

# 20D Series Tube Fittings

20,000 psig (1379 bar)



|          |        |                 |              |        |                       |               |                                     |                       |                              |
|----------|--------|-----------------|--------------|--------|-----------------------|---------------|-------------------------------------|-----------------------|------------------------------|
| Fittings | Tubing | Quick Couplings | Line Filters | Valves | Sour Service Products | Subsea Valves | Tools and Installation Instructions | Technical Information | Part Number Crossover Charts |
|----------|--------|-----------------|--------------|--------|-----------------------|---------------|-------------------------------------|-----------------------|------------------------------|

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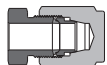
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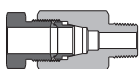
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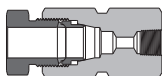
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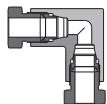
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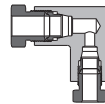
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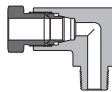
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## Union Reducing Elbows - DLU



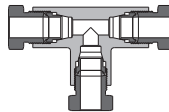
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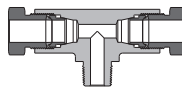
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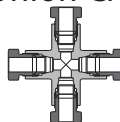
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## Male Branch Tees - DT



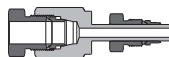
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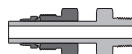
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## Ordering Number Description

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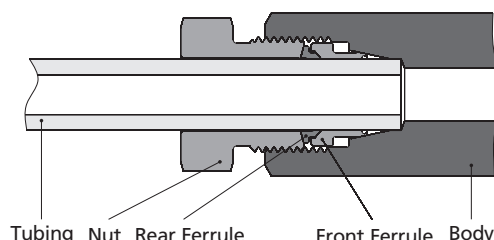
## Features

- Working pressure up to 20,000 psig (1379 bar)
- Easy and quick connection to T15 and T20D series tubing, tubing sizes available in 1/8", 1/4", 3/8", 1/2", 9/16", 3/4" and 1"
- High tensile 316 stainless steel
- Nut threads coated with molybdenum disulfide-based lubricant to minimize the friction
- Long tube-support area to improve vibration resistance and line loads
- Every fitting marked with size, material and heat number
- EC-79 type approval for 70 MPa hydrogen system application

## Standard Materials of Construction

| Component      | Material            |
|----------------|---------------------|
| Body, ferrules | 316 stainless steel |
| Nut            | 316 stainless steel |

Wetted components listed in italics.



## Working Pressure

- Working pressure is determined by the lowest working pressure of the ends.

### Tube Ends

The working pressure of tube ends at ambient temperature is determined by the working pressure of the T15 and T20D Series tubing used. For details, please refer to "Working Pressure at Ambient Temperature" on B-06 and B-09.

**CAUTION: 20D Series Tube Fittings are not applicable for use with T20M Series Tubing.**

### Male SAE O-ring Ends

Working pressure for male SAE O-ring end connections listed in this catalog is 10,000 psig (690 bar).

### NPT Ends

| NPT Size in. | Working Pressure psig (bar) |
|--------------|-----------------------------|
| 1/8          | 15,000 (1034)               |
| 1/4          |                             |
| 3/8          |                             |
| 1/2          |                             |
| 3/4          | 10,000 (690)                |
| 1            |                             |

### T20D Series Tubing

| Tube O.D. in. | Wall Thickness Tolerance in. | Working Pressure <sup>①</sup> psig (bar) |
|---------------|------------------------------|------------------------------------------|
| 1/4           | 0.065                        | 20,000 (1379)                            |
| 3/8           | 0.083                        |                                          |
| 1/2           | 0.109                        |                                          |
| 9/16          | 0.125                        |                                          |
| 3/4           | 0.165                        |                                          |

<sup>①</sup> Working pressures are calculated from an S value of 50,000 psi (344 MPa) at -20 to 100°F (-28 to 38°C) for ASME B31.3 Chapter IX High Pressure Piping.

## Working Temperature

| Connection Type      | Working Temperature Range, °F (°C)      |
|----------------------|-----------------------------------------|
| Tube Ends            | -325 to 800 (-198 to 427)               |
| Male SAE O-ring Ends | 0 to 400 (-17.8 to 204) <sup>①</sup>    |
| NPT Ends             | -325 to 400 (-198 to 204) <sup>②③</sup> |

<sup>①</sup> The ends are supplied with a fluorocarbon FKM O-ring as standard, other materials of O-rings available.

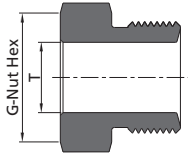
<sup>②</sup> Always use proper thread sealants on tapered pipe threads.

<sup>③</sup> The data are based on the working temperature range of the thread sealants. For the working temperature above 400°F (204°C), please contact FITOK Group or our authorized distributors.

## Ordering Information and Dimensions

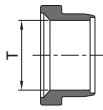
Dimensions are for reference only and are subject to change.

### Nuts



| Tube                    |                    |                      |
|-------------------------|--------------------|----------------------|
| T - Tube<br>O.D.<br>in. | Ordering<br>Number | Dimensions, in. (mm) |
|                         |                    | G                    |
| 1/8                     | SS-N-DFF2          | 0.37 (9.5)           |
| 1/4                     | SS-N-DFF4          | 0.63 (15.9)          |
| 3/8                     | SS-N-DFF6          | 0.75 (19.1)          |
| 1/2                     | SS-N-DFF8          | 0.94 (23.8)          |
| 9/16                    | SS-N-DFF9          | 1.06 (27.0)          |
| 3/4                     | SS-N-DFF12         | 1.38 (34.9)          |
| 1                       | SS-N-DFF16         | 1.88 (47.6)          |

### Front Ferrules



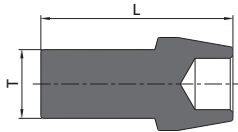
| Tube                    |                    |
|-------------------------|--------------------|
| T - Tube<br>O.D.<br>in. | Ordering<br>Number |
| 1/8                     | SS-FF-DFF2         |
| 1/4                     | SS-FF-DFF4         |
| 3/8                     | SS-FF-DFF6         |
| 1/2                     | SS-FF-DFF8         |
| 9/16                    | SS-FF-DFF9         |
| 3/4                     | SS-FF-DFF12        |
| 1                       | SS-FF-DFF16        |

### Rear Ferrules



| Tube                    |                    |
|-------------------------|--------------------|
| T - Tube<br>O.D.<br>in. | Ordering<br>Number |
| 1/8                     | SS-RF-DFF2         |
| 1/4                     | SS-RF-DFF4         |
| 3/8                     | SS-RF-DFF6         |
| 1/2                     | SS-RF-DFF8         |
| 9/16                    | SS-RF-DFF9         |
| 3/4                     | SS-RF-DFF12        |
| 1                       | SS-RF-DFF16        |

