8-01-□                                    | NCU-ATBLY8-01     | CS-ATBLY8-01     |                |
|                                | 8                                    | R1/4                         | ATBLY8-02-□                                    | NCU-ATBLY8-02     | CS-ATBLY8-02     |                |
|                                |                                      | R3/8                         | ATBLY8-03-□                                    | NCU-ATBLY8-03     | CS-ATBLY8-03     |                |
|                                |                                      | R1/4                         | ATBLY10-02-□                                   | NCU-ATBLY10-02    | CS-ATBLY10-02    |                |
|                                | 10                                   | R3/8                         | ATBLY10-03-□                                   | NCU-ATBLY10-03    | CS-ATBLY10-03    |                |
|                                |                                      | R1/2                         | ATBLY10-04-□                                   | NCU-ATBLY10-04    | CS-ATBLY10-04    |                |
|                                |                                      | R1/4                         | ATBLY12-02-□                                   | NCU-ATBLY12-02    | CS-ATBLY12-02    |                |
|                                | 12                                   | R3/8                         | ATBLY12-03-□                                   | NCU-ATBLY12-03    | CS-ATBLY12-03    |                |
|                                |                                      | R1/2                         | ATBLY12-04-□                                   | NCU-ATBLY12-04    | CS-ATBLY12-04    |                |
|                                |                                      | Branch triple<br><b>ATBE</b> | 6-4  | R1/8              | ATBE6-4-01-□     | NCU-ATBE6-4-01 |
|                                | 8-4                                  |                              | R1/4   | ATBE8-4-02-□      | NCU-ATBE8-4-02   | CS-ATBE8-4-02  |
|                                | 8-6                                  |                              | R1/4   | ATBE8-6-02-□      | NCU-ATBE8-6-02   | CS-ATBE8-6-02  |
|                                | 10-8                                 |                              | R3/8   | ATBE10-8-03-□     | NCU-ATBE10-8-03  | CS-ATBE10-8-03 |
|                                | Branch triple double<br><b>ATBEW</b> | 8-4                          | R1/4   | ATBEW8-4-02-□     | NCU-ATBEW8-4-02  | CS-ATBEW8-4-02 |
|                                |                                      |                              | R3/8   | ATBEW8-4-03-□     | NCU-ATBEW8-4-03  | CS-ATBEW8-4-03 |
| 8-6                            |                                      | R1/4                         | ATBEW8-6-02-□                                  | NCU-ATBEW8-6-02   | CS-ATBEW8-6-02   |                |
|                                |                                      | R3/8                         | ATBEW8-6-03-□                                  | NCU-ATBEW8-6-03   | CS-ATBEW8-6-03   |                |
| 10-6                           |                                      | R3/8                         | ATBEW10-6-03-□                                 | NCU-ATBEW10-6-03  | CS-ATBEW10-6-03  |                |
|                                |                                      | R1/2                         | ATBEW10-6-04-□                                 | NCU-ATBEW10-6-04  | CS-ATBEW10-6-04  |                |
| 10-8                           |                                      | R3/8                         | ATBEW10-8-03-□                                 | NCU-ATBEW10-8-03  | CS-ATBEW10-8-03  |                |
|                                |                                      | R1/2                         | ATBEW10-8-04-□                                 | NCU-ATBEW10-8-04  | CS-ATBEW10-8-04  |                |
| Branch double Y<br><b>ATBW</b> | 4                                    | R1/8                         | ATBW4-01-□                                     | NCU-ATBW4-01      | CS-ATBW4-01      |                |
|                                | 6                                    | R1/8                         | ATBW6-01-□                                     | NCU-ATBW6-01      | CS-ATBW6-01      |                |
| Branch tetra<br><b>ATBZ</b>    | 4                                    | M5×0.8                       | ATBZ4-M5-□                                     | ←                 | CS-ATBZ4-M5      |                |
|                                |                                      | M6×1                         | ATBZ4-M6-□                                     | ←                 | CS-ATBZ4-M6      |                |
|                                |                                      | R1/8                         | ATBZ4-01-□                                     | NCU-ATBZ4-01      | CS-ATBZ4-01      |                |
|                                |                                      | R1/4                         | ATBZ4-02-□                                     | NCU-ATBZ4-02      | CS-ATBZ4-02      |                |
|                                | 6                                    | M5×0.8                       | ATBZ6-M5-□                                     | ←                 | CS-ATBZ6-M5      |                |
|                                |                                      | M6×1                         | ATBZ6-M6-□                                     | ←                 | CS-ATBZ6-M6      |                |
|                                |                                      | R1/8                         | ATBZ6-01-□                                     | NCU-ATBZ6-01      | CS-ATBZ6-01      |                |
|                                |                                      | R1/4                         | ATBZ6-02-□                                     | NCU-ATBZ6-02      | CS-ATBZ6-02      |                |
|                                |                                      | R3/8                         | ATBZ6-03-□                                     | NCU-ATBZ6-03      | CS-ATBZ6-03      |                |
|                                |                                      | R1/8                         | ATBZ8-01-□                                     | NCU-ATBZ8-01      | CS-ATBZ8-01      |                |
|                                | 8                                    | R1/4                         | ATBZ8-02-□                                     | NCU-ATBZ8-02      | CS-ATBZ8-02      |                |
|                                |                                      | R3/8                         | ATBZ8-03-□                                     | NCU-ATBZ8-03      | CS-ATBZ8-03      |                |
|                                |                                      | R1/4                         | ATBZ10-02-□                                    | NCU-ATBZ10-02     | CS-ATBZ10-02     |                |
|                                | 10                                   | R3/8                         | ATBZ10-03-□                                    | NCU-ATBZ10-03     | CS-ATBZ10-03     |                |
|                                |                                      | R1/2                         | ATBZ10-04-□                                    | NCU-ATBZ10-04     | CS-ATBZ10-04     |                |
|                                |                                      | R1/4                         | ATBZ12-02-□                                    | NCU-ATBZ12-02     | CS-ATBZ12-02     |                |
|                                | 12                                   | R3/8                         | ATBZ12-03-□                                    | NCU-ATBZ12-03     | CS-ATBZ12-03     |                |
|                                |                                      | R1/2                         | ATBZ12-04-□                                    | NCU-ATBZ12-04     | CS-ATBZ12-04     |                |

