



Fujikin® Carp® Group



 **V-Lok**
®
Tube Fittings



As we advance further into the 21st century:

An intelligent integrator for the new age,
Fujikin Carp Group.

To go beyond the limits.
Space Environmental Awareness,
Fujikin Carp Group.



Shinya Nojima
President & COO

***Fujikin® Carp® Group* Technology can be found wherever something is flowing**

The ***Fujikin Carp Group*** is a leading manufacturer of high-technology products for a wide range of industries. Our corporate policy is to defy boundaries and overcome limitations to technology, and we aim to be number one in every market we serve. Since our beginnings in 1930 as a wholesale dealer of pipe-laying materials and machinery tools, we have evolved into a global leader in the manufacture of specific-purpose valves, as well as precision valves and flow control systems. The ***Fujikin Carp Group***'s products are known for their safety and reliability, and they are used throughout the semiconductor, aerospace, shipbuilding, chemical, electric power generation, and biotechnology industries. Our research and production facilities are at the cutting edge of technology, and we actively promote collaboration between industry, academia, and the government.

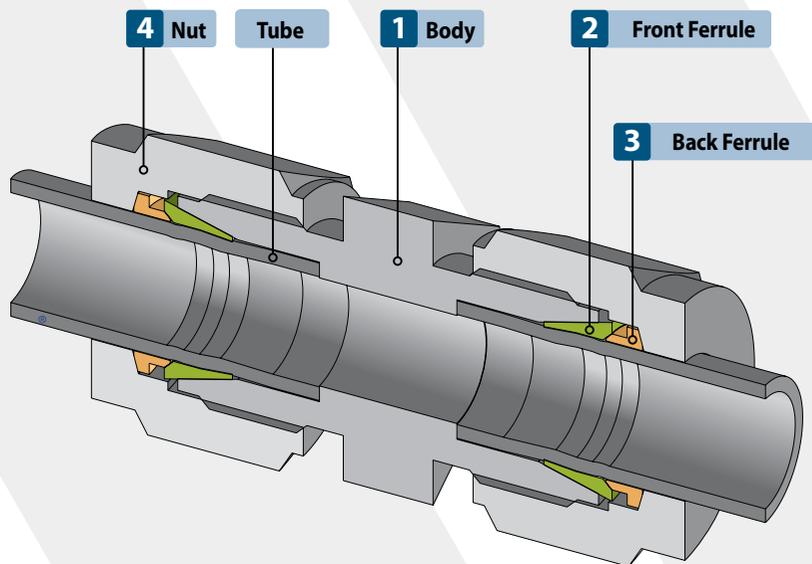
The ***Fujikin Carp Group*** is recognized not only as a manufacturer of technologically advanced products, but also as a leading integrated intelligent high-technology innovator. We believe in exploring the creative potential of partnerships with different industries at a global scale. Through these partnerships, we aim to meet the challenges of the twenty-first century. We appreciate your continued business, and we welcome your feedback.

Overview of V-Lok Tube Fittings

V-Lok is a high performance tube fitting that combines the sealing properties and quality control technologies required for power plant instrumentation fittings, other industries, and the ultra-pure construction required used in fittings used in semiconductor manufacturing equipment.

V-Lok is new value series that provides high performance, cost effectiveness, and quick delivery.

V-Lok tube fittings combine leading edge manufacturing technology and exceptional cost performance.



V-Lok Tube Fittings are composed four parts:
1. Body 2. Front Ferrule 3. Back Ferrule 4. Nut



V-Lok How Does it Works?

The V-Lok Tube Fittings is a mechanism used both to seal and to grip tubing. The mechanical advantage and geometry of this kind of fitting produces a leak-tight assembly.

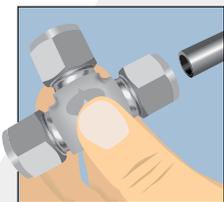
To assemble, simply insert the tube into the complete assembly until the tube bottoms-out against the shoulder of the fitting body (1). The two ferrules are driven forward between the nut (4) and fitting body using the mechanical force created by rotating the nut clockwise. The back ferrule (3) is driven against the tapered rear of the front ferrule (2) and the front ferrule is driven by force into the tapered mouth of the body.

The back ferrule is swaged radially inwards on the tube while lifting the front ferrule out to form a full-faced seal on the tapered surface of the body.

The 1¹/₄ turn of the nut from the hand tight position assures consistent drive of the sealing parts. This ensures an effective seal against high pressure as well as ultra high vacuum conditions.

V-Lok Installation Instructions

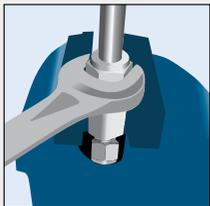
V-Lok fittings are supplied assembled and hand tight. Disassembly before use can allow the entry of dirt or other particles.



Insert the tubing completely into the V-Lok tube fittings.

Check that the tube point contacts with the fitting body shoulder

and that the nut is hand tight until it cannot be tightened further. At this point it is recommended that a scribe mark be drawn on the hex of the nut extending onto the fitting body. This mark will serve as an indicator for the starting point and proper pull-up.



Tighten the nut.

1 1/4 turn of the nut are required for 1/4" (6 mm) and larger fittings (see Fig. A). 3/4 turn of the nut is required for 3/16" (4 mm) and smaller fittings (see Fig. B).

Plug unions (product number: VUWJP) and port connectors (product number: VUW-PC): First tighten the nuts manually, and then use a wrench to tighten them a further 1/4 turn only, regardless of size. Assembly is then complete.

Figure A

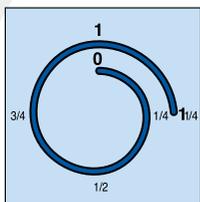
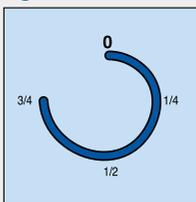


Figure B



Reassembly Instructions

V-Lok tube fittings may be disconnected and reconnected repeatedly, without loss of the leak-tight seal.

1. Before reassembling the parts, ensure that there is no foreign matter on the sealing diagonal face of the fitting body and the front ferrule.
2. Insert the front ferrule until it reaches the body, and then manually tighten the nut enough.
3. With a wrench, tighten the nut approximately 1/4 turn. Assembly is then complete.

Note:

1. After reassembly, the fitting body and nut should return to their original position, or be tightened slightly further.
2. For fittings with nominal diameters between 1.6mm (1/16"OD) and 4mm, tighten the nut 1/6 turn.
3. For fittings with nominal diameters of 15.88mm (5/8"OD) or larger, it may occasionally be necessary to tighten the nut 1/4 turn or more.
4. Don't use the gap inspection gauge for reassembly.

Before Installation

1. Use an austenitic stainless steel tube with a seamless bright anneal finish, a hardness of Hv200 or less, and a tolerance within ± 0.1 mm of the tube O.D..
2. Please refer to "Tubing Data" on page 5 for recommended tube wall thickness.
3. There should be no visible scratches 30mm from either end of the tube. Remove any foreign matter.
4. Scratches on the tube may cause leaks. It is therefore important to handle the tube carefully to reduce the risk of leak. Please do not drag tube when taking out of the shelf and drag on the floor to avoid scratching on the tube.
5. Before assembling the fittings, cut the tubes to the required length.
6. Use a tube cutter to cut the tube. To attain a leak-free connection, the tubing must be cut squarely. A high-quality tube cutter with an appropriate blade for the tubing material is recommended. If it is necessary to use a different method, for example hacksaw cutting, be sure to cut the tube at a right angle, and then remove burrs carefully from the outer circumference by filing at a 45° angle to the center line.

7. Tube cutter blades should be replaced regularly to maintain sharpness.

8. Before tightening the fitting, ensure that the tube and the fitting are properly aligned.

9. Before tightening the fitting, ensure that its body has been secured using a wrench. Never hold the nut in place while attempting to tighten the body.

Attention!

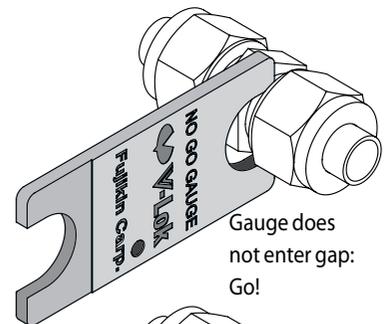
1. A small amount of lubricant has been applied to the wetted area of this product. As a result, this product cannot be used in oxygen gas lines or any other high-purity gas lines. Do not remove this lubricant prior to use.
2. If you require oil-free ultra-pure compression fittings, use Fujikin's FINELOK fittings. For more information on these fittings, please refer to the FINELOK brochure.

Post-assembly:

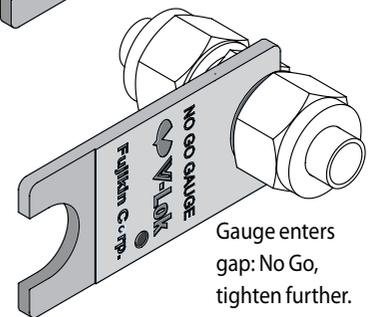
Inspection with a "No-Go" gauge (New Fittings Only)

1. Position the "No-Go" gauge next to the gap between the nut and body.
2. If the gauge cannot fit into the gap, the fitting is sufficiently tightened.
3. If the gauge can enter the gap, additional tightening is required.

Note: Do not use the "No-Go" gauge on retightened or pre-tightened fittings.



Gauge does not enter gap: Go!



Gauge enters gap: No Go, tighten further.

Ordering Information for the V-Lok "No-Go" gauge

Part No.	Fitting Size
G-VUW - 9.52 x 6.35	1/4", 6mm, 3/8", 8mm
G-VUW - 12.7 x 10	10mm, 1/2", 12mm

Physical Differences And Marking

V-Lok Metric Fittings:

Tee & Elbow (see Fig. 1)

Body marked: MM

Straight Connectors: (see Fig. 2)

Body: Stepped shoulder

marked: F-CARP 316 AV⁽¹⁾

Nut: (see Figs. 1 & 2) Stepped shoulder

marked: V-LOK 316 6M⁽²⁾ SD8⁽¹⁾

V-Lok INCH FITTINGS:

Tee & Elbow: (See Fig. 3)

Straight Fittings: (see Fig. 4)

Body: Shoulder marked:

F-CARP 316 AV⁽¹⁾

Nut: (See Fig. 3 & 4): Shoulder

marked V-LOK 316 1/2⁽²⁾ BU2⁽¹⁾

(1): Material Batch

(2): Tube O.D.

Fig. 1 Back side

V-LOK 316 6M SD8

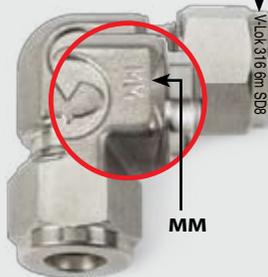


Fig. 1 Front side



Fig. 2

Stepped
Shoulder



Fig. 3 Back side

V-LOK 316 1/2 BU2



Fig. 3 Front side



Fig. 4



V-Lok Tubing Data

Table 1: Maximum Allowable Working Pressure Of Stainless Each Tube Wall Thickness

Tube Wall Thickness		0.010- less than 0.012	0.012- less than 0.014	0.014- less than 0.016	0.016- less than 0.020	0.020- less than 0.028	0.028- less than 0.035	0.035- less than 0.049	0.049- less than 0.065	0.065- less than 0.083	0.083- less than 0.095	0.095- less than 0.109	0.109- less than 0.120	0.120
mm	inch													
	1/16	5600	6860	8150	9480	12080								
2	1/8						8550	10950						
3	3/16						5500	7100	10300					
6	1/4						4100	5200	7600	10300				
8	5/16							4100	5900	8100				
10	3/8							3350	4850	6550				
12	1/2							2650	3750	5150	6750			
16	5/8								2950	4050	5250	6050		
20	3/4								2450	3350	4250	4950	5850	
22	7/8								2050	2850	3650	4250	4850	
25	1									2400	3100	3600	4200	4700

Table 2: Factors Used To Determine Allowable Working Pressure At Higher Temperature

°F	°C	A.I.S.I. 316
200	93	1
400	204	0.96
600	316	0.85
800	427	0.79
1000	538	0.76
1200	649	0.37

To determine allowable pressure at higher temperatures, multiply allowable working pressure from Tables 1 by factors shown in Table 2. For example: The allowable pressure for Type 316 stainless steel, size 1/2" O.D. x 0.049" wall at 800°F(427°C) would be equivalent to 3750 psi x 0.79 = 2962.5 psi. Regarding Min. Nominal Wall Thickness, please refer to Table 3.

Table 3: Gas Application Tubing

in		mm	
Tube O.D.	Min. Nominal Wall Thickness	Tube O.D.	Min. Nominal Wall Thickness
1/8" (3.17mm)	0.028" (0.7mm)	3 mm	0.8 mm
3/16" (4.76mm)	0.028" (0.7mm)	6 mm	0.8 mm
1/4" (6.35mm)	0.028" (0.7mm)	8 mm	1 mm
5/16" (7.93mm)	0.035" (0.89mm)	10 mm	1 mm
3/8" (9.52mm)	0.035" (0.89mm)	12 mm	1 mm
1/2" (12.7mm)	0.049" (1.24mm)	14 mm	1.2 mm
5/8" (15.87mm)	0.065" (1.65mm)	16 mm	1.5 mm
3/4" (19.05mm)	0.065" (1.65mm)	18 mm	1.5 mm
7/8" (22.22mm)	0.083" (2.1mm)	20 mm	1.8 mm
1" (25.4mm)	0.083" (2.1mm)	22 mm	2 mm
		25 mm	2.2 mm

For gas applications, we recommend tubing with a greater wall thickness. Table 3 shows the recommended min. wall thicknesses for greater safety and efficiency.

- Attention!**
1. The value of Table 1 is a maximum allowable working pressure calculated from the tube thickness. The maximum allowable working pressure of the fitting is limited from the value of this table according to the application regulations, and use it, please after considering the application regulations and the standard of used equipment.
 2. There is a possibility that the seal decreases remarkably, and consult separately, please when it is used for a long time exceeding 400°C.

V-Lok Part Number Designation

All orders should include material description and ordering information (See product table).

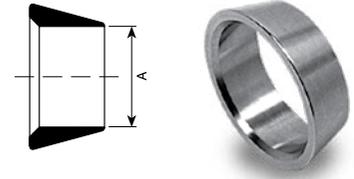
V	U	W	H	—	6.35	B
Product Series	Material	Type of Tube Fittings	Connector Type		Nominal Diameter	Thread Size
V-Lok	Stainless Steel	Double Ferrule Compression and Bite Type	Mail Connector		Outer Diameter of Tube	R1/4

V-Lok Index		
Front Ferrule 8 S 	Union Elbows 16 L 	Male Connectors (R) 28 H 
Back Ferrule 8 R 	Tube Fittings to Female Thread Connectors (NPT) 17 G 	Male Connectors (G) 30 H 
Insert For Soft Plastic Tubing ... 9 IN 	Tube Fittings to Female Thread Connectors (Rc) 19 G 	Male Connectors (G) 32 H 
Nut 9 N 	Tube Fittings to Female Thread Connectors (G) 20 G 	Male Connectors (UNF) 33 H 
Unions 10 F 	Reducers 21 R 	Male Connectors (NPT) 34 H 
Reducing Unions 11 F 	Port Connectors 24 PC 	Male Connectors (UNF) 34 H 
Union Tees 13 T 	Reducing Port Connectors 25 PC 	Male Pipe Weld Connectors ... 35 R 
Reducing Union Tees 14 T 	Male Connectors (NPT) 26 H 	Female Pipe Weld Connectors 36 R 

V-Lok Index		
Male Elbows (NPT)..... 37 L 	Male Branch Tees (R)..... 49 TS 	Plugs..... 58 JP 
Male Elbows (R)..... 39 L 	Female Branch Tees (NPT)..... 50 TG 	Female Tube Adapters (NPT)..... 59 GA 
Male Pipe Weld Elbows..... 41 LR 	Female Branch Tees (Rc)..... 51 TG 	Female Tube Adapters (Rc)..... 61 GA 
Tube Socket Weld Elbows..... 41 LR 	Bulkhead Unions..... 52 P 	Male Tube Adapters (NPT)..... 63 A 
Female Elbows (NPT)..... 42 LG 	Bulkhead Female Connectors (NPT)..... 53 GP 	Male Tube Adapters (R)..... 65 A 
Female Elbows (Rc)..... 43 LG 	Bulkhead Female Connectors (Rc)..... 53 GP 	Male Nuts..... 67 
Male Run Tees (NPT)..... 44 TL 	Bulkhead Reducers..... 53 RP 	Unions For Chromatograph... 67 
Male Run Tees (R)..... 45 TL 	Bulkhead Male Connectors (NPT)..... 54 HP 	Reducing Unions For Chromatograph..... 67 
Female Run Tees (NPT)..... 46 TLG 	Bulkhead Male Connectors (R)..... 55 HP 	Union Tees For Chromatograph..... 67 
Female Run Tees (Rc)..... 47 TLG 	Union Crosses..... 56 X 	Male Positionable Branch Tees Male Positionable Elbows 
Male Branch Tees (NPT)..... 48 TS 	Caps..... 57 JC 	(Mounting Dimensions..... 70) ISO Parallel Thread..... 73 Stop Collar..... 74 Fine Bubble(R) Leak Detection Fluid..... 75

Front Ferrule

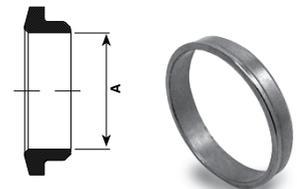
S



Metric		Inch			Ferrule Sets All V-Lok ferrules are available as sets.
Part Number	A Tube O.D.	Part Number	A Tube O.D.		
	mm		in	mm	
VUW-2S	2	VUW-1.6S	1/16	1.6	
VUW-3S	3	VUW-3.2S	1/8	3.2	
VUW-4S	4	VUW-4.8S	3/16	4.8	
VUW-6S	6	VUW-6.35S	1/4	6.35	
VUW-8S	8	VUW-7.93S	5/16	7.93	
VUW-10S	10	VUW-9.52S	3/8	9.52	
VUW-12S	12	VUW-12.7S	1/2	12.7	
VUW-14S	14	VUW-15.88S	5/8	15.88	
VUW-15S	15	VUW-19.05S	3/4	19.05	
VUW-16S	16	VUW-22.22S	7/8	22.22	
VUW-18S	18	VUW-25.4S	1	25.4	
VUW-20S	20				
VUW-22S	22				
VUW-25S	25				

Back Ferrule

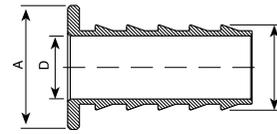
R



Metric		Inch			Ferrule Sets All V-Lok ferrules are available as sets.
Part Number	A Tube O.D.	Part Number	A Tube O.D.		
	mm		in	mm	
VUW-2R	2	VUW-1.6R	1/16	1.6	
VUW-3R	3	VUW-3.2R	1/8	3.2	
VUW-4R	4	VUW-4.8R	3/16	4.8	
VUW-6R	6	VUW-6.35R	1/4	6.35	
VUW-8R	8	VUW-7.93R	5/16	7.93	
VUW-10R	10	VUW-9.52R	3/8	9.52	
VUW-12R	12	VUW-12.7R	1/2	12.7	
VUW-14R	14	VUW-15.88R	5/8	15.88	
VUW-15R	15	VUW-19.05R	3/4	19.05	
VUW-16R	16	VUW-22.22R	7/8	22.22	
VUW-18R	18	VUW-25.4R	1	25.4	
VUW-20R	20				
VUW-22R	22				
VUW-25R	25				

"D" - Dimension is minimum hole diameter - dimensions are for reference only, and are subject to change without notice.

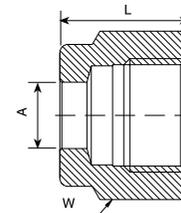
Tube Insert IN



Metric			
Part Number	A	A1	D
	Tube O.D.	Tube I.D.	
	mm	mm	mm
VUW-IN-6X4	6	4	2.8
VUW-IN-8X6	8	6	4.4
VUW-IN-10X8	10	8	6.4
VUW-IN-12X8	12	8	6.4
VUW-IN-12X10	12	10	8.3

Inch							
Part Number	A		A1		D		
	Tube O.D.		Tube I.D.				
	in	mm	in	mm	in	mm	
VUW-IN-4.8X3.2	3/16	4.8	1/8	3.2	0.09	2.3	
VUW-IN-6.35X3.2	1/4	6.35	1/8	3.2	0.09	2.3	
VUW-IN-6.35X4.3	1/4	6.35	0.17	4.3	0.11	2.7	
VUW-IN-6.35X4.8	1/4	6.35	3/16	4.8	0.12	3.1	
VUW-IN-7.93X3.2	5/16	7.93	1/8	3.2	0.09	2.3	
VUW-IN-7.93X4.8	5/16	7.93	3/16	4.8	0.12	3	
VUW-IN-7.93X6.35	5/16	7.93	1/4	6.35	0.18	4.6	
VUW-IN-9.52X4.8	3/8	9.52	3/16	4.8	0.12	3.1	
VUW-IN-9.52X6.35	3/8	9.52	1/4	6.35	0.18	4.6	
VUW-IN-12.7X6.35	1/2	12.7	1/4	6.35	0.18	4.6	
VUW-IN-12.7X9.52	1/2	12.7	3/8	9.52	0.31	7.8	
VUW-IN-15.88X9.52	5/8	15.88	3/8	9.52	0.31	7.8	
VUW-IN-15.88X12.7	5/8	15.88	1/2	12.7	0.44	11.1	
VUW-IN-19.05X12.7	3/4	19.05	1/2	12.7	0.44	11.1	
VUW-IN-19.05X15.88	3/4	19.05	5/8	15.88	0.56	14.2	
VUW-IN-25.4X19.05	1	25.4	3/4	19.05	0.69	17.5	

Nut N

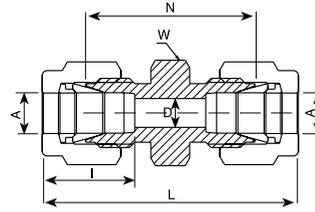


Metric			
Part Number	A	W	L
	Tube O.D.		
	mm	mm	mm
VUW-2N	2	12	11.9
VUW-3N	3	12	11.9
VUW-4N	4	12	12
VUW-6N	6	14	12.7
VUW-8N	8	16	13.5
VUW-10N	10	19	15.1
VUW-12N	12	22	17.4
VUW-14N	14	25	17.4
VUW-15N	15	25	17.4
VUW-16N	16	25	17.4
VUW-18N	18	30	17.4
VUW-20N	20	32	17.4
VUW-22N	22	32	17.4
VUW-25N	25	38	20.6

Inch							
Part Number	A		W		L		
	Tube O.D.						
	in	mm	in	mm	in	mm	
VUW-1.6N	1/16	1.6	5/16	7.9	0.31	8	
VUW-3.2N	1/8	3.2	7/16	11.1	0.47	11.9	
VUW-4.8N	3/16	4.8	1/2	12.7	0.47	11.9	
VUW-6.35N	1/4	6.35	9/16	14.3	0.5	12.7	
VUW-7.93N	5/16	7.93	5/8	15.9	0.53	13.5	
VUW-9.52N	3/8	9.52	11/16	17.5	0.56	14.3	
VUW-12.7N	1/2	12.7	7/8	22.2	0.69	17.5	
VUW-15.88N	5/8	15.88	1	25.4	0.69	17.5	
VUW-19.05N	3/4	19.05	1 1/8	28.6	0.69	17.5	
VUW-22.22N	7/8	22.22	1 1/4	31.8	0.69	17.5	
VUW-25.4N	1	25.4	1 1/2	38.1	0.81	20.6	

"D" - Dimension is minimum hole diameter - dimensions are for reference only, and are subject to change without notice.

Union
F



Tube (Metric) To Tube (Metric)

Part Number	A Tube O.D.		D		W		N		L		I	
	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm
VUWF-2	2		1.7		12		22.4		35.6		12.9	
VUWF-3	3		2.4		12		22.1		35.3		12.9	
VUWF-4	4		2.4		12		24.1		37.3		13.7	
VUWF-6	6		4.8		14		26.2		41		15.3	
VUWF-8	8		6.4		15		28.2		43.2		16.2	
VUWF-10	10		7.9		18		31		46.2		17.2	
VUWF-12	12		9.5		22		31		51.2		22.8	
VUWF-14	14		11		24		31.8		52		22.8	
VUWF-15	15		12		24		31.8		52		24.4	
VUWF-16	16		12.7		24		31.8		52		24.4	
VUWF-18	18		15.1		27		33.3		53.5		24.4	
VUWF-20	20		15.9		30		34.8		55		26	
VUWF-22	22		18.3		30		34.8		55		26	
VUWF-25	25		21.8		35		40.4		65		31.3	

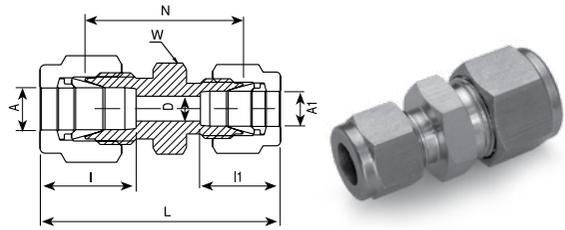
Tube (Inch) To Tube (Inch)

Part Number	A Tube O.D.		D		W		N		L		I	
	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm
VUWF-1.6	1/16	1.6	0.05	1.3	5/16	7.9	0.69	17.5	0.99	25.2	0.34	8.6
VUWF-3.2	1/8	3.2	0.09	2.3	7/16	11.1	0.88	22.4	1.4	35.6	0.5	12.7
VUWF-4.8	3/16	4.8	0.12	3.1	7/16	11.1	0.95	24.1	1.47	37.3	0.54	13.7
VUWF-6.35	1/4	6.35	0.19	4.8	1/2	12.7	1.03	26.2	1.61	40.9	0.6	15.2
VUWF-7.93	5/16	7.93	0.25	6.4	9/16	14.3	1.11	28.2	1.69	42.9	0.64	16.3
VUWF-9.52	3/8	9.52	0.28	7.1	5/8	15.9	1.19	30.2	1.77	45	0.66	16.8
VUWF-12.7	1/2	12.7	0.41	10.4	13/16	20.6	1.22	31	2.02	51.3	0.9	22.9
VUWF-15.88	5/8	15.88	0.5	12.7	15/16	23.8	1.25	31.8	2.05	52.1	0.96	24.4
VUWF-19.05	3/4	19.05	0.62	15.8	1 1/16	27	1.31	33.3	2.11	53.6	0.96	24.4
VUWF-22.22	7/8	22.22	0.72	18.3	1 3/16	30.2	1.38	35.1	2.17	55.1	1.02	25.9
VUWF-25.4	1	25.4	0.88	22.3	1 3/8	34.9	1.59	40.4	2.55	64.8	1.23	31.2

"D" - Dimension is minimum hole diameter - dimensions are for reference only, and are subject to change without notice.

Reducing Union

F



Tube (Metric) To Tube (Metric)

Part Number	A	A1	D	W	N	L	I	I1
	Tube O.D.	Tube O.D.						
	mm	mm	mm	mm	mm	mm	mm	mm
VUWF-3X2	3	2	1.7	12	22.1	35.3	12.9	12.9
VUWF-6X2	6	2	1.7	14	24.6	38.6	15.3	12.9
VUWF-6X3	6	3	2.3	14	24.6	38.6	15.3	12.9
VUWF-6X4	6	4	2.3	14	25.4	39.4	15.3	13.7
VUWF-8X6	8	6	4.8	15	27.4	42.3	16.2	15.3
VUWF-10X6	10	6	4.8	18	29.5	44.5	17.2	15.3
VUWF-10X8	10	8	6.4	18	30	45.1	17.2	16.2
VUWF-12X6	12	6	4.8	22	29.5	47	22.8	15.3
VUWF-12X8	12	8	6.4	22	30.2	47.8	22.8	16.2
VUWF-12X10	12	10	7.9	22	31	48.7	22.8	17.2
VUWF-16X10	16	10	7.9	24	31.8	49.5	24.4	17.2
VUWF-16X12	16	12	9.5	24	31.8	52	24.4	22.8
VUWF-18X12	18	12	9.5	27	33.3	53.5	24.4	22.8
VUWF-25X18	25	18	15.1	35	38.6	61	31.3	24.4
VUWF-25X20	25	20	15.9	35	39.9	62.3	31.3	26

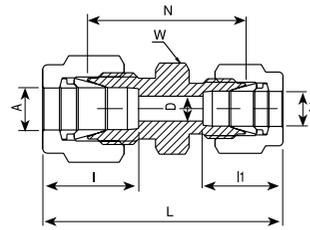
Tube (Metric) To Tube (Inch)

Part Number	A	A1	D	W	N	L	I	I1
	Tube O.D.	Tube O.D.						
	mm	in	mm	mm	mm	mm	mm	mm
VUWF-6.35X2	2	1/4	1.7	14	24	38.6	12.9	15.2
VUWF-3.2X3	3	1/8	2.3	12	22.1	35.2	12.9	12.7
VUWF-4X3.2	4	1/8	2.4	12	23.4	36.5	13.7	12.7
VUWF-6.35X4	4	1/4	2.4	14	25.4	39.4	13.7	15.2
VUWF-6X3.2	6	1/8	2.4	14	24.6	38.5	15.3	12.7
VUWF-6.35X6	6	1/4	4.8	14	26.2	41	15.3	15.2
VUWF-7.93X6	6	5/16	4.8	14	27.4	42.3	15.3	16.2
VUWF-8X3.2	8	1/8	2.4	15	25.9	39.9	16.2	12.7
VUWF-8X6.35	8	1/4	4.8	15	27.4	42.3	16.2	15.2
VUWF-9.52X8	8	3/8	6.4	16	29.5	44.3	16.2	16.8
VUWF-10X3.2	10	1/8	2.4	18	27.7	41.8	17.2	12.7
VUWF-10X6.35	10	1/4	4.8	18	29.5	44.5	17.2	15.2
VUWF-10X7.93	10	5/16	6.4	18	30	45.1	17.2	16.2
VUWF-10X9.52	10	3/8	7.1	18	31	46	17.2	16.8
VUWF-12X7.93	12	5/16	6.4	22	30.2	47.8	22.8	16.2
VUWF-12X9.52	12	3/8	7.1	22	31	48.4	22.8	16.8
VUWF-12.7X12	12	1/2	9.5	22	31	51.2	22.8	22.9
VUWF-15X12.7	15	1/2	10.4	24	31.8	52.1	24.4	22.9
VUWF-16X15.88	16	5/8	12.7	24	31.8	52	24.4	24.4
VUWF-19.05X18	18	3/4	15.1	27	33.3	53.5	24.4	24.4

"D" - Dimension is minimum hole diameter - dimensions are for reference only, and are subject to change without notice.

