



# HAM-LET HI-TECH COMPONENTS

ORBITAL WELD AND METAL GASKET  
FACE SEAL FITTINGS



# TECHNICAL INFORMATION

We specialize in the design and production of high-quality, specially manufactured valves and fittings for High-Purity and Ultra High-Purity applications.

A joint effort of our expert engineers and technicians resulted in the development of a complete line that reflects the company's deep understanding of the critical requirements of the semiconductor, biotech, and pharmaceutical industries.

We are a leader in the manufacture of fittings and valves for clean industries and consistently spearhead significant new developments in this field. **HTC** has broken new ground in surface finishing techniques by implementing improved electro-polishing processes.

## PLATING

Female threads are silver plated in order to reduce the risk of galling and to improve the ability to reproduce the fitting. This high-quality plating also reduces the torque required for the fitting assembly.

Reference Spec: Meeting and exceeding - Mil Spec: QQ-S-365

**Note:** Do not apply any type of cleaning

acid and/or electropolishing solutions to any female threads. These solutions damage the silver-plating and invalidate any expressed or implied warranty.

## WELDING

Options: butt weld, shoulder weld, socket weld Reference Specs: All welded products are manufactured and welded according to SEMI F75,F81.

## TESTING

UCT FS follows the relevant ASTM, ANSI, ASME, ISO, SEMI & SEMASPEC standards for testing and for qualifying processes and results.

## JAPANESE STANDARDS

Upon request, UCT can manufacture HTC® product line to meet Japanese standards:

- Low manganese material specifications (JIS)
- Wall thickness
- Hardness

<sup>(1)</sup> Per SEMI F20-0305

## TEMPERATURE RATING

Products	Material	°F	°C
HTC Face Seal Fittings	SST 316L	1000	538
	SST 316L Var or Vim / Var <sup>(1)</sup>	1000	538
HTC Welding Fittings	SST 316L	1000	538
	SST 316L Var or Vim/Var <sup>(1)</sup>	1000	538
HTC Gaskets	SST 316	1000	538
	NICKEL	1000	538

## HELIUM LEAK

All UCT Face seal products are tested and qualified to a maximum leak rate of 4x10<sup>-9</sup> std cm<sup>3</sup>/sec with silver-plating, and to a maximum leak rate of 4x10<sup>-11</sup> std cm<sup>3</sup>/sec with unplated gaskets.

## SURFACE FINISH

Reference Spec: ANSI B46.1 and ISO 4288

## SURFACE ANALYSIS

SEM/EDX/AES analysis is used to monitor surface defects per ASTM F1372 and ASTM F1375

## MOISTURE ANALYSIS

Based on ASTM F1397

## PARTICLE CONTRIBUTION TEST

Based on Semaspec 90120390 B

## SURFACE CHEMISTRY

All UHP products are electropolished with a proprietary process for achieving and exceeding the semantic standards of surface cleanliness and anti-corrosion requirements. Parameters are measured by SEM, AUGER, ESCA.

Reference Spec: SEMI F19; E49.9; SEMASPEC 91060573A-STD

## CLEANING SPECIFICATIONS

According to # H9800

Reference Spec: SEMI E49.3

## MATERIAL TRACEABILITY

All HTC components are heat coded for full traceability

## ASSEMBLY

According to SEMI E49.6.

## ACCESSORIES

Grip Kit, Plastic Bead Protector.

## PACKAGING:

Each "E" finished component is double-bagged to ensure component cleanliness and to protect it from environmental contamination. The inner bag is nylon 6 and vacuum sealed. The outer bag is polyethylene.

Reference Spec: SEMI E49.1

## INTERNATIONAL CERTIFICATIONS

ISO 9001, Certified by S.I.I.

## HTC FITTINGS

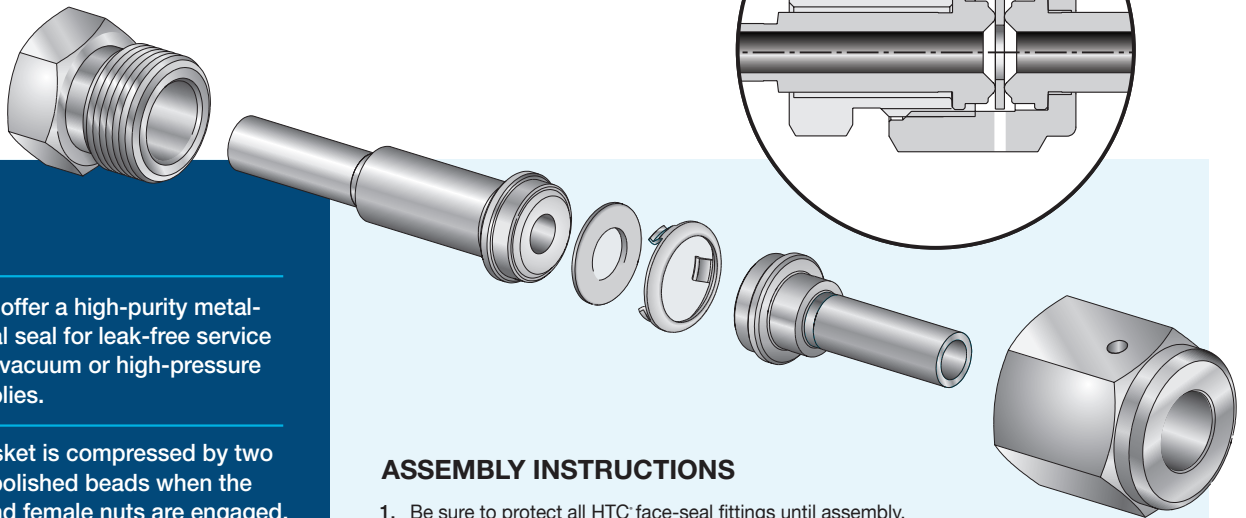
### PRESSURE RATING

Products	Material	Size	Wall Thickness	Pressure Rating	
			mm	c	bar
HTC Fittings	316L or 316LV	1/8"	0.028	8550	590
		1/4"	0.035	5200	359
		3/8"	0.035	3350	231
		1/2"	0.049	3750	259
		3/4"	0.065	3350	231
		3/4"	0.049	2400	165
		1"	0.065	2400	165

\*3/4" & 1" sizes are not standard, but can be manufactured upon request.

Pressure ratings are calculated in accordance with ANSI Code for Pressure Piping ASME-B31.1, for stainless steel fittings. All working pressures are at 4:1 safety factor. Pressure indicated in the catalog is at room temperature.

# GLAND MAKE-UP



Glands offer a high-purity metal-to-metal seal for leak-free service in high-vacuum or high-pressure assemblies.

The gasket is compressed by two highly polished beads when the male and female nuts are engaged.

The gland bead to bead assembly compresses a soft-metal gasket-to-seal. This assembly can be locked by the HAM-LET Grip-Kit.

Visual test and leak testing are performed through two test ports in opposite locations from the female nut.

## ASSEMBLY INSTRUCTIONS

1. Be sure to protect all HTC face-seal fittings until assembly. Exercise great care so that the sealing surfaces are not scratched, damaged or contaminated in any way during handling and assembly.
2. Always use a clean environment, and always employ proper cleanroom protocol for the make-up and assembly of high-purity fittings and applications.
3. **Make-up instructions:**  
Hand-tighten the female nut to the male nut/body the finger tight. Tighten the female nut 1/8 turn past the finger tight point. Always torque the female nut while keeping the male nut/body stationary.  
Face-seal connections are remakable - please use a new gasket for each remake.



## MATERIALS

Products	Level "E"			Level "H"		
	Treatment	Ra (Microinch)		Treatment	Ra (Microinch)	
		Max	Average		Max	Average
Glands	Electropolished	10	5	Non-Electropolished	15	10
Mini butt weld	Electropolished	10	5	Non-Electropolished	15	10
Shaped unions	Electropolished	10	5	Non-Electropolished	20	15
Long weld shaped connectors	Electropolished	10	5	Non-Electropolished	15	10
Threaded straight connectors	Electropolished	10	5	Non-Electropolished	20	15

\* "E" level - Electropolished \*\* "H" level - Not Electropolished

## GLANDS

### LONG GLAND

Without shoulder  
GL-W



7

### LONG GLAND

With shoulder  
GL-S



7

### MALE GLAND

Without shoulder  
GM-W



8

### SHORT GLAND

Without shoulder  
GS-W



8

### SHORT GLAND

With shoulder  
GS-S



9

### MINI SHORT GLAND

Without shoulder  
MGS-W



9

### MINI SHORT GLAND

With shoulder  
MGS-S



10

### GLAND ADAPTER TO LET-LOK<sup>®</sup>

AG



10

### MALE GLAND

Short tube Without shoulder  
MG-W



10

### SOCKET WELD GLAND

GSW



11

## SHAPED UNIONS

### ELBOW UNION

EU



12

### TEE UNION

TU



12

### CROSS UNION

CU



12

### MALE ELBOW

EM



13

## THREADED STRAIGHT CONNECTORS

### MALE UNION

UM



14

### MALE REDUCING UNION

RUM



14

### MALE TO MALE NPT CONNECTOR

CM



14

### BULKHEAD UNION

BU



15

### SHORT BULKHEAD UNION

SBU



15

### MALE TO NPT BULKHEAD CONNECTOR

BCM



15

### MALE TO SEAL O-RING CONNECTOR

CMOB



16

### MALE TO FEMALE NPT CONNECTOR

FC



16

### MALE TO LET-LOK UNION

UGL



16

### MALE TO BULKHEAD LET-LOK UNION

BUL



17

### MALE TO SHORT BULKHEAD LET-LOK UNION

SBUL



17

### BULKHEAD TO TUBE UNION

Without shoulder  
BHUT-W



17

### SHORT BULKHEAD TO TUBE UNION

Without shoulder  
SBHUT-W



18

## CAPS, NUTS & PLUGS

**COUPLING**  
CP



18

**TAPERED MALE NUT**  
TNM



20

**DOUBLE FEMALE UNION**  
DFU



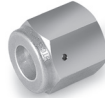
18

**SHORT MALE NUT**  
SNM



20

**FEMALE NUT**  
NF



19

**FEMALE CAP**  
CF



19

**MALE PLUG**  
MP



19

**MALE NUT**  
NM



20

## SWIVEL CONNECTORS

**FEMALE TO MALE UNION**  
UMF



21

**FEMALE TO MALE NPT CONNECTOR**  
MCF



21

**FEMALE TO FEMALE UNION**  
UFF



21

**FEMALE TO FEMALE NPT CONNECTOR**  
FCF



22

**FEMALE TO LET-LOK® CONNECTOR**  
FHTL



22

**FEMALE CROSS UNION**  
CFFF



22

**FEMALE TEE UNION**  
TFFF



23

**FEMALE ELBOW UNION**  
EFF



23

## HIGH-FLOW CONNECTORS

**LONG HIGH-FLOW GLAND**  
HGL



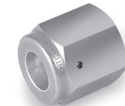
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**HIGH-FLOW TO TUBE UNION**  
HMT



24

**HIGH-FLOW FEMALE NUT**  
HNF



24

**HIGH-FLOW MALE NUT**  
HNM



25

**HIGH-FLOW ELBOW UNION**  
HEU



25

**HIGH-FLOW TEE UNION**  
HTU



25

## GASKETS

**GASKET**  
GA



26

**RETAINED GASKET**  
GA-RT



26

**VERTICAL LOAD GASKET**  
GA-VL



27

## MINI BUTTWELDS

### MINI ELBOW

Without shoulder  
ME-W



28

### MINI ELBOW REDUCER

Without shoulder  
MER-W



28

### MINI ELBOW 45°

Without shoulder  
ME-45°-W



29

### MINI ELBOW

With extended leg  
Without shoulder  
MEX-W



29

### MINI TEE

Without shoulder  
MT-W



29

### MINI TEE REDUCER

Without shoulder  
MTR-W



30

### MINI CROSS

Without shoulder  
MC-W



30

### MINI TRI-EL

Without shoulder  
MTB-W



31

### REDUCING UNION

Without shoulder  
RU-W



31

## LONG WELD CONNECTORS

### ELBOW

Without shoulder  
EW-W



32

### TEE

Without shoulder  
TW-W



32

### TEE REDUCER

Without shoulder  
TWR-W



33

### CROSS

Without shoulder  
CW-W



33

### REDUCER

Without shoulder  
RW-W



34

### REDUCER BIG SIZE

Without shoulder  
RW-W



34

### BUTTWELD UNION

Without shoulder  
UB-W



34

### BUTTWELD UNION

With shoulder  
UB-S



35

### BUTTWELD UNION

With locator and shoulder  
UBL-S



35

### GRIPKIT

Fixes NUT



36

## ORDERING INFORMATION:



Material Designator	
P	316L/316L VOD (AOD)
V	SST 316L Var or Vim/Var <sup>(1)</sup>
H	Alloy C-276
HC22	Alloy C-22
*NI	Nickel
*SS	Stainless Steel

Type of Fitting Designator
GL

Size Designator
1/8 6 mm
1/4 8 mm
3/8 10 mm
1/2 12 mm
3/4 18 mm
1 25 mm

End Designator	
S	With Shoulder
W	Without Shoulder

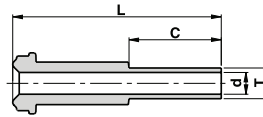
Surface Level Designator	
To indicate the desired level of polish, please add "E" or "H" to the part number:	
E	With Electropolish
H	Without Electropolish

