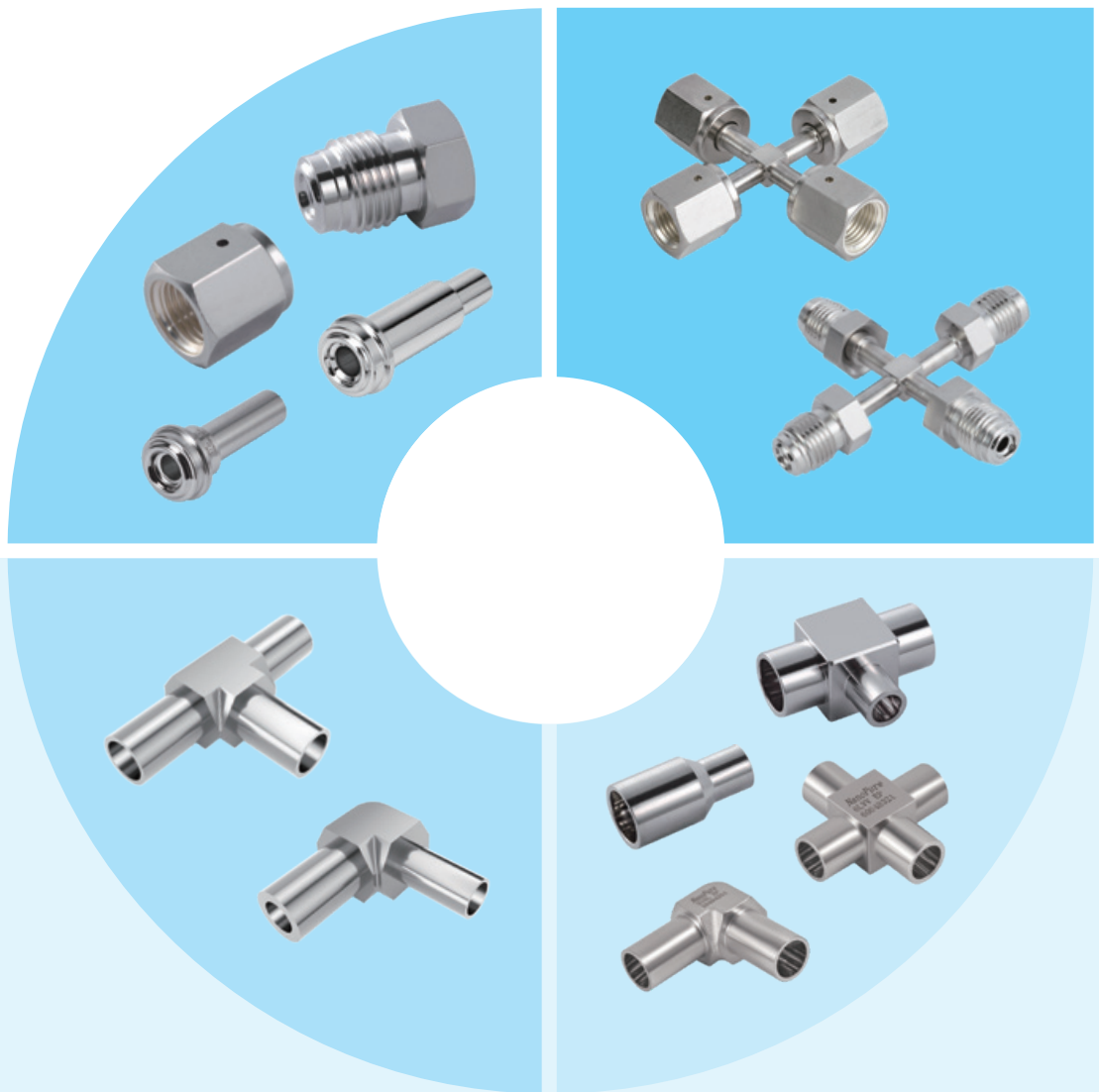


NanoPure

FITTINGS

ULTRA HIGH PURITY





INDEX

02 INTRODUCTION

04 OVERVIEW

05 ASSEMBLY INSTRUCTION

06 PRODUCT GRADE

06 TEMPERATURE RATING

07 PRESSURE RATING INTERNATIONAL CERTIFICATION
ISO 9001, CERTIFIED BY S.I.I

09 VC SERIES

32 KMC SERIES

39 KLC SERIES





"NanoPure" is a brand of Gas Delivery Total Solution, belongs to King Lai Group, who was founded 1991 in Taiwan and expanded production facility in Kunshan, Jiangsu Province, China. Supplying tubing/piping and fitting materials service for Semiconductor, FPD, LED and Photovoltaic industries, the core idea of **"NanoPure"** is providing "High purity materials" with high quality components for gas delivery applications.

Gas supply and delivery is always the topic to study in Semiconductor processing. To ensure the accuracy of the processing, the purity of gas sources is the vital factors. Keeping the purity while the gas has been transferred into processing tools is highly monitored by process engineers.

"NanoPure" is composed of people who are specialist in stainless steels fabrication. By making sure the selection of finest materials, we provide finest products. The key point is how to control the quality of materials which



