



# CTS Connect™

## Manual & Automatic Connectors





To see our company video,  
please go to  
[www.cincinnati-test.com](http://www.cincinnati-test.com),  
under heading Company Info, select Video.

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## Air Actuated Connectors

The CTS Connect™ air actuated internal connectors effectively seal on smooth, rough, or threaded circular features of a part. The connectors consist of an air-driven internal piston that compresses the CTS proprietary seal material against the surface of the part, creating a tight seal that meets all test pressure requirements regardless of surface shape or finish.

- Superior sealing capability without the risk of scratching the surface of the part
- Automated sealing to minimize operator fatigue and injury
- Threaded and tapered connector nose on ID Connector models
- Large test/fill port holes for better conductance
- Built-in stroke limiter
- Easy seal replacement
- Long seal life

## Tooling Functions

The part to be sealed is placed into the CTS Connect connector as the pilot air pressure is applied by triggering a start switch. In automated applications, a cylinder will advance the CTS Connect connector to the part. For vacuum applications, no safety tooling is required because the vacuum will hold the additional part or

seal restraints are required to prevent a blow off condition in case the seal pilot pressure is released before the part pressure. The pressure range for the internal (CI) connector is vacuum to 120 psi.

## Sealing

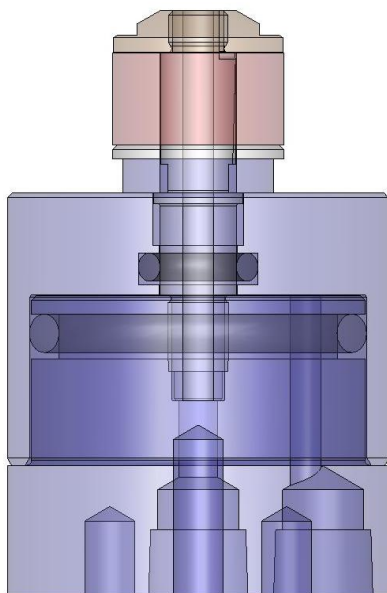
CTS Connect™ connectors are ideal for smooth or rough surfaces, and threaded holes (NPT, Metric, or SAE). The standard proprietary grade seals offer superior extrusion performance as well as cut and abrasion resistance. The proprietary grade seal material also provides extended life. The proprietary grade seal is standard in all connectors. Available seal materials include:

- Proprietary
- Medical grade urethane

## Pilot Pressure

CTS Connect connectors are regulated pilot pressure set to the minimum pressure needed to seal life. Normal pilot pressures extend the seal life. Normal pilot pressures range from 60 to 90 psi. Higher pilot pressures may be required for rough seal surfaces and NPT, Metric, and SAE connections. If higher pilot pressures are required, boosters are available.

## CI Connector



### CTS Connect CI Connector Specs

**Part hole sizes:** 0.270 – 4.125" I.D.

**Threaded holes:** 1/8" to 2" FNPT, M8-M48, SAE 5/16- 2-1/2"

**Test pressures :** Vacuum to 120 psig

**Pilot pressure:** Typically 60 – 90 psig

**Connector body:** Aluminum

**Washer Material:** Stainless steel

**Spacer and Shaft Extension Spacer:** Aluminum

**Stem and Shaft Extension:** Stainless steel

**Piston:** Aluminum

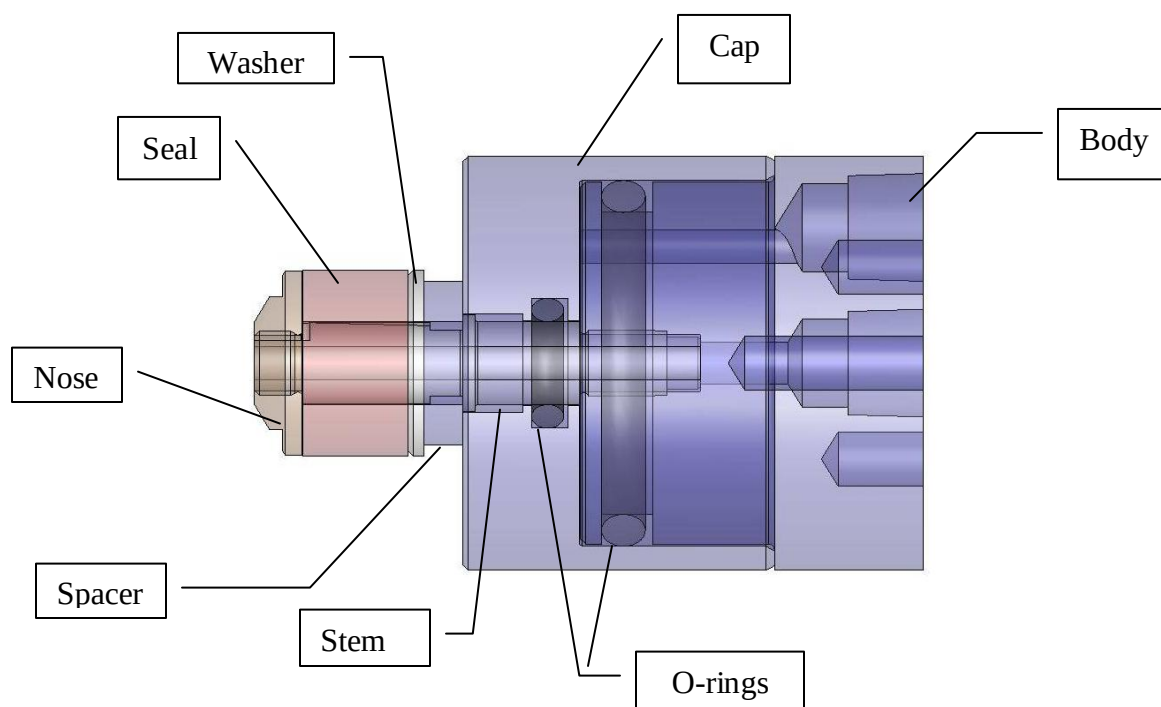
**Threaded connector nose:** brass

**O-ring:** Buna N

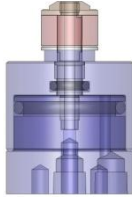
**Part seal material:** Proprietary grade seal  
For regular and threaded connectors

**Optional seal material:**  
Medical grade urethane

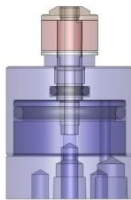
## Connector Assembly Detail



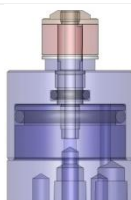
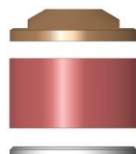
# Air Actuated Internal Connector

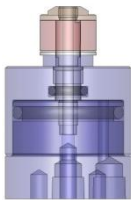
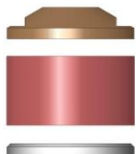
|                               |                             |                                                                                   |                                                                                   |                                 |                                                                           |
|-------------------------------|-----------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|---------------------------------|---------------------------------------------------------------------------|
| <b>Smooth Bore Connectors</b> | Connector w/o main seal kit |  |  | Includes washer, seal and nose. | Includes 5 Proprietary Grade Seals<br>*Add "M" for Medical Grade Urethane |
|                               | <b>Seal Range</b>           | <b>Body</b>                                                                       | <b>Connector Assembly</b>                                                         | <b>Main Seal Kit</b>            | <b>Seal Kit Pack</b>                                                      |
| <b>CI30</b>                   |                             |                                                                                   |                                                                                   |                                 |                                                                           |
| 0.270 – 0.290                 | CI30                        | CI30-A1                                                                           | CI30-A1-MSK                                                                       | CI30-A1-SKP                     |                                                                           |
| 0.290 – 0.310                 | CI30                        | CI30-A                                                                            | CI30-A-MSK                                                                        | CI30-A-SKP                      |                                                                           |
| 0.310 – 0.330                 | CI30                        | CI30-AA                                                                           | CI30-AA-MSK                                                                       | CI30-AA-SKP                     |                                                                           |
| 0.330 – 0.394                 | CI30                        | CI30-AB                                                                           | CI30-AB-MSK                                                                       | CI30-AB-SKP                     |                                                                           |
| <b>CI31</b>                   |                             |                                                                                   |                                                                                   |                                 |                                                                           |
| 0.394 – 0.472                 | CI31                        | CI31-AA                                                                           | CI31-AA-MSK                                                                       | CI31-AA-SKP                     |                                                                           |
| 0.472 – 0.551                 | CI31                        | CI31-AC                                                                           | CI31-AC-MSK                                                                       | CI31-AC-SKP                     |                                                                           |
| 0.551 – 0.630                 | CI31                        | CI31-AD                                                                           | CI31-AD-MSK                                                                       | CI31-AD-SKP                     |                                                                           |
| <b>CI32</b>                   |                             |                                                                                   |                                                                                   |                                 |                                                                           |
| 0.630 – 0.709                 | CI32                        | CI32-AB                                                                           | CI32-AB-MSK                                                                       | CI32-AB-SKP                     |                                                                           |
| 0.709 – 0.787                 | CI32                        | CI32-AD                                                                           | CI32-AD-MSK                                                                       | CI32-AD-SKP                     |                                                                           |
| 0.787 – 0.866                 | CI32                        | CI32-AE                                                                           | CI32-AE-MSK                                                                       | CI32-AE-SKP                     |                                                                           |
| <b>CI33</b>                   |                             |                                                                                   |                                                                                   |                                 |                                                                           |
| 0.866 – 0.945                 | CI33                        | CI33-AA                                                                           | CI33-AA-MSK                                                                       | CI33-AA-SKP                     |                                                                           |
| 0.945 – 1.024                 | CI33                        | CI33-AC                                                                           | CI33-AC-MSK                                                                       | CI33-AC-SKP                     |                                                                           |
| 1.024 – 1.102                 | CI33                        | CI33-AD                                                                           | CI33-AD-MSK                                                                       | CI33-AD-SKP                     |                                                                           |
| <b>CI34</b>                   |                             |                                                                                   |                                                                                   |                                 |                                                                           |
| 1.102 – 1.181                 | CI34                        | CI34-AA                                                                           | CI34-AA-MSK                                                                       | CI34-AA-SKP                     |                                                                           |
| 1.181 – 1.260                 | CI34                        | CI34-AC                                                                           | CI34-AC-MSK                                                                       | CI34-AC-SKP                     |                                                                           |
| 1.260 – 1.339                 | CI34                        | CI34-AD                                                                           | CI34-AD-MSK                                                                       | CI34-AD-SKP                     |                                                                           |
| <b>CI35</b>                   |                             |                                                                                   |                                                                                   |                                 |                                                                           |
| 1.339 – 1.457                 | CI35                        | CI35-AA                                                                           | CI35-AA-MSK                                                                       | CI35-AA-SKP                     |                                                                           |
| 1.457 – 1.575                 | CI35                        | CI35-AB                                                                           | CI35-AB-MSK                                                                       | CI35-AB-SKP                     |                                                                           |
| 1.575 – 1.693                 | CI35                        | CI35-AD                                                                           | CI35-AD-MSK                                                                       | CI35-AD-SKP                     |                                                                           |

# Air Actuated Internal Connector

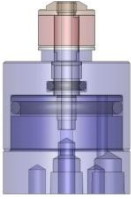
| Smooth Bore Connectors | Connect w/o main seal kit |  |  | Includes washer, seal and nose. | Includes 5 Proprietary Grade Seals<br>*Add "M" for Medical Grade Urethane |
|------------------------|---------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|---------------------------------|---------------------------------------------------------------------------|
| Seal Range             | Body                      | Connector Assembly                                                                | Main Seal Kit                                                                     | Seal Kit Pack                   |                                                                           |
| <b>CI36</b>            |                           |                                                                                   |                                                                                   |                                 |                                                                           |
| 1.693 – 1.850          | CI36                      | CI36-AA                                                                           | CI36-AA-MSK                                                                       | CI36-AA-SKP                     |                                                                           |
| 1.850 – 2.008          | CI36                      | CI36-AC                                                                           | CI36-AC-MSK                                                                       | CI36-AC-SKP                     |                                                                           |
| 2.008 – 2.165          | CI36                      | CI36-AD                                                                           | CI36-AD-MSK                                                                       | CI36-AD-SKP                     |                                                                           |
| <b>CI37</b>            |                           |                                                                                   |                                                                                   |                                 |                                                                           |
| 2.165 – 2.305          | CI37                      | CI37-AA                                                                           | CI37-AA-MSK                                                                       | CI37-AA-SKP                     |                                                                           |
| 2.305 – 2.445          | CI37                      | CI37-AC                                                                           | CI37-AC-MSK                                                                       | CI37-AC-SKP                     |                                                                           |
| 2.445 – 2.585          | CI37                      | CI37-AD                                                                           | CI37-AD-MSK                                                                       | CI37-AD-SKP                     |                                                                           |
| <b>CI38</b>            |                           |                                                                                   |                                                                                   |                                 |                                                                           |
| 2.585 – 2.725          | CI38                      | CI38-AA                                                                           | CI38-AA-MSK                                                                       | CI38-AA-SKP                     |                                                                           |
| 2.725 – 2.865          | CI38                      | CI38-AB                                                                           | CI38-AB-MSK                                                                       | CI38-AB-SKP                     |                                                                           |
| 2.865 – 3.005          | CI38                      | CI38-AC                                                                           | CI38-AC-MSK                                                                       | CI38-AC-SKP                     |                                                                           |
| <b>CI39</b>            |                           |                                                                                   |                                                                                   |                                 |                                                                           |
| 3.005 – 3.145          | CI39                      | CI39-AA                                                                           | CI39-AA-MSK                                                                       | CI39-AA-SKP                     |                                                                           |
| 3.145 – 3.285          | CI39                      | CI39-AB                                                                           | CI39-AB-MSK                                                                       | CI39-AB-SKP                     |                                                                           |
| 3.285 – 3.425          | CI39                      | CI39-AC                                                                           | CI39-AC-MSK                                                                       | CI39-AC-SKP                     |                                                                           |
| 3.425 – 3.565          | CI39                      | CI39-AD                                                                           | CI39-AD-MSK                                                                       | CI39-AD-SKP                     |                                                                           |
| <b>CI40</b>            |                           |                                                                                   |                                                                                   |                                 |                                                                           |
| 3.565 – 3.705          | CI40                      | CI40-AA                                                                           | CI40-AA-MSK                                                                       | CI40-AA-SKP                     |                                                                           |
| 3.705 – 3.845          | CI40                      | CI40-AB                                                                           | CI40-AB-MSK                                                                       | CI40-AB-SKP                     |                                                                           |
| 3.845 – 3.985          | CI40                      | CI40-AC                                                                           | CI40-AC-MSK                                                                       | CI40-AC-SKP                     |                                                                           |
| 3.985 – 4.124          | CI40                      | CI40-AD                                                                           | CI40-AD-MSK                                                                       | CI40-AD-SKP                     |                                                                           |

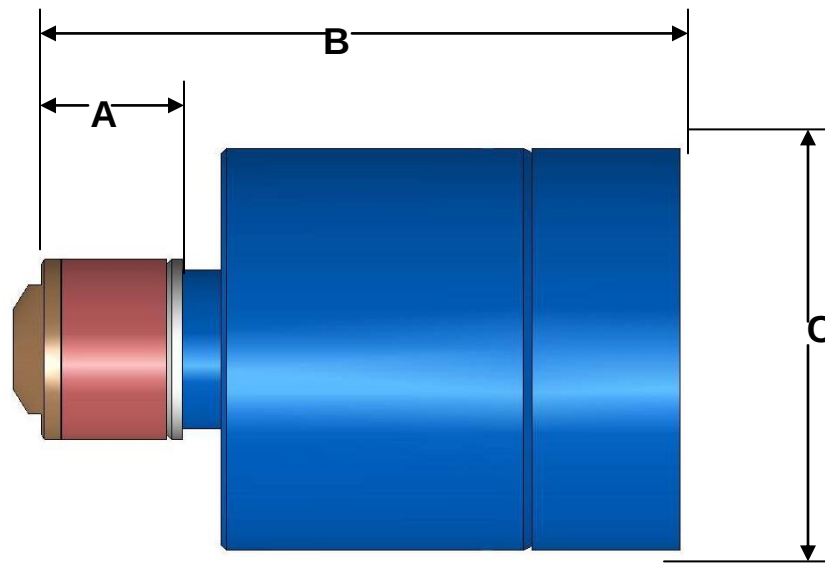


|                                |                                    |                                                                                   |                                                                                                                               |                                                                                     |                   |
|--------------------------------|------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------|
| Threaded<br>Bore<br>Connectors | Connect<br>w/o<br>main<br>seal kit |  | <br>Includes<br>washer,<br>seal and<br>nose. | Includes 5 Proprietary<br>Grade Seals<br><br>*Add “M” for Medical<br>Grade Urethane |                   |
|                                |                                    |                                                                                   |                                                                                                                               |                                                                                     |                   |
| Seal Range                     | Body                               | Connector<br>Assembly                                                             | Main Seal Kit                                                                                                                 |                                                                                     | Seal Kit Pack     |
| NPT Threaded Holes             |                                    |                                                                                   |                                                                                                                               |                                                                                     |                   |
| 1/8” NPT                       | CI30                               | CI30-NPT-0125                                                                     | CI30-NPT-0125-MSK                                                                                                             |                                                                                     | CI30-NPT-0125-SKP |
| 1/4” NPT                       | CI31                               | CI31-NPT-0250                                                                     | CI31-NPT-0250-MSK                                                                                                             |                                                                                     | CI31-NPT-0250-SKP |
| 3/8” NPT                       | CI32                               | CI32-NPT-0375                                                                     | CI32-NPT-0375-MSK                                                                                                             |                                                                                     | CI32-NPT-0375-SKP |
| 1/2” NPT                       | CI32                               | CI32-NPT-0500                                                                     | CI32-NPT-0500-MSK                                                                                                             |                                                                                     | CI32-NPT-0500-SKP |
| 3/4” NPT                       | CI33                               | CI33-NPT-0750                                                                     | CI33-NPT-0750-MSK                                                                                                             |                                                                                     | CI33-NPT-0750-SKP |
| 1” NPT                         | CI34                               | CI34-NPT-1000                                                                     | CI34-NPT-1000-MSK                                                                                                             |                                                                                     | CI34-NPT-1000-SKP |
| 1 ¼” NPT                       | CI35                               | CI35-NPT-1250                                                                     | CI35-NPT-1250-MSK                                                                                                             |                                                                                     | CI35-NPT-1250-SKP |
| 1 ½” NPT                       | CI36                               | CI36-NPT-1500                                                                     | CI36-NPT-1500-MSK                                                                                                             |                                                                                     | CI36-NPT-1500-SKP |
| 2” NPT                         | CI37                               | CI37-NPT-2000                                                                     | CI37-NPT-2000-MSK                                                                                                             |                                                                                     | CI37-NPT-2000-SKP |
| Metric Threaded Holes          |                                    |                                                                                   |                                                                                                                               |                                                                                     |                   |
| M8                             | CI30                               | CI30-M8                                                                           | CI30-M8-MSK                                                                                                                   |                                                                                     | CI30-M8-SKP       |
| M10                            | CI30                               | CI30- M10                                                                         | CI30-M10-MSK                                                                                                                  |                                                                                     | CI30-M10-SKP      |
| M12                            | CI31                               | CI31-M12                                                                          | CI31-M12-MSK                                                                                                                  |                                                                                     | CI31-M12-SKP      |
| M14                            | CI31                               | CI31-M14                                                                          | CI31-M14-MSK                                                                                                                  |                                                                                     | CI31-M14-SKP      |
| M16                            | CI31                               | CI31-M16                                                                          | CI31-M16-MSK                                                                                                                  |                                                                                     | CI31-M16-SKP      |
| M18                            | CI31                               | CI31-M18                                                                          | CI31-M18-MSK                                                                                                                  |                                                                                     | CI31-M18-SKP      |
| M20                            | CI32                               | CI32-M20                                                                          | CI32-M20-MSK                                                                                                                  |                                                                                     | CI32-M20-SKP      |
| M22                            | CI32                               | CI32-M22                                                                          | CI32-M22-MSK                                                                                                                  |                                                                                     | CI32-M22-SKP      |
| M24                            | CI32                               | CI32-M24                                                                          | CI32-M24-MSK                                                                                                                  |                                                                                     | CI32-M24-SKP      |
| M26                            | CI33                               | CI33-M26                                                                          | CI33-M26-MSK                                                                                                                  |                                                                                     | CI33-M26-SKP      |
| M27                            | CI33                               | CI33-M27                                                                          | CI33-M27-MSK                                                                                                                  |                                                                                     | CI33-M27-SKP      |
| M33                            | CI34                               | CI34-M33                                                                          | CI34-M33-MSK                                                                                                                  |                                                                                     | CI34-M33-SKP      |
| M36                            | CI34                               | CI34-M36                                                                          | CI34-M36-MSK                                                                                                                  |                                                                                     | CI34-M36-SKP      |
| M42                            | CI35                               | CI35-M42                                                                          | CI35-M42-MSK                                                                                                                  |                                                                                     | CI35-M42-SKP      |
| M45                            | CI35                               | CI35-M45                                                                          | CI35-M45-MSK                                                                                                                  |                                                                                     | CI35-M45-SKP      |
| M48                            | CI36                               | CI36-M48                                                                          | CI36-M48-MSK                                                                                                                  |                                                                                     | CI36-M48-SKP      |

|                                 |                           |                                                                                   |                                                                                                                   |                                                                           |
|---------------------------------|---------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------|
| <b>Threaded Hole Connectors</b> | Connect w/o main seal kit |  |  Includes washer, seal and nose. | Includes 5 Proprietary Grade Seals<br>*Add "M" for Medical Grade Urethane |
| <b>Seal Range</b>               | <b>Body</b>               | <b>Connector Assembly</b>                                                         | <b>Main Seal Kit</b>                                                                                              | <b>Seal Kit Pack</b>                                                      |
| <b>SAE Threaded Holes</b>       |                           |                                                                                   |                                                                                                                   |                                                                           |
| 5/16" SAE                       | CI30                      | CI30-SAE-0312                                                                     | CI30-SAE-0312-MSK                                                                                                 | CI30-SAE-0312-SKP                                                         |
| 3/8" SAE                        | CI30                      | CI30-SAE-0375                                                                     | CI30-SAE-0375-MSK                                                                                                 | CI30-SAE-0375-SKP                                                         |
| 7/16" SAE                       | CI30                      | CI30-SAE-0437                                                                     | CI30-SAE-0437-MSK                                                                                                 | CI30-SAE-0437-SKP                                                         |
| 1/2" SAE                        | CI31                      | CI31-SAE-0500                                                                     | CI31-SAE-0500-MSK                                                                                                 | CI31-SAE-0500-SKP                                                         |
| 9/16" SAE                       | CI31                      | CI31-SAE-0562                                                                     | CI31-SAE-0562-MSK                                                                                                 | CI31-SAE-0562-SKP                                                         |
| 5/8" SAE                        | CI31                      | CI31-SAE-0625                                                                     | CI31-SAE-0625-MSK                                                                                                 | CI31-SAE-0625-SKP                                                         |
| 11/16" SAE                      | CI31                      | CI31-SAE-0687                                                                     | CI31-SAE-0687-MSK                                                                                                 | CI31-SAE-0687-SKP                                                         |
| 3/4" SAE                        | CI32                      | CI32-SAE-0750                                                                     | CI32-SAE-0750-MSK                                                                                                 | CI32-SAE-0750-SKP                                                         |
| 13/16" SAE                      | CI32                      | CI32-SAE-0812                                                                     | CI32-SAE-0812-MSK                                                                                                 | CI32-SAE-0812-SKP                                                         |
| 7/8" SAE                        | CI32                      | CI32-SAE-0875                                                                     | CI32-SAE-0875-MSK                                                                                                 | CI32-SAE-0875-SKP                                                         |
| 15/16" SAE                      | CI32                      | CI32-SAE-0937                                                                     | CI32-SAE-0937-MSK                                                                                                 | CI32-SAE-0937-SKP                                                         |
| 1" SAE                          | CI32                      | CI32-SAE-1000                                                                     | CI32-SAE-1000-MSK                                                                                                 | CI32-SAE-1000-SKP                                                         |
| 1 1/16" SAE                     | CI33                      | CI33-SAE-1062                                                                     | CI33-SAE-1062-MSK                                                                                                 | CI33-SAE-1062-SKP                                                         |
| 1 1/8" SAE                      | CI33                      | CI33-SAE-1125                                                                     | CI33-SAE-1125-MSK                                                                                                 | CI33-SAE-1125-SKP                                                         |
| 1 3/16" SAE                     | CI33                      | CI33-SAE-1187                                                                     | CI33-SAE-1187-MSK                                                                                                 | CI33-SAE-1187-SKP                                                         |
| 1 1/4" SAE                      | CI33                      | CI33-SAE-1250                                                                     | CI33-SAE-1250-MSK                                                                                                 | CI33-SAE-1250-SKP                                                         |
| 1 5/16" SAE                     | CI34                      | CI34-SAE-1312                                                                     | CI34-SAE-1312-MSK                                                                                                 | CI34-SAE-1312-SKP                                                         |
| 1 3/8" SAE                      | CI34                      | CI34-SAE-1375                                                                     | CI34-SAE-1375-MSK                                                                                                 | CI34-SAE-1375-SKP                                                         |
| 1 7/16" SAE                     | CI34                      | CI34-SAE-1437                                                                     | CI34-SAE-1437-MSK                                                                                                 | CI34-SAE-1437-SKP                                                         |
| 1 1/2" SAE                      | CI34                      | CI34-SAE-1500                                                                     | CI34-SAE-1500-MSK                                                                                                 | CI34-SAE-1500-SKP                                                         |
| 1 9/16" SAE                     | CI35                      | CI35-SAE-1562                                                                     | CI35-SAE-1562-MSK                                                                                                 | CI35-SAE-1562-SKP                                                         |
| 1 5/8" SAE                      | CI35                      | CI35-SAE-1625                                                                     | CI35-SAE-1625-MSK                                                                                                 | CI35-SAE-1625-SKP                                                         |
| 1 11/16" SAE                    | CI35                      | CI35-SAE-1687                                                                     | CI35-SAE-1687-MSK                                                                                                 | CI35-SAE-1687-SKP                                                         |
| 1 3/4" SAE                      | CI35                      | CI35-SAE-1750                                                                     | CI35-SAE-1750-MSK                                                                                                 | CI35-SAE-1750-SKP                                                         |

## Air Actuated Internal Connector

|                                 |                             |                                                                                   |                                                                                   |                                 |                                                                           |
|---------------------------------|-----------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|---------------------------------|---------------------------------------------------------------------------|
| <b>Threaded Hole Connectors</b> | Connector w/o main seal kit |  |  | Includes washer, seal and nose. | Includes 5 Proprietary Grade Seals<br>*Add "M" for Medical Grade Urethane |
|                                 |                             |                                                                                   |                                                                                   |                                 |                                                                           |
| <b>Seal Range</b>               |                             | <b>Plug</b>                                                                       | <b>Plug &amp; Fill</b>                                                            | <b>Plug &amp; Fill w/handle</b> |                                                                           |
| 1 13/16" SAE                    | CI35                        | CI35-SAE-1812                                                                     | CI35-SAE-1812-MSK                                                                 | CI35-SAE-1812-SKP               |                                                                           |
| 1 7/8" SAE                      | CI35                        | CI35-SAE-1875                                                                     | CI35-SAE-1875-MSK                                                                 | CI35-SAE-1875-SKP               |                                                                           |
| 1 15/16" SAE                    | CI36                        | CI36-SAE-1937                                                                     | CI36-SAE-1937-MSK                                                                 | CI36-SAE-1937-SKP               |                                                                           |
| 2" SAE                          | CI36                        | CI36-SAE-2000                                                                     | CI36-SAE-2000-MSK                                                                 | CI36-SAE-2000-SKP               |                                                                           |
| 2 1/4" SAE                      | CI36                        | CI36-SAE-2250                                                                     | CI36-SAE-2250-MSK                                                                 | CI36-SAE-2250-SKP               |                                                                           |
| 2 1/2" SAE                      | CI37                        | CI37-SAE-2500                                                                     | CI37-SAE-2500-MSK                                                                 | CI37-SAE-2500-SKP               |                                                                           |



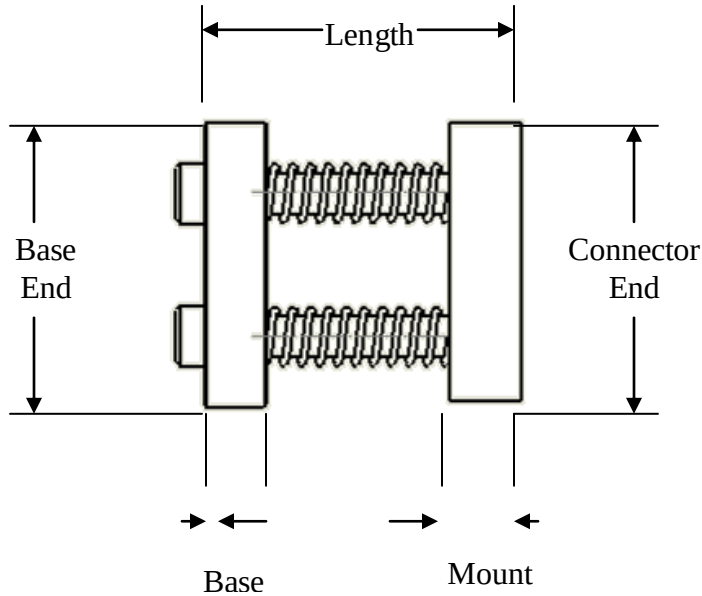
CI Model Dimensions (in)

| Body Size | A    | B    | C    |
|-----------|------|------|------|
| 30        | 0.55 | 2.01 | 1.25 |
| 31        | 0.56 | 2.44 | 1.56 |
| 32        | 0.57 | 2.44 | 1.56 |
| 33        | 1.11 | 2.67 | 2.38 |
| 34        | 1.11 | 2.71 | 2.38 |
| 35        | 1.50 | 4.00 | 3.50 |
| 36        | 1.53 | 4.03 | 3.50 |
| 37        | 1.52 | 3.81 | 4.25 |
| 38        | 1.52 | 3.81 | 4.25 |
| 39        | 1.52 | 3.81 | 4.25 |
| 40        | 1.52 | 3.81 | 4.75 |

\*Note "A" corresponds to the minimum insertion depth

Dimensional information is for reference only

## Spring Mount Attachment Option



CI Spring-Mount Dimensions

| Connector | Spring Mount Kit         | Base End | Bolt Head | Base | Length | Mount | Connector End |
|-----------|--------------------------|----------|-----------|------|--------|-------|---------------|
| CI30      | SPRINGMOUNT CI30         | 1.75     | 3/16      | 0.38 | 1.94   | 0.44  | 1.75          |
| CI31      | SPRINGMOUNT CI31-32/CO31 | 1.75     | 3/16      | 0.38 | 1.94   | 0.44  | 1.70          |
| CI32      | SPRINGMOUNT CI31-32/CO31 | 1.75     | 3/16      | 0.38 | 1.94   | 0.44  | 1.70          |
| CI33      | SPRINGMOUNT CI33-34/CO32 | 2.23     | 3/16      | 0.38 | 1.94   | 0.44  | 2.20          |
| CI34      | SPRINGMOUNT CI33-34/CO32 | 2.23     | 3/16      | 0.38 | 1.94   | 0.44  | 2.20          |
| CI35      | SPRINGMOUNT CI35-36/CO33 | 3.48     | 4/16      | 0.50 | 3.81   | 0.56  | 3.33          |
| CI36      | SPRINGMOUNT CI35-36/CO33 | 3.48     | 4/16      | 0.50 | 3.81   | 0.56  | 3.33          |
| CI37      | SPRINGMOUNT CI37-38/CO34 | 4.23     | 4/16      | 0.50 | 3.81   | 0.56  | 4.03          |
| CI38      | SPRINGMOUNT CI37-38/CO34 | 4.23     | 4/16      | 0.50 | 3.81   | 0.56  | 4.03          |
| CI39      | SPRINGMOUNT CI37-38/CO34 | 4.23     | 4/16      | 0.50 | 3.81   | 0.56  | 4.03          |
| CI40      | SPRINGMOUNT CI37-38/CO34 | 4.23     | 4/16      | 0.50 | 3.81   | 0.56  | 4.03          |

\* The Spring Mount Kit is ordered as a separate item for the appropriate Connector Assembly

### CTS Connects™ External (OD) Air Actuated Connectors



because the vacuum will hold the part in the connector. For pressure applications, additional applied by triggering a start switch. In automated applications, a cylinder will advance the CTS part or seal restraints are required to prevent a blow off condition in case the seal pilot pressure is released before the part pressure. The pressure range for the internal (CO) connector is vacuum to 500 psi.