\* For gaskets only  
<sup>(1)</sup>Per SEMI F20-0305

## GLANDS

### GL-W LONG GLAND

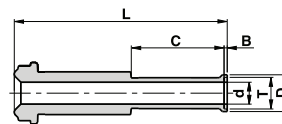
Without shoulder



Ordering Information	Face Seal Size	L		C		d		T	W.T.	
	inch	mm	inch	mm	inch	mm	inch	inch/mm	mm	inch
GL-1/8-W	1/8	36.1	1.42	19.1	0.75	1.90	0.07	1/8"	-	0.028
GL-1/4 X 1/8-W	1/4	36.1	1.42	19.1	0.75	1.90	0.07	1/8"	-	0.028
GL-1/4-W	1/4	43.2	1.70	19.1	0.75	4.60	0.18	1/4"	-	0.035
GL-3/8-W	1/2	45.5	1.79	19.1	0.75	7.70	0.30	3/8"	-	0.035
GL-1/2-W	1/2	45.5	1.79	19.1	0.75	10.2	0.40	1/2"	-	0.049
GL-1/2-W 1.41	1/2	35.8	1.41	9.6	0.38	10.2	0.40	1/2"	-	0.049
GL-1/2-W W.T.=0.065	1/2	45.5	1.79	19.1	0.75	9.50	0.37	1/2"	-	0.065
GL-1/2 X 1/4-W	1/2	45.5	1.79	19.1	0.75	4.60	0.18	1/4"	-	0.035
GL-3/4-W W.T.=0.049	3/4	51.6	2.03	19.1	0.75	16.6	0.65	3/4"	-	0.049
GL-3/4-W W.T.=0.065	3/4	51.6	2.03	19.1	0.75	15.8	0.62	3/4"	-	0.065
GL-1-W W.T.=0.065	1	58.9	2.32	19.1	0.75	22.1	0.87	1"	-	0.065
GL-6MM-W	1/4	43.2	1.70	19.1	0.75	4.00	0.16	6mm	1.00	-
GL-8MM-W	1/4	43.2	1.70	19.1	0.75	6.00	0.24	8mm	1.00	-
GL-10MM-W	1/2	45.5	1.79	19.1	0.75	8.00	0.31	10mm	1.00	-
GL-12MM-W	1/2	45.5	1.79	19.1	0.75	10.0	0.39	12mm	1.00	-
GL-18MM-W	3/4	51.6	2.03	19.1	0.75	15.0	0.59	18mm	1.50	-

### GL-S LONG GLAND

With shoulder



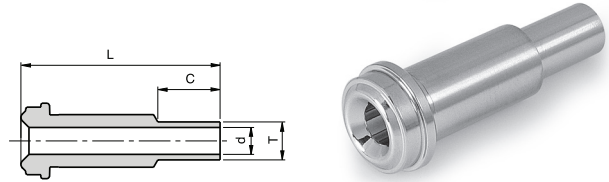
Ordering Information	Face Seal Size	L		C		d		B		D		T	W.T.	
	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	inch/mm	mm	inch
GL-1/4-S	1/4	43.7	1.72	19.1	0.75	4.6	0.18	0.6	0.02	7.4	0.29	1/4"	-	0.035
GL-3/8-S	1/2	46.2	1.82	19.1	0.75	7.7	0.30	0.8	0.03	10.4	0.41	3/8"	-	0.035
GL-1/2-S	1/2	46.5	1.83	19.1	0.75	10.2	0.40	1.0	0.04	14.0	0.55	1/2"	-	0.049
GL-1/2-S W.T.=0.065	1/2	46.5	1.83	19.1	0.75	9.5	0.37	1.0	0.04	14.0	0.55	1/2"	-	0.065
GL-3/4-S W.T.=0.049	3/4	52.6	2.07	19.1	0.75	16.6	0.65	1.0	0.04	20.3	0.80	3/4"	-	0.049
GL-3/4-S W.T.=0.065	3/4	52.6	2.07	19.1	0.75	15.8	0.62	1.0	0.04	20.3	0.80	3/4"	-	0.065
GL-1-S W.T.=0.065	1	65.3	2.57	19.1	0.75	22.1	0.87	1.0	0.04	26.9	1.06	1"	-	0.065
GL-6MM-S	1/4	43.7	1.72	19.1	0.75	4.0	0.16	0.5	0.02	7.0	0.27	6mm	1.00	-
GL-8MM-S	1/4	46.2	1.82	19.1	0.75	6.0	0.24	0.8	0.03	8.9	0.35	8mm	1.00	-
GL-10MM-S	1/2	46.2	1.82	19.1	0.75	8.0	0.31	0.8	0.03	10.9	0.43	10mm	1.00	-
GL-12MM-S	1/2	46.5	1.83	19.1	0.75	10.0	0.39	1.0	0.04	13.2	0.52	12mm	1.00	-
GL-18MM-S	3/4	52.6	2.07	19.1	0.75	15.0	0.59	1.0	0.04	19.3	0.76	18mm	1.50	-

Dimensions are for reference only and are subject to change without notice.

When ordering, be sure to add the Surface-Finish Designator (either H or E) to the part number.

**GM-W  
MALE GLAND**

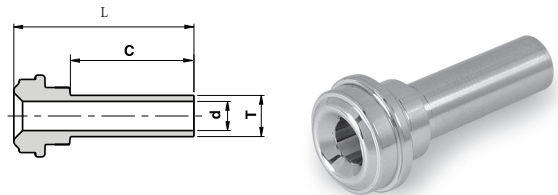
Without shoulder



Ordering Information	Face Seal Size	L		C		d		T
	inch	mm	inch	mm	inch	mm	inch	Tube O.D
GM-1/8-W	1/8	17.8	0.70	7.10	0.28	1.90	0.07	1/8
GM-1/4-W	1/4	33.3	1.31	10.4	0.41	3.00	0.12	1/4
GM-3/8-W	1/2	38.1	1.50	10.4	0.41	7.10	0.28	3/8
GM-1/2-W	1/2	38.1	1.50	12.7	0.50	10.2	0.40	1/2
GM-3/4-W	3/4	50.8	2.00	15.7	0.62	13.5	0.53	3/4
GM-1-W	1	56.4	2.22	20.6	0.81	19.1	0.75	1

**GS-W  
SHORT GLAND**

Without shoulder



Ordering Information	Face Seal Size	L		C		d		T	W.T.	
	inch	mm	inch	mm	inch	mm	inch	inch/mm	mm	inch
GS-1/8-W	1/8	27.4	1.08	19.1	0.75	1.90	0.07	1/8"	-	0.028
GS-1/4-W	1/4	27.9	1.10	19.1	0.75	4.60	0.18	1/4"	-	0.035
GS-1/4 X 1/8 -W	1/4	27.9	1.10	19.1	0.75	1.90	0.07	1/8"	-	0.028
GS -1/4-W 0.72	1/4	18.3	0.72	9.6	0.38	4.60	0.18	1/4"	-	0.035
GS-3/8-W	1/2	28.4	1.12	19.1	0.75	7.70	0.30	3/8"	-	0.035
GS-1/2-W	1/2	28.4	1.12	19.1	0.75	10.2	0.40	1/2"	-	0.049
GS-1/2-W W.T.=0.065	1/2	28.4	1.12	19.1	0.75	9.50	0.37	1/2"	-	0.065
GS-1/2-W-0.74	1/2	18.8	0.74	9.7	0.38	10.2	0.40	1/2"	-	0.049
GS-1/2 X 1/4-W	1/2	28.4	1.12	19.1	0.75	4.60	0.18	1/4"	-	0.035
GS-3/4-W W.T.=0.049	3/4	29.0	1.14	19.1	0.75	16.6	0.65	3/4"	-	0.049
GS-3/4-W W.T.=0.065	3/4	29.0	1.14	19.1	0.75	15.8	0.62	3/4"	-	0.065
GS-1-W W.T.=0.065	1	32.0	1.26	19.1	0.75	22.1	0.87	1"	-	0.065
GS-6MM-W	1/4	29.4	1.16	19.1	0.75	4.00	0.16	6mm	1.00	-
GS-8MM-W	1/4	29.5	1.16	19.1	0.75	6.00	0.24	8mm	1.00	-
GS-10MM-W	1/2	29.4	1.16	19.1	0.75	8.00	0.31	10mm	1.00	-
GS-12MM-W	1/2	29.4	1.16	19.1	0.75	10.0	0.39	12mm	1.00	-
GS-18MM-W	3/4	31.0	1.22	19.1	0.75	15.0	0.59	18mm	1.50	-

Dimensions are for reference only and are subject to change without notice.  
When ordering, be sure to add the Surface-Finish Designator (either H or E) to the part number.

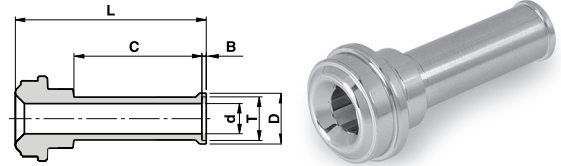


## GLANDS

### GS-S

## SHORT GLAND

With shoulder

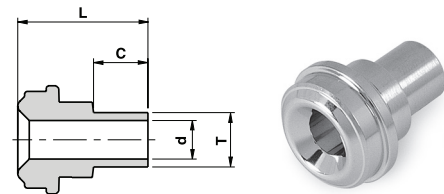


Ordering Information	Face Seal Size	L		C		d		B		D		T	W.T.	
	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	inch/mm	mm	inch
GS-1/4-S	1/4	28.5	1.12	19.1	0.75	4.60	0.18	0.60	0.02	7.40	0.29	1/4"	-	0.035
GS-3/8-S	1/2	29.2	1.15	19.1	0.75	7.70	0.30	0.80	0.03	10.4	0.41	3/8"	-	0.035
GS-1/2-S	1/2	29.4	1.16	19.1	0.75	10.2	0.40	1.00	0.04	14.0	0.55	1/2"	-	0.049
GS-1/2-S W.T.=0.065	1/2	29.4	1.16	19.1	0.75	9.50	0.37	1.00	0.04	14.0	0.55	1/2"	-	0.065
GS-3/4-S W.T.=0.049	3/4	30.0	1.18	19.1	0.75	16.6	0.65	1.00	0.04	20.3	0.80	3/4"	-	0.049
GS-3/4-S W.T.=0.065	3/4	30.0	1.18	19.1	0.75	15.8	0.62	1.00	0.04	20.3	0.80	3/4"	-	0.065
GS-1-S W.T.=0.065	1	32.1	1.26	19.1	0.75	22.1	0.87	1.00	0.04	26.9	1.06	1"	-	0.065
GS-6MM-S	1/4	30.0	1.18	19.1	0.75	4.00	0.16	0.50	0.02	7.00	0.27	6mm	1.00	-
GS-8MM-S	1/4	30.2	1.19	19.1	0.75	6.00	0.24	0.80	0.03	8.90	0.35	8mm	1.00	-
GS-10MM-S	1/2	31.0	1.22	19.1	0.75	8.00	0.31	0.80	0.03	10.9	0.43	10mm	1.00	-
GS-12MM-S	1/2	30.5	1.20	19.1	0.75	10.0	0.39	1.00	0.04	13.2	0.52	12mm	1.00	-
GS-18MM-S	3/4	31.0	1.22	19.1	0.75	15.0	0.59	1.00	0.04	19.3	0.76	18mm	1.50	-

### MGS-W

## MINI SHORT GLAND

Without shoulder



Ordering Information	Face Seal Size	L		C		d		T	W.T.	
	inch	mm	inch	mm	inch	mm	inch	inch / mm	mm	inch
MGS-1/4-W	1/4	15.2	0.60	6.40	0.25	4.60	0.18	1/4"	-	0.035
MGS-3/8-W	1/2	15.8	0.62	6.40	0.25	7.70	0.30	3/8"	-	0.035
MGS-1/2-W	1/2	15.8	0.62	6.40	0.25	10.2	0.40	1/2"	-	0.049
MGS-1/2-W W.T.=0.065	1/2	15.8	0.62	6.40	0.25	9.50	0.37	1/2"	-	0.065
MGS-6MM-W	1/4	15.2	0.60	6.40	0.25	4.00	0.16	6mm	1.00	-
MGS-8MM-W	1/4	15.8	0.62	6.40	0.25	6.00	0.24	8mm	1.00	-
MGS-10MM-W	1/2	15.8	0.62	6.40	0.25	8.00	0.31	10mm	1.00	-
MGS-12MM-W	1/2	15.8	0.62	6.40	0.25	10.0	0.39	12mm	1.00	-

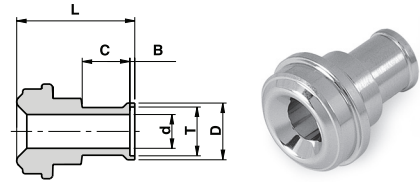
Dimensions are for reference only and are subject to change without notice.  
When ordering, be sure to add the Surface-Finish Designator (either H or E) to the part number.