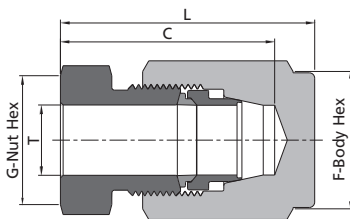
### Plugs<sup>①</sup>



| Tube                    |                    |                      |
|-------------------------|--------------------|----------------------|
| T - Tube<br>O.D.<br>in. | Ordering<br>Number | Dimensions, in. (mm) |
|                         |                    | L                    |
| 1/8                     | SS-DTP-DFF2        | 0.95 (24.2)          |
| 1/4                     | SS-DTP-DFF4        | 1.20 (30.4)          |
| 3/8                     | SS-DTP-DFF6        | 1.19 (30.2)          |
| 1/2                     | SS-DTP-DFF8        | 1.36 (34.6)          |
| 9/16                    | SS-DTP-DFF9        | 1.73 (44.0)          |
| 3/4                     | SS-DTP-DFF12       | 2.30 (58.3)          |
| 1                       | SS-DTP-DFF16       | 2.64 (67.0)          |

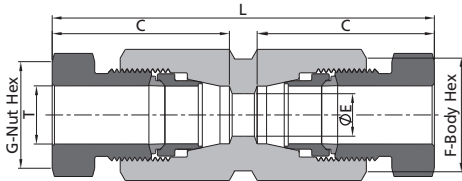
<sup>①</sup> When using plug, ferrules are not required.

### Caps



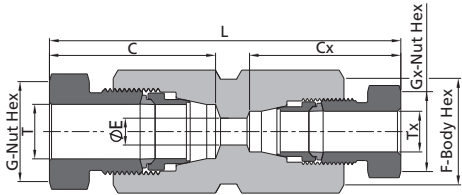
| Tube                    |                    |                      |             |             |             |
|-------------------------|--------------------|----------------------|-------------|-------------|-------------|
| T - Tube<br>O.D.<br>in. | Ordering<br>Number | Dimensions, in. (mm) |             |             |             |
|                         |                    | L                    | C           | F           | G           |
| 1/8                     | SS-DTC-DFF2        | 1.22 (31.1)          | 1.07 (27.2) | 0.50 (12.7) | 0.37 (9.5)  |
| 1/4                     | SS-DTC-DFF4        | 1.70 (43.1)          | 1.38 (35.2) | 0.63 (15.9) | 0.63 (15.9) |
| 3/8                     | SS-DTC-DFF6        | 1.76 (44.8)          | 1.42 (36.1) | 0.75 (19.1) | 0.75 (19.1) |
| 1/2                     | SS-DTC-DFF8        | 1.85 (47.0)          | 1.56 (39.6) | 1.00 (25.4) | 0.94 (23.8) |
| 9/16                    | SS-DTC-DFF9        | 2.46 (62.6)          | 1.93 (49.0) | 1.13 (28.6) | 1.06 (27.0) |
| 3/4                     | SS-DTC-DFF12       | 3.22 (81.9)          | 2.49 (63.3) | 1.50 (38.1) | 1.38 (34.9) |
| 1                       | SS-DTC-DFF16       | 4.06 (103.2)         | 3.24 (82.3) | 2.00 (50.8) | 1.88 (47.6) |

## Unions



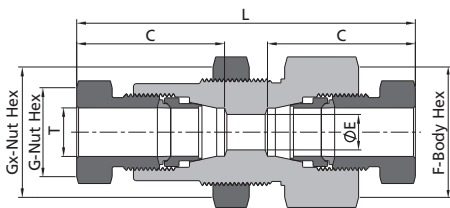
| Tube              |                 | Dimensions, in. (mm) |             |             |             |             |
|-------------------|-----------------|----------------------|-------------|-------------|-------------|-------------|
| T - Tube O.D. in. | Ordering Number | L                    | C           | E           | F           | G           |
| 1/8               | SS-DU-DFF2      | 2.45 (62.2)          | 1.07 (27.2) | 0.09 (2.4)  | 0.50 (12.7) | 0.37 (9.5)  |
| 1/4               | SS-DU-DFF4      | 3.00 (76.2)          | 1.38 (35.2) | 0.19 (4.8)  | 0.63 (15.9) | 0.63 (15.9) |
| 3/8               | SS-DU-DFF6      | 3.07 (77.9)          | 1.42 (36.1) | 0.25 (6.4)  | 0.75 (19.1) | 0.75 (19.1) |
| 1/2               | SS-DU-DFF8      | 3.36 (85.4)          | 1.56 (39.6) | 0.37 (9.5)  | 1.00 (25.4) | 0.94 (23.8) |
| 9/16              | SS-DU-DFF9      | 4.11 (104.4)         | 1.93 (49.0) | 0.41 (10.4) | 1.13 (28.6) | 1.06 (27.0) |
| 3/4               | SS-DU-DFF12     | 5.38 (136.7)         | 2.49 (63.3) | 0.56 (14.2) | 1.50 (38.1) | 1.38 (34.9) |
| 1                 | SS-DU-DFF16     | 7.06 (179.3)         | 3.24 (82.3) | 0.69 (17.5) | 2.00 (50.8) | 1.88 (47.6) |

## Reducing Unions



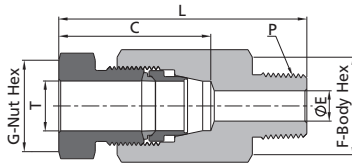
| Tube              |                    |                  | Dimensions, in. (mm) |             |             |            |             |             |             |
|-------------------|--------------------|------------------|----------------------|-------------|-------------|------------|-------------|-------------|-------------|
| T - Tube O.D. in. | Tx - Tube O.D. in. | Ordering Number  | L                    | C           | Cx          | E          | F           | G           | Gx          |
| 1/4               | 1/8                | SS-DU-DFF4-DFF2  | 2.73 (69.4)          | 1.39 (35.2) | 1.07 (27.2) | 0.09 (2.4) | 0.63 (15.9) | 0.63 (15.9) | 0.37 (9.5)  |
| 3/8               | 1/8                | SS-DU-DFF6-DFF2  | 2.77 (70.3)          | 1.42 (36.1) | 1.07 (27.2) | 0.09 (2.4) | 0.75 (19.1) | 0.75 (19.1) | 0.37 (9.5)  |
| 3/8               | 1/4                | SS-DU-DFF6-DFF4  | 3.06 (77.6)          | 1.42 (36.1) | 1.39 (35.2) | 0.19 (4.8) | 0.75 (19.1) | 0.75 (19.1) | 0.63 (15.9) |
| 1/2               | 1/4                | SS-DU-DFF8-DFF4  | 3.35 (85.1)          | 1.56 (39.6) | 1.39 (35.2) | 0.19 (4.8) | 1.00 (25.4) | 0.94 (23.8) | 0.63 (15.9) |
| 1/2               | 3/8                | SS-DU-DFF8-DFF6  | 3.32 (84.3)          | 1.56 (39.6) | 1.42 (36.1) | 0.25 (6.4) | 1.00 (25.4) | 0.94 (23.8) | 0.75 (19.1) |
| 9/16              | 1/2                | SS-DU-DFF9-DFF8  | 4.04 (102.5)         | 1.93 (49.0) | 1.56 (39.6) | 0.37 (9.5) | 1.13 (28.6) | 1.06 (27.0) | 0.94 (23.8) |
| 3/4               | 1/2                | SS-DU-DFF12-DFF8 | 4.73 (120.2)         | 2.49 (63.3) | 1.56 (39.6) | 0.37 (9.5) | 1.50 (38.1) | 1.38 (34.9) | 0.94 (23.8) |
| 1                 | 1/2                | SS-DU-DFF16-DFF8 | 5.35 (135.9)         | 3.24 (82.3) | 1.56 (39.6) | 0.37 (9.5) | 2.00 (50.8) | 1.88 (47.6) | 0.94 (23.8) |