makes big difference of welding quality while installing or welding assembly. There will be the potential impurity or inclusion in welding process. Therefore, electropolish is the solvable process for increasing reliability of stainless steel to against corrosion gases.

"NanoPure" aims to provide the highest quality products, so the quality control and uniformity are essential points to promise customers. In the meantime, we do put emphasis on the details of

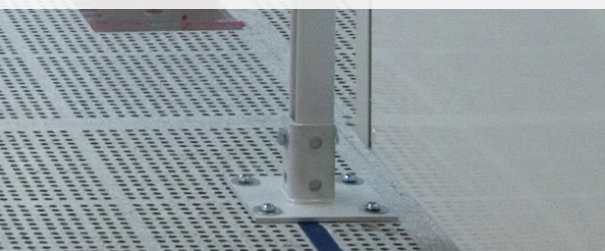


products such as dimension and tolerance which are important for quality control and therefore remain the high yield rate for assembly. Operational packages can be followed according to the customer's instruction, the ranging from normal standard clean package to Ultra High Purity clean room package.

"NanoPure" In addition to UHP products, we also provide various products needed by various Industries, such as Oil & Gas Industries, Process Instrumentation, Power Generation, Pulp & Paper, Chemical, Analytical Instrumentation, Hydrogen Fuel Cells and Natural Gas.

"NanoPure" considers every single key processing during the fabrication.

Our goal is keeping continually improvement to reach customers' satisfaction!