## GLANDS

### MGS-S

## MINI SHORT GLAND

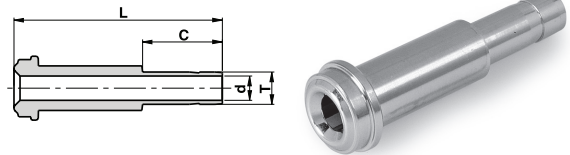
With shoulder



Ordering Information	Face Seal Size	L		C		d		B		D		T	W.T.	
	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	inch/mm	mm	inch
MGS-1/4-S	1/4	15.8	0.62	6.4	0.25	4.60	0.18	0.6	0.02	7.40	0.29	1/4"	-	0.035
MGS-3/8-S	1/2	16.5	0.65	6.4	0.25	7.70	0.30	0.8	0.03	10.4	0.41	3/8"	-	0.035
MGS-1/2-S	1/2	16.8	0.66	6.4	0.25	10.2	0.40	1.0	0.04	14.0	0.55	1/2"	-	0.049
MGS-1/2-S W.T.=0.065	1/2	16.8	0.66	6.4	0.25	9.50	0.37	1.0	0.04	14.0	0.55	1/2"	-	0.065
MGS-6MM-S	1/4	15.8	0.62	6.4	0.25	4.00	0.16	0.5	0.02	7.00	0.27	6mm	1.00	-
MGS-8MM-S	1/4	16.5	0.65	6.4	0.25	6.00	0.24	0.8	0.03	8.90	0.35	8mm	1.00	-
MGS-10MM-S	1/2	16.5	0.65	6.4	0.25	8.00	0.31	0.8	0.03	10.9	0.43	10mm	1.00	-
MGS-12MM-S	1/2	16.8	0.66	6.4	0.25	10.0	0.39	1.0	0.04	13.2	0.52	12mm	1.00	-

### AG

## GLAND ADAPTER TO LET-LOK

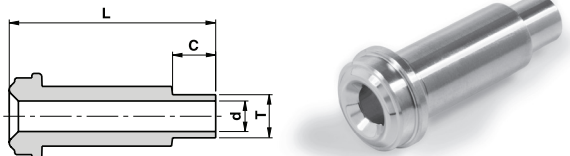


Ordering Information	Face Seal Size	L		C		d		T
	inch	mm	inch	mm	inch	mm	inch	inch/mm
AG-1/4	1/4	41.2	1.62	15.9	0.62	4.3	0.17	1/4"
AG-3/8	1/2	46.0	1.81	17.5	0.69	6.8	0.27	3/8"
AG-1/2	1/2	49.3	1.94	24.4	0.96	9.4	0.37	1/2"
AG-6M	1/4	41.2	1.62	15.7	0.62	4.0	0.16	6mm

### MG-W

## MALE GLAND

Short tube without shoulder

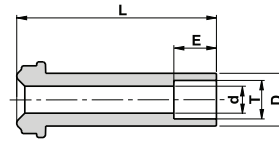


Ordering Information	Face Seal Size	L		C		d		T	W.T.	
	inch	mm	inch	mm	inch	mm	inch	inch/mm	mm	inch
MG-1/4-W	1/4	30.5	1.20	6.4	0.25	4.60	0.18	1/4"	-	0.035
MG-1/4-W 1.32	1/4	33.5	1.32	9.6	0.38	4.60	0.18	1/4"	-	0.035
MG-3/8-W	1/2	32.8	1.29	6.4	0.25	7.70	0.30	3/8"	-	0.035
MG-1/2-W	1/2	32.8	1.29	6.4	0.25	10.2	0.40	1/2"	-	0.049
MG-6MM-W	1/4	30.5	1.20	6.4	0.25	4.00	0.16	6mm	1.00	-
MG-8MM-W	1/4	30.5	1.20	6.4	0.25	6.00	0.24	8mm	1.00	-
MG-10MM-W	1/2	32.8	1.29	6.4	0.25	8.00	0.31	10mm	1.00	-
MG-12MM-W	1/2	32.8	1.29	6.4	0.25	10.0	0.39	12mm	1.00	-

Dimensions are for reference only and are subject to change without notice.

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## GSW SOCKET WELD GLAND

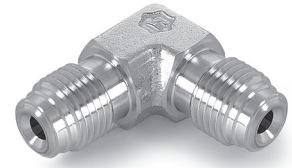
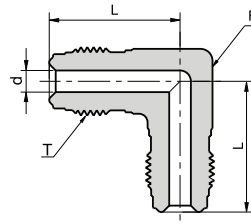


Ordering Information	Face Seal Size	L		d		E		D		T
	inch	mm	inch	mm	inch	mm	inch	mm	inch	Tube O.D
GSW-1/8	1/8	17.8	0.70	2.40	0.09	2.50	0.10	5.10	0.20	1/8
GSW-1/4	1/4	33.3	1.31	4.60	0.18	7.10	0.28	8.90	0.35	1/4
GSW-1/4-W-0.75"	1/4	19.1	0.75	4.60	0.18	7.10	0.28	8.90	0.35	1/4
GSW-1/4-W-0.50"	1/4	12.7	0.50	4.60	0.18	7.10	0.28	8.90	0.35	1/4
GSW-3/8	1/2	38.1	1.50	7.10	0.28	7.90	0.31	15.2	0.60	3/8
GSW-1/2	1/2	38.1	1.50	10.2	0.40	9.60	0.38	15.2	0.60	1/2
GSW-3/4	3/4	50.8	2.00	15.7	0.62	11.2	0.44	22.4	0.88	3/4
GSW-1	1	56.4	2.22	22.1	0.87	15.7	0.62	30.2	1.19	1

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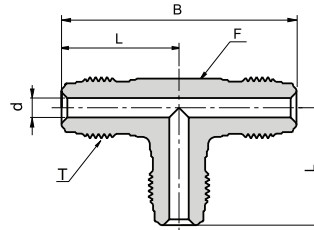
## SHAPED UNIONS

### EU ELBOW UNION



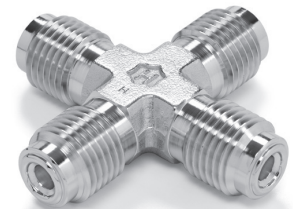
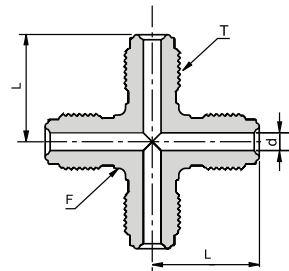
Ordering Information	Face Seal Size	L		d		F	T
	inch	mm	inch	mm	inch	inch	inch
P-EU-1/4	1/4	27.2	1.07	4.60	0.18	1/2	9/16-18
P-EU-1/2	1/2	36.8	1.45	10.2	0.40	13/16	7/8-14
P-EU-3/4	3/4	48.8	1.92	15.8	0.62	1 1/4	1 1/4 -18
P-EU-1	1	50.8	2.00	22.1	0.87	1 11/16	1 1/2 -20

### TU TEE UNION



Ordering Information	Face Seal Size	L		B		d		F	T
	inch	mm	inch	mm	inch	mm	inch	inch	inch
P-TU-1/4	1/4	27.2	1.07	54.4	2.14	4.60	0.18	1/2	9/16-18
P-TU-1/2	1/2	36.8	1.45	73.6	2.90	10.2	0.40	13/16	7/8-14
P-TU-3/4	3/4	48.8	1.92	97.6	3.84	15.8	0.62	1 1/4	1 1/4 -18
P-TU-1	1	50.8	2.00	101.6	4.00	22.1	0.87	1 11/16	1 1/2 -20

### CU CROSS UNION

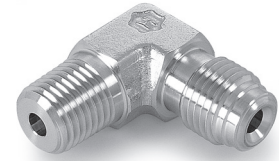
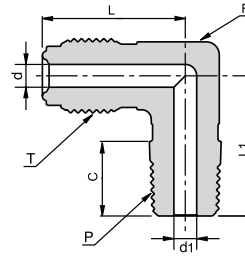


Ordering Information	Face Seal Size	L		d		F	T
	inch	mm	inch	mm	inch	inch	inch
P-CU-1/4	1/4	27.2	1.07	4.60	0.18	1/2	9/16-18
P-CU-1/2	1/2	36.8	1.45	10.2	0.40	13/16	7/8-14

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## SHAPED UNIONS

### EM MALE ELBOW

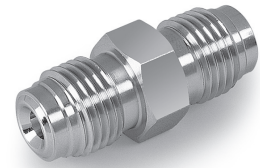
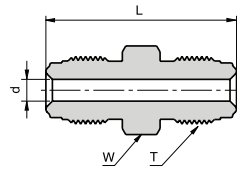


Ordering Information	Face Seal Size	L		L1		C		d		d1		F	T Thread Size	P NPT-M
	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	inch	inch	inch
P-EM-1/4 X 1/8	1/4	27.2	1.07	22.1	0.87	9.60	0.38	4.60	0.18	4.60	0.18	1/2	9/16-18	1/8
P-EM-1/4 X 1/4	1/4	27.2	1.07	26.7	1.05	14.2	0.56	4.60	0.18	4.60	0.18	1/2	9/16-18	1/4
P-EM-1/4 X 1/2	1/4	31.2	1.45	33.5	1.26	19.0	0.75	4.60	0.18	9.50	0.37	13/16	9/16-18	1/2
P-EM-1/2 X 1/4	1/2	36.8	1.23	32.0	1.32	14.2	0.56	10.2	0.40	4.60	0.18	13/16	7/8-14	1/4
P-EM-1/2 X 3/8	1/2	36.8	1.45	32.0	1.26	14.2	0.56	10.2	0.40	9.50	0.37	13/16	7/8-14	3/8
P-EM-1/2 X 1/2	1/2	36.8	1.45	36.8	1.45	19.0	0.75	10.2	0.40	10.2	0.40	13/16	7/8-14	1/2

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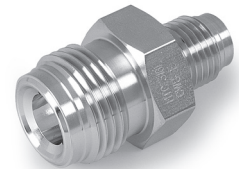
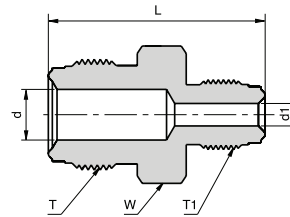
## THREADED STRAIGHT CONNECTORS

### UM MALE UNION



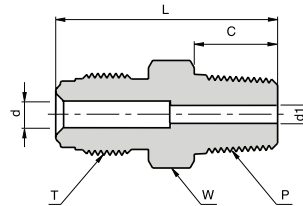
Ordering Information	Face Seal Size	L		d		W	T
	inch	mm	inch	mm	inch	inch	inch
P-UM 1/4	1/4	39.4	1.55	4.60	0.18	5/8	9/16 - 18
P-UM 1/2	1/2	46.7	1.84	10.2	0.40	15/16	7/8 - 14
P-UM 3/4	3/4	62.0	2.44	15.8	0.62	1 5/16	1 1/4 - 18
P-UM 1	1	65.8	2.59	22.2	0.87	1 5/8	1 1/2 - 20

### RUM MALE REDUCING UNION



Ordering Information	Face Seal Size	Face Seal Size 1	L		d		d1		W	T	T1
	inch	inch	mm	inch	mm	inch	mm	inch	inch	inch	inch
P-RUM 1/4 X 1/8	1/4	1/8	34.8	1.37	4.60	0.18	2.4	0.09	5/8	9/16-18	5/16-24
P-RUM 1/2 X 1/4	1/2	1/4	43.4	1.71	10.2	0.40	4.6	0.18	15/16	7/8-1/4	9/16 -18

### CM MALE TO MALE NPT CONNECTOR

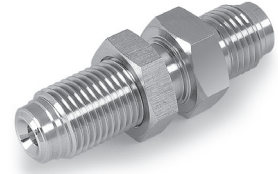
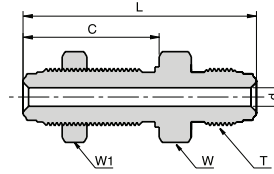


Ordering Information	Face Seal Size	L		C		d		d1		W	T	P
	inch	mm	inch	mm	inch	mm	inch	mm	inch	inch	inch	inch
P-CM-1/4 X 1/8	1/4	33.3	1.31	9.6	0.38	4.60	0.18	4.60	0.18	5/8	9/16 - 18	1/8
P-CM-1/4 X 1/4	1/4	37.8	1.49	14.2	0.56	4.60	0.18	4.60	0.18	5/8	9/16 - 18	1/4
P-CM-1/4 X R1/4 BSPT	1/4	37.8	1.49	14.2	0.56	4.60	0.18	4.60	0.18	5/8	9/16 - 18	1/4 BSPT
P-CM-1/2 X 1/4	1/2	41.9	1.65	14.2	0.56	10.2	0.40	7.10	0.28	15/16	7/8 - 14	1/4
P-CM-1/2 X 3/8	1/2	41.9	1.65	14.2	0.56	9.60	0.38	9.60	0.38	15/16	7/8 - 14	3/8
P-CM-1/2 X 1/2	1/2	46.7	1.84	19.0	0.75	10.2	0.40	10.2	0.40	15/16	7/8 - 14	1/2
P-CM-3/4 X 3/4	3/4	55.6	2.19	19.0	0.75	15.8	0.62	15.8	0.62	1 5/16	1 1/4 - 18	3/4
P-CM-1 X 1	1	62.7	2.47	23.9	0.94	22.2	0.87	22.2	0.87	1 5/8	1 1/2 - 20	1

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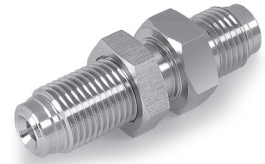
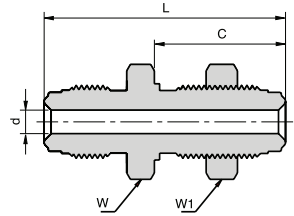
## THREADED STRAIGHT CONNECTORS

### BU BULKHEAD UNION



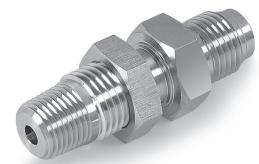
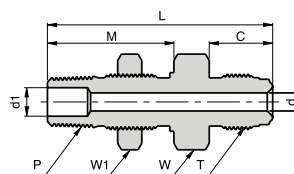
Ordering Information	Face Seal Size	L		C		d		W	W1	T	Panel Hole
	inch	mm	inch	mm	inch	mm	inch	inch	inch	inch	inch
P-BU 1/4	1/4	56.6	2.23	33.0	1.30	4.60	0.18	3/4	3/4	9/16 -18	19/32
P-BU 1/2	1/2	65.3	2.57	37.6	1.48	10.2	0.40	1 1/16	1 1/16	7/8 -14	29/32