## Bulkhead Unions

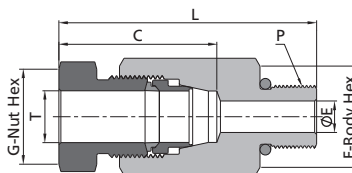


| Tube              |                 | Dimensions, in. (mm) |             |             |             |             |             |                 |                         |
|-------------------|-----------------|----------------------|-------------|-------------|-------------|-------------|-------------|-----------------|-------------------------|
| T - Tube O.D. in. | Ordering Number | L                    | C           | E           | F           | G           | Gx          | Panel Hole Size | Maximum Panel Thickness |
| 1/8               | SS-DBU-DFF2     | 2.95 (75.0)          | 1.07 (27.2) | 0.09 (2.4)  | 0.75 (19.1) | 0.37 (9.5)  | 0.81 (20.6) | 0.69 (17.5)     | 0.38 (9.7)              |
| 1/4               | SS-DBU-DFF4     | 3.27 (83.1)          | 1.38 (35.2) | 0.19 (4.8)  | 1.00 (25.4) | 0.63 (15.9) | 1.06 (27.0) | 0.94 (23.9)     | 0.38 (9.7)              |
| 3/8               | SS-DBU-DFF6     | 3.21 (81.6)          | 1.42 (36.1) | 0.25 (6.4)  | 1.00 (25.4) | 0.75 (19.1) | 1.06 (27.0) | 0.94 (23.9)     | 0.38 (9.7)              |
| 1/2               | SS-DBU-DFF8     | 3.93 (99.8)          | 1.56 (39.6) | 0.37 (9.5)  | 1.38 (34.9) | 0.94 (23.8) | 1.38 (34.9) | 1.13 (28.6)     | 0.38 (9.7)              |
| 9/16              | SS-DBU-DFF9     | 4.64 (117.8)         | 1.93 (49.0) | 0.41 (10.4) | 1.63 (41.3) | 1.06 (27.0) | 1.63 (41.3) | 1.33 (33.7)     | 0.38 (9.7)              |
| 3/4               | SS-DBU-DFF12    | 5.82 (147.9)         | 2.49 (63.3) | 0.56 (14.2) | 1.87 (47.6) | 1.38 (34.9) | 1.87 (47.6) | 1.64 (41.7)     | 0.38 (9.7)              |
| 1                 | SS-DBU-DFF16    | 7.45 (189.3)         | 3.24 (82.3) | 0.69 (17.5) | 2.50 (63.5) | 1.88 (47.6) | 2.50 (63.5) | 2.27 (57.6)     | 0.38 (9.7)              |

## Male Connectors

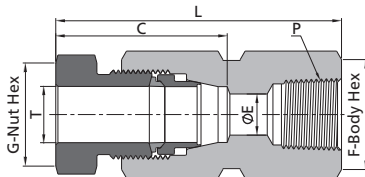


| Tube              |                  |                   |                      | NPT Thread  |             |             |             |  |
|-------------------|------------------|-------------------|----------------------|-------------|-------------|-------------|-------------|--|
| T - Tube O.D. in. | P - NPT Size in. | Ordering Number   | Dimensions, in. (mm) |             |             |             |             |  |
|                   |                  |                   | L                    | C           | E           | F           | G           |  |
| 1/8               | 1/8              | SS-DCM-DFF2-NS2   | 1.60 (40.6)          | 1.07 (27.2) | 0.09 (2.4)  | 0.50 (12.7) | 0.37 (9.5)  |  |
| 1/8               | 1/4              | SS-DCM-DFF2-NS4   | 1.72 (43.8)          | 1.07 (27.2) | 0.09 (2.4)  | 0.56 (14.3) | 0.37 (9.5)  |  |
| 1/8               | 3/8              | SS-DCM-DFF2-NS6   | 1.72 (43.8)          | 1.07 (27.2) | 0.09 (2.4)  | 0.69 (17.5) | 0.37 (9.5)  |  |
| 1/4               | 1/8              | SS-DCM-DFF4-NS2   | 1.95 (49.5)          | 1.39 (35.2) | 0.19 (4.8)  | 0.63 (15.9) | 0.63 (15.9) |  |
| 1/4               | 1/4              | SS-DCM-DFF4-NS4   | 2.08 (52.8)          | 1.39 (35.2) | 0.19 (4.8)  | 0.63 (15.9) | 0.63 (15.9) |  |
| 1/4               | 3/8              | SS-DCM-DFF4-NS6   | 2.08 (52.8)          | 1.39 (35.2) | 0.19 (4.8)  | 0.69 (17.5) | 0.63 (15.9) |  |
| 1/4               | 1/2              | SS-DCM-DFF4-NS8   | 2.32 (59.0)          | 1.39 (35.2) | 0.19 (4.8)  | 0.87 (22.2) | 0.63 (15.9) |  |
| 3/8               | 1/4              | SS-DCM-DFF6-NS4   | 2.17 (55.1)          | 1.42 (36.1) | 0.25 (6.4)  | 0.75 (19.1) | 0.75 (19.1) |  |
| 3/8               | 3/8              | SS-DCM-DFF6-NS6   | 2.17 (55.1)          | 1.42 (36.1) | 0.25 (6.4)  | 0.75 (19.1) | 0.75 (19.1) |  |
| 3/8               | 1/2              | SS-DCM-DFF6-NS8   | 2.30 (58.3)          | 1.42 (36.1) | 0.25 (6.4)  | 0.87 (22.2) | 0.75 (19.1) |  |
| 1/2               | 1/4              | SS-DCM-DFF8-NS4   | 2.53 (64.3)          | 1.56 (39.6) | 0.25 (6.4)  | 1.00 (25.4) | 0.94 (23.8) |  |
| 1/2               | 3/8              | SS-DCM-DFF8-NS6   | 2.53 (64.3)          | 1.56 (39.6) | 0.31 (7.9)  | 1.00 (25.4) | 0.94 (23.8) |  |
| 1/2               | 1/2              | SS-DCM-DFF8-NS8   | 2.65 (67.4)          | 1.56 (39.6) | 0.37 (9.5)  | 1.00 (25.4) | 0.94 (23.8) |  |
| 1/2               | 3/4              | SS-DCM-DFF8-NS12  | 2.53 (64.3)          | 1.56 (39.6) | 0.37 (9.5)  | 1.06 (27.0) | 0.94 (23.8) |  |
| 9/16              | 1/4              | SS-DCM-DFF9-NS4   | 3.03 (77.0)          | 1.93 (49.0) | 0.25 (6.4)  | 1.13 (28.6) | 1.06 (27.0) |  |
| 9/16              | 1/2              | SS-DCM-DFF9-NS8   | 3.11 (79.1)          | 1.93 (49.0) | 0.38 (9.6)  | 1.13 (28.6) | 1.06 (27.0) |  |
| 3/4               | 1/2              | SS-DCM-DFF12-NS8  | 3.74 (95.1)          | 2.49 (63.3) | 0.38 (9.6)  | 1.50 (38.1) | 1.38 (34.9) |  |
| 3/4               | 3/4              | SS-DCM-DFF12-NS12 | 3.74 (95.1)          | 2.49 (63.3) | 0.56 (14.2) | 1.50 (38.1) | 1.38 (34.9) |  |
| 3/4               | 1                | SS-DCM-DFF12-NS16 | 3.83 (97.4)          | 2.49 (63.3) | 0.56 (14.2) | 1.50 (38.1) | 1.38 (34.9) |  |
| 1                 | 1/2              | SS-DCM-DFF16-NS8  | 4.46 (113.2)         | 3.24 (82.3) | 0.38 (9.6)  | 2.00 (50.8) | 1.88 (47.6) |  |
| 1                 | 3/4              | SS-DCM-DFF16-NS12 | 4.46 (113.2)         | 3.24 (82.3) | 0.58 (14.8) | 2.00 (50.8) | 1.88 (47.6) |  |
| 1                 | 1                | SS-DCM-DFF16-NS16 | 4.65 (118.1)         | 3.24 (82.3) | 0.69 (17.5) | 2.00 (50.8) | 1.88 (47.6) |  |