Reducing Union (continued)

F



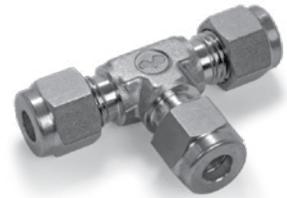
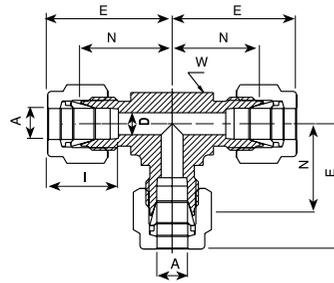
Tube (Inch) To Tube (Inch)

Part Number	A Tube O.D.		A1 Tube O.D.		D		W		N		L		I		I1	
	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm
VUWF-3.2X1.6	1/8	3.2	1/16	1.6	0.05	1.3	7/16	11.1	0.81	20.6	1.22	31	0.5	12.7	0.34	8.6
VUWF-4.8X1.6	3/16	4.8	1/16	1.6	0.05	1.3	7/16	11.1	0.86	21.8	1.27	32.3	0.54	13.7	0.34	8.6
VUWF-4.8X3.2	3/16	4.8	1/8	3.2	0.09	2.3	7/16	11.1	0.92	23.4	1.44	36.6	0.54	13.7	0.5	12.7
VUWF-6.35X1.6	1/4	6.35	1/16	1.6	0.05	1.3	1/2	12.7	0.91	23.1	1.35	34.3	0.6	15.2	0.34	8.6
VUWF-6.35X3.2	1/4	6.35	1/8	3.2	0.09	2.3	1/2	12.7	0.97	24.6	1.52	38.6	0.6	15.2	0.5	12.7
VUWF-6.35X4.8	1/4	6.35	3/16	4.8	0.12	3.1	1/2	12.7	1	25.4	1.55	39.4	0.6	15.2	0.54	13.7
VUWF-7.93X3.2	5/16	7.93	1/8	3.2	0.09	2.3	9/16	14.3	1.01	25.7	1.56	39.6	0.64	16.3	0.5	12.7
VUWF-7.93X6.35	5/16	7.93	1/4	6.35	0.19	4.8	9/16	14.3	1.08	27.4	1.66	42.2	0.64	16.3	0.6	15.2
VUWF-9.52X1.6	3/8	9.52	1/16	1.6	0.05	1.3	5/8	15.9	1	25.4	1.44	36.6	0.66	16.8	0.34	8.6
VUWF-9.52X3.2	3/8	9.52	1/8	3.2	0.09	2.3	5/8	15.9	1.06	26.9	1.61	40.9	0.66	16.8	0.5	12.7
VUWF-9.52X6.35	3/8	9.52	1/4	6.35	0.19	4.8	5/8	15.9	1.12	28.5	1.7	43.2	0.66	16.8	0.6	15.2
VUWF-9.52X7.93	3/8	9.52	5/16	7.93	0.25	6.35	5/8	15.9	1.16	29.5	1.74	44.2	0.66	16.8	0.64	16.3
VUWF-12.7X3.2	1/2	12.7	1/8	3.2	0.09	2.3	13/16	20.6	1.12	28.4	1.78	45.2	0.9	22.9	0.5	12.7
VUWF-12.7X6.35	1/2	12.7	1/4	6.35	0.19	4.8	13/16	20.6	1.16	29.5	1.85	47	0.9	22.9	0.6	15.2
VUWF-12.7X9.52	1/2	12.7	3/8	9.52	0.28	7.1	13/16	20.6	1.22	31	1.91	48.5	0.9	22.9	0.66	16.8
VUWF-15.88X9.52	5/8	15.88	3/8	9.52	0.28	7.1	15/16	23.8	1.25	31.8	1.94	49.3	0.96	24.4	0.66	16.8
VUWF-15.88X12.7	5/8	15.88	1/2	12.7	0.41	10.4	15/16	23.8	1.25	31.8	2.05	52.1	0.96	24.4	0.9	22.9
VUWF-19.05X6.35	3/4	19.05	1/4	6.35	0.19	4.8	1 1/16	27	1.25	31.8	1.94	49.3	0.96	24.4	0.6	15.2
VUWF-19.05X9.52	3/4	19.05	3/8	9.52	0.28	7.1	1 1/16	27	1.31	33.3	2	50.8	0.96	24.4	0.66	16.8
VUWF-19.05X12.7	3/4	19.05	1/2	12.7	0.41	10.4	1 1/16	27	1.31	33.3	2.11	53.6	0.96	24.4	0.9	22.9
VUWF-19.05X15.88	3/4	19.05	5/8	15.88	0.5	12.7	1 1/16	27	1.31	33.3	2.11	53.6	0.96	24.4	0.96	24.4
VUWF-25.4X12.7	1	25.4	1/2	12.7	0.41	10.4	1 3/8	34.9	1.5	38.1	2.38	60.5	1.23	31.2	0.9	22.9
VUWF-25.4X19.05	1	25.4	3/4	19.05	0.62	15.8	1 3/8	34.9	1.5	38.1	2.38	60.5	1.23	31.2	0.96	24.4

"D" - Dimension is minimum hole diameter - dimensions are for reference only, and are subject to change without notice.

Union Tee

T



All Tube (Metric)

Part Number	A Tube O.D.		D		W		N		E		I	
	mm	mm	mm	mm	in	mm	mm	mm	mm	mm	mm	mm
VUWT-2	2		1.7		3/8	9.5	15.7		22.3		12.9	
VUWT-3	3		2.4		3/8	9.5	15.7		22.3		12.9	
VUWT-4	4		2.4		1/2	12.7	18.8		25.4		13.7	
VUWT-6	6		4.8		1/2	12.7	19.6		27		15.3	
VUWT-8	8		6.4		5/8	15.9	22.4		29.9		16.2	
VUWT-10	10		7.9		11/16	17.5	23.9		31.5		17.2	
VUWT-12	12		9.5		13/16	20.6	25.9		36		22.8	
VUWT-14	14		11		15/16	23.8	28.7		38.8		24.4	
VUWT-15	15		12		15/16	23.8	28.7		38.8		24.4	
VUWT-16	16		12.7		15/16	23.8	28.7		38.8		24.4	
VUWT-18	18		15.1		1 1/16	27	29.7		39.8		24.4	
VUWT-20	20		15.9		1 3/8	34.9	34.5		44.6		26	
VUWT-22	22		18.3		1 3/8	34.9	34.5		44.6		26	
VUWT-25	25		21.8		1 3/8	34.9	36.8		49.1		31.3	

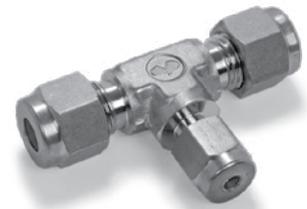
All Tube (Inch)

Part Number	A Tube O.D.		D		W		N		E		I	
	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm
VUWT-1.6	1/16	1.6	0.05	1.3	3/8	9.5	0.55	14	0.7	17.8	0.34	8.6
VUWT-3.2	1/8	3.2	0.09	2.3	3/8	9.5	0.62	15.8	0.88	22.4	0.5	12.7
VUWT-4.8	3/16	4.8	0.12	3	1/2	12.7	0.7	17.8	0.96	24.4	0.54	13.7
VUWT-6.35	1/4	6.35	0.19	4.8	1/2	12.7	0.77	19.6	1.06	26.9	0.6	15.2
VUWT-7.93	5/16	7.93	0.25	6.4	5/8	15.9	0.88	22.4	1.17	29.7	0.64	16.3
VUWT-9.52	3/8	9.52	0.28	7.1	5/8	15.9	0.91	23.1	1.2	30.5	0.66	16.8
VUWT-12.7	1/2	12.7	0.41	10.4	13/16	20.6	1.02	25.9	1.42	36.1	0.9	22.9
VUWT-15.88	5/8	15.88	0.5	12.7	15/16	23.8	1.13	28.7	1.53	38.9	0.96	24.4
VUWT-19.05	3/4	19.05	0.62	15.8	1 1/16	27	1.17	29.7	1.57	39.9	0.96	24.4
VUWT-22.22	7/8	22.22	0.72	18.3	1 3/8	34.9	1.36	34.54	1.76	44.7	1.02	25.9
VUWT-25.4	1	25.4	0.88	22.3	1 3/8	34.9	1.45	36.8	1.93	49	1.23	31.2

"D" - Dimension is minimum hole diameter - dimensions are for reference only, and are subject to change without notice.

Reducing Union Tee

T

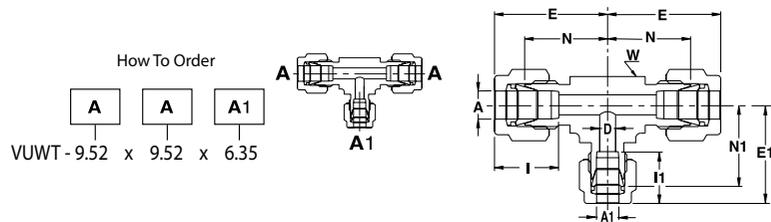


Tube (Inch) To Tube (Inch)

Part Number	A		A1		E		E1		I		I1		D		W		N		N1	
	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm
VUWT-9.52X9.52X6.35	3/8	9.52	1/4	6.35	1.2	30.5	1.14	29	0.66	16.8	0.6	15.2	0.19	4.8	5/8	15.9	0.91	23.1	0.85	21.6
VUWT-12.7X12.7X6.35	1/2	12.7	1/4	6.35	1.42	36.1	1.25	31.8	0.9	22.9	0.6	15.2	0.19	4.8	13/16	20.6	1.02	25.9	0.96	24.4
VUWT-12.7X12.7X9.52	1/2	12.7	3/8	9.52	1.42	36.1	1.31	33.3	0.9	22.9	0.66	16.8	0.28	7.1	13/16	20.6	1.02	25.9	1.02	25.9
VUWT-15.88X15.88X9.52	5/8	15.88	3/8	9.52	1.53	38.9	1.42	36.1	0.96	24.4	0.66	16.8	0.28	7.1	15/16	23.8	1.13	28.7	1.13	28.7
VUWT-19.05X19.05X9.52	3/4	19.05	3/8	9.52	1.57	39.9	1.46	37.1	0.96	24.4	0.66	16.8	0.28	7.1	1 1/16	27	1.17	29.7	1.17	29.7
VUWT-19.05X19.05X12.7	3/4	19.05	1/2	12.7	1.57	39.9	1.57	39.9	0.96	24.4	0.9	22.9	0.41	10.4	1 1/16	27	1.17	29.7	1.17	29.7
VUWT-25.4X25.4X9.52	1	25.4	3/8	9.52	1.93	49	1.65	41.9	1.23	31.2	0.66	16.8	0.28	7.1	1 3/8	34.9	1.45	36.8	1.36	34.5
VUWT-25.4X25.4X12.7	1	25.4	1/2	12.7	1.93	49	1.76	44.7	1.23	31.2	0.9	22.9	0.41	10.4	1 3/8	34.9	1.45	36.8	1.36	34.5
VUWT-25.4X25.4X19.05	1	25.4	3/4	19.05	1.93	49	1.76	44.7	1.23	31.2	0.96	24.4	0.62	15.8	1 3/8	34.9	1.45	36.8	1.36	34.5

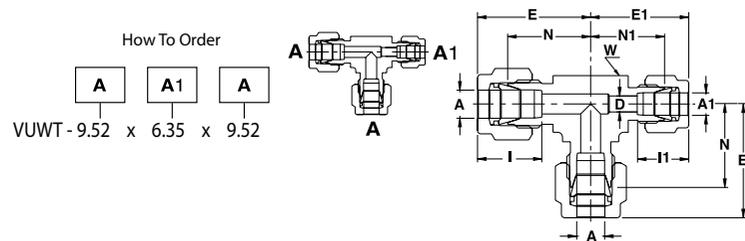
Reducing Union Tee

T



Tube (Inch) To Tube (Inch)

Part Number	A		A1		E		E1		I		I1		D		W		N		N1	
	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm
VUWT-9.52X6.35X9.52	3/8	9.52	1/4	6.35	1.2	30.5	1.14	29	0.66	16.8	0.6	15.2	0.19	4.8	5/8	15.9	0.91	23.1	0.85	21.6

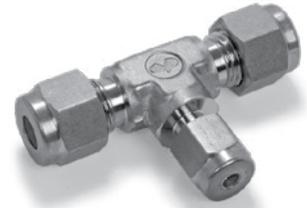


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"D" - Dimension is minimum hole diameter - dimensions are for reference only, and are subject to change without notice.

Reducing Union Tee (continued)

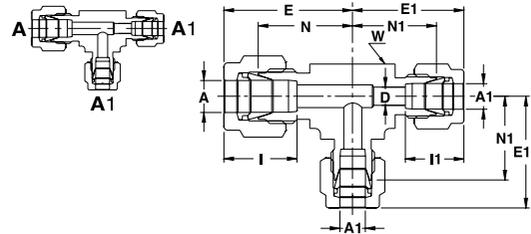
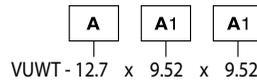
T



Tube (Inch) To Tube (Inch)

Part Number	A Tube O.D.		A1 Tube O.D.		E		E1		I		I1		D		W		N		N1	
	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm
VUWT-12.7X9.52X9.52	1/2	12.7	3/8	9.52	1.42	36.1	1.31	33.3	0.9	22.9	0.66	16.8	0.28	7.1	13/16	20.6	1.02	25.9	1.02	25.9
VUWT-15.88X9.52X9.52	5/8	15.88	3/8	9.52	1.53	38.9	1.42	36.1	0.96	24.4	0.66	16.8	0.28	7.1	15/16	23.8	1.13	28.7	1.13	28.7
VUWT-19.05X9.52X9.52	3/4	19.05	3/8	9.52	1.57	39.9	1.46	37.1	0.96	24.4	0.66	16.8	0.28	7.1	1 1/8	28.6	1.17	29.7	1.17	29.7

How To Order



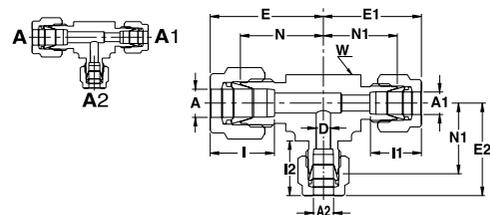
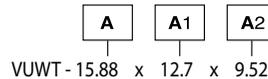
Reducing Union Tee (continued)

T

Tube (Inch) To Tube (Inch)

Part Number	A Tube O.D.		A1 Tube O.D.		A2 Tube O.D.		E		E1		E2		I		I1		I2		D		W		N		N1	
	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm
VUWT-15.88X12.7X9.52	5/8	15.88	1/2	12.7	3/8	9.52	1.53	38.9	1.53	38.9	1.42	36.1	0.96	24.4	0.9	22.9	0.66	16.8	0.28	7.1	15/16	23.8	1.13	28.7	1.13	28.7
VUWT-19.05X12.7X9.52	3/4	19.05	1/2	12.7	3/8	9.52	1.57	39.9	1.57	39.9	1.46	37.1	0.96	24.4	0.9	22.9	0.66	16.8	0.28	7.1	1 1/8	28.6	1.17	29.7	1.17	29.7
VUWT-25.4X19.05X9.52	1	25.4	3/4	19.05	3/8	9.52	1.93	49	1.76	44.7	1.65	41.9	1.23	31.2	0.96	24.4	0.66	16.8	0.28	7.1	1 3/8	34.9	1.45	36.8	1.36	34.5

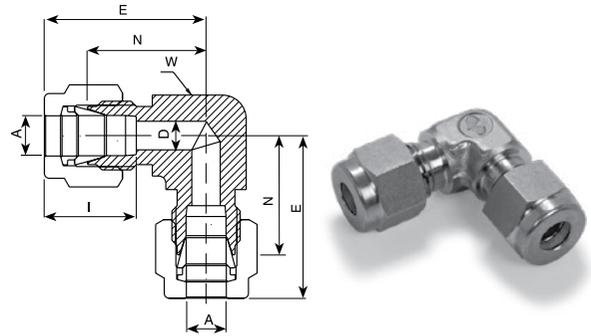
How To Order



"D" - Dimension is minimum hole diameter - dimensions are for reference only, and are subject to change without notice.

Union Elbow

L



Tube (Metric) To Tube (Metric)

Part Number	A Tube O.D.		D		W		N		E		I	
	mm	mm	in	mm	in	mm	in	mm	in	mm	in	mm
VUWL-3	3		2.4		3/8	9.5		15.7		22.3		12.9
VUWL-4	4		2.4		1/2	12.7		18.8		25.4		13.7
VUWL-6	6		4.8		1/2	12.7		19.6		27		15.3
VUWL-8	8		6.4		9/16	14.3		21.3		28.8		16.2
VUWL-10	10		7.9		11/16	17.5		23.9		31.5		17.2
VUWL-12	12		9.5		13/16	20.6		25.9		36		22.8
VUWL-14	14		11		15/16	23.8		27.9		38		24.4
VUWL-15	15		12		15/16	23.8		27.9		38		24.4
VUWL-16	16		12.7		15/16	23.8		27.9		38		24.4
VUWL-18	18		15.1		1 1/16	27		29.7		39.8		24.4
VUWL-20	20		15.9		1 3/8	34.9		34.5		44.6		26
VUWL-22	22		18.3		1 3/8	34.9		34.5		44.6		26
VUWL-25	25		21.8		1 3/8	34.9		36.8		49.1		31.3

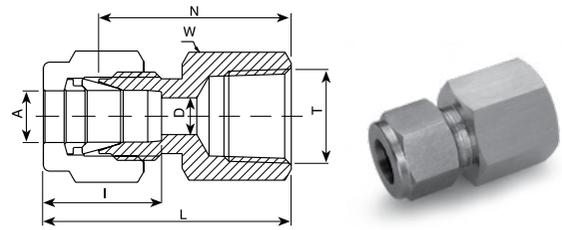
Tube (Inch) To Tube (Inch)

Part Number	A Tube O.D.		D		W		N		E		I	
	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm
VUWL-1.6	1/16	1.6	0.05	1.3	3/8	9.5	0.55	14	0.7	17.8	0.34	8.6
VUWL-3.2	1/8	3.2	0.09	2.3	3/8	9.5	0.62	15.7	0.88	22.4	0.5	12.7
VUWL-4.8	3/16	4.8	0.12	3	1/2	12.7	0.74	18.8	1	25.4	0.54	13.7
VUWL-6.35	1/4	6.35	0.19	4.8	1/2	12.7	0.77	19.6	1.06	26.9	0.6	15.2
VUWL-7.93	5/16	7.93	0.25	6.4	9/16	14.3	0.84	21.3	1.13	28.7	0.64	16.3
VUWL-9.52	3/8	9.52	0.28	7.1	5/8	15.9	0.91	23.1	1.2	30.5	0.66	16.8
VUWL-12.7	1/2	12.7	0.41	10.4	13/16	20.6	1.02	25.9	1.42	36.1	0.9	22.9
VUWL-15.88	5/8	15.88	0.5	12.7	15/16	23.8	1.1	27.9	1.5	38.1	0.96	24.4
VUWL-19.05	3/4	19.05	0.62	15.8	1 1/16	27	1.17	29.7	1.57	39.9	0.96	24.4
VUWL-22.22	7/8	22.22	0.72	18.3	1 3/8	34.9	1.36	34.5	1.76	44.7	1.02	25.9
VUWL-25.4	1	25.4	0.88	22.3	1 3/8	34.9	1.45	36.8	1.93	49	1.23	31.2

D - Dimension is minimum hole diameter - dimensions are for reference only, and are subject to change without notice.

Female Connector (NPT)

G



Tube (Metric) To Female NPT Thread

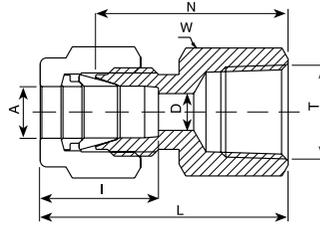
Part Number	A	T	D	W	N	L	I
	Tube O.D. mm		mm	mm	mm	mm	mm
VUWG-3AN	3	1/8NPT	2.4	14	22.1	28.7	12.7
VUWG-3BN	3	1/4NPT	2.4	19	26.9	33.5	12.7
VUWG-4AN	4	1/8NPT	2.4	14	23.1	29.7	13.7
VUWG-6AN	6	1/8NPT	4.8	14	23.9	31.3	15.3
VUWG-6BN	6	1/4NPT	4.8	19	28.4	35.8	15.3
VUWG-6CN	6	3/8NPT	4.8	22	30.2	37.6	15.3
VUWG-6DN	6	1/2NPT	4.8	27	35.1	42.5	15.3
VUWG-8AN	8	1/8NPT	6.4	15	24.6	32.1	16.2
VUWG-8BN	8	1/4NPT	6.4	19	29.5	37	16.2
VUWG-8CN	8	3/8NPT	6.4	22	31	38.5	16.2
VUWG-8DN	8	1/2NPT	6.4	27	35.8	43.3	16.2
VUWG-10BN	10	1/4NPT	7.9	19	30.2	37.8	17.2
VUWG-10CN	10	3/8NPT	7.9	22	31.8	39.4	17.2
VUWG-10DN	10	1/2NPT	7.9	27	36.6	44.2	17.2
VUWG-12BN	12	1/4NPT	9.5	22	30.2	40.3	22.8
VUWG-12CN	12	3/8NPT	9.5	22	31.8	41.9	22.8
VUWG-12DN	12	1/2NPT	9.5	27	36.6	46.7	22.8
VUWG-15DN	15	1/2NPT	11.9	27	36.6	46.7	24.4
VUWG-16DN	16	1/2NPT	12.7	27	36.8	46.9	24.4
VUWG-18EN	18	3/4NPT	15.1	35	39.6	49.7	24.4
VUWG-20DN	20	1/2NPT	15.9	30	37.8	47.9	26
VUWG-20EN	20	3/4NPT	15.9	35	39.6	49.7	26
VUWG-22EN	22	3/4NPT	18.3	35	39.6	49.7	26
VUWG-22FN	22	1NPT	18.3	41	47.8	57.9	26
VUWG-25EN	25	3/4NPT	21.8	35	41.1	53.4	31.3
VUWG-25FN	25	1NPT	21.8	41	50	62.3	31.3

Continued on next page

"D" - Dimension is minimum hole diameter - dimensions are for reference only, and are subject to change without notice.

Female Connector (NPT) (continued)

G



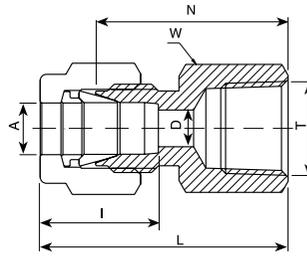
Tube (Inch) To Female NPT Thread

Part Number	A Tube O.D.		T	D		W		N		L		I	
	in	mm		in	mm	in	mm	in	mm	in	mm	in	mm
VUWG-3.2AN	1/8	3.2	1/8NPT	0.09	2.3	9/16	14.3	0.87	22.1	1.13	28.7	0.5	12.7
VUWG-3.2BN	1/8	3.2	1/4NPT	0.09	2.3	3/4	19.1	1.06	26.9	1.32	33.5	0.5	12.7
VUWG-4.8AN	3/16	4.8	1/8NPT	0.12	3.04	9/16	14.3	0.91	23.11	1.17	29.7	0.54	13.7
VUWG-6.35AN	1/4	6.35	1/8NPT	0.19	4.8	9/16	14.3	0.94	23.9	1.23	31.2	0.6	15.2
VUWG-6.35BN	1/4	6.35	1/4NPT	0.19	4.8	3/4	19.1	1.12	28.5	1.41	35.8	0.6	15.2
VUWG-6.35CN	1/4	6.35	3/8NPT	0.19	4.8	7/8	22.2	1.19	30.2	1.48	37.6	0.6	15.2
VUWG-6.35DN	1/4	6.35	1/2NPT	0.19	4.8	1 1/16	27	1.38	35	1.67	42.4	0.6	15.2
VUWG-7.93AN	5/16	7.93	1/8NPT	0.25	6.35	9/16	14.3	0.97	24.6	1.26	32	0.64	16.3
VUWG-7.93BN	5/16	7.93	1/4NPT	0.25	6.35	3/4	19.1	1.16	29.5	1.45	36.8	0.64	16.3
VUWG-9.52AN	3/8	9.52	1/8NPT	0.28	7.1	5/8	15.9	1	25.4	1.29	32.8	0.66	16.8
VUWG-9.52BN	3/8	9.52	1/4NPT	0.28	7.1	3/4	19.1	1.19	30.2	1.48	37.6	0.66	16.8
VUWG-9.52CN	3/8	9.52	3/8NPT	0.28	7.1	7/8	22.2	1.25	31.8	1.54	39.1	0.66	16.8
VUWG-9.52DN	3/8	9.52	1/2NPT	0.28	7.1	1 1/16	27	1.44	36.6	1.73	43.9	0.66	16.8
VUWG-12.7BN	1/2	12.7	1/4NPT	0.41	10.4	13/16	20.6	1.19	30.2	1.59	40.4	0.9	22.9
VUWG-12.7CN	1/2	12.7	3/8NPT	0.41	10.4	7/8	22.2	1.25	31.8	1.65	41.9	0.9	22.9
VUWG-12.7DN	1/2	12.7	1/2NPT	0.41	10.4	1 1/16	27	1.44	36.6	1.84	46.7	0.9	22.9
VUWG-12.7EN	1/2	12.7	3/4NPT	0.41	10.4	1 5/16	33.3	1.5	38.1	1.9	48.3	0.9	22.9
VUWG-15.88CN	5/8	15.88	3/8NPT	0.5	12.7	15/16	23.8	1.25	31.8	1.65	41.9	0.96	24.4
VUWG-15.88DN	5/8	15.88	1/2NPT	0.5	12.7	1 1/16	27	1.44	36.6	1.84	46.7	0.96	24.4
VUWG-19.05DN	3/4	19.05	1/2NPT	0.62	15.8	1 1/16	27	1.44	36.6	1.84	46.7	0.96	24.4
VUWG-19.05EN	3/4	19.05	3/4NPT	0.62	15.8	1 5/16	33.3	1.5	38.1	1.9	48.3	0.96	24.4
VUWG-22.22EN	7/8	22.22	3/4NPT	0.72	18.3	1 5/16	33.3	1.56	39.6	1.96	49.8	1.02	25.9
VUWG-25.4EN	1	25.4	3/4NPT	0.88	22.3	1 3/8	34.9	1.62	41.1	2.1	53.3	1.23	31.2
VUWG-25.4FN	1	25.4	1NPT	0.88	22.3	1 5/8	41.3	1.97	50	2.45	62.2	1.23	31.2

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Female Connector (Rc)

G



Tube (Metric) To Female ISO Tapered Thread

Part Number	A	T	D	W	N	L	I
	Tube O.D. mm		mm	mm	mm	mm	mm
VUWG-3A	3	Rc 1/8	2.4	14	22.1	28.7	12.9
VUWG-6A	6	Rc 1/8	4.8	14	23.9	31.3	15.3
VUWG-6B	6	Rc 1/4	4.8	19	28.4	35.8	15.3
VUWG-6C	6	Rc 3/8	4.8	22	30.2	37.6	15.3
VUWG-6D	6	Rc 1/2	4.8	27	35.1	42.5	15.3
VUWG-8A	8	Rc 1/8	6.4	14	24.6	32.1	16.2
VUWG-8B	8	Rc 1/4	6.4	19	29.5	37	16.2
VUWG-8C	8	Rc 3/8	6.4	22	31	38.5	16.2
VUWG-8D	8	Rc 1/2	6.4	27	35.8	43.3	16.2
VUWG-10A	10	Rc 1/8	7.9	18	25.4	33	17.2
VUWG-10B	10	Rc 1/4	7.9	19	30.2	37.8	17.2
VUWG-10C	10	Rc 3/8	7.9	22	31.8	39.4	17.2
VUWG-10D	10	Rc 1/2	7.9	27	36.6	44.2	17.2
VUWG-12A	12	Rc 1/8	8.3	22	25.4	35.5	22.8
VUWG-12B	12	Rc 1/4	9.5	22	30.2	40.3	22.8
VUWG-12C	12	Rc 3/8	9.5	22	31.8	41.9	22.8
VUWG-12D	12	Rc 1/2	9.5	27	36.6	46.7	22.8
VUWG-12E	12	Rc 3/4	9.5	35	38.9	49	22.8
VUWG-15C	15	Rc 3/8	11.9	24	31.8	41.9	24.4
VUWG-15D	15	Rc 1/2	11.9	27	36.6	46.7	24.4
VUWG-20D	20	Rc 1/2	15.9	30	37.8	47.9	26
VUWG-20E	20	Rc 3/4	15.9	35	39.6	49.7	26
VUWG-22E	22	Rc 3/4	18.3	35	39.6	49.7	26
VUWG-22F	22	Rc 1	18.3	41	47.8	57.9	26
VUWG-25E	25	Rc 3/4	21.8	35	41.1	53.4	31.3
VUWG-25F	25	Rc 1	21.8	41	50	62.3	31.3

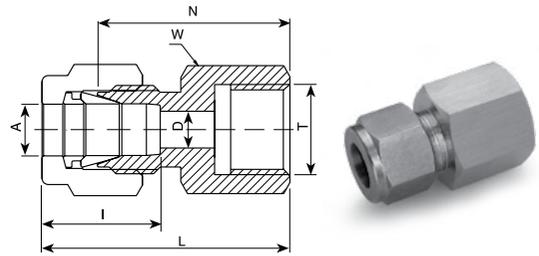
Designation:

R marking on hex of body

"D" - Dimension is minimum hole diameter - dimensions are for reference only, and are subject to change without notice.

Female Connector (G)

G



Tube (Metric) To Female ISO Parallel Thread

Part Number	A Tube O.D.		T	D	W		N	L	I
	mm				mm	mm			
VUWG-6AF-PG	6		G 1/8	4.8	14		25	32.4	15.3
VUWG-6BF-PG	6		G 1/4	4.8	19		30.2	37.6	15.3
VUWG-6CF-PG	6		G 3/8	4.8	24		30.2	37.6	15.3
VUWG-6DF-PG	6		G 1/2	4.8	27		36.1	43.5	15.3
VUWG-8BF-PG	8		G 1/4	5.5	19		31	38.5	16.2
VUWG-8CF-PG	8		G 3/8	5.5	24		29.6	37.1	16.2
VUWG-8DF-PG	8		G 1/2	5.5	27		33.5	41	16.2
VUWG-10BF-PG	10		G 1/4	5.5	19		31.8	39.4	17.2
VUWG-10CF-PG	10		G 3/8	5.5	24		31.2	38.8	17.2
VUWG-10DF-PG	10		G 1/2	5.5	27		34.5	42.1	17.2
VUWG-12BF-PG	12		G 1/4	5.5	22		31.8	41.9	22.8
VUWG-12CF-PG	12		G 3/8	5.5	24		34.3	44.4	22.8
VUWG-12DF-PG	12		G 1/2	5.5	27		38.1	48.2	22.8

Tube (Inch) To Female ISO Parallel Thread

Part Number	A Tube O.D.		T	D	W		N	L	I
	in	mm			in	mm			
VUWG-1.6CF-PG	1/16	1.58	G3/8	1.25	15/16	23.8	31	34.8	8.6
VUWG-3.2AF-PG	1/8	3.17	G1/8	2.3	9/16	14.3	24.5	31.1	12.7
VUWG-3.2CF-PG	1/8	3.17	G3/8	2.3	15/16	23.8	32.7	39.3	12.7
VUWG-6.35AF-PG	1/4	6.35	G1/8	5.5	9/16	14.3	25	32.4	15.2
VUWG-6.35BF-PG	1/4	6.35	G1/4	5.5	3/4	19.1	30.2	37.6	15.2
VUWG-6.35CF-PG	1/4	6.35	G3/8	5.5	15/16	23.8	30.2	37.6	15.2
VUWG-6.35DF-PG	1/4	6.35	G1/2	5.5	1-1/16	27	36.1	43.4	15.2
VUWG-9.52BF-PG	3/8	9.52	G1/4	5.5	3/4	19.1	31.8	39.1	16.8
VUWG-9.52CF-PG	3/8	9.52	G3/8	5.5	15/16	23.8	32.1	38.6	16.8
VUWG-9.52DF-PG	3/8	9.52	G1/2	5.5	1-1/16	27	34.5	41.9	16.8
VUWG-12.7BF-PG	1/2	12.7	G1/4	5.5	13/16	20.6	31.8	42	22.9
VUWG-12.7CF-PG	1/2	12.7	G3/8	5.5	15/16	23.8	34.3	44.5	22.9
VUWG-12.7DF-PG	1/2	12.7	G1/2	5.5	1-1/16	27	38.1	48.3	22.9

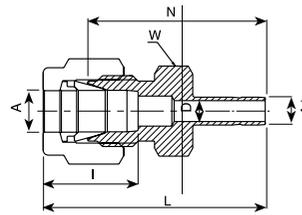
Designation:

PG marking on hex of body

"D" - Dimension is minimum hole diameter - dimensions are for reference only, and are subject to change without notice.

Reducer

R



Tube (Metric) To Stub (Metric)

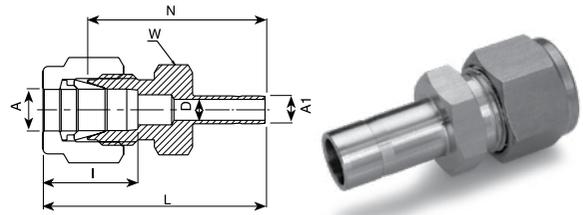
Part Number	A	A1	D	W	N	L	I
	Tube O.D. mm	Tube O.D. mm	mm	mm	mm	mm	mm
VUWR-2X3	2	3	1.7	12	26.9	33.5	12.9
VUWR-3X4	3	4	2.4	12	28.4	35	12.9
VUWR-3X6	3	6	2.4	12	29.5	36.1	12.9
VUWR-3X10	3	10	2.4	14	31.8	38.4	12.9
VUWR-4X6	4	6	2.4	12	30.5	37.1	13.7
VUWR-6X3	6	3	1.8	14	29.5	36.9	15.3
VUWR-6X8	6	8	4.8	14	32.5	39.9	15.3
VUWR-6X10	6	10	4.8	14	33.3	40.7	15.3
VUWR-6X12	6	12	4.8	14	38.9	46.3	15.3
VUWR-6X18	6	18	4.8	22	42.2	49.6	15.3
VUWR-8X6	8	6	4	15	32.8	40.3	16.2
VUWR-8X10	8	10	6.4	15	34.5	42	16.2
VUWR-8X12	8	12	6.4	15	40.1	47.6	16.2
VUWR-10X6	10	6	4	18	34.8	42.4	17.2
VUWR-10X8	10	8	5.6	18	35.8	43.4	17.2
VUWR-10X12	10	12	7.9	18	42.2	49.8	17.2
VUWR-10X15	10	15	7.9	18	43.7	51.3	17.2
VUWR-10X18	10	18	7.9	22	43.7	51.3	17.2
VUWR-12X6	12	6	4	22	34.8	44.9	22.8
VUWR-12X10	12	10	7.1	22	36.6	46.7	22.8
VUWR-12X16	12	16	9.5	22	43.7	53.8	22.8
VUWR-12X18	12	18	9.5	22	43.7	53.8	22.8
VUWR-12X20	12	20	9.5	22	46	56.1	22.8
VUWR-12X22	12	22	9.5	24	46	56.1	22.8
VUWR-12X25	12	25	9.5	27	52.3	62.4	22.8
VUWR-16X12	16	12	8.8	24	42.9	53	24.4
VUWR-18X12	18	12	8.8	27	44.5	54.6	24.4
VUWR-18X16	18	16	12.7	27	46	56.1	24.4
VUWR-18X20	18	20	15.1	27	47.5	57.6	24.4
VUWR-18X22	18	22	15.1	27	47.5	57.6	24.4
VUWR-18X25	18	25	15.1	27	52.3	62.4	24.4
VUWR-20X16	20	16	12.7	30	47.8	57.9	26
VUWR-20X18	20	18	13.9	30	47.8	57.9	26
VUWR-20X22	20	22	15.8	30	49.3	59.4	26
VUWR-20X25	20	25	15.9	30	54.1	64.2	26
VUWR-22X18	22	18	13.9	30	47.8	57.9	26
VUWR-22X20	22	20	15.1	30	49.3	59.4	26
VUWR-22X25	22	25	18.3	30	54.1	64.2	26
VUWR-25X18	25	18	13.9	35	50.8	63.1	31.3
VUWR-25X20	25	20	15.1	35	52.3	64.6	31.3

Continued on next page

"D" - Dimension is minimum hole diameter - dimensions are for reference only, and are subject to change without notice.