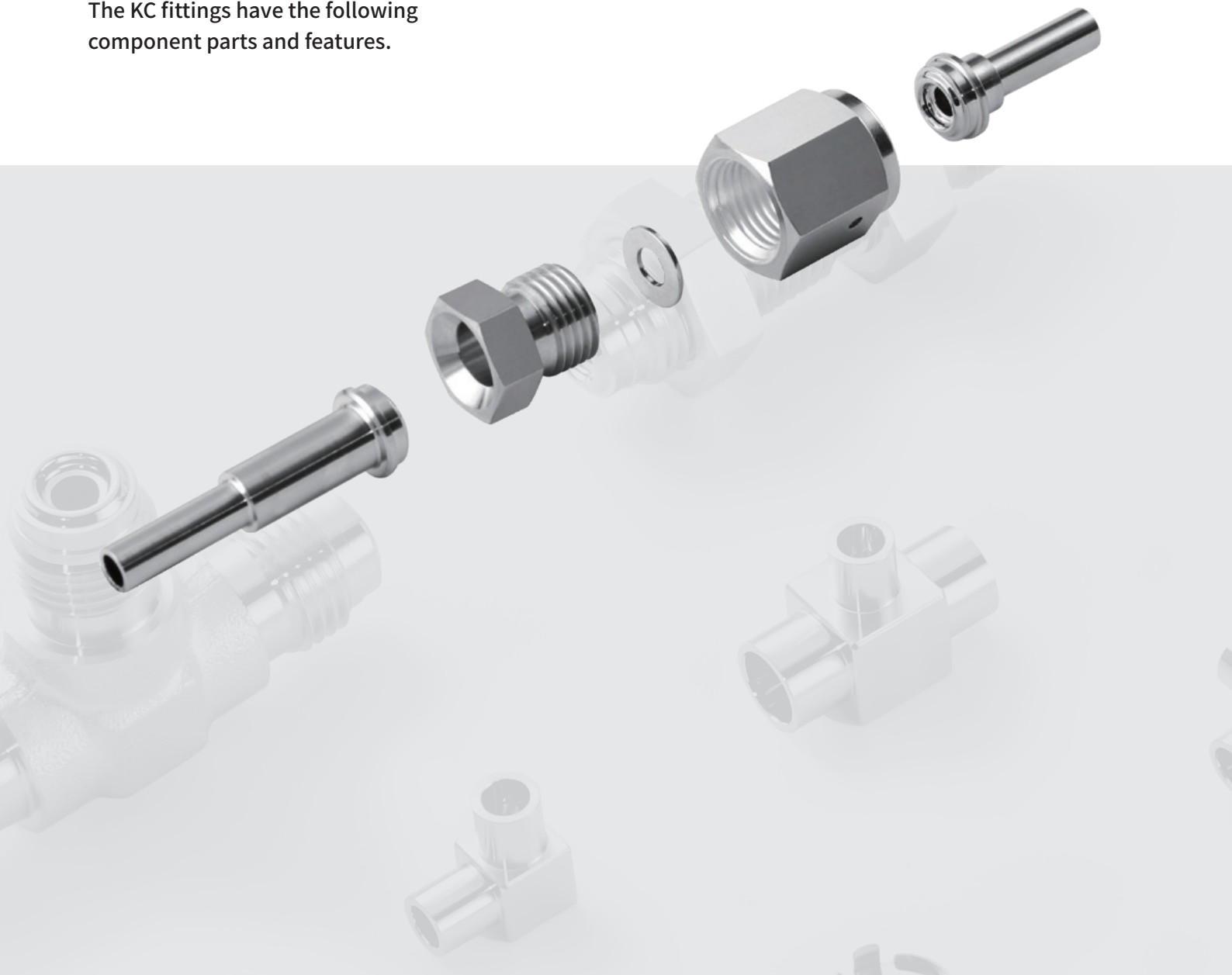
Overview

Reliable enough to handle high purity gas VC series of fittings In the semiconductor related products are becoming more advanced at an accelerated pace and the requirements placed on gas piping system materials have become more diverse KMC offers a wide range supply of UHP fittings to accommodate highpurity gases and meets the needs of the application precisely The products presented here are the VC series of mechanically welded joints the KMC (Clean Micro Fittings) series of primarily weld fittings All product groups are high-reliability high- quality products that are based on each type of semiconductor-use piping material and underwent a rigorous production process .

Fittings are fittings with mechanical metal gasket sealing surface. VC & KMC series unique electropolishing and cleaning, testing, and packaging are done in a clean room.

This make them suitable for use in applications.

The KC fittings have the following component parts and features.



Assembly Instruction

Retainer Assembly



Step 1

While tightening fittings, make sure seal parts and gaskets are free of scratches and dirt.

Non-Retainer Assembly



Step 1

Insert gasket into female nut and make sure the gasket is settled in proper position. Also make sure no damages on seal part while inserting.



Step 2

Turn female nut until it comes into contact with male nut. And make sure seal part and gasket are placed in proper position.



Step 3

Final tightening shall be completed by assembly tools such as tools such as two spanners. Tighten the female nut 1/8-1/6 turns with second spanner and make sure that components screwing except female nut could damage the seal part to reduce the seal capacity.



Step 4

Make sure seal part and gasket are placed in proper position.