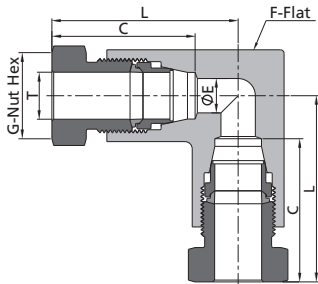
| Tube              |                        |                 |                      | Male SAE O-ring |            |             |             |  |
|-------------------|------------------------|-----------------|----------------------|-----------------|------------|-------------|-------------|--|
| T - Tube O.D. in. | P - SAE/MS Thread Size | Ordering Number | Dimensions, in. (mm) |                 |            |             |             |  |
|                   |                        |                 | L                    | C               | E          | F           | G           |  |
| 1/8               | 7/16-20                | SS-DCM-DFF2-SH7 | 1.60 (40.6)          | 1.07 (27.2)     | 0.09 (2.4) | 0.56 (14.3) | 0.37 (9.5)  |  |
| 1/8               | 9/16-18                | SS-DCM-DFF2-SH9 | 1.66 (42.2)          | 1.07 (27.2)     | 0.09 (2.4) | 0.69 (17.5) | 0.37 (9.5)  |  |
| 1/4               | 7/16-20                | SS-DCM-DFF4-SH7 | 2.04 (51.7)          | 1.39 (35.2)     | 0.18 (4.5) | 0.63 (15.9) | 0.63 (15.9) |  |
| 1/4               | 9/16-18                | SS-DCM-DFF4-SH9 | 2.07 (52.7)          | 1.39 (35.2)     | 0.19 (4.8) | 0.69 (17.5) | 0.63 (15.9) |  |
| 3/8               | 7/16-20                | SS-DCM-DFF6-SH7 | 2.09 (53.0)          | 1.42 (36.1)     | 0.18 (4.5) | 0.75 (19.1) | 0.75 (19.1) |  |
| 3/8               | 9/16-18                | SS-DCM-DFF6-SH9 | 2.13 (54.0)          | 1.42 (36.1)     | 0.25 (6.4) | 0.75 (19.1) | 0.75 (19.1) |  |
| 1/2               | 7/16-20                | SS-DCM-DFF8-SH7 | 2.49 (63.3)          | 1.56 (39.6)     | 0.18 (4.5) | 1.00 (25.4) | 0.94 (23.8) |  |
| 1/2               | 9/16-18                | SS-DCM-DFF8-SH9 | 2.49 (63.3)          | 1.56 (39.6)     | 0.30 (7.5) | 1.00 (25.4) | 0.94 (23.8) |  |

## Female Connectors



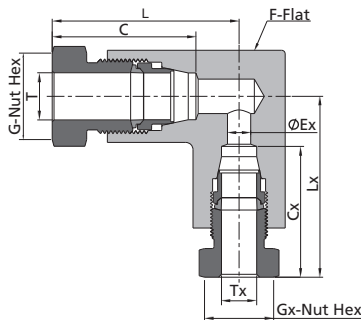
| Tube              |                  |                    | NPT Thread           |             |             |             |             |
|-------------------|------------------|--------------------|----------------------|-------------|-------------|-------------|-------------|
| T - Tube O.D. in. | P - NPT Size in. | Ordering Number    | Dimensions, in. (mm) |             |             |             |             |
|                   |                  |                    | L                    | C           | E           | F           | G           |
| 1/8               | 1/8              | SS-DCF-DFF2-FNS2   | 1.97 (50.1)          | 1.07 (27.2) | 0.09 (2.4)  | 0.63 (15.9) | 0.37 (9.5)  |
| 1/8               | 1/4              | SS-DCF-DFF2-FNS4   | 2.01 (53.3)          | 1.07 (27.2) | 0.09 (2.4)  | 0.94 (23.8) | 0.37 (9.5)  |
| 1/4               | 1/4              | SS-DCF-DFF4-FNS4   | 2.33 (59.1)          | 1.38 (35.2) | 0.19 (4.8)  | 0.94 (23.8) | 0.63 (15.9) |
| 3/8               | 1/4              | SS-DCF-DFF6-FNS4   | 2.29 (58.1)          | 1.42 (36.1) | 0.25 (6.4)  | 0.94 (23.8) | 0.75 (19.1) |
| 1/2               | 1/4              | SS-DCF-DFF8-FNS4   | 2.78 (70.6)          | 1.56 (39.6) | 0.37 (9.5)  | 1.00 (25.4) | 0.94 (23.8) |
| 1/2               | 1/2              | SS-DCF-DFF8-FNS8   | 3.03 (77.0)          | 1.56 (39.6) | 0.37 (9.5)  | 1.38 (34.9) | 0.94 (23.8) |
| 3/4               | 1/2              | SS-DCF-DFF12-FNS8  | 3.85 (97.8)          | 2.49 (63.3) | 0.56 (14.2) | 1.50 (38.1) | 1.38 (34.9) |
| 1                 | 1                | SS-DCF-DFF16-FNS16 | 4.75 (120.7)         | 3.24 (82.3) | 0.69 (17.5) | 2.00 (50.8) | 1.88 (47.6) |

