

U M C



Ultra High Purity Components

ISO CERTIFIED

UMC Microfittings



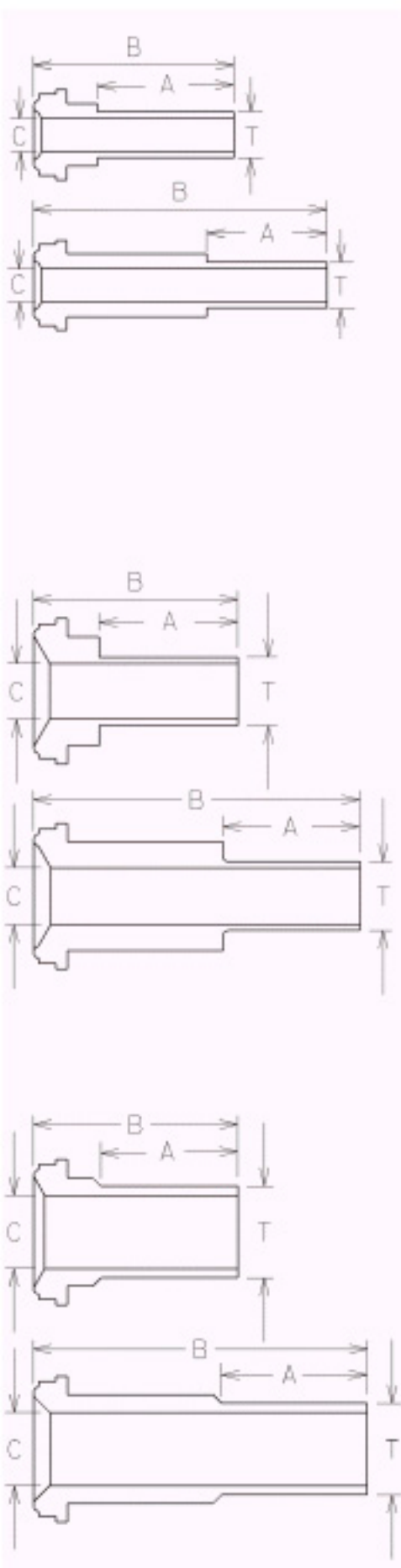
UMC fitting is designed to provide a leak- tight fitting. All fittings are Class 100 clean room purged and packaged ready for installation into high purity semiconductor applications. Each component electropolished by UMC gives you the maximum corrosion resistance available. It contains very low levels of iron oxidation states, maximizing surfacing passivation. We are fully compatible with existing high quality fittings.

UMC's electropolished fitting is available in both 316L VAR and 316L VIM/VAR stainless steel material. We can also provide microfittings to your specific material, size and surface requirements.

In addition to its high quality performance process, UMC is certified to the ISO 9002 quality standard. Fittings and components are 100% visually inspected. What ISO quality system certification means to you is that UMC has a consistent method to manage its processes and it will help to make UMC an even better partner in its alliances.

FACE SEAL TUBE WELD GLAND

(VCR® Compatible)

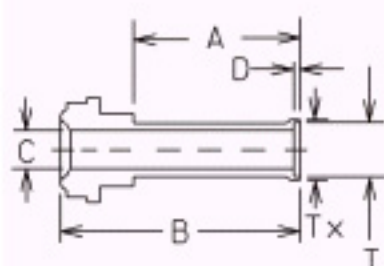


| Tube O.D. T | UMC Number | Internal Surface Finish | A | B | C | Tube Wall Thickness |
|----------------|----------------|-------------------------|------|-------|------|---------------------|
| 1/4 | 4SGTWX-.62 | 10Ra | .250 | .620 | .180 | .035 |
| 1/4 | 4SGTWP-.62 | 10Ra EP | .250 | .620 | .180 | .035 |
| 1/4 | 4SGTWPP-.62 | 5Ra EP | .250 | .620 | .180 | .035 |
| 1/4 | 4SGTWX-.75 | 10Ra | .375 | .750 | .180 | .035 |
| 1/4 | 4SGTWP-.75 | 10Ra EP | .375 | .750 | .180 | .035 |
| 1/4 | 4SGTWPP-.75 | 5Ra EP | .375 | .750 | .180 | .035 |
| 1/4 | 4SGTWX-1.10 | 10Ra | .750 | 1.100 | .180 | .035 |
| 1/4 | 4SGTWP-1.10 | 10Ra EP | .750 | 1.100 | .180 | .035 |
| 1/4 | 4SGTWPP-1.100 | 5Ra EP | .750 | 1.100 | .180 | .035 |
| 1/4 | 4LGTWX-1.31 | 10Ra | .375 | 1.310 | .180 | .035 |
| 1/4 | 4LGTWP-1.31 | 10Ra EP | .375 | 1.310 | .180 | .035 |
| 1/4 | 4LGTWPP-1.31 | 5Ra EP | .375 | 1.310 | .180 | .035 |
| 1/4 | 4LGTWX-1.70 | 10Ra | .750 | 1.700 | .180 | .035 |
| 1/4 | 4LGTWP-1.70 | 10Ra EP | .750 | 1.700 | .180 | .035 |
| 1/4 | 4LGTWPP-1.70 | 5Ra EP | .750 | 1.700 | .180 | .035 |
| | | | | | | |
| 3/8 | 8-6SGTWX-.62 | 10Ra | .250 | .620 | .305 | .035 |
| 3/8 | 8-6SGTWP-.62 | 10Ra EP | .250 | .620 | .305 | .035 |
| 3/8 | 8-6SGTWPP-.62 | 5Ra EP | .250 | .620 | .305 | .035 |
| 3/8 | 8-6SGTWX-1.12 | 10Ra | .750 | 1.120 | .305 | .035 |
| 3/8 | 8-6SGTWP-1.12 | 10Ra EP | .750 | 1.120 | .305 | .035 |
| 3/8 | 8-6SGTWPP-1.12 | 5Ra EP | .750 | 1.120 | .305 | .035 |
| 3/8 | 8-6LGTWX-1.79 | 10Ra | .750 | 1.790 | .305 | .035 |
| 3/8 | 8-6LGTWP-1.79 | 10Ra EP | .750 | 1.790 | .305 | .035 |
| 3/8 | 8-6LGTWPP-1.79 | 5Ra EP | .750 | 1.790 | .305 | .035 |
| | | | | | | |
| 1/2 | 8SGTWX-.62 | 10Ra | .250 | .620 | .402 | .049 |
| 1/2 | 8SGTWP-.62 | 10Ra EP | .250 | .620 | .402 | .049 |
| 1/2 | 8SGTWPP-.62 | 5Ra EP | .250 | .620 | .402 | .049 |
| 1/2 | 8SGTWX-1.12 | 10Ra | .750 | 1.120 | .402 | .049 |
| 1/2 | 8SGTWP-1.12 | 10Ra EP | .750 | 1.120 | .402 | .049 |
| 1/2 | 8SGTWPP-1.12 | 5Ra EP | .750 | 1.120 | .402 | .049 |
| 1/2 | 8LGTWX-1.50 | 10Ra | .595 | 1.500 | .402 | .049 |
| 1/2 | 8LGTWP-1.50 | 10Ra EP | .595 | 1.500 | .402 | .049 |
| 1/2 | 8LGTWPP-1.50 | 5Ra EP | .595 | 1.500 | .402 | .049 |
| 1/2 | 8LGTWX-1.79 | 10Ra | .750 | 1.790 | .402 | .049 |
| 1/2 | 8LGTWP-1.79 | 10Ra EP | .750 | 1.790 | .402 | .049 |
| 1/2 | 8LGTWPP-1.79 | 5Ra EP | .750 | 1.790 | .402 | .049 |
| 1/2 | 8LGTWX-1.83 | 10Ra | .750 | 1.830 | .402 | .409 |
| 1/2 | 8LGTWP-1.83 | 10Ra EP | .750 | 1.830 | .402 | .409 |
| 1/2 | 8LGTWPP-1.83 | 5Ra EP | .750 | 1.830 | .402 | .409 |

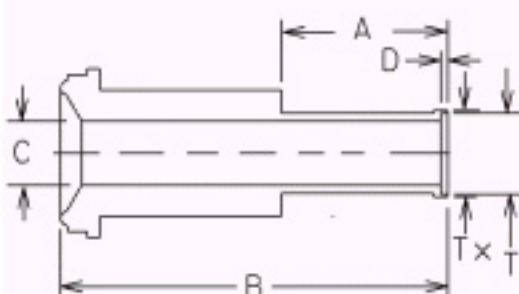
*we also provide microfittings to your specific material, size and surface requirements.

AUTOMATIC BUTT WELD GLANDS

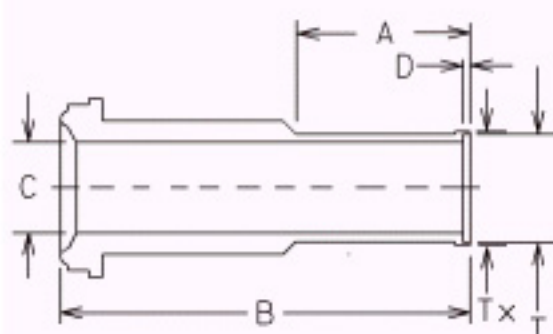
(VCR® Compatible)



| Tube O.D. T | UMC Number | Internal Surface Finish | A | B | C | D | Tx | Tube Wall Thickness |
|-------------------|---------------|-------------------------------|------|-------|------|-----|-----|---------------------------|
| 1/4 | 4SGATWX-1.12 | 10Ra | .750 | 1.120 | .180 | .02 | .29 | .035 |
| 1/4 | 4SGATWP-1.12 | 10Ra EP | .750 | 1.120 | .180 | .02 | .29 | .035 |
| 1/4 | 4SGATWPP-1.12 | 5Ra EP | .750 | 1.120 | .180 | .02 | .29 | .035 |
| 1/4 | 4LGATWX-1.72 | 10Ra | .750 | 1.720 | .180 | .02 | .29 | .035 |
| 1/4 | 4LGATWP-1.72 | 10Ra EP | .750 | 1.720 | .180 | .02 | .29 | .035 |
| 1/4 | 4LGATWPP-1.72 | 5Ra EP | .750 | 1.720 | .180 | .02 | .29 | .035 |