Reducer (continued)

R



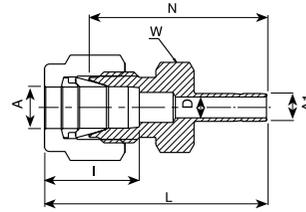
Tube (Metric) To Stub (Inch)							
Part Number	A	A1	D	W	N	L	I
	Tube O.D.	Tube O.D.					
	mm	mm	mm	mm	mm	mm	mm
VUWR-2X3.2	2	3.2	1.7	12	26.9	33.5	12.9
VUWR-3X3.2	3	3.2	2	12	26.9	33.5	12.9
VUWR-3X6.35	3	6.35	2.4	12	29.5	36.1	12.9
VUWR-4X6.35	4	6.35	2.4	12	30.5	37.1	13.7
VUWR-6X3.2	6	3.2	2.2	14	29.5	36.9	15.3
VUWR-6X7.93	6	7.93	4.8	14	32.5	39.9	15.3
VUWR-6X9.52	6	9.52	4.8	14	33.3	40.7	15.3
VUWR-6X12.7	6	12.7	4.8	14	38.9	46.3	15.3
VUWR-8X9.52	8	9.52	6.4	15	34.5	42	16.2
VUWR-8X12.7	8	12.7	6.4	15	40.1	47.6	16.2
VUWR-10X9.52	10	9.52	6.9	18	36.6	44.2	17.2
VUWR-10X12.7	10	12.7	7.9	18	42.2	49.8	17.2
VUWR-12X12.7	12	12.7	9.4	22	42.2	52.3	22.8
VUWR-12X19.05	12	19.05	9.5	22	43.7	53.8	22.8
VUWR-18X19.05	18	19.05	15.1	27	46	56.1	24.4
VUWR-18X25.4	18	25.4	15.1	27	52.3	62.4	24.4
VUWR-25X25.4	25	25.4	20.2	35	57.2	69.4	31.3

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"D" - Dimension is minimum hole diameter - dimensions are for reference only, and are subject to change without notice.

Reducer (continued)

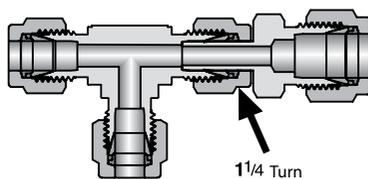
R



Tube (Inch) To Stub (Inch)

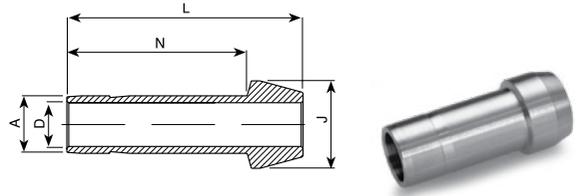
Part Number	A Tube O.D.		A1 Tube O.D.		D		W		N		L		I	
	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm
VUWR-1.6X3.2	1/16	1.6	1/8	3.2	0.05	1.3	5/16	7.9	1	25.4	1.15	29.2	0.34	8.6
VUWR-1.6X6.35	1/16	1.6	1/4	6.35	0.05	1.3	5/16	7.9	1.09	27.7	1.24	31.5	0.34	8.6
VUWR-3.2X1.6	1/8	3.2	1/16	1.6	0.03	0.8	7/16	11.1	0.88	22.4	1.14	29	0.5	12.7
VUWR-3.2X4.8	1/8	3.2	3/16	4.8	0.09	2.3	7/16	11.1	1.09	27.7	1.35	34.3	0.5	12.7
VUWR-3.2X6.35	1/8	3.2	1/4	6.35	0.09	2.3	7/16	11.1	1.16	29.5	1.42	36.1	0.5	12.7
VUWR-3.2X9.52	1/8	3.2	3/8	9.52	0.09	2.3	7/16	11.1	1.22	31	1.48	37.6	0.5	12.7
VUWR-3.2X12.7	1/8	3.2	1/2	12.7	0.09	2.3	9/16	14.3	1.48	37.6	1.74	44.2	0.5	12.7
VUWR-4.8X3.2	3/16	4.8	1/8	3.2	0.09	2.3	7/16	11.1	1.11	28.2	1.37	34.8	0.54	13.7
VUWR-4.8X6.35	3/16	4.8	1/4	6.35	0.12	3.1	7/16	11.1	1.2	30.5	1.46	37.1	0.6	13.7
VUWR-6.35X3.2	1/4	6.35	1/8	3.2	0.09	2.3	1/2	12.7	1.16	29.5	1.45	36.8	0.6	15.2
VUWR-6.35X4.8	1/4	6.35	3/16	4.8	0.12	3	1/2	12.7	1.19	30.2	1.48	37.6	0.6	15.2
VUWR-6.35X6.35	1/4	6.35	1/4	6.35	0.17	4.2	1/2	12.7	1.25	31.8	1.54	39.1	0.6	15.2
VUWR-6.35X7.93	1/4	6.35	5/16	7.93	0.19	4.8	1/2	12.7	1.28	32.5	1.57	39.9	0.6	15.2
VUWR-6.35X9.52	1/4	6.35	3/8	9.52	0.19	4.8	1/2	12.7	1.31	33.3	1.6	40.6	0.6	15.2
VUWR-6.35X12.7	1/4	6.35	1/2	12.7	0.19	4.8	9/16	14.3	1.53	38.9	1.82	46.2	0.6	15.2
VUWR-6.35X15.88	1/4	6.35	5/8	15.88	0.19	4.8	11/16	17.5	1.6	40.6	1.89	48	0.6	15.2
VUWR-6.35X19.05	1/4	6.35	3/4	19.05	0.19	4.8	13/16	20.6	1.59	40.4	1.88	47.8	0.6	15.2
VUWR-7.93X9.52	5/16	7.93	3/8	9.52	0.25	6.4	9/16	14.3	1.36	34.5	1.65	41.9	0.64	16.3
VUWR-7.93X12.7	5/16	7.93	1/2	12.7	0.25	6.4	9/16	14.3	1.58	40.1	1.87	47.5	0.64	16.3
VUWR-9.52X6.35	3/8	9.52	1/4	6.35	0.17	4.2	5/8	15.9	1.34	34	1.63	41.4	0.66	16.8
VUWR-9.52X9.52	3/8	9.52	3/8	9.52	0.27	6.9	5/8	15.9	1.41	35.8	1.7	43.2	0.66	16.8
VUWR-9.52X12.7	3/8	9.52	1/2	12.7	0.28	7.1	5/8	15.9	1.62	41.2	1.91	48.5	0.66	16.8
VUWR-9.52X15.88	3/8	9.52	5/8	15.88	0.28	7.1	11/16	17.5	1.69	42.9	1.98	50.3	0.66	16.8
VUWR-9.52X19.05	3/8	9.52	3/4	19.05	0.28	7.1	13/16	20.6	1.69	42.9	1.98	50.3	0.66	16.8
VUWR-12.7X6.35	1/2	12.7	1/4	6.35	0.17	4.2	13/16	20.6	1.37	34.8	1.77	45	0.9	22.9
VUWR-12.7X9.52	1/2	12.7	3/8	9.52	0.27	6.9	13/16	20.6	1.44	36.6	1.84	46.7	0.9	22.9
VUWR-12.7X12.7	1/2	12.7	1/2	12.7	0.37	9.4	13/16	20.6	1.66	42.2	2.06	52.3	0.9	22.9
VUWR-12.7X15.88	1/2	12.7	5/8	15.88	0.41	10.4	13/16	20.6	1.72	43.7	2.12	53.8	0.9	22.9
VUWR-12.7X19.05	1/2	12.7	3/4	19.05	0.41	10.4	13/16	20.6	1.72	43.7	2.12	53.9	0.9	22.9
VUWR-12.7X25.4	1/2	12.7	1	25.4	0.41	10.4	1 1/16	27	1.97	50	2.37	60.2	0.9	22.9
VUWR-15.88X19.05	5/8	15.88	3/4	19.05	0.5	12.7	15/16	23.8	1.75	44.5	2.15	54.6	0.96	24.4
VUWR-15.88X22.22	5/8	15.88	7/8	22.22	0.5	12.7	15/16	23.8	1.81	46	2.21	56.1	0.96	24.4
VUWR-15.88X25.4	5/8	15.88	1	25.4	0.5	12.7	1 1/16	27	2	50.8	2.4	61	0.96	24.4
VUWR-19.05X12.7	3/4	19.05	1/2	12.7	0.37	9.4	1 1/16	27	1.75	44.5	2.15	54.6	0.96	24.4
VUWR-19.05X25.4	3/4	19.05	1	25.4	0.62	15.8	1 1/16	27	2.06	52.3	2.46	62.5	0.96	24.4

Assembly Instructions



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Port Connector PC



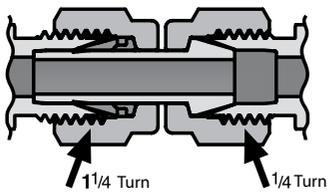
Connects Two V[®]-Lok Ports (Metric)

Part Number	A Tube O.D.		D		N		L		J	
	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm
VUW-PC-3	3		2.1		15.7		22.2		6	
VUW-PC-6	6		4		19.1		25		9	
VUW-PC-8	8		5.6		20		25.9		11	
VUW-PC-10	10		7.1		21.2		27.1		13.1	
VUW-PC-12	12		8.8		26.4		36.2		15	
VUW-PC-16	16		12.7		27.6		37.4		19	
VUW-PC-18	18		13.9		27.6		37.4		21.1	

Connects Two V[®]-Lok Ports (Inch)

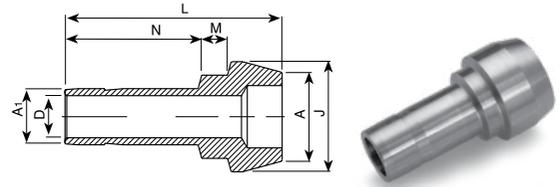
Part Number	A Tube O.D.		D		N		L		J	
	in	mm	in	mm	in	mm	in	mm	in	mm
VUW-PC-1.6	1/16	1.6	0.03	0.8	0.42	10.7	0.54	13.7	0.13	3.3
VUW-PC-3.2	1/8	3.2	0.09	2.2	0.62	15.7	0.88	22.4	0.24	6.1
VUW-PC-6.35	1/4	6.35	0.17	4.2	0.75	19	0.98	24.9	0.37	9.4
VUW-PC-7.93	5/16	7.93	0.24	6	0.79	20	1.02	25.9	0.43	10.9
VUW-PC-9.52	3/8	9.52	0.27	6.9	0.8	20.3	1.03	26.2	0.49	12.6
VUW-PC-12.7	1/2	12.7	0.37	9.4	1.02	25.9	1.41	35.8	0.62	15.7
VUW-PC-19.05	3/4	19.05	0.59	15	1.09	27.7	1.47	37.3	0.87	22.1
VUW-PC-25.4	1	25.4	0.8	20.3	1.37	34.7	1.9	48.1	1.12	28.5

Assembly Instructions



"D" - Dimension is minimum hole diameter - dimensions are for reference only, and are subject to change without notice.

Reducing Port Connector PC



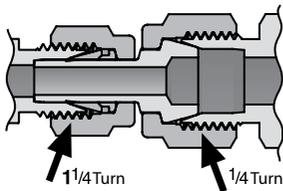
Connects Two V_®-Lok Ports (Metric)

Part Number	A Tube O.D.		A1 Tube O.D.		D		N		L		J		M	
	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm
VUW-PC-6X3	6	3	2.1	13.5	22.9	9	3.2							
VUW-PC-8X6	8	6	4	15.7	24.7	11	3.1							
VUW-PC-10X6	10	6	4	15.7	25.8	13.1	3.4							
VUW-PC-10X8	10	8	5.6	16.8	26.1	13.1	3.1							
VUW-PC-12X6	12	6	4	15.7	29.1	15	3.6							
VUW-PC-12X8	12	8	5.6	16.8	30.1	15	3.4							
VUW-PC-12X10	12	10	7.1	17.5	30.6	15	3.1							
VUW-PC-16X12	16	12	8.8	23.1	37.5	19	3.4							

Connects Two V_®-Lok Ports (Inch)

Part Number	A Tube O.D.		A1 Tube O.D.		D		N		L		J		M	
	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm
VUW-PC-3.2X1.6	1/8	3.2	1/16	1.6	0.03	0.8	0.34	8.6	0.68	17.3	0.24	6.1	0.08	2
VUW-PC-6.35X1.6	1/4	6.35	1/16	1.6	0.03	0.8	0.34	8.6	0.71	18	0.37	9.4	0.14	3.6
VUW-PC-6.35X3.2	1/4	6.35	1/8	3.2	0.09	2.2	0.53	13.5	0.89	22.6	0.37	9.4	0.13	3.3
VUW-PC-9.52X3.2	3/8	9.52	1/8	3.2	0.09	2.2	0.53	13.5	0.91	23.2	0.49	12.6	0.15	3.9
VUW-PC-9.52X6.35	3/8	9.52	1/4	6.35	0.17	4.2	0.62	15.7	0.98	24.9	0.49	12.6	0.13	3.3
VUW-PC-12.7X6.35	1/2	12.7	1/4	6.35	0.17	4.2	0.62	15.7	1.15	29.2	0.62	15.7	0.15	3.8
VUW-PC-12.7X9.52	1/2	12.7	3/8	9.52	0.27	6.9	0.69	17.5	1.2	30.5	0.62	15.7	0.13	3.3
VUW-PC-19.05X12.7	3/4	19.05	1/2	12.7	0.37	9.4	0.96	24.4	1.49	37.9	0.87	22.1	0.15	3.8

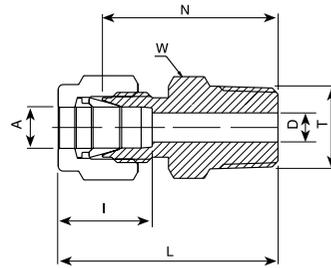
Assembly Instructions



"D" - Dimension is minimum hole diameter - dimensions are for reference only, and are subject to change without notice.

Male Connector (NPT)

H



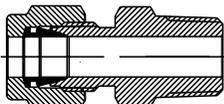
Tube (Metric) Male NPT Thread

Part Number	A	T	D	W	N	L	I
	Tube O.D. mm		mm	mm	mm	mm	mm
VUWH-3AN	3	1/8NPT	2.4	12	23.9	30.5	12.9
VUWH-3BN	3	1/4NPT	2.4	14	29	35.6	12.9
VUWH-4AN	4	1/8NPT	2.4	12	24.6	31.2	13.7
VUWH-4BN	4	1/4NPT	2.4	14	29.7	36.3	13.7
VUWH-6AN	6	1/8NPT	4.8	14	25.4	32.8	15.3
VUWH-6BN	6	1/4NPT	4.8	14	30.5	37.9	15.3
VUWH-6CN	6	3/8NPT	4.8	18	31	38.4	15.3
VUWH-6DN	6	1/2NPT	4.8	22	37.3	44.7	15.3
VUWH-8AN	8	1/8NPT	4.8	15	26.7	34.2	16.2
VUWH-8BN	8	1/4NPT	6.4	15	31.2	38.7	16.2
VUWH-8CN	8	3/8NPT	6.4	18	31.8	39.3	16.2
VUWH-8DN	8	1/2NPT	6.4	22	38.1	45.6	16.2
VUWH-10AN	10	1/8NPT	4.8	18	28.7	36.3	17.2
VUWH-10BN	10	1/4NPT	7.9	18	33.3	40.9	17.2
VUWH-10CN	10	3/8NPT	7.9	18	33.3	40.9	17.2
VUWH-10DN	10	1/2NPT	7.9	22	38.9	46.5	17.2
VUWH-10EN	10	3/4NPT	7.9	27	40.4	48	17.2
VUWH-12AN	12	1/8NPT	4.8	22	28.7	38.8	22.8
VUWH-12BN	12	1/4NPT	7.1	22	33.3	43.4	22.8
VUWH-12CN	12	3/8NPT	9.5	22	33.3	43.4	22.8
VUWH-12DN	12	1/2NPT	9.5	22	38.9	49	22.8
VUWH-12EN	12	3/4NPT	9.5	27	40.4	50.5	22.8
VUWH-14BN	14	1/4NPT	7.1	24	34	44.1	24.4
VUWH-14CN	14	3/8NPT	9.5	24	34	44.1	24.4
VUWH-14DN	14	1/2NPT	11	24	38.9	49	24.4
VUWH-15DN	15	1/2NPT	12	24	38.9	49	24.4
VUWH-16CN	16	3/8NPT	9.5	24	34	44.1	24.4
VUWH-16DN	16	1/2NPT	11.9	24	38.9	49	24.4
VUWH-16EN	16	3/4NPT	12.7	27	40.4	50.5	24.4
VUWH-18DN	18	1/2NPT	11.9	27	40.4	50.5	24.4
VUWH-18EN	18	3/4NPT	15.1	27	40.4	50.5	24.4
VUWH-20DN	20	1/2NPT	11.9	30	42.2	52.3	26
VUWH-20EN	20	3/4NPT	15.9	30	42.2	52.3	26
VUWH-22EN	22	3/4NPT	15.9	30	42.2	52.3	26
VUWH-22FN	22	1NPT	18.3	35	47	57.1	26
VUWH-25DN	25	1/2NPT	11.9	35	45.2	57.5	31.3
VUWH-25EN	25	3/4NPT	15.9	35	45.2	57.5	31.3
VUWH-25FN	25	1NPT	21.8	35	50	62.3	31.3

Thermoelement

For ordering: use catalog number of the selected fitting and add the suffix T/C.

Example: VUWH - 6.35 BN - T/C

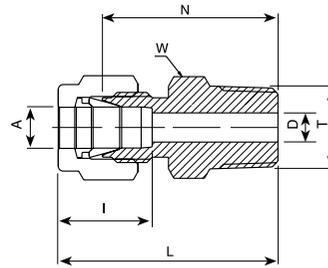


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For inches, see next page

Male Connector (NPT) (continued)

H

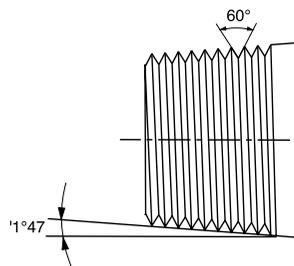


Tube (Inch) Male NPT Thread

Part Number	A Tube O.D.		T	D		W		N		L		I	
	in	mm		in	mm	in	mm	in	mm	in	mm	in	mm
VUWH-1.6AN	1/16	1.6	1/8NPT	0.05	1.3	7/16	11.1	0.88	22.35	1.03	26.2	0.34	8.6
VUWH-3.2AN	1/8	3.2	1/8NPT	0.09	2.3	7/16	11.1	0.94	23.9	1.2	30.5	0.5	12.7
VUWH-3.2BN	1/8	3.2	1/4NPT	0.09	2.3	9/16	14.3	1.14	29	1.4	35.6	0.5	12.7
VUWH-4.8AN	3/16	4.8	1/8NPT	0.12	3.1	7/16	11.1	0.97	24.6	1.23	31.2	0.54	13.7
VUWH-4.8BN	3/16	4.8	1/4NPT	0.12	3.1	9/16	14.3	1.17	29.7	1.43	36.3	0.54	13.7
VUWH-6.35AN	1/4	6.35	1/8NPT	0.19	4.8	1/2	12.7	1	25.4	1.29	32.8	0.6	15.2
VUWH-6.35BN	1/4	6.35	1/4NPT	0.19	4.8	9/16	14.3	1.2	30.5	1.49	37.9	0.6	15.2
VUWH-6.35CN	1/4	6.35	3/8NPT	0.19	4.8	11/16	17.5	1.22	31	1.51	38.4	0.6	15.2
VUWH-6.35DN	1/4	6.35	1/2NPT	0.19	4.8	7/8	22.2	1.47	37.3	1.76	44.7	0.6	15.2
VUWH-7.93AN	5/16	7.93	1/8NPT	0.19	4.8	9/16	14.3	1.05	26.7	1.34	34	0.64	16.2
VUWH-7.93BN	5/16	7.93	1/4NPT	0.25	6.4	9/16	14.3	1.23	31.2	1.52	38.6	0.64	16.2
VUWH-9.52AN	3/8	9.52	1/8NPT	0.19	4.8	5/8	15.9	1.1	27.9	1.39	35.3	0.66	16.8
VUWH-9.52BN	3/8	9.52	1/4NPT	0.28	7.1	5/8	15.9	1.28	32.5	1.57	39.9	0.66	16.8
VUWH-9.52CN	3/8	9.52	3/8NPT	0.28	7.1	11/16	17.5	1.28	32.5	1.57	39.9	0.66	16.8
VUWH-9.52DN	3/8	9.52	1/2NPT	0.28	7.1	7/8	22.2	1.52	38.9	1.82	46.2	0.66	16.8
VUWH-9.52EN	3/8	9.52	3/4NPT	0.28	7.1	1 1/16	27	1.59	40.4	1.88	47.8	0.66	16.8
VUWH-12.7AN	1/2	12.7	1/8NPT	0.19	4.8	13/16	20.6	1.13	28.7	1.53	38.9	0.9	22.9
VUWH-12.7BN	1/2	12.7	1/4NPT	0.28	7.1	13/16	20.6	1.31	33.3	1.71	43.4	0.9	22.9
VUWH-12.7CN	1/2	12.7	3/8NPT	0.38	9.6	13/16	20.6	1.31	33.3	1.71	43.4	0.9	22.9
VUWH-12.7DN	1/2	12.7	1/2NPT	0.41	10.4	7/8	22.2	1.53	38.9	1.93	49	0.9	22.9
VUWH-12.7EN	1/2	12.7	3/4NPT	0.41	10.4	1 1/16	27	1.59	40.4	1.99	50.5	0.9	22.9
VUWH-12.7FN	1/2	12.7	1NPT	0.41	10.4	1 3/8	34.9	1.85	47	2.25	57.2	0.9	22.9
VUWH-15.88CN	5/8	15.88	3/8NPT	0.38	9.6	15/16	23.8	1.34	34	1.74	44.2	0.96	24.4
VUWH-15.88DN	5/8	15.88	1/2NPT	0.47	11.9	15/16	23.8	1.53	38.9	1.93	49	0.96	24.4
VUWH-15.88EN	5/8	15.88	3/4NPT	0.5	12.7	1 1/16	27	1.59	40.4	1.99	50.5	0.96	24.4
VUWH-19.05DN	3/4	19.05	1/2NPT	0.5	11.9	1 1/16	27	1.59	40.4	1.99	50.5	0.96	24.4
VUWH-19.05EN	3/4	19.05	3/4NPT	0.62	15.8	1 1/16	27	1.59	40.4	1.99	50.5	0.96	24.4
VUWH-19.05FN	3/4	19.05	1NPT	0.62	15.8	1 3/8	34.9	1.85	47	2.25	57.2	0.96	24.4
VUWH-22.22EN	7/8	22.22	3/4NPT	0.72	18.3	1 3/16	30.2	1.59	40.4	1.99	50.5	1.02	25.9
VUWH-25.4EN	1	25.4	3/4NPT	0.72	15.8	1 3/8	34.9	1.78	45.2	2.26	57.4	1.23	31.2
VUWH-25.4FN	1	25.4	1NPT	0.88	22.3	1 3/8	34.9	1.97	50	2.45	62.2	1.23	31.2

Reference Specifications:

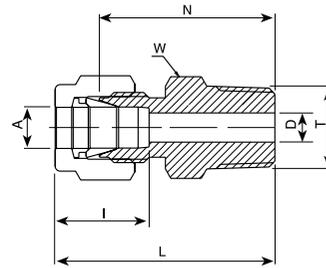
American Standard Pipe Thread (NPT).
NPT (National Pipe Tapered) is made to specifications outlined in ANSI B1.20.1.



"D" - Dimension is minimum hole diameter - dimensions are for reference only, and are subject to change without notice.

Male Connector (R)

H



Tube (Metric) ISO Tapered Thread

Part Number	A	T	D	W	N	L	I
	Tube O.D. mm		mm	mm	mm	mm	mm
VUWH-2A	2	R 1/8	1.7	12	23.9	30.5	12.9
VUWH-3A	3	R 1/8	2.4	12	23.9	30.5	12.9
VUWH-3B	3	R 1/4	2.4	14	29	35.6	12.9
VUWH-4A	4	R 1/8	2.4	12	24.6	31.2	13.7
VUWH-4B	4	R 1/4	2.4	14	29.7	36.3	13.7
VUWH-6A	6	R 1/8	4.8	14	25.4	32.8	15.3
VUWH-6B	6	R 1/4	4.8	14	30.5	37.9	15.3
VUWH-6C	6	R 3/8	4.8	18	31	38.4	15.3
VUWH-6D	6	R 1/2	4.8	22	37.3	44.7	15.3
VUWH-8A	8	R 1/8	4.8	15	26.7	34.2	16.2
VUWH-8B	8	R 1/4	6.4	15	31.2	38.7	16.2
VUWH-8C	8	R 3/8	6.4	18	31.8	39.3	16.2
VUWH-8D	8	R 1/2	6.4	22	38.1	45.6	16.2
VUWH-10A	10	R 1/8	4.8	18	28.7	36.3	17.2
VUWH-10B	10	R 1/4	7.9	18	33.3	40.9	17.2
VUWH-10C	10	R 3/8	7.9	18	33.3	40.9	17.2
VUWH-10D	10	R 1/2	7.9	22	38.9	46.5	17.2
VUWH-12B	12	R 1/4	7.1	22	33.3	43.4	22.8
VUWH-12C	12	R 3/8	9.5	22	33.3	43.4	22.8
VUWH-12D	12	R 1/2	9.5	22	38.9	49	22.8
VUWH-12E	12	R 3/4	9.5	27	40.4	50.5	22.8
VUWH-15D	15	R 1/2	11.9	24	38.9	49	24.4
VUWH-16B	16	R 1/4	7.1	24	34	44.1	24.4
VUWH-16C	16	R 3/8	9.5	24	34	44.1	24.4
VUWH-16D	16	R 1/2	11.9	24	38.9	49	24.4
VUWH-16E	16	R 3/4	12.7	27	40.4	50.5	24.4
VUWH-18D	18	R 1/2	11.9	27	40.4	50.5	24.4
VUWH-18E	18	R 3/4	15.1	27	40.4	50.5	24.4
VUWH-20D	20	R 1/2	11.9	30	42.2	52.3	26
VUWH-20E	20	R 3/4	15.9	30	42.2	52.3	26
VUWH-22E	22	R 3/4	15.9	30	42.2	52.3	26
VUWH-22F	22	R 1	18.3	35	47	57.1	26
VUWH-25E	25	R 3/4	15.9	35	45.2	57.5	31.3
VUWH-25F	25	R 1	21.8	35	50	62.3	31.3

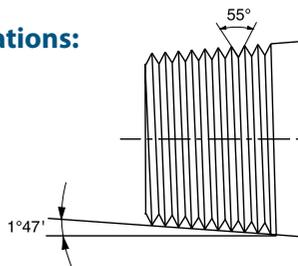
For inches, see next page

Reference Specifications:

- DIN - ISO 2999
- BS - 21
- JIS - B0203
- ISO - 7/1-BSP-T

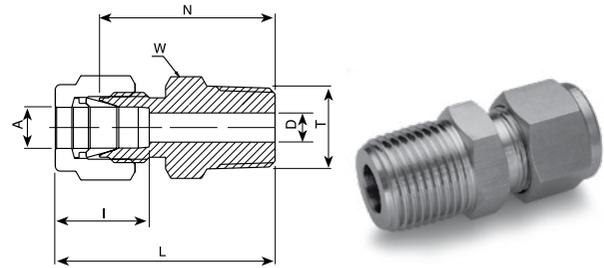
Designation:

R marking on hex.



"D" - Dimension is minimum hole diameter - dimensions are for reference only, and are subject to change without notice.

Male Connector (R) (continued)
H

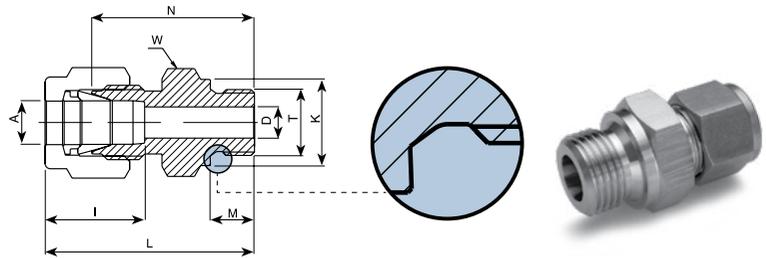


Tube (Inch) ISO Tapered Thread

Part Number	A Tube O.D.		T	D		W		N		L		I	
	in	mm		in	mm	in	mm	in	mm	in	mm	in	mm
VUWH-3.2A	1/8	3.2	R 1/8	0.09	2.3	7/16	11.1	0.94	23.9	1.2	30.5	0.5	12.7
VUWH-3.2B	1/8	3.2	R 1/4	0.09	2.3	9/16	14.3	1.14	29	1.4	35.6	0.5	12.7
VUWH-6.35A	1/4	6.35	R 1/8	0.19	4.8	1/2	12.7	1	25.4	1.29	32.8	0.6	15.2
VUWH-6.35B	1/4	6.35	R 1/4	0.19	4.8	9/16	14.3	1.2	30.5	1.49	37.8	0.6	15.2
VUWH-6.35C	1/4	6.35	R 3/8	0.19	4.8	11/16	17.5	1.22	31	1.51	38.4	0.6	15.2
VUWH-6.35D	1/4	6.35	R 1/2	0.19	4.8	7/8	22.2	1.47	37.3	1.76	44.7	0.6	15.2
VUWH-7.93A	5/16	7.93	R 1/8	0.19	4.8	9/16	14.3	1.05	26.7	1.34	34	0.64	16.2
VUWH-7.93B	5/16	7.93	R 1/4	0.25	6.35	9/16	14.3	1.23	31.2	1.52	38.6	0.64	16.2
VUWH-9.52A	3/8	9.52	R 1/8	0.19	4.8	5/8	15.9	1.1	27.9	1.39	35.3	0.66	16.8
VUWH-9.52B	3/8	9.52	R 1/4	0.28	7.1	5/8	15.9	1.28	32.5	1.57	39.9	0.66	16.8
VUWH-9.52C	3/8	9.52	R 3/8	0.28	7.1	11/16	17.5	1.28	32.5	1.57	39.9	0.66	16.8
VUWH-9.52D	3/8	9.52	R 1/2	0.28	7.1	7/8	22.2	1.53	38.9	1.82	46.2	0.66	16.8
VUWH-12.7B	1/2	12.7	R 1/4	0.28	7.1	13/16	20.6	1.31	33.3	1.71	43.4	0.9	22.9
VUWH-12.7C	1/2	12.7	R 3/8	0.38	9.6	13/16	20.6	1.31	33.3	1.71	43.4	0.9	22.9
VUWH-12.7D	1/2	12.7	R 1/2	0.41	10.4	7/8	22.2	1.53	38.9	1.93	49	0.9	22.9
VUWH-12.7E	1/2	12.7	R 3/4	0.41	10.4	1 1/16	27	1.59	40.4	1.99	50.5	0.9	22.9
VUWH-19.05E	3/4	19.05	R 3/4	0.62	15.8	1 1/16	27	1.59	40.4	1.99	50.5	0.96	24.4
VUWH-25.4F	1	25.4	R 1	0.88	22.3	1 3/8	34.9	1.97	50	2.45	62.2	1.23	31.2

"D" - Dimension is minimum hole diameter - dimensions are for reference only, and are subject to change without notice.