### SBU SHORT BULKHEAD UNION



Ordering Information	Face Seal Size	L		C		d		W	W1	T	Panel Hole
	inch	inch	mm	inch	mm	inch	mm	inch	inch	inch	inch
P-SBU 1/4	1/4	46.2	1.82	25.1	0.99	4.60	0.18	3/4	3/4	9/16-18	19/32
P-SBU 1/2	1/2	54.4	2.14	28.2	1.11	10.2	0.40	1 1/16	1 1/16	7/8-14	29/32

### BCM MALE TO NPT BULKHEAD CONNECTOR



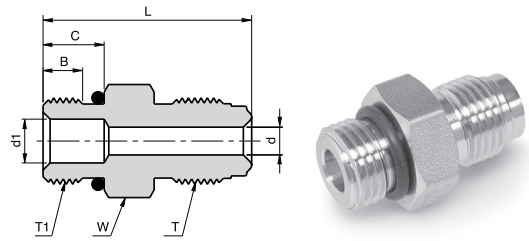
Ordering Information	Face Seal Size	L		C		d		M	d1	W	W1	T	P	Panel Hole		
	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	inch	inch	inch		
P-BCM 1/4 X 1/4	1/4	56.1	2.21	15.8	0.62	4.60	0.18	31.5	1.24	7.1	0.28	13/16	13/16	9/16 -18	1/4	21/32
P-BCM 1/2 X 1/4	1/2	59.4	2.34	17.8	0.70	10.2	0.40	31.5	1.24	7.1	0.28	15/16	13/16	7/8 -14	1/4	21/32

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## THREADED STRAIGHT CONNECTORS

**CMOB**

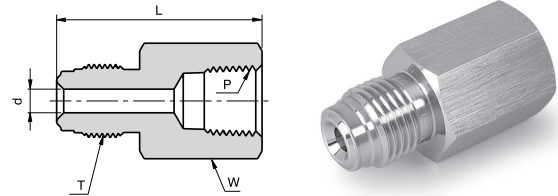
### MALE TO SEAL O-RING CONNECTOR



Ordering Information	Face Seal Size	L		C		B		d		d1		W	T	T1	O-Ring Size
	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	inch	inch	inch	
P-CMOB 1/4 X 9/16	1/4	33.8	1.33	9.9	0.39	6.40	0.25	4.6	0.18	7.10	0.28	3/4	9/16 -18	9/16 -18	3-906
P-CMOB 1/2 X 7/8	1/2	42.2	1.66	12.7	0.50	10.2	0.40	7.1	0.28	15.0	0.59	1	7/8 -14	7/8 -14	3-910
P-CMOB 1/2 X 9/16	1/2	37.6	1.48	9.9	0.39	6.40	0.25	7.1	0.28	7.10	0.28	15/16	7/8 -14	9/16 -18	3-906

**FC**

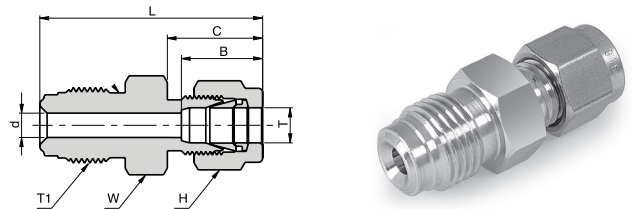
### MALE TO FEMALE NPT CONNECTOR



Ordering Information	Face Seal Size	L		d		W	T	P
	inch	mm	inch	mm	inch	inch	inch	inch
P-FC 1/4 X 1/8	1/4	35.8	1.41	4.60	0.18	5/8	9/16 -18	1/8
P-FC 1/4 X 1/4	1/4	39.1	1.54	4.60	0.18	3/4	9/16 -18	1/4
P-FC 1/2 X 1/4	1/2	39.1	1.54	10.2	0.40	15/16	7/8 -14	1/4
P-FC 1/2 X 3/8	1/2	44.7	1.76	10.2	0.40	15/16	7/8 -14	3/8
P-FC 1/2 X 1/2	1/2	50.5	1.99	10.2	0.40	1 1/16	7/8 -14	1/2
P-FC 3/4 X 3/4	3/4	59.9	2.36	15.8	0.62	1 5/16	1 1/4 -18	3/4
P-FC 1 X 1	1	63.8	2.51	22.1	0.87	1 5/8	1 1/2 -20	1

**UGL**

### MALE TO LET-LOK UNION



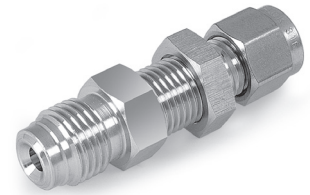
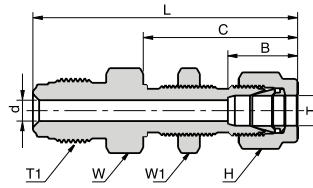
Ordering Information	Face Seal Size	L		C		B		d		W	H	T	T1
	inch	mm	inch	mm	inch	mm	inch	mm	inch	inch	inch	inch	inch
P-UGL 1/4 X 1/8	1/4	38.9	1.53	15.2	0.60	12.7	0.50	4.60	0.18	5/8	7/16	1/8	9/16 - 18
P-UGL 1/4 X 1/4	1/4	41.1	1.62	17.8	0.70	15.2	0.60	4.60	0.18	5/8	9/16	1/4	9/16 - 18
P-UGL 1/4 X 3/8	1/4	42.1	1.66	19.4	0.76	16.8	0.66	4.60	0.18	5/8	11/16	3/8	9/16 - 18
P-UGL 1/2 X 3/8	1/2	46.7	1.84	19.4	0.76	16.8	0.66	7.10	0.28	15/16	11/16	3/8	7/8 - 14
P-UGL 1/2 X 1/2	1/2	49.5	1.95	21.8	0.86	22.9	0.90	10.2	0.40	15/16	7/8	1/2	7/8 - 14

Dimensions are for reference only and are subject to change without notice.  
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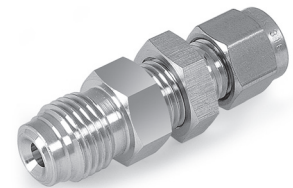
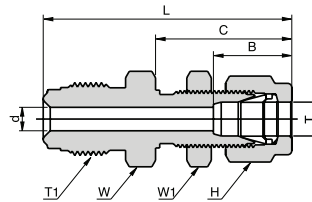
## THREADED STRAIGHT CONNECTORS

### BUL MALE TO BULKHEAD LET-LOK UNION



Ordering Information	Face Seal Size	L		C		B		d		W	W1	H	T	T1	Panel Hole Drill Size
	inch	mm	inch	mm	inch	mm	inch	mm	inch	inch	inch	inch	inch	inch	inch
P-BUL 1/4 X 1/4	1/4	57.2	2.25	33.5	1.32	15.2	0.60	4.60	0.18	5/8	5/8	9/16	1/4	9/16 - 18	29/64
P-BUL 1/2 X 3/8	1/4	64.5	2.54	36.8	1.45	16.8	0.66	7.10	0.28	15/16	3/4	11/16	3/8	7/8 - 14	37/64
P-BUL 1/2 X 1/2	1/2	69.9	2.74	41.9	1.65	22.9	0.90	10.2	0.40	15/16	15/16	7/8	1/2	7/8 - 14	49/64

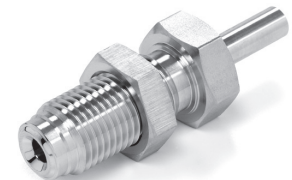
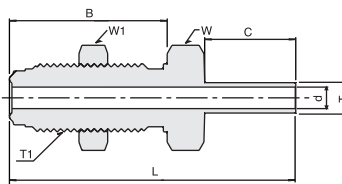
### SBUL MALE TO SHORT BULKHEAD LET-LOK UNION



Ordering Information	Face Seal Size	L		C		B		d		W	W1	H	T	T1	Panel Hole Drill Size
	inch	mm	inch	mm	inch	mm	inch	mm	inch	inch	inch	inch	inch	inch	inch
P-SBUL 1/4 X 1/4	1/4	47.8	1.88	26.7	1.05	15.2	0.60	4.6	0.18	5/8	5/8	9/16	1/4	9/16-18	29/64

### BHUT-W BULKHEAD TO TUBE UNION

Without shoulder



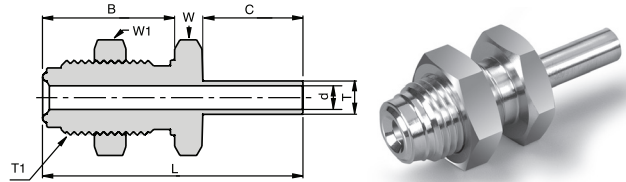
Ordering Information	Face Seal Size	L		B		C		d		W	W1	T	T1	Panel Hole Drill Size
	inch	mm	inch	mm	inch	mm	inch	mm	inch	inch	inch	inch	inch	inch
P-BHUT- 1/4 X 1/4-W	1/4	59.9	2.36	33.0	1.30	19.1	0.75	4.60	0.18	3/4	3/4	1/4	9/16 - 18	19/32
P-BHUT- 1/2 X 1/2-W	1/2	66.6	2.62	37.6	1.48	19.1	0.75	10.2	0.40	1 1/16	1 1/16	1/2	7/8 - 14	29/32

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When ordering, be sure to add the Surface-Finish Designator (either H or E) to the part number.

## THREADED STRAIGHT CONNECTORS

### SBHUT-W SHORT BULKHEAD TO TUBE UNION

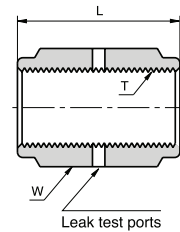
Without shoulder



Ordering Information	Face Seal Size	L		B		C		d		W	W1	T	T1	Panel Hole Drill Size
	inch	mm	inch	mm	inch	mm	inch	mm	inch	inch	inch	inch	inch	inch
P-SBHUT- 1/4 X 1/4-W	1/4	49.5	1.95	25.1	0.99	19.1	0.75	4.60	0.18	3/4	3/4	1/4	9/16 - 18	19/32
P-SBHUT- 1/2 X 1/2-W	1/2	58.7	2.31	29.7	1.17	19.1	0.75	10.2	0.40	1 1/16	1 1/16	1/2	7/8 - 14	29/32

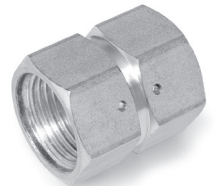
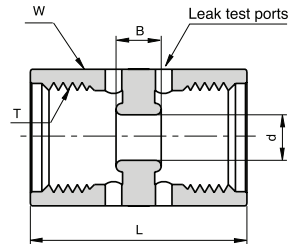
## CAPS, NUTS & PLUGS

### CP COUPLING



Ordering Information	Face Seal Size	L		W	T
	inch	mm	inch	inch	inch
P-CP 1/4	1/4	30.2	1.19	3/4	9/16 -18
P-CP 1/2	1/2	33.3	1.31	1 1/16	7/8 -14
P-CP 3/4	3/4	42.7	1.68	1 1/2	1 1/4 -18
P-CP 1	1	51.8	2.04	1 3/4	1 1/2 -20

### DFU DOUBLE FEMALE UNION



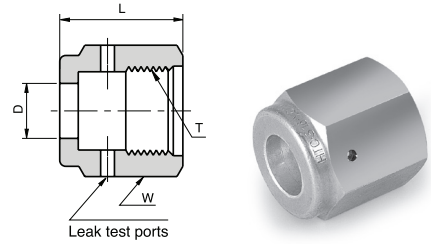
Ordering Information	Face Seal Size	L		B		d		W	T
	inch	mm	inch	mm	inch	mm	inch	inch	inch
P-DFU-1/4	1/4	30.2	1.19	6.0	0.24	6.40	0.25	3/4	9/16 - 18
P-DFU-1/2	1/2	33.3	1.31	6.0	0.24	14.0	0.55	1 1/16	7/8 - 14

Caution: This fitting should be used with a swivel male connector only.

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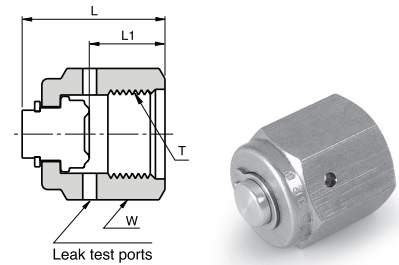
When ordering, be sure to add the Surface-Finish Designator (either H or E) to the part number.