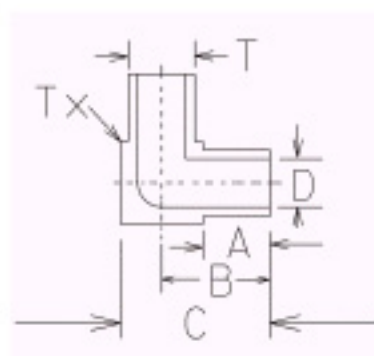
| Tube O.D. T | UMC Number | Internal Surface Finish | A | B | C | D | Tx | Tube Wall Thickness |
|-------------------|-----------------|-------------------------------|------|-------|------|-----|-----|---------------------------|
| 3/8 | 8-6SGATWX-1.15 | 10Ra | .750 | 1.150 | .305 | .03 | .30 | .035 |
| 3/8 | 8-6SGATWP-1.15 | 10Ra EP | .750 | 1.150 | .305 | .03 | .30 | .035 |
| 3/8 | 8-6SGATWPP-1.15 | 5Ra EP | .750 | 1.150 | .305 | .03 | .30 | .035 |
| 3/8 | 8-6LGATWX-1.82 | 10Ra | .750 | 1.820 | .305 | .03 | .30 | .035 |
| 3/8 | 8-6LGATWP-1.82 | 10Ra EP | .750 | 1.820 | .305 | .03 | .30 | .035 |
| 3/8 | 8-6LGATWPP-1.82 | 5Ra EP | .750 | 1.820 | .305 | .03 | .30 | .035 |



| Tube O.D. T | UMC Number | Internal Surface Finish | A | B | C | D | Tx | Tube Wall Thickness |
|-------------------|---------------|-------------------------------|------|-------|------|-----|-----|---------------------------|
| 1/2 | 8SGATWX-1.16 | 10Ra | .750 | 1.160 | .402 | .04 | .41 | .049 |
| 1/2 | 8SGATWP-1.16 | 10Ra EP | .750 | 1.160 | .402 | .04 | .41 | .049 |
| 1/2 | 8SGATWPP-1.16 | 5Ra EP | .750 | 1.160 | .402 | .04 | .41 | .049 |
| 1/2 | 8LGATWX-1.83 | 10Ra | .750 | 1.830 | .402 | .04 | .41 | .049 |
| 1/2 | 8LGATWP-1.83 | 10Ra EP | .750 | 1.830 | .402 | .04 | .41 | .049 |
| 1/2 | 8LGATWPP-1.83 | 5Ra EP | .750 | 1.830 | .402 | .04 | .41 | .049 |

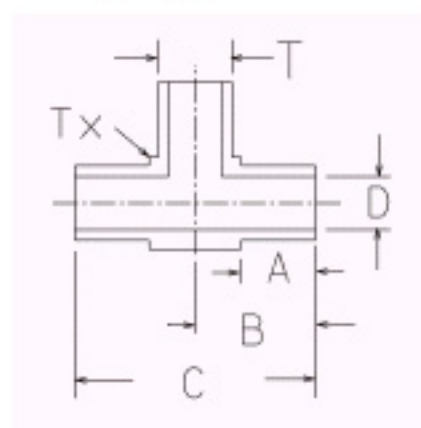
*we also provide microfittings to your specific material, size and surface requirements.

ELBOWS



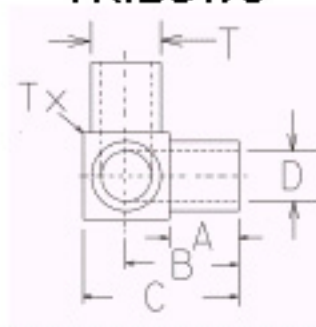
| Tube O.D. T | UMC Number | A | B | C | D | Tx | Tube Wall Thickness |
|-------------------|---------------|------|------|------|------|------|---------------------------|
| 1/4 | 4ELMX | .250 | .405 | .560 | .180 | .310 | .035 |
| 1/4 | 4ELMP | .250 | .405 | .560 | .180 | .310 | .035 |
| 3/8 | 6ELMX | .250 | .470 | .690 | .300 | .440 | .035 |
| 3/8 | 6ELMP | .250 | .470 | .690 | .300 | .440 | .035 |
| 1/2 | 8ELMX | .250 | .530 | .810 | .400 | .560 | .049 |
| 1/2 | 8ELMP | .250 | .530 | .810 | .400 | .560 | .049 |

TEES



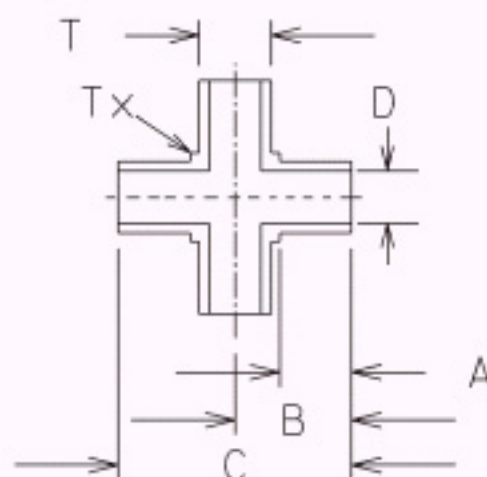
| Tube O.D. T | UMC Number | A | B | C | D | Tx | Tube Wall Thickness |
|-------------------|---------------|------|------|-------|------|------|---------------------------|
| 1/4 | 4TEMX | .250 | .405 | .810 | .180 | .310 | .035 |
| 1/4 | 4TEMP | .250 | .405 | .810 | .180 | .310 | .035 |
| 3/8 | 6TEMX | .250 | .470 | .940 | .300 | .440 | .035 |
| 3/8 | 6TEMP | .250 | .470 | .940 | .300 | .440 | .035 |
| 1/2 | 8TEMX | .250 | .530 | 1.060 | .400 | .560 | .049 |
| 1/2 | 8TEMP | .250 | .530 | 1.060 | .400 | .560 | .049 |

TRIBOWS



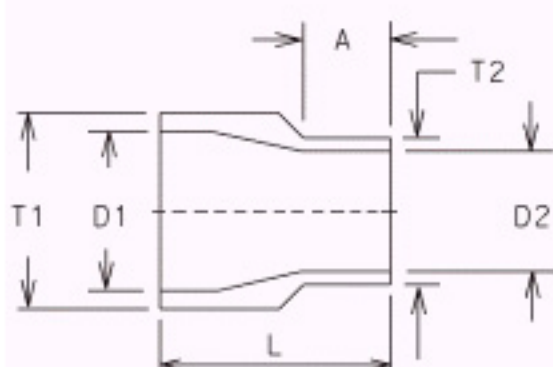
| Tube O.D. T | UMC Number | A | B | C | D | Tx | Tube Wall Thickness |
|-------------------|---------------|------|------|------|------|------|---------------------------|
| 1/4 | 4TRIMX | .250 | .405 | .560 | .180 | .310 | .035 |
| 1/4 | 4TRIMP | .250 | .405 | .560 | .180 | .310 | .035 |

CROSSES



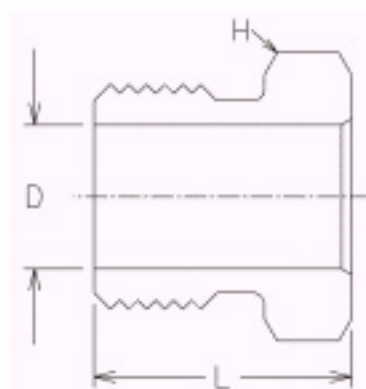
| Tube O.D. T | UMC Number | A | B | C | D | Tx | Tube Wall Thickness |
|-------------------|---------------|------|------|-------|------|------|---------------------------|
| 1/4 | 4CXMx | .250 | .405 | .810 | .180 | .310 | .035 |
| 1/4 | 4CXMP | .250 | .405 | .810 | .180 | .310 | .035 |
| 3/8 | 6CXMx | .250 | .470 | .940 | .300 | .440 | .035 |
| 3/8 | 6CXMP | .250 | .470 | .940 | .300 | .440 | .035 |
| 1/2 | 8CXMx | .250 | .530 | 1.060 | .400 | .560 | .049 |
| 1/2 | 8CXMP | .250 | .530 | 1.060 | .400 | .560 | .049 |

REDUCERS



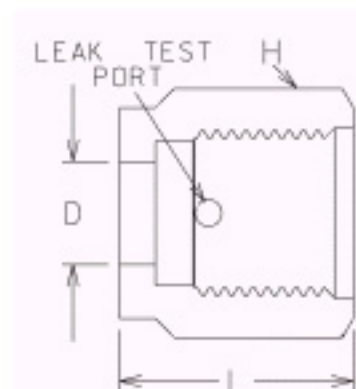
| Tube O.D. T | UMC Number | A | L | D1 | D2 | T1 Tube Wall Thickness | T2 Tube Wall Thickness |
|-------------------|---------------|------|-----|------|------|------------------------------|------------------------------|
| 3/8X1/4 | 6-4RUSX | .250 | .75 | .300 | .180 | .035 | .035 |
| 3/8X1/4 | 6-4RUSP | .250 | .75 | .300 | .180 | .035 | .035 |
| 1/2X1/4 | 8-4RUSX | .250 | .75 | .400 | .180 | .049 | .035 |
| 1/2X1/4 | 8-4RUSP | .250 | .75 | .400 | .180 | .049 | .035 |
| 1/2X3/8 | 8-6RUSX | .250 | .75 | .400 | .300 | .049 | .035 |
| 1/2X3/8 | 8-6RUSP | .250 | .75 | .400 | .300 | .049 | .035 |

MALE NUTS



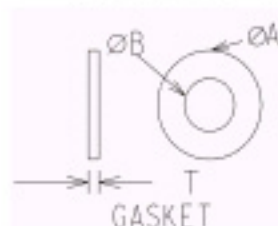
| Size | UMC Number | Hex Flat | L | D |
|------|---------------|-------------|-----|------|
| 1/4 | 4GMNSS-.65 | 5/8 | .65 | .360 |
| 1/4 | 4GMNSS-.71 | 5/8 | .71 | .360 |
| 3/8 | 6GMNSS | 15/16 | .81 | .61 |
| 1/2 | 8GMNSS | 15/16 | .81 | .61 |

FEMALE NUTS



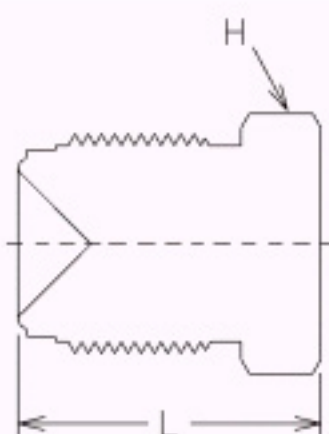
| Size | UMC Number | Hex Flat | L | D |
|------|---------------|-------------|-----|------|
| 1/4 | 4GFNSS | 3/4 | .81 | .360 |
| 3/8 | 6GFNSS | 1-1/16 | .81 | .360 |
| 1/2 | 8GFNSS | 1-1/16 | .81 | .360 |