\* - □ ⇒ Select either blank (standard) or D (non-lubricant specification)

### ● Models of supply joints

| Name                                | Tube outer diameter | Thread size | Standard model or non-lubricant specifications | NCU Specification | CS Specification |
|-------------------------------------|---------------------|-------------|--|-------------------|------------------|
| Reducer for bulkhead<br><b>ASKR</b> | 4                   | M8×1        | ASKR8-4  | ←                 | CS-ASKR8-4       |
|                                     | 6                   | M8×1        | ASKR8-6  | ←                 | CS-ASKR8-6       |
|                                     | 6                   | M12×1       | ASKR12-6                                       | ←                 | CS-ASKR12-6      |
|                                     | 8                   | M12×1       | ASKR12-8                                       | ←                 | CS-ASKR12-8      |
|                                     | 10                  | M12×1       | ASKR12-10                                      | ←                 | CS-ASKR12-10     |
|                                     | 8                   | M14×1       | ASKR14-8                                       | ←                 | CS-ASKR14-8      |
|                                     | 10                  | M14×1       | ASKR14-10                                      | ←                 | CS-ASKR14-10     |
|                                     | 12                  | M14×1       | ASKR14-12                                      | ←                 | CS-ASKR14-12     |
|                                     | 12                  | M18×1       | ASKR18-12                                      | ←                 | CS-ASKR18-12     |