### Air Actuated Connectors

The CTS Connect™ air actuated external connectors effectively seal on smooth, rough, or threaded circular features of a part. The connectors consist of an air-driven internal piston that compresses the CTS proprietary seal material against the surface of the part, creating a tight seal that meets all test pressure requirements regardless of surface shape or finish.

- Superior sealing capability without the risk of scratching the surface of the part
- Automated sealing to minimize operator fatigue and injury
- Large test/fill port holes for better conductance
- Built-in stroke limiter
- Easy seal replacement
- Long seal life

### Tooling Functions

The part to be sealed is placed into the CTS Connect connector as the pilot air pressure is Connect connector to the part. For vacuum applications, no safety tooling is required

### Sealing

CTS Connect™ connectors are ideal for smooth or rough surfaces, and threaded holes (NPT, Metric, or SAE). The standard proprietary grade seals offer superior extrusion performance as well as cut and abrasion resistance. The proprietary grade seal material also provides extended life. The proprietary grade seal is standard in all connectors. Available seal materials include:

- Proprietary
- Medical grade urethane

### Pilot Pressure

CTS Connect connectors are regulated pilot pressure set to the minimum pressure needed to seal life. Normal pilot pressures extend the seal life. Normal pilot pressures range from 60 to 90 psi. Higher pilot pressures may be required for rough seal surfaces and NPT, Metric, and SAE connections. If higher pilot pressures are required, boosters are available.

## CTS Connect CO Connector Specs

**Part hole sizes:** 0.030 – 3.032" I.D.

**Threaded holes:** 1/8" to 2 1/2" FNPT, M8-M48, SAE 5/16- 2-1/2"

**Test pressures :** Vacuum to 500 psig

**Pilot pressure:** Typically 60 – 90 psig

**Connector body:** Aluminum

**Washer Material:** Stainless steel

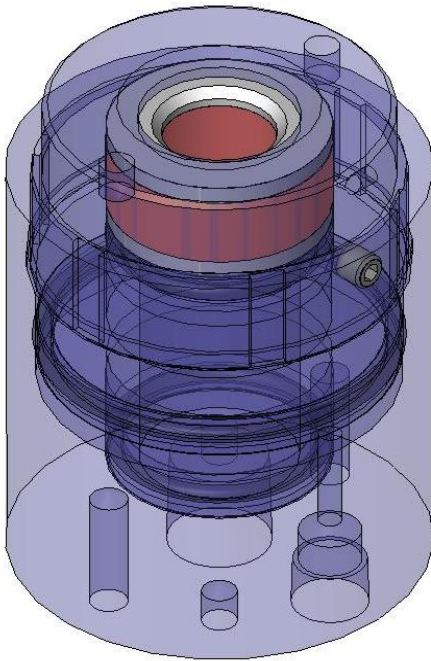
**Piston:** Aluminum

**O-ring:** Buna N

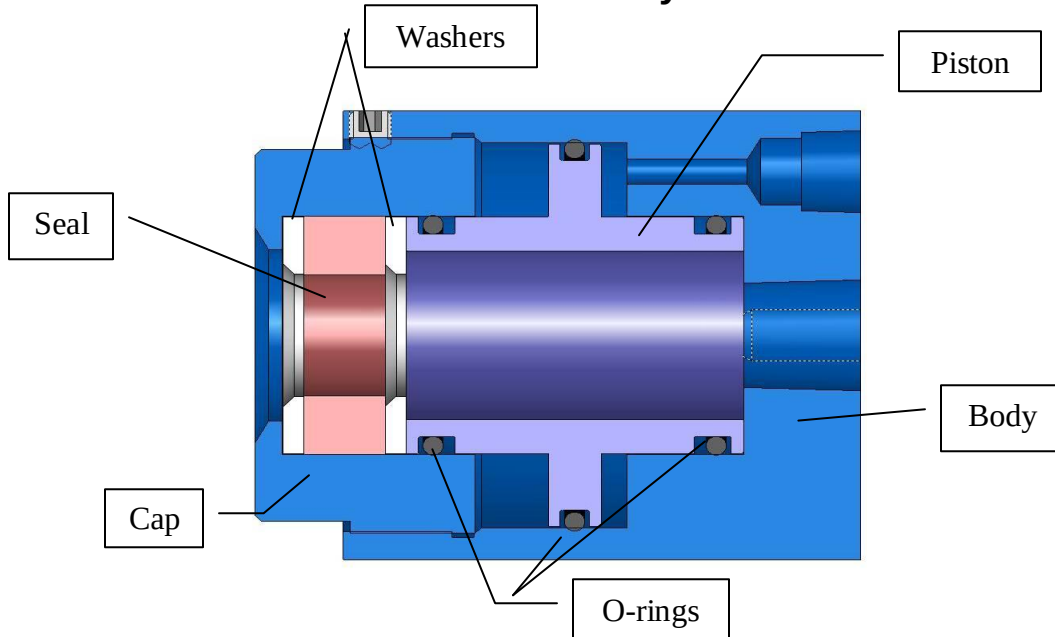
**Part seal material:** Proprietary grade seal  
For regular and threaded connectors

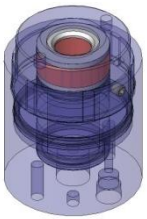
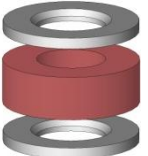
**Optional seal material:**  
Medical grade urethane

## CO Connector

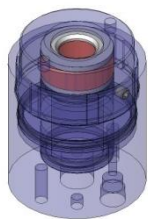
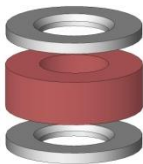


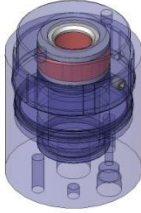
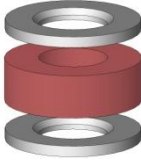
## Connector Assembly Detail

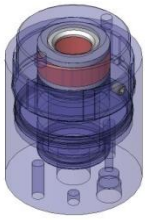
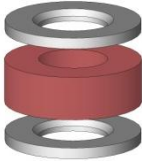


|                                       |                                   |                                                                                   |                                                                                   |                                         |                                                                                     |
|---------------------------------------|-----------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------|-------------------------------------------------------------------------------------|
| <b>Smooth<br/>Tube<br/>Connectors</b> | Connector<br>w/o main<br>seal kit |  |  | Includes<br>two<br>washers<br>and seal. | Includes 5 Proprietary<br>Grade Seals<br><br>*Add "M" for Medical<br>Grade Urethane |
|                                       | <b>Seal Range</b>                 | <b>Body</b>                                                                       | <b>Connector<br/>Assembly</b>                                                     | <b>Main Seal Kit</b>                    | <b>Seal Kit Pack</b>                                                                |
| <b>CO30</b>                           |                                   |                                                                                   |                                                                                   |                                         |                                                                                     |
| 0.030 – 0.050                         | CO30                              | CO30-AA                                                                           | CO30-AA-MSK                                                                       | CO30-AA-SKP                             |                                                                                     |
| 0.050 – 0.080                         | CO30                              | CO30-AB                                                                           | CO30-AB-MSK                                                                       | CO30-AB-SKP                             |                                                                                     |
| 0.080 – 0.130                         | CO30                              | CO30-AC                                                                           | CO30-AC-MSK                                                                       | CO30-AC-SKP                             |                                                                                     |
| <b>CO31</b>                           |                                   |                                                                                   |                                                                                   |                                         |                                                                                     |
| 0.100 – 0.180                         | CO31                              | CO31-AA                                                                           | CO31-AA-MSK                                                                       | CO31-AA-SKP                             |                                                                                     |
| 0.180 – 0.260                         | CO31                              | CO31-AB                                                                           | CO31-AB-MSK                                                                       | CO31-AB-SKP                             |                                                                                     |
| 0.260 – 0.340                         | CO31                              | CO31-AC                                                                           | CO31-AC-MSK                                                                       | CO31-AC-SKP                             |                                                                                     |
| 0.340 – 0.420                         | CO31                              | CO31-AE                                                                           | CO31-AE-MSK                                                                       | CO31-AE-SKP                             |                                                                                     |
| 0.420 – 0.510                         | CO31                              | CO31-AF                                                                           | CO31-AF-MSK                                                                       | CO31-AF-SKP                             |                                                                                     |
| <b>CO32</b>                           |                                   |                                                                                   |                                                                                   |                                         |                                                                                     |
| 0.433 – 0.512                         | CO32                              | CO32-AA                                                                           | CO32-AA-MSK                                                                       | CO32-AA-SKP                             |                                                                                     |
| 0.512 – 0.591                         | CO32                              | CO32-AD                                                                           | CO32-AD-MSK                                                                       | CO32-AD-SKP                             |                                                                                     |
| 0.591 – 0.669                         | CO32                              | CO32-AE                                                                           | CO32-AE-MSK                                                                       | CO32-AE-SKP                             |                                                                                     |
| 0.669 – 0.750                         | CO32                              | CO32-AG                                                                           | CO32-AG-MSK                                                                       | CO32-AG-SKP                             |                                                                                     |
| 0.750 – 0.827                         | CO32                              | CO32-AH                                                                           | CO32-AH-MSK                                                                       | CO32-AH-SKP                             |                                                                                     |
| <b>CO33</b>                           |                                   |                                                                                   |                                                                                   |                                         |                                                                                     |
| 0.787 – 0.866                         | CO33                              | CO33-AB                                                                           | CO33-AB-MSK                                                                       | CO34-AA-SKP                             |                                                                                     |
| 0.866 – 0.945                         | CO33                              | CO33-AC                                                                           | CO33-AC-MSK                                                                       | CO34-AC-SKP                             |                                                                                     |
| 0.945 – 1.024                         | CO33                              | CO33-AE                                                                           | CO33-AE-MSK                                                                       | CO34-AD-SKP                             |                                                                                     |
| 1.024 – 1.102                         | CO33                              | CO33-AF                                                                           | CO33-AF-MSK                                                                       | CO35-AA-SKP                             |                                                                                     |
| 1.102 – 1.181                         | CO33                              | CO33-AG                                                                           | CO33-AG-MSK                                                                       | CO35-AB-SKP                             |                                                                                     |
| 1.181 – 1.260                         | CO33                              | CO33-AH                                                                           | CO33-AH-MSK                                                                       | CO35-AD-SKP                             |                                                                                     |

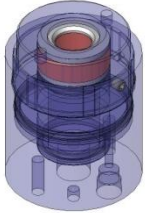
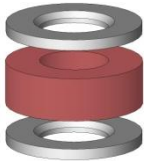


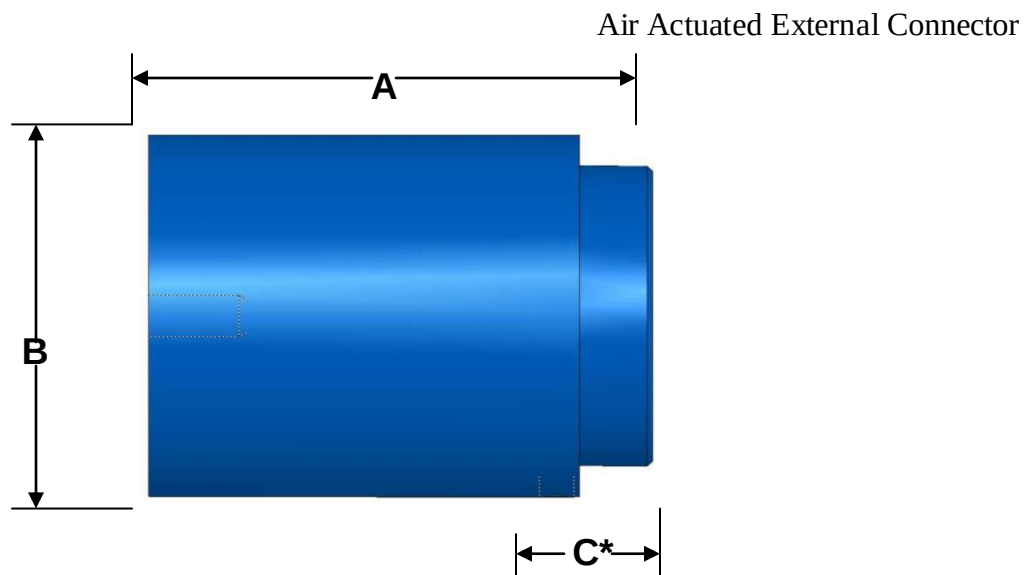
|                              |                                   |                                                                                   |                                                                                                                           |                                                                                     |
|------------------------------|-----------------------------------|-----------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Smooth<br>Tube<br>Connectors | Connector<br>w/o main<br>seal kit |  |  Includes<br>two<br>washers<br>and seal. | Includes 5 Proprietary<br>Grade Seals<br><br>*Add “M” for Medical<br>Grade Urethane |
|                              | Seal Range                        | Body                                                                              | Connector<br>Assembly                                                                                                     | Main Seal Kit                                                                       |
| CO33                         |                                   |                                                                                   |                                                                                                                           |                                                                                     |
| 1.260 – 1.339                | CO33                              | CO33-AJ                                                                           | CO33-AJ-MSK                                                                                                               | CO33-AJ-SKP                                                                         |
| 1.339 – 1.417                | CO33                              | CO33-AK                                                                           | CO33-AK-MSK                                                                                                               | CO33-AK-SKP                                                                         |
| 1.417 – 1.510                | CO33                              | CO33-AL                                                                           | CO33-AL-MSK                                                                                                               | CO33-AL-SKP                                                                         |
| CO34                         |                                   |                                                                                   |                                                                                                                           |                                                                                     |
| 1.496 – 1.614                | CO34                              | CO34-AA                                                                           | CO34-AA-MSK                                                                                                               | CO34-AA-SKP                                                                         |
| 1.614– 1.732                 | CO34                              | CO34-AC                                                                           | CO34-AC-MSK                                                                                                               | CO34-AC-SKP                                                                         |
| 1.732 – 1.850                | CO34                              | CO34-AD                                                                           | CO34-AD-MSK                                                                                                               | CO34-AD-SKP                                                                         |
| 1.850 – 1.969                | CO34                              | CO34-AF                                                                           | CO34-AF-MSK                                                                                                               | CO34-AF-SKP                                                                         |
| CO35                         |                                   |                                                                                   |                                                                                                                           |                                                                                     |
| 1.969 – 2.087                | CO35                              | CO35-AA                                                                           | CO35-AA-MSK                                                                                                               | CO35-AA-SKP                                                                         |
| 2.087 – 2.205                | CO35                              | CO35-AB                                                                           | CO35-AB-MSK                                                                                                               | CO35-AB-SKP                                                                         |
| 2.205 – 2.323                | CO35                              | CO35-AC                                                                           | CO35-AC-MSK                                                                                                               | CO35-AC-SKP                                                                         |
| 2.323 – 2.441                | CO35                              | CO35-AE                                                                           | CO35-AE-MSK                                                                                                               | CO35-AE-SKP                                                                         |
| 2.441 – 2.559                | CO35                              | CO35-AF                                                                           | CO35-AF-MSK                                                                                                               | CO35-AF-SKP                                                                         |
| 2.559 – 2.677                | CO35                              | CO35-AG                                                                           | CO35-AG-MSK                                                                                                               | CO35-AG-SKP                                                                         |
| 2.667 – 2.795                | CO35                              | CO35-AH                                                                           | CO35-AH-MSK                                                                                                               | CO35-AH-SKP                                                                         |
| 2.795 – 2.913                | CO35                              | CO35-AI                                                                           | CO35-AI-MSK                                                                                                               | CO35-AI-SKP                                                                         |
| 2.913 – 3.032                | CO35                              | CO35-AJ                                                                           | CO35-AJ-MSK                                                                                                               | CO35-AJ-SKP                                                                         |

|                                 |                           |                                                                                   |                                                                                                                  |                                                                           |
|---------------------------------|---------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------|
| <b>Threaded Pipe Connectors</b> | Connect w/o main seal kit |  |  Includes two washers and seal. | Includes 5 Proprietary Grade Seals<br>*Add "M" for Medical Grade Urethane |
| <b>Seal Range</b>               | <b>Body</b>               | <b>Connector Assembly</b>                                                         | <b>Main Seal Kit</b>                                                                                             | <b>Seal Kit Pack</b>                                                      |
| <b>NPT Threaded Tube</b>        |                           |                                                                                   |                                                                                                                  |                                                                           |
| 1/8" NPT                        | CO31                      | CO31-NPT-0125                                                                     | CO31-NPT-0125-MSK                                                                                                | CO31-NPT-0125-SKP                                                         |
| 1/4" NPT                        | CO32                      | CO32-NPT-0250                                                                     | CO32-NPT-0250-MSK                                                                                                | CO32-NPT-0250-SKP                                                         |
| 3/8" NPT                        | CO32                      | CO32-NPT-0375                                                                     | CO32-NPT-0375-MSK                                                                                                | CO32-NPT-0375-SKP                                                         |
| 1/2" NPT                        | CO33                      | CO33-NPT-0500                                                                     | CO33-NPT-0500-MSK                                                                                                | CO33-NPT-0500-SKP                                                         |
| 3/4" NPT                        | CO33                      | CO33-NPT-0750                                                                     | CO33-NPT-0750-MSK                                                                                                | CO33-NPT-0750-SKP                                                         |
| 1" NPT                          | CO33                      | CO33-NPT-1000                                                                     | CO33-NPT-1000-MSK                                                                                                | CO33-NPT-1000-SKP                                                         |
| 1 1/4" NPT                      | CO34                      | CO34-NPT-1250                                                                     | CO34-NPT-1250-MSK                                                                                                | CO34-NPT-1250-SKP                                                         |
| 1 1/2" NPT                      | CO34                      | CO34-NPT-1500                                                                     | CO34-NPT-1500-MSK                                                                                                | CO34-NPT-1500-SKP                                                         |
| 2" NPT                          | CO35                      | CO35-NPT-2000                                                                     | CO35-NPT-2000-MSK                                                                                                | CO35-NPT-2000-SKP                                                         |
| 2 1/2" NPT                      | CO35                      | CO35-NPT-2500                                                                     | CO35-NPT-2500-MSK                                                                                                | CO35-NPT-2500-SKP                                                         |
| <b>Metric Threaded Tube</b>     |                           |                                                                                   |                                                                                                                  |                                                                           |
| M8                              | CO31                      | CO31-M8                                                                           | CO31-M8-MSK                                                                                                      | CO31-M8-SKP                                                               |
| M10                             | CO31                      | CO31-M10                                                                          | CO31-M10-MSK                                                                                                     | CO31-M10-SKP                                                              |
| M12                             | CO32                      | CO32-M12                                                                          | CO32-M12-MSK                                                                                                     | CO32-M12-SKP                                                              |
| M14                             | CO32                      | CO32-M14                                                                          | CO32-M14-MSK                                                                                                     | CO32-M14-SKP                                                              |
| M16                             | CO32                      | CO32-M16                                                                          | CO32-M16-MSK                                                                                                     | CO32-M16-SKP                                                              |
| M18                             | CO32                      | CO32-M18                                                                          | CO32-M18-MSK                                                                                                     | CO32-M18-SKP                                                              |
| M20                             | CO33                      | CO33-M20                                                                          | CO33-M20-MSK                                                                                                     | CO33-M20-SKP                                                              |
| M22                             | CO33                      | CO33-M22                                                                          | CO33-M22-MSK                                                                                                     | CO33-M22-SKP                                                              |
| M24                             | CO33                      | CO33-M24                                                                          | CO33-M24-MSK                                                                                                     | CO33-M24-SKP                                                              |
| M26                             | CO33                      | CO33-M26                                                                          | CO33-M26-MSK                                                                                                     | CO33-M26-SKP                                                              |
| M27                             | CO33                      | CO33-M27                                                                          | CO33-M27-MSK                                                                                                     | CO33-M27-SKP                                                              |
| M33                             | CO33                      | CO33-M33                                                                          | CO33-M33-MSK                                                                                                     | CO33-M33-SKP                                                              |
| M36                             | CO33                      | CO33-M36                                                                          | CO33-M36-MSK                                                                                                     | CO33-M36-SKP                                                              |

| Threaded<br>Pipe<br>Connectors | Connect<br>w/o<br>main<br>seal kit |  |  Includes<br>two<br>washers<br>and seal. | Includes 5 Proprietary<br>Grade Seals<br><br>*Add "M" for Medical<br>Grade Urethane |
|--------------------------------|------------------------------------|-----------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
|                                |                                    |                                                                                   |                                                                                                                           |                                                                                     |
| Seal Range                     | Body                               | Connector<br>Assembly                                                             | Main Seal Kit                                                                                                             | Seal Kit Pack                                                                       |
| <b>Metric Threaded Tube</b>    |                                    |                                                                                   |                                                                                                                           |                                                                                     |
| M42                            | CO34                               | CO34-M42                                                                          | CO34-M42-MSK                                                                                                              | CO34-M42-SKP                                                                        |
| M45                            | CO34                               | CO34-M45                                                                          | CO34-M45-MSK                                                                                                              | CO34-M45-SKP                                                                        |
| M48                            | CO34                               | CO34-M48                                                                          | CO34-M48-MSK                                                                                                              | CO34-M48-SKP                                                                        |
| <b>SAE Threaded Tube</b>       |                                    |                                                                                   |                                                                                                                           |                                                                                     |
| 5/16" SAE                      | CO31                               | CO31-SAE-0312                                                                     | CO31-SAE-0312-MSK                                                                                                         | CO31-SAE-0312-SKP                                                                   |
| 3/8" SAE                       | CO31                               | CO31-SAE-0375                                                                     | CO31-SAE-0375-MSK                                                                                                         | CO31-SAE-0375-SKP                                                                   |
| 7/16" SAE                      | CO31                               | CO31-SAE-0437                                                                     | CO31-SAE-0437-MSK                                                                                                         | CO31-SAE-0437-SKP                                                                   |
| 1/2" SAE                       | CO31                               | CO31-SAE-0500                                                                     | CO31-SAE-0500-MSK                                                                                                         | CO31-SAE-0500-SKP                                                                   |
| 9/16" SAE                      | CO32                               | CO32-SAE-0562                                                                     | CO32-SAE-0562-MSK                                                                                                         | CO32-SAE-0562-SKP                                                                   |
| 5/8" SAE                       | CO32                               | CO32-SAE-0625                                                                     | CO32-SAE-0625-MSK                                                                                                         | CO32-SAE-0625-SKP                                                                   |
| 11/16" SAE                     | CO32                               | CO32-SAE-0687                                                                     | CO32-SAE-0687-MSK                                                                                                         | CO32-SAE-0687-SKP                                                                   |
| 3/4" SAE                       | CO32                               | CO32-SAE-0750                                                                     | CO32-SAE-0750-MSK                                                                                                         | CO32-SAE-0750-SKP                                                                   |
| 13/16" SAE                     | CO32                               | CO32-SAE-0812                                                                     | CO32-SAE-0812-MSK                                                                                                         | CO32-SAE-0812-SKP                                                                   |
| 7/8" SAE                       | CO33                               | CO33-SAE-0875                                                                     | CO33-SAE-0875-MSK                                                                                                         | CO33-SAE-0875-SKP                                                                   |
| 15/16" SAE                     | CO33                               | CO33-SAE-0937                                                                     | CO33-SAE-0937-MSK                                                                                                         | CO33-SAE-0937-SKP                                                                   |
| 1" SAE                         | CO33                               | CO33-SAE-1000                                                                     | CO33-SAE-1000-MSK                                                                                                         | CO33-SAE-1000-SKP                                                                   |
| 1 1/16" SAE                    | CO33                               | CO33-SAE-1062                                                                     | CO33-SAE-1062-MSK                                                                                                         | CO33-SAE-1062-SKP                                                                   |
| 1 1/8" SAE                     | CO33                               | CO33-SAE-1125                                                                     | CO33-SAE-1125-MSK                                                                                                         | CO33-SAE-1125-SKP                                                                   |
| 1 3/16" SAE                    | CO33                               | CO33-SAE-1187                                                                     | CO33-SAE-1187-MSK                                                                                                         | CO33-SAE-1187-SKP                                                                   |
| 1 1/4" SAE                     | CO33                               | CO33-SAE-1250                                                                     | CO33-SAE-1250-MSK                                                                                                         | CO33-SAE-1250-SKP                                                                   |
| 1 5/16" SAE                    | CO33                               | CO33-SAE-1312                                                                     | CO33-SAE-1312-MSK                                                                                                         | CO33-SAE-1312-SKP                                                                   |
| 1 3/8" SAE                     | CO33                               | CO33-SAE-1375                                                                     | CO33-SAE-1375-MSK                                                                                                         | CO33-SAE-1375-SKP                                                                   |
| 1 7/16" SAE                    | CO33                               | CO33-SAE-1437                                                                     | CO33-SAE-1437-MSK                                                                                                         | CO33-SAE-1437-SKP                                                                   |
| 1 1/2" SAE                     | CO33                               | CO33-SAE-1500                                                                     | CO33-SAE-1500-MSK                                                                                                         | CO33-SAE-1500-SKP                                                                   |
| 1 9/16" SAE                    | CO34                               | CO34-SAE-1562                                                                     | CO34-SAE-1562-MSK                                                                                                         | CO34-SAE-1562-SKP                                                                   |

# Air Actuated External Connector

|                                 |                           |                                                                                   |                                                                                                                  |                                                                           |
|---------------------------------|---------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------|
| <b>Threaded Pipe Connectors</b> | Connect w/o main seal kit |  |  Includes two washers and seal. | Includes 5 Proprietary Grade Seals<br>*Add "M" for Medical Grade Urethane |
| <b>Seal Range</b>               | <b>Body</b>               | <b>Connector Assembly</b>                                                         | <b>Main Seal Kit</b>                                                                                             | <b>Seal Kit Pack</b>                                                      |
| <b>SAE Threaded Tube</b>        |                           |                                                                                   |                                                                                                                  |                                                                           |
| 1 5/8"SAE                       | CO34                      | CO34-SAE-1625                                                                     | CO34-SAE-1625-MSK                                                                                                | CO34-SAE-1625-SKP                                                         |
| 1 11/16"SAE                     | CO34                      | CO34-SAE-1687                                                                     | CO34-SAE-1687-MSK                                                                                                | CO34-SAE-1687-SKP                                                         |
| 1 3/4" SAE                      | CO34                      | CO34-SAE-1750                                                                     | CO34-SAE-1750-MSK                                                                                                | CO34-SAE-1750-SKP                                                         |
| 1 13/16" SAE                    | CO34                      | CO34-SAE-1812                                                                     | CO34-SAE-1812-MSK                                                                                                | CO34-SAE-1812-SKP                                                         |
| 1 7/8" SAE                      | CO34                      | CO34-SAE-1875                                                                     | CO34-SAE-1875-MSK                                                                                                | CO34-SAE-1875-SKP                                                         |
| 1 15/16"SAE                     | CO34                      | CO34-SAE-1937                                                                     | CO34-SAE-1937-MSK                                                                                                | CO34-SAE-1937-SKP                                                         |
| 2" SAE                          | CO35                      | CO35-SAE-2000                                                                     | CO35-SAE-2000-MSK                                                                                                | CO35-SAE-2000-SKP                                                         |
| 2 1/2" SAE                      | CO35                      | CO35-SAE-2500                                                                     | CO35-SAE-2500-MSK                                                                                                | CO35-SAE-2500-SKP                                                         |

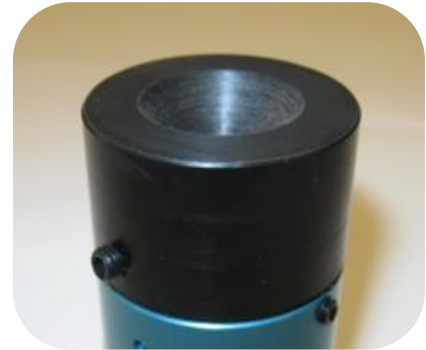
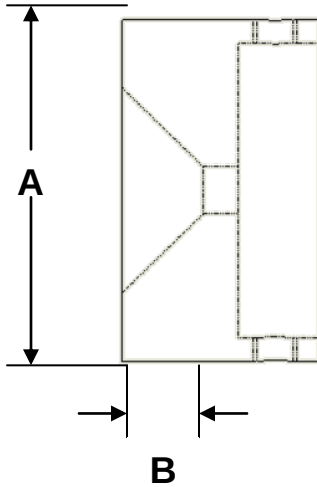


| CO Model Dimensions (in) |      |      |      |
|--------------------------|------|------|------|
| Body Size                | A    | B    | C    |
| CO30                     | 1.72 | 0.84 | 0.51 |
| CO31                     | 2.03 | 1.49 | 0.51 |
| CO32                     | 2.78 | 2.22 | 0.60 |
| CO33                     | 3.50 | 3.11 | 0.98 |
| CO34                     | 4.50 | 4.23 | 1.51 |
| CO35                     | 4.60 | 5.48 | 1.45 |

\* Note "C" corresponds to the minimum insertion depth

Dimensional information is for reference only

## Tapered Guide Adapter

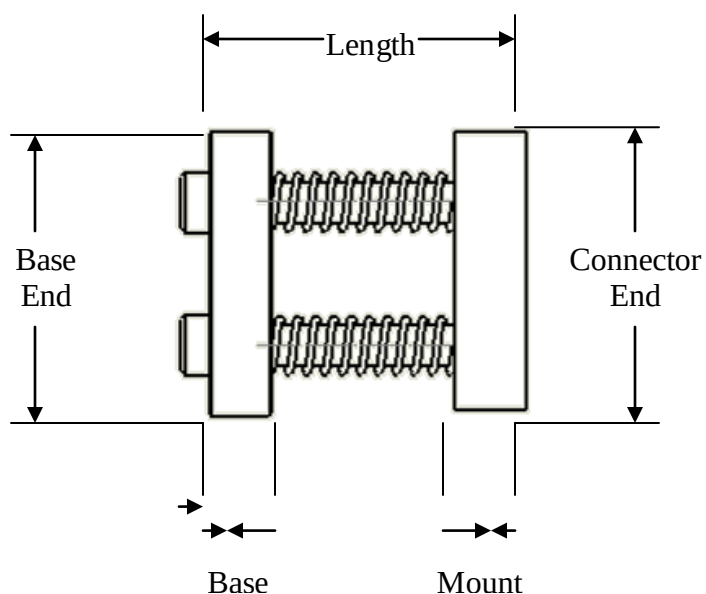


| Connector Body | Dimensions      |                                   |
|----------------|-----------------|-----------------------------------|
|                | A<br>(Diameter) | B<br>(additional insertion depth) |
| <b>CO30</b>    | N/A             | N/A                               |
| <b>CO31</b>    | 1.49            | 0.50                              |
| <b>CO32</b>    | 2.22            | 0.50                              |
| <b>CO33</b>    | 3.11            | 0.50                              |
| <b>CO34</b>    | 4.23            | 0.50                              |
| <b>CO35</b>    | 5.48            | 0.50                              |

*\*Tapered Adapters are ordered as a separate item.*

*\*Adapters are unique for each connector. The part number consists of the connector assembly number followed by –LEADIN.*

## Air Actuated External Connector Spring Mount Attachment Option



CO Spring-Mount Dimensions

| Connector | Spring Mount Kit         | Base End | Bolt Head | Base | Length | Mount | Connector End |
|-----------|--------------------------|----------|-----------|------|--------|-------|---------------|
| CO30      | SPRINGMOUNT CO30         | 1.75     | 3/16      | 0.38 | 1.94   | 0.44  | 1.75          |
| CO31      | SPRINGMOUNT CI31-32/CO31 | 1.75     | 3/16      | 0.38 | 1.94   | 0.44  | 1.70          |
| CO32      | SPRINGMOUNT CI33-34/CO32 | 2.23     | 3/16      | 0.38 | 1.94   | 0.44  | 2.20          |
| CO33      | SPRINGMOUNT CI35-36/CO33 | 3.48     | 4/16      | 0.50 | 3.81   | 0.56  | 3.33          |
| CO34      | SPRINGMOUNT CI37-38/CO34 | 4.23     | 4/16      | 0.50 | 3.81   | 0.56  | 4.03          |
| CO35      | SPRINGMOUNT CO35         | 5.50     | 4/16      | 0.50 | 3.81   | 0.56  | 5.19          |

\* The Spring Mount Kit is ordered as a separate item for the appropriate Connector Assembly



CTS Connects™  
Manual Seal Connectors

## Manual Seal Connectors

The CTS Connect™ internal hand connectors effectively seal on smooth, rough, or threaded circular features of a part. The connectors consist of a cam driven piston that compresses the CTS proprietary seal material against the surface of the part, creating a tight seal that meets all test pressure requirements, regardless of surface shape or finish.