## Union Elbows



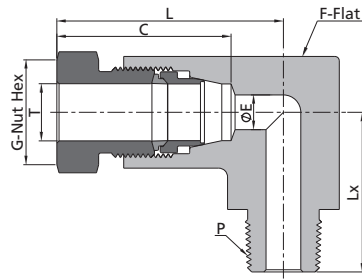
| Tube              |                 |  | Dimensions, in. (mm) |             |             |             |             |
|-------------------|-----------------|--|----------------------|-------------|-------------|-------------|-------------|
| T - Tube O.D. in. | Ordering Number |  | L                    | C           | E           | F           | G           |
| 1/8               | SS-DLU-DFF2     |  | 1.29 (32.7)          | 1.07 (27.2) | 0.09 (2.4)  | 0.63 (15.9) | 0.37 (9.5)  |
| 1/4               | SS-DLU-DFF4     |  | 1.70 (43.1)          | 1.38 (35.2) | 0.19 (4.8)  | 0.63 (15.9) | 0.63 (15.9) |
| 3/8               | SS-DLU-DFF6     |  | 1.67 (42.4)          | 1.42 (36.1) | 0.25 (6.4)  | 0.75 (19.1) | 0.75 (19.1) |
| 1/2               | SS-DLU-DFF8     |  | 2.03 (51.6)          | 1.56 (39.6) | 0.37 (9.5)  | 1.00 (25.4) | 0.94 (23.8) |
| 9/16              | SS-DLU-DFF9     |  | 2.43 (61.8)          | 1.93 (49.0) | 0.41 (10.4) | 1.38 (34.9) | 1.06 (27.0) |
| 3/4               | SS-DLU-DFF12    |  | 3.11 (79.1)          | 2.49 (63.3) | 0.56 (14.2) | 1.50 (38.1) | 1.38 (34.9) |
| 1                 | SS-DLU-DFF16    |  | 4.14 (105.2)         | 3.24 (82.3) | 0.69 (17.5) | 2.00 (50.8) | 1.88 (47.6) |

## Union Reducing Elbows



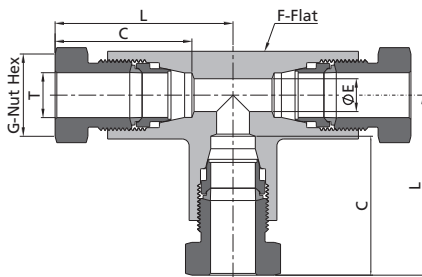
| Tube              |                    |                    |                      |             |             |             |             |             |             |             |  |
|-------------------|--------------------|--------------------|----------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|--|
| T - Tube O.D. in. | Tx - Tube O.D. in. | Ordering Number    | Dimensions, in. (mm) |             |             |             |             |             |             |             |  |
|                   |                    |                    | L                    | Lx          | C           | Cx          | Ex          | F           | G           | Gx          |  |
| 1/4               | 1/8                | SS-DLU-DFF4-DFF2   | 1.70 (43.1)          | 1.37 (34.7) | 1.38 (35.2) | 1.07 (27.2) | 0.09 (2.4)  | 0.63 (15.9) | 0.63 (15.9) | 0.37 (9.5)  |  |
| 3/8               | 1/8                | SS-DLU-DFF6-DFF2   | 1.67 (42.4)          | 1.33 (33.7) | 1.42 (36.1) | 1.07 (27.2) | 0.09 (2.4)  | 0.75 (19.1) | 0.75 (19.1) | 0.37 (9.5)  |  |
| 3/8               | 1/4                | SS-DLU-DFF6-DFF4   | 1.67 (42.4)          | 1.70 (43.1) | 1.42 (36.1) | 1.38 (35.2) | 0.19 (4.8)  | 0.75 (19.1) | 0.75 (19.1) | 0.63 (15.9) |  |
| 1/2               | 1/4                | SS-DLU-DFF8-DFF4   | 2.03 (51.6)          | 1.95 (49.5) | 1.56 (39.6) | 1.38 (35.2) | 0.19 (4.8)  | 0.94 (23.8) | 1.00 (25.4) | 0.63 (15.9) |  |
| 1/2               | 3/8                | SS-DLU-DFF8-DFF6   | 2.03 (51.6)          | 1.96 (49.8) | 1.56 (39.6) | 1.42 (36.1) | 0.25 (6.4)  | 0.94 (23.8) | 1.00 (25.4) | 0.75 (19.1) |  |
| 9/16              | 1/2                | SS-DLU-DFF9-DFF8   | 2.43 (61.8)          | 2.37 (60.2) | 1.93 (49.0) | 1.56 (39.6) | 0.37 (9.5)  | 1.38 (34.9) | 1.06 (27.0) | 0.94 (23.8) |  |
| 3/4               | 1/2                | SS-DLU-DFF12-DFF8  | 3.11 (79.1)          | 2.49 (63.3) | 2.49 (63.3) | 1.56 (39.6) | 0.37 (9.5)  | 1.50 (38.1) | 1.38 (34.9) | 0.94 (23.8) |  |
| 1                 | 1/2                | SS-DLU-DFF16-DFF8  | 4.14 (105.2)         | 2.47 (62.8) | 3.24 (82.3) | 1.56 (39.6) | 0.37 (9.5)  | 2.00 (50.8) | 1.88 (47.6) | 0.94 (23.8) |  |
| 1                 | 9/16               | SS-DLU-DFF16-DFF9  | 4.14 (105.2)         | 2.82 (71.6) | 3.24 (82.3) | 1.93 (49.0) | 0.41 (10.4) | 2.00 (50.8) | 1.88 (47.6) | 1.06 (27.0) |  |
| 1                 | 3/4                | SS-DLU-DFF16-DFF12 | 4.14 (105.2)         | 3.45 (87.6) | 3.24 (82.3) | 2.49 (63.3) | 0.56 (14.2) | 2.00 (50.8) | 1.88 (47.6) | 1.38 (34.9) |  |