**NF  
FEMALE NUT**



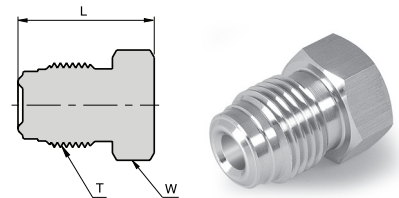
Ordering Information	Face Seal Size	L		D		W	T
	inch	mm	inch	mm	inch	inch	inch
P-NF 1/8	1/8	13.6	0.54	5.30	0.21	7/16	5/16-24
P-NF 1/4	1/4	20.6	0.81	9.20	0.36	3/4	9/16-18
P-NF 1/2	1/2	22.5	0.88	15.5	0.61	1 1/16	7/8-14
P-NF 3/4	3/4	28.5	1.12	22.6	0.89	1 1/2	1 1/4-18
P-NF 1	1	34.0	1.34	30.6	1.20	1 3/4	1 1/2-20

**CF  
FEMALE CAP**



Ordering Information	Face Seal Size	L		L1		W	T
	inch	mm	inch	mm	inch	inch	inch
PCF1/8	1/8	16.6	0.65	8.40	0.33	7/16	5/16-24
P-CF 1/4	1/4	23.9	0.94	12.7	0.50	3/4	9/16-18
P-CF 1/2	1/2	25.6	1.01	14.2	0.56	1 1/16	7/8-14
P-CF 3/4	3/4	32.3	1.27	19.1	0.75	1 1/2	1 1/4-18
P-CF 1	1	39.0	1.53	23.4	0.92	1 3/4	1 1/2-20

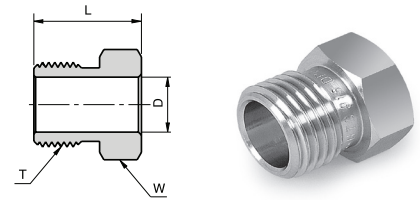
**MP  
MALE PLUG**



Ordering Information	Face Seal Size	L		W	T
	inch	mm	inch	inch	inch
P-MP 1/8	1/8	17.3	0.68	3/8	5/16 - 24
P-MP 1/4	1/4	23.4	0.92	5/8	9/16 - 18
P-MP 1/2	1/2	27.4	1.08	15/16	7/8 - 14
P-MP 3/4	3/4	36.3	1.43	1 5/16	1 1/4 - 18
P-MP 1	1	38.6	1.52	1 5/8	1 1/2 - 20

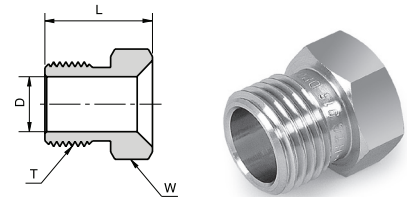
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**NM**  
**MALE NUT**



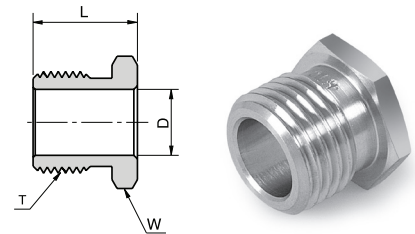
Ordering Information	Face Seal Size	L		D		W	T
	inch	mm	inch	mm	inch	inch	inch
P-NM 1/8	1/8	12.7	0.50	5.30	0.21	3/8	5/16-24
P-NM 1/4	1/4	18.0	0.71	9.20	0.36	5/8	9/16-18
P-NM 1/2	1/2	20.6	0.81	15.5	0.61	15/16	7/8-14
P-NM 3/4	3/4	25.4	1.00	22.7	0.89	1 5/16	1 1/4-18
P-NM 1	1	30.2	1.19	30.5	1.20	1 5/8	1 1/2-20

**TNM**  
**TAPERED MALE NUT**



Ordering Information	Face Seal Size	L		D		W	T
	inch	mm	inch	mm	inch	inch	inch
P-TNM 1/4	1/4	18.0	0.71	9.20	0.36	5/8	9/16-18

**SNM**  
**SHORT MALE NUT**

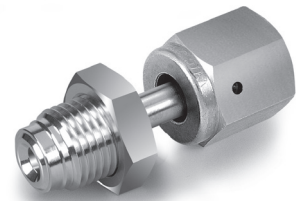
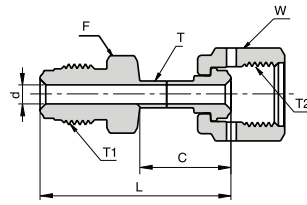


Ordering Information	Face Seal Size	L		D		W	T
	inch	mm	inch	mm	inch	inch	inch
P-SNM 1/4 .54	1/4	13.7	0.54	9.20	0.36	5/8	9/16-18
P-SNM 1/4 .65	1/4	16.5	0.65	9.20	0.36	5/8	9/16-18

Dimensions are for reference only and are subject to change without notice.  
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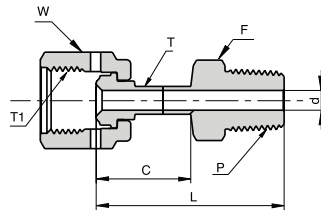
## SWIVEL CONNECTORS

### UMF FEMALE TO MALE UNION



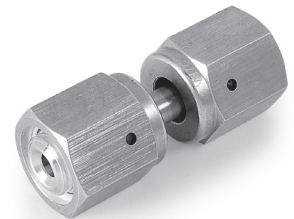
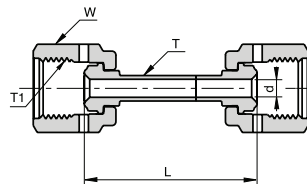
Ordering Information	Face Seal Size	L		C		d		F	W	T	T1	T2
	inch	mm	inch	mm	inch	mm	inch	inch	inch	inch	inch	inch
P-UMF-1/4 X 1/4	1/4	45.2	1.78	21.6	0.85	4.60	0.18	5/8	3/4	1/4	9/16 - 18	9/16 - 18
P-UMF-1/2 X 1/2	1/2	49.8	1.96	22.1	0.87	10.2	0.40	15/16	1-1/16	1/2	7/8 - 14	7/8 - 14

### MCF FEMALE TO MALE NPT CONNECTOR



Ordering Information	Face Seal Size	L		C		d		F	W	T	T1	P
	inch	mm	inch	mm	inch	mm	inch	inch	inch	inch	inch	inch
P-MCF-1/4 X 1/4	1/4	45.5	1.79	23.4	0.92	4.60	0.18	9/16	3/4	1/4	9/16 - 18	1/4
P-MCF-1/2 X 1/2	1/2	53.1	2.09	25.6	1.01	10.2	0.40	7/8	1 1/16	1/2	7/8 - 14	1/2

### UFF FEMALE TO FEMALE UNION

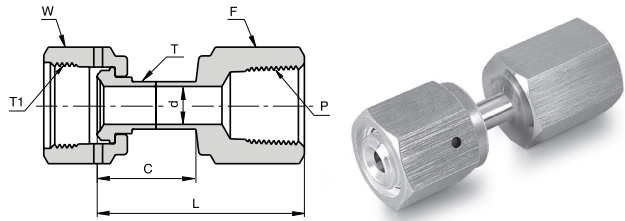


Ordering Information	Face Seal Size	L		d		W	T	T1
	inch	mm	inch	mm	inch	inch	inch	inch
P-UFF-1/4 X 1/4	1/4	43.0	1.69	4.60	0.18	3/4	1/4	9/16 - 18
P-UFF-1/2 X 1/2	1/2	44.1	1.73	10.2	0.40	1 1/16	1/2	7/8 - 14

Dimensions are for reference only and are subject to change without notice.  
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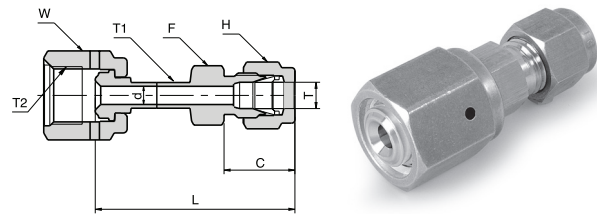
## SWIVEL CONNECTORS

### FCF FEMALE TO FEMALE NPT CONNECTOR



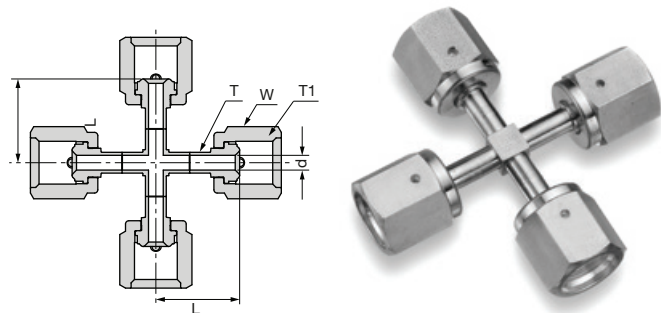
Ordering Information	Face Seal Size	L		C		d		F	W	T	T	P
	inch	mm	inch	mm	inch	mm	inch	inch	inch	inch	inch	inch
P-FCF-1/4 X 1/4	1/4	45.0	1.77	23.4	0.92	4.60	0.18	3/4	3/4	1/4	9/16 - 18	1/4
P-FCF-1/2 X 1/2	1/2	54.8	2.16	26.4	1.04	10.2	0.40	1 1/16	1 1/16	1/2	7/8 - 14	1/2

### FHTL FEMALE TO LET-LOK CONNECTOR



Ordering Information	Face Seal Size	L		C		d		F	W	H	T	T1	T2
	inch	mm	inch	mm	inch	mm	inch	inch	inch	inch	inch	inch	inch
P-FHTL-1/4 X 1/4	1/4	49.3	1.94	17.8	0.70	4.60	0.18	1/2	3/4	9/16	1/4	1/4	9/16 - 18
P-FHTL-1/2 X 1/2	1/2	56.6	2.23	21.8	0.86	10.2	0.40	13/16	1 1/16	7/8	1/2	1/2	7/8 - 14

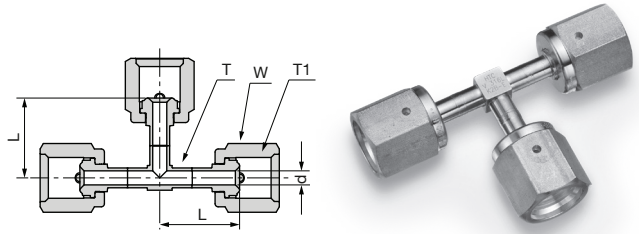
### CFFFF FEMALE CROSS UNION



Ordering Information	Face Seal Size	L		d		W	T	T
	inch	mm	inch	mm	inch	inch	inch	inch
V-CFFFF 1/4	1/4	25.4	1	4.60	0.18	3/4	1/4	9/16-18

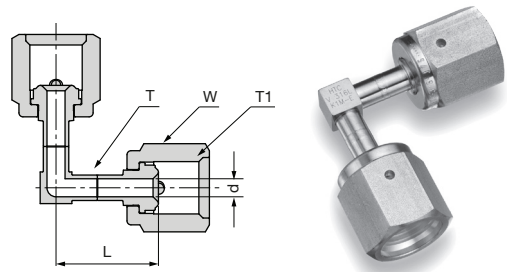
Dimensions are for reference only and are subject to change without notice.  
When ordering, be sure to add the Surface-Finish Designator (either H or E) to the part number.

**TFFF**  
**FEMALE**  
**TEE UNION**



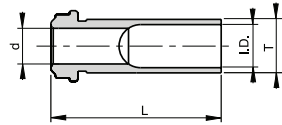
Ordering Information	Face Seal Size	L		d		W	T	T
	inch	mm	inch	mm	inch	inch	inch	inch
V-TFFF 1/4	1/4	25.4	1	4.60	0.18	3/4	1/4	9/16-18
V-TFFF 1/2	1/2	29.2	1.5	10.2	0.40	1-1/16	1/2	7/8-14

**EFF**  
**FEMALE**  
**ELBOW UNION**



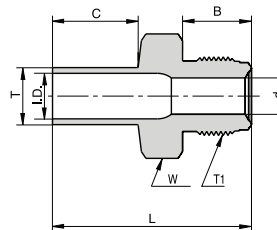
Ordering Information	Face Seal Size	L		d		W	T	T
	inch	mm	inch	mm	inch	inch	inch	inch
V-EFF 1/4	1/4	25.4	1	4.60	0.18	3/4	1/4	9/16-18
V-EFF 1/2	1/2	29.2	1.5	10.2	0.40	1-1/16	1/2	7/8-14

## HGL LONG HIGH-FLOW GLAND



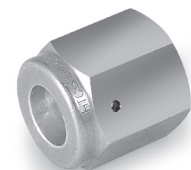
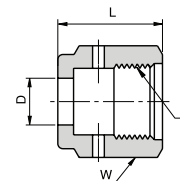
Ordering Information	Face Seal Size	L		d		T Tube O.D	I.D.	
	inch	mm	inch	mm	inch	inch	mm	inch
HGL-3/8 - 0.6	1/4	15.2	0.60	6.40	0.25	3/8	7.7	0.30
HGL-3/8 - 1.13	1/4	28.7	1.13	6.40	0.25	3/8	7.7	0.30
HGL-3/8 - 1.19	1/4	30.2	1.19	6.40	0.25	3/8	7.7	0.30
HGL-3/8 - 1.31	1/4	33.3	1.31	6.40	0.25	3/8	7.7	0.30

## HMT HIGH-FLOW MALE TO TUBE



Ordering Information	Face Seal Size	L		B	C	d		W	T Tube O.D.	T1 Thread Size	I.D.			
	inch	mm	inch	mm	inch	mm	inch	inch	inch	inch	mm	inch		
P - HMT 1/4	1/4	42.7	1.68	15.8	0.62	19.1	0.75	6.40	0.25	5/8	3/8	9/16 - 18	7.7	0.30

## HNF HIGH-FLOW FEMALE NUT



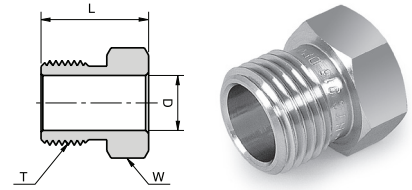
Ordering Information	Face Seal Size	L		D		W	T Thread Size
	inch	mm	inch	mm	inch	inch	inch
P - HNF 1/4	1/4	20.6	0.81	10.0	0.39	3/4	9/16 - 18

Dimensions are for reference only and are subject to change without notice.  
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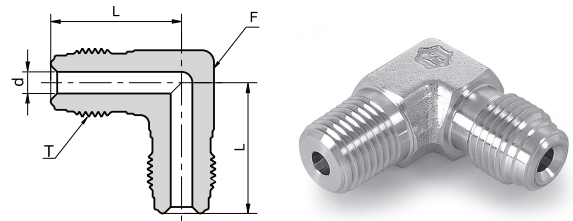
## HIGH FLOW CONNECTORS

### HNM HIGH-FLOW MALE NUT



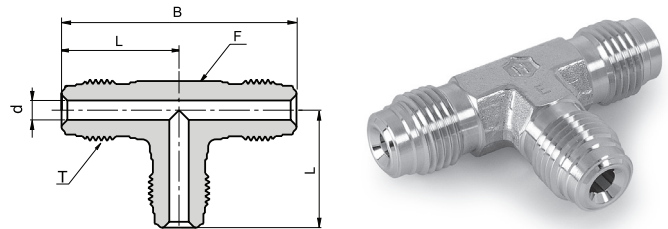
Ordering Information	Face Seal Size	L		D		T	W
	inch	mm	inch	mm	inch	inch	inch
P - HNM 1/4	1/4	18.0	0.71	10.0	0.39	9/16 - 18	5/8

### HEU HIGH-FLOW ELBOW UNION



Ordering Information	Face Seal Size	L		d		F	T
	inch	mm	inch	mm	inch	inch	Thread Size
P-HEU-1/4	1/4	27.2	1.07	6.40	0.25	1/2	9/16-18

### HTU HIGH-FLOW TEE UNION

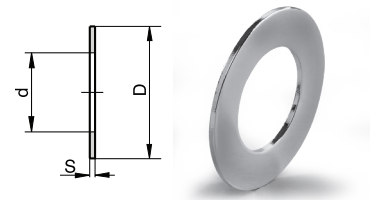


Ordering Information	Face Seal Size	L		B		d		F	T
	inch	mm	inch	mm	inch	mm	inch	inch	Thread Size
P-HTU-1/4	1/4	27.2	1.07	54.4	2.14	6.40	0.25	1/2	9/16-18

Dimensions are for reference only and are subject to change without notice.  
When ordering, be sure to add the Surface-Finish Designator (either H or E) to the part number.