GASKETS WITH RETAINERS



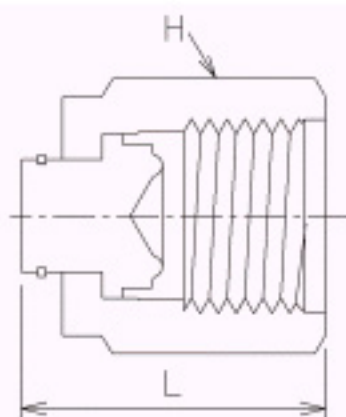
| Size | UMC Number | Thickness T | O.D. A | I.D. B |
|------|---------------|----------------|-----------|-----------|
| 1/4 | 4GRPSS | .030 | .460 | .230 |
| 3/8 | 6GRPSS | 1-1/16 | .780 | .500 |
| 1/2 | 8GRPSS | 1-1/16 | .780 | .500 |

PLUGS



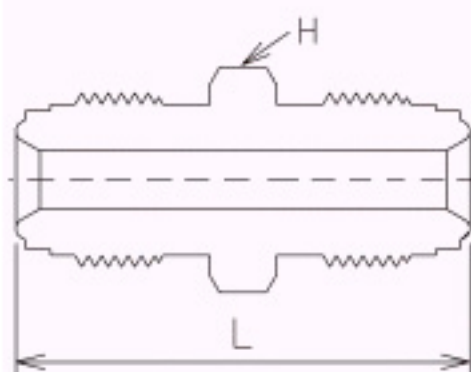
| Size | UMC Number | H Hex Flat | L |
|------|-----------------|------------|-------|
| 1/4 | 4GMPLG | 5/8 | .930 |
| 1/4 | 4GMPLGS(SWIVEL) | 5/8 | 1.012 |
| 1/2 | 8GMPLG | 1 | 1.060 |

CAPS



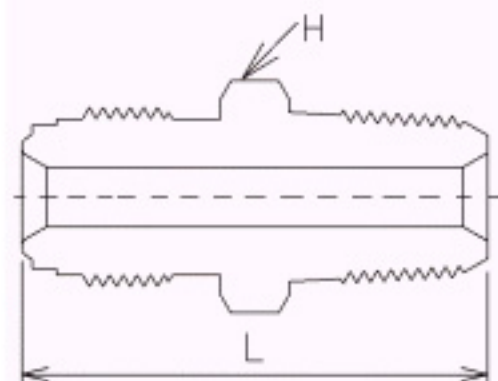
| Size | UMC Number | H Hex Flat | L |
|------|------------|------------|-------|
| 1/4 | 4GFNCP | 3/4 | .930 |
| 1/2 | 8GFNCP | 1-1/16 | 1.000 |

DOUBLE MALE UNIONS



| Size | UMC Number | H Hex Flat | L | ID |
|------|------------|------------|-------|------|
| 1/4 | 50-4GM | 5/8 | 1.550 | .180 |
| 1/2 | 50-8GM | 15/16 | 1.840 | .400 |

MALE CONNECTORS



| Face Seal | Pipe Size | UMC Number | H Hex Flat | L | ID |
|-----------|-----------|------------|------------|-------|------|
| 1/4 | 1/4 | 50-44GMNT | 5/8 | 1.550 | .180 |
| 1/2 | 3/8 | 50-86GMNT | 15/16 | 1.840 | .400 |
| 1/2 | 1/2 | 50-88GMNT | 15/16 | 1.840 | .400 |

*We also provide fittings to your specific material, size and surface requirement

UMC



CYLINDER CONNECTIONS

WARNING

FITTINGS OR OTHER COMPONENTS FUNCTION, PROPER INSTALLATION, MATERIALS COMPATIBILITY, ADEQUATE RATINGS, OPERATION AND MAINTENANCE ARE THE RESPONSIBILITY OF THE SYSTEM DESIGNER AND USER.

PRODUCT FAILURE, IMPROPER SELECTION OR IMPROPER USE OF THE PRODUCTS AND/OR SYSTEMS DESCRIBED HEREIN OR RELATED ITEMS CAN CAUSE DEATH, PERSONAL INJURY AND PROPERTY DAMAGE.

GUIDELINES®

The following guidelines are recommended for the proper functioning and the maximum service life of the 630/710 series of connections. Failure to follow these guidelines may adversely affect the sealing of the connection and its useful life.

1. An annealed nickel 200 gasket is the recommended metal sealing gasket (maximum hardness 100 brinell). A new gasket should be installed at each use. Used gaskets may cause damage to the toroids.

Note: Polymeric gaskets such as KEL-F 81 can be used if they do not compromise the leak integrity of the connection, and are compatible with the lading.

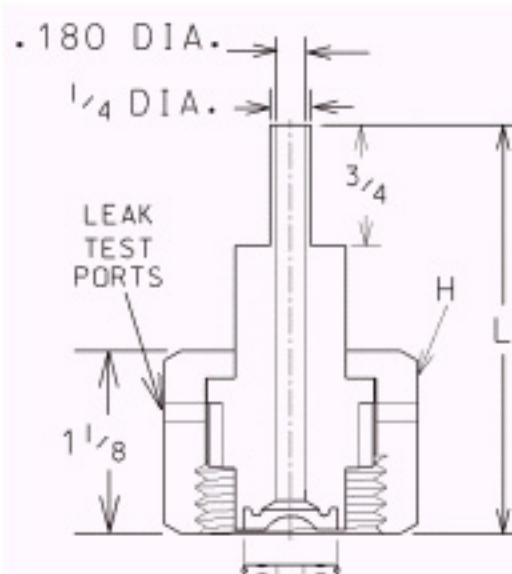
2. Use only gaskets designed for connections 630/710. The entire series utilizes the same size gasket.
3. Keep new gaskets in their protective packaging until installed.
4. Insert a gasket into the nipple by compressing its retaining clip and sliding the gasket into the nipple so that the open ends of the retaining clip are opposite the thumb notch access in the nipple.
5. Inspect the threads and sealing surfaces prior to each use. Do not connect parts which appear to be damaged.
6. 630/710 connections are stamped with their CGA numbers. Always match these components before attempting to assemble.
7. Anti-rotational slots in the valves and keys on the nipples are meant only to prevent rotation between sealing surfaces during assembly, when the normal clockwise tightening torque is applied to the CGA 630/710 nut. Torque applied directly to the nipple during or after make-up may damage the valve connection.
8. Check before assembly that the gasket is retained by its clip in the nipple recess. Do not try to make a connection without a gasket. If back-purging is used prior to or during assembly, the gasket may be dislodged. To avoid this problem, minimal flows should be used when back-purging.
9. Only use connecting nipples that have the anti-rotation device. This also applies to gas tight outlet caps when using metal gaskets.
10. When removing gaskets, always use the notch provided. This will minimize the potential damage to the toroids in the nipple.
- 11 **Always** use a torque wrench when tightening CGA 630/710 connections. The recommended torque value for these connections with a nickel 200 gasket is 35ft-lbs. Excessive torque will damage the connection and possibly result in a hazardous condition.

NOTE: A torque value of 12ft-lbs is recommended for KEL-F 81 gaskets.

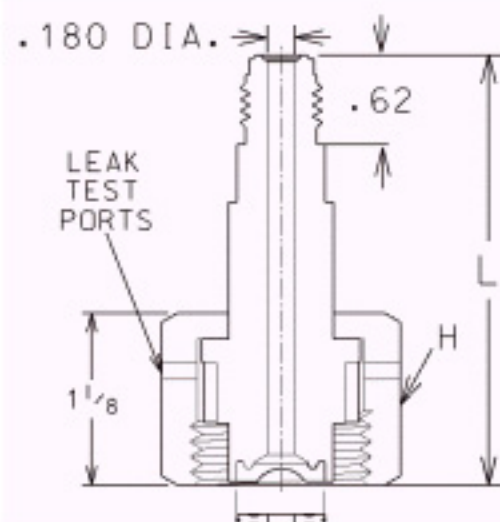
12. A made-up connection should be pressurized with inert gas and leak tested (using a suitable leak detector) prior to being put in service. If a leak is detected, the connection should be depressurized and remade using a new gasket at the recommended torque. Do not attempt to increase the torque in an effort to achieve a seal. If the leak is detected after the procedure has been repeated, the connection is to be considered damaged. Contact your gas supplier for further assistance.

UHP CGA INLET CONNECTIONS (Nut, Nipple and Gasket)