Product Grade

Grade	STD	EP
Material	SUS316, SUS316L, SUS316L VAR (Double melt material)	
Surface Roughness	Ra ≤ Max 10 μinch (0.25μm) Ra ≤ Average 20 μinch (0.5μm)	Ra ≤ Max 5 μinch (0.13μm) Ra ≤ Average 10 μinch (0.25μm)
Polish	Mechanical Polished	Electro Polished
Cleaning	Degreasing + Precision cleaning	
Clean Room Environment	Class100	
Packaging	Single bagged package	Double bagged package

Temperature Rating

Products	Material	° F	° C
VC	316 or 316L	1000	538
	316L VAR or VIM/VAR	1000	538
KMC	316L VAR or VIM/VAR	1000	538
KLC	316L	1000	538
Gasket	SS 316	1000	538
	Nickel	1000	538

Pressure Rating Internation Certification

ISO 9001, Certified by S.I.I

Products	Material	Size	Wall Thickness	Pressure Rating	
				Psig	Bar
VC Series	316L or 316L VIM/VAR	1/8"	0.028"(0.71mm)	8550	590
		1/4"	0.035"(0.89mm)	5200	359
		3/8"	0.035"(0.89mm)	3350	231
		1/2"	0.049"(1.24mm)	3750	259
		3/4"	0.049"(1.24mm)	3350	231
		3/4"	0.065"(1.65mm)	2400	165
		1"	0.065"(1.65mm)	2400	165

PLATING

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

These solutions damage the silver plating and invalidate any expressed or implied warranty.

WELDING

Reference Specs: All welded products are manufactured and welded according to SEMI F75,F81.

TESTING

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

HELIUM LEAK

VC products are tested and qualified to a helium leak rate of less than 3×10^{-10} std cm³/sec. Reference Spec: SEMI F1.

SURFACE FINISH

Reference Spec: ANSI B46.1 and ISO 4288.

SURFACE ANALYSIS

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

MOISTURE ANALYSIS

Based on ASTM F1397.

PARTICLE CONTRIBUTION TEST

Based on Semaspec 90120390 B.

VC

Series

VC Series



Gland Long Gland

Page 13



Short Gland

Page 13



Long Socket Weld

Page 14



Short Socket Weld

Page 14



Reducing Socket Weld

Page 14



Male Weld

Page 15



Tube Adapter

Page 15

Blind (Undrilled)
Gland

Page 15



Male NPT Connector

Page 16

Male NPT Bulkhead
Connector

Page 16



Male NPT Elbow

Page 17

Straight Thread
O-Ring Seal Male
Connector

Page 17

Female NPT
Connector

Page 18

SWG Tube Fitting
Connector

Page 18

SWG Tube Fitting
Bulkhead Connector

Page 19



Coupling

Page 19

Female Reducing
Union

Page 19



Adapter FM

Page 20



Adapter MF

Page 20



Male Union

Page 20

VC Series



Reducing Union

Page 20



Bulkhead Union

Page 21

Bulkhead Union to
butt weld

Page 21



Union Elbow

Page 21



Union Tee

Page 22



Union Cross

Page 22

Male NPT Connector
(Welded Assemblies)

Page 22

Female NPT
Connector
(Welded Assemblies)

Page 23

SWG Tube Fitting
Connector
(Welded Assemblies)

Page 23

Rotation Female
Union

Page 23

Rotation Female
Elbow

Page 23



Rotation Female

Page 24

Rotation Female
Cross

Page 24



Rotation Male Union

Page 24



Rotation Male Elbow

Page 24



Rotation Male Tee

Page 24



Rotation Male Cross

Page 25



Nut Female

Page 25



Male

Page 25



Short Male

Page 25

VC Series



Cap

Page 26



Cap with Lanyard

Page 26



Plug

Page 26



Plug with Lanyard

Page 26

Nuts, Caps, and
Plugs

Page 27



Split-Nut Assemblies

Page 27

Gland High Flow
Gland

Page 27

Tube High Flow Butt
Weld

Page 27



Bulkhead Connector

Page 27

High Flow Union
Elbow

Page 27



High Flow Union Tee

Page 28

High Flow Female
Nut

Page 28



High Flow Male Nut

Page 28



Gasket Blind Gasket

Page 28



Gasket

Page 29



Retainer Gasket

Page 29

Flow Restrictors
(Orifice)