Male Connector (G) H



Tube (Metric) ISO Parallel Thread

Part Number	A	T	D	K	W	N	M	L	I
	Tube O.D. mm		mm	mm	mm	mm	mm	mm	mm
VUWH-2AF-FJS	2	G 1/8	1.7	13.8	14	23.4	7.1	30	12.9
VUWH-3AF-FJS	3	G 1/8	2.4	13.8	14	23.4	7.1	30	12.9
VUWH-3BF-FJS	3	G 1/4	2.4	18	19	28.7	11.2	35.3	12.9
VUWH-4AF-FJS	4	G 1/8	2.4	13.8	14	24.1	7.1	30.7	13.7
VUWH-6AF-FJS	6	G 1/8	4	13.8	14	24.9	7.1	32.3	15.3
VUWH-6BF-FJS	6	G 1/4	4.8	18	19	30.2	11.2	37.6	15.3
VUWH-6CF-FJS	6	G 3/8	4.8	21.8	22	31.5	11.2	38.9	15.3
VUWH-6DF-FJS	6	G 1/2	4.8	26	27	37.3	14.2	44.7	15.3
VUWH-8AF-FJS	8	G 1/8	4	13.8	15	25.7	7.1	33.2	16.2
VUWH-8BF-FJS	8	G 1/4	6.4	13.8	19	31	11.2	38.5	16.2
VUWH-8CF-FJS	8	G 3/8	6.4	21.8	22	32.3	11.2	39.8	16.2
VUWH-8DF-FJS	8	G 1/2	6.4	26	27	38.1	14.2	45.6	16.2
VUWH-10BF-FJS	10	G 1/4	5.9	18	19	31.8	11.2	39.4	17.2
VUWH-10CF-FJS	10	G 3/8	7.9	21.8	22	33	11.2	40.6	17.2
VUWH-10DF-FJS	10	G 1/2	7.9	26	27	38.9	14.2	46.5	17.2
VUWH-12BF-FJS	12	G 1/4	5.9	18	22	32.5	11.2	42.6	22.8
VUWH-12CF-FJS	12	G 3/8	7.9	21.8	22	33	11.2	43.1	22.8
VUWH-12DF-FJS	12	G 1/2	9.5	26	27	38.9	14.2	49	22.8
VUWH-12EF-FJS	12	G 3/4	9.5	32	35	42.7	15.7	52.8	22.8
VUWH-16CF-FJS	16	G 3/8	7.9	21.8	24	33.8	11.2	43.9	24.4
VUWH-16DF-FJS	16	G 1/2	11.9	26	27	38.9	14.2	49	24.4
VUWH-18DF-FJS	18	G 1/2	11.9	26	27	38.9	14.2	49	24.4
VUWH-18EF-FJS	18	G 3/4	15.1	32	35	42.7	15.7	52.8	24.4
VUWH-20DF-FJS	20	G 1/2	11.9	26	30	40.4	14.2	50.5	26
VUWH-20EF-FJS	20	G 3/4	15.9	32	35	42.7	15.7	52.8	26
VUWH-22EF-FJS	22	G 3/4	15.9	32	35	42.7	15.7	52.8	26
VUWH-22FF-FJS	22	G 1	18.3	39	41	45.2	18.3	55.3	26
VUWH-25EF-FJS	25	G 3/4	15.9	32	35	45.2	15.7	57.5	31.3
VUWH-25FF-FJS	25	G 1	19.8	39	41	47.8	18.3	60.1	31.3

For inches, see next page

Reference Specifications:

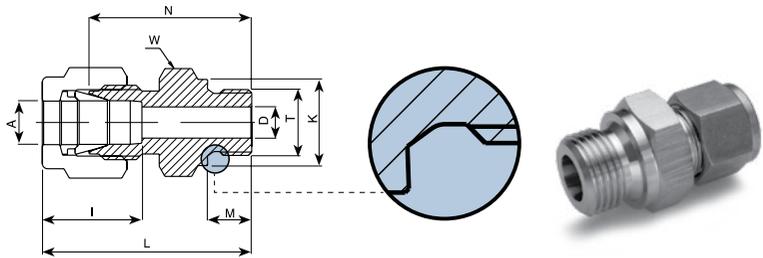
DIN - ISO 228/1
 BS - 2779
 JIS - B0202
 ISO - 228/1-BSP-P

Designation:

G marking on hex.

"D" - Dimension is minimum hole diameter - dimensions are for reference only, and are subject to change without notice.

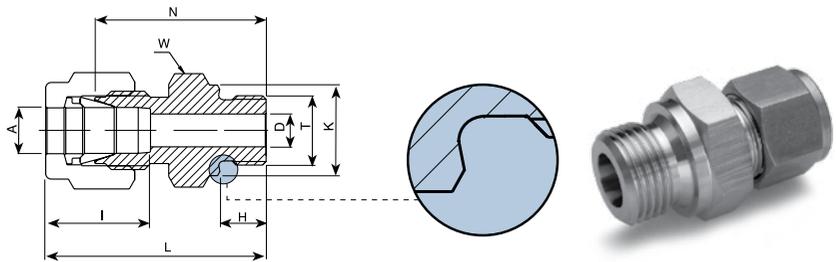
Male Connector (G) (continued)
H



Part Number	A		T	D		K		W		N		M		L		I	
	Tube O.D.			in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm
	in	mm															
VUWH-3.2AF-FJS	1/8	3.2	G 1/8	0.09	2.3	0.54	13.8	9/16	14.3	0.92	23.4	0.28	7.1	1.18	30	0.5	12.7
VUWH-3.2BF-FJS	1/8	3.2	G 1/4	0.09	2.3	0.71	18	3/4	19.1	1.13	28.7	0.44	11.2	1.39	35.3	0.5	12.7
VUWH-3.2CF-FJS	1/8	3.2	G 3/8	0.09	2.3	0.86	21.8	7/8	22.2	1.17	29.7	0.44	11.2	1.46	37	0.5	12.7
VUWH-3.2DF-FJS	1/8	3.2	G 1/2	0.09	2.3	1.02	26	1 1/16	27	1.4	35.7	0.56	14.2	1.69	43	0.5	12.7
VUWH-4.8AF-FJS	3/16	4.8	G 1/8	0.12	3.1	0.54	13.8	9/16	14.3	0.95	24.1	0.28	7.1	1.2	30.7	0.54	13.7
VUWH-6.35AF-FJS	1/4	6.35	G 1/8	0.16	4	0.54	13.8	9/16	14.3	0.98	24.9	0.28	7.1	1.27	32.3	0.6	15.2
VUWH-6.35BF-FJS	1/4	6.35	G 1/4	0.19	4.8	0.71	18	3/4	19.1	1.19	30.2	0.44	11.2	1.48	37.6	0.6	15.2
VUWH-6.35CF-FJS	1/4	6.35	G 3/8	0.19	4.8	0.86	21.8	7/8	22.2	1.24	31.5	0.44	11.2	1.53	38.9	0.6	15.2
VUWH-6.35DF-FJS	1/4	6.35	G 1/2	0.19	4.8	1.02	26	1 1/16	27	1.47	37.3	0.56	14.2	1.76	44.7	0.6	15.2
VUWH-7.93BF-FJS	5/16	7.93	G 1/4	0.25	6.4	0.71	18	3/4	19.1	1.22	31	0.44	11.2	1.51	38.4	0.63	16
VUWH-7.93CF-FJS	5/16	7.93	G 3/8	0.25	6.4	0.86	21.8	7/8	22.2	1.27	32.3	0.44	11.2	1.56	39.6	0.63	16
VUWH-9.52BF-FJS	3/8	9.52	G 1/4	0.23	5.8	0.71	18	3/4	19.1	1.25	31.8	0.44	11.2	1.54	39.1	0.66	16.8
VUWH-9.52CF-FJS	3/8	9.52	G 3/8	0.28	7.1	0.86	21.8	7/8	22.2	1.3	33	0.44	11.2	1.59	40.4	0.66	16.8
VUWH-9.52DF-FJS	3/8	9.52	G 1/2	0.28	7.1	1.02	26	1 1/16	27	1.53	38.9	0.56	14.2	1.82	46.3	0.66	16.8
VUWH-12.7BF-FJS	1/2	12.7	G 1/4	0.23	5.8	0.71	18	13/16	20.6	1.28	32.5	0.44	11.2	1.68	42.7	0.9	22.9
VUWH-12.7CF-FJS	1/2	12.7	G 3/8	0.31	7.9	0.86	21.8	7/8	22.2	1.3	33	0.44	11.2	1.7	43.2	0.9	22.9
VUWH-12.7DF-FJS	1/2	12.7	G 1/2	0.41	10.4	1.02	26	1 1/16	27	1.47	37.3	0.56	14.2	1.87	47.5	0.9	22.9
VUWH-12.7EF-FJS	1/2	12.7	G 3/4	0.41	10.4	1.26	32	1 5/16	33.3	1.68	42.7	0.62	15.7	2.08	52.8	0.9	22.9
VUWH-15.88CF-FJS	5/8	15.88	G 3/8	0.31	7.9	0.86	21.8	15/16	23.8	1.33	33.8	0.44	11.2	1.73	43.9	0.96	24.4
VUWH-15.88DF-FJS	5/8	15.88	G 1/2	0.47	11.9	1.02	26	1 1/16	27	1.53	38.9	0.56	14.2	1.93	49	0.96	24.4
VUWH-19.05DF-FJS	3/4	19.05	G 1/2	0.47	11.9	1.02	26	1 1/16	27	1.53	38.9	0.56	14.2	1.93	49	0.96	24.4
VUWH-19.05EF-FJS	3/4	19.05	G 3/4	0.62	15.7	1.26	32	1 5/16	33.3	1.68	42.7	0.62	15.7	2.08	52.8	0.96	24.4
VUWH-25.4DF-FJS	1	25.4	G 1/2	0.47	11.9	1.02	26	1 3/8	34.9	1.72	43.7	0.56	14.2	2.2	55.8	1.23	31.2
VUWH-25.4EF-FJS	1	25.4	G 3/4	0.62	15.9	1.26	32	1 3/8	34.9	1.78	45.2	0.62	15.7	2.65	67.3	1.23	31.2
VUWH-25.4FF-FJS	1	25.4	G 1	0.78	19.8	1.54	39	1 5/8	41.3	1.88	47.8	0.72	18.3	2.36	59.9	1.23	31.2

"D" - Dimension is minimum hole diameter - dimensions are for reference only, and are subject to change without notice.

Male Connector (G) H



ISO Parallel Thread

Part Number	A	T	D	K	W	N	H	L	I
	Tube O.D. mm		mm	mm	mm	mm	mm	mm	mm
VUWH-3AF-FJT	3	G 1/8	2.4	13.8	14	23.4	7.1	30	12.9
VUWH-3BF-FJT	3	G 1/4	2.4	18	19	28.7	11.2	35.3	12.9
VUWH-4AF-FJT	4	G 1/8	2.4	13.8	14	24.1	7.1	30.7	13.7
VUWH-6AF-FJT	6	G 1/8	4	13.8	14	24.9	7.1	32.3	15.3
VUWH-6BF-FJT	6	G 1/4	4.8	18	19	30.2	11.2	37.6	15.3
VUWH-6CF-FJT	6	G 3/8	4.8	21.8	22	31.5	11.2	38.9	15.3
VUWH-6DF-FJT	6	G 1/2	4.8	26	27	37.3	14.2	44.7	15.3
VUWH-8AF-FJT	8	G 1/8	4	13.8	15	25.7	7.1	33.2	16.2
VUWH-8BF-FJT	8	G 1/4	6.4	18	19	31	11.2	38.5	16.2
VUWH-8CF-FJT	8	G 3/8	6.4	21.8	22	32.3	11.2	39.8	16.2
VUWH-8DF-FJT	8	G 1/2	6.4	26	27	38.1	14.2	45.6	16.2
VUWH-10BF-FJT	10	G 1/4	5.9	18	19	31.8	11.2	39.4	17.2
VUWH-10CF-FJT	10	G 3/8	7.9	21.8	22	33	11.2	40.6	17.2
VUWH-10DF-FJT	10	G 1/2	7.9	26	27	38.9	14.2	46.5	19.5
VUWH-12BF-FJT	12	G 1/4	5.9	18	22	32.5	11.2	42.6	17.2
VUWH-12CF-FJT	12	G 3/8	7.9	21.8	22	33	11.2	43.1	22.8
VUWH-12DF-FJT	12	G 1/2	9.5	26	27	38.9	14.2	49	22.8
VUWH-12EF-FJT	12	G 3/4	9.5	32	35	42.7	15.7	52.8	22.8
VUWH-15DF-FJT	15	G 1/2	11.9	26	27	38.9	14.2	49	22.8
VUWH-16CF-FJT	16	G 3/8	7.9	21.8	24	33.8	11.2	43.9	22.4
VUWH-16DF-FJT	16	G 1/2	11.9	26	27	38.9	14.2	49	22.4
VUWH-18DF-FJT	18	G 1/2	11.9	26	27	38.9	14.2	49	22.4
VUWH-18EF-FJT	18	G 3/4	15.1	32	35	42.7	15.7	52.8	22.4
VUWH-20DF-FJT	20	G 1/2	11.9	26	30	40.4	14.2	50.5	26
VUWH-20EF-FJT	20	G 3/4	15.9	32	35	42.7	15.7	52.8	26
VUWH-22EF-FJT	22	G 3/4	15.9	32	35	42.7	15.7	52.8	26
VUWH-22FF-FJT	22	G 1	18.3	39	40	45.2	18.3	55.3	26
VUWH-25EF-FJT	25	G 3/4	15.9	32	35	45.2	15.7	57.5	31.3
VUWH-25FF-FJT	25	G 1	19.8	39	40	47.8	18.3	60.1	31.3

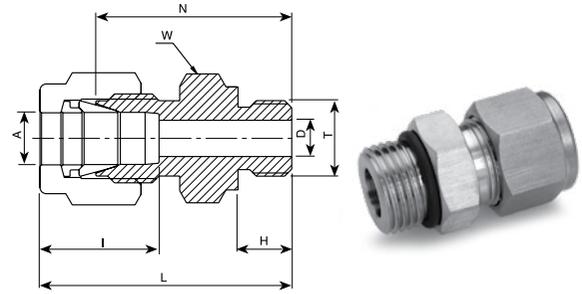
Reference Specifications:

- DIN - ISO 228/1
- BS - 2779
- JIS - B0202
- ISO - 228/1-BSP-P

"D" - Dimension is minimum hole diameter - dimensions are for reference only, and are subject to change without notice.

Male Connector (UNF)

H



SAE/MS Straight Thread BOSS*

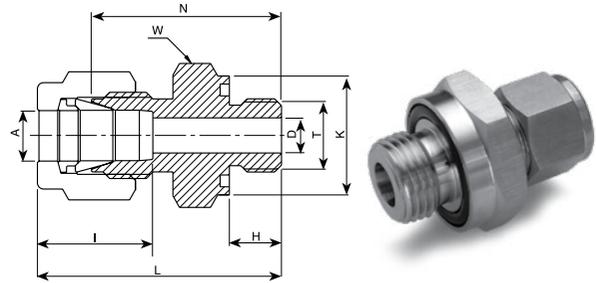
Part Number	A Tube O.D.		T	D		W		N		H		L		I		O-ring** size AS568
	in	mm		in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	
VUWH-3.2X5/16	1/8	3.2	5/16-24	0.09	2.3	7/16	11.1	0.92	23.4	0.3	7.6	1.18	30	0.5	12.7	-902
VUWH-6.35X7/16	1/4	6.35	7/16-20	0.19	4.8	9/16	14.3	1.05	26.7	0.36	9.1	1.34	34	0.6	15.2	-904
VUWH-6.35X9/16	1/4	6.35	9/16-18	0.19	4.8	11/16	17.5	1.11	28.2	0.39	9.9	1.4	35.6	0.6	15.2	-906
VUWH-6.35X3/4	1/4	6.35	3/4-16	0.19	4.8	7/8	22.2	1.19	30.2	0.44	11.2	1.48	37.6	0.6	15.2	-908
VUWH-6.35X7/8	1/4	6.35	7/8-14	0.19	4.8	1	25.4	1.31	33.3	0.5	12.7	1.6	40.6	0.6	15.2	-910
VUWH-7.93X1/2	5/16	7.93	1/2-20	0.25	6.4	5/8	15.9	1.08	27.4	0.36	9.1	1.37	34.8	0.64	16.2	-905
VUWH-9.52X7/16	3/8	9.52	7/16-20	0.2	5.1	5/8	15.9	1.11	28.2	0.36	9.1	1.4	35.6	0.66	16.8	-904
VUWH-9.52X9/16	3/8	9.52	9/16-18	0.28	7.1	11/16	17.5	1.17	29.7	0.39	9.9	1.46	37.1	0.66	16.8	-906
VUWH-9.52X3/4	3/8	9.52	3/4-16	0.28	7.1	7/8	22.2	1.25	31.8	0.44	11.2	1.54	39.1	0.66	16.8	-908
VUWH-9.52X7/8	3/8	9.52	7/8-14	0.28	7.1	1	25.4	1.37	34.8	0.5	12.7	1.66	42.2	0.66	16.8	-910
VUWH-12.7X9/16	1/2	12.7	9/16-18	0.28	7.1	13/16	20.6	1.14	29	0.39	9.9	1.54	39.1	0.9	22.9	-906
VUWH-12.7X3/4	1/2	12.7	3/4-16	0.41	10.4	7/8	22.2	1.25	31.8	0.44	11.2	1.65	41.9	0.9	22.9	-908
VUWH-12.7X7/8	1/2	12.7	7/8-14	0.41	10.4	1	25.4	1.37	34.8	0.5	12.7	1.77	45	0.9	22.9	-910
VUWH-12.7X1-1/16	1/2	12.7	1 1/16-12	0.41	10.4	1 1/4	31.8	1.53	38.9	0.59	15	1.93	49	0.9	22.9	-912
VUWH-15.88X3/4	5/8	15.88	3/4-16	0.42	10.7	15/16	23.8	1.25	31.8	0.44	11.2	1.65	41.9	0.96	22.4	-908
VUWH-15.88X7/8	5/8	15.88	7/8-14	0.5	12.7	1	25.4	1.38	35	0.5	12.7	1.78	45.2	0.96	22.4	-910
VUWH-19.05X3/4	3/4	19.05	3/4-16	0.42	10.7	1 1/16	27	1.41	35.8	0.44	11.2	1.81	46	0.96	22.4	-908
VUWH-19.05X1-1/16	3/4	19.05	1 1/16-12	0.62	15.8	1 1/4	31.8	1.53	38.9	0.59	15	1.93	49	0.96	22.4	-912
VUWH-22.22X1-3/16	7/8	22.22	1 3/16-12	0.72	18.3	1 3/8	34.9	1.53	38.9	0.59	15	1.93	49	1.02	25.9	-914
VUWH-25.4X1-1/16	1	25.4	1 1/16-12	0.66	16.8	1 3/8	34.9	1.62	41.1	0.59	15	2.1	53.3	1.23	31.2	-912
VUWH-25.4X1-5/16	1	25.4	1 5/16-12	0.88	22.3	1 1/2	38.1	1.66	42.2	0.59	15	2.14	54.4	1.23	31.2	-916

* Per SAE J1926 and MS 16142. See page 70 for mounting dimensions.

** O-rings used are Viton 90 Durometer. Other O-ring materials are available on request.

"D" - Dimension is minimum hole diameter - dimensions are for reference only, and are subject to change without notice.

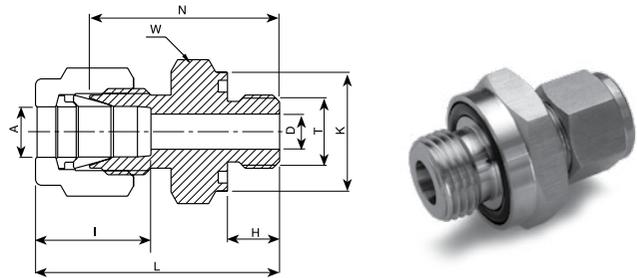
Male Connector H



O-Seal NPT Tapered Thread

Part Number	A Tube O.D.		T	D		K		W		N		H		L		I		O-ring** size AS568
	in	mm		in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	
VUWH-3.2AN-OR	1/8	3.2	1/8NPT	0.09	2.3	0.74	18.8	3/4	19.1	1.03	26.2	0.28	7.1	1.29	32.8	0.5	12.7	-111
VUWH-6.35AN-OR	1/4	6.35	1/8NPT	0.19	4.8	0.74	18.8	3/4	19.1	1.09	27.7	0.28	7.1	1.38	35.1	0.6	15.2	-111
VUWH-6.35BN-OR	1/4	6.35	1/4NPT	0.19	4.8	0.93	23.6	15/16	23.8	1.22	31	0.38	9.7	1.51	38.4	0.6	15.2	-113
VUWH-9.52BN-OR	3/8	9.52	1/4NPT	0.28	7.1	0.93	23.6	15/16	23.8	1.28	32.5	0.38	9.7	1.57	39.9	0.66	16.8	-113
VUWH-9.52CN-OR	3/8	9.52	3/8NPT	0.28	7.1	1.12	28.4	1 1/8	28.6	1.34	34	0.41	10.4	1.63	41.4	0.66	16.8	-116
VUWH-9.52DN-OR	3/8	9.52	1/2NPT	0.28	7.1	1.3	33	1 5/16	33.3	1.56	39.6	0.53	13.5	1.85	47	0.66	16.8	-212
VUWH-12.7DN-OR	1/2	12.7	1/2NPT	0.41	10.4	1.3	33	1 5/16	33.3	1.56	39.6	0.53	13.5	1.96	49.8	0.9	22.9	-212

Male Connector H



O-Seal Male UNF Thread

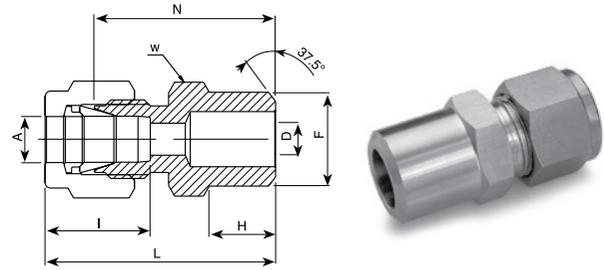
Part Number	A Tube O.D.		T	D		K		W		N		H		L		I		O-ring** size AS568
	in	mm		in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	
VUWH-1.6X5/16-OR	1/16	1.6	5/16-24	0.05	1.3	0.55	14	9/16	14.3	0.9	22.9	0.34	8.6	1.05	26.7	0.34	8.6	-011
VUWH-3.2X5/16-OR	1/8	3.2	5/16-24	0.09	2.3	0.55	14	9/16	14.3	1.03	26.2	0.34	8.6	1.29	32.8	0.5	12.7	-011
VUWH-4.8X3/8-OR	3/16	4.8	3/8-24	0.12	3	0.62	15.7	5/8	15.9	1.09	27.7	0.38	9.7	1.35	34.3	0.54	13.7	-012
VUWH-6.35X7/16-OR	1/4	6.35	7/16-20	0.19	4.8	0.74	18.8	3/4	19.1	1.22	31	0.41	10.4	1.51	38.4	0.6	15.2	-111
VUWH-7.93X1/2-OR	5/16	7.93	1/2-20	0.25	6.35	0.86	21.8	7/8	22.2	1.31	33.3	0.44	11.2	1.6	40.6	0.64	16.3	-112
VUWH-9.52X9/16-OR	3/8	9.52	9/16-18	0.28	7.1	0.93	23.6	15/16	23.8	1.38	35.1	0.47	11.9	1.67	42.4	0.66	16.8	-113
VUWH-12.7X3/4-OR	1/2	12.7	3/4-16	0.41	10.4	1.12	28.4	1 1/8	28.6	1.41	35.8	0.47	11.9	1.81	46	0.9	22.9	-116
VUWH-19.05X1-1/16-OR	3/4	19.05	1 1/16-12	0.62	15.7	1.49	37.8	1 1/2	38.1	1.66	42.2	0.56	14.2	2.06	52.3	0.96	24.4	-215
VUWH-25.4X1-5/16-OR	1	25.4	1 5/16-12	0.88	22.3	1.74	44.2	1 3/4	44.5	1.81	46	0.56	14.2	2.29	58.2	1.23	31.2	-219

** O-rings used are BUNA 70 Durometer.

"D" - Dimension is minimum hole diameter - dimensions are for reference only, and are subject to change without notice.

Male Pipe Weld Connector

R



Tube (Metric)

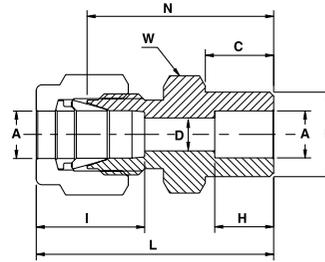
Part Number	A Tube O.D.		F Tube size		D		W		N		H		L		I	
	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in
VUWR-3×10.3	3	1/8	10.3		2.4		12		23.9		9.7		30.5		12.9	
VUWR-4×10.3	4	1/8	10.3		2.4		12		24.1		9.7		31.2		13.7	
VUWR-6×10.3	6	1/8	10.3		4.8		14		25.4		9.7		32.8		15.3	
VUWR-6×13.7	6	1/4	13.7		4.8		14		30.5		14.2		37.9		15.3	
VUWR-8×10.3	8	1/8	10.3		5.1		15		26.7		9.7		34.2		16.2	
VUWR-8×13.7	8	1/4	13.7		6.4		15		31.2		14.2		38.7		16.2	
VUWR-8×21.3	8	1/2	21.3		6.4		22		37.3		19		45.6		16.2	
VUWR-10×13.7	10	1/4	13.7		7.1		18		33.3		14.2		40.9		17.2	
VUWR-10×17.1	10	3/8	17.1		7.9		18		33.3		14.2		40.9		17.2	
VUWR-10×21.3	10	1/2	21.3		7.9		22		38.9		19		46.5		17.2	
VUWR-12×13.7	12	1/4	13.7		7.1		22		33.3		14.2		43.4		22.8	
VUWR-12×17.1	12	3/8	17.1		9.5		22		33.3		14.2		43.4		22.8	
VUWR-12×21.3	12	1/2	21.3		9.5		22		38.9		19		49		22.8	
VUWR-15×21.3	15	1/2	21.3		11.9		24		38.9		19		49		24.4	
VUWR-16×21.3	16	1/2	21.3		12.7		24		38.9		19		49		24.4	
VUWR-18×21.3	18	1/2	21.3		13.5		27		40.4		19		50.5		24.4	

Tube (Inch)

Part Number	A Tube O.D.		F Tube size		D		W		N		H		L		I	
	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm
VUWR-3.2×10.3	1/8	3.2	1/8	10.3	0.09	2.3	7/16	11.1	0.94	23.9	0.38	9.7	1.2	30.5	0.5	12.7
VUWR-4.8×10.3	3/16	4.8	1/8	10.3	0.12	3.1	7/16	11.1	0.97	24.6	0.38	9.7	1.23	31.2	0.54	13.7
VUWR-6.35×10.3	1/4	6.35	1/8	10.3	0.19	4.8	1/2	12.7	1	25.4	0.38	9.7	1.29	32.8	0.6	15.2
VUWR-6.35×13.7	1/4	6.35	1/4	13.7	0.19	4.8	9/16	14.3	1.2	30.5	0.56	14.2	1.49	37.8	0.6	15.2
VUWR-7.93×10.3	5/16	7.93	1/8	10.3	0.2	5.1	9/16	14.3	1.05	26.7	0.38	9.65	1.34	34	0.64	16.3
VUWR-7.93×13.7	5/16	7.93	1/4	13.7	0.25	6.35	9/16	14.3	1.23	31.2	0.56	14.2	1.52	38.6	0.64	16.3
VUWR-9.52×13.7	3/8	9.52	1/4	13.7	0.28	7.1	5/8	15.9	1.28	32.5	0.56	14.2	1.57	39.9	0.66	16.8
VUWR-9.52×17.1	3/8	9.52	3/8	17.1	0.28	7.1	11/16	17.5	1.28	32.5	0.56	14.2	1.57	39.9	0.66	16.8
VUWR-9.52×21.3	3/8	9.52	1/2	21.3	0.28	7.1	7/8	22.2	1.53	38.9	0.75	19	1.82	46.2	0.66	16.8
VUWR-12.7×17.1	1/2	12.7	3/8	17.1	0.41	10.4	13/16	20.6	1.31	33.3	0.56	14.2	1.71	44.4	0.9	22.9
VUWR-12.7×21.3	1/2	12.7	1/2	21.3	0.41	10.4	7/8	22.2	1.53	38.9	0.75	19	1.93	49	0.9	22.9
VUWR-12.7×26.7	1/2	12.7	3/4	26.7	0.41	10.4	1 1/16	27	1.59	40.4	0.75	19	1.99	50.5	0.9	22.9
VUWR-15.88×21.3	5/8	15.88	1/2	21.3	0.5	12.7	15/16	23.8	1.53	38.9	0.75	19	1.93	49	0.96	24.4
VUWR-19.05×26.7	3/4	19.05	3/4	26.7	0.62	15.8	1 1/16	27	1.59	40.4	0.75	19	1.99	50.5	0.96	24.4
VUWR-25.4×33.4	1	25.4	1	33.4	0.88	22.4	1 3/8	34.9	1.97	50	0.94	23.9	2.45	62.2	1.23	31.2

"D" - Dimension is minimum hole diameter - dimensions are for reference only, and are subject to change without notice.

Tube Socket Weld Union R

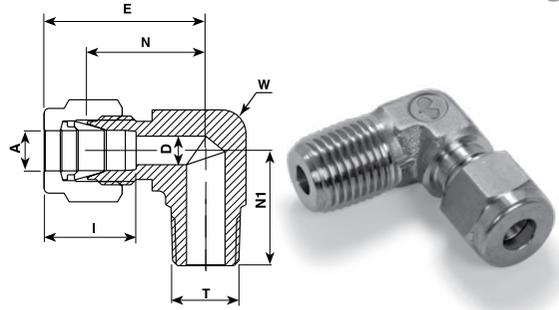


Tube (Inch)

Part Number	A		D		W		N		F		C		H		L		I	
	Tube O.D.		in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm
	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm
VUWR-3.2X3.2F	1/8	3.2	0.09	2.3	7/16	11.1	0.88	22.4	0.31	7.8	0.34	8.6	0.25	6.35	1.14	29	0.5	12.7
VUWR-6.35X6.35F	1/4	6.35	0.19	4.8	1/2	12.7	1.03	26.2	0.44	11.2	0.41	10.4	0.31	7.9	1.32	33.5	0.6	15.2
VUWR-9.52X9.52F	3/8	9.52	0.28	7.1	5/8	15.9	1.19	30.2	0.62	15.8	0.47	11.9	0.38	9.65	1.48	37.6	0.66	16.8
VUWR-12.7X12.7F	1/2	12.7	0.41	10.4	13/16	20.6	1.26	32	0.75	19.05	0.47	11.9	0.5	12.7	1.62	41.1	0.9	22.9
VUWR-19.05X19.05F	3/4	19.05	0.62	15.8	1 1/16	27	1.31	33.3	1.05	26.7	0.47	11.9	0.56	14.2	1.71	43.4	0.96	24.4
VUWR-25.4X25.4F	1	25.4	0.88	22.3	1 3/8	34.9	1.59	40.4	1.31	33.3	0.56	14.2	0.76	19.2	2.07	52.6	1.23	31.2

"D" - Dimension is minimum hole diameter - dimensions are for reference only, and are subject to change without notice.