CTS Connect™ connectors provide:

- Superior sealing capability without the risk of scratching the surface of the part
- Threaded and tapered connector nose on ID Connector models
- Large test/fill port holes for better conductance
- Easy seal replacement
- Long seal life

## Tooling Functions

The part to be sealed is placed over the CTS Connect™ connector and the hand cam advances the internal piston to compress the seal inside the part. For vacuum applications, no safety tooling is required because the vacuum will hold the part in the connector. For pressure applications, additional part or seal restraints are required to prevent a blow off condition in case the seal handle is released before the part pressure is exhausted. The pressure range for the internal (HI) connector is up to 35 PSI on 30 finishes, 50 PSI on 65 finishes, 75 PSI on 125 finishes, and 100 PSI on treaded ports.

## Sealing

CTS Connect™ connectors are ideal for smooth or rough surfaces, and threaded holes (NPT, Metric, or SAE). The standard proprietary grade seals offer superior extrusion performance as well as cut and abrasion resistance. The proprietary grade seal material also provides extended life. The proprietary grade seal is standard in all connectors. Available seal materials include:

- Proprietary
- Medical grade urethane



### CTS Connect HI Connector Specs

**Part hole sizes:** 0.270 – 3.005" I.D.

**Threaded holes:** 1/8" to 2" FNPT, M8-M48, SAE 5/16- 2-1/2"

**Test pressures :**

- Vacuum all finishes
- 35 PSI on 30 finishes,
- 50 PSI on 65 finishes,
- 75 PSI on 125 finishes,
- 100 PSI on threaded ports

**Connector body:** Aluminum

**Washer Material:** Stainless steel

**Spacer:** Aluminum

**Stem:** Stainless steel

**Piston:** Aluminum

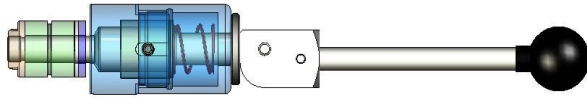
**Threaded connector nose:** Brass

**O-ring:** Buna N

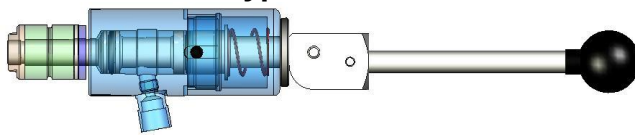
**Part seal material:** Proprietary grade seal  
For regular and threaded connectors

**Optional seal material:**  
Medical grade urethane

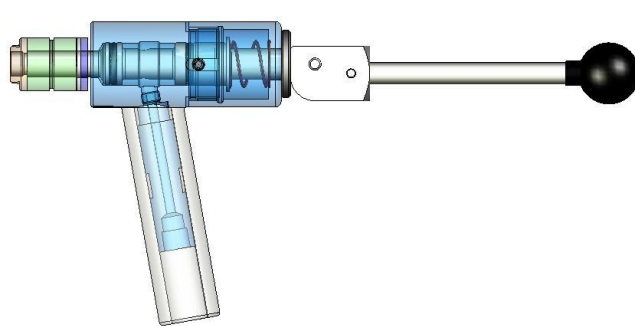
**HI Type – Plug Style**



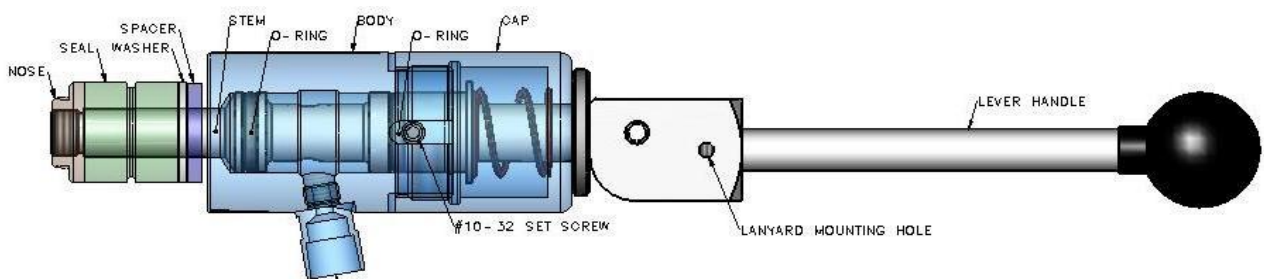
**HIF Type – Fill Port**



**HIH Type – Fill Port with Handle**



### Connector Assembly Detail

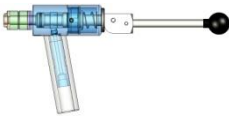


| Smooth Bore Connectors |  |             |                      |
|------------------------|------------------------------------------------------------------------------------|-------------|----------------------|
|                        | Plug                                                                               | Plug & Fill | Plug & Fill w/handle |
| Seal Range             | Plug                                                                               | Plug & Fill | Plug & Fill w/handle |
| 0.290 - 0.310          | HI30-A                                                                             | HIF30-A     | HIH30-A              |
| 0.310 - 0.330          | HI30-AA                                                                            | HIF30-AA    | HIH30-AA             |
| 0.330 - 0.360          | HI30-AB                                                                            | HIF30-AB    | HIH30-AB             |
| 0.360 - 0.394          | HI30-AB1                                                                           | HIF30-AB1   | HIH30-AB1            |
| 0.394 - 0.433          | HI31-AA                                                                            | HIF31-AA    | HIH31-AA             |
| 0.433 - 0.472          | HI31-AA1                                                                           | HIF31-AA1   | HIH31-AA1            |
| 0.472 - 0.511          | HI31-AC                                                                            | HIF31-AC    | HIH31-AC             |
| 0.511 - 0.551          | HI31-AC1                                                                           | HIF31-AC1   | HIH31-AC1            |
| 0.551 - 0.590          | HI31-AD                                                                            | HIF31-AD    | HIH31-AD             |
| 0.590 - 0.630          | HI31-AD1                                                                           | HIF31-AD1   | HIH31-AD1            |
| 0.630 - 0.669          | HI32-AB                                                                            | HIF32-AB    | HIH32-AB             |
| 0.669 - 0.709          | HI32-AB1                                                                           | HIF32-AB1   | HIH32-AB1            |
| 0.709 - 0.748          | HI32-AD                                                                            | HIF32-AD    | HIH32-AD             |
| 0.748 - 0.787          | HI32-AD1                                                                           | HIF32-AD1   | HIH32-AD1            |
| 0.787 - 0.826          | HI32-AE                                                                            | HIF32-AE    | HIH32-AE             |
| 0.826 - 0.866          | HI32-AE1                                                                           | HIF32-AE1   | HIH32-AE1            |
| 0.866 - 0.905          | HI33-AA                                                                            | HIF33-AA    | HIH33-AA             |
| 0.905 - 0.945          | HI33-AA1                                                                           | HIF33-AA1   | HIH33-AA1            |
| 0.945 - 0.984          | HI33-AC                                                                            | HIF33-AC    | HIH33-AC             |
| 0.984 - 1.024          | HI33-AC1                                                                           | HIF33-AC1   | HIH33-AC1            |
| 1.024 - 1.063          | HI33-AD                                                                            | HIF33-AD    | HIH33-AD             |
| 1.063 - 1.102          | HI33-AD1                                                                           | HIF33-AD1   | HIH33-AD1            |
| 1.102 - 1.141          | HI34-AA                                                                            | HIF34-AA    | HIH34-AA             |
| 1.141 - 1.181          | HI34-AA1                                                                           | HIF34-AA1   | HIH34-AA1            |
| 1.181 - 1.220          | HI34-AC                                                                            | HIF34-AC    | HIH34-AC             |
| 1.220 - 1.260          | HI34-AC1                                                                           | HIF34-AC1   | HIH34-AC1            |
| 1.260 - 1.299          | HI34-AD                                                                            | HIF34-AD    | HIH34-AD             |

| Smooth Bore Connectors |  |  |  |
|------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
|                        | Plug                                                                              | Plug & Fill                                                                        | Plug & Fill w/handle                                                                |
| 1.299 - 1.339          | HI34-AD1                                                                          | HIF34-AD1                                                                          | HIH34-AD1                                                                           |
| 1.339 - 1.398          | HI35-AA                                                                           | HIF35-AA                                                                           | HIH35-AA                                                                            |
| 1.398 - 1.457          | HI35-AA1                                                                          | HIF35-AA1                                                                          | HIH35-AA1                                                                           |
| 1.457 - 1.516          | HI35-AB                                                                           | HIF35-AB                                                                           | HIH35-AB                                                                            |
| 1.516 - 1.575          | HI35-AB1                                                                          | HIF35-AB1                                                                          | HIH35-AB1                                                                           |
| 1.575 - 1.634          | HI35-AD                                                                           | HIF35-AD                                                                           | HIH35-AD                                                                            |
| 1.634 - 1.693          | HI35-AD1                                                                          | HIF35-AD1                                                                          | HIH35-AD1                                                                           |
| 1.693 - 1.771          | HI36-AA                                                                           | HIF36-AA                                                                           | NA                                                                                  |
| 1.771 - 1.850          | HI36-AA1                                                                          | HIF36-AA1                                                                          | NA                                                                                  |
| 1.850 - 1.929          | HI36-AB                                                                           | HIF36-AB                                                                           | NA                                                                                  |
| 1.928 - 2.008          | HI36-AB1                                                                          | HIF36-AB1                                                                          | NA                                                                                  |
| 2.008 - 2.087          | HI36-AD                                                                           | HIF36-AD                                                                           | NA                                                                                  |
| 2.087 - 2.165          | HI36-AD1                                                                          | HIF36-AD1                                                                          | NA                                                                                  |
| 2.165 - 2.244          | HI37-AA                                                                           | HIF37-AA                                                                           | NA                                                                                  |
| 2.244 - 2.305          | HI37-AA1                                                                          | HIF37-AA1                                                                          | NA                                                                                  |
| 2.305 - 2.384          | HI37-AB                                                                           | HIF37-AB                                                                           | NA                                                                                  |
| 2.384 - 2.445          | HI37-AB1                                                                          | HIF37-AB1                                                                          | NA                                                                                  |
| 2.445 - 2.515          | HI37-AD                                                                           | HIF37-AD                                                                           | NA                                                                                  |
| 2.515 - 2.585          | HI37-AD1                                                                          | HIF37-AD1                                                                          | NA                                                                                  |
| 2.585 - 2.655          | HI38-AA                                                                           | HIF38-AA                                                                           | NA                                                                                  |
| 2.655 - 2.725          | HI38-AA1                                                                          | HIF38-AA1                                                                          | NA                                                                                  |
| 2.725 - 2.795          | HI38-AB                                                                           | HIF38-AB                                                                           | NA                                                                                  |
| 2.795 - 2.865          | HI38-AB1                                                                          | HIF38-AB1                                                                          | NA                                                                                  |
| 2.865 - 2.935          | HI38-AD                                                                           | HIF38-AD                                                                           | NA                                                                                  |
| 2.935 - 3.005          | HI38-AD1                                                                          | HIF38-AD1                                                                          | NA                                                                                  |

| Threaded<br>Bore<br>Connectors |  |  |  |
|--------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
|                                | Seal Range                                                                        | Plug                                                                               | Plug & Fill                                                                         |
| NPT Threaded Holes             |                                                                                   |                                                                                    |                                                                                     |
| 1/8" NPT                       | HI30-NPT-0125                                                                     | HIF30-NPT-0125                                                                     | HIH30-NPT-0125                                                                      |
| 1/4" NPT                       | HI31-NPT-0250                                                                     | HIF31-NPT-0250                                                                     | HIH31-NPT-0250                                                                      |
| 3/8" NPT                       | HI32-NPT-0375                                                                     | HIF32-NPT-0375                                                                     | HIH32-NPT-0375                                                                      |
| 1/2" NPT                       | HI32-NPT-0500                                                                     | HIF32-NPT-0500                                                                     | HIH32-NPT-0500                                                                      |
| 3/4" NPT                       | HI33-NPT-0750                                                                     | HIF33-NPT-0750                                                                     | HIH33-NPT-0750                                                                      |
| 1" NPT                         | HI34-NPT-1000                                                                     | HIF34-NPT-1000                                                                     | HIH34-NPT-1000                                                                      |
| 1 ¼" NPT                       | HI35-NPT-1250                                                                     | HIF35-NPT-1250                                                                     | HIH35-NPT-1250                                                                      |
| 1 ½" NPT                       | HI36-NPT-1500                                                                     | HIF36-NPT-1500                                                                     | NA                                                                                  |
| 2" NPT                         | HI37-NPT-2000                                                                     | HIF37-NPT-2000                                                                     | NA                                                                                  |
| Metric Threaded Holes          |                                                                                   |                                                                                    |                                                                                     |
| M8                             | HI30-M8                                                                           | HIF30-M8                                                                           | HIH30-M8                                                                            |
| M10                            | HI30- M10                                                                         | HIF30-M10                                                                          | HIH30-M10                                                                           |
| M12                            | HI31-M12                                                                          | HIF31-M12                                                                          | HIH31-M12                                                                           |
| M14                            | HI31-M14                                                                          | HIF31-M14                                                                          | HIH31-M14                                                                           |
| M16                            | HI31-M16                                                                          | HIF31-M16                                                                          | HIH31-M16                                                                           |
| M18                            | HI31-M18                                                                          | HIF31-M18                                                                          | HIH31-M18                                                                           |
| M20                            | HI32-M20                                                                          | HIF32-M20                                                                          | HIH32-M20                                                                           |
| M22                            | HI32-M22                                                                          | HIF32-M22                                                                          | HIH32-M22                                                                           |
| M24                            | HI32-M24                                                                          | HIF32-M24                                                                          | HIH32-M24                                                                           |
| M26                            | HI33-M26                                                                          | HIF33-M26                                                                          | HIH33-M26                                                                           |
| M27                            | HI33-M27                                                                          | HIF33-M27                                                                          | HIH33-M27                                                                           |
| M33                            | HI34-M33                                                                          | HIF34-M33                                                                          | HIH34-M33                                                                           |
| M35                            | HI34-M35                                                                          | HIF34-M35                                                                          | HIH34-M35                                                                           |
| M42                            | HI35-M42                                                                          | HIF35-M42                                                                          | HIH35-M42                                                                           |
| M45                            | HI35-M45                                                                          | HIF35-M45                                                                          | HIH35-M45                                                                           |
| M48                            | HI36-M48                                                                          | HIF36-M48                                                                          | NA                                                                                  |

| Threaded<br>Bore<br>Connectors |  |  |  |
|--------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
|                                | Plug                                                                              | Plug & Fill                                                                        | Plug & Fill w/handle                                                                |
| SAE Threaded Holes             |                                                                                   |                                                                                    |                                                                                     |
| 5/16" SAE                      | HI30-SAE-0312                                                                     | HIF30-SAE-0312                                                                     | HIH30-SAE-0312                                                                      |
| 3/8" SAE                       | HI30-SAE-0375                                                                     | HIF30-SAE-0375                                                                     | HIH30-SAE-0375                                                                      |
| 7/16" SAE                      | HI30-SAE-0437                                                                     | HIF30-SAE-0437                                                                     | HIH30-SAE-0437                                                                      |
| 1/2" SAE                       | HI31-SAE-0500                                                                     | HIF31-SAE-0500                                                                     | HIH31-SAE-0500                                                                      |
| 9/16" SAE                      | HI31-SAE-0562                                                                     | HIF31-SAE-0562                                                                     | HIH31-SAE-0562                                                                      |
| 5/8" SAE                       | HI31-SAE-0625                                                                     | HIF31-SAE-0625                                                                     | HIH31-SAE-0625                                                                      |
| 11/16" SAE                     | HI31-SAE-0687                                                                     | HIF31-SAE-0687                                                                     | HIH31-SAE-0687                                                                      |
| 3/4" SAE                       | HI32-SAE-0750                                                                     | HIF32-SAE-0750                                                                     | HIH32-SAE-0750                                                                      |
| 13/16" SAE                     | HI32-SAE-0812                                                                     | HIF32-SAE-0812                                                                     | HIH32-SAE-0812                                                                      |
| 7/8" SAE                       | HI32-SAE-0875                                                                     | HIF32-SAE-0875                                                                     | HIH32-SAE-0875                                                                      |
| 15/16" SAE                     | HI32-SAE-0937                                                                     | HIF32-SAE-0937                                                                     | HIH32-SAE-0937                                                                      |
| 1" SAE                         | HI32-SAE-1000                                                                     | HIF32-SAE-1000                                                                     | HIH32-SAE-1000                                                                      |
| 1 1/16" SAE                    | HI33-SAE-1062                                                                     | HIF33-SAE-1062                                                                     | HIH33-SAE-1062                                                                      |
| 1 1/8" SAE                     | HI33-SAE-1125                                                                     | HIF33-SAE-1125                                                                     | HIH33-SAE-1125                                                                      |
| 1 3/16" SAE                    | HI33-SAE-1187                                                                     | HIF33-SAE-1187                                                                     | HIH33-SAE-1187                                                                      |
| 1 1/4" SAE                     | HI33-SAE-1250                                                                     | HIF33-SAE-1250                                                                     | HIH33-SAE-1250                                                                      |
| 1 5/16" SAE                    | HI34-SAE-1312                                                                     | HIF34-SAE-1312                                                                     | HIH34-SAE-1312                                                                      |
| 1 3/8" SAE                     | HI34-SAE-1375                                                                     | HIF34-SAE-1375                                                                     | HIH34-SAE-1375                                                                      |
| 1 7/16" SAE                    | HI34-SAE-1437                                                                     | HIF34-SAE-1437                                                                     | HIH34-SAE-1437                                                                      |
| 1 1/2" SAE                     | HI34-SAE-1500                                                                     | HIF34-SAE-1500                                                                     | HIH34-SAE-1500                                                                      |
| 1 9/16" SAE                    | HI35-SAE-1562                                                                     | HIF35-SAE-1562                                                                     | HIH35-SAE-1562                                                                      |
| 1 5/8" SAE                     | HI35-SAE-1625                                                                     | HIF35-SAE-1625                                                                     | HIH35-SAE-1625                                                                      |
| 1 11/16" SAE                   | HI35-SAE-1687                                                                     | HIF35-SAE-1687                                                                     | HIH35-SAE-1687                                                                      |
| 1 3/4" SAE                     | HI35-SAE-1750                                                                     | HIF35-SAE-1750                                                                     | HIH35-SAE-1750                                                                      |
| 1 13/16" SAE                   | HI35-SAE-1812                                                                     | HIF35-SAE-1812                                                                     | HIH35-SAE-1812                                                                      |
| 1 7/8" SAE                     | HI35-SAE-1875                                                                     | HIF35-SAE-1875                                                                     | HIH35-SAE-1875                                                                      |

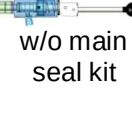
| Threaded<br>Bore<br>Connectors |  |  |  |
|--------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
|                                | Seal Range                                                                        | Plug                                                                               | Plug & Fill                                                                         |
| SAE Threaded Holes             |                                                                                   |                                                                                    |                                                                                     |
| 1 15/16"SAE                    | HI36-SAE-1687                                                                     | HIF36-SAE-1687                                                                     | NA                                                                                  |
| 2" SAE                         | HI36-SAE-2000                                                                     | HIF36-SAE-2000                                                                     | NA                                                                                  |
| 2 1/4" SAE                     | HI36-SAE-2250                                                                     | HIF36-SAE-2250                                                                     | NA                                                                                  |
| 2 1/2" SAE                     | HI37-SAE-2500                                                                     | HIF37-SAE-2500                                                                     | NA                                                                                  |

| Parts & Accessories             |                                                                                                                           |                                                                                                                           |                                                                                                                           |                                                                  |                                        |
|---------------------------------|---------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------|----------------------------------------|
| Smooth Bore Parts & Accessories | Connector Body Type                                                                                                       |                                                                                                                           |                                                                                                                           | Seal Kits                                                        |                                        |
|                                 | Connector assembly w/o main seal kit<br> | Connector assembly w/o main seal kit<br> | Connector assembly w/o main seal kit<br> | Includes proprietary seal, stainless steel washer and brass nose | Includes 5 proprietary seals<br>Add -M |
| Seal Range                      | Plug                                                                                                                      | Plug & Fill                                                                                                               | Plug & Fill w/Handle                                                                                                      | Main Seal Kit                                                    | Seal Kit Pack                          |
| 0.290 - 0.310                   | HI30                                                                                                                      | HIF30                                                                                                                     | HIH30                                                                                                                     | HI30-A-MSK                                                       | HI30-A-SKP                             |
| 0.310 - 0.330                   | HI30                                                                                                                      | HIF30                                                                                                                     | HIH30                                                                                                                     | HI30-AA-MSK                                                      | HI30-AA-SKP                            |
| 0.330 - 0.360                   | HI30                                                                                                                      | HIF30                                                                                                                     | HIH30                                                                                                                     | HI30-AB-MSK                                                      | HI30-AB-SKP                            |
| 0.360 - 0.394                   | HI30                                                                                                                      | HIF30                                                                                                                     | HIH30                                                                                                                     | HI30-AB1-MSK                                                     | HI30-AB1-SKP                           |
| 0.394 - 0.433                   | HI31                                                                                                                      | HIF31                                                                                                                     | HIH31                                                                                                                     | HI31-AA-MSK                                                      | HI31-AA-SKP                            |
| 0.433 - 0.472                   | HI31                                                                                                                      | HIF31                                                                                                                     | HIH31                                                                                                                     | HI31-AA1-MSK                                                     | HI31-AA1-SKP                           |
| 0.472 - 0.511                   | HI31                                                                                                                      | HIF31                                                                                                                     | HIH30                                                                                                                     | HI31-AC-MSK                                                      | HI31-AC-SKP                            |
| 0.511 - 0.551                   | HI31                                                                                                                      | HIF31                                                                                                                     | HIH30                                                                                                                     | HI31-AC1-MSK                                                     | HI31-AC1-SKP                           |
| 0.551 - 0.590                   | HI31                                                                                                                      | HIF31                                                                                                                     | HIH31                                                                                                                     | HI31-AD-MSK                                                      | HI31-AD-SKP                            |
| 0.590 - 0.630                   | HI31                                                                                                                      | HIF31                                                                                                                     | HIH31                                                                                                                     | HI31-AD1-MSK                                                     | HI31-AD1-SKP                           |
| 0.630 - 0.669                   | HI32                                                                                                                      | HIF32                                                                                                                     | HIH32                                                                                                                     | HI32-AB-MSK                                                      | HI32-AB-SKP                            |
| 0.669 - 0.709                   | HI32                                                                                                                      | HIF32                                                                                                                     | HIH32                                                                                                                     | HI32-AB1-MSK                                                     | HI32-AB1-SKP                           |
| 0.709 - 0.748                   | HI32                                                                                                                      | HIF32                                                                                                                     | HIH32                                                                                                                     | HI32-AD-MSK                                                      | HI32-AD-SKP                            |
| 0.748 - 0.787                   | HI32                                                                                                                      | HIF32                                                                                                                     | HIH32                                                                                                                     | HI32-AD1-MSK                                                     | HI32-AD1-SKP                           |
| 0.787 - 0.826                   | HI32                                                                                                                      | HIF32                                                                                                                     | HIH32                                                                                                                     | HI32-AE-MSK                                                      | HI32-AE-SKP                            |
| 0.826 - 0.866                   | HI32                                                                                                                      | HIF32                                                                                                                     | HIH32                                                                                                                     | HI32-AE1-MSK                                                     | HI32-AE1-SKP                           |
| 0.866 - 0.905                   | HI33                                                                                                                      | HIF33                                                                                                                     | HIH33                                                                                                                     | HI33-AA-MSK                                                      | HI33-AA-SKP                            |
| 0.905 - 0.945                   | HI33                                                                                                                      | HIF33                                                                                                                     | HIH33                                                                                                                     | HI33-AA1-MSK                                                     | HI33-AA1-SKP                           |
| 0.945 - 0.984                   | HI33                                                                                                                      | HIF33                                                                                                                     | HIH33                                                                                                                     | HI33-AC-MSK                                                      | HI33-AC-SKP                            |
| 0.984 - 1.024                   | HI33                                                                                                                      | HIF33                                                                                                                     | HIH33                                                                                                                     | HI33-AC1-MSK                                                     | HI33-AC1-SKP                           |
| 1.024 - 1.063                   | HI33                                                                                                                      | HIF33                                                                                                                     | HIH33                                                                                                                     | HI33-AD-MSK                                                      | HI33-AD-SKP                            |
| 1.063 - 1.102                   | HI33                                                                                                                      | HIF33                                                                                                                     | HIH33                                                                                                                     | HI33-AD1-MSK                                                     | HI33-AD1-SKP                           |
| 1.102 - 1.141                   | HI34                                                                                                                      | HIF34                                                                                                                     | HIH34                                                                                                                     | HI34-AA-MSK                                                      | HI34-AA-SKP                            |
| 1.141 - 1.181                   | HI34                                                                                                                      | HIF34                                                                                                                     | HIH34                                                                                                                     | HI34-AA1-MSK                                                     | HI34-AA1-SKP                           |
| 1.181 - 1.220                   | HI34                                                                                                                      | HIF34                                                                                                                     | HIH34                                                                                                                     | HI34-AC-MSK                                                      | HI34-AC-SKP                            |
| 1.220 - 1.260                   | HI34                                                                                                                      | HIF34                                                                                                                     | HIH34                                                                                                                     | HI34-AC1-MSK                                                     | HI34-AC1-SKP                           |

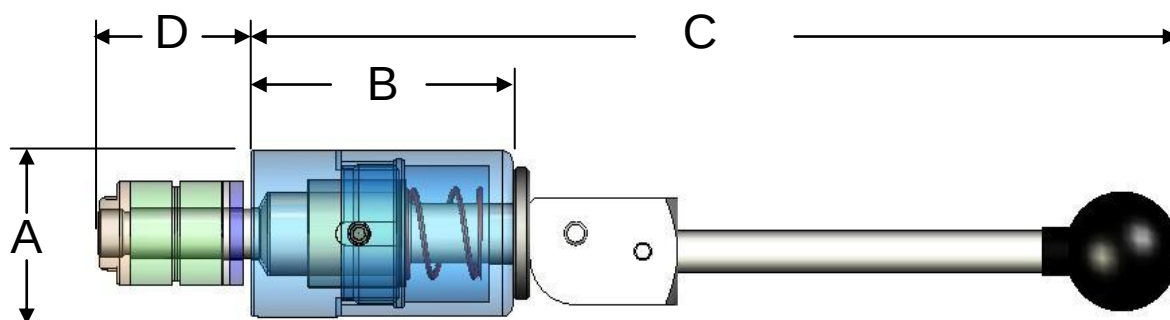
| Parts & Accessories             |                                                                                                                           |                                                                                                                           |                                                                                                                           |                                                                  |                                     |
|---------------------------------|---------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------|-------------------------------------|
| Smooth Bore Parts & Accessories | Connector Body Type                                                                                                       |                                                                                                                           |                                                                                                                           | Seal Kits                                                        |                                     |
|                                 | Connector assembly w/o main seal kit<br> | Connector assembly w/o main seal kit<br> | Connector assembly w/o main seal kit<br> | Includes proprietary seal, stainless steel washer and brass nose | Includes 5 proprietary seals Add -M |
| Seal Range                      | Plug                                                                                                                      | Plug & Fill                                                                                                               | Plug & Fill w/Handle                                                                                                      | Main Seal Kit                                                    | Seal Kit Pack                       |
| 1.260 - 1.299                   | HI34                                                                                                                      | HIF34                                                                                                                     | HIH34                                                                                                                     | HI34-AD-MSK                                                      | HI34-AD-SKP                         |
| 1.299 - 1.339                   | HI34                                                                                                                      | HIF34                                                                                                                     | HIH34                                                                                                                     | HI34-AD1-MSK                                                     | HI34-AD1-SKP                        |
| 1.339 - 1.398                   | HI35                                                                                                                      | HIF35                                                                                                                     | HIH35                                                                                                                     | HI35-AA-MSK                                                      | HI35-AA-SKP                         |
| 1.398 - 1.457                   | HI35                                                                                                                      | HIF35                                                                                                                     | HIH35                                                                                                                     | HI35-AA1-MSK                                                     | HI35-AA1-SKP                        |
| 1.457 - 1.516                   | HI35                                                                                                                      | HIF35                                                                                                                     | HIH35                                                                                                                     | HI35-AB-MSK                                                      | HI35-AB-SKP                         |
| 1.516 - 1.575                   | HI35                                                                                                                      | HIF35                                                                                                                     | HIH35                                                                                                                     | HI35-AB1-MSK                                                     | HI35-AB1-SKP                        |
| 1.575 - 1.634                   | HI35                                                                                                                      | HIF35                                                                                                                     | HIH35                                                                                                                     | HI35-AD-MSK                                                      | HI35-AD-SKP                         |
| 1.634 - 1.693                   | HI35                                                                                                                      | HIF35                                                                                                                     | HIH35                                                                                                                     | HI35-AD1-MSK                                                     | HI35-AD1-SKP                        |
| 1.693 - 1.771                   | HI36                                                                                                                      | HIF36                                                                                                                     | NA                                                                                                                        | HI36-AA-MSK                                                      | HI36-AA-SKP                         |
| 1.771 - 1.850                   | HI36                                                                                                                      | HIF36                                                                                                                     | NA                                                                                                                        | HI36-AA1-MSK                                                     | HI36-AA1-SKP                        |
| 1.850 - 1.929                   | HI36                                                                                                                      | HIF36                                                                                                                     | NA                                                                                                                        | HI36-AB-MSK                                                      | HI36-AB-SKP                         |
| 1.928 - 2.008                   | HI36                                                                                                                      | HIF36                                                                                                                     | NA                                                                                                                        | HI36-AB1-MSK                                                     | HI36-AB1-SKP                        |
| 2.008 - 2.087                   | HI36                                                                                                                      | HIF36                                                                                                                     | NA                                                                                                                        | HI36-AD-MSK                                                      | HI36-AD-SKP                         |
| 2.087 - 2.165                   | HI36                                                                                                                      | HIF36                                                                                                                     | NA                                                                                                                        | HI36-AD1-MSK                                                     | HI36-AD1-SKP                        |
| 2.165 - 2.244                   | HI37                                                                                                                      | HIF37                                                                                                                     | NA                                                                                                                        | HI37-AA-MSK                                                      | HI37-AA-SKP                         |
| 2.244 - 2.305                   | HI37                                                                                                                      | HIF37                                                                                                                     | NA                                                                                                                        | HI37-AA1-MSK                                                     | HI37-AA1-SKP                        |
| 2.305 - 2.384                   | HI37                                                                                                                      | HIF37                                                                                                                     | NA                                                                                                                        | HI37-AB-MSK                                                      | HI37-AB-SKP                         |
| 2.384 - 2.445                   | HI37                                                                                                                      | HIF37                                                                                                                     | NA                                                                                                                        | HI37-AB1-MSK                                                     | HI37-AB1-SKP                        |
| 2.445 - 2.515                   | HI37                                                                                                                      | HIF37                                                                                                                     | NA                                                                                                                        | HI37-AD-MSK                                                      | HI37-AD-SKP                         |
| 2.515 - 2.585                   | HI37                                                                                                                      | HIF37                                                                                                                     | NA                                                                                                                        | HI37-AD1-MSK                                                     | HI37-AD1-SKP                        |
| 2.585 - 2.655                   | HI38                                                                                                                      | HIF38                                                                                                                     | NA                                                                                                                        | HI38-AA-MSK                                                      | HI38-AA-SKP                         |
| 2.655 - 2.725                   | HI38                                                                                                                      | HIF38                                                                                                                     | NA                                                                                                                        | HI38-AA1-MSK                                                     | HI38-AA1-SKP                        |
| 2.725 - 2.795                   | HI38                                                                                                                      | HIF38                                                                                                                     | NA                                                                                                                        | HI38-AB-MSK                                                      | HI38-AB-SKP                         |
| 2.795 - 2.865                   | HI38                                                                                                                      | HIF38                                                                                                                     | NA                                                                                                                        | HI38-AB1-MSK                                                     | HI38-AB1-SKP                        |
| 2.865 - 2.935                   | HI38                                                                                                                      | HIF38                                                                                                                     | NA                                                                                                                        | HI38-AD-MSK                                                      | HI38-AD-SKP                         |
| 2.935 - 3.005                   | HI38                                                                                                                      | HIF38                                                                                                                     | NA                                                                                                                        | HI38-AD1-MSK                                                     | HI38-AD1-SKP                        |



| Parts & Accessories               |                                                                                                     |                                                                                                     |                                                                                                     |                                                                  |                                        |
|-----------------------------------|-----------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------|------------------------------------------------------------------|----------------------------------------|
| Threaded Bore Parts & Accessories | Connector Body Type                                                                                 |                                                                                                     |                                                                                                     | Seal Kits                                                        |                                        |
|                                   |  w/o main seal kit |  w/o main seal kit |  w/o main seal kit | Includes proprietary seal, stainless steel washer and brass nose | Includes 5 proprietary seals<br>Add -M |
| Seal Range                        | Plug                                                                                                | Plug & Fill                                                                                         | Plug & Fill w/Handle                                                                                | Main Seal Kit                                                    | Seal Kit Pack                          |
| 1/8" NPT                          | HI30                                                                                                | HIF30                                                                                               | HIH30                                                                                               | HI30-NPT-0125-MSK                                                | HI30-NPT-0125-SKP                      |
| 1/4" NPT                          | HI31                                                                                                | HIF31                                                                                               | HIH31                                                                                               | HI31-NPT-0250-MSK                                                | HI31-NPT-0250-SKP                      |
| 3/8" NPT                          | HI32                                                                                                | HIF32                                                                                               | HIH32                                                                                               | HI32-NPT-0375-MSK                                                | HI32-NPT-0375-SKP                      |
| 1/2" NPT                          | HI32                                                                                                | HIF32                                                                                               | HIH32                                                                                               | HI32-NPT-0500-MSK                                                | HI33-NPT-0500-SKP                      |
| 3/4" NPT                          | HI33                                                                                                | HIF33                                                                                               | HIH33                                                                                               | HI33-NPT-0750-MSK                                                | HI33-NPT-0750-SKP                      |
| 1" NPT                            | HI34                                                                                                | HIF34                                                                                               | HIH34                                                                                               | HI34-NPT-1000-MSK                                                | HI34-NPT-1000-SKP                      |
| 1 1/4" NPT                        | HI35                                                                                                | HIF35                                                                                               | HIH35                                                                                               | HI35-NPT-1250-MSK                                                | HI35-NPT-1250-SKP                      |
| 1 1/2" NPT                        | HI36                                                                                                | HIF36                                                                                               | NA                                                                                                  | HI36-NPT-1500-MSK                                                | HI36-NPT-1500-SKP                      |
| 2" NPT                            | HI37                                                                                                | HIF37                                                                                               | NA                                                                                                  | HI37-NPT-2000-MSK                                                | HI37-NPT-2000-SKP                      |
| M8                                | HI30                                                                                                | HIF30                                                                                               | HIH30                                                                                               | HI30-M8-MSK                                                      | HI30-M8-SKP                            |
| M10                               | HI30                                                                                                | HIF30                                                                                               | HIH30                                                                                               | HI30-M10-MSK                                                     | HI30-M10-SKP                           |
| M12                               | HI31                                                                                                | HIF31                                                                                               | HIH31                                                                                               | HI31-M12-MSK                                                     | HI31-M12-SKP                           |
| M14                               | HI31                                                                                                | HIF31                                                                                               | HIH31                                                                                               | HI31-M14-MSK                                                     | HI31-M14-SKP                           |
| M16                               | HI31                                                                                                | HIF31                                                                                               | HIH31                                                                                               | HI31-M16-MSK                                                     | HI31-M16-SKP                           |
| M18                               | HI31                                                                                                | HIF31                                                                                               | HIH31                                                                                               | HI31-M18-MSK                                                     | HI31-M18-SKP                           |
| M20                               | HI32                                                                                                | HIF32                                                                                               | HIH32                                                                                               | HI32-M20-MSK                                                     | HI32-M20-SKP                           |
| M22                               | HI32                                                                                                | HIF32                                                                                               | HIH32                                                                                               | HI32-M22-MSK                                                     | HI32-M22-SKP                           |
| M24                               | HI32                                                                                                | HIF32                                                                                               | HIH32                                                                                               | HI32-M24-MSK                                                     | HI32-M24-SKP                           |
| M26                               | HI33                                                                                                | HIF33                                                                                               | HIH33                                                                                               | HI33-M26-MSK                                                     | HI33-M26-SKP                           |
| M27                               | HI33                                                                                                | HIF33                                                                                               | HIH33                                                                                               | HI33-M27-MSK                                                     | HI33-M27-SKP                           |
| M33                               | HI34                                                                                                | HIF34                                                                                               | HIH34                                                                                               | HI34-M33-MSK                                                     | HI34-M33-SKP                           |
| M35                               | HI34                                                                                                | HIF34                                                                                               | HIH34                                                                                               | HI34-M35-MSK                                                     | HI34-M35-SKP                           |
| M42                               | HI35                                                                                                | HIF35                                                                                               | HIH35                                                                                               | HI35-M42-MSK                                                     | HI35-M42-SKP                           |
| M45                               | HI35                                                                                                | HIF35                                                                                               | HIH35                                                                                               | HI35-M45-MSK                                                     | HI35-M45-SKP                           |
| M48                               | HI36                                                                                                | HIF36                                                                                               | NA                                                                                                  | HI36-M48-MSK                                                     | HI36-M48-SKP                           |