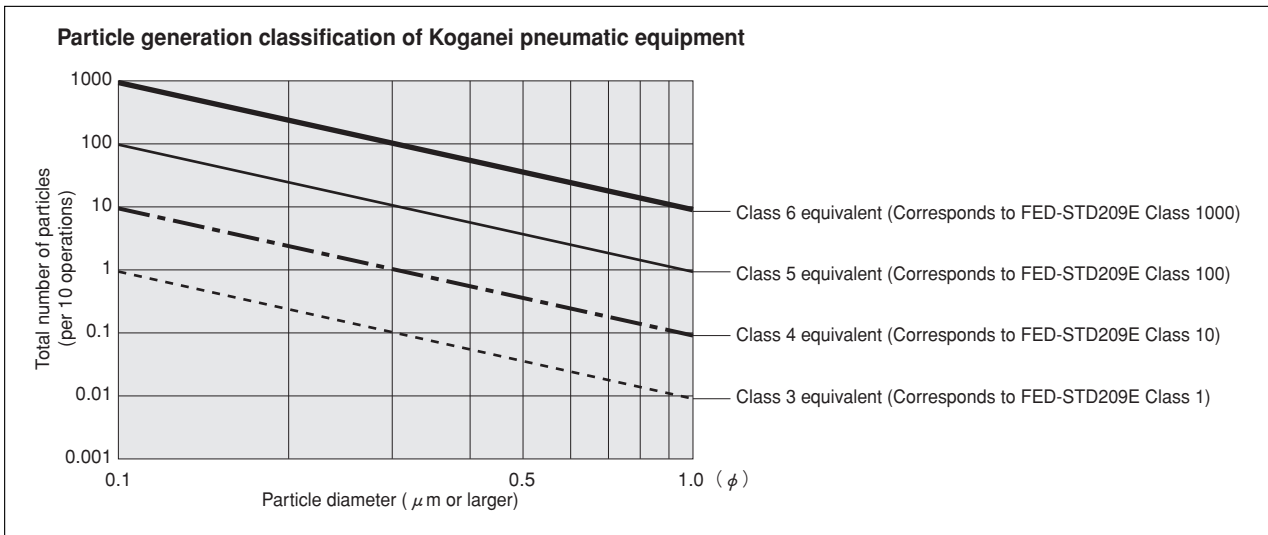


# Koganei Clean System products provide complete support for the maintenance of a clean environment inside the cleanroom.

Koganei Clean System products meet the needs of the ultra-clean production environment. In everything from actuators and valves to air preparation and auxiliary equipment, anti-corrosion materials processing and other Koganei-developed design concepts serve to prevent particle contamination within the cleanroom. These perfectly designed mechanisms, which resolve even the slightest leaks to the outside during operations, have already won a high level of reliability.

## Koganei Cleanliness

There is currently no standard in JIS or elsewhere for methods of evaluating cleanliness for pneumatic equipment in the cleanroom specifications. Therefore, to measure the effects of cleanroom contamination by pneumatic equipment, Koganei has decided to use “number of particles generated per 10 operations,” rather than particle density. Koganei has also developed classifications for application classes in cleanroom, based on JIS and other upper limit density tables, and on the company’s own experience.



- Remarks:
1. In the above table, product performance in terms of the number of particles generated per 10 operations is expressed as the upper limit of particles corresponding to the equivalent JIS or ISO class.
  2. In the above table, values in the JIS, ISO, and FED-STD upper limit density tables are calculated as upper density per liter.
  3. The classes shown are clean levels as classified in JIS and ISO.

From the above definitions, the Koganei clean level classes can be viewed as the level of average contamination per liter of surrounding air over a period of 10 operations in cleanroom. Air ventilation in cleanrooms is usually faster than 1 cycle per minute, and clean volumetric capacity is usually larger than 1 liter, which should provide a sufficient safety margin in practice.

Caution: The above conclusions are based on an ideal situation in which air ventilation is being implemented. For specific cases where air ventilation is not ensured, caution is needed since the clean classes cannot be maintained.

**The clean system diagrams shown here are for Class 5 equivalent products. For Class 4 or Class 3 equivalent products, consult us.**