Male Elbow



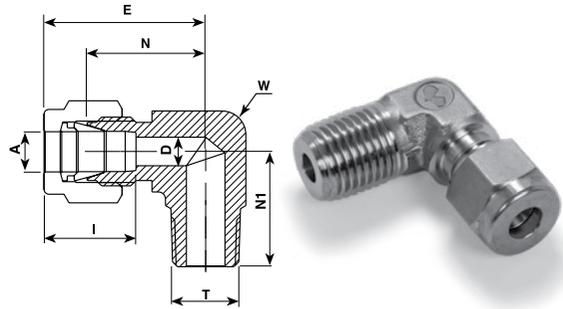
Tube (Metric) Male NPT Thread									
Part Number	A	T	D	W		N	E	N ₁	I
	Tube O.D. mm		mm	in	mm	mm	mm	mm	mm
VUWL-3AN	3	1/8NPT	2.4	7/16	11.1	17	23.6	17.8	12.9
VUWL-3BN	3	1/4NPT	2.4	1/2	12.7	18	24.6	23.4	12.9
VUWL-4AN	4	1/8NPT	2.4	1/2	12.7	18.8	25.4	18.8	13.7
VUWL-4BN	4	1/4NPT	2.4	1/2	12.7	18.8	25.4	23.4	13.7
VUWL-6AN	6	1/8NPT	4.8	1/2	12.7	19.6	27	18.8	15.3
VUWL-6BN	6	1/4NPT	4.8	1/2	12.7	19.6	27	23.4	15.3
VUWL-6CN	6	3/8NPT	4.8	11/16	17.5	22.4	29.8	26.2	15.3
VUWL-6DN	6	1/2NPT	4.8	13/16	20.6	24.4	31.8	33	15.3
VUWL-8AN	8	1/8NPT	4.8	9/16	14.3	21.3	28.8	19.8	16.2
VUWL-8BN	8	1/4NPT	6.4	9/16	14.3	21.3	28.8	24.4	16.2
VUWL-8CN	8	3/8NPT	6.4	11/16	17.5	23.1	30.6	26.2	16.2
VUWL-8DN	8	1/2NPT	6.4	13/16	20.6	25.1	32.6	33	16.2
VUWL-10AN	10	1/8NPT	4.8	11/16	17.5	23.9	31.5	21.6	17.2
VUWL-10BN	10	1/4NPT	7.1	11/16	17.5	23.9	31.5	26.2	17.2
VUWL-10CN	10	3/8NPT	7.9	11/16	17.5	23.9	31.5	26.2	17.2
VUWL-10DN	10	1/2NPT	7.9	13/16	20.6	25.9	33.5	33	17.2
VUWL-12AN	12	1/8NPT	4.8	13/16	20.6	25.9	36	23.6	22.8
VUWL-12BN	12	1/4NPT	7.1	13/16	20.6	25.9	36	28.2	22.8
VUWL-12CN	12	3/8NPT	9.5	13/16	20.6	25.9	36	28.2	22.8
VUWL-12DN	12	1/2NPT	9.5	13/16	20.6	25.9	36	33	22.8
VUWL-12EN	12	3/4NPT	9.5	1 1/8	28.6	29.7	39.8	36.8	22.8
VUWL-15DN	15	1/2NPT	11.9	15/16	23.8	27.9	38	35.1	24.4
VUWL-16CN	16	3/8NPT	9.5	15/16	23.8	27.9	38	30.2	24.4
VUWL-16DN	16	1/2NPT	11.9	15/16	23.8	27.9	38	35.1	24.4
VUWL-16EN	16	3/4NPT	12.7	1 1/8	28.6	29.7	39.8	36.8	24.4
VUWL-18DN	18	1/2NPT	11.9	1 1/8	28.6	29.7	39.8	36.8	24.4
VUWL-18EN	18	3/4NPT	15.1	1 1/8	28.6	29.7	39.8	36.8	24.4
VUWL-20DN	20	1/2NPT	11.9	1 3/8	34.9	34.5	44.6	41.7	26
VUWL-20EN	20	3/4NPT	15.9	1 3/8	34.9	34.5	44.6	41.7	26
VUWL-22EN	22	3/4NPT	15.9	1 3/8	34.9	34.5	44.6	41.7	26
VUWL-22FN	22	1NPT	18.3	1 3/8	34.9	34.5	44.6	46.5	26
VUWL-25EN	25	3/4NPT	15.9	1 3/8	34.9	36.8	49.1	41.7	31.3
VUWL-25FN	25	1NPT	21.8	1 3/8	34.9	36.8	49.1	46.5	31.3

For inches, see next page

"D" - Dimension is minimum hole diameter - dimensions are for reference only, and are subject to change without notice.

Male Elbow (continued)

L

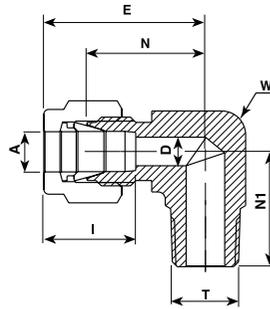


Tube (Inch) Male NPT Thread															
Part Number	A		T	D		W		N		E		N ₁		I	
	Tube O.D.			in	mm	in	mm	in	mm	in	mm	in	mm	in	mm
VUWL-1.6AN	1/16	1.6	1/8NPT	0.05	1.3	7/16	11.1	0.6	15.2	0.75	19.1	0.7	17.8	0.34	8.6
VUWL-3,2AN	1/8	3.2	1/8NPT	0.09	2.3	7/16	11.1	0.67	17	0.93	23.6	0.7	17.8	0.5	12.7
VUWL-3,2BN	1/8	3.2	1/4NPT	0.09	2.3	1/2	12.7	0.71	18	0.97	24.6	0.92	23.4	0.5	12.7
VUWL-4.8AN	3/16	4.8	1/8NPT	0.12	3	1/2	12.7	0.74	18.8	1	25.4	0.74	18.8	0.54	13.7
VUWL-4.8BN	3/16	4.8	1/4NPT	0.12	3	1/2	12.7	0.74	18.8	1	25.4	0.92	23.4	0.54	13.7
VUWL-6.35AN	1/4	6.35	1/8NPT	0.19	4.8	1/2	12.7	0.77	19.6	1.06	26.9	0.74	18.8	0.6	15.2
VUWL-6.35BN	1/4	6.35	1/4NPT	0.19	4.8	1/2	12.7	0.77	19.6	1.06	26.9	0.92	23.4	0.6	15.2
VUWL-6.35CN	1/4	6.35	3/8NPT	0.19	4.8	11/16	17.5	0.88	22.4	1.17	29.7	1.03	26.2	0.6	15.2
VUWL-6.35DN	1/4	6.35	1/2NPT	0.19	4.8	13/16	20.6	0.96	24.4	1.25	31.8	1.3	33	0.6	15.2
VUWL-7.93AN	5/16	7.93	1/8NPT	0.19	4.8	9/16	14.3	0.84	21.3	1.13	28.7	0.78	19.8	0.64	16.2
VUWL-7.93BN	5/16	7.93	1/4NPT	0.25	6.4	9/16	14.3	0.84	21.3	1.13	28.7	0.96	24.4	0.64	16.2
VUWL-7.93CN	5/16	7.93	3/8NPT	0.25	6.4	11/16	17.5	0.91	23.1	1.2	30.5	1.03	26.2	0.64	16.2
VUWL-9.52AN	3/8	9.52	1/8NPT	0.19	4.8	5/8	15.9	0.91	23.1	1.2	30.5	0.82	20.8	0.66	16.8
VUWL-9.52BN	3/8	9.52	1/4NPT	0.28	7.1	5/8	15.9	0.91	23.1	1.2	30.5	1	25.4	0.66	16.8
VUWL-9.52CN	3/8	9.52	3/8NPT	0.28	7.1	11/16	17.5	0.94	23.9	1.23	31.2	1.03	26.2	0.66	16.8
VUWL-9.52DN	3/8	9.52	1/2NPT	0.28	7.1	13/16	20.6	1.02	25.9	1.31	33.3	1.3	33	0.66	16.8
VUWL-9.52EN	3/8	9.52	3/4NPT	0.28	7.1	1 1/16	27	1.17	29.7	1.46	37.1	1.45	36.8	0.66	16.8
VUWL-12.7BN	1/2	12.7	1/4NPT	0.28	7.1	13/16	20.6	1.02	25.9	1.42	36.1	1.11	28.2	0.9	22.9
VUWL-12.7CN	1/2	12.7	3/8NPT	0.37	9.5	13/16	20.6	1.02	25.9	1.42	36.1	1.11	28.2	0.9	22.9
VUWL-12.7DN	1/2	12.7	1/2NPT	0.41	10.4	13/16	20.6	1.02	25.9	1.42	36.1	1.3	33	0.9	22.9
VUWL-12.7EN	1/2	12.7	3/4NPT	0.41	10.4	1 1/16	27	1.17	29.7	1.57	39.9	1.45	36.8	0.9	22.9
VUWL-15.88CN	5/8	15.88	3/8NPT	0.37	9.6	15/16	23.8	1.1	27.9	1.5	38.1	1.19	30.2	0.96	24.4
VUWL-15.88DN	5/8	15.88	1/2NPT	0.47	11.9	15/16	23.8	1.1	27.9	1.5	38.1	1.38	35.1	0.96	24.4
VUWL-15.88EN	5/8	15.88	3/4NPT	0.50	12.7	1 1/8	28.6	1.17	29.7	1.57	39.9	1.45	36.8	0.96	24.4
VUWL-19.05DN	3/4	19.05	1/2NPT	0.47	11.9	1 1/16	27	1.17	29.7	1.57	39.9	1.45	36.8	0.96	24.4
VUWL-19.05EN	3/4	19.05	3/4NPT	0.62	15.8	1 1/16	27	1.17	29.7	1.57	39.9	1.45	36.8	0.96	24.4
VUWL-22.22EN	7/8	22.22	3/4NPT	0.62	15.8	1 3/8	34.9	1.36	34.5	1.76	44.7	1.64	41.7	1.02	25.9
VUWL-25.4EN	1	25.4	3/4NPT	0.62	15.8	1 3/8	34.9	1.45	36.8	1.93	49	1.64	41.7	1.23	31.2
VUWL-25.4FN	1	25.4	1NPT	0.86	21.8	1 3/8	34.9	1.45	36.8	1.93	49	1.83	46.5	1.23	31.2

"D" - Dimension is minimum hole diameter - dimensions are for reference only, and are subject to change without notice.

Male Elbow

L



Tube (Metric) ISO Tapered Thread

Part Number	A	T	D	W		N	E	N ₁	I
	Tube O.D. mm		mm	in	mm	mm	mm	mm	mm
VUWL-3A	3	R 1/8	2.4	7/16	11.1	17	23.6	17.8	12.9
VUWL-3B	3	R 1/4	2.4	1/2	12.7	18	24.6	23.4	12.9
VUWL-4A	4	R 1/8	2.4	1/2	12.7	18.8	25.4	18.8	13.7
VUWL-4B	4	R 1/4	2.4	1/2	12.7	18.8	25.4	23.4	13.7
VUWL-6A	6	R 1/8	4.8	1/2	12.7	19.6	27	18.8	15.3
VUWL-6B	6	R 1/4	4.8	1/2	12.7	19.6	27	23.4	15.3
VUWL-6C	6	R 3/8	4.8	11/16	17.5	22.4	29.8	26.2	15.3
VUWL-6D	6	R 1/2	4.8	13/16	20.6	24.4	31.8	33	15.3
VUWL-8A	8	R 1/8	4.8	9/16	14.3	21.3	28.8	19.8	16.2
VUWL-8B	8	R 1/4	6.4	9/16	14.3	21.3	28.8	24.4	16.2
VUWL-8C	8	R 3/8	6.4	11/16	17.5	23.1	30.6	26.2	16.2
VUWL-8D	8	R 1/2	6.4	13/16	20.6	25.1	32.6	33	16.2
VUWL-10A	10	R 1/8	4.8	11/16	17.5	23.9	31.5	21.6	17.2
VUWL-10B	10	R 1/4	7.1	11/16	17.5	23.9	31.5	26.2	17.2
VUWL-10C	10	R 3/8	7.9	11/16	17.5	23.9	31.5	26.2	17.2
VUWL-10D	10	R 1/2	7.9	13/16	20.6	25.9	33.5	33	17.2
VUWL-12A	12	R 1/8	4.8	13/16	20.6	25.9	36	23.6	22.8
VUWL-12B	12	R 1/4	7.1	13/16	20.6	25.9	36	28.2	22.8
VUWL-12C	12	R 3/8	9.5	13/16	20.6	25.9	36	28.2	22.8
VUWL-12D	12	R 1/2	9.5	13/16	20.6	25.9	36	33	22.8
VUWL-12E	12	R 3/4	9.5	1 1/16	27	29.7	39.8	36.8	22.8
VUWL-16C	16	R 3/8	9.5	15/16	23.8	27.9	38	30.2	24.4
VUWL-16D	16	R 1/2	11.9	15/16	23.8	27.9	38	35.1	24.4
VUWL-18D	18	R 1/2	11.9	1 1/8	28.6	29.7	39.8	36.8	24.4
VUWL-18E	18	R 3/4	15.1	1 1/16	27	29.7	39.8	36.8	24.4
VUWL-20D	20	R 1/2	11.9	1 3/8	34.9	34.5	44.6	41.7	26
VUWL-20E	20	R 3/4	15.9	1 3/8	34.9	34.5	44.6	41.7	26
VUWL-22E	22	R 3/4	15.9	1 3/8	34.9	34.5	44.6	41.7	26
VUWL-22F	22	R 1	18.3	1 3/8	34.9	34.5	44.6	46.5	26
VUWL-25E	25	R 3/4	15.9	1 3/8	34.9	36.8	49.1	41.7	31.3
VUWL-25F	25	R 1	21.8	1 3/8	34.9	36.8	49.1	46.5	31.3

Reference Specifications:

DIN - 2999
 BS - 21
 JIS - B0203
 ISO - 1/7-BSP-T

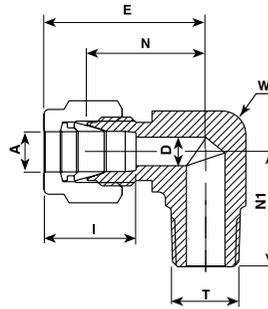
Designation:

R marking on hex.

"D" - Dimension is minimum hole diameter - dimensions are for reference only, and are subject to change without notice.

Male Elbow (R)

L



Tube (Inch) To ISO Tapered Thread

Part Number	A Tube O.D.		T	D		W		N		E		N ₁		I	
	in	mm		in	mm	in	mm	in	mm	in	mm	in	mm	in	mm
VUWL-1.6A	1/16	1.6	R 1/8	0.05	1.3	7/16	11.1	0.6	15.2	0.75	19.1	0.7	17.8	0.34	8.6
VUWL-3,2A	1/8	3.2	R 1/8	0.09	2.3	7/16	11.1	0.67	17	0.93	23.6	0.7	17.8	0.5	12.7
VUWL-3,2B	1/8	3.2	R 1/4	0.09	2.3	1/2	12.7	0.71	18	0.97	24.6	0.92	23.4	0.5	12.7
VUWL-4.8A	3/16	4.8	R 1/8	0.12	3	1/2	12.7	0.74	18.8	1	25.4	0.74	18.8	0.54	13.7
VUWL-4.8B	3/16	4.8	R 1/4	0.12	3	1/2	12.7	0.74	18.8	1	25.4	0.92	23.4	0.54	13.7
VUWL-6.35A	1/4	6.35	R 1/8	0.19	4.8	1/2	12.7	0.77	19.6	1.06	26.9	0.74	18.8	0.6	15.2
VUWL-6.35B	1/4	6.35	R 1/4	0.19	4.8	1/2	12.7	0.77	19.6	1.06	26.9	0.92	23.4	0.6	15.2
VUWL-6.35C	1/4	6.35	R 3/8	0.19	4.8	11/16	17.5	0.88	22.4	1.17	29.7	1.03	26.2	0.6	15.2
VUWL-6.35D	1/4	6.35	R 1/2	0.19	4.8	13/16	20.6	0.96	24.4	1.25	31.8	1.3	33	0.6	15.2
VUWL-7.93A	5/16	7.93	R 1/8	0.19	4.8	9/16	14.3	0.84	21.3	1.13	28.7	0.78	19.8	0.64	16.2
VUWL-7.93B	5/16	7.93	R 1/4	0.25	6.35	9/16	14.3	0.84	21.3	1.13	28.7	0.96	24.4	0.64	16.2
VUWL-7.93C	5/16	7.93	R 3/8	0.25	6.35	11/16	17.5	0.91	23.1	1.2	30.5	1.03	26.2	0.64	16.2
VUWL-9.52A	3/8	9.52	R 1/8	0.19	4.8	5/8	15.9	0.91	23.1	1.2	30.5	0.82	20.8	0.66	16.8
VUWL-9.52B	3/8	9.52	R 1/4	0.28	7.1	5/8	15.9	0.91	23.1	1.2	30.5	1	25.4	0.66	16.8
VUWL-9.52C	3/8	9.52	R 3/8	0.28	7.1	11/16	17.5	0.94	23.9	1.23	31.2	1.03	26.2	0.66	16.8
VUWL-9.52D	3/8	9.52	R 1/2	0.28	7.1	13/16	20.6	1.02	25.9	1.31	33.3	1.3	33	0.66	16.8
VUWL-9.52E	3/8	9.52	R 3/4	0.28	7.1	1 1/8	28.6	1.17	29.7	1.46	37.1	1.45	36.8	0.66	16.8
VUWL-12.7B	1/2	12.7	R 1/4	0.28	7.1	13/16	20.6	1.02	25.9	1.42	36.1	1.11	28.2	0.9	22.9
VUWL-12.7C	1/2	12.7	R 3/8	0.37	9.5	13/16	20.6	1.02	25.9	1.42	36.1	1.11	28.2	0.9	22.9
VUWL-12.7D	1/2	12.7	R 1/2	0.41	10.4	13/16	20.6	1.02	25.9	1.42	36.1	1.3	33	0.9	22.9
VUWL-12.7E	1/2	12.7	R 3/4	0.41	10.4	1 1/8	28.6	1.17	29.7	1.57	39.9	1.45	36.8	0.9	22.9
VUWL-15.88C	5/8	15.88	R 3/8	0.38	9.6	15/16	23.8	1.1	27.9	1.5	38.1	1.19	30.2	0.96	24.4
VUWL-15.88D	5/8	15.88	R 1/2	0.47	11.9	15/16	23.8	1.1	27.9	1.5	38.1	1.38	35.1	0.96	24.4
VUWL-15.88E	5/8	15.88	R 3/4	0.5	12.7	1 1/8	28.6	1.17	29.7	1.57	39.9	1.45	36.8	0.96	24.4
VUWL-19.05D	3/4	19.05	R 1/2	0.47	11.9	1 1/16	27	1.17	29.7	1.57	39.9	1.45	36.8	0.96	24.4
VUWL-19.05E	3/4	19.05	R 3/4	0.62	15.8	1 1/16	27	1.17	29.7	1.57	39.9	1.45	36.8	0.96	24.4
VUWL-22.22E	7/8	22.22	R 3/4	0.62	15.8	1 3/8	34.9	1.36	34.5	1.76	44.7	1.64	41.7	1.02	25.9
VUWL-25.4E	1	25.4	R 3/4	0.62	15.8	1 3/8	34.9	1.45	36.8	1.93	49	1.64	41.7	1.23	31.2
VUWL-25.4F	1	25.4	R 1	0.86	21.8	1 3/8	34.9	1.45	36.8	1.93	49	1.83	46.5	1.23	31.2

Reference Specifications:

- DIN - 2999
- BS - 21
- JIS - B0203
- ISO - 1/7-BSP-T

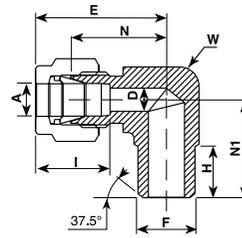
Designation:

R marking on hex.

"D" - Dimension is minimum hole diameter - dimensions are for reference only, and are subject to change without notice.

Male Pipe Weld Elbow

LR

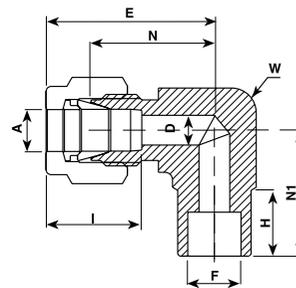


Tube (Inch) To Pipe (Inch)

Part Number	A		F		D		W		N		H		E		N ₁		I	
	Tube O.D.		Tube size.															
	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm
VUWLR-6.35X10.3	1/4	6.35	1/8	10.3	0.19	4.8	1/2	12.7	0.77	19.6	0.38	9.7	1.06	26.9	0.74	18.8	0.6	15.2
VUWLR-6.35X13.7	1/4	6.35	1/4	13.7	0.19	4.8	1/2	12.7	0.77	19.6	0.56	14.2	1.06	26.9	0.92	23.4	0.6	15.2
VUWLR-9.52X13.7	3/8	9.52	1/4	13.7	0.28	7.1	5/8	15.9	0.91	23.1	0.56	14.2	1.2	30.5	1	25.4	0.66	16.8
VUWLR-12.7X21.3	1/2	12.7	1/2	21.3	0.41	10.4	13/16	20.6	1.02	25.9	0.75	19.1	1.42	36.1	1.3	33	0.9	22.9
VUWLR-19.05X26.7	3/4	19.05	3/4	26.7	0.62	15.8	1 1/8	28.6	1.17	29.7	0.75	19.1	1.57	39.9	1.45	36.8	0.96	24.4

Tube Socket Weld Elbow

LR

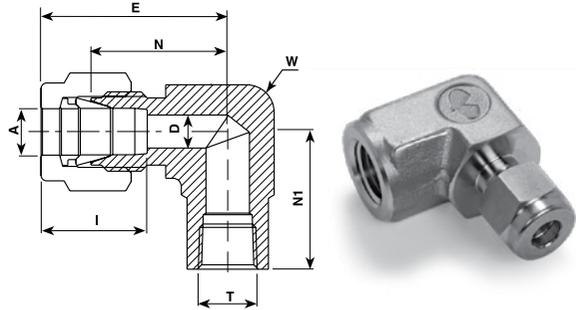


Tube (Inch) To Pipe (Inch)

Part Number	A		F		D		W		N		H		E		N ₁		I	
	Tube O.D.		Tube size.															
	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm
VUWLR-6.35X6.35F	1/4	6.35	1/4	6.35	0.19	4.8	1/2	12.7	0.77	19.6	0.31	7.9	1.06	26.9	0.77	19.6	0.6	15.2
VUWLR-9.52X9.52F	3/8	9.52	3/8	9.52	0.28	7.1	5/8	15.9	0.91	23.1	0.38	9.7	1.2	30.5	0.91	23.1	0.66	16.8
VUWLR-12.7X12.7F	1/2	12.7	1/2	12.7	0.41	10.4	15/16	23.8	1.02	25.9	0.5	12.7	1.42	36.1	1.02	25.9	0.9	22.9

"D" - Dimension is minimum hole diameter - dimensions are for reference only, and are subject to change without notice.

Female Elbow LG



Tube (Metric) To Female NPT Thread

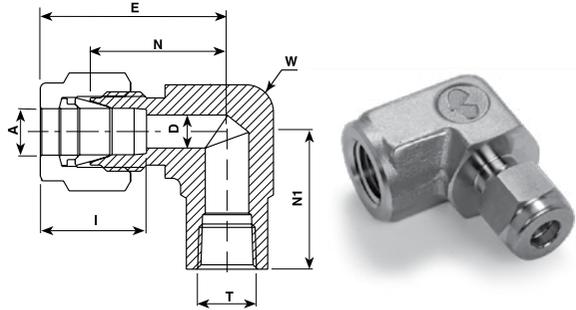
Part Number	A Tube O.D.		T	D		W		N		E		N ₁		I	
	mm			mm	in	mm	mm	mm	mm	mm	mm	mm	mm	mm	
VUWLG-6AN	6		1/8NPT	4.8	5/8	15.9	19.6	27	21.6	15.3					
VUWLG-6BN	6		1/4NPT	4.8	11/16	17.5	22.4	29.8	22.4	15.3					
VUWLG-10BN	10		1/4NPT	7.9	13/16	20.6	25.9	33.5	22.4	17.2					
VUWLG-12BN	12		1/4NPT	9.5	13/16	20.6	25.9	36	22.4	22.8					
VUWLG-12DN	12		1/2NPT	9.5	1 1/8	28.6	28.7	38.5	28.4	22.8					

Tube (Inch) To Female NPT Thread

Part Number	A Tube O.D.		T	D		W		N		E		N ₁		I	
	in	mm		in	mm	in	mm	in	mm	in	mm	in	mm	in	mm
VUWLG-3.2AN	1/8	3.2	1/8NPT	0.09	2.3	5/8	15.9	0.71	18	0.97	24.6	0.75	19.1	0.5	12.7
VUWLG-3.2BN	1/8	3.2	1/4NPT	0.09	2.3	13/16	20.6	0.82	20.8	1.08	27.4	0.94	23.8	0.5	12.7
VUWLG-4.8AN	3/16	4.8	1/8NPT	0.12	3	5/8	15.9	0.74	18.8	1	25.4	0.75	19.1	0.54	13.7
VUWLG-6.35AN	1/4	6.35	1/8NPT	0.19	4.8	1/2	12.7	0.77	19.6	1.06	26.9	0.75	19.1	0.6	15.3
VUWLG-6.35BN	1/4	6.35	1/4NPT	0.19	4.8	11/16	17.5	0.88	22.4	1.17	29.7	0.88	22.4	0.6	15.3
VUWLG-6.35CN	1/4	6.35	3/8NPT	0.19	4.8	15/16	23.8	0.96	24.4	1.25	31.8	0.88	22.4	0.6	15.3
VUWLG-6.35DN	1/4	6.35	1/2NPT	0.19	4.8	1 1/8	28.6	1.07	27.2	1.36	34.5	1.12	28.5	0.6	15.3
VUWLG-7.93AN	5/16	7.93	1/8NPT	0.25	6.35	9/16	14.3	0.84	21.3	1.13	28.7	0.75	19.1	0.64	16.2
VUWLG-7.93BN	5/16	7.93	1/4NPT	0.25	6.35	13/16	20.6	0.91	23.1	1.2	30.5	0.88	22.4	0.64	16.2
VUWLG-9.52AN	3/8	9.52	1/8NPT	0.28	7.1	5/8	15.9	0.91	23.1	1.2	30.5	0.75	19.1	0.66	16.9
VUWLG-9.52BN	3/8	9.52	1/4NPT	0.28	7.1	11/16	20.6	0.94	23.9	1.23	31.2	0.88	22.4	0.66	16.9
VUWLG-9.52CN	3/8	9.52	3/8NPT	0.28	7.1	15/16	23.8	1.02	25.9	1.31	33.3	0.88	22.4	0.66	16.9
VUWLG-9.52DN	3/8	9.52	1/2NPT	0.28	7.1	1 1/16	27	1.12	28.7	1.42	36.1	1.12	28.5	0.66	16.9
VUWLG-12.7BN	1/2	12.7	1/4NPT	0.41	10.4	13/16	20.6	1.02	25.9	1.42	36.1	0.88	22.4	0.9	22.9
VUWLG-12.7CN	1/2	12.7	3/8NPT	0.41	10.4	15/16	23.8	1.02	25.9	1.42	36.1	0.88	22.4	0.9	22.9
VUWLG-12.7DN	1/2	12.7	1/2NPT	0.41	10.4	1 1/16	27	1.12	28.7	1.53	36.9	1.12	28	0.9	22.9
VUWLG-15.88CN	5/8	15.88	3/8NPT	0.5	12.7	15/16	23.8	1.1	27.9	1.5	38.1	0.88	22.4	0.96	24.4
VUWLG-15.88DN	5/8	15.88	1/2NPT	0.5	12.7	1 1/8	28.6	1.17	29.7	1.57	39.9	1.12	28.5	0.96	24.4
VUWLG-19.05DN	3/4	19.05	1/2NPT	0.62	15.7	1 1/8	28.6	1.17	29.7	1.57	39.9	1.12	28.5	0.96	24.4
VUWLG-19.05EN	3/4	19.05	3/4NPT	0.62	15.7	1 3/8	34.9	1.36	34.5	1.76	44.7	1.25	31.8	0.96	24.4
VUWLG-22.22EN	7/8	22.22	3/4NPT	0.72	18.3	1 3/8	34.9	1.25	31.8	1.76	44.7	1.25	31.8	1.02	25.9
VUWLG-25.4EN	1	25.4	3/4NPT	0.88	22.3	1 3/8	34.9	1.25	31.8	1.93	49	1.25	31.8	1.23	31.2
VUWLG-25.4FN	1	25.4	1NPT	0.88	22.3	1 11/16	42.9	1.63	41.4	2.11	53.6	1.5	38.1	1.23	31.2

"D" - Dimension is minimum hole diameter - dimensions are for reference only, and are subject to change without notice.

Female Elbow (Rc) LG



Tube (Metric) To ISO Tapered Thread

Part Number	A Tube O.D.		T	D		W		N		E		N ₁		I	
	in	mm		in	mm	in	mm	in	mm	in	mm	in	mm	in	mm
VUWLG-6A		6	Rc 1/8		4.8	5/8	15.9		19.6		27		21.6		15.3
VUWLG-6B		6	Rc 1/4		4.8	11/16	17.5		22.4		29.8		22.4		15.3
VUWLG-10B		10	Rc 1/4		7.9	13/16	20.6		25.9		33.5		22.4		17.2
VUWLG-12B		12	Rc 1/4		9.5	13/16	20.6		25.9		36		22.4		22.8
VUWLG-12D		12	Rc 1/2		9.5	1 1/8	28.6		28.7		38.5		28.4		22.8

Tube (Inch) To ISO Tapered Thread

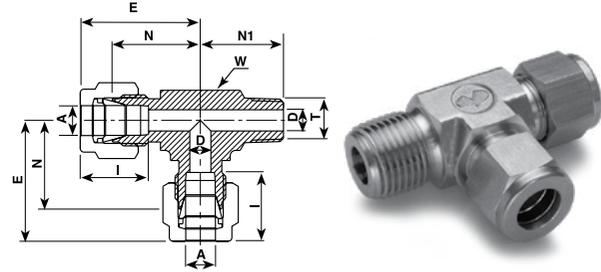
Part Number	A Tube O.D.		T	D		W		N		E		N ₁		I	
	in	mm		in	mm	in	mm	in	mm	in	mm	in	mm	in	mm
VUWLG-3.2A	1/8	3.2	Rc 1/8	0.09	2.3	5/8	15.9	0.71	18	0.97	24.6	0.75	19.1	0.5	12.7
VUWLG-3.2B	1/8	3.2	Rc 1/4	0.09	2.3	13/16	20.6	0.82	20.8	1.08	27.4	0.94	23.8	0.5	12.7
VUWLG-4.8A	3/16	4.8	Rc 1/8	0.12	3	5/8	15.9	0.74	18.8	1	25.4	0.75	19.1	0.54	13.7
VUWLG-6.35A	1/4	6.35	Rc 1/8	0.19	4.8	1/2	12.7	0.77	19.6	1.06	26.9	0.75	19.1	0.6	15.3
VUWLG-6.35B	1/4	6.35	Rc 1/4	0.19	4.8	11/16	17.5	0.88	22.4	1.17	29.7	0.88	22.4	0.6	15.3
VUWLG-6.35C	1/4	6.35	Rc 3/8	0.19	4.8	15/16	23.8	0.96	24.4	1.25	31.8	0.88	22.4	0.6	15.3
VUWLG-6.35D	1/4	6.35	Rc 1/2	0.19	4.8	1 1/8	28.6	1.07	27.2	1.36	34.5	1.12	28.5	0.6	15.3
VUWLG-7.93A	5/16	7.93	Rc 1/8	0.25	6.35	9/16	14.3	0.84	21.3	1.13	28.7	0.75	19.1	0.64	16.2
VUWLG-7.93B	5/16	7.93	Rc 1/4	0.25	6.35	13/16	20.6	0.91	23.1	1.2	30.5	0.88	22.4	0.64	16.2
VUWLG-9.52A	3/8	9.52	Rc 1/8	0.28	7.1	5/8	15.9	0.91	23.1	1.2	30.5	0.75	19.1	0.66	16.9
VUWLG-9.52B	3/8	9.52	Rc 1/4	0.28	7.1	11/16	20.6	0.94	23.9	1.23	31.2	0.88	22.4	0.66	16.9
VUWLG-9.52C	3/8	9.52	Rc 3/8	0.28	7.1	15/16	23.8	1.02	25.9	1.31	33.3	0.88	22.4	0.66	16.9
VUWLG-9.52D	3/8	9.52	Rc 1/2	0.28	7.1	1 1/16	27	1.12	28.7	1.42	36.1	1.12	28.5	0.66	16.9
VUWLG-12.7B	1/2	12.7	Rc 1/4	0.41	10.4	13/16	20.6	1.02	25.9	1.42	36.1	0.88	22.4	0.9	22.9
VUWLG-12.7C	1/2	12.7	Rc 3/8	0.41	10.4	15/16	23.8	1.02	25.9	1.42	36.1	0.88	22.4	0.9	22.9
VUWLG-12.7D	1/2	12.7	Rc 1/2	0.41	10.4	1 1/16	27	1.12	28.7	1.53	36.9	1.12	28.5	0.9	22.9
VUWLG-15.88C	5/8	15.88	Rc 3/8	0.5	12.7	15/16	23.8	1.1	27.9	1.5	38.1	0.88	22.4	0.96	24.4
VUWLG-15.88D	5/8	15.88	Rc 1/2	0.5	12.7	1 1/8	28.6	1.17	29.7	1.57	39.9	1.12	28.5	0.96	24.4
VUWLG-19.05D	3/4	19.05	Rc 1/2	0.62	15.7	1 1/8	28.6	1.17	29.7	1.57	39.9	1.12	28.5	0.96	24.4
VUWLG-19.05E	3/4	19.05	Rc 3/4	0.62	15.8	1 3/8	34.9	1.36	34.5	1.76	44.7	1.25	31.8	0.96	24.4
VUWLG-22.22E	7/8	22.22	Rc 3/4	0.72	18.3	1 3/8	34.9	1.25	31.8	1.76	44.7	1.25	31.8	1.02	25.9
VUWLG-25.4E	1	25.4	Rc 3/4	0.88	22.3	1 3/8	34.9	1.25	31.8	1.93	49	1.25	31.8	1.23	31.2
VUWLG-25.4F	1	25.4	Rc 1	0.88	22.3	1 11/16	42.9	1.63	41.4	2.11	53.6	1.5	38.1	1.23	31.2

Designation:
R marking on hex.

"D" - Dimension is minimum hole diameter - dimensions are for reference only, and are subject to change without notice.