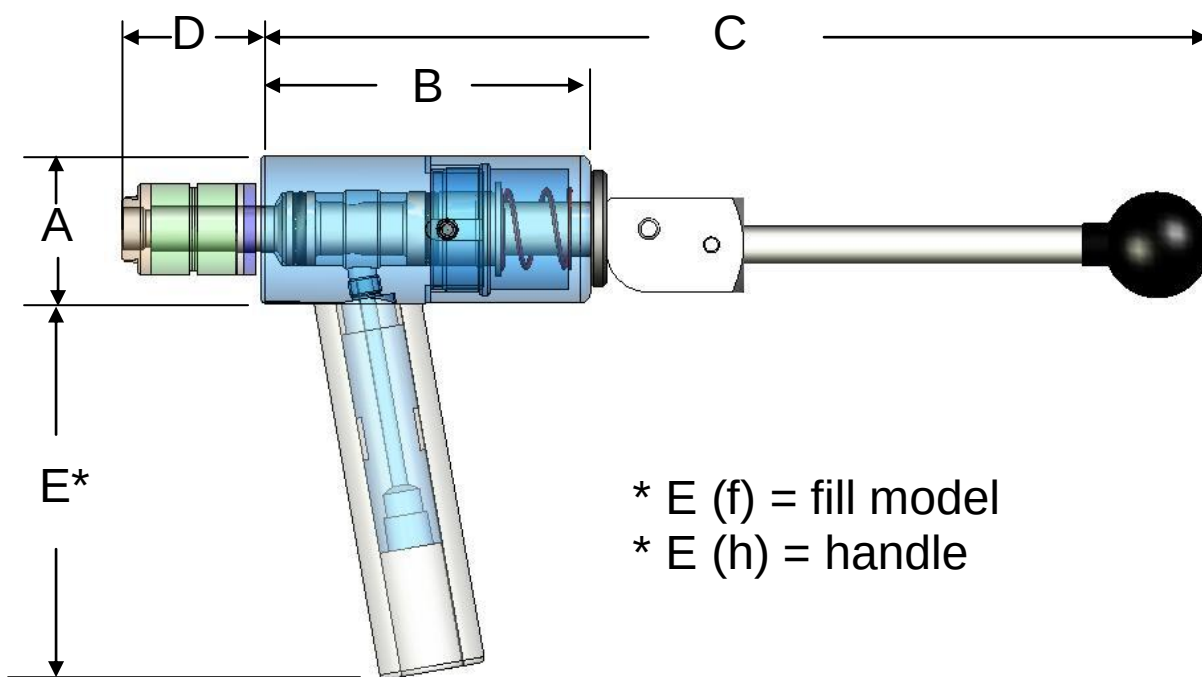
| Parts & Accessories               |                                                                                                     |                                                                                                     |                                                                                                     |                                                                  |                                     |
|-----------------------------------|-----------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------|------------------------------------------------------------------|-------------------------------------|
| Threaded Bore Parts & Accessories | Connector Body Type                                                                                 |                                                                                                     |                                                                                                     | Seal Kits                                                        |                                     |
|                                   |  w/o main seal kit |  w/o main seal kit |  w/o main seal kit | Includes proprietary seal, stainless steel washer and brass nose | Includes 5 proprietary seals Add -M |
| Seal Range                        | Plug                                                                                                | Plug & Fill                                                                                         | Plug & Fill w/Handle                                                                                | Main Seal Kit                                                    | Seal Kit Pack                       |
| 5/16" SAE                         | HI30                                                                                                | HIF30                                                                                               | HIH30                                                                                               | HI30-SAE-0312-MSK                                                | HI30-SAE-0312-SKP                   |
| 3/8" SAE                          | HI30                                                                                                | HIF30                                                                                               | HIH30                                                                                               | HI30-SAE-0375-MSK                                                | HI30-SAE-0375-SKP                   |
| 7/16" SAE                         | HI30                                                                                                | HIF30                                                                                               | HIH30                                                                                               | HI30-SAE-0437-MSK                                                | HI30-SAE-0437-SKP                   |
| 1/2" SAE                          | HI31                                                                                                | HIF31                                                                                               | HIH31                                                                                               | HI31-SAE-0500-MSK                                                | HI31-SAE-0500-SKP                   |
| 9/16" SAE                         | HI31                                                                                                | HIF31                                                                                               | HIH31                                                                                               | HI31-SAE-0562-MSK                                                | HI31-SAE-0562-SKP                   |
| 5/8" SAE                          | HI31                                                                                                | HIF31                                                                                               | HIH31                                                                                               | HI31-SAE-0625-MSK                                                | HI31-SAE-0625-SKP                   |
| 11/16" SAE                        | HI31                                                                                                | HIF31                                                                                               | HIH31                                                                                               | HI31-SAE-0687-MSK                                                | HI31-SAE-0687-SKP                   |
| 3/4" SAE                          | HI32                                                                                                | HIF32                                                                                               | HIH32                                                                                               | HI32-SAE-0750-MSK                                                | HI32-SAE-0750-SKP                   |
| 13/16" SAE                        | HI32                                                                                                | HIF32                                                                                               | HIH32                                                                                               | HI32-SAE-0812-MSK                                                | HI32-SAE-0812-SKP                   |
| 7/8" SAE                          | HI32                                                                                                | HIF32                                                                                               | HIH32                                                                                               | HI32-SAE-0875-MSK                                                | HI32-SAE-0875-SKP                   |
| 15/16" SAE                        | HI32                                                                                                | HIF32                                                                                               | HIH32                                                                                               | HI32-SAE-0937-MSK                                                | HI32-SAE-0937-SKP                   |
| 1" SAE                            | HI32                                                                                                | HIF32                                                                                               | HIH32                                                                                               | HI32-SAE-1000-MSK                                                | HI32-SAE-1000-SKP                   |
| 1 1/16" SAE                       | HI33                                                                                                | HIF33                                                                                               | HIH33                                                                                               | HI33-SAE-1062-MSK                                                | HI33-SAE-1062-SKP                   |
| 1 1/8" SAE                        | HI33                                                                                                | HIF33                                                                                               | HIH33                                                                                               | HI33-SAE-1125-MSK                                                | HI33-SAE-1125-SKP                   |
| 1 3/16" SAE                       | HI33                                                                                                | HIF33                                                                                               | HIH33                                                                                               | HI33-SAE-1187-MSK                                                | HI33-SAE-1187-SKP                   |
| 1 1/4" SAE                        | HI33                                                                                                | HIF33                                                                                               | HIH33                                                                                               | HI33-SAE-1250-MSK                                                | HI33-SAE-1250-SKP                   |
| 1 5/16" SAE                       | HI34                                                                                                | HIF34                                                                                               | HIH34                                                                                               | HI34-SAE-1312-MSK                                                | HI34-SAE-1312-SKP                   |
| 1 3/8" SAE                        | HI34                                                                                                | HIF34                                                                                               | HIH34                                                                                               | HI34-SAE-1375-MSK                                                | HI34-SAE-1375-SKP                   |
| 1 7/16" SAE                       | HI34                                                                                                | HIF34                                                                                               | HIH34                                                                                               | HI34-SAE-1437-MSK                                                | HI34-SAE-1437-SKP                   |
| 1 1/2" SAE                        | HI34                                                                                                | HIF34                                                                                               | HIH34                                                                                               | HI34-SAE-1500-MSK                                                | HI34-SAE-1500-SKP                   |
| 1 9/16" SAE                       | HI35                                                                                                | HIF35                                                                                               | HIH35                                                                                               | HI35-SAE-1562-MSK                                                | HI35-SAE-1562-SKP                   |
| 1 5/8" SAE                        | HI35                                                                                                | HIF35                                                                                               | HIH35                                                                                               | HI35-SAE-1625-MSK                                                | HI35-SAE-1625-SKP                   |
| 1 11/16" SAE                      | HI35                                                                                                | HIF35                                                                                               | HIH35                                                                                               | HI35-SAE-1687-MSK                                                | HI35-SAE-1687-SKP                   |
| 1 3/4" SAE                        | HI35                                                                                                | HIF35                                                                                               | HIH35                                                                                               | HI35-SAE-1750-MSK                                                | HI35-SAE-1750-SKP                   |
| 1 13/16" SAE                      | HI35                                                                                                | HIF35                                                                                               | HIH35                                                                                               | HI35-SAE-1812-MSK                                                | HI35-SAE-1812-SKP                   |
| 1 7/8" SAE                        | HI35                                                                                                | HIF35                                                                                               | HIH35                                                                                               | HI35-SAE-1875-MSK                                                | HI35-SAE-1875-SKP                   |
| 1 15/16" SAE                      | HI36                                                                                                | HIF36                                                                                               | NA                                                                                                  | HI36-SAE-1687-MSK                                                | HI36-SAE-1687-SKP                   |

| Parts & Accessories               |                                                                                                     |                                                                                                     |                                                                                                     |                                                                  |                                     |
|-----------------------------------|-----------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------|------------------------------------------------------------------|-------------------------------------|
|                                   | Connector Body Type                                                                                 |                                                                                                     |                                                                                                     | Seal Kits                                                        |                                     |
| Threaded Bore Parts & Accessories |  w/o main seal kit |  w/o main seal kit |  w/o main seal kit | Includes proprietary seal, stainless steel washer and brass nose | Includes 5 proprietary seals Add -M |
| Seal Range                        | Plug                                                                                                | Plug & Fill                                                                                         | Plug & Fill w/Handle                                                                                | Main Seal Kit                                                    | Seal Kit Pack                       |
| 2" SAE                            | HI36                                                                                                | HIF36                                                                                               | NA                                                                                                  | HI36-SAE-2000-MSK                                                | HI36-SAE-2000-SKP                   |
| 2 1/4" SAE                        | HI36                                                                                                | HIF36                                                                                               | NA                                                                                                  | HI36-SAE-2250-MSK                                                | HI36-SAE-2250-SKP                   |
| 2 1/2" SAE                        | HI37                                                                                                | HIF37                                                                                               | NA                                                                                                  | HI37-SAE-2500-MSK                                                | HI37-SAE-2500-SKP                   |



| HI model dimensions |      |      |       |      |
|---------------------|------|------|-------|------|
| Body Size           | A    | B    | C     | D    |
| 30                  | 1.00 | 2.26 | 8.34  | 0.84 |
| 31                  | 1.00 | 2.26 | 8.34  | 0.84 |
| 32                  | 1.00 | 2.26 | 8.34  | 0.84 |
| 33                  | 1.75 | 2.88 | 10.17 | 1.58 |
| 34                  | 1.75 | 2.88 | 10.17 | 1.62 |
| 35                  | 1.75 | 2.88 | 10.17 | 1.87 |
| 36                  | 2.50 | 2.62 | 10.91 | 2.31 |
| 37                  | 2.50 | 2.62 | 10.91 | 2.31 |
| 38                  | 2.50 | 2.62 | 10.91 | 2.31 |

Dimensional information is for reference only



| HIF and HIH Model dimensions |      |      |       |      |                |
|------------------------------|------|------|-------|------|----------------|
| Body Size                    | A    | B    | C     | D    | E(f)/E(h)      |
| 30                           | 1.00 | 3.69 | 9.77  | .84  | .73(f)/4.45(h) |
| 31                           | 1.00 | 3.69 | 9.77  | .84  | .73(f)/4.45(h) |
| 32                           | 1.00 | 3.69 | 9.77  | .84  | .73(f)/4.45(h) |
| 33                           | 1.75 | 3.88 | 11.18 | 1.58 | .73(f)/4.45(h) |
| 34                           | 1.75 | 3.88 | 11.18 | 1.62 | .73(f)/4.45(h) |
| 35                           | 1.75 | 3.88 | 11.18 | 1.87 | .73(f)/4.45(h) |
| 36                           | 2.50 | 3.62 | 11.91 | 2.31 | .88(f)         |
| 37                           | 2.50 | 3.62 | 11.91 | 2.31 | .88(f)         |
| 38                           | 2.50 | 3.62 | 11.91 | 2.31 | .88(f)         |

Dimensional information is for reference only

### CTS Connects™ External Manual Seal Connectors



#### Manual Seal Connectors

The CTS Connect™ manual external connectors effectively seal on smooth, rough, or threaded circular features of a part. The connectors consist of a cam driven piston that compresses the CTS proprietary seal material against the surface of the part, creating a tight seal that meets all test pressure requirements, regardless of surface shape or finish.

CTS Connect™ connectors provide:

- Superior sealing capability without the risk of scratching the surface of the part
- Large test/fill port holes for better conductance
- Easy seal replacement
- Long seal life

#### Tooling Function

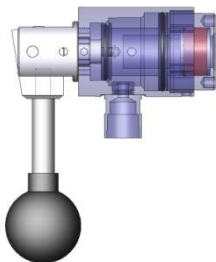
The part to be sealed is placed inside CTS Connect™ connector and the hand cam advances the internal piston to compress the seal around the outside the part. For vacuum applications, no safety tooling is required because the vacuum will hold the part in the connector. For pressure applications, additional part or seal restraints are required to prevent a blow off condition in case the seal handle is released before the part pressure is exhausted. The pressure range for the external (HO) connector is up to 35 PSI on 30 finishes, 50 PSI on 65 finishes, 75 PSI on 125 finishes, and 100 PSI on treaded ports.

#### Sealing

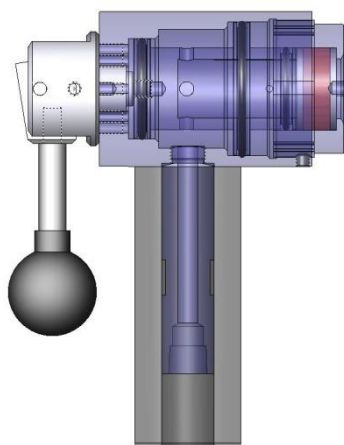
CTS Connect™ connectors are ideal for smooth or rough surfaces, and externally threaded pipes (NPT, Metric, or SAE). The standard proprietary grade seals offer superior extrusion performance as well as cut and abrasion resistance. The proprietary grade seal material also provides extended life. The proprietary grade seal is standard in all connectors. Available seal materials include:

- Proprietary
- Medical grade urethane

HOF Type – Fill



HOH Type – Fill  
w/Handle



CTS Connect HO Connector Specs

**Part OD Sizes:** .030 – 1.510 “

**Threaded holes:** 1/8” to 1” FNPT, M8-M36,  
SAE 5/16- 1-1/2”

**Test Pressures:** Vacuum to 500 psig

**Connector body:** Aluminum

**Cap:** Aluminum

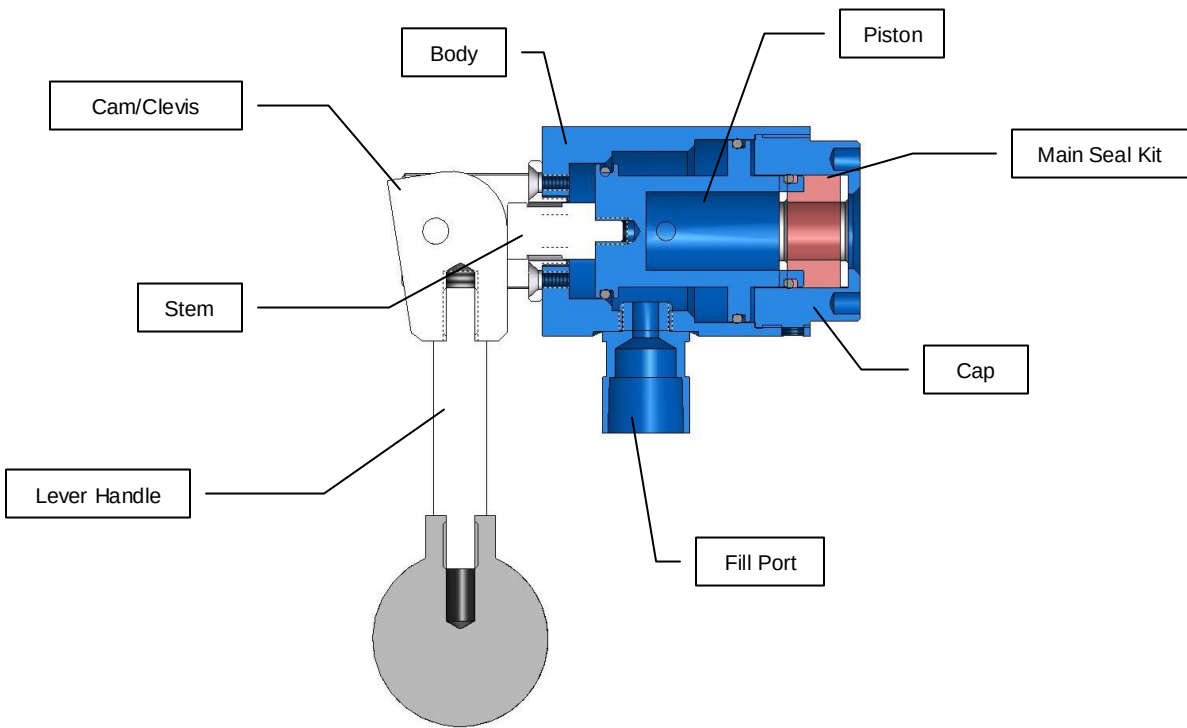
**Washer Material:** Stainless Steel

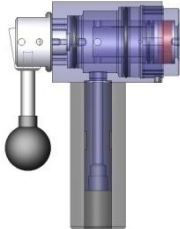
**Piston:** Aluminum

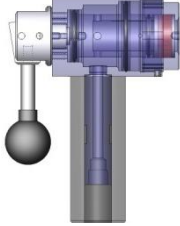
**O-ring:** Buna N

**Part seal material:** Proprietary grade seal  
For regular and threaded connectors

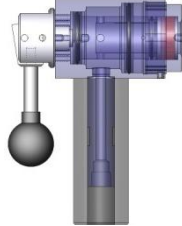
Connector Assembly Detail



|                               |                                                                                   |                                                                                     |
|-------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| <b>Smooth Tube Connectors</b> |  |  |
|                               |                                                                                   |                                                                                     |
| <b>Seal Range</b>             | <b>FILL</b>                                                                       | <b>Fill w/Handle</b>                                                                |
| <b>HO30 Connector</b>         |                                                                                   |                                                                                     |
| .030 - .050                   | HOF30-AA                                                                          | N/A                                                                                 |
| .050 - .080                   | HOF30-AB                                                                          | N/A                                                                                 |
| .080 - .130                   | HOF30-AC                                                                          | N/A                                                                                 |
| <b>HO31 Connector</b>         |                                                                                   |                                                                                     |
| .100 - .180                   | HOF31-AA                                                                          | N/A                                                                                 |
| .180 - .260                   | HOF31-AB                                                                          | N/A                                                                                 |
| .260 - .340                   | HOF31-AC                                                                          | N/A                                                                                 |
| .340 - .420                   | HOF31-AE                                                                          | N/A                                                                                 |
| .420 - .510                   | HOF31-AF                                                                          | N/A                                                                                 |
| <b>HO32 Connector</b>         |                                                                                   |                                                                                     |
| .433 - .512                   | HOF32-AA                                                                          | HOH32-AA                                                                            |
| .512 - .591                   | HOF32-AD                                                                          | HOH32-AD                                                                            |
| .591 - .669                   | HOF32-AE                                                                          | HOH32-AE                                                                            |
| .669 - .750                   | HOF32-AG                                                                          | HOH32-AG                                                                            |
| .750 - .827                   | HOF32-AH                                                                          | HOH32-AH                                                                            |
| <b>HO33 Connector</b>         |                                                                                   |                                                                                     |
| .787 - .866                   | HOF33-AB                                                                          | HOH33-AB                                                                            |
| .866 - .945                   | HOF33-AC                                                                          | HOH33-AC                                                                            |
| .945 - 1.024                  | HOF33-AE                                                                          | HOH33-AE                                                                            |
| 1.024 - 1.102                 | HOF33-AF                                                                          | HOH33-AF                                                                            |
| 1.102 - 1.181                 | HOF33-AG                                                                          | HOH33-AG                                                                            |
| 1.181 - 1.260                 | HOF33-AH                                                                          | HOH33-AH                                                                            |
| 1.260 - 1.339                 | HOF33-AJ                                                                          | HOH33-AJ                                                                            |
| 1.339 - 1.417                 | HOF33-AK                                                                          | HOH33-AK                                                                            |
| 1.417 - 1.510                 | HOF33-AL                                                                          | HOH33-AL                                                                            |

| Threaded Pipe Connectors    |  |  |
|-----------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
|                             |                                                                                   |                                                                                     |
| Seal Range                  | Fill                                                                              | Fill w/Handle                                                                       |
| <b>NPT Threaded Pipe</b>    |                                                                                   |                                                                                     |
| 1/8" NPT                    | HOF31-NPT-0125                                                                    | N/A                                                                                 |
| 1/4" NPT                    | HOF32-NPT-0250                                                                    | HOH32-NPT-0250                                                                      |
| 3/8" NPT                    | HOF32-NPT-0375                                                                    | HOH32-NPT-0375                                                                      |
| 1/2" NPT                    | HOF33-NPT-0500                                                                    | HOH33-NPT-0500                                                                      |
| 3/4" NPT                    | HOF33-NPT-0750                                                                    | HOH33-NPT-0750                                                                      |
| 1" NPT                      | HOF33-NPT-1000                                                                    | HOH33-NPT-1000                                                                      |
| <b>Metric Threaded Pipe</b> |                                                                                   |                                                                                     |
| M8                          | HOF31-M8                                                                          | N/A                                                                                 |
| M10                         | HOF31-M10                                                                         | N/A                                                                                 |
| M12                         | HOF32-M12                                                                         | HOH32-M12                                                                           |
| M14                         | HOF32-M14                                                                         | HOH32-M14                                                                           |
| M16                         | HOF32-M16                                                                         | HOH32-M16                                                                           |
| M18                         | HOF32-M18                                                                         | HOH32-M18                                                                           |
| M20                         | HOF33-M20                                                                         | HOH33-M20                                                                           |
| M22                         | HOF33-M22                                                                         | HOH33-M22                                                                           |
| M24                         | HOF33-M24                                                                         | HOH33-M24                                                                           |
| M26                         | HOF33-M26                                                                         | HOH33-M26                                                                           |
| M27                         | HOF33-M27                                                                         | HOH33-M27                                                                           |
| M33                         | HOF33-M33                                                                         | HOH33-M33                                                                           |
| M35                         | HOF33-M35                                                                         | HOH33-M35                                                                           |

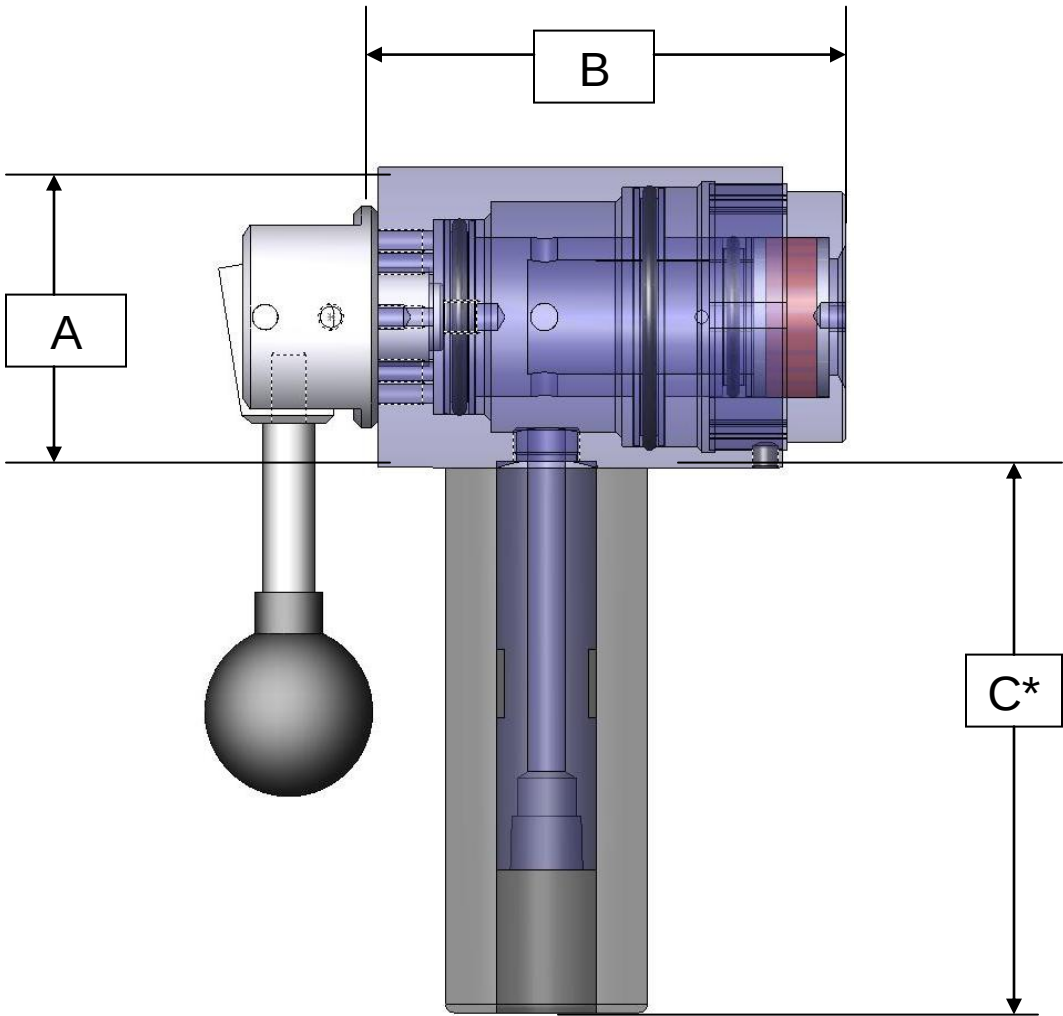


|                          |                                                                                   |                                                                                     |
|--------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Threaded Pipe Connectors |  |  |
|                          | Seal Range                                                                        | Fill                                                                                |
| SAE Threaded Pipe        |                                                                                   |                                                                                     |
| 5/16" SAE                | HOF31-SAE-0312                                                                    | N/A                                                                                 |
| 3/8" SAE                 | HOF31-SAE-0375                                                                    | N/A                                                                                 |
| 7/16" SAE                | HOF31-SAE-0437                                                                    | N/A                                                                                 |
| 1/2" SAE                 | HOF31-SAE-0500                                                                    | N/A                                                                                 |
| 9/16" SAE                | HOF32-SAE-0562                                                                    | HOH32-SAE-0562                                                                      |
| 5/8" SAE                 | HOF32-SAE-0625                                                                    | HOH32-SAE-0625                                                                      |
| 11/16" SAE               | HOF32-SAE-0687                                                                    | HOH32-SAE-0687                                                                      |
| 3/4" SAE                 | HOF32-SAE-0750                                                                    | HOH32-SAE-0750                                                                      |
| 13/16" SAE               | HOF32-SAE-0812                                                                    | HOH32-SAE-0812                                                                      |
| 7/8" SAE                 | HOF33-SAE-0875                                                                    | HOH33-SAE-0875                                                                      |
| 15/16" SAE               | HOF33-SAE-0937                                                                    | HOH33-SAE-0937                                                                      |
| 1" SAE                   | HOF33-SAE-1000                                                                    | HOH33-SAE-1000                                                                      |
| 1 1/16" SAE              | HOF33-SAE-1062                                                                    | HOH33-SAE-1062                                                                      |
| 1 1/8"SAE                | HOF33-SAE-1125                                                                    | HOH33-SAE-1125                                                                      |
| 1 3/16" SAE              | HOF33-SAE-1187                                                                    | HOH33-SAE-1187                                                                      |
| 1 1/4" SAE               | HOF33-SAE-1250                                                                    | HOH33-SAE-1250                                                                      |
| 1 5/16" SAE              | HOF33-SAE-1312                                                                    | HOH33-SAE-1312                                                                      |
| 1 3/8" SAE               | HOF33-SAE-1375                                                                    | HOH33-SAE-1375                                                                      |
| 1 7/16" SAE              | HOF33-SAE-1437                                                                    | HOH33-SAE-1437                                                                      |
| 1 1/2" SAE               | HOF33-SAE-1500                                                                    | HOH33-SAE-1500                                                                      |