## Male Elbows



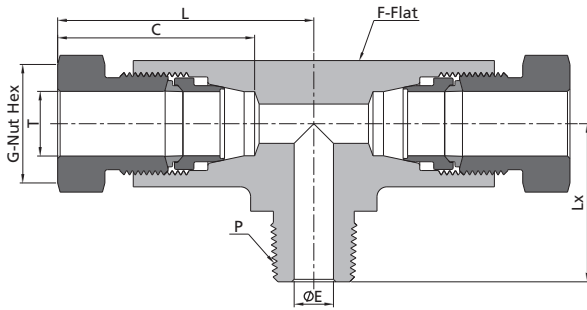
| Tube                    |                        |                    | NPT Thread           |             |             |             |             |             |
|-------------------------|------------------------|--------------------|----------------------|-------------|-------------|-------------|-------------|-------------|
| T - Tube<br>O.D.<br>in. | P - NPT<br>Size<br>in. | Ordering<br>Number | Dimensions, in. (mm) |             |             |             |             |             |
|                         |                        |                    | L                    | Lx          | C           | E           | F           | G           |
| 1/8                     | 1/8                    | SS-DLM-DFF2-NS2    | 1.29 (32.7)          | 0.79 (20.0) | 1.07 (27.2) | 0.09 (2.4)  | 0.63 (15.9) | 0.37 (9.5)  |
| 1/8                     | 1/4                    | SS-DLM-DFF2-NS4    | 1.39 (35.3)          | 1.00 (25.4) | 1.07 (27.2) | 0.09 (2.4)  | 0.63 (15.9) | 0.37 (9.5)  |
| 1/8                     | 3/8                    | SS-DLM-DFF2-NS6    | 1.47 (37.4)          | 1.00 (25.4) | 1.07 (27.2) | 0.09 (2.4)  | 0.75 (19.1) | 0.37 (9.5)  |
| 1/4                     | 1/4                    | SS-DLM-DFF4-NS4    | 1.70 (43.1)          | 0.94 (23.8) | 1.38 (35.2) | 0.19 (4.8)  | 0.63 (15.9) | 0.63 (15.9) |
| 1/4                     | 3/8                    | SS-DLM-DFF4-NS6    | 1.70 (43.1)          | 1.00 (25.4) | 1.38 (35.2) | 0.19 (4.8)  | 0.75 (19.1) | 0.63 (15.9) |
| 1/4                     | 1/2                    | SS-DLM-DFF4-NS8    | 1.70 (43.1)          | 1.38 (34.9) | 1.38 (35.2) | 0.19 (4.8)  | 1.00 (25.4) | 0.63 (15.9) |
| 3/8                     | 1/4                    | SS-DLM-DFF6-NS4    | 1.67 (42.4)          | 1.00 (25.4) | 1.42 (36.1) | 0.25 (6.4)  | 0.75 (19.1) | 0.75 (19.1) |
| 3/8                     | 3/8                    | SS-DLM-DFF6-NS6    | 1.67 (42.4)          | 1.06 (27.0) | 1.42 (36.1) | 0.25 (6.4)  | 0.75 (19.1) | 0.75 (19.1) |
| 3/8                     | 1/2                    | SS-DLM-DFF6-NS8    | 1.67 (42.4)          | 1.38 (34.9) | 1.42 (36.1) | 0.25 (6.4)  | 1.00 (25.4) | 0.75 (19.1) |
| 1/2                     | 1/4                    | SS-DLM-DFF8-NS4    | 2.03 (51.6)          | 1.19 (30.2) | 1.56 (39.6) | 0.25 (6.4)  | 1.00 (25.4) | 0.94 (23.8) |
| 1/2                     | 3/8                    | SS-DLM-DFF8-NS6    | 2.03 (51.6)          | 1.19 (30.2) | 1.56 (39.6) | 0.31 (7.9)  | 1.00 (25.4) | 0.94 (23.8) |
| 1/2                     | 1/2                    | SS-DLM-DFF8-NS8    | 2.03 (51.6)          | 1.38 (34.9) | 1.56 (39.6) | 0.37 (9.5)  | 1.00 (25.4) | 0.94 (23.8) |
| 9/16                    | 1/2                    | SS-DLM-DFF9-NS8    | 2.43 (61.8)          | 1.56 (39.5) | 1.93 (49.0) | 0.38 (9.6)  | 1.38 (34.9) | 1.06 (27.0) |
| 3/4                     | 1/2                    | SS-DLM-DFF12-NS8   | 3.11 (79.1)          | 1.73 (44.0) | 2.49 (63.3) | 0.38 (9.6)  | 1.50 (38.1) | 1.38 (34.9) |
| 3/4                     | 3/4                    | SS-DLM-DFF12-NS12  | 3.11 (79.1)          | 1.73 (44.0) | 2.49 (63.3) | 0.56 (14.2) | 1.50 (38.1) | 1.38 (34.9) |
| 1                       | 1/2                    | SS-DLM-DFF16-NS8   | 4.14 (105.2)         | 2.06 (52.4) | 3.24 (82.3) | 0.38 (9.6)  | 2.00 (50.8) | 1.88 (47.6) |
| 1                       | 3/4                    | SS-DLM-DFF16-NS12  | 4.14 (105.2)         | 2.06 (52.4) | 3.24 (82.3) | 0.58 (14.8) | 2.00 (50.8) | 1.88 (47.6) |
| 1                       | 1                      | SS-DLM-DFF16-NS16  | 4.14 (105.2)         | 2.25 (57.2) | 3.24 (82.3) | 0.69 (17.5) | 2.00 (50.8) | 1.88 (47.6) |

## Union Tees



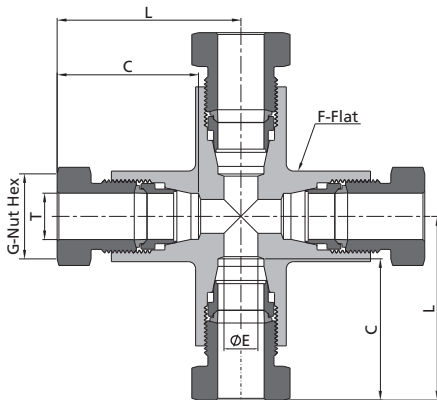
| Tube              |                 |  | Dimensions, in. (mm) |             |             |             |             |
|-------------------|-----------------|--|----------------------|-------------|-------------|-------------|-------------|
| T - Tube O.D. in. | Ordering Number |  | L                    | C           | E           | F           | G           |
| 1/8               | SS-DT-DFF2      |  | 1.37 (34.7)          | 1.07 (27.2) | 0.09 (2.4)  | 0.63 (15.9) | 0.37 (9.5)  |
| 1/4               | SS-DT-DFF4      |  | 1.70 (43.1)          | 1.38 (35.2) | 0.19 (4.8)  | 0.63 (15.9) | 0.63 (15.9) |
| 3/8               | SS-DT-DFF6      |  | 1.67 (42.4)          | 1.42 (36.1) | 0.25 (6.4)  | 0.75 (19.1) | 0.75 (19.1) |
| 1/2               | SS-DT-DFF8      |  | 2.03 (51.6)          | 1.56 (39.6) | 0.37 (9.5)  | 1.00 (25.4) | 0.94 (23.8) |
| 9/16              | SS-DT-DFF9      |  | 2.43 (61.8)          | 1.93 (49.0) | 0.41 (10.4) | 1.38 (34.9) | 1.06 (27.0) |
| 3/4               | SS-DT-DFF12     |  | 3.11 (79.1)          | 2.49 (63.3) | 0.56 (14.2) | 1.50 (38.1) | 1.38 (34.9) |
| 1                 | SS-DT-DFF16     |  | 4.14 (105.2)         | 3.24 (82.3) | 0.69 (17.5) | 2.00 (50.8) | 1.88 (47.6) |