Male Run Tee (NPT)

TL



Tube (Metric) To Male NPT Thread

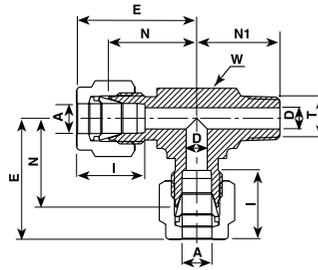
Part Number	A Tube O.D.		T	D		W		N		E		N ₁		I	
	in	mm		in	mm	in	mm	in	mm	in	mm	in	mm	in	mm
VUWTL-6AN		6	1/8NPT		4.8	1/2	12.7		19.6		27		18.8		15.3
VUWTL-6BN		6	1/4NPT		4.8	1/2	12.7		19.6		27		23.4		15.3
VUWTL-8AN		8	1/8NPT		4.8	5/8	15.9		22.4		29.9		20.8		16.2
VUWTL-8BN		8	1/4NPT		6.4	5/8	15.9		22.4		29.9		25.4		16.2
VUWTL-10BN		10	1/4NPT		7.1	13/16	20.6		25.9		33.5		28.2		16.2
VUWTL-12BN		12	1/4NPT		7.1	13/16	20.6		25.9		36		28.2		22.8
VUWTL-12CN		12	3/8NPT		9.5	13/16	20.6		25.9		36		28.2		22.8
VUWTL-12DN		12	1/2NPT		9.5	15/16	23.8		25.9		36		33		22.8
VUWTL-16DN		16	1/2NPT		11.9	15/16	23.8		27.9		38		35		24.4

Tube (Inch) To Male NPT Thread

Part Number	A Tube O.D.		T	D		W		N		E		N ₁		I	
	in	mm		in	mm	in	mm	in	mm	in	mm	in	mm	in	mm
VUWTL-3.2AN	1/8	3.2	1/8NPT	0.09	2.3	7/16	11.1	0.67	17	0.93	23.6	0.7	17.8	0.5	12.7
VUWTL-3.2BN	1/8	3.2	1/4NPT	0.09	2.3	1/2	12.7	0.71	18	0.97	24.6	0.92	23.4	0.5	12.7
VUWTL-4.8AN	3/16	4.8	1/8NPT	0.12	3.1	7/16	11.1	0.7	17.8	0.96	24.4	0.7	17.8	0.54	13.7
VUWTL-6.35AN	1/4	6.35	1/8NPT	0.19	4.8	1/2	12.7	0.77	19.6	1.06	26.9	0.74	18.8	0.6	15.2
VUWTL-6.35BN	1/4	6.35	1/4NPT	0.19	4.8	1/2	12.7	0.77	19.6	1.06	26.9	0.92	23.4	0.6	15.2
VUWTL-7.93AN	5/16	7.93	1/8NPT	0.19	4.8	5/8	15.9	0.88	22.4	1.17	29.7	0.82	20.8	0.64	16.3
VUWTL-9.52BN	3/8	9.52	1/4NPT	0.28	7.1	5/8	15.9	0.91	23.1	1.2	30.5	1	25.4	0.66	16.8
VUWTL-9.52CN	3/8	9.52	3/8NPT	0.28	7.1	13/16	20.6	1.02	25.9	1.31	33.3	1.11	28.2	0.66	16.8
VUWTL-12.7CN	1/2	12.7	3/8NPT	0.38	9.5	13/16	20.6	1.02	25.9	1.42	36.1	1.11	28.2	0.9	22.9
VUWTL-12.7DN	1/2	12.7	1/2NPT	0.41	10.4	13/16	20.6	1.02	25.9	1.42	36.1	1.3	33	0.9	22.9
VUWTL-15.88DN	5/8	15.88	1/2NPT	0.47	11.9	15/16	23.8	1.1	27.9	1.5	38.1	1.38	35.1	0.96	24.4
VUWTL-19.05EN	3/4	19.05	3/4NPT	0.62	15.8	1 1/8	28.6	1.17	29.7	1.57	39.9	1.45	36.8	0.96	24.4

D - Dimension is minimum hole diameter - dimensions are for reference only, and are subject to change without notice.

Male Run Tee (R) TL



Tube (Metric) To ISO Tapered Thread

Part Number	A Tube O.D.		T	D		W		N		E		N ₁		I	
	in	mm		in	mm	in	mm	in	mm	in	mm	in	mm	in	mm
VUWTL-6A		6	R 1/8		4.8	1/2	12.7		19.6		27		18.8		15.3
VUWTL-6B		6	R 1/4		4.8	1/2	12.7		19.6		27		23.4		15.3
VUWTL-8A		8	R 1/8		4.8	5/8	15.9		22.4		29.9		20.8		16.2
VUWTL-8B		8	R 1/4		6.4	5/8	15.9		22.4		29.9		25.4		16.2
VUWTL-10B		10	R 1/4		7.1	13/16	20.6		25.9		33.5		28.2		16.2
VUWTL-12B		12	R 1/4		7.1	13/16	20.6		25.9		36		28.2		22.8
VUWTL-12C		12	R 3/8		9.5	13/16	20.6		25.9		36		28.2		22.8
VUWTL-12D		12	R 1/2		9.5	15/16	23.8		25.9		36		33		22.8
VUWTL-16D		16	R 1/2		11.9	15/16	23.8		27.9		38		35		24.4

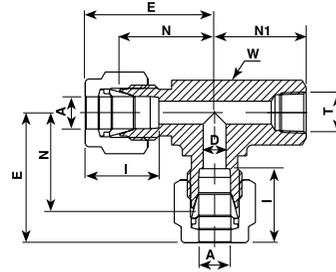
Tube (Inch) To ISO Tapered Thread

Part Number	A Tube O.D.		T	D		W		N		E		N ₁		I	
	in	mm		in	mm	in	mm	in	mm	in	mm	in	mm	in	mm
VUWTL-3.2A	1/8	3.2	R 1/8	0.09	2.3	7/16	11.1	0.67	17	0.93	23.6	0.7	17.8	0.5	12.7
VUWTL-3.2B	1/8	3.2	R 1/4	0.09	2.3	1/2	12.7	0.71	18	0.97	24.6	0.92	23.4	0.5	12.7
VUWTL-4.8A	3/16	4.8	R 1/8	0.12	3.1	7/16	11.1	0.7	17.8	0.96	24.4	0.7	17.8	0.54	13.7
VUWTL-6.35A	1/4	6.35	R 1/8	0.19	4.8	1/2	12.7	0.77	19.6	1.06	26.9	0.74	18.8	0.6	15.2
VUWTL-6.35B	1/4	6.35	R 1/4	0.19	4.8	1/2	12.7	0.77	19.6	1.06	26.9	0.92	23.4	0.6	15.2
VUWTL-7.93A	5/16	7.93	R 1/8	0.19	4.8	5/8	15.9	0.88	22.4	1.17	29.7	0.82	20.8	0.64	16.3
VUWTL-9.52B	3/8	9.52	R 1/4	0.28	7.1	5/8	15.9	0.91	23.1	1.2	30.5	1	25.4	0.66	16.8
VUWTL-9.52C	3/8	9.52	R 3/8	0.28	7.1	13/16	20.6	1.02	25.9	1.31	33.3	1.11	28.2	0.66	16.8
VUWTL-12.7C	1/2	12.7	R 3/8	0.38	9.5	13/16	20.6	1.02	25.9	1.42	36.1	1.11	28.2	0.9	22.9
VUWTL-12.7D	1/2	12.7	R 1/2	0.41	10.4	13/16	20.6	1.02	25.9	1.42	36.1	1.3	33	0.9	22.9
VUWTL-15.88D	5/8	15.88	R 1/2	0.47	11.9	15/16	23.8	1.1	27.9	1.5	38.1	1.38	35.1	0.96	24.4
VUWTL-19.05E	3/4	19.05	R 3/4	0.62	15.8	1 1/8	28.6	1.17	29.7	1.57	39.9	1.45	36.8	0.96	24.4

Designation:
R marking on hex.

"D" - Dimension is minimum hole diameter - dimensions are for reference only, and are subject to change without notice.

Female Run Tee (NPT)
TLG



Tube (Metric) To Female NPT Thread

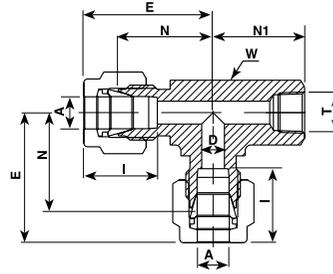
Part Number	A Tube O.D.		T	D		W		N		E		N ₁		I	
	in	mm		in	mm	in	mm	in	mm	in	mm	in	mm	in	mm
VUWTLG-6AN		6	1/8NPT	0.19	4.8	5/8	15.9	0.77	19.6	1.06	27	0.74	19	0.6	15.3
VUWTLG-6BN		6	1/4NPT	0.19	4.8	13/16	20.6	0.88	22.4	1.17	29.8	0.88	22.4	0.6	15.3
VUWTLG-12BN		12	1/4NPT	0.37	9.5	13/16	20.6	1.01	25.9	1.41	36	0.88	22.4	0.89	22.8
VUWTLG-12DN		12	1/2NPT	0.37	9.5	1 1/8	28.6	1.16	29.7	1.57	39.8	1.12	28.5	0.89	22.8

Tube (Metric) To Female NPT Thread

Part Number	A Tube O.D.		T	D		W		N		E		N ₁		I	
	in	mm		in	mm	in	mm	in	mm	in	mm	in	mm	in	mm
VUWTLG-3.2AN	1/8	3.2	1/8NPT	0.09	2.3	5/8	15.9	0.71	18	0.97	24.4	0.75	19.1	0.5	12.7
VUWTLG-6.35AN	1/4	6.35	1/8NPT	0.19	4.8	5/8	15.9	0.77	19.6	1.06	26.9	0.75	19.1	0.6	15.2
VUWTLG-6.35BN	1/4	6.35	1/4NPT	0.19	4.8	13/16	20.6	0.88	22.4	1.17	29.7	0.88	22.4	0.6	15.2
VUWTLG-9.52BN	3/8	9.52	1/4NPT	0.28	7.1	13/16	20.6	0.94	23.9	1.23	31.2	0.88	22.4	0.66	16.8
VUWTLG-12.7CN	1/2	12.7	3/8NPT	0.41	10.4	15/16	23.8	1.02	25.9	1.42	36.1	0.88	22.4	0.9	22.9
VUWTLG-12.7DN	1/2	12.7	1/2NPT	0.41	10.4	1 1/16	27	1.17	29.7	1.57	39.9	1.12	28.5	0.9	22.9
VUWTLG-19.05EN	3/4	19.05	3/4NPT	0.62	15.8	1 3/8	34.9	1.36	34.5	1.76	44.7	1.25	31.8	0.9	24.4

"D" - Dimension is minimum hole diameter - dimensions are for reference only, and are subject to change without notice.

Female Run Tee (Rc) TLG



Tube (Metric) To ISO Tapered Thread

Part Number	A Tube O.D.		T	D		W		N		E		Ni		I	
	mm			in	mm	in	mm	in	mm	in	mm	in	mm	in	mm
VUWTLG-6A	6		Rc 1/8	0.19	4.8	5/8	15.9	0.77	19.6	1.06	27	0.74	19	0.6	15.3
VUWTLG-6B	6		Rc 1/4	0.19	4.8	13/16	20.6	0.88	22.4	1.17	29.8	0.88	22.4	0.6	15.3
VUWTLG-12B	12		Rc 1/4	0.37	9.5	13/16	20.6	1.01	25.9	1.41	36	0.88	22.4	0.89	22.8
VUWTLG-12D	12		Rc 1/2	0.37	9.5	1 1/8	28.6	1.16	29.7	1.57	39.8	1.12	28.5	0.89	22.8

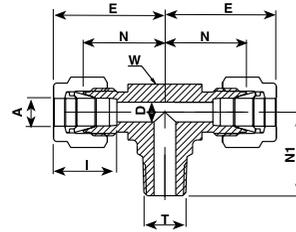
Tube (Inch) To ISO Tapered Thread

Part Number	A Tube O.D.		T	D		W		N		E		Ni		I	
	in	mm		in	mm	in	mm	in	mm	in	mm	in	mm	in	mm
VUWTLG-3.2A	1/8	3.2	Rc 1/8	0.09	2.3	5/8	15.9	0.71	18	0.97	24.4	0.75	19.1	0.5	12.7
VUWTLG-6.35A	1/4	6.35	Rc 1/8	0.19	4.8	5/8	15.9	0.77	19.6	1.06	26.9	0.75	19.1	0.6	15.2
VUWTLG-6.35B	1/4	6.35	Rc 1/4	0.19	4.8	13/16	20.6	0.88	22.4	1.17	29.7	0.88	22.4	0.6	15.2
VUWTLG-9.52B	3/8	9.52	Rc 1/4	0.28	7.1	13/16	20.6	0.94	23.9	1.23	31.2	0.88	22.4	0.66	16.8
VUWTLG-12.7C	1/2	12.7	Rc 3/8	0.41	10.4	15/16	23.8	1.02	25.9	1.42	36.1	0.88	22.4	0.9	22.9
VUWTLG-12.7D	1/2	12.7	Rc 1/2	0.41	10.4	1 1/16	27	1.17	29.7	1.57	39.9	1.12	28.5	0.9	22.9
VUWTLG-19.05E	3/4	19.05	Rc 3/4	0.62	15.8	1 3/8	34.9	1.36	34.5	1.76	44.7	1.25	31.8	0.9	24.4

Designation:
R marking on hex.

"D" - Dimension is minimum hole diameter - dimensions are for reference only, and are subject to change without notice.

Male Branch Tee (NPT) TS



Tube (Metric) To Male NPT Thread

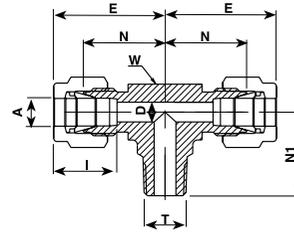
Part Number	A Tube O.D.		T	D		W		N		E		N ₁		I	
	in	mm		in	mm	in	mm	in	mm	in	mm	in	mm	in	mm
VUWTS-6AN		6	1/8NPT		4.8	1/2	12.7		19.6		27		18.8		15.3
VUWTS-6BN		6	1/4NPT		4.8	1/2	12.7		19.6		27		23.4		15.3
VUWTS-8AN		8	1/8NPT		4.8	5/8	15.9		22.4		29.9		20.8		16.2
VUWTS-8BN		8	1/4NPT		6.4	5/8	15.9		22.4		29.9		25.4		16.2
VUWTS-10BN		10	1/4NPT		7.1	13/16	20.6		25.9		33.5		28.2		17.2
VUWTS-12BN		12	1/4NPT		7.1	13/16	20.6		25.9		36		28.2		22.8
VUWTS-12CN		12	3/8NPT		9.5	13/16	20.6		25.9		36		28.2		22.8
VUWTS-12DN		12	1/2NPT		9.5	13/16	20.6		25.9		36		33		22.8
VUWTS-16DN		16	1/2NPT		11.9	15/16	23.8		28.7		38.8		35.8		24.4

Tube (Inch) To Male NPT Thread

Part Number	A Tube O.D.		T	D		W		N		E		N ₁		I	
	in	mm		in	mm	in	mm	in	mm	in	mm	in	mm	in	mm
VUWTS-3.2AN	1/8	3.2	1/8NPT	0.09	2.3	7/16	11.1	0.67	17	0.93	23.6	0.7	17.8	0.5	12.7
VUWTS-3.2BN	1/8	3.2	1/4NPT	0.09	2.3	1/2	12.7	0.71	18	0.97	24.6	0.92	23.3	0.5	12.7
VUWTS-4.8AN	3/16	4.8	1/8NPT	0.12	3	7/16	11.1	0.7	17.8	0.96	24.4	0.7	17.8	0.54	13.7
VUWTS-6.35AN	1/4	6.35	1/8NPT	0.19	4.8	1/2	12.7	0.77	19.6	1.06	26.9	0.74	18.8	0.6	15.2
VUWTS-6.35BN	1/4	6.35	1/4NPT	0.19	4.8	1/2	12.7	0.77	19.6	1.06	26.9	0.92	23.4	0.6	15.2
VUWTS-7.93AN	5/16	7.93	1/8NPT	0.19	4.8	5/8	15.9	0.88	22.4	1.17	29.7	0.82	20.8	0.64	16.2
VUWTS-9.52BN	3/8	9.52	1/4NPT	0.28	7.1	5/8	15.9	0.91	23.1	1.2	30.5	1	25.4	0.66	16.8
VUWTS-9.52CN	3/8	9.52	3/8NPT	0.28	7.1	13/16	20.6	1.02	25.9	1.31	33.3	1.11	28.2	0.66	16.8
VUWTS-12.7CN	1/2	12.7	3/8NPT	0.38	9.5	13/16	20.6	1.02	25.9	1.42	36.1	1.11	28.2	0.9	22.9
VUWTS-12.7DN	1/2	12.7	1/2NPT	0.41	10.4	13/16	20.6	1.02	26	1.42	36.1	1.3	33	0.9	22.9
VUWTS-15.88DN	5/8	15.88	1/2NPT	0.47	11.9	15/16	23.8	1.13	28.7	1.53	38.9	1.41	35.8	0.96	24.4
VUWTS-19.05EN	3/4	19.05	3/4NPT	0.62	15.8	1 1/16	27	1.17	29.7	1.57	39.9	1.45	36.8	0.96	24.4

"D" - Dimension is minimum hole diameter - dimensions are for reference only, and are subject to change without notice.

Male Branch Tee (R) TS



Tube (Metric) To ISO Tapered Thread

Part Number	A Tube O.D.		T	D		W		N		E		N ₁		I	
	in	mm		in	mm	in	mm	in	mm	in	mm	in	mm	in	mm
VUWTS-6A		6	R 1/8		4.8	1/2	12.7		19.6		27		18.8		15.3
VUWTS-6B		6	R 1/4		4.8	1/2	12.7		19.6		27		23.4		15.3
VUWTS-8A		8	R 1/8		4.8	5/8	15.9		22.4		29.9		20.8		16.2
VUWTS-8B		8	R 1/4		6.4	5/8	15.9		22.4		29.9		25.4		16.2
VUWTS-10B		10	R 1/4		7.1	13/16	20.6		25.9		33.5		28.2		17.2
VUWTS-12B		12	R 1/4		7.1	13/16	20.6		25.9		36		28.2		22.8
VUWTS-12C		12	R 3/8		9.5	13/16	20.6		25.9		36		28.2		22.8
VUWTS-12D		12	R 1/2		9.5	13/16	20.6		25.9		36		33		22.8
VUWTS-16D		16	R 1/2		11.9	15/16	23.8		28.7		38.8		35.8		24.4

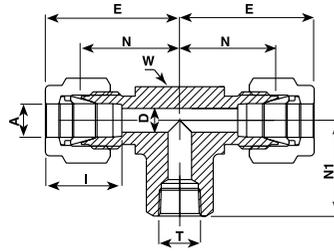
Tube (Inch) To ISO Tapered Thread

Part Number	A Tube O.D.		T	D		W		N		E		N ₁		I	
	in	mm		in	mm	in	mm	in	mm	in	mm	in	mm	in	mm
VUWTS-3.2A	1/8	3.2	R 1/8	0.09	2.3	7/16	11.1	0.67	17	0.93	23.6	0.7	17.8	0.5	12.7
VUWTS-3.2B	1/8	3.2	R 1/4	0.09	2.3	1/2	12.7	0.71	18	0.97	24.6	0.92	23.4	0.5	12.7
VUWTS-4.8A	3/16	4.8	R 1/8	0.12	3	7/16	11.1	0.7	17.8	0.96	24.4	0.7	17.8	0.54	13.7
VUWTS-6.35A	1/4	6.35	R 1/8	0.19	4.8	1/2	12.7	0.77	19.6	1.06	26.9	0.74	18.8	0.6	15.2
VUWTS-6.35B	1/4	6.35	R 1/4	0.19	4.8	1/2	12.7	0.77	19.6	1.06	26.9	0.92	23.4	0.6	15.2
VUWTS-7.93A	5/16	7.93	R 1/8	0.19	4.8	5/8	15.9	0.88	22.4	1.17	29.7	0.82	20.8	0.64	16.2
VUWTS-9.52B	3/8	9.52	R 1/4	0.28	7.1	5/8	15.9	0.91	23.1	1.2	30.5	1	25.4	0.66	16.8
VUWTS-9.52C	3/8	9.52	R 3/8	0.28	7.1	13/16	20.6	1.02	25.9	1.31	33.3	1.11	28.2	0.66	16.8
VUWTS-12.7C	1/2	12.7	R 3/8	0.38	9.5	13/16	20.6	1.02	25.9	1.42	36.1	1.11	28.2	0.9	22.9
VUWTS-12.7D	1/2	12.7	R 1/2	0.41	10.4	13/16	20.6	1.02	26	1.42	36.1	1.3	33	0.9	22.9
VUWTS-15.88D	5/8	15.88	R 1/2	0.47	11.9	15/16	23.8	1.13	28.7	1.53	38.9	1.41	35.8	0.96	24.4
VUWTS-19.05E	3/4	19.05	R 3/4	0.62	15.8	1 1/16	27	1.17	29.7	1.57	39.9	1.45	36.8	0.96	24.4

Designation:
R marking on hex.

"D" - Dimension is minimum hole diameter - dimensions are for reference only, and are subject to change without notice.

Female Branch Tee (NPT) TG



Tube (Metric) To Female NPT Thread

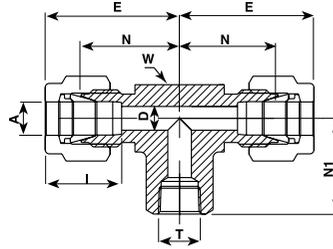
Part Number	A Tube O.D.		T	D		W		N		E		N ₁		I	
	in	mm		in	mm	in	mm	in	mm	in	mm	in	mm	in	mm
VUWTG-6AN		6	1/8NPT		4.8	5/8	15.9		19.6		27		19		15.3
VUWTG-6BN		6	1/4NPT		4.8	13/16	20.6		22.4		29.8		22.4		15.3
VUWTG-10BN		10	1/4NPT		7.9	13/16	20.6		25.9		33.5		22.4		17.2
VUWTG-10CN		10	3/8NPT		7.9	15/16	23.8		25.9		33.5		22.4		17.2
VUWTG-12BN		12	1/4NPT		9.5	13/16	20.6		25.9		36		22.4		22.8
VUWTG-12DN		12	1/2NPT		9.5	1 1/16	27		28.7		38.8		28.4		22.8
VUWTG-16DN		16	1/2NPT		12.7	1 1/8	28.6		28.7		38.8		28.4		24.4

Tube (Inch) To Female NPT Thread

Part Number	A Tube O.D.		T	D		W		N		E		N ₁		I	
	in	mm		in	mm	in	mm	in	mm	in	mm	in	mm	in	mm
VUWTG-3.2AN	1/8	3.2	1/8NPT	0.09	2.3	5/8	15.9	0.7	18	0.97	24.6	0.75	19.1	0.5	12.7
VUWTG-6.35AN	1/4	6.35	1/8NPT	0.19	4.8	5/8	15.9	0.77	19.6	1.06	26.9	0.75	19.1	0.6	15.2
VUWTG-6.35BN	1/4	6.35	1/4NPT	0.19	4.8	13/16	20.6	0.88	22.4	1.17	29.7	0.88	22.4	0.6	15.2
VUWTG-9.52BN	3/8	9.52	1/4NPT	0.28	7.1	13/16	20.6	0.94	23.9	1.23	31.2	0.88	22.4	0.66	16.8
VUWTG-12.7BN	1/2	12.7	1/4NPT	0.41	10.4	13/16	20.6	1.02	25.9	1.42	36.1	0.88	22.4	0.9	22.9
VUWTG-12.7CN	1/2	12.7	3/8NPT	0.41	10.4	15/16	23.8	1.02	25.9	1.42	36.1	0.88	22.4	0.9	22.9
VUWTG-12.7DN	1/2	12.7	1/2NPT	0.41	10.4	1 1/16	27	1.13	28.7	1.53	38.9	1.12	28.5	0.9	22.9
VUWTG-15.88DN	5/8	15.88	1/2NPT	0.5	12.7	1 1/16	27	1.13	28.7	1.53	38.9	1.12	28.4	0.96	24.4
VUWTG-19.05EN	3/4	19.05	3/4NPT	0.62	15.8	1 3/8	34.9	1.36	34.5	1.76	44.7	1.25	31.8	0.96	24.4
VUWTG-25.4EN	1	25.4	3/4NPT	0.88	22.3	1 3/8	34.9	1.45	36.8	1.93	49	1.25	31.8	1.23	31.2
VUWTG-25.4FN	1	25.4	1NPT	0.88	22.3	1 11/16	42.9	1.63	41.4	2.11	53.6	1.5	38.1	1.23	31.2

D - Dimension is minimum hole diameter - dimensions are for reference only, and are subject to change without notice.

Female Branch Tee (Rc) TG



Tube (Metric) To ISO Tapered Thread

Part Number	A Tube O.D.		T	D		W		N		E		N ₁		I	
	mm			mm	in	mm	mm	mm	mm	mm	mm	mm	mm	mm	
VUWTG-6A	6		Rc 1/8	4.8	5/8	15.9		19.6		27		19		15.3	
VUWTG-6B	6		Rc 1/4	4.8	13/16	20.6		22.4		29.8		22.4		15.3	
VUWTG-10B	10		Rc 1/4	7.9	13/16	20.6		25.9		33.5		22.4		17.2	
VUWTG-10C	10		Rc 3/8	7.9	15/16	23.8		25.9		33.5		22.4		17.2	
VUWTG-12B	12		Rc 1/4	9.5	13/16	20.6		25.9		36		22.4		22.8	
VUWTG-12D	12		Rc 1/2	9.5	1 1/16	27		28.7		38.8		28.4		22.8	
VUWTG-16D	16		Rc 1/2	12.7	1 1/8	28.6		28.7		38.8		28.4		24.4	

Tube (Inch) To ISO Tapered Thread

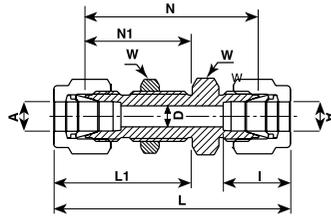
Part Number	A Tube O.D.		T	D		W		N		E		N ₁		I	
	in	mm		in	mm	in	mm	in	mm	in	mm	in	mm	in	mm
VUWTG-3.2A	1/8	3.2	Rc 1/8	0.09	2.3	5/8	15.9	0.7	18	0.97	24.6	0.75	19.1	0.5	12.7
VUWTG-6.35A	1/4	6.35	Rc 1/8	0.19	4.8	5/8	15.9	0.77	19.6	1.06	26.9	0.75	19.1	0.6	15.2
VUWTG-6.35B	1/4	6.35	Rc 1/4	0.19	4.8	13/16	20.6	0.88	22.4	1.17	29.7	0.88	22.4	0.6	15.2
VUWTG-9.52B	3/8	9.52	Rc 1/4	0.28	7.1	13/16	20.6	0.94	23.9	1.23	31.2	0.88	22.4	0.66	16.8
VUWTG-12.7B	1/2	12.7	Rc 1/4	0.41	10.4	13/16	20.6	1.02	25.9	1.42	36.1	0.88	22.4	0.9	22.9
VUWTG-12.7C	1/2	12.7	Rc 3/8	0.41	10.4	15/16	23.8	1.02	25.9	1.42	36.1	0.88	22.4	0.9	22.9
VUWTG-12.7D	1/2	12.7	Rc 1/2	0.41	10.4	1 1/16	27	1.13	28.7	1.53	38.9	1.12	28.5	0.9	22.9
VUWTG-15.88D	5/8	15.88	Rc 1/2	0.5	12.7	1 1/16	27	1.13	28.7	1.53	38.9	1.12	28.4	0.96	24.4
VUWTG-19.05E	3/4	19.05	Rc 3/4	0.62	15.8	1 3/8	34.9	1.36	34.5	1.76	44.7	1.25	31.8	0.96	24.4
VUWTG-25.4E	1	25.4	Rc 3/4	0.88	22.3	1 3/8	34.9	1.45	36.8	1.93	49	1.25	31.8	1.23	31.2
VUWTG-25.4F	1	25.4	Rc 1	0.88	22.3	1 11/16	42.9	1.63	41.4	2.11	53.6	1.5	38.1	1.23	31.2

Designation:
R marking on hex.

"D" - Dimension is minimum hole diameter - dimensions are for reference only, and are subject to change without notice.

Bulkhead Union

P



Tube (Metric) To Tube (Metric)

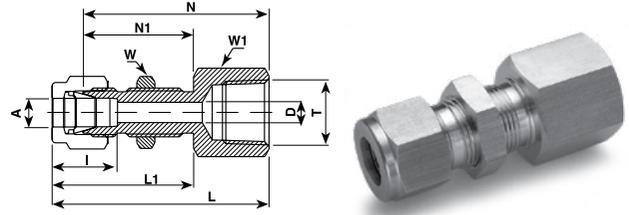
Part Number	A Tube O.D.		D		W		N		N ₁		L		L ₁		I		Panel hole drill size	Max. Panel thickness
	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm			
VUWP-3	3	2.4	14	38.1	24.6	51.3	31.2	12.9	8.3	12.7								
VUWP-4	4	2.4	14	40.4	25.4	53.6	32	13.7	9.9	12.7								
VUWP-6	6	4.8	16	42.9	26.2	57.7	33.6	15.3	11.5	10.2								
VUWP-8	8	6.4	18	46	28.6	61	36.1	16.2	13.1	11.2								
VUWP-10	10	7.9	22	48.5	29.4	63.7	37	17.2	16.25	11.2								
VUWP-12	12	9.5	24	50.8	31.8	71	41.9	22.8	19.5	12.7								
VUWP-15	15	11.9	27	52.3	32.5	72.5	42.6	24.4	22.8	12.7								
VUWP-16	16	12.7	27	52.3	32.5	72.5	42.6	24.4	22.8	12.7								
VUWP-18	18	15.1	30	58.7	37.3	78.9	47.4	24.4	26	16.8								
VUWP-20	20	15.9	35	64.3	42.9	84.5	53	26	29	23.9								
VUWP-25	25	21.8	41	71.4	45.2	86.6	52.8	26.6	33.7	19								

Tube (Inch) To Tube (Inch)

Part Number	A Tube O.D.		D		W		N		N ₁		L		L ₁		I		Panel hole drill size	Max. Panel thickness		
	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm				
VUWP-1.6	1/16	1.6	0.05	1.3	5/16	7.9	0.94	23.9	0.53	13.5	1.24	31.5	0.68	17.3	0.34	8.6	13/64	5.2	0.12	3.1
VUWP-3.2	1/8	3.2	0.09	2.3	1/2	12.7	1.5	38.1	0.97	24.6	2.02	51.3	1.23	31.2	0.5	12.7	21/64	8.3	0.5	12.7
VUWP-4.8	3/16	4.8	0.12	3	9/16	14.3	1.59	40.4	1	25.4	2.11	53.6	1.26	32	0.54	13.7	25/64	9.9	0.5	12.7
VUWP-6.35	1/4	6.35	0.19	4.8	5/8	15.9	1.69	42.9	1.03	26.2	2.27	57.7	1.32	33.5	0.6	15.2	29/64	11.5	0.4	10.2
VUWP-7.93	5/16	7.93	0.25	6.4	11/16	17.5	1.81	46	1.12	28.4	2.39	60.7	1.41	35.8	0.64	16.2	33/64	13.1	0.44	11.2
VUWP-9.52	3/8	9.52	0.28	7.1	3/4	19.1	1.87	47.5	1.16	29.5	2.45	62.2	1.45	36.8	0.66	16.8	37/64	14.7	0.44	11.2
VUWP-12.7	1/2	12.7	0.41	10.4	15/16	23.8	2	50.8	1.25	31.8	2.8	71.1	1.65	41.9	0.9	22.9	49/64	19.4	0.5	12.7
VUWP-15.88	5/8	15.88	0.5	12.7	1 1/16	27	2.06	52.3	1.28	32.5	2.86	72.6	1.68	42.7	0.96	24.4	57/64	22.6	0.5	12.7
VUWP-19.05	3/4	19.05	0.62	15.9	1 3/16	30.2	2.31	58.7	1.47	37.3	3.11	79	1.87	47.5	0.96	24.4	1 1/64	25.8	0.66	16.8
VUWP-25.4	1	25.4	0.88	22.3	1 5/8	41.3	2.81	71.4	1.78	45.2	3.77	95.8	2.26	57.4	1.23	31.2	1 21/64	33.7	0.75	19.1

"D" - Dimension is minimum hole diameter - dimensions are for reference only, and are subject to change without notice.