| Parts and Accessories           |                                      |                                      |                                                       |                              |
|---------------------------------|--------------------------------------|--------------------------------------|-------------------------------------------------------|------------------------------|
| Smooth Bore Parts & Accessories | Connector assembly w/o main seal kit | Connector assembly w/o main seal kit | Includes proprietary seal and stainless steel washers | Includes 5 proprietary seals |
| Seal Range                      | Fill                                 | Fill w/Handle                        | Main Seal Kit                                         | Seal Kit Pack                |
| HO30 Connector                  |                                      |                                      |                                                       |                              |
| .030 - .050                     | HOF30                                | N/A                                  | HO30-AA-MSK                                           | HO30-A-SKP                   |
| .050 - .080                     | HOF30                                | N/A                                  | HO30-AB-MSK                                           | HO30-AA-SKP                  |
| .080 - .130                     | HOF30                                | N/A                                  | HO30-AC-MSK                                           | HO30-AB-SKP                  |
| HO31 Connector                  |                                      |                                      |                                                       |                              |
| .100 - .180                     | HOF31                                | N/A                                  | HO31-AA-MSK                                           | HO31-AA-SKP                  |
| .180 - .260                     | HOF31                                | N/A                                  | HO31-AB-MSK                                           | HO31-AB-SKP                  |
| .260 - .340                     | HOF31                                | N/A                                  | HO31-AC-MSK                                           | HO31-AC-SKP                  |
| .340 - .420                     | HOF31                                | N/A                                  | HO31-AE-MSK                                           | HO31-AE-SKP                  |
| .420 - .510                     | HOF31                                | N/A                                  | HO31-AF-MSK                                           | HO31-AF-SKP                  |
| HO32 Connector                  |                                      |                                      |                                                       |                              |
| .433 - .512                     | HOF32                                | HOH32                                | HO32-AA-MSK                                           | HO32-AB-SKP                  |
| .512 - .591                     | HOF32                                | HOH32                                | HO32-AD-MSK                                           | HO32-AD-SKP                  |
| .591 - .669                     | HOF32                                | HOH32                                | HO32-AE-MSK                                           | HO32-AE-SKP                  |
| .669 - .750                     | HOF32                                | HOH32                                | HO32-AG-MSK                                           | HO32-AG-SKP                  |
| .750 - .827                     | HOF32                                | HOH32                                | HO32-AH-MSK                                           | HO32-AH-SKP                  |
| HO33 Connector                  |                                      |                                      |                                                       |                              |
| .787 - .866                     | HOF33                                | HOH33                                | HO33-AB-MSK                                           | HO33-AB-SKP                  |
| .866 - .945                     | HOF33                                | HOH33                                | HO33-AC-MSK                                           | HO33-AC-SKP                  |
| .945 - 1.024                    | HOF33                                | HOH33                                | HO33-AE-MSK                                           | HO33-AE-SKP                  |
| 1.024 - 1.102                   | HOF33                                | HOH33                                | HO33-AF-MSK                                           | HO33-AF-SKP                  |
| 1.102 - 1.181                   | HOF33                                | HOH33                                | HO33-AG-MSK                                           | HO33-AG-SKP                  |
| 1.181 - 1.260                   | HOF33                                | HOH33                                | HO33-AH-MSK                                           | HO33-AH-SKP                  |
| 1.260 - 1.339                   | HOF33                                | HOH33                                | HO33-AJ-MSK                                           | HO33-AJ-SKP                  |
| 1.339 - 1.417                   | HOF33                                | HOH33                                | HO33-AK-MSK                                           | HO33-AK-SKP                  |
| 1.417 - 1.510                   | HOF33                                | HOH33                                | HO33-AL-MSK                                           | HO33-AL-SKP                  |

| Parts and Accessories             |                   |                   |                                                       |                              |
|-----------------------------------|-------------------|-------------------|-------------------------------------------------------|------------------------------|
| Threaded Bore Parts & Accessories | w/o main seal kit | w/o main seal kit | Includes proprietary seal and stainless steel washers | Includes 5 proprietary seals |
| Seal Range                        | Fill              | Fill w/Handle     | Main Seal Kit                                         | Seal Kit Pack                |
| NPT Threaded Pipe                 |                   |                   |                                                       |                              |
| 1/8" NPT                          | HOF31             | N/A               | HO31-NPT-0125-MSK                                     | HO31-NPT-0125-SKP            |
| 1/4" NPT                          | HOF32             | HOH32             | HO32-NPT-0250-MSK                                     | HO32-NPT-0250-SKP            |
| 3/8" NPT                          | HOF32             | HOH32             | HO32-NPT-0375-MSK                                     | HO32-NPT-0375-SKP            |
| 1/2" NPT                          | HOF33             | HOH33             | HO33-NPT-0500-MSK                                     | HO33-NPT-0500-SKP            |
| 3/4" NPT                          | HOF33             | HOH33             | HO33-NPT-0750-MSK                                     | HO33-NPT-0750-SKP            |
| 1" NPT                            | HOF33             | HOH33             | HO33-NPT-1000-MSK                                     | HO33-NPT-1000-SKP            |
| Metric Treaded Pipe               |                   |                   |                                                       |                              |
| M8                                | HOF31             | N/A               | HO31-MET-M8-MSK                                       | HO31-MET-M8-SKP              |
| M10                               | HOF31             | N/A               | HO31-MET-M10-MSK                                      | HO31-MET-M10-SKP             |
| M12                               | HOF32             | HOH32             | HO32-MET-M12-MSK                                      | HO32-MET-M12-SKP             |
| M14                               | HOF32             | HOH32             | HO32-MET-M14-MSK                                      | HO32-MET-M14-SKP             |
| M16                               | HOF32             | HOH32             | HO32-MET-M16-MSK                                      | HO32-MET-M16-SKP             |
| M18                               | HOF32             | HOH32             | HO32-MET-M18-MSK                                      | HO32-MET-M18-SKP             |
| M20                               | HOF33             | HOH33             | HO33-MET-M20-MSK                                      | HO33-MET-M20-SKP             |
| M22                               | HOF33             | HOH33             | HO33-MET-M22-MSK                                      | HO33-MET-M22-SKP             |
| M24                               | HOF33             | HOH33             | HO33-MET-M24-MSK                                      | HO33-MET-M24-SKP             |
| M26                               | HOF33             | HOH33             | HO33-MET-M26-MSK                                      | HO33-MET-M26-SKP             |
| M27                               | HOF33             | HOH33             | HO33-MET-M27-MSK                                      | HO33-MET-M27-SKP             |
| M33                               | HOF33             | HOH33             | HO33-MET-M33-MSK                                      | HO33-MET-M33-SKP             |
| M36                               | HOF33             | HOH33             | HO33-MET-M36-MSK                                      | HO33-MET-M36-SKP             |

| Parts and Accessories             |                   |                   |                                                       |                              |
|-----------------------------------|-------------------|-------------------|-------------------------------------------------------|------------------------------|
| Threaded Bore Parts & Accessories | w/o main seal kit | w/o main seal kit | Includes proprietary seal and stainless steel washers | Includes 5 proprietary seals |
| Seal Range                        | Fill              | Fill w/Handle     | Main Seal Kit                                         | Seal Kit Pack                |
| SAE Threaded Pipe                 |                   |                   |                                                       |                              |
| 5/16" SAE                         | HOF31             | N/A               | HO31-SAE-0312-MSK                                     | HO31-SAE-0312 -SKP           |
| 3/8" SAE                          | HOF31             | N/A               | HO31-SAE-0375-MSK                                     | HO31-SAE-0375-SKP            |
| 7/16" SAE                         | HOF31             | N/A               | HO31-SAE-0437-MSK                                     | HO31-SAE-0437-SKP            |
| 1/2" SAE                          | HOF31             | N/A               | HO31-SAE-0500-MSK                                     | HO31-SAE-0500-SKP            |
| 9/16" SAE                         | HOF32             | HOH32             | HO32-SAE-0562-MSK                                     | HO32-SAE-0562-SKP            |
| 5/8" SAE                          | HOF32             | HOH32             | HO32-SAE-0625-MSK                                     | HO32-SAE-0625-SKP            |
| 11/16" SAE                        | HOF32             | HOH32             | HO32-SAE-0687-MSK                                     | HO32-SAE-0687-SKP            |
| 3/4" SAE                          | HOF32             | HOH32             | HO32-SAE-0750-MSK                                     | HO32-SAE-0750-SKP            |
| 13/16" SAE                        | HOF32             | HOH32             | HO32-SAE-0812-MSK                                     | HO32-SAE-0812-SKP            |
| 7/8" SAE                          | HOF33             | HOH33             | HO33-SAE-0875-MSK                                     | HO33-SAE-0875-SKP            |
| 15/16" SAE                        | HOF33             | HOH33             | HO33-SAE-0937-MSK                                     | HO33-SAE-0937-SKP            |
| 1" SAE                            | HOF33             | HOH33             | HO33-SAE-1000-MSK                                     | HO33-SAE-1000-SKP            |
| 1 1/16" SAE                       | HOF33             | HOH33             | HO33-SAE-1062-MSK                                     | HO33-SAE-1062-SKP            |
| 1 1/8" SAE                        | HOF33             | HOH33             | HO33-SAE-1125-MSK                                     | HO33-SAE-1125-SKP            |
| 1 3/16" SAE                       | HOF33             | HOH33             | HO33-SAE-1187-MSK                                     | HO33-SAE-1187-SKP            |
| 1 1/4" SAE                        | HOF33             | HOH33             | HO33-SAE-1250-MSK                                     | HO33-SAE-1250-SKP            |
| 1 5/16" SAE                       | HOF33             | HOH33             | HO33-SAE-1312-MSK                                     | HO33-SAE-1312-SKP            |
| 1 3/8" SAE                        | HOF33             | HOH33             | HO33-SAE-1375-MSK                                     | HO33-SAE-1375-SKP            |
| 1 7/16" SAE                       | HOF33             | HOH33             | HO33-SAE-1437-MSK                                     | HO33-SAE-1437-SKP            |
| 1 1/2" SAE                        | HOF33             | HOH33             | HO33-SAE-1500-MSK                                     | HO33-SAE-1500-SKP            |



| Dimension(Inches) |            |            |             |             |
|-------------------|------------|------------|-------------|-------------|
|                   | HO30       | HO31       | HO32        | HO33        |
| A                 | 1.00       | 1.50       | 2.22        | 3.25        |
| B                 | 1.70       | 2.00       | 3.22        | 4.00        |
| C*<br>Fill/Handle | .750 / N/A | .750 / N/A | .750 / 3.00 | .750 / 3.00 |

*\*Dimensional information is for reference only*



## Air Actuated Seal Connectors

The CTS Connect™ air actuated threaded hole connectors effectively seal on internally threaded features of a part. The connectors consist of an air driven piston that expands a threaded collet that grips the internal threads of the part. The test air assisted seal holder drives the CTS proprietary seal material against the surface of the part, creating a tight fit for high-pressure applications. CTS Connect™ connectors provide:

- Superior sealing capability without the risk of scratching the surface of the part
- Threaded and tapered expander nose on Threaded ID Connector models
- Large test/fill port holes for better conductance
- Easy seal replacement
- Long seal life

## Tooling Functions

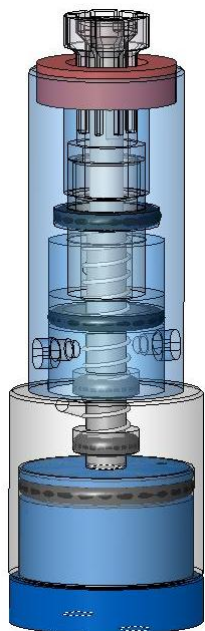
The part to be sealed is placed over the CTS Connect™ connector and pilot air advances the internal piston to expand the collet inside the part. After a firm grip is established the seal is then compressed against the part using the test-pressure assist feature. For vacuum applications, no safety tooling is required because the vacuum will hold the part in the connector. For pressure applications, additional part or seal restraints are required to prevent a blow off condition in case the seal handle is released before the part pressure is exhausted. The pressure range for the threaded internal connector is from vacuum up to 1000 PSI, depending on application and part configuration.

## Sealing

CTS Connect™ connectors are ideal for threaded holes (NPT, Metric, or SAE). The standard proprietary grade seals offer superior extrusion performance as well as cut and abrasion resistance. The proprietary grade seal material also provides extended life. The proprietary grade seal is standard in all connectors. Available seal materials include:

- Proprietary
- Medical grade urethane

## T-CI Style Connector



### CTS Connect T-CI Connector Specs

**Threaded holes:** 1/8" to 2" FNPT, M8-M48, SAE 5/16- 2-1/2"

**Test Pressures:** Vacuum to 1000 PSI

**Pilot Pressure:** 60-90 PSI is Recommended

**Connector body:** Aluminum

**Seal Holder:** Aluminum

**Cap:** Aluminum

**Collet:** Treated Steel

**Expander:** Treated Steel

**Stem:** Stainless Steel

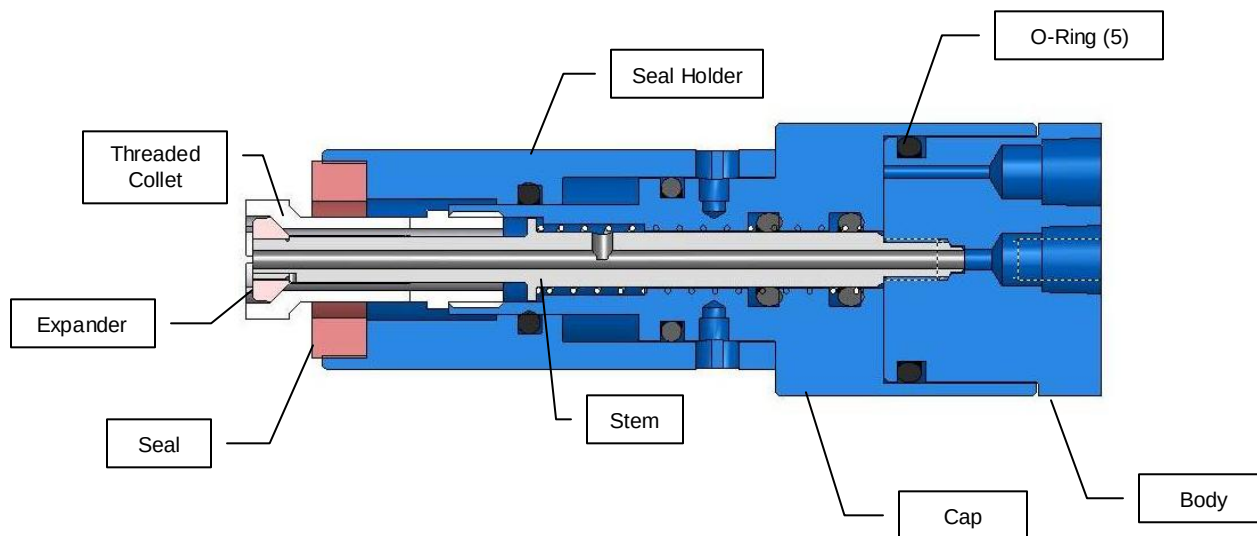
**O-ring:** Buna N

**Part seal material:** Proprietary grade seal  
For regular and threaded connectors

**Minimum Thread Depth:** T-CI30 requires .50in  
T-CI33 requires .750 in  
T-CI36 requires .750 in

**Rated Pressure:** 1000 PSI. Actual results may vary by material and test specifications and should be verified by test prior to application.

## Connector Assembly Detail



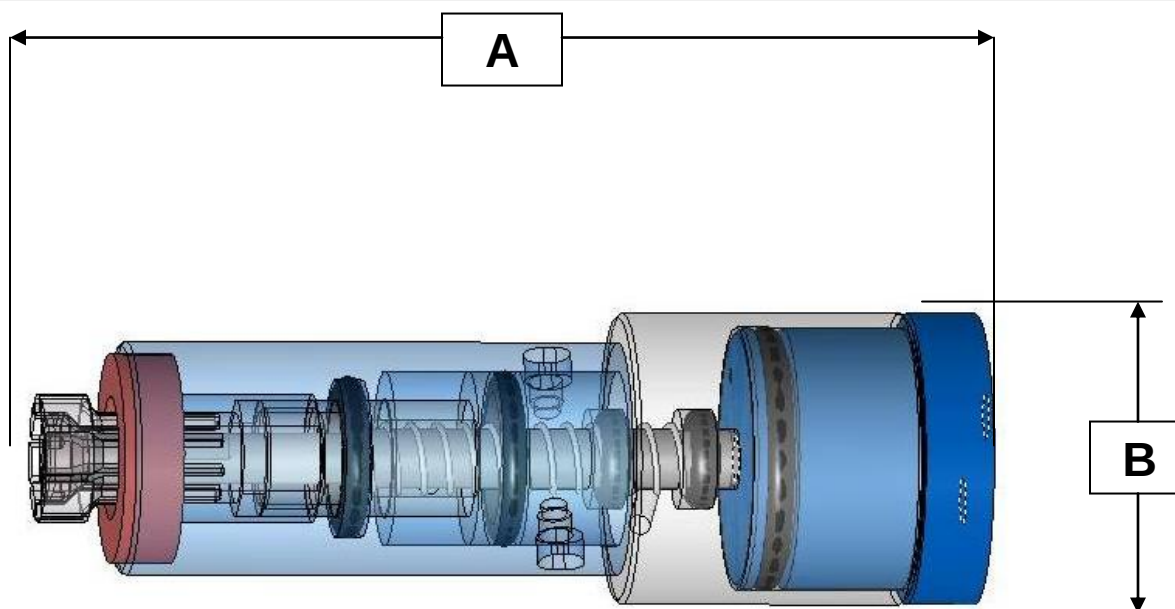
# Air Actuated Internal Collet Connector

| T-CI Connector           |                                                                                   |              |                                                                             |                                 |
|--------------------------|-----------------------------------------------------------------------------------|--------------|-----------------------------------------------------------------------------|---------------------------------|
| Threaded Bore Connectors |  |              | Includes Proprietary Seal, Threaded Collet, Expanding Nose, and Seal Holder | Includes Five Proprietary Seals |
|                          |                                                                                   |              |                                                                             |                                 |
| Seal Range               | Connector                                                                         | w/o Seal Kit | Main Seal Kit                                                               | Seal Kit Pack                   |
| NPT Threaded Holes       |                                                                                   |              |                                                                             |                                 |
| 1/8" NPT                 | T-CI30-NPT-0125                                                                   | T-CI30       | T-CI30-NPT-0125-MSK                                                         | T-CI30-NPT-0125-SKP             |
| 1/4" NPT                 | T-CI30-NPT-0250                                                                   | T-CI30       | T-CI30-NPT-0250-MSK                                                         | T-CI30-NPT-0250-SKP             |
| 3/8" NPT                 | T-CI30-NPT-0375                                                                   | T-CI30       | T-CI30-NPT-0375-MSK                                                         | T-CI30-NPT-0375-SKP             |
| 1/2" NPT                 | T-CI30-NPT-0500                                                                   | T-CI30       | T-CI30-NPT-0500-MSK                                                         | T-CI30-NPT-0500-SKP             |
| 3/4" NPT                 | T-CI33-NPT-0750                                                                   | T-CI33       | T-CI33-NPT-0750-MSK                                                         | T-CI33-NPT-0750-SKP             |
| 1" NPT                   | T-CI33-NPT-1000                                                                   | T-CI33       | T-CI33-NPT-1000-MSK                                                         | T-CI33-NPT-1000-SKP             |
| 1 1/4" NPT               | T-CI33-NPT-1250                                                                   | T-CI33       | T-CI33-NPT-1250-MSK                                                         | T-CI33-NPT-1250-SKP             |
| 1 1/2" NPT               | T-CI36-NPT-1500                                                                   | T-CI36       | T-CI36-NPT-1500-MSK                                                         | T-CI36-NPT-1500-SKP             |
| 2" NPT                   | T-CI36-NPT-2000                                                                   | T-CI36       | T-CI36-NPT-2000-MSK                                                         | T-CI36-NPT-2000-SKP             |
| Metric Threaded Holes    |                                                                                   |              |                                                                             |                                 |
| M8                       | T-CI30-M8                                                                         | T-CI30       | T-CI30-M8-MSK                                                               | T-CI30-M8-SKP                   |
| M10                      | T-CI30-M10                                                                        | T-CI30       | T-CI30-M10-MSK                                                              | T-CI30-M10-SKP                  |
| M12                      | T-CI30-M12                                                                        | T-CI30       | T-CI30-M12-MSK                                                              | T-CI30-M12-SKP                  |
| M14                      | T-CI30-M14                                                                        | T-CI30       | T-CI30-M14-MSK                                                              | T-CI30-M14-SKP                  |
| M16                      | T-CI30-M16                                                                        | T-CI30       | T-CI30-M16-MSK                                                              | T-CI30-M16-SKP                  |
| M18                      | T-CI30-M18                                                                        | T-CI30       | T-CI30-M18-MSK                                                              | T-CI30-M18-SKP                  |
| M20                      | T-CI30-M20                                                                        | T-CI30       | T-CI30-M20-MSK                                                              | T-CI30-M20-SKP                  |
| M22                      | T-CI30-M22                                                                        | T-CI30       | T-CI30-M22-MSK                                                              | T-CI30-M22-SKP                  |
| M24                      | T-CI30-M24                                                                        | T-CI30       | T-CI30-M24-MSK                                                              | T-CI30-M24-SKP                  |
| M26                      | T-CI33-M26                                                                        | T-CI33       | T-CI33-M26-MSK                                                              | T-CI33-M26-SKP                  |
| M27                      | T-CI33-M27                                                                        | T-CI33       | T-CI33-M27-MSK                                                              | T-CI33-M27-SKP                  |
| M33                      | T-CI33-M33                                                                        | T-CI33       | T-CI33-M33-MSK                                                              | T-CI33-M33-SKP                  |
| M35                      | T-CI33-M35                                                                        | T-CI33       | T-CI33-M35-MSK                                                              | T-CI33-M35-SKP                  |
| M42                      | T-CI33-M42                                                                        | T-CI33       | T-CI33-M42-MSK                                                              | T-CI33-M42-SKP                  |
| M45                      | T-CI33-M45                                                                        | T-CI33       | T-CI33-M45-MSK                                                              | T-CI33-M45-SKP                  |
| M48                      | T-CI36-M48                                                                        | T-CI36       | T-CI36-M48-MSK                                                              | T-CI36-M48-SKP                  |



| Parts and Accessories           |                                                                                   |              |                                                                             |                                 |
|---------------------------------|-----------------------------------------------------------------------------------|--------------|-----------------------------------------------------------------------------|---------------------------------|
| <b>Threaded Bore Connectors</b> |  |              | Includes Proprietary Seal, Threaded Collet, Expanding Nose, and Seal Holder | Includes Five Proprietary Seals |
| Seal Range                      | Connector                                                                         | w/o Seal Kit | Main Seal Kit                                                               | Seal Kit Pack                   |
| SAE Threaded Holes              |                                                                                   |              |                                                                             |                                 |
| 5/16" SAE                       | T-CI30-SAE-0312                                                                   | T-CI30       | T-CI30-SAE-0312-MSK                                                         | T-CI30-SAE-0312-SKP             |
| 3/8" SAE                        | T-CI30-SAE-0375                                                                   | T-CI30       | T-CI30-SAE-0375-MSK                                                         | T-CI30-SAE-0375-SKP             |
| 7/16" SAE                       | T-CI30-SAE-0437                                                                   | T-CI30       | T-CI30-SAE-0437-MSK                                                         | T-CI30-SAE-0437-SKP             |
| 1/2" SAE                        | T-CI30-SAE-0500                                                                   | T-CI30       | T-CI30-SAE-0500-MSK                                                         | T-CI30-SAE-0500-SKP             |
| 9/16" SAE                       | T-CI30-SAE-0562                                                                   | T-CI30       | T-CI30-SAE-0562-MSK                                                         | T-CI30-SAE-0562-SKP             |
| 5/8" SAE                        | T-CI30-SAE-0625                                                                   | T-CI30       | T-CI30-SAE-0625-MSK                                                         | T-CI30-SAE-0625-SKP             |
| 11/16" SAE                      | T-CI30-SAE-0687                                                                   | T-CI30       | T-CI30-SAE-0687-MSK                                                         | T-CI30-SAE-0687-SKP             |
| 3/4" SAE                        | T-CI30-SAE-0750                                                                   | T-CI30       | T-CI30-SAE-0750-MSK                                                         | T-CI30-SAE-0750-SKP             |
| 13/16" SAE                      | T-CI30-SAE-0812                                                                   | T-CI30       | T-CI30-SAE-0812-MSK                                                         | T-CI30-SAE-0812-SKP             |
| 7/8" SAE                        | T-CI30-SAE-0875                                                                   | T-CI30       | T-CI30-SAE-0875-MSK                                                         | T-CI30-SAE-0875-SKP             |
| 15/16" SAE                      | T-CI30-SAE-0937                                                                   | T-CI30       | T-CI30-SAE-0937-MSK                                                         | T-CI30-SAE-0937-SKP             |
| 1" SAE                          | T-CI30-SAE-1000                                                                   | T-CI30       | T-CI30-SAE-1000-MSK                                                         | T-CI30-SAE-1000-SKP             |
| 1 1/16" SAE                     | T-CI33-SAE-1062                                                                   | T-CI33       | T-CI33-SAE-1062-MSK                                                         | T-CI33-SAE-1062-SKP             |
| 1 1/8" SAE                      | T-CI33-SAE-1125                                                                   | T-CI33       | T-CI33-SAE-1125-MSK                                                         | T-CI33-SAE-1125-SKP             |
| 1 3/16" SAE                     | T-CI33-SAE-1187                                                                   | T-CI33       | T-CI33-SAE-1187-MSK                                                         | T-CI33-SAE-1187-SKP             |
| 1 1/4" SAE                      | T-CI33-SAE-1250                                                                   | T-CI33       | T-CI33-SAE-1250-MSK                                                         | T-CI33-SAE-1250-SKP             |
| 1 5/16" SAE                     | T-CI33-SAE-1312                                                                   | T-CI33       | T-CI33-SAE-1312-MSK                                                         | T-CI33-SAE-1312-SKP             |
| 1 3/8" SAE                      | T-CI33-SAE-1375                                                                   | T-CI33       | T-CI33-SAE-1375-MSK                                                         | T-CI33-SAE-1375-SKP             |
| 1 7/16" SAE                     | T-CI33-SAE-1437                                                                   | T-CI33       | T-CI33-SAE-1437-MSK                                                         | T-CI33-SAE-1437-SKP             |
| 1 1/2" SAE                      | T-CI33-SAE-1500                                                                   | T-CI33       | T-CI33-SAE-1500-MSK                                                         | T-CI33-SAE-1500-SKP             |
| 1 9/16" SAE                     | T-CI33-SAE-1562                                                                   | T-CI33       | T-CI33-SAE-1562-MSK                                                         | T-CI33-SAE-1562-SKP             |
| 1 5/8" SAE                      | T-CI33-SAE-1625                                                                   | T-CI33       | T-CI33-SAE-1625-MSK                                                         | T-CI33-SAE-1625-SKP             |
| 1 11/16" SAE                    | T-CI33-SAE-1687                                                                   | T-CI33       | T-CI33-SAE-1687-MSK                                                         | T-CI33-SAE-1687-SKP             |
| 1 3/4" SAE                      | T-CI33-SAE-1750                                                                   | T-CI33       | T-CI33-SAE-1750-MSK                                                         | T-CI33-SAE-1750-SKP             |
| 1 13/16" SAE                    | T-CI33-SAE-1812                                                                   | T-CI33       | T-CI33-SAE-1812-MSK                                                         | T-CI33-SAE-1812-SKP             |
| 1 7/8" SAE                      | T-CI33-SAE-1875                                                                   | T-CI33       | T-CI36-SAE-1875-MSK                                                         | T-CI36-SAE-1875-SKP             |

| Parts and Accessories           |                                                                                   |                     |                                                                  |                                        |
|---------------------------------|-----------------------------------------------------------------------------------|---------------------|------------------------------------------------------------------|----------------------------------------|
| <b>Threaded Bore Connectors</b> |  |                     | Includes proprietary seal, stainless steel washer and brass nose | Includes 5 proprietary seals<br>Add -M |
| <b>Seal Range</b>               | <b>Connector</b>                                                                  | <b>w/o Seal Kit</b> | <b>Main Seal Kit</b>                                             | <b>Seal Kit Pack</b>                   |
| 1 15/16" SAE                    | T-CI36-SAE-1937                                                                   | T-CI36              | T-CI36-SAE-1937-MSK                                              | T-CI36-SAE-1937-SKP                    |
| 2" SAE                          | T-CI36-SAE-2000                                                                   | T-CI36              | T-CI36-SAE-2000-MSK                                              | T-CI36-SAE-2000-SKP                    |
| 2 1/4" SAE                      | T-CI36-SAE-2250                                                                   | T-CI36              | T-CI36-SAE-2250-MSK                                              | T-CI36-SAE-2250-SKP                    |
| 2 1/2" SAE                      | T-CI36-SAE-2500                                                                   | T-CI36              | T-CI36-SAE-2500-MSK                                              | T-CI36-SAE-2500-SKP                    |



| Dimensions (Inches) |        |        |        |
|---------------------|--------|--------|--------|
|                     | T-CI30 | T-CI33 | T-CI36 |
| A                   | 3.93   | 4.62   | *      |
| B                   | 1.25   | 2.30   | *      |

\* Dimensions for Model T-136 available on request



## Manual Seal Connectors

The CTS Connect™ manual, threaded hole connectors effectively seal on threaded features of a part. The connectors consist of a cam driven expanding nose that expands the threaded collet against internal threads of the part, creating a tight grip. This allows for a test-air assisted seal holder to compress the CTS Connect™ proprietary seal against the surface of the part providing a safe and effective seal on the part for high pressure applications. Benefits include:

- Superior sealing capability without the risk of scratching the surface of the part
- Large test/fill port holes for better conductance
- Easy seal replacement
- Long seal life

## Tooling Functions

The part to be sealed is placed over the CTS Connect™ connector and the hand actuated cam advances the internal stem to expand the threaded collet inside the part allowing for a test air assisted seal holder to compress the seal on the face of the part. For vacuum applications, no safety tooling is required because the vacuum will hold the part in the connector. For high pressure applications, additional part or seal restraints are required to prevent a blow off condition in case the seal handle is released before the part pressure is exhausted. The pressure range for the threaded internal connector is from vacuum up to 1000 PSI, depending on application and part configuration.