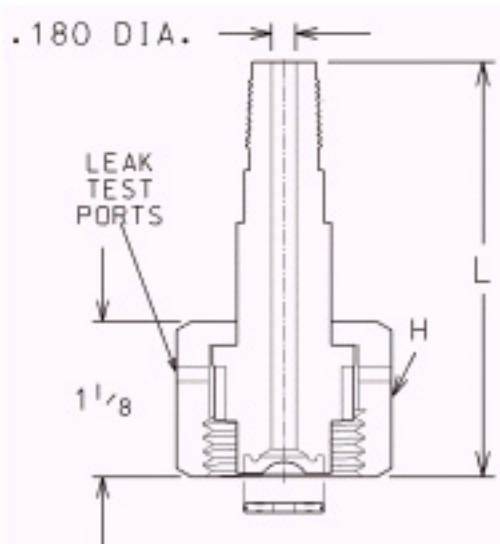
Auto Tube Weld



Face Seal Male



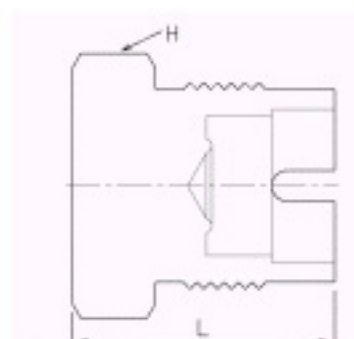
NPT Male



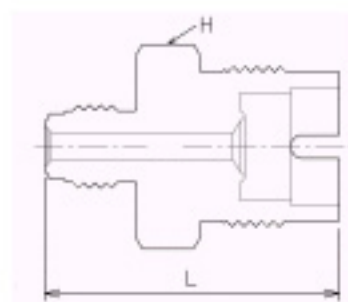
| CGA Number | End Connection | UMC Number | L Overall Length | H Hex Flat | Internal Surface Finish | Gasket Material |
|------------|---------------------|-------------|------------------|------------|-------------------------|-----------------|
| 632 | 1/4" Auto Tube Weld | 64-632-4TV6 | 2.50" | 1-1/4" | 10Ra EP | Nickel |
| | 1/4" Face Seal Male | 64-632-4GM6 | 3.00" | | | |
| | 1/4" NPT Male | 64-632-4NT6 | 3.00" | | | |
| 634 | 1/4" Auto Tube Weld | 64-634-4TV6 | 2.50" | 1-1/4" | 10Ra EP | Nickel |
| | 1/4" Face Seal Male | 64-634-4GM6 | 3.00" | | | |
| | 1/4" NPT Male | 64-634-4NT6 | 3.00" | | | |
| 636 | 1/4" Auto Tube Weld | 64-636-4TV6 | 2.50" | 1-1/4" | 10Ra EP | Nickel |
| | 1/4" Face Seal Male | 64-636-4GM6 | 3.00" | | | |
| | 1/4" NPT Male | 64-636-4NT6 | 3.00" | | | |
| 638 | 1/4" Auto Tube Weld | 64-638-4TV6 | 2.50" | 1-1/4" | 10Ra EP | Nickel |
| | 1/4" Face Seal Male | 64-638-4GM6 | 3.00" | | | |
| | 1/4" NPT Male | 64-638-4NT6 | 3.00" | | | |
| 640 | 1/4" Auto Tube Weld | 64-640-4TV6 | 2.50" | 1-1/4" | 10Ra EP | Nickel |
| | 1/4" Face Seal Male | 64-640-4GM6 | 3.00" | | | |
| | 1/4" NPT Male | 64-640-4NT6 | 3.00" | | | |
| 642 | 1/4" Auto Tube Weld | 64-642-4TV6 | 2.50" | 1-1/4" | 10Ra EP | Nickel |
| | 1/4" Face Seal Male | 64-642-4GM6 | 3.00" | | | |
| | 1/4" NPT Male | 64-642-4NT6 | 3.00" | | | |
| 712 | 1/4" Auto Tube Weld | 64-712-4TV6 | 2.50" | 1-3/8" | 10Ra EP | Nickel |
| | 1/4" Face Seal Male | 64-712-4GM6 | 3.00" | | | |
| | 1/4" NPT Male | 64-712-4NT6 | 3.00" | | | |
| 714 | 1/4" Auto Tube Weld | 64-714-4TV6 | 2.50" | 1-3/8" | 10Ra EP | Nickel |
| | 1/4" Face Seal Male | 64-714-4GM6 | 3.00" | | | |
| | 1/4" NPT Male | 64-714-4NT6 | 3.00" | | | |
| 716 | 1/4" Auto Tube Weld | 64-716-4TV6 | 2.50" | 1-3/8" | 10Ra EP | Nickel |
| | 1/4" Face Seal Male | 64-716-4GM6 | 3.00" | | | |
| | 1/4" NPT Male | 64-716-4NT6 | 3.00" | | | |
| 718 | 1/4" Auto Tube Weld | 64-718-4TV6 | 2.50" | 1-3/8" | 10Ra EP | Nickel |
| | 1/4" Face Seal Male | 64-718-4GM6 | 3.00" | | | |
| | 1/4" NPT Male | 64-718-4NT6 | 3.00" | | | |
| 720 | 1/4" Auto Tube Weld | 64-720-4TV6 | 2.50" | 1-3/8" | 10Ra EP | Nickel |
| | 1/4" Face Seal Male | 64-720-4GM6 | 3.00" | | | |
| | 1/4" NPT Male | 64-720-4NT6 | 3.00" | | | |
| 722 | 1/4" Auto Tube Weld | 64-722-4TV6 | 2.50" | 1-3/8" | 10Ra EP | Nickel |
| | 1/4" Face Seal Male | 64-722-4GM6 | 3.00" | | | |
| | 1/4" NPT Male | 64-722-4NT6 | 3.00" | | | |
| 724 | 1/4" Auto Tube Weld | 64-724-4TV6 | 2.50" | 1-3/8" | 10Ra EP | Nickel |
| | 1/4" Face Seal Male | 64-724-4GM6 | 3.00" | | | |
| | 1/4" NPT Male | 64-724-4NT6 | 3.00" | | | |
| 726 | 1/4" Auto Tube Weld | 64-726-4TV6 | 2.50" | 1-3/8" | 10Ra EP | Nickel |
| | 1/4" Face Seal Male | 64-726-4GM6 | 3.00" | | | |
| | 1/4" NPT Male | 64-726-4NT6 | 3.00" | | | |
| 728 | 1/4" Auto Tube Weld | 64-728-4TV6 | 2.50" | 1-3/8" | 10Ra EP | Nickel |
| | 1/4" Face Seal Male | 64-728-4GM6 | 3.00" | | | |
| | 1/4" NPT Male | 64-728-4NT6 | 3.00" | | | |

UHP CGA OUTLET ADAPTORS AND BLANK PLUGS

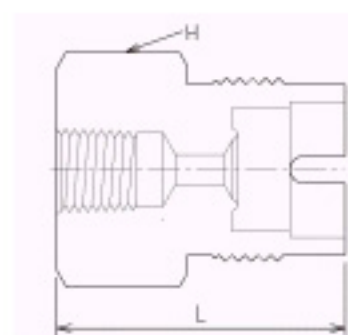
Blank Plug



Face Seal Male

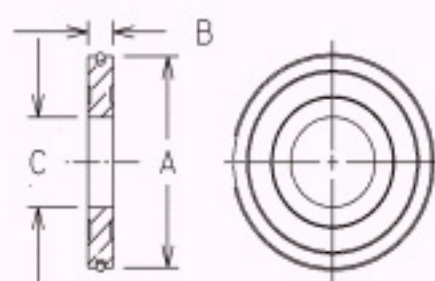


NPT Female



| CGA Number | End Connection | UMC Number | L Overall Length | H Hex Flat |
|------------|---------------------|--------------|------------------|------------|
| 632 | Blank Plug | 67-63MXX-6 | 1.53" | 1-1/8" |
| | 1/4" Face Seal Male | 67-632M4GM-6 | 2.00" | |
| | 1/4" NPT Female | 67-632M4F-6 | 1.85" | |
| 634 | Blank Plug | 67-63MXX-6 | 1.53" | 1-1/8" |
| | 1/4" Face Seal Male | 67-634M4GM-6 | 2.00" | |
| | 1/4" NPT Female | 67-634M4F-6 | 1.85" | |
| 636 | Blank Plug | 67-63MXX-6 | 1.53" | 1-1/8" |
| | 1/4" Face Seal Male | 67-636M4GM-6 | 2.00" | |
| | 1/4" NPT Female | 67-636M4F-6 | 1.85" | |
| 638 | Blank Plug | 67-63MXX-6 | 1.53" | 1-1/8" |
| | 1/4" Face Seal Male | 67-638M4GM-6 | 2.00" | |
| | 1/4" NPT Female | 67-638M4F-6 | 1.85" | |
| 640 | Blank Plug | 67-63MXX-6 | 1.53" | 1-1/8" |
| | 1/4" Face Seal Male | 67-640M4GM-6 | 2.00" | |
| | 1/4" NPT Female | 67-640M4F-6 | 1.85" | |
| 642 | Blank Plug | 67-63MXX-6 | 1.53" | 1-1/8" |
| | 1/4" Face Seal Male | 67-642M4GM-6 | 2.00" | |
| | 1/4" NPT Female | 67-642M4F-6 | 1.85" | |
| 712 | Blank Plug | 67-71MXX-6 | 1.53" | 1-1/4" |
| | 1/4" Face Seal Male | 67-712M4GM-6 | 2.00" | |
| | 1/4" NPT Female | 67-712M4F-6 | 1.85" | |
| 714 | Blank Plug | 67-71MXX-6 | 1.53" | 1-1/4" |
| | 1/4" Face Seal Male | 67-714M4GM-6 | 2.00" | |
| | 1/4" NPT Female | 67-714M4F-6 | 1.85" | |
| 716 | Blank Plug | 67-71MXX-6 | 1.53" | 1-1/4" |
| | 1/4" Face Seal Male | 67-716M4GM-6 | 2.00" | |
| | 1/4" NPT Female | 67-716M4F-6 | 1.85" | |
| 718 | Blank Plug | 67-71MXX-6 | 1.53" | 1-1/4" |
| | 1/4" Face Seal Male | 67-718M4GM-6 | 2.00" | |
| | 1/4" NPT Female | 67-718M4F-6 | 1.85" | |
| 720 | Blank Plug | 67-72MXX-6 | 1.53" | 1-1/4" |
| | 1/4" Face Seal Male | 67-720M4GM-6 | 2.00" | |
| | 1/4" NPT Female | 67-720M4F-6 | 1.85" | |
| 722 | Blank Plug | 67-72MXX-6 | 1.53" | 1-1/4" |
| | 1/4" Face Seal Male | 67-722M4GM-6 | 2.00" | |
| | 1/4" NPT Female | 67-722M4F-6 | 1.85" | |
| 724 | Blank Plug | 67-72MXX-6 | 1.53" | 1-1/4" |
| | 1/4" Face Seal Male | 67-724M4GM-6 | 2.00" | |
| | 1/4" NPT Female | 67-724M4F-6 | 1.85" | |
| 726 | Blank Plug | 67-726MXX-6 | 1.53" | 1-1/4" |
| | 1/4" Face Seal Male | 67-726M4GM-6 | 2.00" | |
| | 1/4" NPT Female | 67-726M4F-6 | 1.85" | |
| 728 | Blank Plug | 67-728MXX-6 | 1.53" | 1-1/4" |
| | 1/4" Face Seal Male | 67-728M4GM-6 | 2.00" | |
| | 1/4" NPT Female | 67-728M4F-6 | 1.85" | |