# GASKETS

## GA GASKET



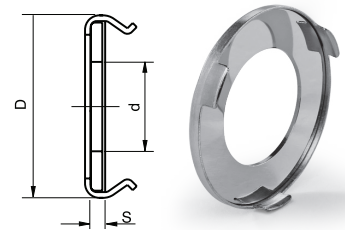
### UNPLATED GASKETS

Ordering Information	Face Seal Size	D		d		S	
	inch	mm	inch	mm	inch	mm	inch
GA-1/4 - E	1/4	11.9	0.47	5.60	0.22	0.7	0.028
GA-1/2 - E	1/2	19.8	0.78	11.2	0.44	0.7	0.028
GA-3/4 - E	3/4	29.0	1.14	16.8	0.66	0.7	0.028
GA-1 - E	1	353.6	1.40	22.6	0.89	0.7	0.028

### SILVER-PLATED GASKETS

Ordering Information	Face Seal Size	D		d		S	
	inch	mm	inch	mm	inch	mm	inch
GA-1/4 Silver Plated	1/4	11.9	0.47	5.60	0.22	0.7	0.028
GA-1/2 Silver Plated	1/2	19.8	0.78	11.2	0.44	0.7	0.028

## GA-RT RETAINED GASKET



### UNPLATED RETAINED GASKETS

Ordering Information	Face Seal Size	D		d		S	
	inch	mm	inch	mm	inch	mm	inch
GA-1/4 -RT - E	1/4	12.7	0.50	6.10	0.24	0.7	0.028
GA-1/2 -RT - E	1/2	20.1	0.79	11.1	0.44	0.7	0.028
GA-3/4-RT - E	3/4	29.0	1.14	16.8	0.66	0.7	0.028
GA-1 -RT - E	1	35.6	1.40	22.6	0.89	0.7	0.028

### SILVER-PLATED RETAINED GASKETS

Ordering Information	Face Seal Size	D		d		S	
	inch	mm	inch	mm	inch	mm	inch
GA-1/4-RT Silver Plated	1/4	12.7	0.50	6.10	0.24	0.7	0.028
GA-1/2-RT Silver Plated	1/2	20.1	0.79	11.1	0.44	0.7	0.028

SS - GA-1/4

### HOW TO ORDER:

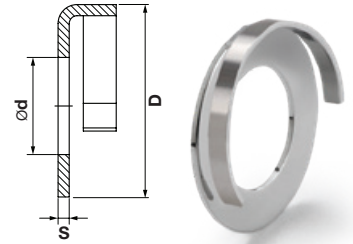
Example:

Material Description	
SS -	Stainless Steel
NI -	Nickel

Dimensions are for reference only, and are subject to change without notice.

When ordering, be sure to add the Surface-Finish Designator (either H or E) to the part number. (See Material Table, page 157). All orders should include the material description and ordering information (see product table).

**GA-VL**  
**VERTICAL LOAD GASKET**

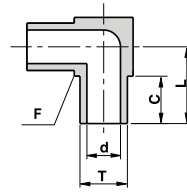


**UNPLATED GASKETS**

Ordering Information	Face Seal Size	D		d		S	
	inch	mm	inch	mm	inch	mm	inch
SS-GA-1/4-VL-E	1/4	12.3	0.48	6.20	0.24	0.7	0.028
SS-GA-1/2-VL-E	1/2	19.7	0.78	11.0	0.43	0.7	0.028
NI-GA-1/4-VL-E	1/4	12.3	0.48	6.20	0.24	0.7	0.028
NI-GA-1/2-VL-E	1/2	19.7	0.78	11.0	0.43	0.7	0.028

**ME-W**  
**MINI ELBOW**

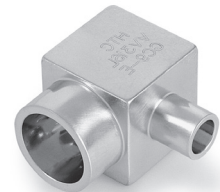
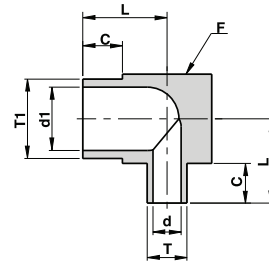
Without shoulder



Ordering Information	L		C		d		F	T Tube O.D	W.T.	
	mm	inch	mm	inch	mm	inch	inch	inch / mm	mm	inch
V-ME-1/8-W	10.3	0.41	6.4	0.25	1.90	0.07	5/16	1/8"	-	0.028
V-ME-1/4-W	10.3	0.41	6.4	0.25	4.60	0.18	5/16	1/4"	-	0.035
V-ME-3/8-W	11.9	0.47	6.4	0.25	7.70	0.30	7/16	3/8"	-	0.035
V-ME-1/2-W	13.5	0.53	6.4	0.25	10.2	0.40	9/16	1/2"	-	0.049
V-ME-1/2-W W.T.=0.065	13.5	0.53	6.4	0.25	9.50	0.37	9/16	1/2"	-	0.065
V-ME-6MM-W	10.3	0.41	6.4	0.25	4.00	0.16	5/16	6mm	1.00	-
V-ME-8MM-W	11.9	0.47	6.4	0.25	6.00	0.24	7/16	8mm	1.00	-
V-ME-10MM-W	11.9	0.47	6.4	0.25	8.00	0.31	7/16	10mm	1.00	-
V-ME-12MM-W	13.5	0.53	6.4	0.25	10.0	0.39	9/16	12mm	1.00	-

**MER-W**  
**MINI ELBOW REDUCER**

Without shoulder



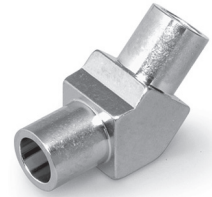
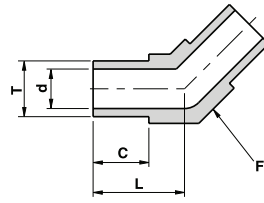
Ordering Information	L		C		d1		d		F	T1 Tube O.D	W.T. (T1)		T Tube O.D	W.T. (T)	
	mm	inch	mm	inch	mm	inch	mm	inch	inch	inch/mm	mm	inch	inch/mm	mm	inch
V-MER-1/4 X 1/8-W	10.3	0.41	6.4	0.25	4.60	0.18	1.90	0.07	5/16	1/4"	-	0.035	1/8"	-	0.028
V-MER-3/8 X 1/4-W	11.9	0.47	6.4	0.25	7.70	0.30	4.60	0.18	7/16	3/8"	-	0.035	1/4"	-	0.035
V-MER-1/2 X 1/4-W	13.5	0.53	6.4	0.25	10.2	0.40	4.60	0.18	9/16	1/2"	-	0.049	1/4"	-	0.035
V-MER-1/2 X 3/8-W	13.5	0.53	6.4	0.25	10.2	0.40	7.70	0.30	9/16	1/2"	-	0.049	3/8"	-	0.035
V-MER-8MM X 6MM-W	11.9	0.47	6.4	0.25	6.00	0.24	4.00	0.16	7/16	8mm	1.00	-	6mm	1.00	-
V-MER-12MM X 6MM-W	13.5	0.53	6.4	0.25	10.0	0.39	4.00	0.16	9/16	12mm	1.00	-	6mm	1.00	-
V-MER-12MM X 8MM-W	13.5	0.53	6.4	0.25	10.0	0.39	6.00	0.24	9/16	12mm	1.00	-	8mm	1.00	-

## MINI BUTTWELD

### ME-45°-W

## MINI ELBOW 45°

Without shoulder



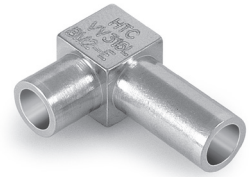
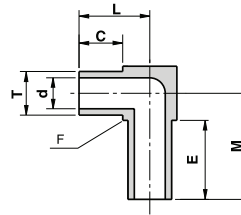
Ordering Information	L		C		d		F	T	W.T.	
	mm	inch	mm	inch	mm	inch	inch	inch / mm	mm	inch
V-ME-1/4-W-45DEG	10.3	0.41	6.4	0.25	4.60	0.18	5/16	1/4"	-	0.035
V-ME-3/8-W-45DEG	11.9	0.47	6.4	0.25	7.70	0.30	7/16	3/8"	-	0.035
V-ME-1/2-W-45DEG	13.5	0.53	6.4	0.25	10.2	0.40	9/16	1/2"	-	0.049
V-ME-1/2-W-45DEG W.T.=0.065	13.5	0.53	6.4	0.25	9.50	0.37	9/16	1/2"	-	0.065
V-ME-6MM-W-45DEG	10.3	0.41	6.4	0.25	4.00	0.16	5/16	6mm	1.00	-
V-ME-8MM-W-45DEG	11.9	0.47	6.4	0.25	6.00	0.24	7/16	8mm	1.00	-
V-ME-10MM-W-45DEG	11.9	0.47	6.4	0.25	8.00	0.31	7/16	10mm	1.00	-
V-ME-12MM-W-45DEG	13.5	0.53	6.4	0.25	10.0	0.39	9/16	12mm	1.00	-

### MEX-W

## MINI ELBOW

With extended leg

Without shoulder

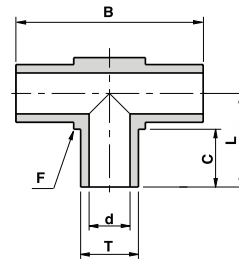


Ordering Information	L		C		M		E		d		F	T	W.T.
	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	inch	inch	inch
V-MEX-1/4-W 0.41X0.66	10.3	0.41	6.4	0.25	16.8	0.66	12.7	0.50	4.6	0.18	5/16	1/4"	0.035
V-MEX-1/4-W 0.41X0.61	10.3	0.41	6.4	0.25	15.4	0.61	11.4	0.45	4.6	0.18	5/16	1/4"	0.035
V-MEX-1/4-W 0.66X0.66"	16.8	0.66	12.7	0.50	16.8	0.66	12.7	0.50	4.6	0.18	5/16	1/4"	0.035

### MT-W

## MINI TEE

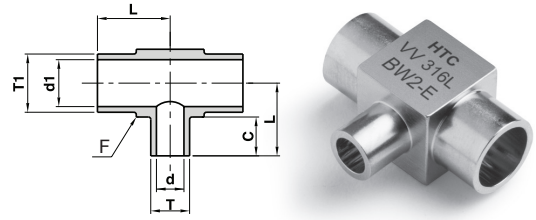
Without shoulder



Ordering Information	L		B		C		d		F	T	W.T.	
	mm	inch	mm	inch	mm	inch	mm	inch	inch	inch / mm	mm	inch
V-MT-1/8-W	10.3	0.41	20.7	0.81	6.4	0.25	1.90	0.07	5/16	1/8"	-	0.028
V-MT-1/4-W	10.3	0.41	20.7	0.81	6.4	0.25	4.60	0.18	5/16	1/4"	-	0.035
V-MT-3/8-W	11.9	0.47	23.9	0.94	6.4	0.25	7.70	0.30	7/16	3/8"	-	0.035
V-MT-1/2-W	13.5	0.53	27.1	1.07	6.4	0.25	10.2	0.40	9/16	1/2"	-	0.049
V-MT-1/2-W W.T.=0.065	13.5	0.53	27.1	1.07	6.4	0.25	9.50	0.37	9/16	1/2"	-	0.065
V-MT-6MM-W	10.3	0.41	20.7	0.81	6.4	0.25	4.00	0.16	5/16	6mm	1.00	-
V-MT-8MM-W	11.9	0.47	23.9	0.94	6.4	0.25	6.00	0.24	7/16	8mm	1.00	-
V-MT-10MM-W	11.9	0.47	23.9	0.94	6.4	0.25	8.00	0.31	7/16	10mm	1.00	-
V-MT-12MM-W	13.5	0.53	27.1	1.07	6.4	0.25	10.0	0.39	9/16	12mm	1.00	-