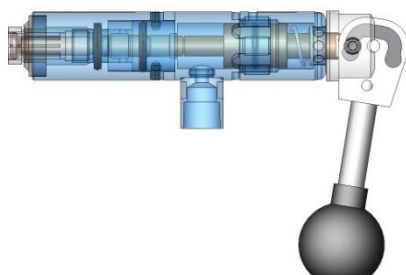
## Sealing

CTS Connect™ connectors are ideal for threaded holes (NPT, Metric, or SAE). The standard proprietary grade seals offer superior extrusion performance as well as cut and abrasion resistance. The proprietary grade seal material also provides extended life. The proprietary grade seal is standard in all connectors. Available seal materials include:

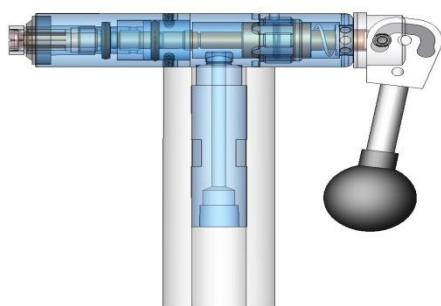
- Proprietary
- Medical grade urethane

## Manual Internal Collet Connector

### T-HIF-Fill Style



### T-HIH-Fill Style w/Handle



### CTS Connect T-HI Connector Specs

**Threaded holes:** 1/8" to 1 1/4" FNPT, M8-M36, SAE 5/16- 1-7/8"

**Test pressures :** Vacuum to 1000 PSI

**Connector body:** Aluminum

**Seal Holder :** Aluminum

**Cap:** Aluminum

**Collet :** Treated Steel

**Expander Nose :** Treated Steel

**Stem :** Stainless Steel

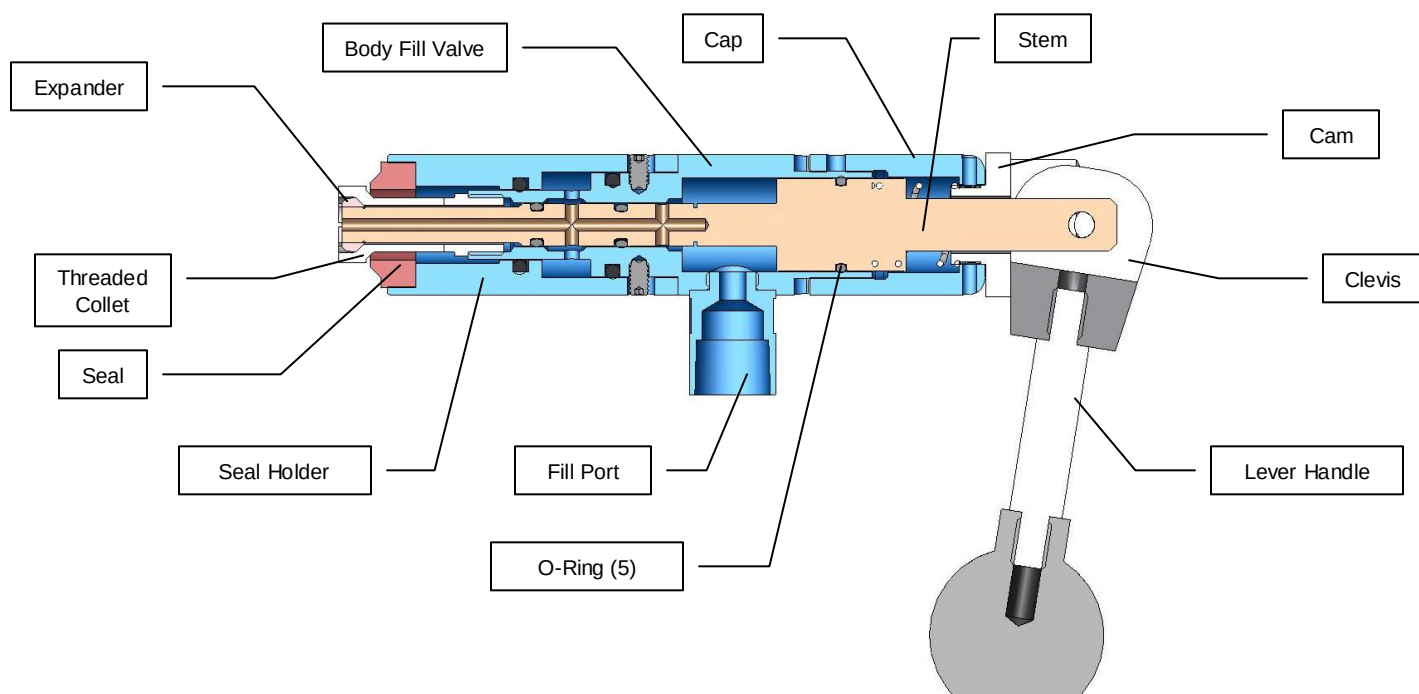
**O-ring:** Buna N

**Part seal material:** Proprietary grade seal  
For regular and threaded connectors

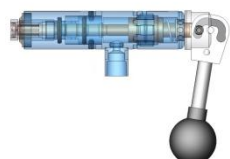
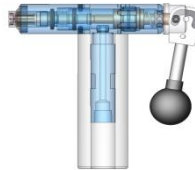
**Minimum Thread Depth:** T-HI30 requires .50 in  
T-HI33 requires .750in

**Rated Pressure:** 1000 PSI. Actual results may vary by material and specifications and should be verified by test prior to application.

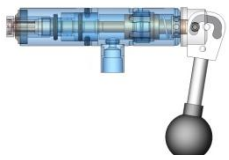
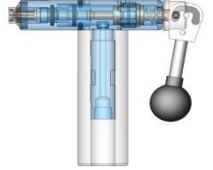
### Connector Assembly Detail w/Fill Valve



## Manual Internal Collet Connector

| Threaded Bore Connectors |  |  | Connectors with Fill Valve Option can have either Handle (H) or Fill Option (F) |
|--------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|---------------------------------------------------------------------------------|
|                          | Seal Range                                                                        | Fill                                                                               |                                                                                 |
| NPT Threaded Holes       |                                                                                   |                                                                                    |                                                                                 |
| 1/8" NPT                 | T-HIF30-NPT-0125                                                                  | T-HIH30-NPT-0125                                                                   | T-HI_30-V-NPT-0125                                                              |
| 1/4" NPT                 | T-HIF30-NPT-0250                                                                  | T-HIH30-NPT-0250                                                                   | T-HI_30-V-NPT-0250                                                              |
| 3/8" NPT                 | T-HIF30-NPT-0375                                                                  | T-HIH30-NPT-0375                                                                   | T-HI_30-V-NPT-0375                                                              |
| 1/2" NPT                 | T-HIF30-NPT-0500                                                                  | T-HIH30-NPT-0500                                                                   | T-HI_30-V-NPT-0500                                                              |
| 3/4" NPT                 | T-HIF33-NPT-0750                                                                  | T-HIH33-NPT-0750                                                                   | T-HI_33-V-NPT-0750                                                              |
| 1" NPT                   | T-HIF33-NPT-1000                                                                  | T-HIH33-NPT-1000                                                                   | T-HI_33-V-NPT-1000                                                              |
| 1 ¼" NPT                 | T-HIF33-NPT-1250                                                                  | T-HIH33-NPT-1250                                                                   | T-HI_33-V-NPT-1250                                                              |
| Metric Threaded Holes    |                                                                                   |                                                                                    |                                                                                 |
| M8                       | T-HIF30-M8                                                                        | T-HIH30-M8                                                                         | T-HI_30-V-M8                                                                    |
| M10                      | T-HIF30-M10                                                                       | T-HIH30-M10                                                                        | T-HI_30-V-M10                                                                   |
| M12                      | T-HIF30-M12                                                                       | T-HIH30-M12                                                                        | T-HI_30-V-M12                                                                   |
| M14                      | T-HIF30-M14                                                                       | T-HIH30-M14                                                                        | T-HI_30-V-M14                                                                   |
| M16                      | T-HIF30-M16                                                                       | T-HIH30-M16                                                                        | T-HI_30-V-M16                                                                   |
| M18                      | T-HIF30-M18                                                                       | T-HIH30-M18                                                                        | T-HI_30-V-M18                                                                   |
| M20                      | T-HIF30-M20                                                                       | T-HIH30-M20                                                                        | T-HI_30-V-M20                                                                   |
| M22                      | T-HIF30-M22                                                                       | T-HIH30-M22                                                                        | T-HI_30-V-M22                                                                   |
| M24                      | T-HIF30-M24                                                                       | T-HIH30-M24                                                                        | T-HI_30-V-M24                                                                   |
| M26                      | T-HIF33-M26                                                                       | T-HIF33-M26                                                                        | T-HI_33-V-M26                                                                   |
| M27                      | T-HIF33-M27                                                                       | T-HIF33-M27                                                                        | T-HI_33-V-M27                                                                   |
| M33                      | T-HIF33-M33                                                                       | T-HIF33-M33                                                                        | T-HI_34-V-M33                                                                   |
| M35                      | T-HIF33-M35                                                                       | T-HIH33-M35                                                                        | T-HI_33-V-M35                                                                   |
| M42                      | T-HIF33-M42                                                                       | T-HIH33-M42                                                                        | T-HI_33-V-M42                                                                   |
| M45                      | T-HIF33-M45                                                                       | T-HIH33-M45                                                                        | T-HI_33-V-M45                                                                   |

## Manual Internal Collet Connector

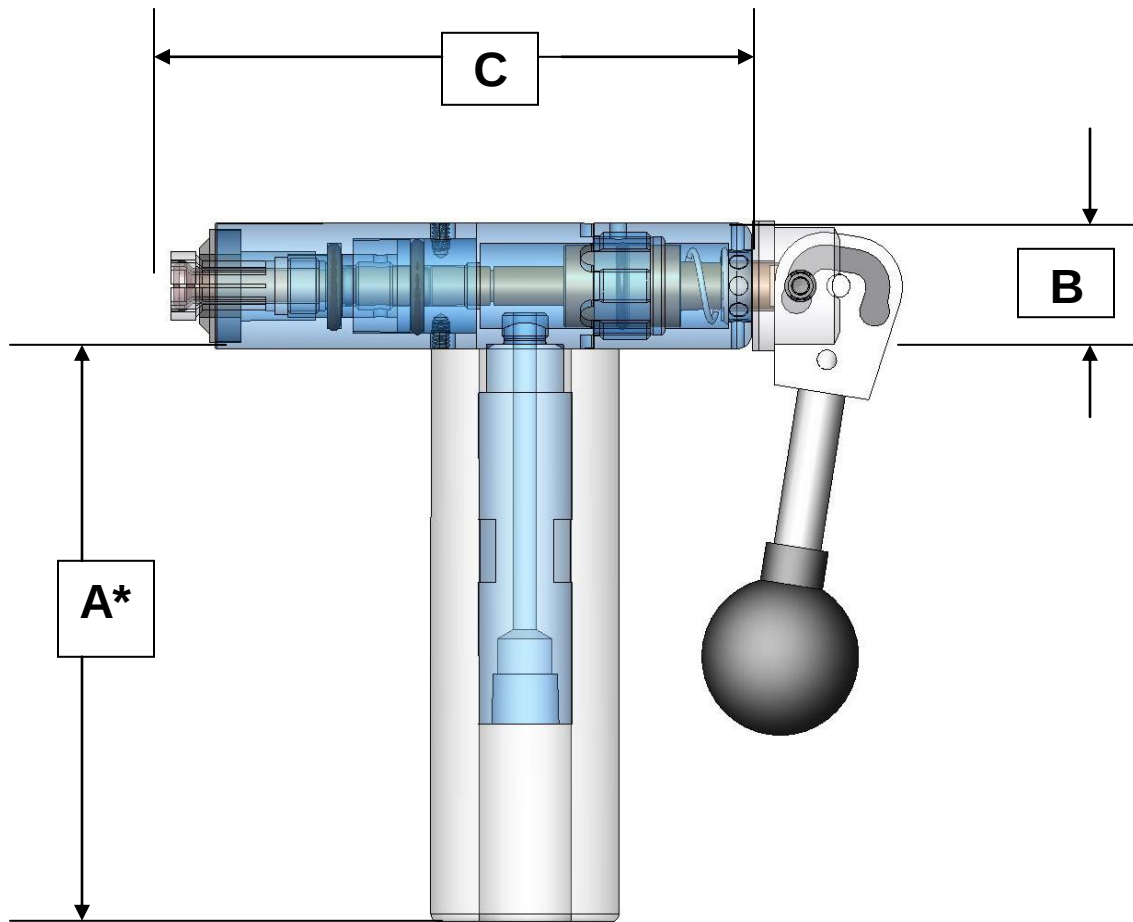
| Threaded Bore Connectors |  |  | Connectors with Fill Valve Option can have either Handle (H) or Fill Option (F) |
|--------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|---------------------------------------------------------------------------------|
|                          |                                                                                   |                                                                                    |                                                                                 |
| Seal Range               | Fill Style                                                                        | Fill w/Handle                                                                      | Fill Valve Function                                                             |
| SAE Threaded Holes       |                                                                                   |                                                                                    |                                                                                 |
| 5/16" SAE                | T-HIF30-SAE-0312                                                                  | T-HIH30-SAE-0312                                                                   | T-HI_30-SAE-V-0312                                                              |
| 3/8" SAE                 | T-HIF30-SAE-0375                                                                  | T-HIH30-SAE-0375                                                                   | T-HI_30-SAE-V-0375                                                              |
| 7/16" SAE                | T-HIF30-SAE-0437                                                                  | T-HIH30-SAE-0437                                                                   | T-HI_30-SAE-V-0437                                                              |
| 1/2" SAE                 | T-HIF30-SAE-0500                                                                  | T-HIH30-SAE-0500                                                                   | T-HI_30-SAE-V-0500                                                              |
| 9/16" SAE                | T-HIF30-SAE-0562                                                                  | T-HIH30-SAE-0562                                                                   | T-HI_30-SAE-V-0562                                                              |
| 5/8" SAE                 | T-HIF30-SAE-0625                                                                  | T-HIH30-SAE-0625                                                                   | T-HI_30-SAE-V-0625                                                              |
| 11/16" SAE               | T-HIF30-SAE-0687                                                                  | T-HIH30-SAE-0687                                                                   | T-HI_30-SAE-V-0687                                                              |
| 3/4" SAE                 | T-HIF30-SAE-0750                                                                  | T-HIH30-SAE-0750                                                                   | T-HI_30-SAE-V-0750                                                              |
| 13/16" SAE               | T-HIF30-SAE-0812                                                                  | T-HIH30-SAE-0812                                                                   | T-HI_30-SAE-V-0812                                                              |
| 7/8" SAE                 | T-HIF30-SAE-0875                                                                  | T-HIH30-SAE-0875                                                                   | T-HI_30-SAE-V-0875                                                              |
| 15/16" SAE               | T-HIF30-SAE-0937                                                                  | T-HIH30-SAE-0937                                                                   | T-HI_30-SAE-V-0937                                                              |
| 1" SAE                   | T-HIF30-SAE-1000                                                                  | T-HIH30-SAE-1000                                                                   | T-HI_30-SAE-V-1000                                                              |
| 1 1/16" SAE              | T-HIF33-SAE-1062                                                                  | T-HIH33-SAE-1062                                                                   | T-HI_33-SAE-V-1062                                                              |
| 1 1/8" SAE               | T-HIF33-SAE-1125                                                                  | T-HIH33-SAE-1125                                                                   | T-HI_33-SAE-V-1125                                                              |
| 1 3/16" SAE              | T-HIF33-SAE-1187                                                                  | T-HIH33-SAE-1187                                                                   | T-HI_33-SAE-V-1187                                                              |
| 1 1/4" SAE               | T-HIF33-SAE-1250                                                                  | T-HIH33-SAE-1250                                                                   | T-HI_33-SAE-V-1250                                                              |
| 1 5/16" SAE              | T-HIF33-SAE-1312                                                                  | T-HIH33-SAE-1312                                                                   | T-HI_33-SAE-V-1312                                                              |
| 1 3/8" SAE               | T-HIF33-SAE-1375                                                                  | T-HIH33-SAE-1375                                                                   | T-HI_33-SAE-V-1375                                                              |
| 1 7/16" SAE              | T-HIF33-SAE-1437                                                                  | T-HIH33-SAE-1437                                                                   | T-HI_33-SAE-V-1437                                                              |
| 1 1/2" SAE               | T-HIF33-SAE-1500                                                                  | T-HIH33-SAE-1500                                                                   | T-HI_33-SAE-V-1500                                                              |
| 1 9/16" SAE              | T-HIF33-SAE-1562                                                                  | T-HIH33-SAE-1562                                                                   | T-HI_33-SAE-V-1562                                                              |
| 1 5/8" SAE               | T-HIF33-SAE-1625                                                                  | T-HIH33-SAE-1625                                                                   | T-HI_33-SAE-V-1625                                                              |
| 1 11/16" SAE             | T-HIF33-SAE-1687                                                                  | T-HIH33-SAE-1687                                                                   | T-HI_33-SAE-V-1687                                                              |
| 1 3/4" SAE               | T-HIF33-SAE-1750                                                                  | T-HIH33-SAE-1750                                                                   | T-HI_33-SAE-V-1750                                                              |
| 1 13/16" SAE             | T-HIF33-SAE-1812                                                                  | T-HIH33-SAE-1812                                                                   | T-HI_33-SAE-V-1812                                                              |
| 1 7/8" SAE               | T-HIF33-SAE-1875                                                                  | T-HIH33-SAE-1875                                                                   | T-HI_33-SAE-V-1875                                                              |

| Parts & Accessories               |                     |                   |                            |                                                              |                              |
|-----------------------------------|---------------------|-------------------|----------------------------|--------------------------------------------------------------|------------------------------|
|                                   | Connector Body Type |                   |                            | Seal Kits                                                    |                              |
| Threaded Bore Parts & Accessories | w/o Main Seal Kit   | w/o Main Seal Kit | w/o Main Seal Kit (F or H) | Includes proprietary seal, seal holder, collet, and expander | Includes 5 proprietary seals |
| Seal Range                        | Fill                | Fill w/Handle     | Fill Valve                 | Main Seal Kit                                                | Seal Kit Pack                |
| NPT Threaded Holes                |                     |                   |                            |                                                              |                              |
| 1/8" NPT                          | T-HIF30             | T-HIH30           | T-HI_30-V                  | T-HI30-NPT-0125-MSK                                          | T-HI30-NPT-0125-SKP          |
| 1/4" NPT                          | T-HIF30             | T-HIH31           | T-HI_30-V                  | T-HI30-NPT-0250-MSK                                          | T-HI30-NPT-0250-SKP          |
| 3/8" NPT                          | T-HIF30             | T-HIH30           | T-HI_30-V                  | T-HI30-NPT-0375-MSK                                          | T-HI30-NPT-0375-SKP          |
| 1/2" NPT                          | T-HIF30             | T-HIH30           | T-HI_30-V                  | T-HI30-NPT-0500-MSK                                          | T-HI30-NPT-0500-SKP          |
| 3/4" NPT                          | T-HIF33             | T-HIH33           | T-HI_33-V                  | T-HI33-NPT-0750-MSK                                          | T-HI33-NPT-0750-SKP          |
| 1" NPT                            | T-HIF33             | T-HIH33           | T-HI_33-V                  | T-HI33-NPT-1000-MSK                                          | T-HI33-NPT-1000-SKP          |
| Metric Threaded Holes             |                     |                   |                            |                                                              |                              |
| M8                                | T-HIF30             | T-HIH30           | T-HI_30-V                  | T-HI30-M8-MSK                                                | T-HI30-M8-SKP                |
| M10                               | T-HIF30             | T-HIH30           | T-HI_30-V                  | T-HI30-M10-MSK                                               | T-HI30-M10-SKP               |
| M12                               | T-HIF30             | T-HIH30           | T-HI_30-V                  | T-HI30-M12-MSK                                               | T-HI30-M12-SKP               |
| M14                               | T-HIF30             | T-HIH30           | T-HI_30-V                  | T-HI30-M14-MSK                                               | T-HI30-M14-SKP               |
| M16                               | T-HIF30             | T-HIH30           | T-HI_30-V                  | T-HI30-M16-MSK                                               | T-HI30-M16-SKP               |
| M18                               | T-HIF30             | T-HIH30           | T-HI_30-V                  | T-HI30-M18-MSK                                               | T-HI30-M18-SKP               |
| M20                               | T-HIF30             | T-HIH30           | T-HI_30-V                  | T-HI30-M20-MSK                                               | T-HI30-M20-SKP               |
| M22                               | T-HIF30             | T-HIH30           | T-HI_30-V                  | T-HI30-M22-MSK                                               | T-HI30-M22-SKP               |
| M24                               | T-HIF30             | T-HIH30           | T-HI_30-V                  | T-HI30-M24-MSK                                               | T-HI30-M24-SKP               |
| M26                               | T-HIF33             | T-HIH33           | T-HI_30-V                  | T-HI33-M26-MSK                                               | T-HI33-M26-SKP               |
| M27                               | T-HIF33             | T-HIH33           | T-HI_30-V                  | T-HI33-M27-MSK                                               | T-HI33-M27-SKP               |
| M33                               | T-HIF33             | T-HIH33           | T-HI_30-V                  | T-HI33-M33-MSK                                               | T-HI33-M33-SKP               |
| M35                               | T-HIF33             | T-HIH33           | T-HI_30-V                  | T-HI33-M35-MSK                                               | T-HI33-M35-SKP               |

| Parts & Accessories               |                     |                   |                   |                                                              |                              |
|-----------------------------------|---------------------|-------------------|-------------------|--------------------------------------------------------------|------------------------------|
|                                   | Connector Body Type |                   |                   | Seal Kits                                                    |                              |
| Threaded Hole Parts & Accessories | w/o Main Seal Kit   | w/o Main Seal Kit | w/o Main Seal Kit | Includes proprietary seal, seal holder, collet, and expander | Includes 5 proprietary seals |
| Seal Range                        | Fill                | Fill w/Handle     | Fill Valve        | Main Seal Kit                                                | Seal Kit Pack                |
| SAE Threaded Holes                |                     |                   |                   |                                                              |                              |
| 5/16" SAE                         | T-HIF30             | T-HIH30           | T-HI_30-V         | T-HI30-SAE-0312-MSK                                          | T-HI30-SAE-0312-SKP          |
| 3/8" SAE                          | T-HIF30             | T-HIH30           | T-HI_30-V         | T-HI30-SAE-0375-MSK                                          | T-HI30-SAE-0375-SKP          |
| 7/16" SAE                         | T-HIF30             | T-HIH30           | T-HI_30-V         | T-HI30-SAE-0437-MSK                                          | T-HI30-SAE-0437-SKP          |
| 1/2" SAE                          | T-HIF30             | T-HIH30           | T-HI_30-V         | T-HI30-SAE-0500-MSK                                          | T-HI30-SAE-0500-SKP          |
| 9/16" SAE                         | T-HIF30             | T-HIH30           | T-HI_30-V         | T-HI30-SAE-0562-MSK                                          | T-HI30-SAE-0562-SKP          |
| 5/8" SAE                          | T-HIF30             | T-HIH30           | T-HI_30-V         | T-HI30-SAE-0625-MSK                                          | T-HI30-SAE-0625-SKP          |
| 11/16" SAE                        | T-HIF30             | T-HIH30           | T-HI_30-V         | T-HI30-SAE-0687-MSK                                          | T-HI30-SAE-0687-SKP          |
| 3/4" SAE                          | T-HIF30             | T-HIH30           | T-HI_30-V         | T-HI30-SAE-0750-MSK                                          | T-HI30-SAE-0750-SKP          |
| 13/16" SAE                        | T-HIF30             | T-HIH30           | T-HI_30-V         | T-HI30-SAE-0812-MSK                                          | T-HI30-SAE-0812-SKP          |
| 7/8" SAE                          | T-HIF30             | T-HIH30           | T-HI_30-V         | T-HI30-SAE-0875-MSK                                          | T-HI30-SAE-0875-SKP          |
| 15/16" SAE                        | T-HIF30             | T-HIH30           | T-HI_30-V         | T-HI30-SAE-0937-MSK                                          | T-HI30-SAE-0937-SKP          |
| 1" SAE                            | T-HIF30             | T-HIH30           | T-HI_30-V         | T-HI30-SAE-1000-MSK                                          | T-HI30-SAE-1000-SKP          |
| 1 1/16" SAE                       | T-HIF33             | T-HIH33           | T-HI_33-V         | T-HI33-SAE-1062-MSK                                          | T-HI33-SAE-1062-SKP          |
| 1 1/8" SAE                        | T-HIF33             | T-HIH33           | T-HI_33-V         | T-HI33-SAE-1125-MSK                                          | T-HI33-SAE-1125-SKP          |
| 1 3/16" SAE                       | T-HIF33             | T-HIH33           | T-HI_33-V         | T-HI33-SAE-1187-MSK                                          | T-HI33-SAE-1187-SKP          |
| 1 1/4" SAE                        | T-HIF33             | T-HIH33           | T-HI_33-V         | T-HI33-SAE-1250-MSK                                          | T-HI33-SAE-1250-SKP          |
| 1 5/16" SAE                       | T-HIF33             | T-HIH33           | T-HI_33-V         | T-HI33-SAE-1312-MSK                                          | T-HI33-SAE-1312-SKP          |
| 1 3/8" SAE                        | T-HIF33             | T-HIH33           | T-HI_33-V         | T-HI33-SAE-1375-MSK                                          | T-HI33-SAE-1375-SKP          |
| 1 7/16" SAE                       | T-HIF33             | T-HIH33           | T-HI_33-V         | T-HI33-SAE-1437-MSK                                          | T-HI33-SAE-1437-SKP          |
| 1 1/2" SAE                        | T-HIF33             | T-HIH33           | T-HI_33-V         | T-HI33-SAE-1500-MSK                                          | T-HI33-SAE-1500-SKP          |



## Manual Internal Collet Connector



| Dimensions (Inches) |             |             |
|---------------------|-------------|-------------|
|                     | T-HI30      | T-HI33      |
| A* Fill/Handle      | .750 / 4.55 | .750 / 4.55 |
| B                   | 1.00        | 1.75        |
| C                   | 4.63        | 6.41        |

\*Fill model does not include handle

CTS Connects™  
External Air Actuated Collet Connectors



### Air Actuated Seal Connectors

The CTS Connect™ external air actuated collet connector effectively seals on the smooth or threaded features of a part. The connector consists of an air driven piston that compresses the collet creating a tight grip. This motion also compresses the CTS Connect™ proprietary seal against the surface of the part providing a safe and effective seal on the part for high pressure applications. Benefits include:

- Superior sealing capability without the risk of scratching the surface of the part
- Automated sealing to minimize operator fatigue and injury
- Large test/fill port holes for better conductance
- Built-in stroke limiter
- Easy seal replacement
- Long seal life

### Tooling Functions

The part to be sealed is placed inside the CTS Connect™ connector and pilot air pressure is applied by triggering a start switch. This compresses both the collet and the seal on the outside surface of the part. For vacuum applications, no safety tooling is required because the vacuum will hold the part in the connector. For high pressure applications, additional part or seal restraints are required to prevent a blow off condition in case the seal pilot pressure is released before the part pressure is exhausted. The pressure for the external air actuated collet connector can range up to 1000 PSI depending on the size and application of the tube.

### Sealing

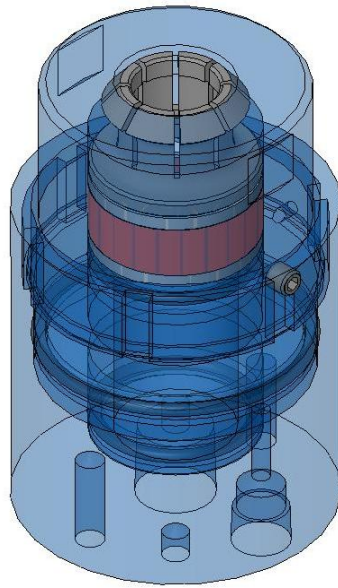
CTS Connect™ connectors are ideal for smooth and threaded features. The standard proprietary grade seals offer superior extrusion performance as well as cut and abrasion resistance. The proprietary grade seal material also provides extended life. The proprietary grade seal is standard in all connectors. Available seal materials include:

- Proprietary
- Medical grade urethane

### Pilot Pressure

CTS Connect connectors have regulated pilot pressure set to the minimum pressure needed to seal effectively. Normal pilot pressures extend the seal life. Normal pilot pressures range from 60 to 90 psi. Higher pilot pressures may be required for rough seal surfaces and NPT, Metric, and SAE connections. If higher pilot pressures are required, boosters are available.

## T-CO & S-CO Connector



### Manual External Collet Connector

#### CTS Connect T-CO & S-CO Specs

**Part OD Sizes:** .240" to .76"

**Threaded Sizes:** M8 – M20, 1/8 – 1/2 NPT, SAE 1/4 – 3/4"

**Test pressures:** Vacuum to 1000 PSI

**Connector body:** Aluminum

**Piston:** Aluminum

**Cap:** Aluminum

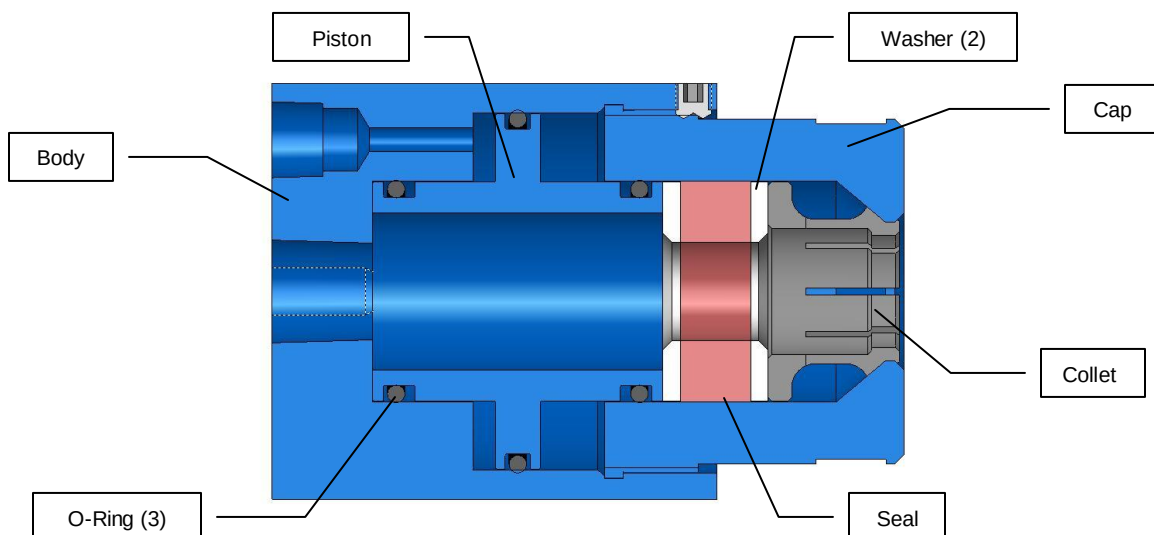
**Collet:** Treated Steel

**O-ring:** Buna N

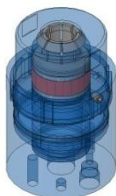
**Part seal material:** Proprietary grade seal  
For regular and threaded connectors

**Rated Pressure:** Actual results may vary by material and specifications and should be verified by test prior to application.