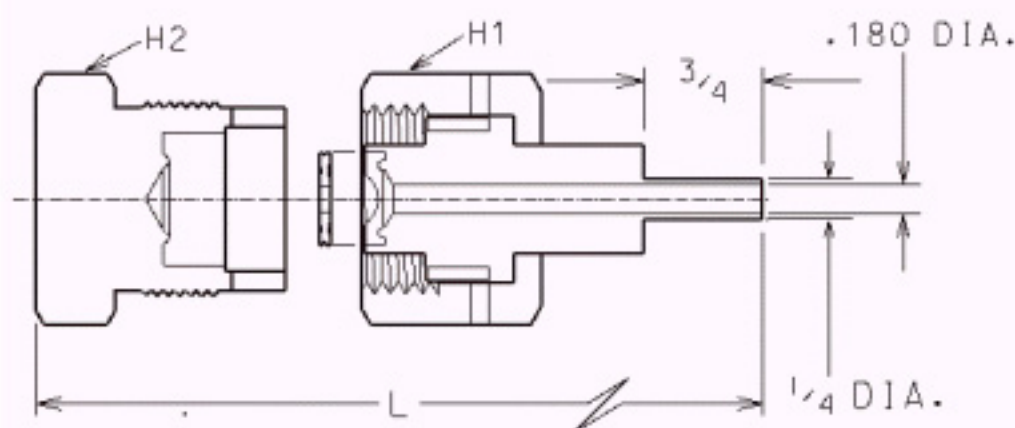
DISS GASKETS (FOR ULTRA HIGH INTEGRITY GAS SERVICE)



| Material | UMC Number | A | B | C |
|------------|------------|------|-------|------|
| Nickel 200 | 60-63-NI | .56" | .105" | .21" |
| Kel - F® | 60-63-K | .56" | .105" | .21" |

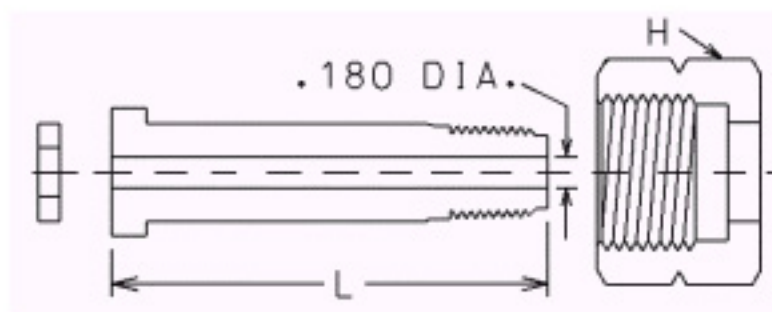
COMPLETE UHP CGA PIGTAIL CONNECTIONS

(Nut , Automatic Tube Weld Nipple , Gasket and Blank Plug)

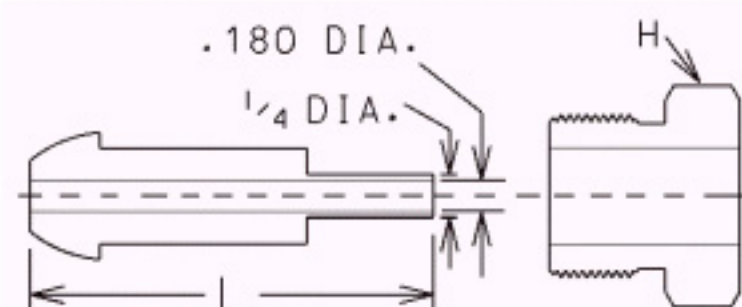


| CGA Number | UMC Number | L Overall Length | H1 Hex Flat | H2 Hex Flat | Internal Surface Finish | Gasket Material |
|------------|-------------|------------------|-------------|-------------|-------------------------|-----------------|
| 632 | 68-632-4TW6 | 3.40" | 1-1/4" | 1-1/8" | 10Ra EP | Nickel |
| 634 | 68-634-4TW6 | 3.40" | 1-1/4" | 1-1/8" | 10Ra EP | Nickel |
| 636 | 68-636-4TW6 | 3.40" | 1-1/4" | 1-1/8" | 10Ra EP | Nickel |
| 638 | 68-638-4TW6 | 3.40" | 1-1/4" | 1-1/8" | 10Ra EP | Nickel |
| 640 | 68-640-4TW6 | 3.40" | 1-1/4" | 1-1/8" | 10Ra EP | Nickel |
| 642 | 68-642-4TW6 | 3.40" | 1-1/4" | 1-1/8" | 10Ra EP | Nickel |
| 712 | 68-712-4TW6 | 3.40" | 1-3/8" | 1-1/4" | 10Ra EP | Nickel |
| 714 | 68-714-4TW6 | 3.40" | 1-3/8" | 1-1/4" | 10Ra EP | Nickel |
| 716 | 68-716-4TW6 | 3.40" | 1-3/8" | 1-1/4" | 10Ra EP | Nickel |
| 718 | 68-718-4TW6 | 3.40" | 1-3/8" | 1-1/4" | 10Ra EP | Nickel |
| 720 | 68-720-4TW6 | 3.40" | 1-3/8" | 1-1/4" | 10Ra EP | Nickel |
| 722 | 68-722-4TW6 | 3.40" | 1-3/8" | 1-1/4" | 10Ra EP | Nickel |
| 724 | 68-724-4TW6 | 3.40" | 1-3/8" | 1-1/4" | 10Ra EP | Nickel |
| 726 | 68-726-4TW6 | 3.40" | 1-3/8" | 1-1/4" | 10Ra EP | Nickel |
| 728 | 68-728-4TW6 | 3.40" | 1-3/8" | 1-1/4" | 10Ra EP | Nickel |

CGA INLET CONNECTION COMPONENTS



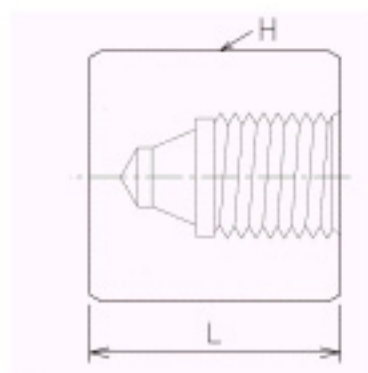
| CGA Number | End Connection | L Overall Length | Internal Surface Finish | UMC Nipple | UMC Nut | H Hex Flat |
|------------|---------------------|------------------|-------------------------|--------------------------------------|----------------------|------------|
| 170 | 1/4" Auto Tube Weld | 1-1/4" | 10Ra 10Ra EP | 66-170-4TVW6-20B 66-170-4TVW6-20P | 65-170-3 65-170-3 | 11/16" |
| | 1/8" NPT Male | 1-1/4" | 32Ra | 66-170-2NT6-20B | 65-170-3 | |
| 180 | 1/4" Auto Tube Weld | 1-1/4" | 10Ra 10Ra EP | 66-180-4TVW6-20B 66-180-4TVW6-20P | 65-180-3 65-180-3 | 3/4" |
| | 1/8" NPT Male | 1-3/4" | 32Ra | 66-180-2NT6-28B | 65-180-3 | |
| 290 | 1/4" Auto Tube Weld | 2-5/8" | 10Ra 10Ra EP | 66-290-4TVW6-42B 66-290-4TVW6-42P | 65-290-3 65-290-3 | 1" |
| | 1/4" NPT Male | 2.5" | 32Ra | 66-290-4NT6-40 | 65-290-3 | |
| 296 | 1/4" Auto Tube Weld | 2-5/8" | 10Ra 10Ra EP | 66-296-4TVW6-42B 66-296-4TVW6-42P | 65-296-3 65-296-3 | 7/8" |
| | 1/4" Face Seal Male | 2-3/4" | 10Ra 10Ra EP | 66-296-4GM6-44 66-296-4GM6-44P | 65-296-3 65-296-3 | |
| | 1/4" NPT Male | 2.5" (3.5") | 32Ra | 66-296-4NT6-40 (56) | 65-296-3 | |
| 320 | 1/4" Auto Tube Weld | 1-3/4" | 10Ra 10Ra EP | 66-32-4TVW6-28B 66-32-4TVW6-28P | 65-320-3 65-320-3 | 1-1/8" |
| | 1/4" Face Seal Male | 1-3/4" | 10Ra 10Ra EP | 66-32-4GM6-28 66-32-4GM6-28P | 65-320-3 65-320-3 | |
| | 1/4" NPT Male | 2.5" (3.5") | 32Ra | 66-32-4NT6-40 (56) | 65-320-3 | |
| 326 | 1/4" Auto Tube Weld | 2-1/2" | 10Ra 10Ra EP | 66-326-4TVW6-36B 66-326-4TVW6-36P | 65-326-3 65-326-3 | 1-1/8" |
| | 1/4" Face Seal Male | 2-1/4" | 10Ra 10Ra EP | 66-326-4GM6-36 66-326-4GM6-P | 65-326-3 65-326-3 | |
| | 1/4" NPT Male | 2.5" (3.5") | 32Ra | 66-326-4NT6-40 (56) | 65-326-3 | |
| 330 | 1/4" Auto Tube Weld | 1-3/4" | 10Ra 10Ra EP | 66-32-4TVW6-28B 66-32-4TVW6-28P | 65-330-3 65-330-3 | 1-1/8" |
| | 1/4" Face Seal Male | 1-3/4" | 10Ra 10Ra EP | 66-32-4GM6-28 66-32-4GM6-P | 65-330-3 65-330-3 | |
| | 1/4" NPT Male | 2.5" (3.5") | 32Ra | 66-32-4NT6-40 (56) | 65-330-3 | |
| 346 | 1/4" Auto Tube Weld | 2-5/16" | 10Ra 10Ra EP | 66-346-4TVW6-37B 66-346-4TVW6-37P | 65-346-3 65-346-3 | 1-1/8" |
| | 1/4" Face Seal Male | 2-1/4" | 10Ra 10Ra EP | 66-346-4GM6-36 66-346-4GM6-P | 65-346-3 65-346-3 | |
| | 1/4" NPT Male | 2.5" (3.5") | 32Ra | 66-346-4NT6-40 (56) | 65-346-3 | |
| 350 | 1/4" Auto Tube Weld | 2-5/16" | 10Ra 10Ra EP | 66-350-4TVW6-37B 66-350-4TVW6-37P | 65-350-3 65-350-3 | 1-1/8" |
| | 1/4" Face Seal Male | 2-1/4" | 10Ra 10Ra EP | 66-350-4GM6-36 66-350-4GM6-P | 65-350-3 65-350-3 | |
| | 1/4" NPT Male | 2.5" (3.5") | 32Ra | 66-350-4NT6-40 (56) | 65-350-3 | |