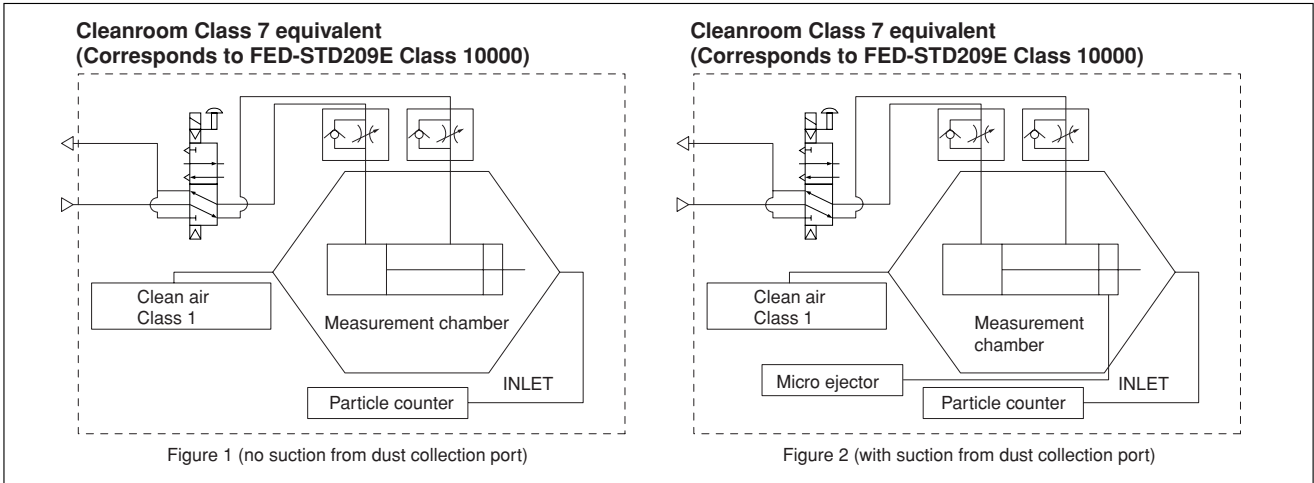
# Evaluations of Cleanliness

Koganei has therefore specified its in-house measurement methods, to conduct evaluations on the cleanroom rating.

The number of particles of the Air Cylinder Cleanroom Specification is measured as shown in the method below.

## 1. Measurement conditions

1-1 Test circuit: Figure 1 (no suction), Figure 2 (with suction)



1-2 Operating conditions of tested cylinder

- Operating frequency: 1Hz
- Average speed: 500mm/s [20in./sec.]
- Applied pressure: 0.5MPa [73psi.]
- Suction condition: Microejector ME05, Primary side: 0.5MPa [73psi.] applied, Tube:  $\phi 6$  [0.236in.]
- Mounting direction: Vertical
- Chamber volume: 8.3  $\ell$  [0.293ft.<sup>3</sup>]

## 2. Particle counter

- Manufacturer/model: RION/KM20
- Suction flow rate: 28.3  $\ell$  /min [1ft.<sup>3</sup>/min.]
- Particle diameter: 0.1  $\mu\text{m}$ , 0.2  $\mu\text{m}$ , 0.3  $\mu\text{m}$ , 0.5  $\mu\text{m}$ , 0.7  $\mu\text{m}$ , 1.0  $\mu\text{m}$

## 3. Measurement method

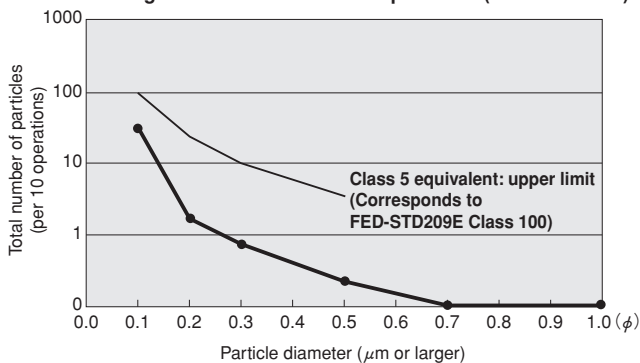
- 3-1 Confirmation of number of particles in the measurement system  
Under the conditions in the above 1 and 2, using a particle counter to measure the sample for 9 minutes without operating the measurement sample, and confirmed the measured number of particle is 1 piece or less.
- 3-2 Measurement under operation  
Under the conditions in the above 1 and 2, operating the measurement sample for 36 minutes, and measured the total values in the latter half of 18 minutes test.
- 3-3 Reconfirmation  
Performed the measurement in 3-1 again, to reconfirm the number of particles in the measurement system.

## 4. Measurement results

### ● Cleanroom specification

Jig Cylinder (no suction from dust collection port)

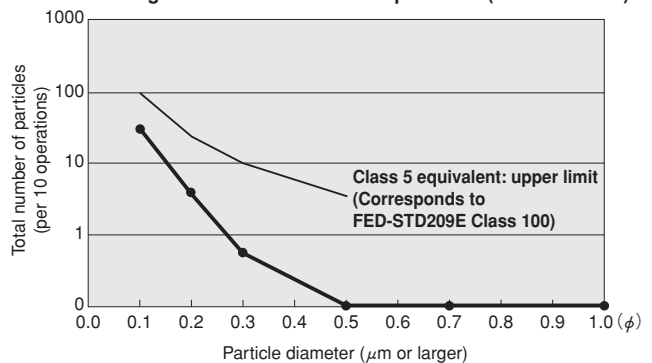
Particle generation over 1 million operations (CS-CDA16 $\times$ 30)