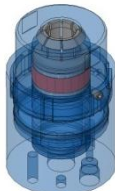
## Connector Assembly Detail

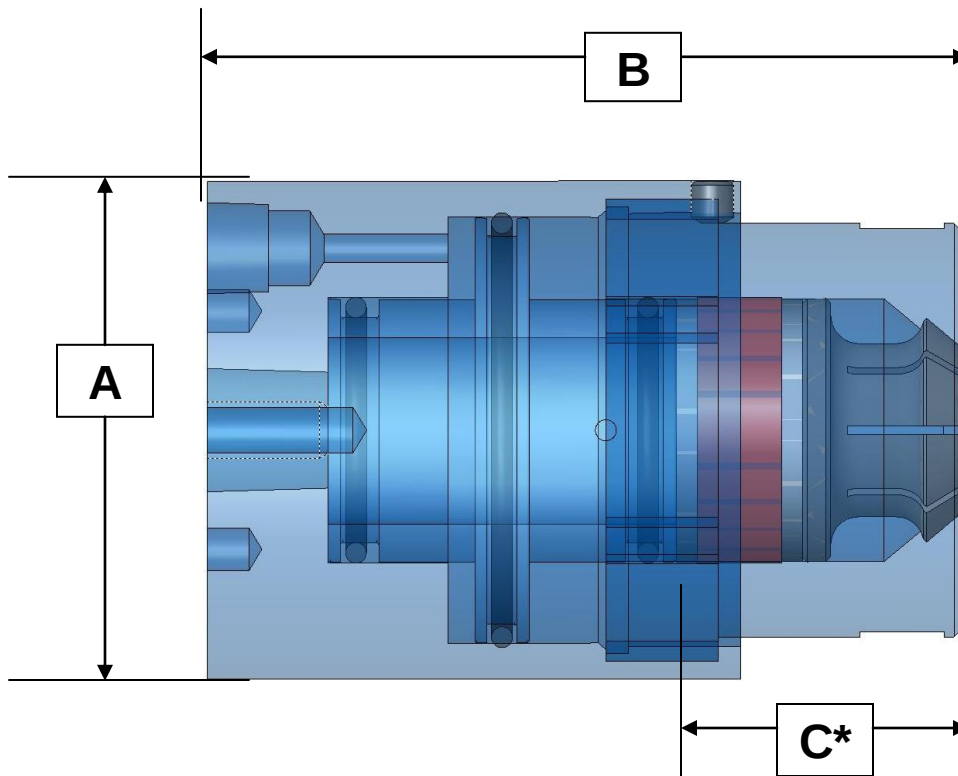


# Manual External Collet Connector

| Smooth Collet Connector | Connector w/o main seal kit |  | <br>Includes two washers, seal, and collet. | Includes 5 Proprietary Grade Seals<br>*Add "M" for Medical Grade Urethane |
|-------------------------|-----------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------|
|                         |                             |                                                                                   |                                                                                                                               |                                                                           |
| Seal Range              | Body                        | Assembly                                                                          | Main Seal Kit                                                                                                                 | Seal Kit Pack                                                             |
| <b>S-CO31</b>           |                             |                                                                                   |                                                                                                                               |                                                                           |
| .240 - .260             | S-CO31                      | S-CO31-AA                                                                         | S-CO31-AA-MSK                                                                                                                 | S-CO31-AA-SKP                                                             |
| .260 - .280             | S-CO31                      | S-CO31-AB                                                                         | S-CO31-AB-MSK                                                                                                                 | S-CO31-AB-SKP                                                             |
| .280 - .300             | S-CO31                      | S-CO31-AC                                                                         | S-CO31-AC-MSK                                                                                                                 | S-CO31-AC-SKP                                                             |
| .300 - .320             | S-CO31                      | S-CO31-AD                                                                         | S-CO31-AD-MSK                                                                                                                 | S-CO31-AD-SKP                                                             |
| .320 - .340             | S-CO31                      | S-CO31-AE                                                                         | S-CO31-AE-MSK                                                                                                                 | S-CO31-AE-SKP                                                             |
| .340 - .360             | S-CO31                      | S-CO31-AF                                                                         | S-CO31-AF-MSK                                                                                                                 | S-CO31-AF-SKP                                                             |
| .380 - .400             | S-CO31                      | S-CO31-AG                                                                         | S-CO31-AG-MSK                                                                                                                 | S-CO31-AG-SKP                                                             |
| .400 - .420             | S-CO31                      | S-CO31-AH                                                                         | S-CO31-AH-MSK                                                                                                                 | S-CO31-AH-SKP                                                             |
| .420 - .440             | S-CO31                      | S-CO31-AI                                                                         | S-CO31-AI-MSK                                                                                                                 | S-CO31-AI-SKP                                                             |
| .440 - .460             | S-CO31                      | S-CO31-AJ                                                                         | S-CO31-AJ-MSK                                                                                                                 | S-CO31-AJ-SKP                                                             |
| .460 - .480             | S-CO31                      | S-CO31-AK                                                                         | S-CO31-AK-MSK                                                                                                                 | S-CO31-AK-SKP                                                             |
| .480 - .500             | S-CO31                      | S-CO31-AL                                                                         | S-CO31-AL-MSK                                                                                                                 | S-CO31-AL-SKP                                                             |
| <b>S-CO32</b>           |                             |                                                                                   |                                                                                                                               |                                                                           |
| .500 - .520             | S-CO32                      | S-CO32-AA                                                                         | S-CO32-AA-MSK                                                                                                                 | S-CO32-AA-SKP                                                             |
| .520 - .540             | S-CO32                      | S-CO32-AB                                                                         | S-CO32-AB-MSK                                                                                                                 | S-CO32-AB-SKP                                                             |
| .540 - .560             | S-CO32                      | S-CO32-AC                                                                         | S-CO32-AC-MSK                                                                                                                 | S-CO32-AC-SKP                                                             |
| .560 - .580             | S-CO32                      | S-CO32-AD                                                                         | S-CO32-AD-MSK                                                                                                                 | S-CO32-AD-SKP                                                             |
| .580 - .600             | S-CO32                      | S-CO32-AE                                                                         | S-CO32-AE-MSK                                                                                                                 | S-CO32-AE-SKP                                                             |
| .600 - .620             | S-CO32                      | S-CO32-AF                                                                         | S-CO32-AF-MSK                                                                                                                 | S-CO32-AF-SKP                                                             |
| .620 - .640             | S-CO32                      | S-CO32-AG                                                                         | S-CO32-AG-MSK                                                                                                                 | S-CO32-AG-SKP                                                             |
| .640 - .660             | S-CO32                      | S-CO32-AH                                                                         | S-CO32-AH-MSK                                                                                                                 | S-CO32-AH-SKP                                                             |
| .660 - .680             | S-CO32                      | S-CO32-AI                                                                         | S-CO32-AI-MSK                                                                                                                 | S-CO32-AI-SKP                                                             |
| .680 - .700             | S-CO32                      | S-CO32-AJ                                                                         | S-CO32-AJ-MSK                                                                                                                 | S-CO32-AJ-SKP                                                             |
| .700 - .720             | S-CO32                      | S-CO32-AK                                                                         | S-CO32-AK-MSK                                                                                                                 | S-CO32-AK-SKP                                                             |
| .720 - .740             | S-CO32                      | S-CO32-AL                                                                         | S-CO32-AL-MSK                                                                                                                 | S-CO32-AL-SKP                                                             |
| .740 - .760             | S-CO32                      | S-CO32-AM                                                                         | S-CO32-AM-MSK                                                                                                                 | S-CO32-AM-SKP                                                             |

## Manual External Collet Connector

| <b>Threaded Collet Connector</b> | Connect w/o main seal kit |  |  Includes two washers, seal, and collet. | Includes 5 Proprietary Grade Seals<br>*Add "M" for Medical Grade Urethane |
|----------------------------------|---------------------------|-----------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------|
| Seal Range                       | Body                      | Assembly                                                                          | Main Seal Kit                                                                                                              | Seal Kit Pack                                                             |
| <b>NPT Threaded Tube</b>         |                           |                                                                                   |                                                                                                                            |                                                                           |
| 1/8" NPT                         | T-CO31                    | T-CO31-NPT-0125                                                                   | T-CO31-NPT-0125-MSK                                                                                                        | T-CO31-NPT-0125-SKP                                                       |
| 1/4" NPT                         | T-CO32                    | T-CO32-NPT-0250                                                                   | T-CO32-NPT-0250-MSK                                                                                                        | T-CO32-NPT-0250-SKP                                                       |
| 3/8" NPT                         | T-CO32                    | T-CO32-NPT-0375                                                                   | T-CO32-NPT-0375-MSK                                                                                                        | T-CO32-NPT-0375-SKP                                                       |
| 1/2" NPT                         | T-CO32                    | T-CO32-NPT-0500                                                                   | T-CO32-NPT-0500-MSK                                                                                                        | T-CO32-NPT-0500-SKP                                                       |
| <b>Metric Threaded Tube</b>      |                           |                                                                                   |                                                                                                                            |                                                                           |
| M8                               | T-CO31                    | T-CO31-M8                                                                         | T-CO31-M8-MSK                                                                                                              | T-CO31-M8-SKP                                                             |
| M10                              | T-CO31                    | T-CO31-M10                                                                        | T-CO31-M10-MSK                                                                                                             | T-CO31-M10-SKP                                                            |
| M12                              | T-CO32                    | T-CO32-M12                                                                        | T-CO32-M12-MSK                                                                                                             | T-CO32-M12-SKP                                                            |
| M14                              | T-CO32                    | T-CO32-M14                                                                        | T-CO32-M14-MSK                                                                                                             | T-CO32-M14-SKP                                                            |
| M16                              | T-CO32                    | T-CO32-M16                                                                        | T-CO32-M16-MSK                                                                                                             | T-CO32-M16-SKP                                                            |
| M18                              | T-CO32                    | T-CO32-M18                                                                        | T-CO32-M18-MSK                                                                                                             | T-CO32-M18-SKP                                                            |
| M20                              | T-CO32                    | T-CO32-M20                                                                        | T-CO32-M20-MSK                                                                                                             | T-CO32-M20-SKP                                                            |
| <b>SAE Threaded Tube</b>         |                           |                                                                                   |                                                                                                                            |                                                                           |
| 1/4" SAE                         | T-CO31                    | T-CO31-SAE-0250                                                                   | T-CO31-SAE-0250-MSK                                                                                                        | T-CO31-SAE-0250-SKP                                                       |
| 5/16" SAE                        | T-CO31                    | T-CO31-SAE-0312                                                                   | T-CO31-SAE-0312-MSK                                                                                                        | T-CO31-SAE-0312-SKP                                                       |
| 3/8" SAE                         | T-CO31                    | T-CO31-SAE-0375                                                                   | T-CO31-SAE-0375-MSK                                                                                                        | T-CO31-SAE-0375-SKP                                                       |
| 7/16" SAE                        | T-CO31                    | T-CO31-SAE-0437                                                                   | T-CO31-SAE-0437-MSK                                                                                                        | T-CO31-SAE-0437-SKP                                                       |
| 1/2" SAE                         | T-CO32                    | T-CO31-SAE-0500                                                                   | T-CO31-SAE-0500-MSK                                                                                                        | T-CO31-SAE-0500-SKP                                                       |
| 9/16" SAE                        | T-CO32                    | T-CO32-SAE-0562                                                                   | T-CO32-SAE-0562-MSK                                                                                                        | T-CO32-SAE-0562-SKP                                                       |
| 5/8" SAE                         | T-CO32                    | T-CO32-SAE-0625                                                                   | T-CO32-SAE-0625-MSK                                                                                                        | T-CO32-SAE-0625-SKP                                                       |
| 11/16" SAE                       | T-CO32                    | T-CO32-SAE-0687                                                                   | T-CO32-SAE-0687-MSK                                                                                                        | T-CO32-SAE-0687-SKP                                                       |
| 3/4" SAE                         | T-CO32                    | T-CO32-SAE-0750                                                                   | T-CO32-SAE-0750-MSK                                                                                                        | T-CO32-SAE-0750-SKP                                                       |



| Dimensions (Inches) |          |          |
|---------------------|----------|----------|
|                     | S/T-CO31 | S/T-CO32 |
| <b>A</b>            | 1.50     | 2.22     |
| <b>B</b>            | 2.70     | 3.375    |
| <b>C*</b>           | 1.18     | 1.20     |

\* Note “C” corresponds to the minimum insertion depth

Dimensional information is for reference only



## Manual Seal Connectors

The CTS Connect™ external manual collet connector effectively seals on the smooth or threaded features of a part. The connector consists of a cam driven piston that compresses the collet creating a tight grip. This motion also compresses the CTS Connect™ proprietary seal against the surface of the part providing a safe and effective seal on the part for high pressure applications. Benefits include:

- Superior sealing capability without the risk of scratching the surface of the part
- Large test/fill port holes for better conductance
- Easy seal replacement
- Long seal life

## Tooling Functions

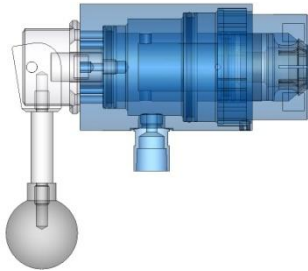
The part to be sealed is placed inside the CTS Connect™ connector and the hand actuated cam advances the internal piston to compress both the collet and the seal on the outside surface of the part. For vacuum applications, no safety tooling is required because the vacuum will hold the part in the connector. For high pressure applications, additional part or seal restraints are required to prevent a blow off condition in case the seal handle is released before the part pressure is exhausted. The pressure for the external manual collet connector can range up to 1000 PSI depending on the size and application of the tube.

## Sealing

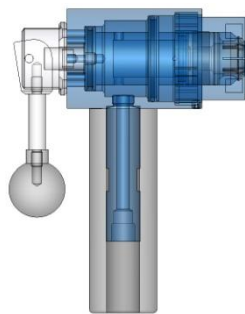
CTS Connect™ connectors are ideal for smooth and threaded features. The standard proprietary grade seals offer superior extrusion performance as well as cut and abrasion resistance. The proprietary grade seal material also provides extended life. The proprietary grade seal is standard in all connectors. Available seal materials include:

- Proprietary
- Medical grade urethane

## T-HOF & S-HOF-Fill Style



## T-HOH & S-HOH-Fill Style w/Handle



### CTS Connect T-HO & S-HO Specs

**Part OD Sizes:** .240" to .76"

**Threaded Sizes:** M8 – M20, 1/8 – 1/2 NPT, SAE 1/4 – 3/4"

**Test pressures:** Vacuum to 1000 PSI

**Connector body:** Aluminum

**Piston:** Aluminum

**Cap:** Aluminum

**Collet:** Treated Steel

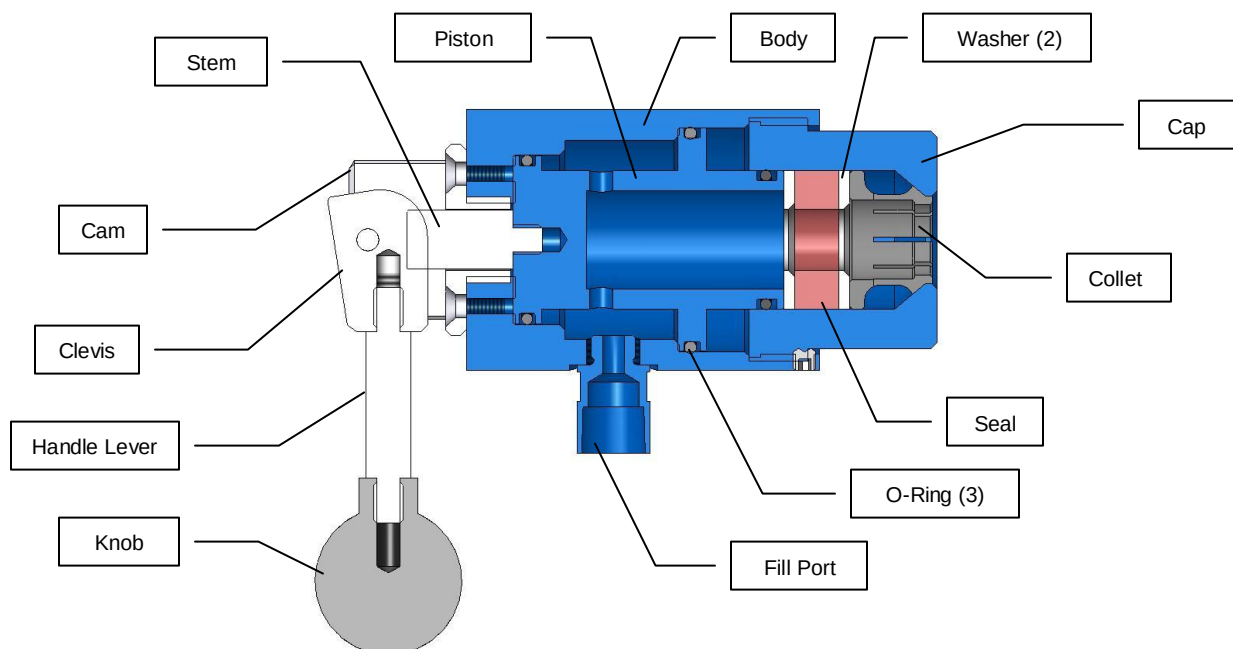
**Stem:** Stainless Steel

**O-ring:** Buna N

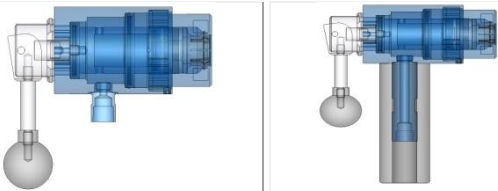
**Part seal material:** Proprietary grade seal  
For regular and threaded connectors

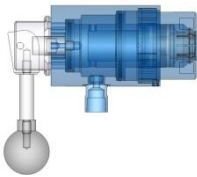
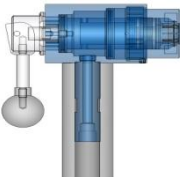
**Rated Pressure:** Actual results may vary by material and specifications and should be verified by test prior to application.

## Connector Assembly Detail w/Fill Valve



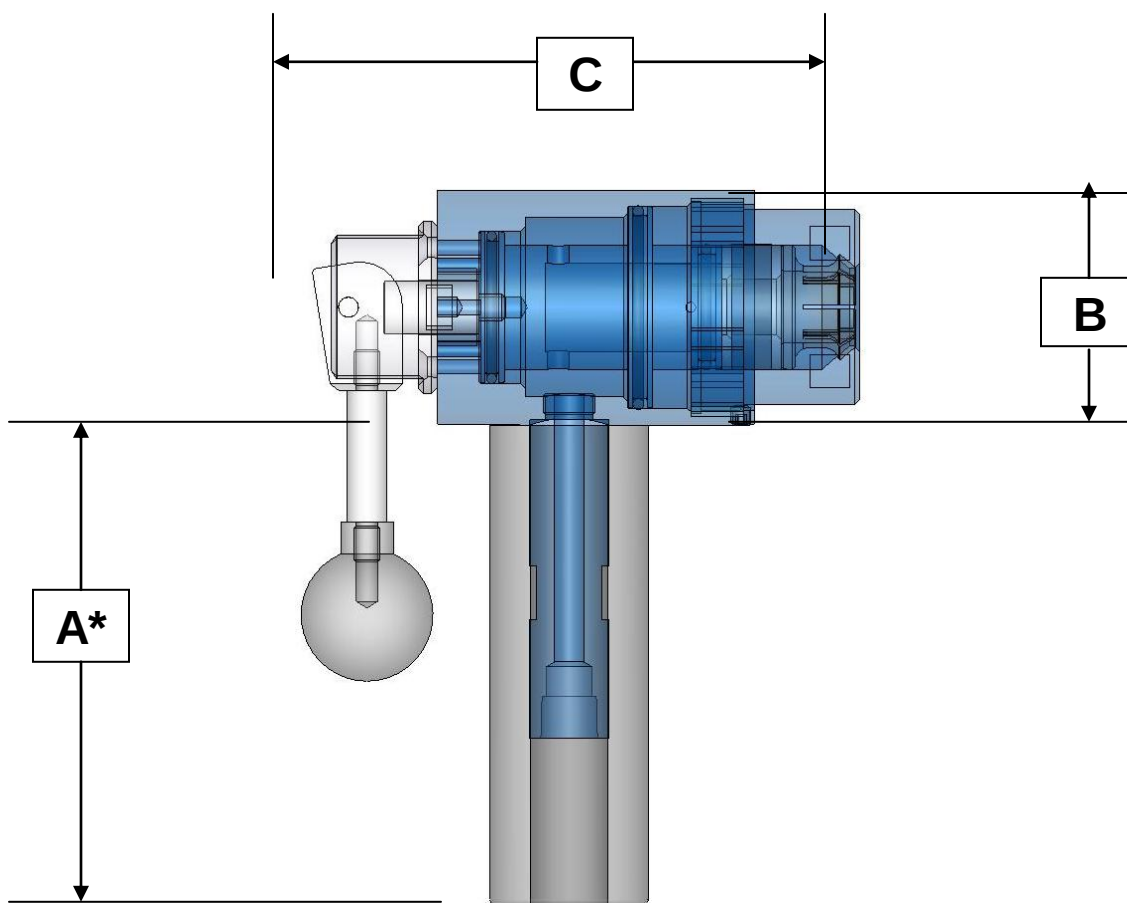


|                                   |                                                                                    |                  |                      |
|-----------------------------------|------------------------------------------------------------------------------------|------------------|----------------------|
| <b>Threaded Collet Connectors</b> |  |                  |                      |
|                                   | <b>Seal Range</b>                                                                  | <b>Fill</b>      | <b>Fill w/Handle</b> |
| <b>NPT Threaded Connectors</b>    |                                                                                    |                  |                      |
| 1/8" NPT                          | T-HOF31-NPT-0125                                                                   | T-HOH31-NPT-0125 |                      |
| 1/4" NPT                          | T-HOF32-NPT-0250                                                                   | T-HOH32-NPT-0250 |                      |
| 3/8" NPT                          | T-HOF32-NPT-0375                                                                   | T-HOH32-NPT-0375 |                      |
| 1/2" NPT                          | T-HOF32-NPT-0500                                                                   | T-HOH32-NPT-0500 |                      |
| <b>Metric Threaded Connectors</b> |                                                                                    |                  |                      |
| M8                                | T-HOF31-M8                                                                         | T-HOH31-M8       |                      |
| M10                               | T-HOF31-M10                                                                        | T-HOH31-M10      |                      |
| M12                               | T-HOF32-M12                                                                        | T-HOH32-M12      |                      |
| M14                               | T-HOF32-M14                                                                        | T-HOH32-M14      |                      |
| M16                               | T-HOF32-M16                                                                        | T-HOH32-M16      |                      |
| M18                               | T-HOF32-M18                                                                        | T-HOH32-M18      |                      |
| M20                               | T-HOF32-M20                                                                        | T-HOH32-M20      |                      |
| <b>SAE Threaded Connectors</b>    |                                                                                    |                  |                      |
| 1/4" SAE                          | T-HOF31-SAE-0250                                                                   | T-HOH31-SAE-0250 |                      |
| 5/16" SAE                         | T-HOF31-SAE-0312                                                                   | T-HOH31-SAE-0312 |                      |
| 3/8" SAE                          | T-HOF31-SAE-0375                                                                   | T-HOH31-SAE-0375 |                      |
| 7/16" SAE                         | T-HOF31-SAE-0437                                                                   | T-HOH31-SAE-0437 |                      |
| 1/2" SAE                          | T-HOF32-SAE-0500                                                                   | T-HOH32-SAE-0500 |                      |
| 9/16" SAE                         | T-HOF32-SAE-0562                                                                   | T-HOH32-SAE-0562 |                      |
| 5/8" SAE                          | T-HOF32-SAE-0625                                                                   | T-HOH32-SAE-0625 |                      |
| 11/16" SAE                        | T-HOF32-SAE-0687                                                                   | T-HOH32-SAE-0687 |                      |
| 3/4" SAE                          | T-HOF32-SAE-0750                                                                   | T-HOH32-SAE-0750 |                      |

| Smooth<br>Collet<br>Connectors |   |            |               |
|--------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|---------------|
|                                | Seal Range                                                                                                                                                           | Fill Style | Fill w/Handle |
| Smooth Collet Connectors       |                                                                                                                                                                      |            |               |
| .240 - .260                    | S-HOF31-AA                                                                                                                                                           | S-HOH31-AA |               |
| .260 - .280                    | S-HOF31-AB                                                                                                                                                           | S-HOH31-AB |               |
| .280 - .300                    | S-HOF31-AC                                                                                                                                                           | S-HOH31-AC |               |
| .300 - .320                    | S-HOF31-AD                                                                                                                                                           | S-HOH31-AD |               |
| .320 - .340                    | S-HOF31-AE                                                                                                                                                           | S-HOH31-AE |               |
| .340 - .360                    | S-HOF31-AF                                                                                                                                                           | S-HOH31-AF |               |
| .380 - .400                    | S-HOF31-AG                                                                                                                                                           | S-HOH31-AG |               |
| .400 - .420                    | S-HOF31-AH                                                                                                                                                           | S-HOH31-AH |               |
| .420 - .440                    | S-HOF31-AI                                                                                                                                                           | S-HOH31-AI |               |
| .440 - .460                    | S-HOF31-AJ                                                                                                                                                           | S-HOH31-AJ |               |
| .460 - .480                    | S-HOF31-AK                                                                                                                                                           | S-HOH31-AK |               |
| .480 - .500                    | S-HOF31-AL                                                                                                                                                           | S-HOH31-AL |               |
| .500 - .520                    | S-HOF32-AA                                                                                                                                                           | S-HOH32-AA |               |
| .520 - .540                    | S-HOF32-AB                                                                                                                                                           | S-HOH32-AB |               |
| .540 - .560                    | S-HOF32-AC                                                                                                                                                           | S-HOH32-AC |               |
| .560 - .580                    | S-HOF32-AD                                                                                                                                                           | S-HOH32-AD |               |
| .580 - .600                    | S-HOF32-AE                                                                                                                                                           | S-HOH32-AE |               |
| .600 - .620                    | S-HOF32-AF                                                                                                                                                           | S-HOH32-AF |               |
| .620 - .640                    | S-HOF32-AG                                                                                                                                                           | S-HOH32-AG |               |
| .640 - .660                    | S-HOF32-AH                                                                                                                                                           | S-HOH32-AH |               |
| .660 - .680                    | S-HOF32-AI                                                                                                                                                           | S-HOH32-AI |               |
| .680 - .700                    | S-HOF32-AJ                                                                                                                                                           | S-HOH32-AJ |               |
| .700 - .720                    | S-HOF32-AK                                                                                                                                                           | S-HOH32-AK |               |
| .720 - .740                    | S-HOF32-AL                                                                                                                                                           | S-HOH32-AL |               |
| .740 - .760                    | S-HOF32-AM                                                                                                                                                           | S-HOH32-AM |               |

| Parts & Accessories                |                     |                   |                            |                                                         |                              |
|------------------------------------|---------------------|-------------------|----------------------------|---------------------------------------------------------|------------------------------|
|                                    | Connector Body Type |                   |                            | Seal Kits                                               |                              |
| Threaded Collet Parts/ Accessories | w/o Main Seal Kit   | w/o Main Seal Kit | w/o Main Seal Kit (F or H) | Includes proprietary seal, washers, and threaded collet | Includes 5 proprietary seals |
| Seal Range                         | Fill                | Fill w/Handle     | Fill Valve                 | Main Seal Kit                                           | Seal Kit Pack                |
| NPT Threaded Connectors            |                     |                   |                            |                                                         |                              |
| 1/8" NPT                           | T-HOF31             | T-HOH31           | T-HO_31-V                  | T-HO31-NPT-0125-MSK                                     | T-HO31-NPT-0125-SKP          |
| 1/4" NPT                           | T-HOF32             | T-HOH32           | T-HO_32-V                  | T-HO32-NPT-0250-MSK                                     | T-HO32-NPT-0250-SKP          |
| 3/8" NPT                           | T-HOF32             | T-HOH32           | T-HO_32-V                  | T-HO32-NPT-0375-MSK                                     | T-HO32-NPT-0375-SKP          |
| 1/2" NPT                           | T-HOF32             | T-HOH32           | T-HO_32-V                  | T-HO32-NPT-0500-MSK                                     | T-HO32-NPT-0500-SKP          |
| Metric Threaded Connectors         |                     |                   |                            |                                                         |                              |
| M8                                 | T-HOF31             | T-HOH31           | T-HO_31-V                  | T-HO31-M8-MSK                                           | T-HO31-M8-SKP                |
| M10                                | T-HOF31             | T-HOH31           | T-HO_31-V                  | T-HO31-M10-MSK                                          | T-HO31-M10-SKP               |
| M12                                | T-HOF32             | T-HOH32           | T-HO_32-V                  | T-HO32-M12-MSK                                          | T-HO32-M12-SKP               |
| M14                                | T-HOF32             | T-HOH32           | T-HO_32-V                  | T-HO32-M14-MSK                                          | T-HO32-M14-SKP               |
| M16                                | T-HOF32             | T-HOH32           | T-HO_32-V                  | T-HO32-M16-MSK                                          | T-HO32-M16-SKP               |
| M18                                | T-HOF32             | T-HOH32           | T-HO_32-V                  | T-HO32-M18-MSK                                          | T-HO32-M18-SKP               |
| M20                                | T-HOF32             | T-HOH32           | T-HO_32-V                  | T-HO32-M20-MSK                                          | T-HO32-M20-SKP               |
| SAE Threaded Connectors            |                     |                   |                            |                                                         |                              |
| 1/4" SAE                           | T-HOF31             | T-HOH31           | T-HO_31-V                  | T-HO31-SAE-0250-MSK                                     | T-HO31-SAE-0250-SKP          |
| 5/16" SAE                          | T-HOF31             | T-HOH31           | T-HO_31-V                  | T-HO31-SAE-0312-MSK                                     | T-HO31-SAE-0312-SKP          |
| 3/8" SAE                           | T-HOF31             | T-HOH31           | T-HO_31-V                  | T-HO31-SAE-0375-MSK                                     | T-HO31-SAE-0375-SKP          |
| 7/16" SAE                          | T-HOF31             | T-HOH31           | T-HO_31-V                  | T-HO31-SAE-0437-MSK                                     | T-HO31-SAE-0437-SKP          |
| 1/2" SAE                           | T-HOF32             | T-HOH32           | T-HO_32-V                  | T-HO32-SAE-0500-MSK                                     | T-HO32-SAE-0500-SKP          |
| 9/16" SAE                          | T-HOF32             | T-HOH32           | T-HO_32-V                  | T-HO32-SAE-0562-MSK                                     | T-HO32-SAE-0562-SKP          |
| 5/8" SAE                           | T-HOF32             | T-HOH32           | T-HO_32-V                  | T-HO32-SAE-0625-MSK                                     | T-HO32-SAE-0625-SKP          |
| 11/16" SAE                         | T-HOF32             | T-HOH32           | T-HO_32-V                  | T-HO32-SAE-0687-MSK                                     | T-HO32-SAE-0687-SKP          |
| 3/4" SAE                           | T-HOF32             | T-HOH32           | T-HO_32-V                  | T-HO32-SAE-0750-MSK                                     | T-HO32-SAE-0750-SKP          |

| Parts & Accessories              |                     |                   |                   |                                                       |                              |
|----------------------------------|---------------------|-------------------|-------------------|-------------------------------------------------------|------------------------------|
|                                  | Connector Body Type |                   |                   | Seal Kits                                             |                              |
| Smooth Collet Parts/ Accessories | w/o Main Seal Kit   | w/o Main Seal Kit | w/o Main Seal Kit | Includes proprietary seal, washers, and smooth collet | Includes 5 proprietary seals |
| Seal Range                       | Fill                | w/Handle          | Fill Valve        | Main Seal Kit                                         | Seal Kit Pack                |
| Smooth Collet Connectors         |                     |                   |                   |                                                       |                              |
| .240 - .260                      | S-HOF31             | S-HOH31           | S-HO_31-V         | S-HO31-AA-MSK                                         | S-HO31-AA-SKP                |
| .260 - .280                      | S-HOF31             | S-HOH31           | S-HO_31-V         | S-HO31-AB-MSK                                         | S-HO31-AB-SKP                |
| .280 - .300                      | S-HOF31             | S-HOH31           | S-HO_31-V         | S-HO31-AC-MSK                                         | S-HO31-AC-SKP                |
| .300 - .320                      | S-HOF31             | S-HOH31           | S-HO_31-V         | S-HO31-AD-MSK                                         | S-HO31-AD-SKP                |
| .320 - .340                      | S-HOF31             | S-HOH31           | S-HO_31-V         | S-HO31-AE-MSK                                         | S-HO31-AE-SKP                |
| .340 - .360                      | S-HOF31             | S-HOH31           | S-HO_31-V         | S-HO31-AF-MSK                                         | S-HO31-AF-SKP                |
| .380 - .400                      | S-HOF31             | S-HOH31           | S-HO_31-V         | S-HO31-AG-MSK                                         | S-HO31-AG-SKP                |
| .400 - .420                      | S-HOF31             | S-HOH31           | S-HO_31-V         | S-HO31-AH-MSK                                         | S-HO31-AH-SKP                |
| .420 - .440                      | S-HOF31             | S-HOH31           | S-HO_31-V         | S-HO31-AI-MSK                                         | S-HO31-AI-SKP                |
| .440 - .460                      | S-HOF31             | S-HOH31           | S-HO_31-V         | S-HO31-AJ-MSK                                         | S-HO31-AJ-SKP                |
| .460 - .480                      | S-HOF31             | S-HOH31           | S-HO_31-V         | S-HO31-AK-MSK                                         | S-HO31-AK-SKP                |
| .480 - .500                      | S-HOF31             | S-HOH31           | S-HO_31-V         | S-HO31-AL-MSK                                         | S-HO31-AL-SKP                |
| .500 - .520                      | S-HOF32             | S-HOH32           | S-HO_32-V         | S-HO32-AA-MSK                                         | S-HO32-AA-SKP                |
| .520 - .540                      | S-HOF32             | S-HOH32           | S-HO_32-V         | S-HO32-AB-MSK                                         | S-HO32-AB-SKP                |
| .540 - .560                      | S-HOF32             | S-HOH32           | S-HO_32-V         | S-HO32-AC-MSK                                         | S-HO32-AC-SKP                |
| .560 - .580                      | S-HOF32             | S-HOH32           | S-HO_32-V         | S-HO32-AD-MSK                                         | S-HO32-AD-SKP                |
| .580 - .600                      | S-HOF32             | S-HOH32           | S-HO_32-V         | S-HO32-AE-MSK                                         | S-HO32-AE-SKP                |
| .600 - .620                      | S-HOF32             | S-HOH32           | S-HO_32-V         | S-HO32-AF-MSK                                         | S-HO32-AF-SKP                |
| .620 - .640                      | S-HOF32             | S-HOH32           | S-HO_32-V         | S-HO32-AG-MSK                                         | S-HO32-AG-SKP                |
| .640 - .660                      | S-HOF32             | S-HOH32           | S-HO_32-V         | S-HO32-AH-MSK                                         | S-HO32-AH-SKP                |
| .660 - .680                      | S-HOF32             | S-HOH32           | S-HO_32-V         | S-HO32-AI-MSK                                         | S-HO32-AI-SKP                |
| .680 - .700                      | S-HOF32             | S-HOH32           | S-HO_32-V         | S-HO32-AJ-MSK                                         | S-HO32-AJ-SKP                |
| .700 - .720                      | S-HOF32             | S-HOH32           | S-HO_32-V         | S-HO32-AK-MSK                                         | S-HO32-AK-SKP                |
| .720 - .740                      | S-HOF32             | S-HOH32           | S-HO_32-V         | S-HO32-AL-MSK                                         | S-HO32-AL-SKP                |
| .740 - .760                      | S-HOF32             | S-HOH32           | S-HO_32-V         | S-HO32-AM-MSK                                         | S-HO32-AM-SKP                |



| Dimensions (Inches)   |            |            |
|-----------------------|------------|------------|
|                       | S/T-HO31   | S/T-HO32   |
| <b>A* Fill/Handle</b> | .70 / 4.53 | .70 / 4.53 |
| <b>B</b>              | 1.49       | 2.20       |
| <b>C</b>              | 3.93       | 5.00       |

Dimensional information is for reference only

Luer Fitting Connector  
CTS Connects™  
Luer Lock Connectors (CO31L)



### Air Actuated Luer Fitting Connectors

The CTS Connect™ air actuated luer lock connectors effectively seal on the face of both male and female luer lock fittings. The connectors consist of a nose piece that grips the luer fitting, and an air-driven internal piston that drives an FDA approved medical seal material into the face of the part, creating a tight seal that meets all test pressure requirements.