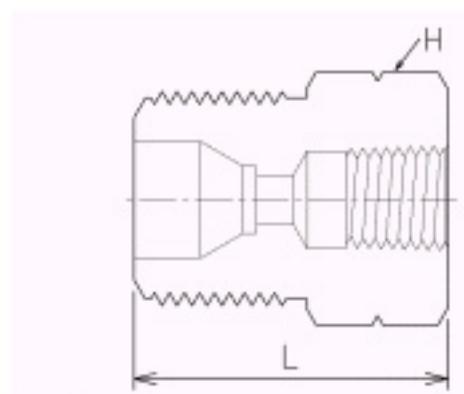
| CGA Number | End Connection | L Overall Length | Internal Surface Finish | UMC Nipple | UMC Nut | H Hex Flat |
|------------|---------------------|------------------|-------------------------|------------------------------------|----------------------|------------|
| 510* | 1/4" Auto Tube Weld | 2-5/8" | 10Ra 10Ra EP | 66-50-4TV6-42B 66-50-4TV6-42P | 65-510-3 65-510-3 | 1-1/8" |
| | 1/4" Face Seal Male | 2-3/4" | 10Ra 10Ra EP | 66-50-4GM6-44 66-50-4GM6-P | 65-510-3 65-510-3 | |
| | 1/4" NPT Male | 2.5" (3.5") | 32Ra | 66-50-4NT6-40 (56) | 65-510-3 | |
| 540 | 1/4" Auto Tube Weld | 2-1/4" | 10Ra 10Ra EP | 66-54-4TV6-36B 66-54-4TV6-36P | 65-540-3 65-540-3 | 1-1/8" |
| | 1/4" Face Seal Male | 2-1/4" | 10Ra 10Ra EP | 66-54-4GM6-36 66-54-4GM6-P | 65-540-3 65-540-3 | |
| | 1/4" NPT Male | 2.5" (3.5") | 32Ra | 66-54-4NT6-40 (56) | 65-540-3 | |
| 580* | 1/4" Auto Tube Weld | 2-5/8" | 10Ra 10Ra EP | 66-50-4TV6-42B 66-50-4TV6-42P | 65-580-3 65-580-3 | 1-1/8" |
| | 1/4" Face Seal Male | 2-3/4" | 10Ra 10Ra EP | 66-50-4GM6-44 66-50-4GM6-P | 65-580-3 65-580-3 | |
| | 1/4" NPT Male | 2.5" (3.5") | 32Ra | 66-50-4NT6-40 (56) | 65-580-3 | |
| 590* | 1/4" Auto Tube Weld | 2-5/8" | 10Ra 10Ra EP | 66-50-4TV6-42B 66-50-4TV6-42P | 65-590-3 65-590-3 | 1-1/8" |
| | 1/4" Face Seal Male | 2-3/4" | 10Ra 10Ra EP | 66-50-4GM6-44 66-50-4GM6-P | 65-590-3 65-590-3 | |
| | 1/4" NPT Male | 2.5" (3.5") | 32Ra | 66-50-4NT6-40 (56) | 65-590-3 | |
| 660 | 1/4" Auto Tube Weld | 2-3/16" | 10Ra 10Ra EP | 66-60-4TV6-35B 66-60-4TV6-35P | 65-660-3 65-660-3 | 1-1/4" |
| | 1/4" Face Seal Male | 1-7/8" | 10Ra 10Ra EP | 66-60-4GM6-30 66-60-4GM6-P | 65-660-3 65-660-3 | |
| | 1/4" NPT Male | 2.5" (3.5") | 32Ra | 66-60-4NT6-40 (56) | 65-660-3 | |
| 670 | 1/4" Auto Tube Weld | 2-3/16" | 10Ra 10Ra EP | 66-60-4TV6-35B 66-60-4TV6-35P | 65-670-3 65-670-3 | 1-1/4" |
| | 1/4" Face Seal Male | 1-7/8" | 10Ra 10Ra EP | 66-60-4GM6-30 66-60-4GM6-P | 65-670-3 65-670-3 | |
| | 1/4" NPT Male | 2.5" (3.5") | 32Ra | 66-60-4NT6-40 (56) | 65-670-3 | |
| 678 | 1/4" Auto Tube Weld | 2-1/2" | 10Ra 10Ra EP | 66-678-4TV6-40B 66-678-4TV6-40P | 65-678-3 65-678-3 | 1-1/4" |
| | 1/4" Face Seal Male | 2" | 10Ra 10Ra EP | 66-678-4GM6-32 66-678-4GM6-P | 65-678-3 65-678-3 | |
| | 1/4" NPT Male | 2.5" (3.5") | 32Ra | 66-678-4NT6-40 (56) | 65-678-3 | |
| 679 | 1/4" Auto Tube Weld | 2-1/2" | 10Ra 10Ra EP | 66-679-4TV6-40B 66-679-4TV6-40P | 65-679-3 65-679-3 | 1-1/4" |
| | 1/4" Face Seal Male | 2" | 10Ra 10Ra EP | 66-679-4GM6-32 66-679-4GM6-P | 65-679-3 65-679-3 | |
| | 1/4" NPT Male | 2.5" (3.5") | 32Ra | 66-679-4NT6-40 (56) | 65-679-3 | |

CGA OUTLET ADAPTORS, BLANK CAPS AND PLUGS

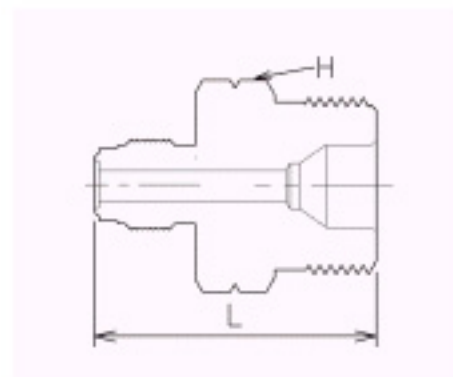
Blank Cap



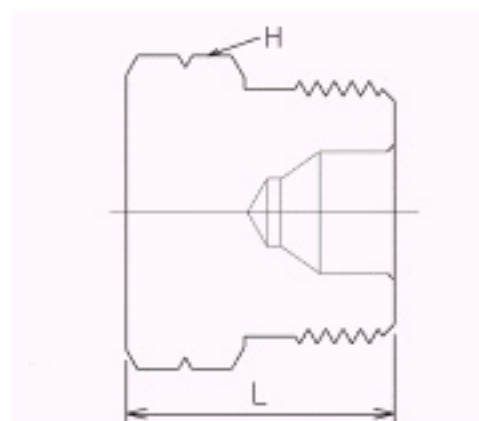
Blank Plug



Face Seal Male



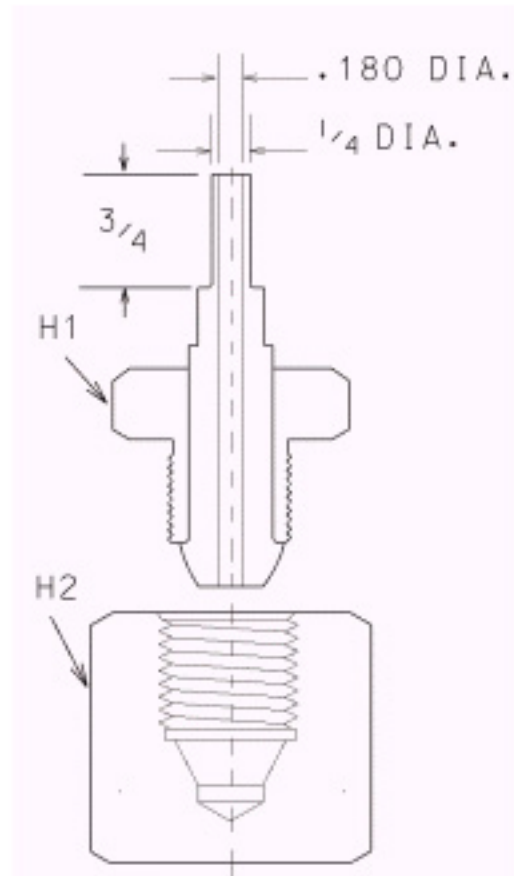
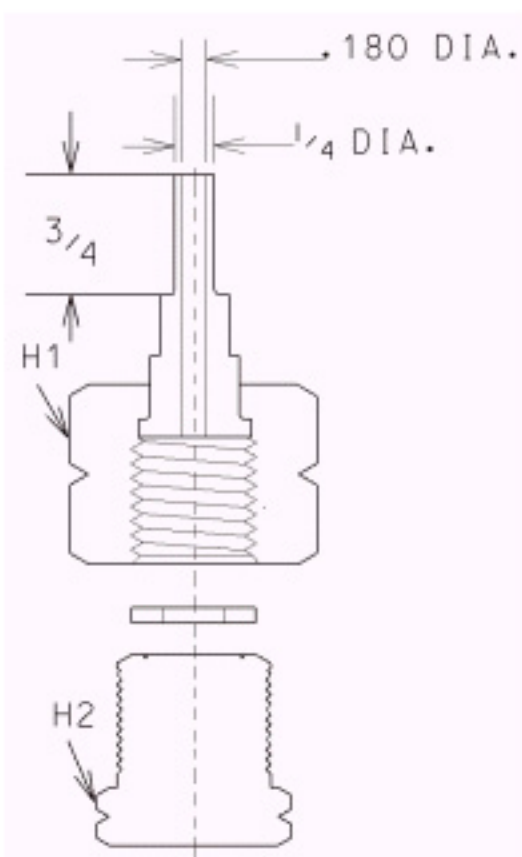
NPT Female