**MTR-W**  
**MINI TEE REDUCER**

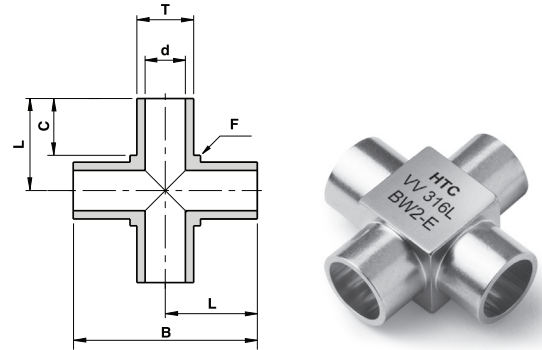
Without shoulder



Ordering Information	L		B		C		d1		d		F	T1 Tube O.D	W.T. (T1)		T Tube O.D		W.T. (T)	
	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	inch	inch/mm	mm	inch	inch/mm	mm	inch	
V-MTR-1/2 X 1/4-W	13.5	0.53	27.1	1.07	6.4	0.25	10.2	0.40	4.6	0.18	9/16	1/2"	-	0.049	1/4"	-	0.035	
V-MTR-1/2 X 3/8-W	13.5	0.53	27.1	1.07	6.4	0.25	10.2	0.40	7.7	0.30	9/16	1/2"	-	0.049	3/8"	-	0.035	
V-MTR-3/8 X 1/4-W	11.9	0.47	23.9	0.94	6.4	0.25	7.70	0.30	4.6	0.18	7/16	3/8"	-	0.035	1/4"	-	0.035	
V-MTR-8MMX6MM-W	11.9	0.47	23.9	0.94	6.4	0.25	6.00	0.24	4.0	0.16	7/16	8mm	1.00	-	6mm	1.00	-	
V-MTR-12MMX6MM-W	13.5	0.53	27.1	1.07	6.4	0.25	10.0	0.39	4.0	0.16	9/16	12mm	1.00	-	6mm	1.00	-	
V-MTR-12MMX8MM -W	13.5	0.53	27.1	1.07	6.4	0.25	10.0	0.39	6.0	0.24	9/16	12mm	1.00	-	8mm	1.00	-	

**MC-W**  
**MINI CROSS**

Without shoulder



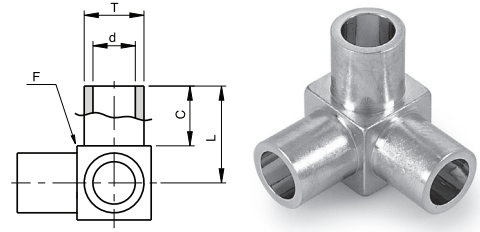
Ordering Information	L		B		C		d		F	T Tube O.D	W.T.	
	mm	inch	mm	inch	mm	inch	mm	inch	inch	inch/mm	mm	inch
V-MC-1/8-W	10.3	0.41	20.7	0.81	6.4	0.25	1.90	0.07	5/16	1/8"	-	0.028
V-MC-1/4-W	10.3	0.41	20.7	0.81	6.4	0.25	4.60	0.18	5/16	1/4"	-	0.035
V-MC-3/8-W	11.9	0.47	23.9	0.94	6.4	0.25	7.70	0.30	7/16	3/8"	-	0.035
V-MC-1/2-W	13.5	0.53	27.1	1.07	6.4	0.25	10.2	0.40	9/16	1/2"	-	0.049
V-MC-1/2-W W.T.=0.065	13.5	0.53	27.1	1.07	6.4	0.25	9.50	0.37	9/16	1/2"	-	0.065
V-MC-6MM-W	10.3	0.41	20.7	0.81	6.4	0.25	4.00	0.16	5/16	6mm	1.00	-
V-MC-8MM-W	11.9	0.47	23.9	0.94	6.4	0.25	6.00	0.24	7/16	8mm	1.00	-
V-MC-10MM-W	11.9	0.47	23.9	0.94	6.4	0.25	8.00	0.31	7/16	10mm	1.00	-
V-MC-12MM-W	13.5	0.53	27.1	1.07	6.4	0.25	10.0	0.39	9/16	12mm	1.00	-

Dimensions are for reference only and are subject to change without notice.  
When ordering, be sure to add the Surface-Finish Designator (either H or E) to the part number.

## MINI BUTTWELD

### MTB-W MINI TRI-EL

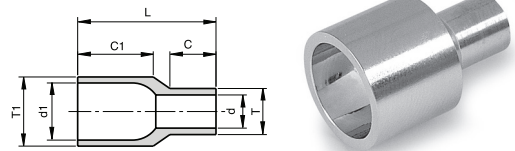
Without shoulder



Ordering Information	L		C		d		F	T Tube O.D	W.T.	
	mm	inch	mm	inch	mm	inch	inch	inch / mm	mm	inch
V-MTB-1/8-W	10.3	0.41	6.4	0.25	1.90	0.07	5/16	1/8"	-	0.028
V-MTB-1/4-W	10.3	0.41	6.4	0.25	4.60	0.18	5/16	1/4"	-	0.035
V-MTB-3/8-W	11.9	0.47	6.4	0.25	7.70	0.30	7/16	3/8"	-	0.035
V-MTB-1/2-W	13.5	0.53	6.4	0.25	10.2	0.40	9/16	1/2"	-	0.049
V-MTB-6MM-W	10.3	0.41	6.4	0.25	4.00	0.16	5/16	6mm	1.00	-
V-MTB-8MM-W	11.9	0.47	6.4	0.25	6.00	0.24	7/16	8mm	1.00	-
V-MTB-10MM-W	11.9	0.47	6.4	0.25	8.00	0.31	7/16	10mm	1.00	-
V-MTB-12MM-W	13.5	0.53	6.4	0.25	10.0	0.39	9/16	12mm	1.00	-

### RU-W REDUCING UNION

Without shoulder



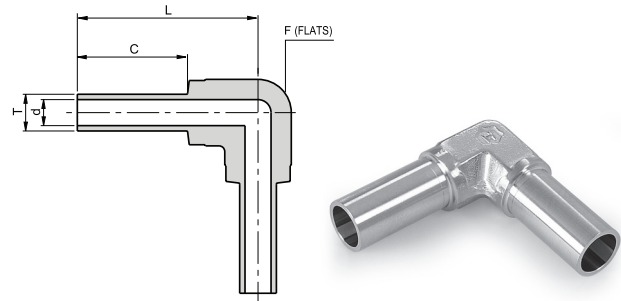
Ordering Information	L		C1		C		d1		d		T1 Tube O.D	W.T. (T1)		T Tube O.D	W.T. (T)	
	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	inch/ mm	mm	inch	inch/ mm	mm	inch
RU-1/4 X 1/8-W	19.1	0.75	10.4	0.41	6.4	0.25	4.60	0.18	1.9	0.07	1/4"	-	0.035	1/8"	-	0.028
RU-3/8 X 1/4-W	19.1	0.75	10.4	0.41	6.4	0.25	7.70	0.30	4.6	0.18	3/8"	-	0.035	1/4"	-	0.035
RU-1/2 X 1/4-W	19.1	0.75	10.4	0.41	6.4	0.25	10.2	0.40	4.6	0.18	1/2"	-	0.049	1/4"	-	0.035
RU-1/2 X 3/8-W	19.1	0.75	10.4	0.41	6.4	0.25	10.2	0.40	7.7	0.30	1/2"	-	0.049	3/8"	-	0.035
RU- 1 X 1/2-W	19.1	0.75	10.4	0.41	6.4	0.25	22.1	0.87	10.2	0.40	1"	-	0.065	1/2"	-	0.049
RU- 8MM X 6MM-W	19.1	0.75	10.4	0.41	6.4	0.25	6.00	0.24	4.0	0.16	8mm	1.00	-	6mm	1.00	-
RU- 10MM X 6MM-W	19.1	0.75	10.4	0.41	6.4	0.25	8.00	0.31	4.0	0.16	10mm	1.00	-	6mm	1.00	-
RU- 10MM X 8MM-W	19.1	0.75	10.4	0.41	6.4	0.25	8.00	0.31	6.0	0.24	10mm	1.00	-	8mm	1.00	-
RU- 12MM X 6MM-W	19.1	0.75	10.4	0.41	6.4	0.25	10.0	0.39	4.0	0.16	12mm	1.00	-	6mm	1.00	-
RU- 12MM X 8MM-W	19.1	0.75	10.4	0.41	6.4	0.25	10.0	0.39	6.0	0.24	12mm	1.00	-	8mm	1.00	-
RU- 12MM X 10MM-W	19.1	0.75	10.4	0.41	6.4	0.25	10.0	0.39	8.0	0.31	12mm	1.00	-	10mm	1.00	-

Dimensions are for reference only and are subject to change without notice.  
When ordering, be sure to add the Surface-Finish Designator (either H or E) to the part number.

## LONG WELD CONNECTORS

### EW-W ELBOW

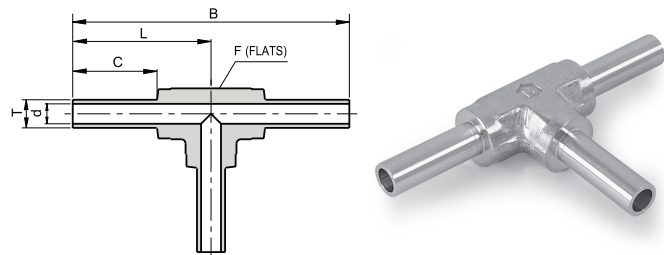
Without shoulder



Ordering Information	L		C		d		F	T	W.T.	
	mm	inch	mm	inch	mm	inch	inch	inch/mm	mm	inch
P-EW-1/4-W	31.2	1.23	19.1	0.75	4.60	0.18	7/16	1/4"	-	0.035
P-EW-3/8-W	30.5	1.20	19.1	0.75	7.07	0.30	7/16	3/8"	-	0.035
P-EW-1/2-W	34.0	1.34	19.1	0.75	10.2	0.40	11/16	1/2"	-	0.049
P-EW-1/2-W W.T.=0.065	34.0	1.34	19.1	0.75	9.50	0.37	11/16	1/2"	-	0.065
P-EW-3/4-W W.T.=0.049	37.1	1.46	19.1	0.75	16.6	0.65	15/16	3/4"	-	0.049
P-EW-3/4-W W.T.=0.065	37.1	1.46	19.1	0.75	15.8	0.62	15/16	3/4"	-	0.065
P-EW-1-W W.T.=0.065	47.0	1.85	24.4	0.96	22.1	0.87	1 3/8	1"	-	0.065
P-EW-1-W W.T.=0.120	47.0	1.85	24.4	0.96	19.4	0.76	1 3/8	1"	-	0.120
P-EW-6M-W	31.2	1.23	19.1	0.75	4.00	0.16	7/16	6mm	1.00	-
P-EW-8MM-W	31.2	1.23	19.1	0.75	6.00	0.24	7/16	8mm	1.00	-
P-EW-10MM-W	34.0	1.34	19.1	0.75	8.00	0.31	11/16	10mm	1.00	-
P-EW-12MM-W	34.0	1.34	19.1	0.75	10.0	0.39	11/16	12mm	1.00	-

### TW-W TEE

Without shoulder



Ordering Information	L		B		C		d		F	T	W.T.	
	mm	inch	mm	inch	mm	inch	mm	inch	inch	inch/mm	mm	inch
P-TW-1/4-W	31.2	1.23	62.5	2.46	19.1	0.75	4.60	0.18	7/16	1/4"	-	0.035
P-TW-3/8-W	30.5	1.20	61.0	2.40	19.1	0.75	7.70	0.30	7/16	3/8"	-	0.035
P-TW-1/2-W	34.0	1.34	68.1	2.68	19.1	0.75	10.2	0.40	11/16	1/2"	-	0.049
P-TW-1/2-W W.T.=0.065	34.0	1.34	68.1	2.68	19.1	0.75	9.50	0.37	11/16	1/2"	-	0.065
P-TW-3/4-W W.T.=0.065	37.1	1.46	74.2	2.92	19.1	0.75	15.8	0.62	15/16	3/4"	-	0.065
P-TW-3/4-W W.T.=0.049	37.1	1.46	74.2	2.92	19.1	0.75	16.6	0.65	15/16	3/4"	-	0.049
P-TW-1-W W.T.=0.065	47.0	1.85	94.0	3.70	24.4	0.96	22.1	0.87	1 3/8	1"	-	0.065
P-TW-1-W W.T.=0.120	47.0	1.85	94.0	3.70	24.4	0.96	19.4	0.76	1 3/8	1"	-	0.120
P-TW-6MM-W	31.2	1.23	62.5	2.46	19.1	0.75	4.00	0.16	7/16	6mm	1.00	-
P-TW-8MM-W	31.2	1.23	62.5	2.46	19.1	0.75	6.00	0.24	7/16	8mm	1.00	-
P-TW-10MM-W	34.0	1.34	68.1	2.68	19.1	0.75	8.00	0.31	11/16	10mm	1.00	-
P-TW-12MM-W	34.0	1.34	68.1	2.68	19.1	0.75	10.0	0.39	11/16	12mm	1.00	-

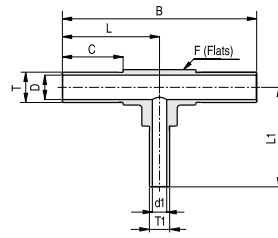
Dimensions are for reference only and are subject to change without notice.  
When ordering, be sure to add the Surface-Finish Designator (either H or E) to the part number.