### ● Cleanroom specification

Slim Cylinder (with suction from dust collection port)

Particle generation over 1 million operations (CS-DA20 $\times$ 100)



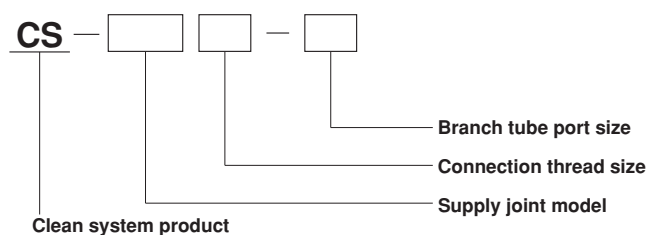
For “safety precautions” listed in the Clean System Product Drawings, see the materials below.

- For actuators, see “Safety Precautions” on p. 45 of the Actuators General Catalog .
- For valves, see “Safety Precautions” on p. 31 of the Valves General Catalog.
- For air treatment and auxiliary equipment, see “Safety Precautions” on p.31 of the General Catalog of Air Treatment, Auxiliary, Vacuum.

## Specifications

|                             |                           |
|-----------------------------|---------------------------|
| Media                       | Air                       |
| Maximum operating pressure  | 0.9MPa [131psi.]          |
| Operating vacuum pressure   | -100kPa [-29.5in.Hg]      |
| Operating temperature range | 0~60°C [32~140°F]         |
| Recommended tube            | Nylon tube, urethane tube |
| Sales unit                  | 1 pc.                     |

## Order Codes



### ● CS-STQ: Terminal quick



| Main side thread size | Sub-main side tube size mm |      |      |       |       |       |
|-----------------------|----------------------------|------|------|-------|-------|-------|
|                       | 4                          | 6    | 8    | 10    | 12    | 16    |
| M8X1 (8)              | 8-4                        | 8-6  | —    | —     | —     | —     |
| M12X1 (12)            | —                          | 12-6 | 12-8 | —     | —     | —     |
| M14X1 (14)            | —                          | —    | 14-8 | 14-10 | 14-12 | —     |
| M18X1 (18)            | —                          | —    | —    | —     | 18-12 | 18-16 |

### ● CS-STB: Terminal branch



| Main side thread size | Sub-main side tube size mm |       |
|-----------------------|----------------------------|-------|
|                       | 10                         | 12    |
| M14X1 (14)            | 14-10                      | —     |
| M18X1 (18)            | —                          | 18-12 |

### ● CS-STS: Terminal straight



| Main side thread size | Sub-main side thread size |       |       |       |
|-----------------------|---------------------------|-------|-------|-------|
|                       | M8X1                      | M12X1 | M14X1 | M18X1 |
| M12X1 (12)            | 12-8                      | 12-12 | —     | —     |
| M14X1 (14)            | —                         | 12-14 | 14-14 | —     |
| M18X1 (18)            | —                         | —     | 18-14 | 18-18 |

### ● CS-STT: Terminal taper



| Main side thread size | Sub-main side thread size |       |       |       |       |
|-----------------------|---------------------------|-------|-------|-------|-------|
|                       | M5X0.8                    | M6X1  | Rc1/8 | Rc1/4 | Rc3/8 |
| M8X1 (8)              | 8-M5                      | 8-M6  | 8-01  | —     | —     |
| M12X1 (12)            | —                         | 12-M6 | 12-01 | —     | —     |
| M14X1 (14)            | —                         | —     | 14-01 | 14-02 | —     |
| M18X1 (18)            | —                         | —     | —     | 18-02 | 18-03 |

Note: For details of the dimensions, see the General Catalog of Air Treatment, Auxiliary, Vacuum.

