

## Instrumentation Pipe Fittings

Available in sizes from 1/16 to 2 in. and 6 mm to 30 mm.  
CIR-LOK pipe Fittings materials include stainless steel, alloy 400/R-405, brass, and carbon steel.  
CIR-LOK provide NPT, ISO/BSP, SAE, and ISO threads configurations  
Burr-free smooth thread provide optimum sealing and minimize galling.

### Materials Standards

| Material            | Bar Stock                        | Forgings                         |
|---------------------|----------------------------------|----------------------------------|
| 316 stainless steel | ASTM A276, ASME SA479, EN 1.4401 | ASTM A182, ASME SA182, EN 1.4401 |
| Alloy 20            | ASTM B473                        | ASTM B462                        |
| Alloy 400/R-405     | ASTM B164, ASME SB164            | ASTM B564, ASME SB564            |
| Alloy 600           | ASTM B166, ASME SB166            | ASTM B564, ASME SB564            |
| Alloy 625           | ASTM B446                        | ASTM B564, ASME SB564            |
| Alloy 825           | ASTM B425                        | ASTM B564, ASME SB564            |
| Alloy C-276         | ASTM B574                        | ASTM B564                        |
| Aluminum            | ASTM B211                        | ASTM B247                        |
| Brass               | ASTM B16, ASTM                   | ASTM B283                        |
| Carbon steel        | B453 ASTM A108                   | —                                |

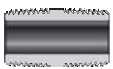
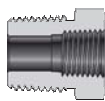
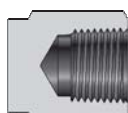
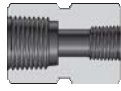
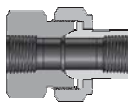
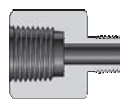
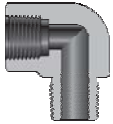
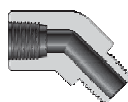
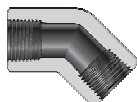
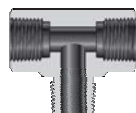
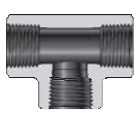
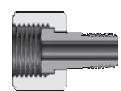
### Thread Specifications

| Thread Type (End Connection)                                                    | Reference Specification         |
|---------------------------------------------------------------------------------|---------------------------------|
| NPT                                                                             | ASME B1.20.1, SAE AS71051       |
| ISO/BSP (parallel)<br>(Based on DIN 3852)<br>(CIR-LOK PPT, BP, and BS fittings) | ISO 228, JIS B0202              |
| ISO/BSP (tapered)<br>(Based on DIN 3852)<br>(CIR-LOK BT fittings)               | ISO 7, BS EN 10226-1, JIS B0203 |
| ISO/BSP (gauge)<br>(Based on EN 837-1 and 837-3)<br>(CIR-LOK BG)                | ISO 228                         |
| Unified (SAE)<br>(CIR-LOK SA fittings)                                          | ASME B1.1                       |

### Working Temperature Ratings

| Material               | Working Temperature Rating<br>°F (°C) |
|------------------------|---------------------------------------|
| 316 stainless steel    | -65 (-53) to 1000 (537)               |
| Brass                  | -20 (-28) to 400 (204)                |
| Carbon steel           | -65 (-53) to 375 (190)                |
| BS gaskets (FKM)       | 5 (-15) to 400 (204)                  |
| BG BP gaskets (copper) | 5 (-15) to 400 (204)                  |
| SAE O-ring (FKM)       | 5 (-15) to 400 (204)                  |

Configuration

|                                                                                     |                                                                                     |                                                                                      |                                                                                       |
|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
|    |    |    |    |
| Close Nipple                                                                        | Special Pipe Nipple                                                                 | Hex Nipple                                                                           | Hex Long Nipple                                                                       |
|    |    |    |    |
| Reducing Bushing                                                                    | Pipe Cap                                                                            | Pipe Plug                                                                            | Hollow Hex Plug                                                                       |
|    |    |    |    |
| Hex Coupling                                                                        | Union Ball Joints                                                                   | Adapter                                                                              | Male Elbow                                                                            |
|   |   |   |   |
| Street Elbow                                                                        | 45° Street Elbow                                                                    | Female Elbow                                                                         | 45° Female Elbow                                                                      |
|  |  |  |  |
| Male Tee                                                                            | Female Branch Tee                                                                   | Female Run Tee                                                                       | Male Street Tee                                                                       |
|  |  |  |  |
| Male Branch Tee                                                                     | Female Tee                                                                          | Female Cross                                                                         | Pipe to Pipe Union                                                                    |