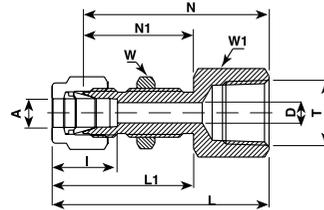
Bulkhead Female Connector (NPT) GP



Tube (Metric) To Male NPT Thread

Part Number	A Tube O.D.		T	D		W		W ₁		N		N ₁		L		L ₁		I		Panel hole drill size		Max. Panel thickness	
	in	mm		in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm
VUWGP-3.2AN	1/8	3.2	1/8NPT	0.09	2.3	9/16	14.3	1/2	12.7	1.5	38.1	0.97	24.6	1.76	44.7	1.23	31.2	0.5	12.7	21/64	8.3	0.5	12.7
VUWGP-6.35AN	1/4	6.35	1/8NPT	0.19	4.8	5/8	15.9	5/8	15.9	1.56	39.6	1.03	26.2	1.85	47	1.32	33.5	0.6	15.2	29/64	11.5	0.4	10.2
VUWGP-6.35BN	1/4	6.35	1/4NPT	0.19	4.8	3/4	19.1	5/8	15.9	1.75	44.5	1.03	26.2	2.04	51.8	1.32	33.5	0.6	15.2	29/64	11.5	0.4	10.2
VUWGP-9.52BN	3/8	9.52	1/4NPT	0.28	7.1	3/4	19.1	3/4	19.1	1.88	47.8	1.16	29.5	2.17	55.1	1.45	36.8	0.66	16.8	37/64	14.7	0.44	11.2
VUWGP-12.7CN	1/2	12.7	3/8NPT	0.41	10.4	15/16	23.8	15/16	23.8	2.03	51.6	1.25	31.8	2.43	61.7	1.65	41.9	0.9	22.9	49/64	19.4	0.5	12.7
VUWGP-12.7DN	1/2	12.7	1/2NPT	0.41	10.4	1 1/16	27	15/16	23.8	2.22	56.4	1.25	31.8	2.62	66.6	1.65	41.9	0.9	22.9	49/64	19.4	0.5	12.7

Bulkhead Female Connector (Rc) GP

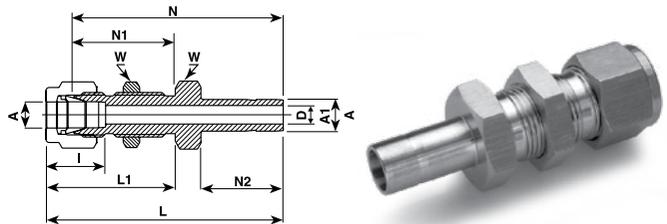


Tube (Metric) To ISO Tapered Thread (Rc)

Part Number	A Tube O.D.		T	D		W		W ₁		N		N ₁		L		L ₁		I		Panel hole drill size		Max. Panel thickness	
	in	mm		in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm
VUWGP-3.2A	1/8	3.2	Rc 1/8	0.09	2.3	9/16	14.3	1/2	12.7	1.5	38.1	0.97	24.6	1.76	44.7	1.23	31.2	0.5	12.7	21/64	8.3	0.5	12.7
VUWGP-6.35A	1/4	6.35	Rc 1/8	0.19	4.8	5/8	15.9	5/8	15.9	1.56	39.6	1.03	26.2	1.85	47	1.32	33.5	0.6	15.2	29/64	11.5	0.4	10.2
VUWGP-6.35B	1/4	6.35	Rc 1/4	0.19	4.8	3/4	19.1	5/8	15.9	1.75	44.5	1.03	26.2	2.04	51.8	1.32	33.5	0.6	15.2	29/64	11.5	0.4	10.2
VUWGP-9.52B	3/8	9.52	Rc 1/4	0.28	7.1	3/4	19.1	3/4	19.1	1.88	47.8	1.16	29.5	2.17	55.1	1.45	36.8	0.66	16.8	37/64	14.7	0.44	11.2
VUWGP-12.7C	1/2	12.7	Rc 3/8	0.41	10.4	15/16	23.8	15/16	23.8	2.03	51.6	1.25	31.8	2.43	61.7	1.65	41.9	0.9	22.9	49/64	19.4	0.5	12.7
VUWGP-12.7D	1/2	12.7	Rc 1/2	0.41	10.4	1 1/16	27	15/16	23.8	2.22	56.4	1.25	31.8	2.62	66.6	1.65	41.9	0.9	22.9	49/64	19.4	0.5	12.7

Designation:
R marking on hex.

Bulkhead Reducer RP

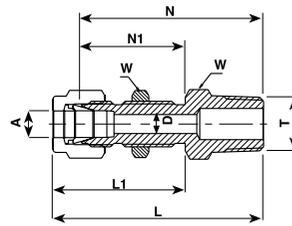


Tube (Inch) To Tube (Inch)

Part Number	A Tube O.D.		A ₁ Tube O.D.		D		W		N		N ₁		N ₂		L		L ₁		I		Panel hole drill size		Max. Panel thickness	
	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm
VUWRP-3.2X3.2	1/8	3.2	1/8	3.2	0.08	2	1/2	12.7	1.69	42.9	0.97	24.6	0.53	13.5	1.95	49.5	1.23	31.2	0.5	12.7	21/64	8.3	0.5	12.7
VUWRP-6.35X6.35	1/4	6.35	1/4	6.35	0.17	4.2	5/8	15.9	1.91	48.5	1.03	26.1	0.62	15.7	2.2	55.9	1.32	33.5	0.6	15.2	29/64	11.5	0.4	10.2
VUWRP-9.52X9.52	3/8	9.52	3/8	9.52	0.28	7.1	3/4	19.1	2.12	53.9	1.16	29.5	0.69	17.5	2.41	61.2	1.45	36.8	0.66	16.8	37/64	14.7	0.44	11.2
VUWRP-12.7X12.7	1/2	12.7	1/2	12.7	0.39	9.9	15/16	23.8	2.47	62.7	1.25	31.8	0.91	23.1	2.87	72.9	1.65	41.9	0.9	22.9	49/64	19.4	0.5	12.7

"D" - Dimension is minimum hole diameter - dimensions are for reference only, and are subject to change without notice.

Bulkhead Male Connector (NPT) HP



Tube (Metric) To Male NPT Thread

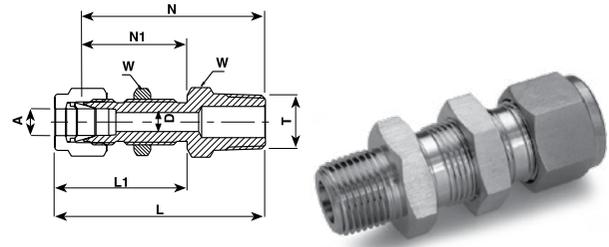
Part Number	A Tube O.D.		T	D		W		N		N ₁		L		L ₁		Panel hole drill size		Max. Panel thickness	
	mm			mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm
VUWHP-6AN	6		1/8NPT	4.8		16		42.1		26.2		49.5		33.6		11.5		10.2	
VUWHP-6BN	6		1/4NPT	4.8		16		46.2		26.2		53.6		33.6		11.5		10.2	
VUWHP-12DN	12		1/2NPT	9.5		24		58.7		31.8		68.8		41.9		19.5		12.7	

Tube (Inch) To Male NPT Thread

Part Number	A Tube O.D.		T	D		W		N		N ₁		L		L ₁		Panel hole drill size		Max. Panel thickness	
	in	mm		in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm
VUWHP-3.2AN	1/8	3.2	1/8NPT	0.09	2.3	1/2	12.7	1.57	39.9	0.97	24.6	1.83	46.5	1.23	31.2	21/64	8.3	0.5	12.7
VUWHP-6.35AN	1/4	6.35	1/8NPT	0.19	4.8	5/8	15.9	1.66	42.2	1.03	26.2	1.95	49.5	1.32	33.5	29/64	11.5	0.4	10.2
VUWHP-6.35BN	1/4	6.35	1/4NPT	0.19	4.8	5/8	15.9	1.84	46.7	1.03	26.2	2.13	54.1	1.32	33.5	29/64	11.5	0.4	10.2
VUWHP-9.52BN	3/8	9.52	1/4NPT	0.28	7.1	3/4	19.1	1.97	50	1.16	29.5	2.26	57.4	1.45	36.8	37/64	14.7	0.44	11.2
VUWHP-12.7CN	1/2	12.7	3/8NPT	0.4	10.4	15/16	23.8	2.09	53.1	1.25	31.8	2.49	83.3	1.65	41.9	49/64	19.4	0.5	12.7
VUWHP-12.7DN	1/2	12.7	1/2NPT	0.4	10.4	15/16	23.8	2.31	58.7	1.25	31.8	2.71	68.8	1.65	41.9	49/64	19.4	0.5	12.7

"D" - Dimension is minimum hole diameter - dimensions are for reference only, and are subject to change without notice.

Bulkhead Male Connector (R) HP



Tube (Metric) To ISO Tapered Thread

Part Number	A Tube O.D.		T	D		W		N		N1		L		L1		Panel hole drill size	Max. Panel thickness
	mm			mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm			
VUWHP-6A	6		R 1/8	4.8		16		42.1		26.2		49.5		33.6		11.5	10.2
VUWHP-6B	6		R 1/4	4.8		16		46.2		26.2		53.6		33.6		11.5	10.2
VUWHP-12D	12		R 1/2	9.5		24		58.7		31.8		68.8		41.9		19.5	12.7

Tube (Inch) To ISO Tapered Thread

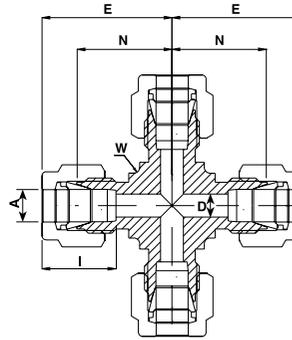
Part Number	A Tube O.D.		T	D		W		N		N1		L		L1		Panel hole drill size	Max. Panel thickness		
	in	mm		in	mm	in	mm	in	mm	in	mm	in	mm	in	mm				
VUWHP-3.2A	1/8	3.2	R 1/8	0.09	2.3	1/2	12.7	1.57	39.9	0.97	24.6	1.83	46.5	1.23	31.2	21/64	8.3	0.5	12.7
VUWHP-6.35A	1/4	6.35	R 1/8	0.19	4.8	5/8	15.9	1.66	42.2	1.03	26.2	1.95	49.5	1.32	33.5	29/64	11.5	0.4	10.2
VUWHP-6.35B	1/4	6.35	R 1/4	0.19	4.8	5/8	15.9	1.84	46.7	1.03	26.2	2.13	54.1	1.32	33.5	29/64	11.5	0.4	10.2
VUWHP-9.52B	3/8	9.52	R 1/4	0.28	7.1	3/4	19.1	1.97	50	1.16	29.5	2.26	57.4	1.45	36.8	37/64	14.7	0.44	11.2
VUWHP-12.7C	1/2	12.7	R 3/8	0.4	10.4	15/16	23.8	2.09	53.1	1.25	31.8	2.49	83.3	1.65	41.9	49/64	19.4	0.5	12.7
VUWHP-12.7D	1/2	12.7	R 1/2	0.4	10.4	15/16	23.8	2.31	58.7	1.25	31.8	2.71	68.8	1.65	41.9	49/64	19.4	0.5	12.7

Designation:
R marking on hex.

"D" - Dimension is minimum hole diameter - dimensions are for reference only, and are subject to change without notice.

Union Cross

X



All Tubes (Metric)

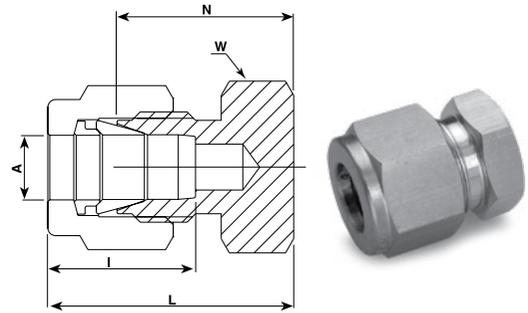
Part Number	A Tube O.D.		D		W		N		E		I	
	mm	mm	mm	mm	in	mm						
VUWX-3	3	3	2.4	2.4	3/8	9.5	15.7	15.7	22.3	22.3	12.9	12.9
VUWX-6	6	6	4.8	4.8	1/2	12.7	19.6	19.6	27	27	15.3	15.3
VUWX-8	8	8	6.4	6.4	5/8	15.9	22.4	22.4	29.9	29.9	16.2	16.2
VUWX-10	10	10	7.9	7.9	13/16	20.6	25.9	25.9	33.5	33.5	17.2	17.2
VUWX-12	12	12	9.5	9.5	13/16	20.6	25.9	25.9	36	36	22.8	22.8
VUWX-18	18	18	15.1	15.1	1 1/16	27	28.2	28.2	38.3	38.3	24.4	24.4
VUWX-20	20	20	15.9	15.9	1 3/8	34.9	34.5	34.5	44.6	44.6	26	26

All Tubes (Inch)

Part Number	A Tube O.D.		D		W		N		E		I	
	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm
VUWX-3.2	1/8	3.2	0.09	2.3	3/8	9.5	0.62	15.8	0.88	22.4	0.5	12.7
VUWX-6.35	1/4	6.35	0.19	4.8	1/2	12.7	0.77	19.6	1.06	26.9	0.6	15.2
VUWX-7.93	5/16	7.93	0.25	6.4	5/8	15.9	0.88	22.4	1.17	29.7	0.64	16.2
VUWX-9.52	3/8	9.52	0.28	7.1	5/8	15.9	0.91	23.1	1.2	30.5	0.66	16.8
VUWX-12.7	1/2	12.7	0.41	10.4	13/16	20.6	1.02	25.9	1.42	36.1	0.9	22.9
VUWX-19.05	3/4	19.05	0.62	15.8	1 1/16	27	1.17	29.7	1.57	39.9	0.96	24.4
VUWX-25.4	1	25.4	0.88	22.3	1 3/8	34.9	1.45	36.8	1.93	49	1.23	31.2

"D" - Dimension is minimum hole diameter - dimensions are for reference only, and are subject to change without notice.

Cap
JC



Capping End Of Tube (Metric)

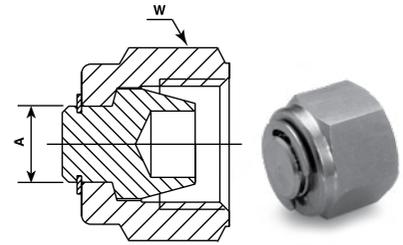
Part Number	A Tube O.D.		W		N		L		I	
	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm
VUWJC-2	2		12		13.5		20.1		12.9	
VUWJC-3	3		12		13.5		20.1		12.9	
VUWJC-4	4		12		14.7		21.3		13.7	
VUWJC-6	6		14		15.7		23.1		15.3	
VUWJC-8	8		15		17		24.5		16.2	
VUWJC-10	10		18		19		26.6		17.2	
VUWJC-12	12		22		19		29.1		22.8	
VUWJC-15	15		24		19.8		29.9		24.4	
VUWJC-16	16		24		19.8		29.9		24.4	
VUWJC-18	18		27		21.3		31.4		24.4	
VUWJC-20	20		30		23.9		34		26	
VUWJC-22	22		30		23.9		34		26	
VUWJC-25	25		35		26.2		38.5		31.3	

Capping End Of Tube (Inch)

Part Number	A Tube O.D.		W		N		L		I	
	in	mm	in	mm	in	mm	in	mm	in	mm
VUWJC-1.6	1/16	1.6	5/16	7.9	0.44	11.2	0.59	15	0.34	8.6
VUWJC-3.2	1/8	3.2	7/16	11.1	0.53	13.5	0.79	20.1	0.5	12.7
VUWJC-4.8	3/16	4.8	7/16	11.1	0.58	14.7	0.84	21.8	0.54	13.7
VUWJC-6.35	1/4	6.35	1/2	12.7	0.63	16	0.92	23.4	0.6	15.2
VUWJC-7.93	5/16	7.93	9/16	14.3	0.67	17	0.96	24.4	0.64	16.2
VUWJC-9.52	3/8	9.52	5/8	15.9	0.72	18.3	1.01	26.7	0.66	16.8
VUWJC-12.7	1/2	12.7	13/16	20.6	0.75	19.1	1.15	29.2	0.9	22.9
VUWJC-15.88	5/8	15.88	15/16	23.8	0.78	19.8	1.18	30	0.96	24.4
VUWJC-19.05	3/4	19.05	1 1/16	27	0.84	21.3	1.24	31.5	0.96	24.4
VUWJC-22.22	7/8	22.22	1 3/16	30.2	0.94	23.9	1.34	34	1.02	25.9
VUWJC-25.4	1	25.4	1 3/8	34.9	1.03	26.2	1.51	38.4	1.23	31.2

"D" - Dimension is minimum hole diameter - dimensions are for reference only, and are subject to change without notice.

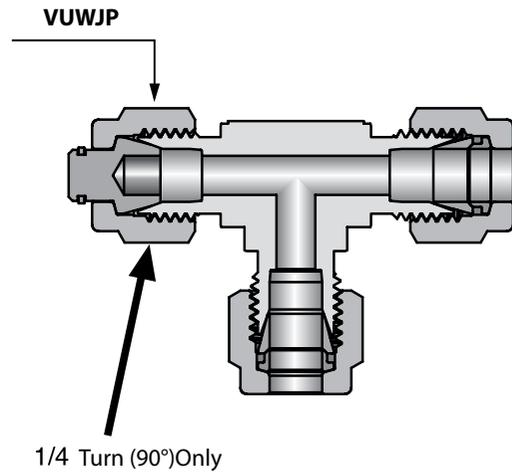
Plug
JP



Plugging Unused Port Of Fitting (Metric)

Part Number	A		W	
	in	mm	in	mm
VUWJP-3		3		12
VUWJP-4		4		12
VUWJP-6		6		14
VUWJP-8		8		16
VUWJP-10		10		19
VUWJP-12		12		22
VUWJP-15		15		25
VUWJP-16		16		25
VUWJP-18		18		30
VUWJP-20		20		32
VUWJP-22		22		32
VUWJP-25		25		38

Plug Assembly Instructions



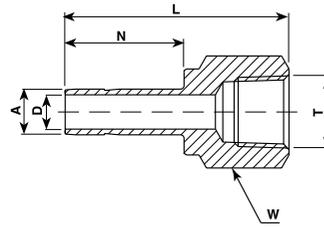
Plugging Unused Port Of Fitting (Inch)

Part Number	A		W	
	in	mm	in	mm
VUWJP-1.6	1/16	1.5	5/16	7.9
VUWJP-3.2	1/8	3.1	7/16	11.1
VUWJP-4.8	3/16	4.8	1/2	12.7
VUWJP-6.35	1/4	6.35	9/16	14.3
VUWJP-7.93	5/16	7.93	5/8	15.9
VUWJP-9.52	3/8	9.52	11/16	17.5
VUWJP-12.7	1/2	12.7	7/8	22.2
VUWJP-15.88	5/8	15.8	1	25.4
VUWJP-19.05	3/4	19	1 1/8	28.6
VUWJP-25.4	1	25.4	1 1/2	38.1

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Female Adapter Tube To Pipe (NPT)

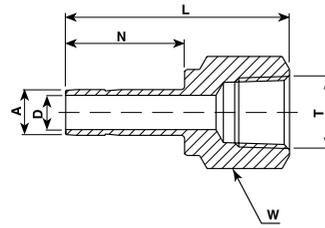
GA



Tube (Metric) Female Pipe						
Part Number	A	T	D	W	N	L
	Tube O.D. mm		mm	mm	mm	mm
VUW-GA-3AN	3	1/8NPT	2.1	14	13.5	31.5
VUW-GA-3BN	3	1/4NPT	2.1	19	13.5	35.3
VUW-GA-4BN	4	1/4NPT	2.2	19	14.2	35
VUW-GA-6AN	6	1/8NPT	4	14	15.7	32.5
VUW-GA-6BN	6	1/4NPT	4	19	15.7	37.1
VUW-GA-6CN	6	3/8NPT	4	22	15.7	39.6
VUW-GA-6DN	6	1/2NPT	4	27	15.7	45.5
VUW-GA-8AN	8	1/8NPT	5.6	14	16.8	34.3
VUW-GA-8BN	8	1/4NPT	5.6	19	16.8	37.6
VUW-GA-8DN	8	1/2NPT	5.6	27	16.8	46
VUW-GA-10BN	10	1/4NPT	7.1	19	17.5	38.1
VUW-GA-10CN	10	3/8NPT	7.1	22	17.5	40.1
VUW-GA-10DN	10	1/2NPT	7.1	27	17.5	46.5
VUW-GA-12BN	12	1/4NPT	8.8	19	23.1	43.7
VUW-GA-12CN	12	3/8NPT	8.8	22	23.1	45.5
VUW-GA-12DN	12	1/2NPT	8.8	27	23.1	52.3
VUW-GA-16CN	16	3/8NPT	12.7	24	24.7	48
VUW-GA-16DN	16	1/2NPT	12.7	27	24.7	53.1
VUW-GA-20DN	20	1/2NPT	15.1	27	26.6	56
VUW-GA-20EN	20	3/4NPT	15.1	35	26.6	56

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**Female Adapter
Tube To Pipe (NPT) (continued)**
GA

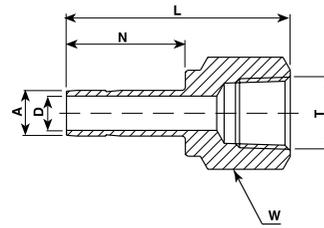


Part Number	A		T	D		W		N		L	
	Tube O.D.			in	mm	in	mm	in	mm	in	mm
	in	mm									
VUW-GA-3.2AN	1/8	3.2	1/8NPT	0.08	2.3	9/16	14.3	0.53	13.5	1.24	31.5
VUW-GA-3.2BN	1/8	3.2	1/4NPT	0.08	2.3	3/4	19.1	0.53	13.5	1.39	35.3
VUW-GA-4.8BN	3/16	4.8	1/4NPT	0.12	3	3/4	19.1	0.56	14.2	1.41	35.8
VUW-GA-6.35AN	1/4	6.35	1/8NPT	0.17	4.2	9/16	14.3	0.62	15.8	1.3	33
VUW-GA-6.35BN	1/4	6.35	1/4NPT	0.17	4.2	3/4	19.1	0.62	15.8	1.46	37.1
VUW-GA-6.35CN	1/4	6.35	3/8NPT	0.17	4.2	7/8	22.2	0.62	15.8	1.55	39.4
VUW-GA-6.35DN	1/4	6.35	1/2NPT	0.17	4.2	1 1/16	27	0.62	15.8	1.79	45.5
VUW-GA-7.93BN	5/16	7.93	1/4NPT	0.24	6	3/4	19.1	0.66	16.8	1.48	37.6
VUW-GA-9.52AN	3/8	9.52	1/8NPT	0.28	7.1	9/16	14.3	0.69	17.5	1.35	34.3
VUW-GA-9.52BN	3/8	9.52	1/4NPT	0.27	6.9	3/4	19.1	0.69	17.5	1.5	38.1
VUW-GA-9.52CN	3/8	9.52	3/8NPT	0.27	6.9	7/8	22.2	0.69	17.5	1.59	40.4
VUW-GA-9.52DN	3/8	9.52	1/2NPT	0.27	6.9	1 1/16	27	0.69	17.5	1.84	46.7
VUW-GA-12.7BN	1/2	12.7	1/4NPT	0.37	9.4	3/4	19.1	0.91	23.1	1.71	43.4
VUW-GA-12.7CN	1/2	12.7	3/8NPT	0.37	9.4	7/8	22.2	0.91	23.1	1.79	45.5
VUW-GA-12.7DN	1/2	12.7	1/2NPT	0.37	9.4	1 1/16	27	0.91	23.1	2.04	52.1
VUW-GA-15.88DN	5/8	15.88	1/2NPT	0.5	12.7	1 1/16	27	0.97	24.7	2.09	53.1
VUW-GA-19.05DN	3/4	19.05	1/2NPT	0.59	15	1 1/16	27	0.97	24.7	2.08	52.8
VUW-GA-19.05EN	3/4	19.05	3/4NPT	0.59	15	1 5/16	33.3	0.97	24.7	2.16	54.9
VUW-GA-19.05FN	3/4	19.05	1NPT	0.59	15	1 5/8	41.3	0.97	24.7	2.3	58.4
VUW-GA-25.4EN	1	25.4	3/4NPT	0.8	20.3	1 5/16	33.3	1.23	31.2	2.39	60.7
VUW-GA-25.4FN	1	25.4	1NPT	0.8	20.3	1 5/8	41.3	1.23	31.2	2.53	64.3

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Female Adapter Tube To Pipe (Rc)

GA



Tube (Metric) To ISO Tapered Thread

Part Number	A	T	D	W	N	L
	Tube O.D. mm		mm	mm	mm	mm
VUW-GA-3A	3	Rc 1/8	2.1	14	13.5	31.5
VUW-GA-3B	3	Rc 1/4	2.1	19	13.5	35.3
VUW-GA-4B	4	Rc 1/4	2.2	19	14.2	35
VUW-GA-6A	6	Rc 1/8	4	14	15.7	32.5
VUW-GA-6B	6	Rc 1/4	4	19	15.7	37.1
VUW-GA-6C	6	Rc 3/8	4	22	15.7	39.6
VUW-GA-6D	6	Rc 1/2	4	27	15.7	45.5
VUW-GA-8A	8	Rc 1/8	5.6	14	16.8	34.3
VUW-GA-8B	8	Rc 1/4	5.6	19	16.8	37.6
VUW-GA-8D	8	Rc 1/2	5.6	27	16.8	46
VUW-GA-10B	10	Rc 1/4	7.1	19	17.5	38.1
VUW-GA-10C	10	Rc 3/8	7.1	22	17.5	40.1
VUW-GA-10D	10	Rc 1/2	7.1	27	17.5	46.5
VUW-GA-12B	12	Rc 1/4	8.8	19	23.1	43.7
VUW-GA-12C	12	Rc 3/8	8.8	22	23.1	45.5
VUW-GA-12D	12	Rc 1/2	8.8	27	23.1	52.3
VUW-GA-16C	16	Rc 3/8	12.7	24	24.7	48
VUW-GA-16D	16	Rc 1/2	12.7	27	24.7	53.1
VUW-GA-20D	20	Rc 1/2	15.1	27	26.6	56
VUW-GA-20E	20	Rc 3/4	15.1	35	26.6	56

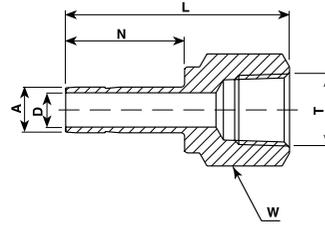
Designation:

R marking on hex.

"D" - Dimension is minimum hole diameter - dimensions are for reference only, and are subject to change without notice.

Female Adapter Tube To Pipe (Rc) (continued)

GA



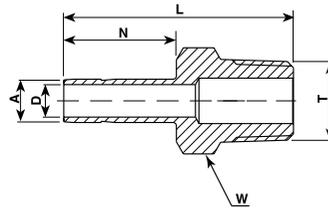
Part Number	A		T	D		W		N		L	
	Tube O.D.			in	mm	in	mm	in	mm	in	mm
	in	mm									
VUW-GA-3.2A	1/8	3.2	Rc 1/8	0.08	2.3	9/16	14.3	0.53	13.5	1.24	31.5
VUW-GA-3.2B	1/8	3.2	Rc 1/4	0.08	2.3	3/4	19.1	0.53	13.5	1.39	35.3
VUW-GA-4.8B	3/16	4.8	Rc 1/4	0.12	3	3/4	19.1	0.56	14.2	1.41	35.8
VUW-GA-6.35A	1/4	6.35	Rc 1/8	0.17	4.2	9/16	14.3	0.62	15.8	1.30	33
VUW-GA-6.35B	1/4	6.35	Rc 1/4	0.17	4.2	3/4	19.1	0.62	15.8	1.46	37.1
VUW-GA-6.35C	1/4	6.35	Rc 3/8	0.17	4.2	7/8	22.2	0.62	15.8	1.55	39.4
VUW-GA-6.35D	1/4	6.35	Rc 1/2	0.17	4.2	1 1/16	27	0.62	15.8	1.79	45.5
VUW-GA-7.93B	5/16	7.93	Rc 1/4	0.24	6	3/4	19.1	0.66	16.8	1.48	37.6
VUW-GA-9.52A	3/8	9.52	Rc 1/8	0.28	7.1	9/16	14.3	0.69	17.5	1.35	34.3
VUW-GA-9.52B	3/8	9.52	Rc 1/4	0.27	6.9	3/4	19.1	0.69	17.5	1.5	38.1
VUW-GA-9.52C	3/8	9.52	Rc 3/8	0.27	6.9	7/8	22.2	0.69	17.5	1.59	40.4
VUW-GA-9.52D	3/8	9.52	Rc 1/2	0.27	6.9	1 1/16	27	0.69	17.5	1.84	46.7
VUW-GA-12.7B	1/2	12.7	Rc 1/4	0.37	9.4	3/4	19.1	0.91	23.1	1.71	43.4
VUW-GA-12.7C	1/2	12.7	Rc 3/8	0.37	9.4	7/8	22.2	0.91	23.1	1.79	45.5
VUW-GA-12.7D	1/2	12.7	Rc 1/2	0.37	9.4	1 1/16	27	0.91	23.1	2.04	52.1
VUW-GA-15.88D	5/8	15.88	Rc 1/2	0.5	12.7	1 1/16	27	0.97	24.7	2.09	53.1
VUW-GA-19.05D	3/4	19.05	Rc 1/2	0.59	15	1 1/16	27	0.97	24.7	2.08	52.8
VUW-GA-19.05E	3/4	19.05	Rc 3/4	0.59	15	1 5/16	33.3	0.97	24.7	2.16	54.9
VUW-GA-19.05F	3/4	19.05	Rc 1	0.59	15	1 5/8	41.3	0.97	24.7	2.3	58.4
VUW-GA-25.4E	1	25.4	Rc 3/4	0.8	20.3	1 5/16	33.3	1.23	31.2	2.39	60.7
VUW-GA-25.4F	1	25.4	Rc 1	0.8	20.3	1 5/8	41.3	1.23	31.2	2.53	64.3

Designation:
R marking on hex.