- Superior sealing capability without the risk of scratching the surface of the part
- Automated sealing to minimize operator fatigue and injury
- Large test port holes for better conductance
- Easy quick change nose piece that securely locks into place to accommodate multiple luer fitting designs

- All parts that come in contact with part are of the highest grade materials
- Easy seal replacement
- Long seal life
- Available for both male and female luer fittings

### Tooling Functions

The part to be sealed is placed into the CTS Connect connector as the pilot air pressure is applied by triggering a start switch. The nose piece holds the part in place, while the piston advances and effectively face seals the luer fitting. The rated pressure range for the luer connector (CO31L) connector is from vacuum to 850 psi\*.

*\*Pressure rating dependent on part design and materials of construction.*

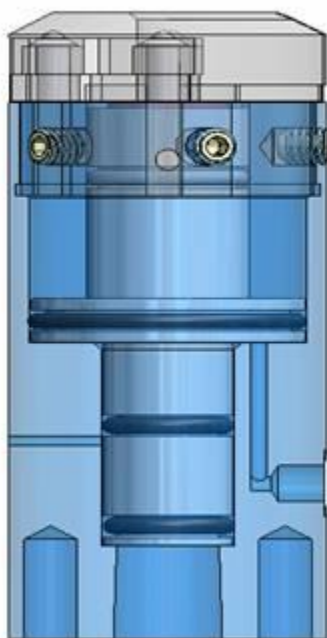
### Sealing

CTS Connect™ CO31L is ideal for sealing both male and female luer fittings. The FDA medical grade seals offer superior extrusion performance as well as cut and abrasion resistance. The medical grade seal material also provides extended life. The FDA approved medical grade seal is supplied as standard in all luer connectors

### Pilot Pressure

CTS Connect connectors use regulated pilot pressure set to the minimum pressure needed to effectively seal the part while maximizing seal life. Normal pilot pressures range from 60 to 90 psi. A vented port is provided between the pilot and test air to relieve any residual pressure.

## CO31L Connector



### CTS Connect CO31L Connector Specs

**Luer Fittings accommodated:** Male and Female

**Test pressures :** Vacuum to 850 psig\*

\*Dependent upon part design

**Pilot pressure:** Typically 60 – 90 psig  
(vented port between test air and pilot air)

**Connector body:** Anodized Aluminum\*  
\* 316 Stainless Steel upgrade available

**Nose Piece:** 316 Stainless Steel

**Piston:** 316 Stainless Steel

**Shoulder Screw:** 316 Stainless Steel

**Spring:** Stainless Steel

**Piston:** 316 Stainless Steel

**Cap:** 316 Stainless Steel

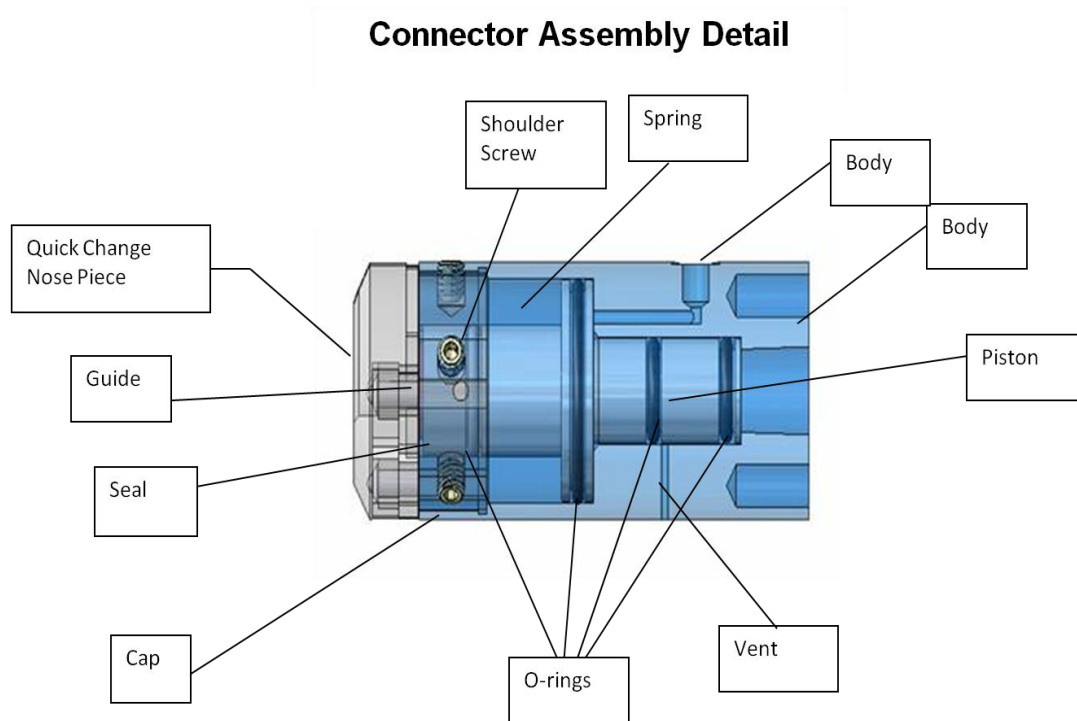
**O-ring:** Buna N

**Guide:** 316 Stainless Steel

**Seal:** FDA approved medical grade material

| Luer Fitting Connectors |  | <br>Includes seal and guide | <br>Includes 5 Medical Grade Seals |
|-------------------------|-------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------|
| Fitting Accommodated    | Connector Assembly                                                                  | Main Seal Kit                                                                                                  | Seal Kit Pack                                                                                                           |
| Female                  | CO31LF                                                                              | CO31LF-MSK                                                                                                     | CO31LF-SKP                                                                                                              |
| Male                    | CO31LM                                                                              | CO31LM-MSK                                                                                                     | CO31LM-SKP                                                                                                              |

\* Because connections to medical devices and components come in a wide range of shapes and sizes, CTS offers specially-designed CTS Connects™ for virtually any application. Prior to ordering, a dimensional drawing or sample part will be needed in order to create a nose piece to precisely fit the desired luer fitting.



**CO31L shown with sample part loaded for test**

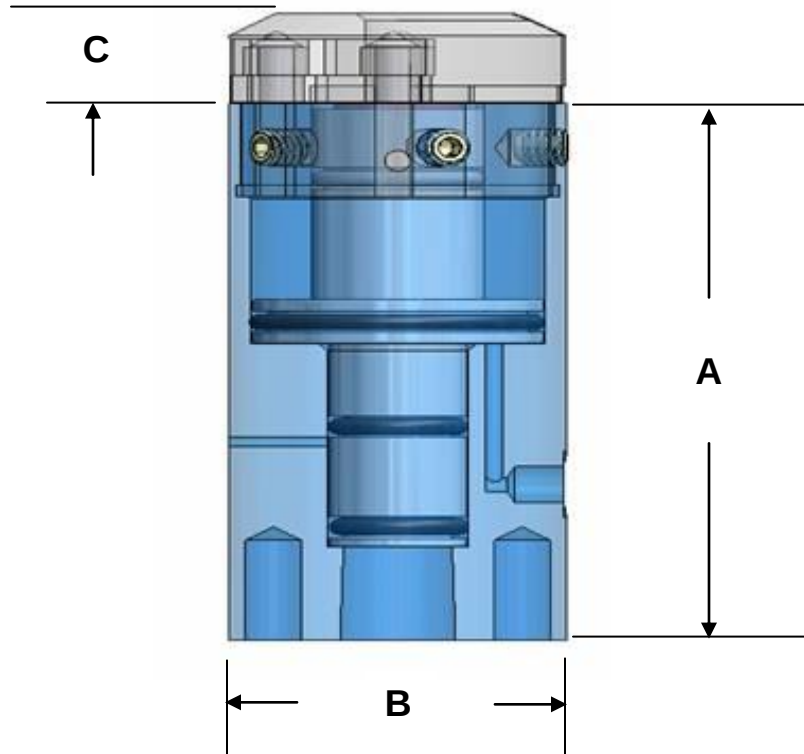
**Female Fitting**



**Male Fitting**







| Dimensions CO31L Model (in) |       |       |       |
|-----------------------------|-------|-------|-------|
| Luer Fitting                | A     | B     | C     |
| Female                      | 2.125 | 1.375 | N/A * |
| Male                        | 2.125 | 1.375 | N/A * |

Dimensional information is for reference only

\*Dimension Dependent upon Specific Luer Fitting Design

CTS Connects™  
SLJ Connectors



### Test Air Assisted SLJ Connectors

The CTS Connect™ “Spring Lock Jaw” connectors effectively face-seal on smooth circular features of parts with formed ends while utilizing spring loaded jaws to retain the part. The connectors consist of a pilot and/or test air driven internal piston that compresses the CTS proprietary seal material against the end of the tube, creating a tight seal that meets all test pressure requirements.

- Superior sealing capability at higher pressures due to test air sealing assistance
- Easy sealing at lower pressures due to pilot air driven piston
- Simple and easy manual operation
- Ideal for refrigeration applications
- Easy seal replacement

- Extra long seal life

### Tooling Functions

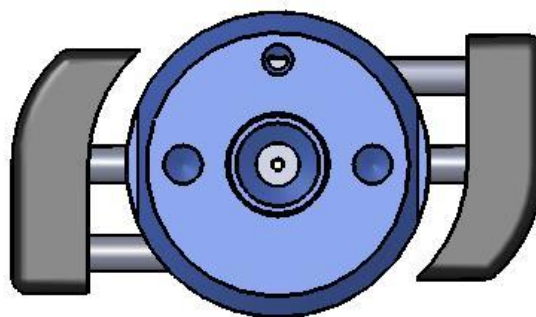
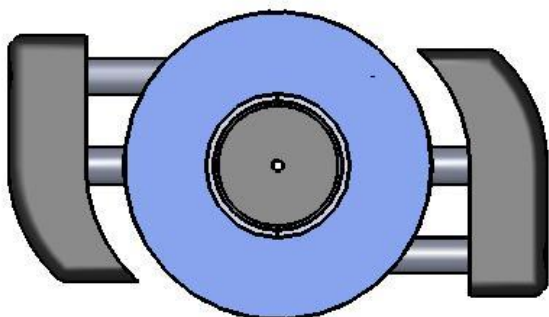
The operator first squeezes the jaw levers. Then the part to be sealed is placed into the CTS Connect connector. The spring inside loosely pushes the seal against the end of the test part. When the test is started, due to the test pressure assisted design, the seal will be pushed harder onto the face of the part. The pressure range for the SLJ connector is Vacuum-1000 psi, application dependent.

### Sealing

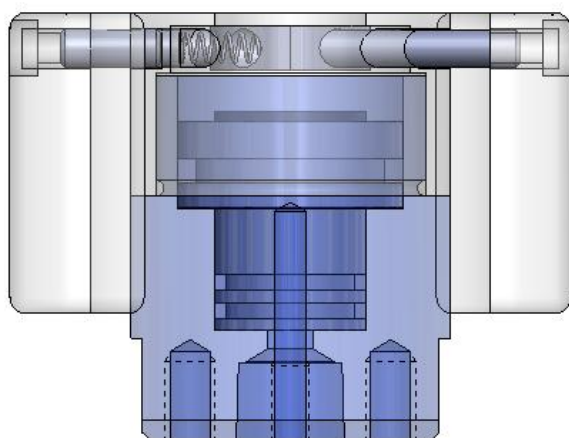
CTS SLJ connectors are ideal for smooth surfaces. The standard proprietary grade seals offer superior extrusion performance as well as cut and abrasion resistance. The proprietary grade seal material also provides extended life. The proprietary grade seal is standard in all connectors.

### Pilot Pressure

CTS Connect SLJ connectors rely on test pressure to seal for higher pressure applications. For vacuum to lower pressures, the SLJ has a pilot air port, which drives the internal piston. This means that for lower pressures, two test lines are required, and for higher pressures, only one test line is required.



## SLJ Connectors



### CTS Connect CI Connector Specs

**Tube sizes:** .236-2.047" Actual O.D.

**\*\*Sample Part or Drawings are required with order**

**Test pressures :** Vacuum-1000 psi (Application dependent) Please contact for higher pressure applications.

**Connector body:** Aluminum

**Cap:** Aluminum

**Lever:** Stainless steel

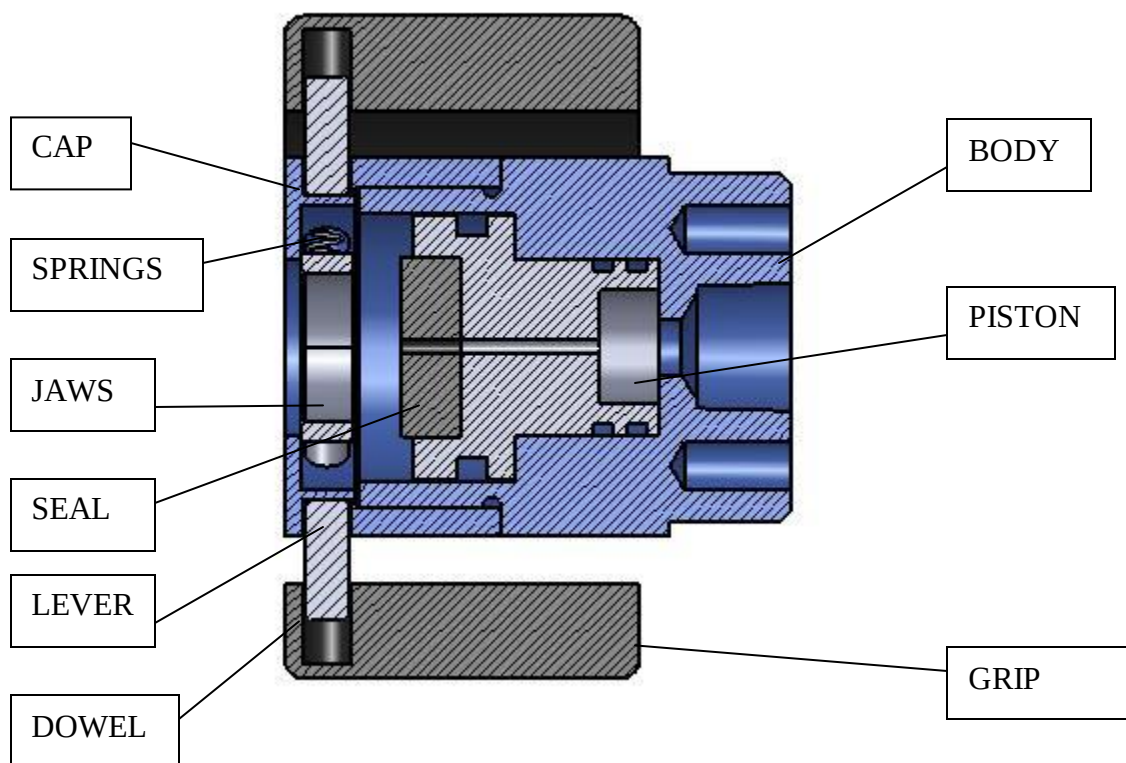
**Grip:** Aluminum

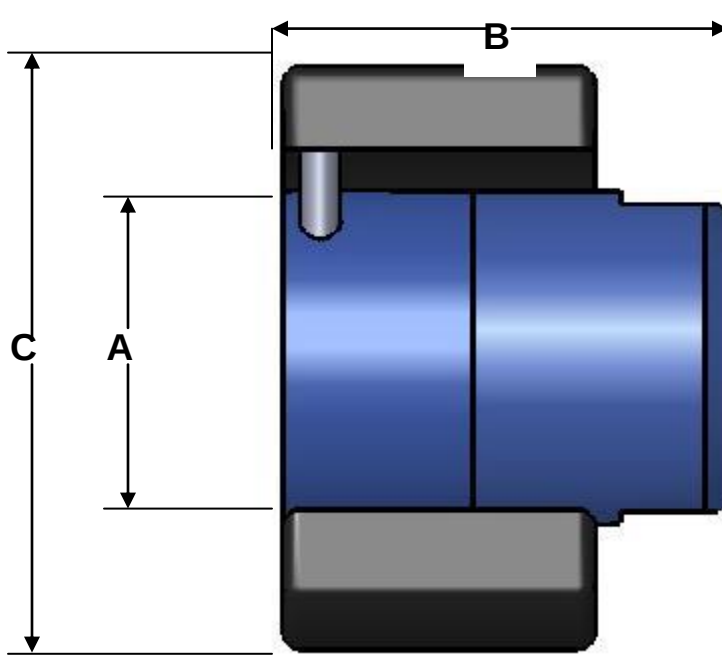
**Jaws:** Stainless steel

**Piston:** Aluminum

**O-rings:** Buna N

**Part seal material:** Proprietary grade seal

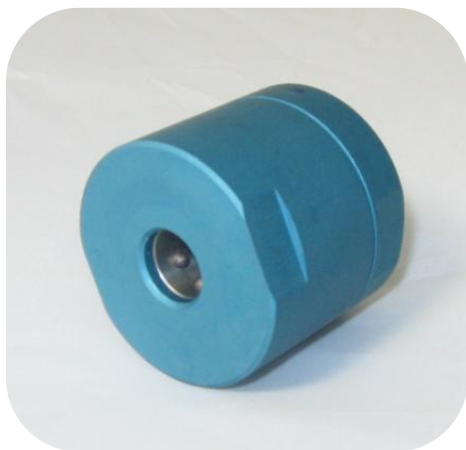




**SLJ Model Dimensions (in)**

| Body Size    | Max Part OD | A    | B    | C    |
|--------------|-------------|------|------|------|
| <b>SLJ30</b> | 0.630       | 1.60 | 2.14 | 2.80 |
| <b>SLJ31</b> | 1.260       | 2.65 | 2.14 | 3.77 |
| <b>SLJ32</b> | 2.074       | 3.40 | 2.83 | 4.74 |

*Dimensional information is for reference only*



### Test Air Assisted SLP Connectors

The CTS Connect™ “Spring Lock Pin” connectors effectively face-seal on smooth circular features of parts with formed ends while utilizing spring-loaded pins to retain the part. The connectors consist of a test air driven internal piston that compresses the CTS proprietary seal material against the surface of the part, creating a tight seal that meets all test pressure requirements. Pins are backed by test pressure to retain part under high pressures.

- Superior sealing capability at higher pressures due to test air sealing assistance
- Manual or automated insertion capabilities
- Ideal for refrigeration applications

- Easy seal replacement
- Extra long seal life

### Tooling Functions

The part to be sealed is placed into the CTS Connect connector. The spring inside loosely pushes the seal against the end of the test part. When the test is started, due to the test pressure assisted design, the seal will be pushed harder onto the face of the part. In automated applications, a cylinder will advance the CTS Connect connector to the part. The pressure range for the SLP connector is 20-800 psi (application dependent).

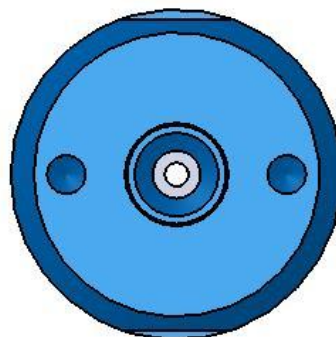
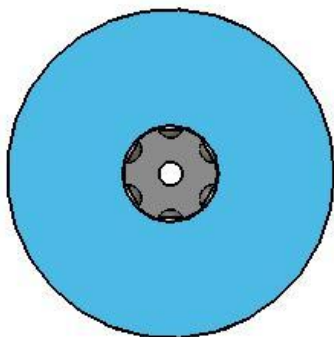
### Sealing

CTS SLP connectors are ideal for smooth surfaces. The standard proprietary grade seals offer superior extrusion performance as well as cut and abrasion resistance. The proprietary grade seal material also provides extended life. The proprietary grade seal is standard in all connectors.

### Pilot Pressure

CTS Connect SLP connectors do not require pilot pressure, but rely on test pressure for a tight seal. This means that only one test line per connector is required.

### SLP Connectors:



### CTS Connect CI Connector Specs

**Tube sizes:** 0.236-0.875" Actual O.D.

**Test pressures :** 20-800 psi (App. Dependent)  
Please contact us for higher pressure applications.

**Connector body:** Aluminum

**Cap:** Aluminum

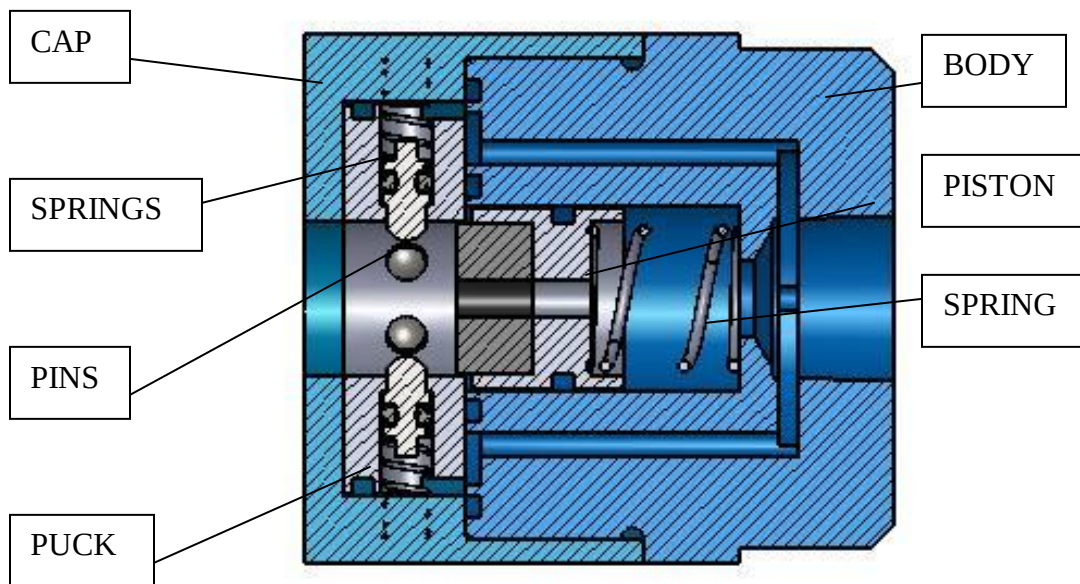
**Pins:** Heat treated steel

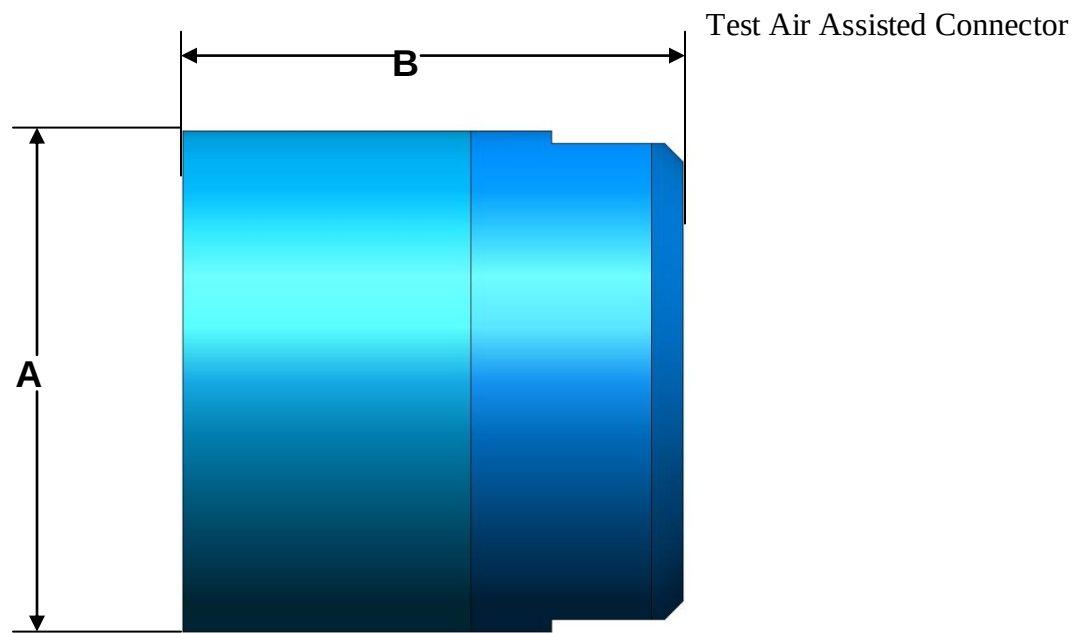
**Puck:** Stainless steel

**Piston:** Aluminum

**O-rings:** Buna N

**Part seal material:** Proprietary grade seal





### SLP Model Dimensions (in)

| Body Size    | Max Part OD | A    | B    |
|--------------|-------------|------|------|
| <b>SLP30</b> | 0.500       | 1.73 | 1.93 |
| <b>SLP31</b> | 0.875       | 2.11 | 1.95 |

*Dimensional information is for reference only*



## Manual Seal Connectors

The CTS Connect™ OD gripping ID sealing hand connectors effectively seal various types and sizes of tubing. The connectors consist of a cam driven stem that compresses the CTS proprietary seal material against the surface of the part, creating a tight seal that meets high test pressure requirements.

CTS Connect™ SBOI connectors provide:

- Superior sealing capability without the risk of scratching the interior surface of the part
- Large test/fill port holes for better conductance
- Easy seal replacement
- Long seal life
- Ideal for high pressure applications

## Tooling Functions

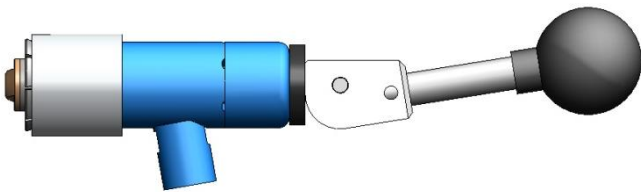
The part to be sealed is placed over the CTS Connect™ connector and the hand cam retracts the internal stem to compress the seal inside the part while the collet grips on the OD. For most applications, no safety tooling is required because the collet will hold the part in the connector. The pressure range for the SBOI connector is up to 850psi for copper tubing. (Application dependent)

## Sealing

CTS Connect™ connectors are ideal for smooth or rough surfaces. The standard proprietary grade seals offer superior extrusion performance as well as cut and abrasion resistance. The proprietary grade seal material also provides extended life. The proprietary grade seal is standard on all connectors.



## SBOI with Fill Port



### CTS Connect SBOI Connector Specs

**Tube sizes:** 0.375-1.500 inches Actual O.D.

**Test pressures :** Vacuum –850

**Connector body:** Aluminum

**Collet:** Heat treated steel

**Collet Cap:** Aluminum

**Washer:** Stainless steel

**Spacer:** Stainless steel

**Stem:** Stainless steel

**Clevis:** Heat treated steel

**Lever:** Stainless steel

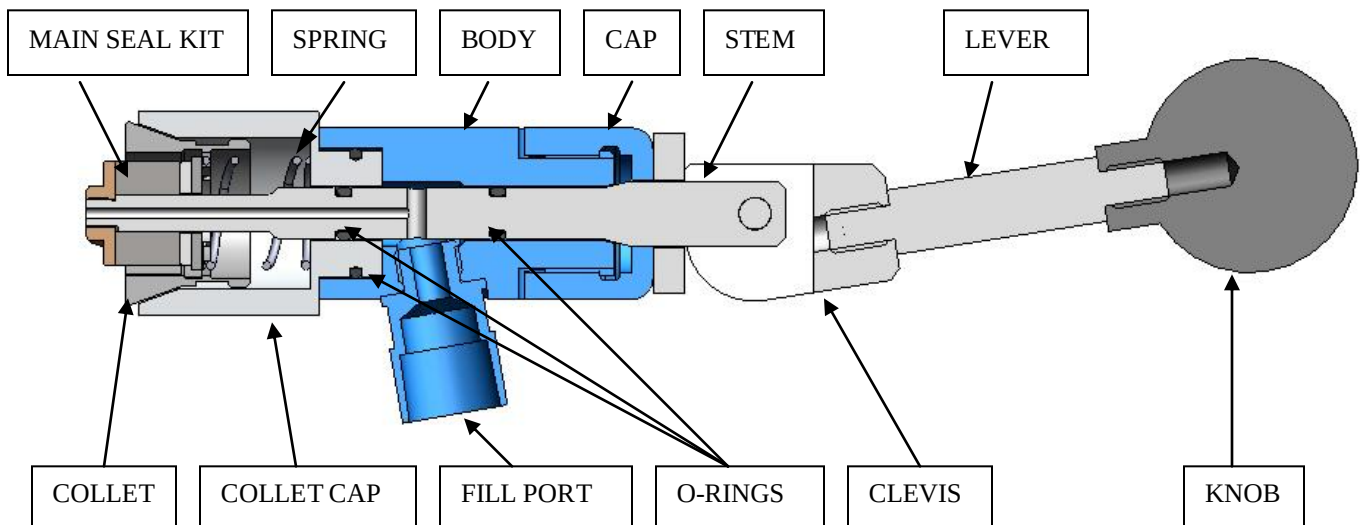
**Nose:** Brass

**O-ring:** Buna N

**Part seal material:** Proprietary grade seal

**Optional seal material:** Medical grade urethane

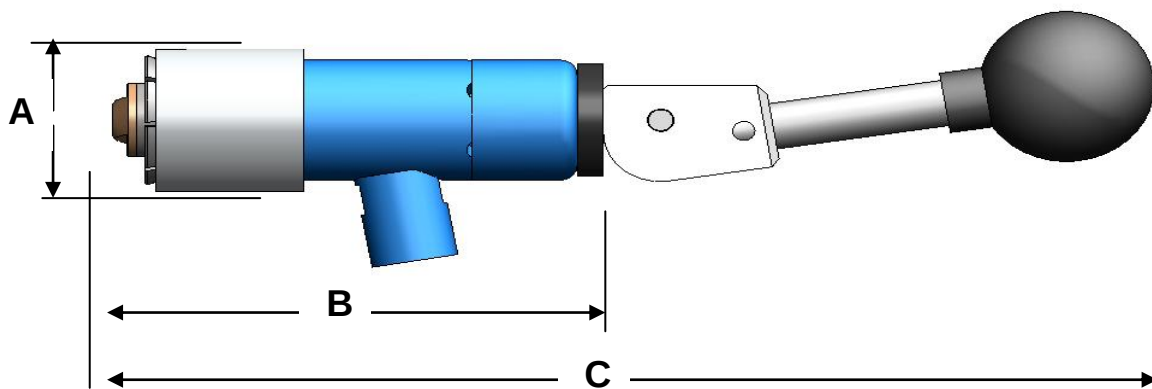
### Connector Assembly Detail



## Smooth Bore Connectors Sizing Chart



| Tube O.D. (Actual) | Model Number |
|--------------------|--------------|
| 3/8"               | SBOI30-0375  |
| 1/2"               | SBOI31-0500  |
| 5/8"               | SBOI31-0625  |
| 3/4"               | SBOI32-0750  |
| 7/8"               | SBOI32-0875  |
| 1"                 | SBOI32-1000  |
| 1 1/8"             | SBOI33-1125  |
| 1 1/4"             | SBOI34-1250  |
| 1 3/8"             | SBOI34-1375  |
| 1 1/2"             | SBOI35-1500  |



| Smooth Bore Connectors |             |             |              |
|------------------------|-------------|-------------|--------------|
| Dimension A            | Dimension B | Dimension C | Model Number |
| 1.00"                  | 3.5"        | 7.5"        | SBOI30       |
| 1.00"                  | 3.5"        | 7.5"        | SBOI31       |
| 1.00"                  | 3.5"        | 7.5"        | SBOI32       |
| 1.75"                  | 4.2"        | 11.3"       | SBOI33       |
| 1.75"                  | 4.2"        | 11.3"       | SBOI34       |
| 1.75"                  | 4.2"        | 11.3"       | SBOI35       |

Dimensional information is for reference only



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