## Male Branch Tees

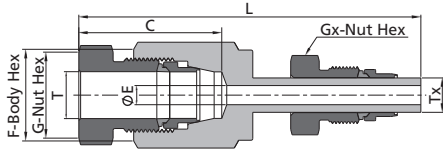


| Tube              |                  |                        | NPT Thread           |             |             |             |             |             |  |
|-------------------|------------------|------------------------|----------------------|-------------|-------------|-------------|-------------|-------------|--|
| T - Tube O.D. in. | P - NPT Size in. | Ordering Number        | Dimensions, in. (mm) |             |             |             |             |             |  |
|                   |                  |                        | L                    | Lx          | C           | E           | F           | G           |  |
| 1/8               | 1/8              | SS-DT-DFF2-DFF2-NS2    | 1.37 (34.7)          | 0.79 (20.0) | 1.07 (27.2) | 0.09 (2.4)  | 0.63 (15.9) | 0.37 (9.5)  |  |
| 1/8               | 1/4              | SS-DT-DFF2-DFF2-NS4    | 1.37 (34.7)          | 1.00 (25.4) | 1.07 (27.2) | 0.09 (2.4)  | 0.63 (15.9) | 0.37 (9.5)  |  |
| 1/4               | 1/8              | SS-DT-DFF4-DFF4-NS2    | 1.70 (43.1)          | 0.81 (20.6) | 1.38 (35.2) | 0.19 (4.8)  | 0.63 (15.9) | 0.63 (15.9) |  |
| 1/4               | 1/4              | SS-DT-DFF4-DFF4-NS4    | 1.70 (43.1)          | 1.00 (25.4) | 1.38 (35.2) | 0.19 (4.8)  | 0.63 (15.9) | 0.63 (15.9) |  |
| 3/8               | 1/4              | SS-DT-DFF6-DFF6-NS4    | 1.67 (42.4)          | 1.06 (27.0) | 1.42 (36.1) | 0.25 (6.4)  | 0.75 (19.1) | 0.75 (19.1) |  |
| 1/2               | 1/4              | SS-DT-DFF8-DFF8-NS4    | 2.03 (51.6)          | 1.19 (30.2) | 1.56 (39.6) | 0.25 (6.4)  | 1.00 (25.4) | 0.94 (23.8) |  |
| 1/2               | 3/8              | SS-DT-DFF8-DFF8-NS6    | 2.03 (51.6)          | 1.19 (30.2) | 1.56 (39.6) | 0.31 (7.9)  | 1.00 (25.4) | 0.94 (23.8) |  |
| 3/4               | 3/4              | SS-DT-DFF12-DFF12-NS12 | 3.11 (79.1)          | 1.73 (44.0) | 2.49 (63.3) | 0.56 (14.2) | 1.50 (38.1) | 1.38 (34.9) |  |
| 1                 | 1/2              | SS-DT-DFF16-DFF16-NS8  | 4.14 (105.2)         | 2.06 (52.4) | 3.24 (82.3) | 0.38 (9.6)  | 2.00 (50.8) | 1.88 (47.6) |  |
| 1                 | 3/4              | SS-DT-DFF16-DFF16-NS12 | 4.14 (105.2)         | 2.06 (52.4) | 3.24 (82.3) | 0.58 (14.8) | 2.00 (50.8) | 1.88 (47.6) |  |
| 1                 | 1                | SS-DT-DFF16-DFF16-NS16 | 4.14 (105.2)         | 2.25 (57.2) | 3.24 (82.3) | 0.69 (17.5) | 2.00 (50.8) | 1.88 (47.6) |  |

## Union Crosses

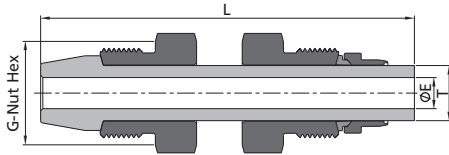


| Tube              |                 | Dimensions, in. (mm) |             |             |             |             |  |
|-------------------|-----------------|----------------------|-------------|-------------|-------------|-------------|--|
| T - Tube O.D. in. | Ordering Number | L                    | C           | E           | F           | G           |  |
| 1/8               | SS-DX-DFF2      | 1.37 (34.7)          | 1.07 (27.2) | 0.09 (2.4)  | 0.63 (15.9) | 0.37 (9.5)  |  |
| 1/4               | SS-DX-DFF4      | 1.70 (43.1)          | 1.38 (35.2) | 0.19 (4.8)  | 0.63 (15.9) | 0.63 (15.9) |  |
| 3/8               | SS-DX-DFF6      | 1.67 (42.4)          | 1.42 (36.1) | 0.25 (6.4)  | 0.75 (19.1) | 0.75 (19.1) |  |
| 1/2               | SS-DX-DFF8      | 2.03 (51.6)          | 1.56 (39.6) | 0.37 (9.5)  | 1.00 (25.4) | 0.94 (23.8) |  |
| 9/16              | SS-DX-DFF9      | 2.43 (61.8)          | 1.93 (49.0) | 0.41 (10.4) | 1.38 (34.9) | 1.06 (27.0) |  |
| 3/4               | SS-DX-DFF12     | 3.01 (76.4)          | 2.49 (63.3) | 0.56 (14.2) | 1.50 (38.1) | 1.38 (34.9) |  |
| 1                 | SS-DX-DFF16     | 4.14 (105.2)         | 3.24 (82.3) | 0.69 (17.5) | 2.00 (50.8) | 1.88 (47.6) |  |

Reducers<sup>①</sup>

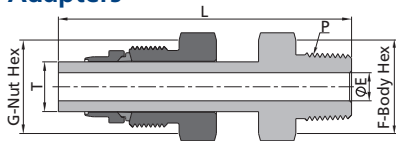
| Tube              |                    |                   | Dimensions, in. (mm) |             |             |             |             |             |  |
|-------------------|--------------------|-------------------|----------------------|-------------|-------------|-------------|-------------|-------------|--|
| T - Tube O.D. in. | Tx - Tube O.D. in. | Ordering Number   | L                    | C           | E           | F           | G           | Gx          |  |
| 1/4               | 3/8                | SS-DR-DFF4-DFT6   | 3.20 (82.1)          | 1.38 (35.2) | 0.19 (4.8)  | 0.63 (15.9) | 0.63 (15.9) | 0.75 (19.1) |  |
| 1/4               | 1/2                | SS-DR-DFF4-DFT8   | 3.37 (85.5)          | 1.38 (35.2) | 0.19 (4.8)  | 0.63 (15.9) | 0.63 (15.9) | 0.94 (23.8) |  |
| 3/8               | 1/2                | SS-DR-DFF4-DFT8   | 3.43 (87.1)          | 1.42 (36.1) | 0.25 (6.4)  | 0.75 (19.1) | 0.75 (19.1) | 0.94 (23.8) |  |
| 1/2               | 3/8                | SS-DR-DFF4-DFT6   | 3.53 (89.7)          | 1.56 (39.6) | 0.21 (5.3)  | 1.00 (25.4) | 0.94 (23.8) | 0.75 (19.1) |  |
| 1/2               | 3/4                | SS-DR-DFF4-DFT12  | 5.13 (130.4)         | 1.56 (39.6) | 0.37 (9.5)  | 1.00 (25.4) | 0.94 (23.8) | 1.38 (34.9) |  |
| 9/16              | 3/4                | SS-DR-DFF9-DFT12  | 5.32 (135.1)         | 1.93 (49.0) | 0.41 (10.4) | 1.13 (28.6) | 1.06 (27.0) | 1.38 (34.9) |  |
| 3/4               | 9/16               | SS-DR-DFF12-DFT9  | 5.46 (138.6)         | 2.49 (63.3) | 0.31 (7.9)  | 1.50 (38.1) | 1.38 (34.9) | 1.06 (27.0) |  |
| 1                 | 3/4                | SS-DR-DFF16-DFT12 | 5.06 (128.5)         | 3.24 (82.3) | 0.42 (10.7) | 2.00 (50.8) | 1.88 (47.6) | 1.38 (34.9) |  |

① The right ends of reducers will be preassembled with ferrules before shipping. Please follow the Reinstallation Instructions in H-06 when installing the reducers.