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Male Adapter Tube To Pipe (NPT)

A

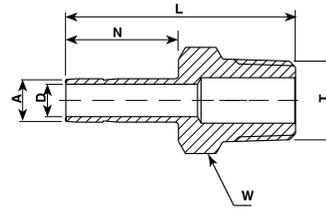


Tube (Metric) Male Pipe							
Part Number	A	T	D	W		N	L
	Tube O.D.			in	mm		
VUW-A-3AN	3	1/8NPT	2.1	-	12	13.5	30
VUW-A-3BN	3	1/4NPT	2.1	-	14	13.5	35.3
VUW-A-6AN	6	1/8NPT	4	-	12	15.7	32.8
VUW-A-6BN	6	1/4NPT	4	-	14	15.7	38.1
VUW-A-6CN	6	3/8NPT	4	11/16	17.5	15.7	37
VUW-A-6DN	6	1/2NPT	4	-	22	15.7	43.4
VUW-A-8AN	8	1/8NPT	5.6	-	12	16.8	33.5
VUW-A-8BN	8	1/4NPT	5.6	-	14	16.8	39.1
VUW-A-8DN	8	1/2NPT	5.6	-	22	16.8	43
VUW-A-10BN	10	1/4NPT	7.1	9/16	14	17.5	39.9
VUW-A-10CN	10	3/8NPT	7.1	-	18	17.5	40.6
VUW-A-10DN	10	1/2NPT	7.1	-	22	17.5	46.2
VUW-A-12BN	12	1/4NPT	8.8	-	16	23.1	46.5
VUW-A-12CN	12	3/8NPT	8.8	-	18	23.1	46.5
VUW-A-12DN	12	1/2NPT	8.8	-	22	23.1	52
VUW-A-16DN	16	1/2NPT	11.9	-	22	24.7	50.5
VUW-A-20EN	20	3/4NPT	15.1	-	27	26.6	54.3

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Male Adapter Tube To Pipe (NPT) (continued)

A



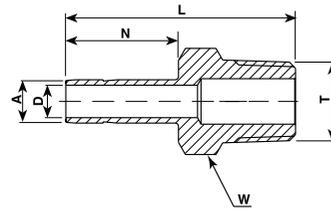
Tube (Inch) Male pipe

Part Number	A Tube O.D.		T	D		W		N		L	
	in	mm		in	mm	in	mm	in	mm	in	mm
VUW-A-3.2AN	1/8	3.2	1/8NPT	0.09	2.2	7/16	11.1	0.53	13.5	1.16	29.5
VUW-A-3.2BN	1/8	3.2	1/4NPT	0.09	2.2	9/16	14.3	0.53	13.5	1.37	34.8
VUW-A-4.8AN	3/16	4.8	1/8NPT	0.12	3	7/16	11.1	0.56	14.2	1.19	30.2
VUW-A-4.8BN	3/16	4.8	1/4NPT	0.12	3	9/16	14.3	0.56	14.2	1.4	35.6
VUW-A-6.35AN	1/4	6.35	1/8NPT	0.17	4.2	7/16	11.1	0.62	15.8	1.25	31.8
VUW-A-6.35BN	1/4	6.35	1/4NPT	0.17	4.2	9/16	14.3	0.62	15.8	1.46	37.1
VUW-A-6.35CN	1/4	6.35	3/8NPT	0.17	4.2	11/16	17.5	0.62	15.8	1.49	37.9
VUW-A-6.35DN	1/4	6.35	1/2NPT	0.17	4.2	7/8	22.2	0.62	15.8	1.71	43.4
VUW-A-7.93AN	5/16	7.93	1/8NPT	0.24	6	7/16	11.1	0.66	16.8	1.29	32.7
VUW-A-7.93BN	5/16	7.93	1/4NPT	0.24	6	9/16	14.3	0.66	16.8	1.5	38.1
VUW-A-9.52AN	3/8	9.52	1/8NPT	0.27	6.9	7/16	11.1	0.69	17.5	1.32	33.5
VUW-A-9.52BN	3/8	9.52	1/4NPT	0.27	6.9	9/16	14.3	0.69	17.5	1.53	38.9
VUW-A-9.52CN	3/8	9.52	3/8NPT	0.27	6.9	11/16	17.5	0.69	17.5	1.56	39.6
VUW-A-9.52DN	3/8	9.52	1/2NPT	0.27	6.9	7/8	22.2	0.69	17.5	1.78	45.2
VUW-A-12.7BN	1/2	12.7	1/4NPT	0.37	9.4	9/16	14.3	0.91	23.1	1.75	44.5
VUW-A-12.7CN	1/2	12.7	3/8NPT	0.37	9.4	11/16	17.5	0.91	23.1	1.78	45.2
VUW-A-12.7DN	1/2	12.7	1/2NPT	0.37	9.4	7/8	22.2	0.91	23.1	2	50.8
VUW-A-15.88CN	5/8	15.88	3/8NPT	0.37	9.5	11/16	17.5	0.97	24.7	1.81	47.6
VUW-A-15.88DN	5/8	15.88	1/2NPT	0.47	11.9	7/8	22.2	0.97	24.7	2.06	52.3
VUW-A-15.88EN	5/8	15.88	3/4NPT	0.5	12.7	1 1/16	27	0.97	24.7	2.06	52.3
VUW-A-19.05DN	3/4	19.05	1/2NPT	0.47	11.9	7/8	22.2	0.97	24.7	2.06	52.3
VUW-A-19.05EN	3/4	19.05	3/4NPT	0.59	15	1 1/16	27	0.97	24.7	2.06	52.3
VUW-A-19.05FN	3/4	19.05	1NPT	0.59	15	1 3/8	34.9	0.97	24.7	2.28	57.3
VUW-A-22.22EN	7/8	22.22	3/4NPT	0.6	15.9	1 1/16	27	1.05	26.6	2.09	54.3
VUW-A-25.4EN	1	25.4	3/4NPT	0.62	15.8	1 1/16	27	1.3	33	2.31	58.7
VUW-A-25.4FN	1	25.4	1NPT	0.8	20.3	1 3/8	34.9	1.3	33	2.6	66.4

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Male Adapter Tube To Pipe (R)

A



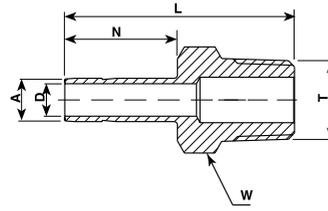
Tube (Metric) To ISO Tapered Thread

Part Number	A	T	D	W		N	L
	Tube O.D.			in	mm		
	mm		mm			mm	mm
VUW-A-3A	3	R 1/8	2.1	-	12	13.5	30
VUW-A-3B	3	R 1/4	2.1	-	14	13.5	35.3
VUW-A-6A	6	R 1/8	4	-	12	15.7	32.8
VUW-A-6B	6	R 1/4	4	-	14	15.7	38.1
VUW-A-6C	6	R 3/8	4	11/16	17.5	15.7	37
VUW-A-6D	6	R 1/2	4	-	22	15.7	43.4
VUW-A-8A	8	R 1/8	5.6	-	12	16.8	33.5
VUW-A-8B	8	R 1/4	5.6	-	14	16.8	39.1
VUW-A-8D	8	R 1/2	5.6	-	22	16.8	43
VUW-A-10B	10	R 1/4	7.1	9/16	14	17.5	39.9
VUW-A-10C	10	R 3/8	7.1	-	18	17.5	40.6
VUW-A-10D	10	R 1/2	7.1	-	22	17.5	46.2
VUW-A-12B	12	R 1/4	8.8	-	16	23.1	46.5
VUW-A-12C	12	R 3/8	8.8	-	18	23.1	46.5
VUW-A-12D	12	R 1/2	8.8	-	22	23.1	52
VUW-A-16D	16	R 1/2	11.9	-	22	24.7	50.5
VUW-A-20E	20	R 3/4	15.1	-	27	26.6	54.3

"D" - Dimension is minimum hole diameter - dimensions are for reference only, and are subject to change without notice.

Male Adapter Tube To Pipe (R) (continued)

A

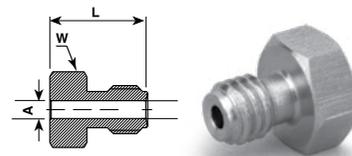


Tube (Inch) To ISO Tapered Thread

Part Number	A Tube O.D.		T	D		W		N		L	
	in	mm		in	mm	in	mm	in	mm	in	mm
VUW-A-3.2A	1/8	3.2	R 1/8	0.09	2.2	7/16	11.1	0.53	13.5	1.16	29.5
VUW-A-3.2B	1/8	3.2	R 1/4	0.09	2.2	9/16	14.3	0.53	13.5	1.37	34.8
VUW-A-4.8A	3/16	4.8	R 1/8	0.12	3	7/16	11.1	0.56	14.2	1.19	30.2
VUW-A-4.8B	3/16	4.8	R 1/4	0.12	3	9/16	14.3	0.56	14.2	1.4	35.6
VUW-A-6.35A	1/4	6.35	R 1/8	0.17	4.2	7/16	11.1	0.62	15.8	1.25	31.8
VUW-A-6.35B	1/4	6.35	R 1/4	0.17	4.2	9/16	14.3	0.62	15.8	1.46	37.1
VUW-A-6.35C	1/4	6.35	R 3/8	0.17	4.2	11/16	17.5	0.62	15.8	1.49	37.9
VUW-A-6.35D	1/4	6.35	R 1/2	0.17	4.2	7/8	22.2	0.62	15.8	1.71	43.4
VUW-A-7.93A	5/16	7.93	R 1/8	0.24	6	7/16	11.1	0.66	16.8	1.29	32.7
VUW-A-7.93B	5/16	7.93	R 1/4	0.24	6	9/16	14.3	0.66	16.8	1.5	38.1
VUW-A-9.52A	3/8	9.52	R 1/8	0.27	6.9	7/16	11.1	0.69	17.5	1.32	33.5
VUW-A-9.52B	3/8	9.52	R 1/4	0.27	6.9	9/16	14.3	0.69	17.5	1.53	38.9
VUW-A-9.52C	3/8	9.52	R 3/8	0.27	6.9	11/16	17.5	0.69	17.5	1.56	39.6
VUW-A-9.52D	3/8	9.52	R 1/2	0.27	6.9	7/8	22.2	0.69	17.5	1.78	45.2
VUW-A-12.7B	1/2	12.7	R 1/4	0.37	9.4	9/16	14.3	0.91	23.1	1.75	44.5
VUW-A-12.7C	1/2	12.7	R 3/8	0.37	9.4	11/16	17.5	0.91	23.1	1.78	45.2
VUW-A-12.7D	1/2	12.7	R 1/2	0.37	9.4	7/8	22.2	0.91	23.1	2	50.8
VUW-A-15.88C	5/8	15.88	R 3/8	0.37	9.5	11/16	17.5	0.97	24.7	1.81	47.6
VUW-A-15.88D	5/8	15.88	R 1/2	0.47	11.9	7/8	22.2	0.97	24.7	2.06	52.3
VUW-A-15.88E	5/8	15.88	R 3/4	0.5	12.7	1 1/16	27	0.97	24.7	2.06	52.3
VUW-A-19.05D	3/4	19.05	R 1/2	0.47	11.9	7/8	22.2	0.97	24.7	2.06	52.32
VUW-A-19.05E	3/4	19.05	R 3/4	0.59	15	1 1/16	27	0.97	24.7	2.06	52.32
VUW-A-19.05F	3/4	19.05	R 1	0.59	15	1 3/8	34.9	0.97	24.7	2.28	57.3
VUW-A-22.22E	7/8	22.22	R 3/4	0.6	15.9	1 1/16	27	1.05	26.6	2.09	54.3
VUW-A-25.4E	1	25.4	R 3/4	0.62	15.8	1 1/16	27	1.3	33	2.31	58.7
VUW-A-25.4F	1	25.4	R 1	0.8	20.3	1 3/8	34.9	1.3	33	2.6	66.4

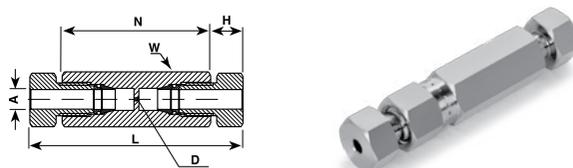
"D" - Dimension is minimum hole diameter - dimensions are for reference only, and are subject to change without notice.

Male Nut



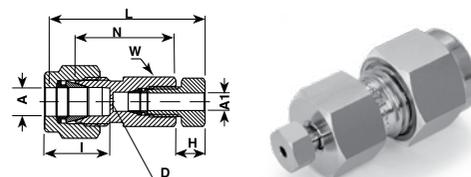
Part Number	A Tube O.D.		W		L	
	in	mm	in	mm	in	mm
VUW-1.6MN	1/16	1.6	1/4	6.4	3/8	9.5

Union



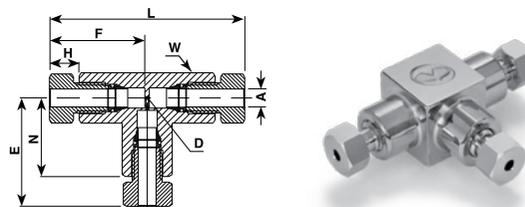
Part Number	A Tube O.D.		D		W		N		H		L		Dead Space
	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	
VUWF-1.6-MN	1/16	1.6	0.013	0.3	1/4	6.4	0.84	21.3	0.2	5.1	1.24	31.5	6.6 x 10 ⁻⁵ cc

Reducing Union



Part Number	A Tube O.D.		A ₁ Tube O.D.		D		W		N		L		H		I		Dead Space
	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	
VUWF-6.35X1.6-MN	1/4	6.35	1/16	1.6	0.013	0.3	1/2	12.7	0.75	19.1	1.24	31.5	0.2	5.1	0.6	15.2	6.8 x 10 ⁻⁵ cc
VUWF-9.52X1.6-MN	3/8	9.52	1/16	1.6	0.013	0.3	5/8	15.9	0.81	20.6	1.3	33.1	0.2	5.1	0.66	16.8	6.8 x 10 ⁻⁵ cc

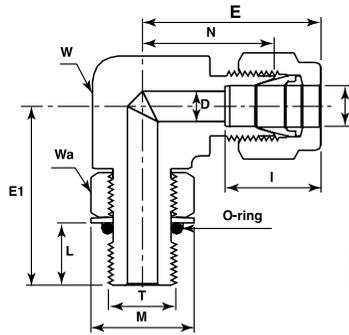
Union Tee



Part Number	A Tube O.D.		D		W		N		H		F		E		L		Dead Space
	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	
VUWT-1.6-MN	1/16	1.6	0.013	0.3	3/8	9.5	0.45	11.4	0.2	5.1	0.61	15.5	0.65	16.5	1.3	33	2.8 x 10 ⁻⁴ cc

"D" - Dimension is minimum hole diameter - dimensions are for reference only, and are subject to change without notice.

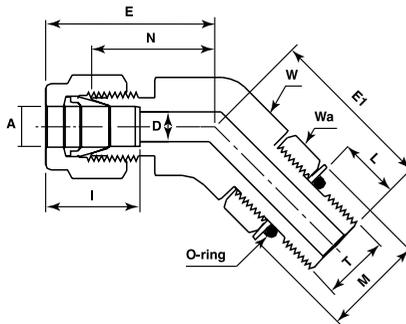
Positionables
PER SAE J1926 & MS 16142
Male Elbow
PL



Tube To SAE/MS Straight Thread Boss (Positionable)*

Part Number	A Tube O.D.		T	D		W		Wa		N		E		E1		L		M		I		O-ring** size AS568
	in	mm		in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	
VUWPL-6.35X7/16	1/4	6.35	7/16-20	0.19	4.8	1/2	12.7	9/16	14.3	0.79	20	1.08	27.4	1.12	28.5	0.39	9.9	0.65	16.5	0.6	15.2	-904
VUWPL-6.35X9/16	1/4	6.35	9/16-18	0.19	4.8	5/8	15.9	11/16	17.5	0.91	23.11	1.2	30.48	1.27	32.3	0.44	11	0.79	20.1	0.6	15.2	-906
VUWPL-9.52X9/16	3/8	9.52	9/16-18	0.28	7.1	5/8	15.9	11/16	17.5	0.97	24.6	1.26	32	1.27	32.3	0.44	11	0.79	20.1	0.66	16.8	-906

Male Elbow 45°
PL



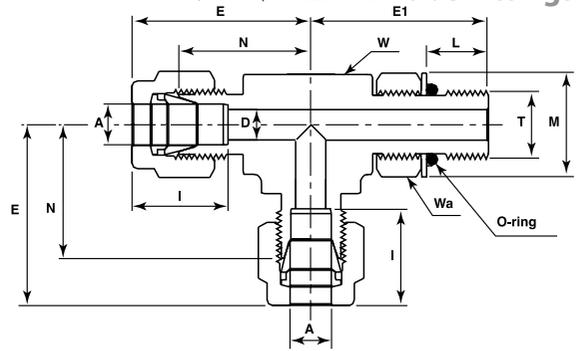
Tube To SAE/MS Straight Thread Boss (Positionable)*

Part Number	A Tube O.D.		T	D		W		Wa		N		E		E1		L		M		I		O-ring** size AS568
	in	mm		in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	
VUWPL-6.35X7/16-45	1/4	6.35	7/16-20	0.19	4.8	9/16	14.3	9/16	14.3	0.72	18.3	1.01	25.7	1.01	25.7	0.39	9.9	0.65	16.5	0.6	15.2	-904
VUWPL-9.52X9/16-45	3/8	9.52	9/16-18	0.28	7.1	13/16	20.6	11/16	17.5	0.81	20.1	1.1	28	1.06	27	0.44	11.2	0.79	20.1	0.66	16.8	-906

* Per SAE J1926 and MS 16142. See page 70 for mounting dimensions.
 ** O-rings used are Viton 90 Durometer. Other O-ring materials are available on request.

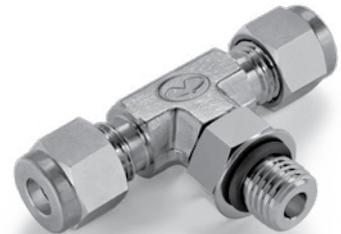
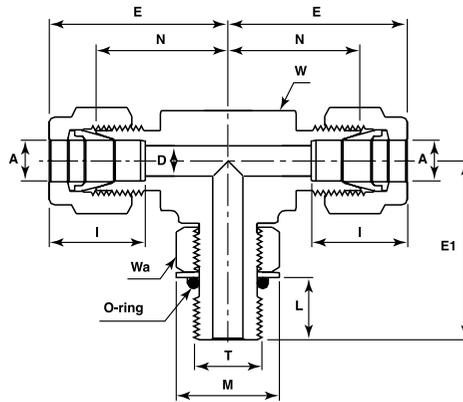
"D" - Dimension is minimum hole diameter - dimensions are for reference only, and are subject to change without notice.

Positionables
PER SAE J1926 & MS 16142
Male Run Tee
PTL



Tube To SAE/MS Straight Thread Boss (Positionable)*																						
Part Number	A Tube O.D.		T	D		W		Wa		N		E		E1		L		M		I		O-ring** size AS568
	in	mm		in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	
VUWPTL-6.35X7/16	1/4	6.35	7/16-20	0.19	4.8	1/2	12.7	9/16	14.3	0.83	21.1	1.12	28.5	1.12	28.5	0.39	9.9	0.65	16.5	0.6	15.2	-904
VUWPTL-9.52X9/16	3/8	9.52	9/16-18	0.28	7.1	5/8	15.9	11/16	17.5	0.97	24.6	1.26	32	1.27	32.3	0.44	11.2	0.79	20.1	0.66	16.8	-906

Male Branch tee
PTS

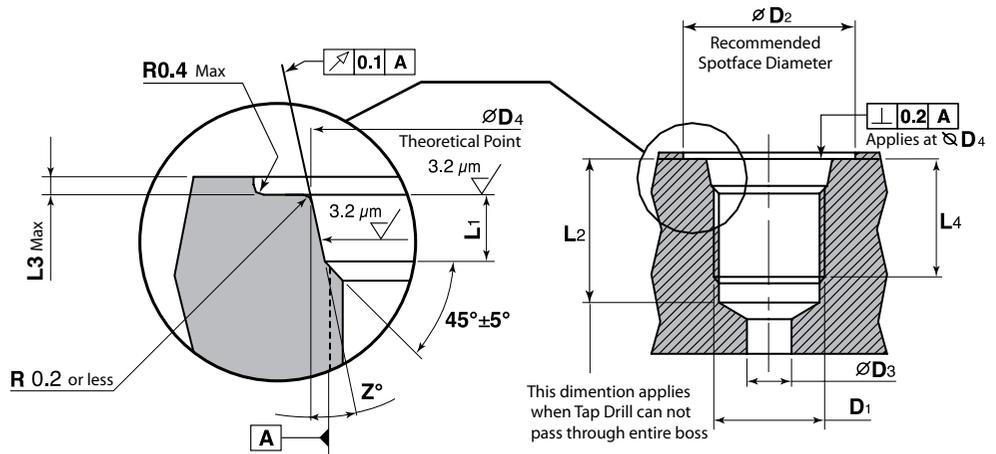


Tube To SAE/MS Straight Thread Boss (Positionable)*																						
Part Number	A Tube O.D.		T	D		W		Wa		N		E		E1		L		M		I		O-ring** size AS568
	in	mm		in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	
VUWPTS-6.35X7/16	1/4	6.35	7/16-20	0.19	4.8	1/2	12.7	9/16	14.3	0.83	21.1	1.12	28.5	1.12	28.5	0.39	9.9	0.65	16.5	0.6	15.2	-904
VUWPTS-9.52X9/16	3/8	9.52	9/16-18	0.28	7.1	5/8	15.9	11/16	17.5	0.97	24.6	1.26	32	1.27	32.3	0.44	11.2	0.79	20.1	0.66	16.8	-906

* Per SAE J1926 and MS 16142. See page 70 for mounting dimensions.
 ** O-rings used are Viton 90 Durometer. Other O-ring materials are available on request.

"D" - Dimension is minimum hole diameter - dimensions are for reference only, and are subject to change without notice.

Mounting Dimensions FOR SAE J1926 & MS 16142 BOSS

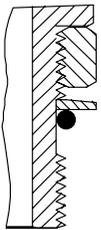


Mounting Dimensions For Oring-Seal Connectors (SAE/MS)

D1 Thread Size	D2 Min. Diameter	D3 Min. Diameter	D4 ± 0.05	L1 ± 0.02	L2 Min.	L3 Max.	L4 Min. Full Thread	Z ± 1°
	mm	mm	mm	mm	mm	mm	mm	°
5/16 - 24 UNF - 2B	17	1.6	9.15	2.1	12	1.6	10	12
3/8 - 24 UNF - 2B	19	3.5	10.75	2.1	12	1.6	10	12
7/16 - 20 UNF - 2B	21	4.5	12.45	2.6	14	1.6	11.5	12
1/2 - 20 UNF - 2B	23	6	14.05	2.6	14	1.6	11.5	12
9/16 - 18 UNF - 2B	25	7.5	15.7	2.7	15.5	1.6	12.7	12
3/4 - 16 UNF - 2B	30	10	20.65	2.7	17.5	2.4	14.3	15
7/8 - 14 UNF - 2B	34	12.5	24	2.7	20	2.4	16.7	15
1 1/16 - 12 UNF - 2B	41	16	29.2	3.5	23	2.4	19	15
1 3/16 - 12 UN - 2B	45	18	32.4	3.5	23	2.4	19	15
1 5/16 - 12 UN - 2B	49	21	35.55	3.5	23	3.2	19	15

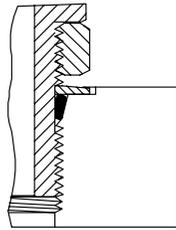
Installation Instructions:

Figure 1
Locking backed off



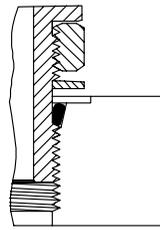
Lubricate the O-ring by inserting it into the groove adjacent to the face of the metal back - up washer which is assembled at the extreme end of the groove as shown in Figure 1.

Figure 2
Fitting install hand tight



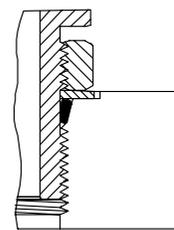
Install the fitting into the S.A.E. straight thread boss, figure 2, until the metal back - up washer contacts the face of the boss as shown in Figure 2.

Figure 3
Fittings backed-off for alignment (1 turn maximum)



Position the fitting by turning it counter clockwise up to a maximum of one turn (see Figure 3).

Figure 4
Fitting locknut tight to appropriate torque

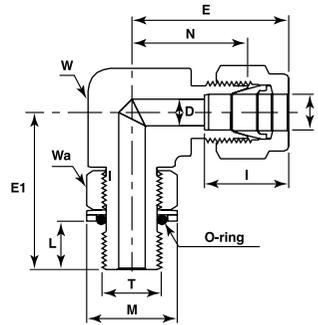


Holding the pad of the fitting with a wrench, tighten the locknut and washer against the face as shown in Figure 4.

"D" - Dimension is minimum hole diameter - dimensions are for reference only, and are subject to change without notice.

Positionables
ISO Parallel Thread

Male Elbow
PL



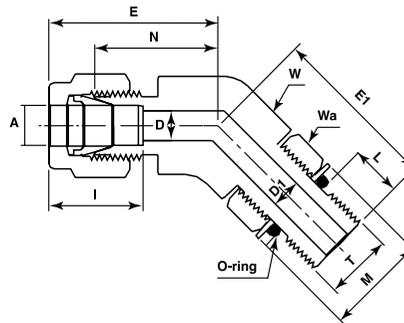
Tube (Inch) To ISO Parallel Thread (Positionable)*

Part Number	A Tube O.D.		T	D		W		Wa		N		E		E1		L		M		I	O-ring** size I.D.	
	in	mm		in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm			
VUWPL-6.35AF	1/4	6.35	G1/8	0.16	3.9	1/2	12.7	9/16	14.3	0.77	19.6	1.06	26.9	1.04	26.4	0.32	8.1	0.68	17.3	0.6	15.2	8x1.8-G

Tube (Metric) To ISO Parallel Thread (Positionable)*

Part Number	A Tube O.D.		T	D		W		Wa		N		E		E1		L		M		I	O-ring** size I.D.
	mm			mm	in	mm	in	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm				
VUWPL-6AF	6		G1/8	3.9	1/2	12.7	9/16	14.3	19.6	27	26.4	8.1	17.3	15.3							
VUWPL-8AF	8		G1/8	3.9	5/8	15.9	9/16	14.3	21.3	28.8	27.4	8.1	17.3	16.2	8x1.8-G						

Male Elbow 45°
PL



Tube (Inch) To ISO Parallel Thread (Positionable)*

Part Number	A Tube O.D.		T	D		D1		W		Wa		N		E		E1		L		M		I	O-ring** size I.D.	
	in	mm		in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm			
VUWPL-6.35AF-45	1/4	6.35	G1/8	0.16	4	0.19	4.8	9/16	14.3	9/16	14.3	0.69	17.6	0.98	24.9	0.94	25.3	0.32	8.1	0.68	17.3	0.6	15.2	8x1.8-G

Tube (Metric) To ISO Parallel Thread (Positionable)*

Part Number	A Tube O.D.		T	D		D1		W		Wa		N		E		E1		L		M		I	O-ring** size I.D.
	mm			mm	in	mm	in	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm					
VUWPL-6AF-45	6		G1/8	4	0.19	4.8	9/16	14.3	9/16	14.3	17.55	25	25.3	8.1	17.3	15.3	8x1.8-G						

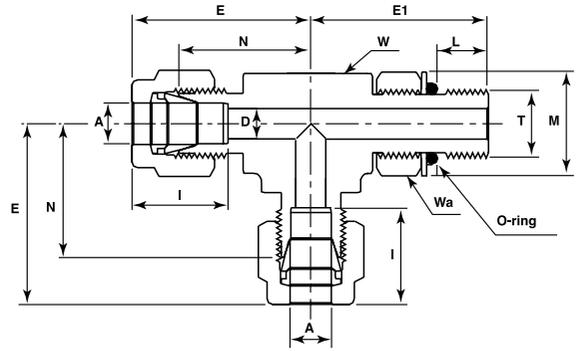
* Per SAE J1926 and MS 16142. See page 70 for mounting dimensions.

** O-rings used are Viton 90 Durometer. Other O-ring materials are available on request.

"D" - Dimension is minimum hole diameter - dimensions are for reference only, and are subject to change without notice.

Positionables
ISO Parallel Thread

Male Run Tee
PTL



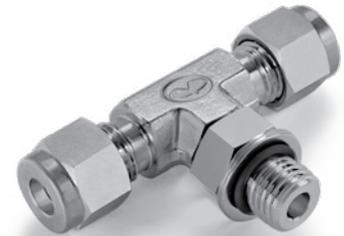
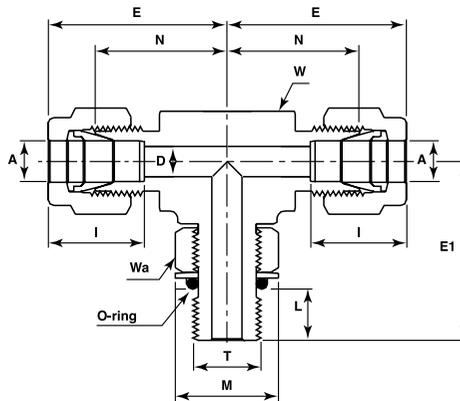
Tube (Inch) To ISO Parallel Thread (Positionable)*

Part Number	A Tube O.D.		T	D		W		Wa		N		E		E1		L		M		I		O-ring** size I.D.
	in	mm		in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	
VUWPTL-6.35AF	1/4	6.35	G1/8	0.16	4	1/2	12.7	9/16	14.3	0.77	19.6	1.06	26.9	1.04	26.4	0.32	8.1	0.68	17.3	0.6	15.2	8x1.8-G

Tube (Metric) To ISO Parallel Thread (Positionable)*

Part Number	A Tube O.D.		T	D		W		Wa		N	E	E1	L	M	I	O-ring** size I.D.
	mm			mm	in	mm	in	mm	mm	mm	mm	mm	mm	mm	mm	
VUWPTL-6AF	6		G1/8	4	1/2	12.7	9/16	14.3	19.6	27	26.4	8.1	17.3	15.3	8x1.8-G	

Male Branch Tee
PTS



Tube (Inch) To ISO Parallel Thread (Positionable)*

Part Number	A Tube O.D.		T	D		W		Wa		N		E		E1		L		M		I		O-ring** size I.D.
	in	mm		in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	
VUWPTS-6.35AF	1/4	6.35	G1/8	0.16	4	1/2	12.7	9/16	14.3	0.77	19.6	1.06	26.9	1.04	26.4	0.32	8.1	0.68	17.3	0.6	15.2	8x1.8-G

Tube (Metric) To ISO Parallel Thread (Positionable)*

Part Number	A Tube O.D.		T	D		W		Wa		N	E	E1	L	M	I	O-ring** size I.D.
	mm			mm	in	mm	in	mm	mm	mm	mm	mm	mm	mm	mm	
VUWPTS-6AF	6		G1/8	4	1/2	12.7	9/16	14.3	19.6	27	26.4	8.1	17.3	15.3	8x1.8-G	

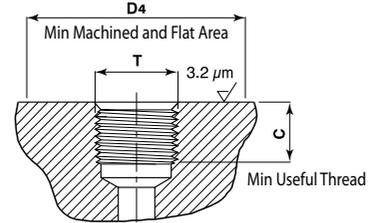
* Per SAE J1926 and MS 16142. See page 630 for mounting dimensions.

** O-rings used are Viton 90 Durometer. Other O-ring materials are available on request.

"D" - Dimension is minimum hole diameter - dimensions are for reference only, and are subject to change without notice.

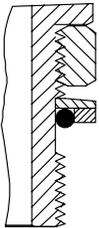
ISO Parallel Thread (Reference)

Mounting Dimensions Of Connectors				
T	D4		C	
	in	mm	in	mm
G1/8	0.53	13.5	0.28	7



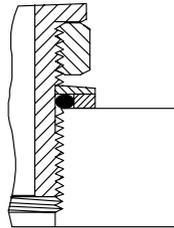
Installation Instructions:

Figure 1
Locking backed off



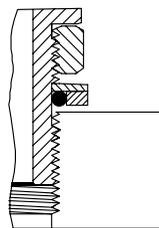
Set the O-ring by inserting it into the groove adjacent to the face of the metal back - up washer which is assembled at the extreme end of the groove as shown in Figure 1.

Figure 2
Fittings install hand tight



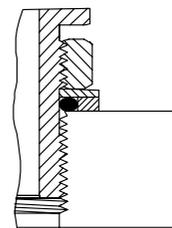
Install the fitting into the ISQ straight thread boss until the metal back - up washer contacts the face of the boss as shown in Figure 2.

Figure 3
Fittings backed-off for O-ring alignment (1 turn maximum)



Position the fitting by turning it counter clockwise up to a maximum of one turn. See Figure 3.

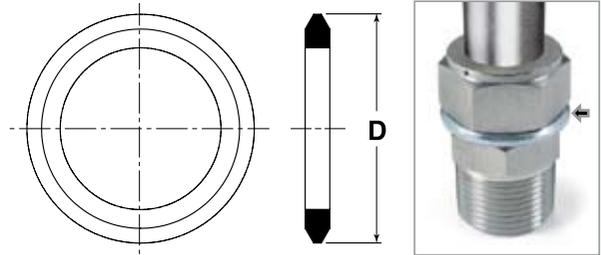
Figure 4
Fittings locknut tight to appropriate torque



Holding the body of the fitting with a wrench, tighten the locknut and washer against the face as shown in Figure 4.

Stop Collar

V _o -LOK		D	
in	mm	in	mm
1/4	6.35	0.69	17.5
3/8	9.52	0.84	20.6
1/2	12.7	1.1	27
3/4	19.05	1.31	33.3
1	25.4	1.68	42.7



1. Remove the nut and ferrules from the fitting.
2. Insert the stop collar.
3. Assemble the nut and ferrules until hand tight.
4. Tighten the fitting until the stop collar no longer rotates (by hand).
At this stage the fitting is tightened correctly.

Ordering Information For Assembled Stop Collar (With Fitting)

V U W H

Fitting type
(male **V-Lok** Fittings)

6.35 BN

Tube O.D.
The O.D. size is always the first to be described.

SC

Stop Collar

S = Stainless Steel
B = Carbon Zinc Plated

Stop Collar Material

How To Order Stop Collar Only

VUW-6.35 SC

S = Stainless Steel
B = Carbon Zinc Plated

The contents of the description are reference, and are subject to change without notice.

FINE BUBBLE® Leak Detection Fluid

Concentration of Impurities (Units: ppm)

Impurities	Na	K	Ca	Cl	F
Concentration	<1	<1	<1	<1	<1

Ordering No.	Container Size	Quantity per Pack	Container
LL-S-1	60cc	6 bottles/pack	Squeeze bottle
LL-M-1	300cc	1 bottle/pack	Squeeze bottle with nozzle cap
LL-L-1	4 ℓ	1 container/pack	Refill container



60cc

300cc

4 ℓ

Features

- With its viscosity and rapid foaming action, FINE BUBBLE® detects the smallest leaks even when it is applied in small amounts.
- Noncorrosive; does not react with metal, coatings, rubber, or plastic surfaces.
- Dries clean and without staining.
- Minimal impurities such as sodium, potassium, calcium, chlorine, fluorine, bromine, and sulfur compounds.
- Nonflammable; does not react with oxygen.
- Available in three convenient sizes: 60cc (squeeze bottle), 300cc (squeeze bottle with nozzle cap), and 4L (refill container).
- Read the instructions carefully before use.

FINE BUBBLE® Test Data

Corrosion Test Results

Tube Material (25 x 50 x 15t #400 finish)	Leak Detection Fluid			Duration
	FINE BUBBLE®	Brand B	Brand C	
S55C	○	X3	X3	24 hours
A1050P	○	○	△120	120 hours
C2801P	△3	△3	△3	120 hours
SUS304	○	○	○	120 hours

Key: ○: Almost no changes at the end of the test

△: Discolored or slightly corroded

x: Corroded

* Numbers next to the icon indicate when (in terms of hours) changes to the metal were visually observed.

Immersion Corrosion Test

The metal samples were immersed in the leak detection fluids at 30°C and inspected for changes.



FINE BUBBLE®



Brand B



Brand C

S55C samples after 24 hours of immersion in the leak detection fluids

Note: Materials and dimension are subject to change without notice.

The contents of the description are reference, and are subject to change without notice.

Fujikin®



Fujikin® Carp® Group

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The Year 2005
The 1st Monozukuri (manufacturing)
Nippon Grand Awards
: Excellence Prize