●CS-SBA: Bushing A



| Main side thread size | Sub-main side thread size (R) |       |       |       |
|-----------------------|-------------------------------|-------|-------|-------|
|                       | 1/8                           | 1/4   | 3/8   | 1/2   |
| M8X1 (8)              | 8-01                          | —     | —     | —     |
| M12X1 (12)            | 12-01                         | 12-02 | 12-03 | —     |
| M14X1 (14)            | —                             | 14-02 | 14-03 | 14-04 |
| M18X1 (18)            | —                             | —     | 18-03 | 18-04 |

●CS-SBB: Bushing B



| Main side thread size | Sub-main side thread size |       |       |
|-----------------------|---------------------------|-------|-------|
|                       | M8X1                      | M12X1 | M14X1 |
| M12X1 (12)            | 12-8                      | —     | —     |
| M14X1 (14)            | —                         | 14-12 | —     |
| M18X1 (18)            | —                         | —     | 18-14 |

●CS-SBC: Bushing C



| Main side thread size | Sub-main side thread size |       |       |       |
|-----------------------|---------------------------|-------|-------|-------|
|                       | M5                        | M6    | Rc1/8 | Rc1/4 |
| M8X1 (8)              | 8-M5                      | —     | —     | —     |
| M12X1 (12)            | —                         | 12-M6 | —     | —     |
| M14X1 (14)            | —                         | —     | 14-01 | —     |
| M18X1 (18)            | —                         | —     | —     | 18-02 |

●CS-SLB: Elbow



| Main side thread size | Sub-main side thread size (Rc) |       |       |       |
|-----------------------|--------------------------------|-------|-------|-------|
|                       | 1/8                            | 1/4   | 3/8   | 1/2   |
| M8X1 (8)              | 8-01                           | —     | —     | —     |
| M12X1 (12)            | 12-01                          | 12-02 | —     | —     |
| M14X1 (14)            | —                              | 14-02 | 14-03 | 14-04 |
| M18X1 (18)            | —                              | —     | 18-03 | 18-04 |

●CS-SST: Socket



| Main side thread size | Sub-main side thread size (Rc) |       |       |       |
|-----------------------|--------------------------------|-------|-------|-------|
|                       | 1/8                            | 1/4   | 3/8   | 1/2   |
| M8X1 (8)              | 8-01                           | —     | —     | —     |
| M12X1 (12)            | —                              | 12-02 | —     | —     |
| M14X1 (14)            | —                              | —     | 14-03 | —     |
| M18X1 (18)            | —                              | —     | —     | 18-04 |

●CS-SKR: Reducer for bulkhead



| Main side thread size | Sub-main side tube size |      |      |       |       |
|-----------------------|-------------------------|------|------|-------|-------|
|                       | 4                       | 6    | 8    | 10    | 12    |
| M8X1 (8)              | 8-4                     | 8-6  | —    | —     | —     |
| M12X1 (12)            | —                       | 12-6 | 12-8 | 12-10 | —     |
| M14X1 (14)            | —                       | —    | 14-8 | 14-10 | 14-12 |
| M18X1 (18)            | —                       | —    | —    | —     | 18-12 |

●CS-SPG: Plug



| Thread size |    |
|-------------|----|
| M8X1        | 8  |
| M12X1       | 12 |
| M14X1       | 14 |
| M18X1       | 18 |

●CS-SCP: Cap



| Thread size |    |
|-------------|----|
| M8X1        | 8  |
| M12X1       | 12 |
| M14X1       | 14 |
| M18X1       | 18 |

●CS-SBN: Nipple



| Thread size |       |
|-------------|-------|
| M8X1        | 8-8   |
| M12X1       | 12-12 |
| M14X1       | 14-14 |
| M18X1       | 18-18 |

●CS-SZB: Bracket



| Model | Mounting model |
|-------|----------------|
| 6     | SPG, SCP       |
| 12    | SKR8-4         |
| 14    | SKR□-6         |
| 16    | SKR□-8         |
| 20    | SKR□-10        |
| 22    | SKR□-12        |
| 61    | SPG, SCP       |
| 62    | SPG, SCP       |

●CS-SZS: Wrench for assembling



| Size               |           | mm |
|--------------------|-----------|----|
| Width across flats | Thickness |    |
| 10X12              | 3.4       |    |
| 14X17              |           |    |
| 19X22              | 4         |    |
| 24X27              |           |    |

- Thin wrenches, specially designed for the supply joints.
- Sales unit : 1 set

Note: For details of the dimensions, see the General Catalog of Air Treatment, Auxiliary, Vacuum.