Port Connectors<sup>①</sup>

① The port connectors will be preassembled with ferrules before shipping. Please follow the Reinstallation Instructions in H-06 when installing the port connectors.

| Tube              |                 |  | Dimensions, in. (mm) |             |             |
|-------------------|-----------------|--|----------------------|-------------|-------------|
| T - Tube O.D. in. | Ordering Number |  | L                    | E           | G           |
| 1/8               | SS-DP-DFF2      |  | 2.06 (52.2)          | 0.06 (1.6)  | 0.37 (9.5)  |
| 1/4               | SS-DP-DFF4      |  | 2.66 (67.5)          | 0.12 (3.0)  | 0.63 (15.9) |
| 3/8               | SS-DP-DFF6      |  | 2.72 (69.0)          | 0.21 (5.3)  | 0.75 (19.1) |
| 1/2               | SS-DP-DFF8      |  | 3.04 (77.3)          | 0.28 (7.1)  | 0.94 (23.8) |
| 9/16              | SS-DP-DFF9      |  | 3.80 (96.5)          | 0.31 (7.9)  | 1.06 (27.0) |
| 3/4               | SS-DP-DFF12     |  | 4.83 (122.8)         | 0.42 (10.7) | 1.38 (34.9) |
| 1                 | SS-DP-DFF16     |  | 5.98 (152.0)         | 0.66 (16.7) | 1.88 (47.6) |

Adapters<sup>①</sup>

| Tube              |              |                   | NPT Thread           |             |             |             |
|-------------------|--------------|-------------------|----------------------|-------------|-------------|-------------|
| T - Tube O.D. in. | P - NPT Size | Ordering Number   | Dimensions, in. (mm) |             |             |             |
|                   |              |                   | L                    | E           | F           | G           |
| 1/4               | 1/4          | SS-DAM-DFT4-NS4   | 2.30 (58.5)          | 0.12 (3.0)  | 0.56 (14.3) | 0.63 (15.9) |
| 3/8               | 1/4          | SS-DAM-DFT6-NS4   | 2.38 (60.4)          | 0.21 (5.3)  | 0.56 (14.3) | 0.75 (19.1) |
| 3/8               | 1/2          | SS-DAM-DFT6-NS8   | 2.67 (67.9)          | 0.21 (5.3)  | 0.87 (22.2) | 0.75 (19.1) |
| 1/2               | 1/4          | SS-DAM-DFT8-NS4   | 2.55 (64.8)          | 0.25 (6.4)  | 0.56 (14.3) | 0.94 (23.8) |
| 1/2               | 1/2          | SS-DAM-DFT8-NS8   | 2.84 (72.2)          | 0.28 (7.1)  | 0.87 (22.2) | 0.94 (23.8) |
| 9/16              | 1/2          | SS-DAM-DFT9-NS8   | 3.64 (92.4)          | 0.31 (7.9)  | 0.87 (22.2) | 1.06 (27.0) |
| 3/4               | 3/4          | SS-DAM-DFT12-NS12 | 4.22 (107.1)         | 0.39 (10.0) | 1.06 (27.0) | 1.38 (34.9) |
| 1                 | 1            | SS-DAM-DFT16-NS16 | 4.84 (123.0)         | 0.66 (16.7) | 1.38 (34.9) | 1.88 (47.6) |

① The adapters will be preassembled with ferrules before shipping. Please follow the Reinstallation Instructions in H-06 when installing the adapters.

## Installation Instructions

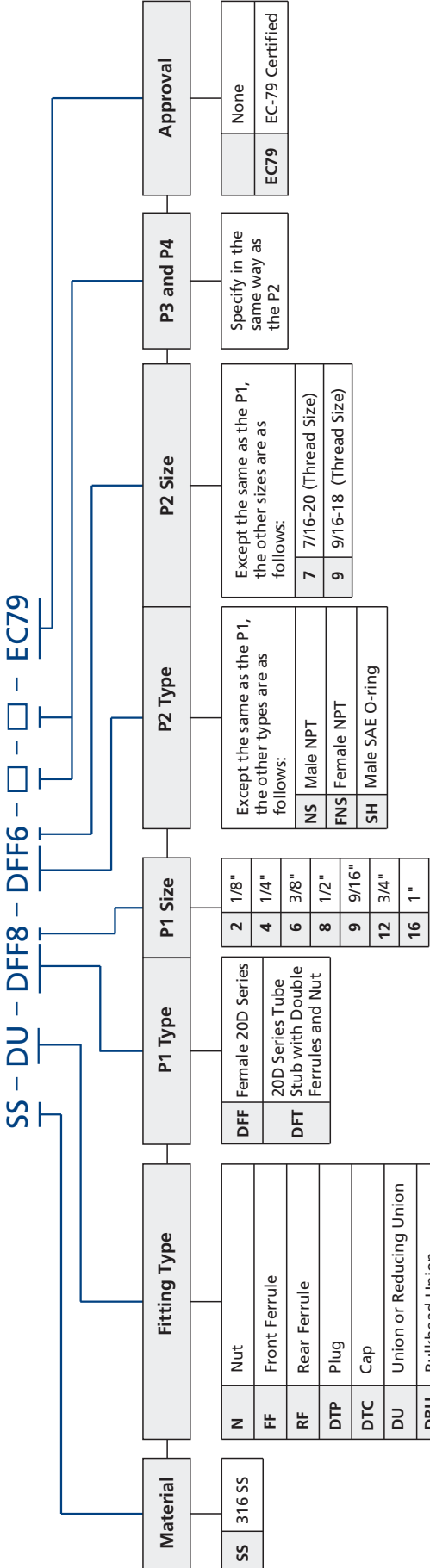
Please see H-05.

## Connection Information

Please see I-02.

**FITOK**

Ordering Number Description



- NOTES: 1. For more details regarding 20D Series connection, please see **Connection Information** on I-02.
2. "Ordering Number Description" is a reference to understand the combination rules of FITOK product part number. Not all combinations are available.

|                              |                       |                                     |               |                       |        |              |                 |        |          |
|------------------------------|-----------------------|-------------------------------------|---------------|-----------------------|--------|--------------|-----------------|--------|----------|
| Part Number Crossover Charts | Technical Information | Tools and Installation Instructions | Subsea Valves | Sour Service Products | Valves | Line Filters | Quick Couplings | Tubing | Fittings |
|------------------------------|-----------------------|-------------------------------------|---------------|-----------------------|--------|--------------|-----------------|--------|----------|