## LONG WELD CONNECTORS

### TWR-W TEE REDUCER

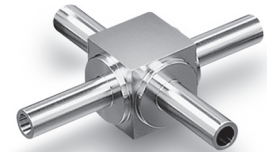
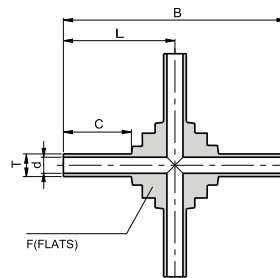
Without shoulder



Ordering Information	L		L1		B		C		d		d1		F	T	W.T.	T1	W.T.
	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	inch	Tube O.D.	inch/mm	inch/mm	Tube O.D.
P-TWR-3/8X1/4 W	30.5	1.20	31.2	1.23	61.0	2.40	19.1	0.75	7.7	0.30	4.60	0.18	7/16	3/8"	0.035"	1/4"	0.035"
P-TWR-1/2X1/4 W	34.0	1.34	34.0	1.34	68.0	2.68	19.1	0.75	10.2	0.40	4.60	0.18	11/16	1/2"	0.049"	1/4"	0.035"
P-TWR-1/2X3/8 W	34.0	1.34	34.0	1.34	68.0	2.68	19.1	0.75	10.2	0.40	7.70	0.30	11/16	1/2"	0.049"	3/8"	0.035"
P-TWR-3/4X1/4 W W.T.=0.049 X 0.035	37.1	1.46	37.1	1.46	74.2	2.92	19.1	0.75	16.6	0.65	4.60	0.18	15/16	3/4"	0.049"	1/4"	0.035"
P-TWR-3/4X1/4 W W.T.=0.065 X 0.035	37.1	1.46	37.1	1.46	74.2	2.92	19.1	0.75	15.8	0.62	4.60	0.18	15/16	3/4"	0.065"	1/4"	0.035"
P-TWR-3/4X1/2 W W.T.=0.049	37.1	1.46	37.1	1.46	74.2	2.92	19.1	0.75	16.6	0.65	10.2	0.40	15/16	3/4"	0.049"	1/2"	0.049"
P-TWR-12MMX6MM W	34.0	1.34	34.0	1.34	68.0	2.68	19.1	0.75	10.0	0.39	4.00	0.16	11/16	12mm	1.00mm	6mm	1.00mm

### CW-W CROSS

Without shoulder



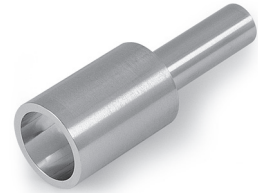
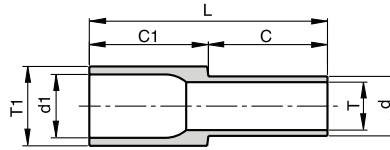
Ordering Information	L		B		C		d		F	T	W.T.	
	mm	inch	mm	inch	mm	inch	mm	inch	inch/mm	Tube O.D.	inch/mm	inch
P-CW-1/4-W	31.2	1.23	62.5	2.46	19.1	0.75	4.60	0.18	17mm	1/4"	-	0.035
P-CW-3/8-W	30.5	1.20	61.0	2.40	19.1	0.75	7.70	0.30	17mm	3/8"	-	0.035
P-CW-1/2-W	31.0	1.22	62.0	2.44	19.1	0.75	10.2	0.40	17mm	1/2"	-	0.049
P-CW-1/2-W W.T.=0.065	31.0	1.22	62.0	2.44	19.1	0.75	9.50	0.37	17mm	1/2"	-	0.065
P-CW-6MM-W	31.2	1.23	62.5	2.46	19.1	0.75	4.00	0.16	17mm	6mm	1.00	-
P-CW-8MM-W	30.5	1.20	61.0	2.40	19.1	0.75	6.00	0.24	17mm	8mm	1.00	-
P-CW-10MM-W	31.0	1.22	62.0	2.44	19.1	0.75	8.00	0.31	17mm	10mm	1.00	-
P-CW-12MM-W	31.0	1.22	62.0	2.44	19.1	0.75	10.0	0.39	17mm	12mm	1.00	-

Dimensions are for reference only and are subject to change without notice.  
When ordering, be sure to add the Surface-Finish Designator (either H or E) to the part number.

## LONG WELD CONNECTORS

### RW-W REDUCER

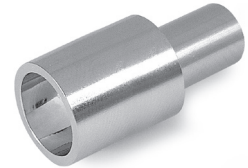
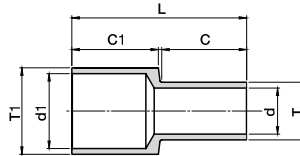
Without shoulder



Ordering Information	L		C		d1		d		T1 Tube O.D.	W.T. (T1)		T Tube O.D.	W.T. (T)	
	mm	inch	mm	inch	mm	inch	mm	inch	inch/mm	mm	inch	inch/mm	mm	inch
RW-1/4X1/8-W	38.1	1.50	19.1	0.75	4.60	0.18	1.9	0.07	1/4"	-	0.035	1/8"	-	0.028
RW-3/8X1/4-W	38.1	1.50	19.1	0.75	7.70	0.30	4.6	0.18	3/8"	-	0.035	1/4"	-	0.035
RW-1/2X1/4-W	38.1	1.50	19.1	0.75	10.2	0.40	4.6	0.18	1/2"	-	0.049	1/4"	-	0.035
RW-1/2X3/8-W	38.1	1.50	19.1	0.75	10.2	0.40	7.7	0.30	1/2"	-	0.049	3/8"	-	0.035
RW-8MM X 6MM-W	38.1	1.50	19.1	0.75	6.00	0.24	4.0	0.16	8mm	1.00	-	6mm	1.00	-
RW-10MM X 6MM-W	38.1	1.50	19.1	0.75	8.00	0.31	4.0	0.16	10mm	1.00	-	6mm	1.00	-
RW-10MM X 8MM-W	38.1	1.50	19.1	0.75	8.00	0.31	6.0	0.24	10mm	1.00	-	8mm	1.00	-
RW-12MM X 6MM-W	38.1	1.50	19.1	0.75	10.0	0.39	4.0	0.16	12mm	1.00	-	6mm	1.00	-
RW-12MM X 8MM-W	38.1	1.50	19.1	0.75	10.0	0.39	6.0	0.24	12mm	1.00	-	8mm	1.00	-
RW-12MM X 10MM-W	38.1	1.50	19.1	0.75	10.0	0.39	8.0	0.31	12mm	1.00	-	10mm	1.00	-

### RW-W REDUCER BIG SIZE

Without shoulder



Ordering Information	L		C1		C		d1		d		T1 Tube O.D.	W.T. (T1)		T Tube O.D.	W.T. (T)	
	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	inch/mm	mm	inch	inch/mm	mm	inch
RW-3/4X1/2 W W.T.=0.049	38.5	1.51	19.1	0.75	19.1	0.75	16.6	0.65	10.2	0.40	3/4"	-	0.049	1/2"	-	0.049
RW-3/4X1/2 W W.T.=0.065X0.049	38.5	1.51	19.1	0.75	19.1	0.75	15.8	0.62	10.2	0.40	3/4"	-	0.065	1/2"	-	0.065
RW-3/4X1/4 W W.T.=0.049X0.035	38.5	1.51	19.1	0.75	19.1	0.75	16.6	0.65	4.6	0.18	3/4"	-	0.049	1/4"	-	0.049
RW-1X1/2 W W.T.= 0.065X0.049	40.5	1.59	19.1	0.75	19.1	0.75	22.1	0.87	10.2	0.40	1"	-	0.065	1/2"	-	0.049

### UB-W BUTTWELD UNION

Without shoulder

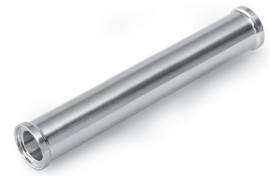
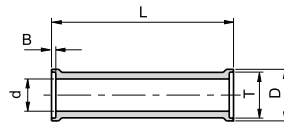


Ordering Information	L		d		T Tube O.D	W.T.
	mm	inch	mm	inch	inch	inch
UB-1/4-W	24.3	0.96	4.60	0.18	1/4	0.035
UB-3/8-W	23.9	0.94	7.70	0.30	3/8	0.035
UB-1/2-W	23.4	0.92	10.2	0.40	1/2	0.049
UB-3/4-W W.T.=0.049	23.4	0.92	16.6	0.65	3/4	0.049
UB-3/4-W W.T.=0.065	23.4	0.92	15.8	0.62	3/4	0.065
UB-1-W W.T.=0.065	29.7	1.17	22.1	0.87	1	0.065

## LONG SHAPED CONNECTORS

### UB-S BUTTWELD UNION

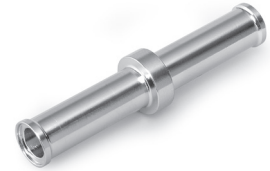
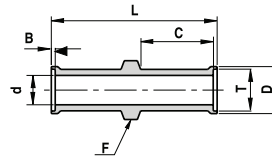
With shoulder



Ordering Information	L		d		B		D		T	W.T.
	mm	inch	mm	inch	mm	inch	mm	inch	Tube O.D.	
UB-1/4-S	25.4	1.00	4.60	0.18	0.55	0.02	7.4	0.29	1/4	0.035
UB-3/8-S	25.4	1.00	7.70	0.30	0.76	0.03	10.4	0.41	3/8	0.035
UB-1/2-S	25.4	1.00	10.2	0.40	1.00	0.04	14.0	0.55	1/2	0.049
UB-3/4-S W.T.=0 .049	25.4	1.00	16.5	0.65	1.00	0.04	20.3	0.80	3/4	0.049
UB-3/4-S W.T.=0 .065	25.4	1.00	15.8	0.62	1.00	0.04	20.3	0.80	3/4	0.065
UB-1-S W.T.=0 .065	31.8	1.25	22.1	0.87	1.00	0.04	26.9	1.06	1	0.065

### UBL-S BUTTWELD UNION

With locator and shoulder

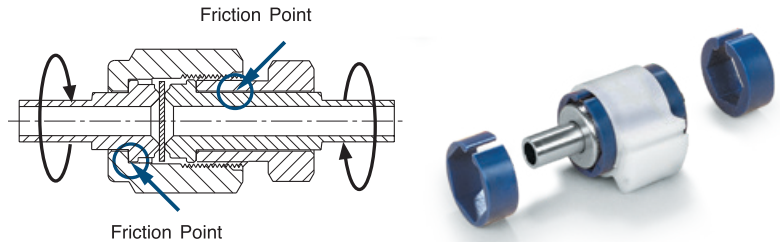


Ordering Information	L		C		d		B		D		F		T	W.T.
	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	Tube O.D.	
UBL-1/4-S	42.9	1.69	19.1	0.75	4.60	0.18	0.6	0.02	7.4	0.29	9.1	0.36	1/4	0.035
UBL-3/8-S	43.4	1.71	19.1	0.75	7.70	0.30	0.8	0.03	10.4	0.41	10.7	0.42	3/8	0.035
UBL-1/2-S	43.9	1.73	19.1	0.75	10.2	0.40	1.0	0.04	14.0	0.55	15.2	0.60	1/2	0.049

Dimensions are for reference only and are subject to change without notice.  
When ordering, be sure to add the Surface-Finish Designator (either H or E) to the part number.

# GRIPKIT

Gripkit is a patented product designed to help preventing potential leaks in metal-gasket face seal fittings. The Gripkit is designed for use with critical, semiconductor-industry ultra-pure and high-purity gas applications, as well as vacuum delivery systems. The product is color coded for easy identification within the system and is engineered to be used with the fitting components of most major manufacturers.



## MATERIALS

GRIPKIT CONSISTS OF THREE COMPONENTS:

Part Number	Description	Material
GK-NY-M4	5/8" Hex male crescent adapter	Blue nylon
GK-NY-F4	3/4" Hex female crescent adapter	Blue nylon
GK-1-CL-WH	White color coded clamp	Acetyl
GK-1-CL-BL	Blue color coded clamp	Acetyl
GK-1-CL-YL	Yellow color coded clamp	Acetyl
GK-1-CL-RD	Red color coded clamp	Acetyl
GK-1-CL-GR	Green color coded clamp	Acetyl



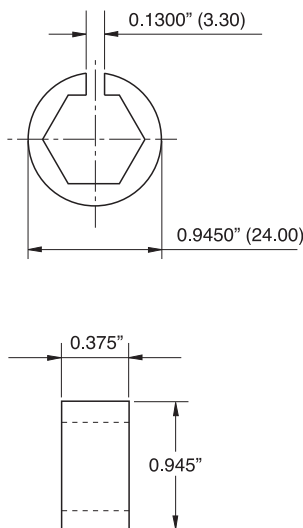
## HOW IT WORKS

The Gripkit fixes the position of the male nut relative to the female nut, and therefore, the distance between the two sealing glands. Consequently, when torque is applied to either side of the fitting connection, it does not cause the nuts to rotate in opposition and lose their compression on the gasket. In extreme cases, when very high torque is applied to the fitting joint, the glands may rotate within the fixed nuts, but the connector will remain intact. Gripkit will prevent the kind of catastrophic leak that results from the loss of gland compression on the gasket.

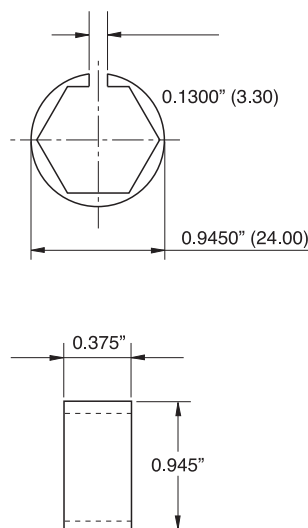
## WHY USE GRIPKIT ?

When pipe fitters, maintenance technicians and operators work on gas distribution systems, they can accidentally "torque" the system, causing fittings down-line to come apart. Most veteran gas system engineers recognize this common phenomenon. Another widespread problem occurs when a fitting connection "shakes apart" because it is mounted on, or near, vibrating equipment. Sources of system vibration include pumps, motors, pneumatic actuators, as well as mobile equipment. Gripkit® offers a very inexpensive solution to these real and potentially

### 1" x 5/8" CRESCENT SECTION



### 1" x 3/4" CRESCENT SECTION



### 1" CLAMP SECTION