| CGA Number | End Connection | UMC Number | L Overall Length | H Hex Flat |
|------------|---------------------|--------------|------------------|------------|
| 296 | Blank Cap | 67-296FXX-3 | 1.37" | 1-1/8" |
| | 1/4" Face Seal Male | 67-296F4GM-6 | 2.00" | |
| | 1/4" NPT Female | 67-296F4F-6 | 2.00" | |
| 320 | Blank Plug | 67-320MXX-3 | 1.12" | 1" |
| | 1/4" Face Seal Male | 67-320M4GM-6 | 1.74" | |
| | 1/4" NPT Female | 67-320M4F-6 | 1.12" | |
| 326 | Blank Plug | 67-326MXX-3 | 1.12" | 1" |
| | 1/4" Face Seal Male | 67-326M4GM-6 | 1.74" | |
| | 1/4" NPT Female | 67-326M4F-6 | 1.31" | |
| 330 | Blank Plug | 67-330MXX-3 | 1.12" | 1" |
| | 1/4" Face Seal Male | 67-330M4GM-6 | 1.74" | |
| | 1/4" NPT Female | 67-330M4F-6 | 1.31" | |
| 346 | Blank Plug | 67-346MXX-3 | 1.12" | 1" |
| | 1/4" Face Seal Male | 67-346M4GM-6 | 1.88" | |
| | 1/4" NPT Female | 67-346M4F-6 | 1.31" | |
| 350 | Blank Plug | 67-350MXX-3 | 1.12" | 1" |
| | 1/4" Face Seal Male | 67-350M4GM-6 | 1.88" | |
| | 1/4" NPT Female | 67-350M4F-6 | 1.31" | |
| 510 | Blank Cap | 67-510FXX-3 | 1.37" | 1-1/4" |
| | 1/4" Face Seal Male | 67-510F4GM-6 | 2.00" | |
| | 1/4" NPT Female | 67-510F4F-6 | 2.00" | |
| 540 | Blank Plug | 67-540MXX-3 | 1.12" | 1" |
| | 1/4" Face Seal Male | 67-540M4GM-6 | 1.87" | |
| | 1/4" NPT Female | 67-540M4F-6 | 1.25" | |
| 580 | Blank Cap | 67-580FXX-3 | 1.37" | 1-1/4" |
| | 1/4" Face Seal Male | 67-580F4GM-6 | 2.00" | |
| | 1/4" NPT Female | 67-580F4F-6 | 2.00" | |
| 590 | Blank Cap | 67-590FXX-3 | 1.37" | 1-1/4" |
| | 1/4" Face Seal Male | 67-590F4GM-6 | 2.00" | |
| | 1/4" NPT Female | 67-590F4F-6 | 2.00" | |
| 660 | Blank Plug | 67-660MXX-3 | 0.88" | 1-1/8" |
| | 1/4" Face Seal Male | 67-660M4GM-6 | 1.50" | |
| | 1/4" NPT Female | 67-660M4F-6 | 1.25" | |
| 670 | Blank Plug | 67-670MXX-3 | 0.88" | 1-1/8" |
| | 1/4" Face Seal Male | 67-670M4GM-6 | 1.50" | |
| | 1/4" NPT Female | 67-670M4F-6 | 1.25" | |
| 678 | Blank Plug | 67-678MXX-3 | 1.00" | 1-1/8" |
| | 1/4" Face Seal Male | 67-678M4GM-6 | 1.50" | |
| | 1/4" NPT Female | 67-678M4F-6 | 1.38" | |
| 679 | Blank Plug | 67-679MXX-3 | 0.88" | 1-1/8" |
| | 1/4" Face Seal Male | 67-679M4GM-6 | 1.75" | |
| | 1/4" NPT Female | 67-679M4F-6 | 1.25" | |

CGA PIGTAIL CONNECTIONS

Includes: Nut, Automatic Tube Weld Nipple, Washer and Blank Plug or Cap

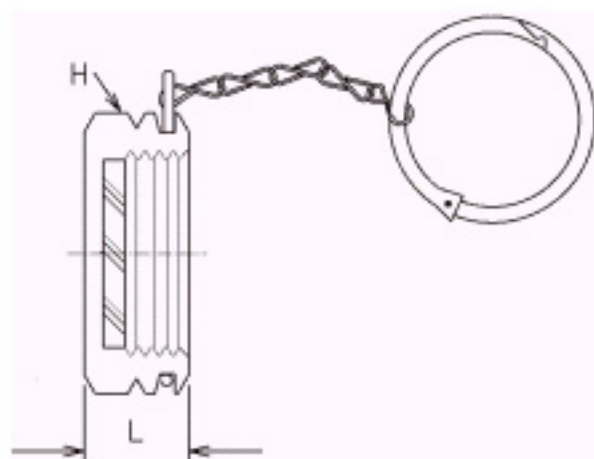


| CGA Number | UMC Number | H1 Hex Flat | H2 Hex Flat | Internal Surface Finish |
|------------|--------------|-------------|-------------|-------------------------|
| 296 | 68-296-4TV6P | 7/8" | 1-1/8" | 10Ra EP |
| 320 | 68-320-4TV6P | 1-1/8" | 1" | 10Ra EP |
| 326 | 68-326-4TV6P | 1-1/8" | 1" | 10Ra EP |
| 330 | 68-330-4TV6P | 1-1/8" | 1" | 10Ra EP |
| 346 | 68-346-4TV6P | 1-1/8" | 1" | 10Ra EP |
| 350 | 68-350-4TV6P | 1-1/8" | 1" | 10Ra EP |
| 510 | 68-510-4TV6P | 1-1/8" | 1-1/4" | 10Ra EP |
| 540 | 68-540-4TV6P | 1-1/8" | 1" | 10Ra EP |
| 555 | 68-555-4TV6P | 1-1/8" | 1" | 10Ra EP |
| 580 | 68-580-4TV6P | 1-1/8" | 1-1/4" | 10Ra EP |
| 590 | 68-590-4TV6P | 1-1/8" | 1-1/4" | 10Ra EP |
| 660 | 68-660-4TV6P | 1-1/4" | 1-1/8" | 10Ra EP |
| 670 | 68-670-4TV6P | 1-1/4" | 1-1/8" | 10Ra EP |
| 678 | 68-678-4TV6P | 1-1/4" | 1-1/8" | 10Ra EP |
| 679 | 68-679-4TV6P | 1-1/4" | 1-1/8" | 10Ra EP |