## How to Order

| NPT8                                |                                          | TSE                            | NPT4                                        | 316         |
|-------------------------------------|------------------------------------------|--------------------------------|---------------------------------------------|-------------|
| Port 1 Type                         | Port 1 Size                              | Fitting Configuration          | Port 2, Port 3 and Port 4                   | Material    |
| <b>FNPT</b> Female NPT              | <b>2</b> 1/8 in.                         | <b>TP</b> Pipe Plug            | Same as Port1 or as follow:                 | 316         |
| <b>NPT</b> Male NPT                 | <b>4</b> 1/4 in.                         | <b>THP</b> Hollow Hex Plug     | <b>FMS</b> Female ISO (for BP, BS)          | 304         |
| <b>ONPT</b> O-ring with Male NPT    | <b>5</b> 5/16-24                         | <b>TCN</b> Close Nipple        | <b>FMSG</b> Female ISO (for BG)             | Alloy 400   |
| <b>FBT</b> Female BSPT              | <b>6</b> 3/8 in. or 3 /8-24              | <b>TPN</b> Special Pipe Nipple | <b>MS</b> Male ISO (for BG)                 | Alloy 600   |
| <b>MBT</b> Male BSPT                | <b>7</b> 7/16-20                         | <b>THN</b> Hex Nipple          | <b>MSP</b> Male ISO (for BP)                | Alloy C-276 |
| <b>OMBT</b> O-ring with Male BSPT   | <b>8</b> 1/2 in. or M8 x 1               | <b>TLN</b> Hex Long Nipple     | <b>MSS</b> Male ISO (for BS)                | Brass       |
| <b>FBP</b> Female BSPP (for BP, BS) | <b>9</b> 9/16-18                         | <b>TRB</b> Reducing Bushing    | <b>MSO</b> O-ring with Male ISO             | Steel       |
| <b>FBPG</b> Female BSPP (for BG)    | <b>10</b> M10 x 1                        | <b>PC</b> Pipe Cap             | <b>FSA</b> Female SAE (for BP, BS)          |             |
| <b>MBP</b> Male BSPP (for BP)       | <b>12</b> 3/4 in. or M12 x 1.5 or 3/4-16 | <b>THC</b> Hex Coupling        | <b>FSAG</b> Female SAE (for BG)             |             |
| <b>MBS</b> Male BSPP (for BS)       | <b>14</b> M14 x 1.5 or 7/8-14            | <b>TBJ</b> Union Ball Joints   | <b>MSA</b> Male SAE (for BG)                |             |
| <b>MBG</b> Male BSPP (for BG)       | <b>16</b> 1 in. or M16 x 1.5             | <b>TA</b> Adapter              | <b>MSAP</b> Male SAE (for BP)               |             |
|                                     | <b>17</b> 1 1/16 -12                     | <b>TME</b> Male Elbow          | <b>MSAS</b> Male SAE (for BS)               |             |
|                                     | <b>18</b> M18 x 1.5                      | <b>TSE</b> Street Elbow        | <b>MSAO</b> O-ring with Male SAE            |             |
|                                     | <b>19</b> 1 3/16 -12                     | <b>T45E</b> 45° Street Elbow   | <b>PPT</b> Positionable BSP Parallel Thread |             |
|                                     | <b>20</b> 1 1/4 in. or M20 x 1.5         | <b>TFE</b> Female Elbow        | <b>PST</b> Positionable ISO Parallel Thread |             |
|                                     | <b>21</b> 1 5/16 -12                     | <b>T45FE</b> 45° Female Elbow  | <b>PAT</b> Positionable SAE Parallel Thread |             |
|                                     | <b>22</b> M22 x 1.5                      | <b>TMT</b> Male Tee            | <b>FSW</b> Fractional Tube Socket Weld      |             |
|                                     | <b>24</b> 1 1/2 in. or M24 x 1.5         | <b>TBT</b> Female Branch Tee   | <b>FBW</b> Fractional Tube Butt Weld        |             |
|                                     | <b>26</b> 1 5/8 -12                      | <b>TFRT</b> Female Run Tee     | <b>MSW</b> Metric Tube Socket Weld          |             |
|                                     | <b>27</b> M27 x 2                        | <b>TMST</b> Male Street Tee    | <b>MBW</b> Metric Tube Butt Weld            |             |
|                                     | <b>30</b> 1 7/8 -12 or M30 x 2           | <b>TMBT</b> Male Branch Tee    |                                             |             |
|                                     | <b>32</b> 2 in.                          | <b>TFT</b> Female Tee          |                                             |             |
|                                     |                                          | <b>TFC</b> Female Cross        |                                             |             |
|                                     |                                          | <b>TPU</b> Pipe to Pipe Union  |                                             |             |