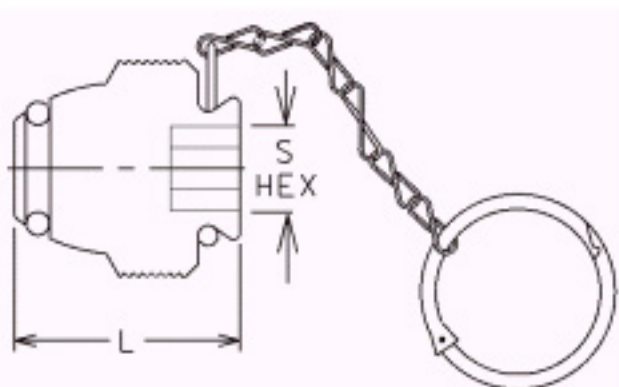
CYLINDER VALVE OUTLET CAPS AND PLUGS

Includes: Ring and Chain

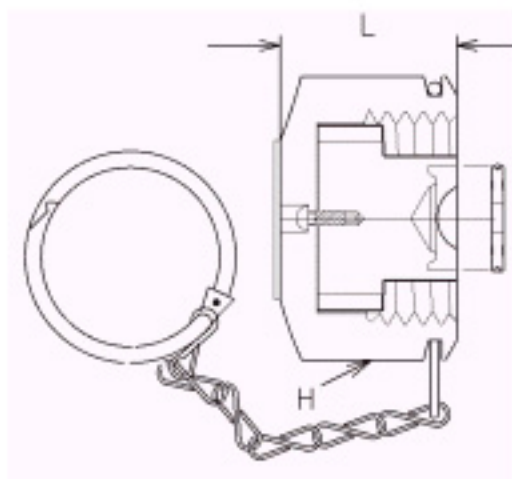
CGA Cap



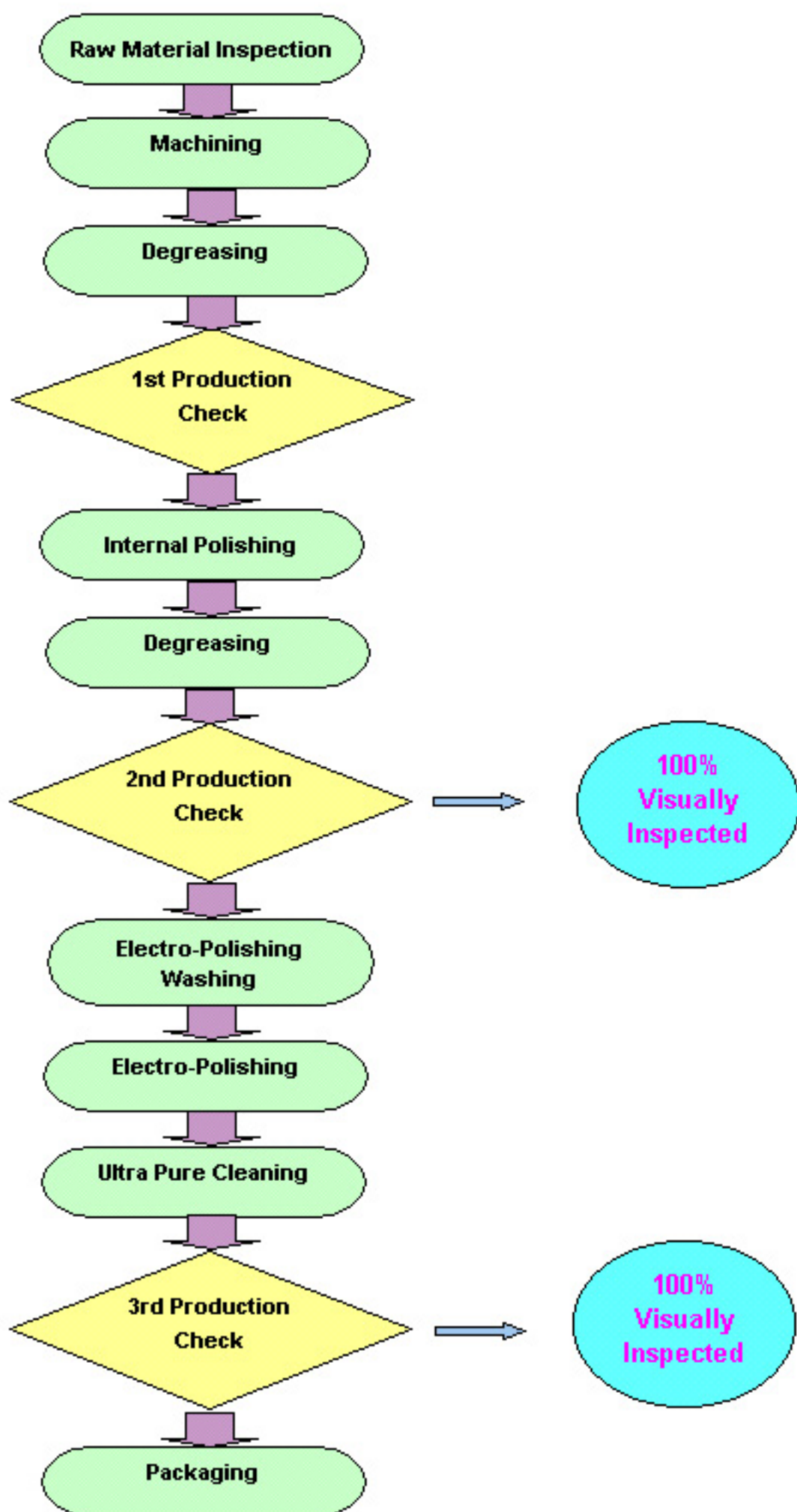
CGA Plug



UHP CGA Cap



| CGA Number | UMC Number | Material | H Hex Flat | S Hex Flat | L Length |
|------------|--------------|--|------------|------------|----------|
| 320 | 63-30C-3PD | Stainless Steel with Polyethylene disc | 1" | --- | .54" |
| 326 | 63-30C-3PD | Stainless Steel with Polyethylene disc | 1" | --- | .54" |
| 330 | 63-33C-3PD | Stainless Steel with Polyethylene disc | 1" | --- | .54" |
| 346 | 63-30C-3PD | Stainless Steel with Polyethylene disc | 1" | --- | .54" |
| 350 | 63-350C-3PD | Stainless Steel with Polyethylene disc | 1-1/8" | --- | .82" |
| 510 | 63-510P-3TR | Stainless Steel with Teflon O-Ring | --- | 3/8" | 1.00" |
| 580 | 63-580P-3TR | Stainless Steel with Teflon O-Ring | --- | 3/8" | 1.00" |
| 590 | 63-590P-3TR | Stainless Steel with Teflon O-Ring | --- | 3/8" | 1.00" |
| 632 | 63-63DIS-6NI | Stainless Steel with Nickel gasket | 1-1/4" | --- | .98" |
| 634 | 63-63DIS-6NI | Stainless Steel with Nickel gasket | 1-1/4" | --- | .98" |
| 636 | 63-63DIS-6NI | Stainless Steel with Nickel gasket | 1-1/4" | --- | .98" |
| 638 | 63-63DIS-6NI | Stainless Steel with Nickel gasket | 1-1/4" | --- | .98" |
| 640 | 63-63DIS-6NI | Stainless Steel with Nickel gasket | 1-1/4" | --- | .98" |
| 642 | 63-63DIS-6NI | Stainless Steel with Nickel gasket | 1-1/4" | --- | .98" |
| 660 | 63-660C-3PD | Stainless Steel with Polyethylene disc | 1-1/4" | --- | .54" |
| 670 | 63-67C-3PD | Stainless Steel with Polyethylene disc | 1-1/4" | --- | .54" |
| 677 | 63-67C-3PD | Stainless Steel with Polyethylene disc | 1-1/4" | --- | .54" |
| 678 | 63-67C-3PD | Stainless Steel with Polyethylene disc | 1-1/4" | --- | .54" |
| 679 | 63-67C-3PD | Stainless Steel with Polyethylene disc | 1-1/4" | --- | .54" |
| 705 | 63-705C-3PD | Stainless Steel with Polyethylene disc | 1-3/8" | --- | .54" |
| 712 | 63-71DIS-6NI | Stainless Steel with Nickel gasket | 1-3/8" | --- | .98" |
| 714 | 63-71DIS-6NI | Stainless Steel with Nickel gasket | 1-3/8" | --- | .98" |
| 716 | 63-71DIS-6NI | Stainless Steel with Nickel gasket | 1-3/8" | --- | .98" |
| 718 | 63-71DIS-6NI | Stainless Steel with Nickel gasket | 1-3/8" | --- | .98" |
| 720 | 63-71DIS-6NI | Stainless Steel with Nickel gasket | 1-3/8" | --- | .98" |
| 722 | 63-71DIS-6NI | Stainless Steel with Nickel gasket | 1-3/8" | --- | .98" |
| 724 | 63-71DIS-6NI | Stainless Steel with Nickel gasket | 1-3/8" | --- | .98" |
| 726 | 63-71DIS-6NI | Stainless Steel with Nickel gasket | 1-3/8" | --- | .98" |
| 728 | 63-71DIS-6NI | Stainless Steel with Nickel gasket | 1-3/8" | --- | .98" |

TECHNICAL INFORMATION

After CNC machining, cleaning and electropolishing, all components are ultrasonic cleaned, rinsed and boiled with 18 Megohm D.I water, and blow dried at 250°F and purged with filtered hot N₂ gas prior to packaging.

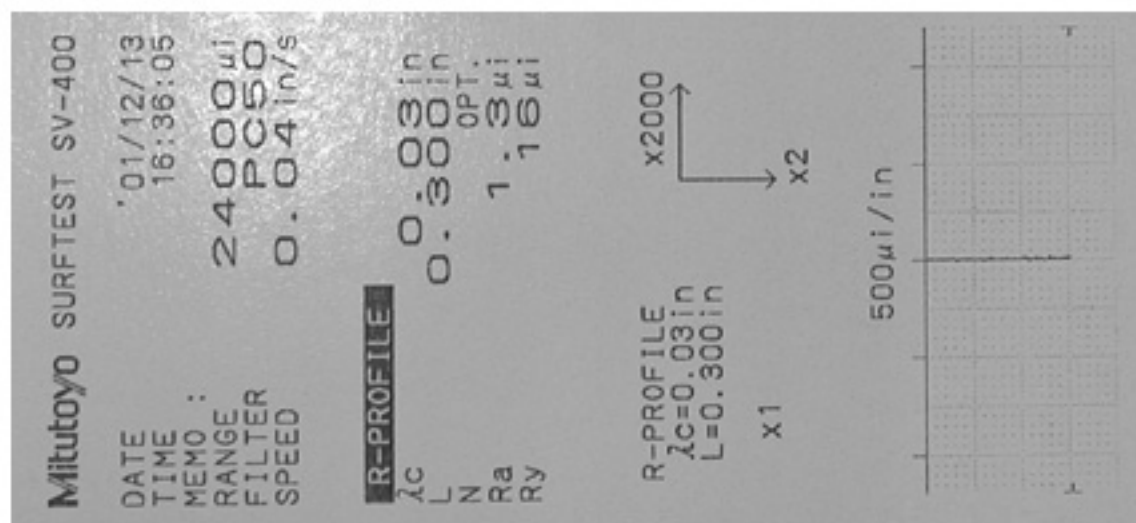
SURFACE FINISHES

Electropolishing by UMC produce surfaces with a precision level of $\leq 5Ra$.

ID surface profile before UMC EP-process:



ID surface profile after UMC EP-Process:



HELIUM LEAK RATES

UMC fittings are rated at 10^{-11} atm cc/sec.

PRESSURE

For 1/4" it is 5,000 PSI with standard specifications

United Manufacturing Corp.

How to order

4

EL

M

X

SS

SIZE: _____

4 = 1/4" X 16

6 = 3/8" X 16

8 = 1/2" X 16

PRODUCT CODE: _____

EL = ELBOW

TE = TEE

GFN = GLAND FEMALE NUT

GMN = GLAND MALE NUT

GR = GASKET & RETAINER

RU = REDUCING UNION

RT = REDUCING TEE

REL = REDUCING ELBOW

SG = SHORT GLAND

LG = LONG GLAND

CX = CROSS

TRI = TRIBOW

PG = PLUG

CP = CAP

LENGTH: _____

M = MINI

S = SHORT

L = LONG

EP PROCESS: _____

X = WITHOUT ELECTROPOLISH, P= WITH ELECTROPOLISH

MATERIAL: _____

NONE = 316L VIM/VAR, SS = 316L SS, 6V = 316L VAR, NI = NICKLE

CGA CONNECTIONS:

60 =CGA GASKETS

63 =CGA,DISS CYLINDER VALVE OUTLET CAPS AND PLUGS

64 =CGA, DISS INLET CONNECTIONS

65 =CGA INLET NUT

66=CGA INLET NIPPLES

67=CGA AND DISS OUTLET ADAPTORS

68=COMPLETE UHP INLET CONNECTIONS

UMC continually qualifies surface chemistry conditions on all electropolished ID product. Quality control utilizes test methods written and published by **SEMATECH**. Testing is performed by an independent test laboratories.

SURFACE CHEMISTRY CONDITIONS OF UMC ELECTROPOLISHED COMPONENTS

| TEST | ITEM (TEST METHOD) | SEMI SPECIFICATION | UMC ACTUAL |
|------------------|---|-----------------------|---------------|
| 90120403B STD | CHROME/IRON RATIO (ESCA) | 1.5 : 1 | 3.0:1 |
| 90120403B STD | CR OXIDE/FE OXIDE RATIO(ESCA) | 3:01 | 5.5 : 1 |
| 91060573B STD | DEPTH OF CR OXIDE LAYER IN ANGSTROMS (AUGER, AES) | >20 | >20 |
| 90120401B STD | SURFACE DEFECTS (SEM) | <40 | 5 |

*** 90120403B-STD; Test Method for ESCA (XPS) Analysis, Test for chrome to Iron Ratio and Chrome Oxide to Iron Oxide Ratio.**

Purpose is to characterize surface chemistry on electropolished stainless steel using a standard protocol. Measurements are made using Electron Spectroscopy for Chemical Analysis (ESCA).

***91060573B-STD; Test Method for AUGER ELECTRON Spectroscopy (AES) Analysis of Surface and Oxide Composition, Test for Depth of Chrome Oside Layer.**

Purpose is to characterize oxide film thickness on electropolished stainless steel using a standard protocol. Measurements are made using AUGER Electron Spectroscopy (AES).

***90120401B-STD; Test Method for SEM Analysis, Test for Surface Defects.**

Purpose is to characterize surface morphology on electropolished stainless steel using a standard protocol. Measurements are made using Scanning Electron Miscroscopy(SEM).

Warranty:

Seller warrants the products sold hereunder to be free from defects in material and workmanship; However, we have no control over damage caused by such things as shipping, misuse or improper installation.

Buyer assumes responsibility to assure that the products purchased from seller are approved for safe and proper use. Buyer also has the duty to warn buyer's customers of any risks involved in using seller's products. There are no warranties whatsoever on items built or partially, to buyer's designs or specifications.

Buyer has the responsibility to verify the hazards and to conduct any further research necessary to learn the hazards involved in using products purchased from seller.

Buyer agrees to indemnify and hold seller harmless from and against any and all claims resulting from losses, damages, and expenses (including legal fees and other costs of defending any action) that the seller may sustain or incur as a result of any negligence, misuse, breach of implied warranty, by buyer, its officers, agents or employees, and its customers, whether direct or indirect, or by reason of buyer's failure to perform the obligations contained herein.

Delivery:

Unless otherwise provided on the face hereof, delivery shall be made F.O.B. Seller's plant. Regardless of the method of delivery, however, risk of loss shall pass to Buyer upon Seller's delivery to a carrier. Any delivery dates shown are approximate only and Seller shall have no liability for any delays in delivery.

UMC

23H Commerce Road, Fairfield, NJ 07004, U.S.A.