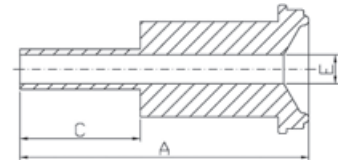
Page 29

Production Range Table

Type	Description		Materials (Ni Gasket Only)		
			316	316L	VAR or VIM/VAR
Gland	GL	Long Gland	O	O	
	GS	Short Gland			
	GLW	Long Socket Weld			
	GSW	Short Socket Weld			
	GLMW	Male weld			
	GLRW	Long Reducing Socket Weld			
	GLTA	Tube Adapter			
	GB	Gland Blind			
	GH	High Flow Gland			
	GLR	Long Gland Reducer			
	GLS	Short Gland Reducer			
	GB	Blind Gland			
VC Fitting	MC	Male NPT	X	O	
	BMC	Bulkhead Male NPT			
	ME	Male NPT Elbow			
	MCO	O-Ring Seal Male Connector			
	FC	Female NPT			
	US	VC to SWG			
	BUS	Bulkhead VC to SWG			
	UFR	Female R-Union			
	AFM	Adapter FM			
	AMF	Adapter MF			
	UM	Male Union			
	RUM	R-Union			
	BUM	Bulkhead Union			
	UE	Union Elbow			
	UT	Union Tee			
	UC	Union Cross			
	BUMT	Bulkhead Union butt weld	X	O	
	HUMT	Tube High Flow butt weld			
	HBUMT	Tube High Flow Bulkhead butt weld			
Nut	FN	Female Nut	O	X	
	MN	Male Nut			
	SMN	Short Male Nut			
	HFN	High Flow Female Nut			
	HMN	High Flow Male Nut			
	CN	Coupling Nut			
Cap	NS	Split-Nut Assemblies			
	C	Cap			
Plug	CLY	Cap With Lanyard			
	P	Plug			
Gasket	PLY	Plug With Lanyard	O		X
	BG	Blind Gasket			
	GA	Gasket			
Rotating Union	RGA	Retainer Gasket	X	O	
	RUF	Female Union			
	RUEF	Female Elbow			
	RUTF	Female Tee			
	RUCF	Female Cross			
	RUM	Male Union			
	RUEM	Male Elbow			
	RUTM	Male Tee			
Welded Assemblies	RUCM	Male Cross	O	X	
	RUM	Male NPT Connector			
	RUF	Female NPT Connector			
Orifice	RUS	SWG Tube Fitting Connector	X		O
	UMO	Orifice			

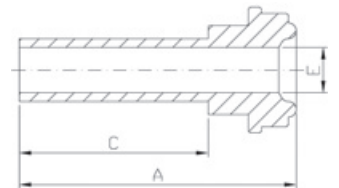
Gland Long Gland

Ordering	Swagelok	VC	OD	A	C	E
-04-VC-GL-04-B-	-4-VCR-3-4TB2	1/4	1/4	1.20 (30.5)	0.25 (6.4)	0.18 (4.6)
-04-VC-GL-04-1.31-	-4-VCR-3-02205			1.31 (33.3)	0.36 (9.1)	
-04-VC-GL-04-C-	-4-VCR-3-4TB3			1.32 (33.5)	0.38 (9.6)	
-04-VC-GL-04-D-	-4-VCR-3-4TB7			1.70 (43.2)	0.75 (19.1)	
-08-VC-GL-04-D-	-8-VCR-3-4TB7	1/2		1.80 (45.7)	0.75 (19.1)	
-08-VC-GL-06-B-	-8-VCR-3-6TB2	1/2	3/8	1.29 (32.8)	0.25 (6.4)	0.31 (7.9)
-08-VC-GL-06-D-	-8-VCR-3-6TB7			1.79 (45.5)	0.75 (19.1)	
-08-VC-GL-08-B-	-8-VCR-3-8TB2	1/2	1/2	1.29 (32.8)	0.25 (6.4)	0.40 (10.2)
-08-VC-GL-08-C-	-8-VCR-3-8TB3			1.41 (35.8)	0.38 (9.6)	
-08-VC-GL-08-D-	-8-VCR-3-8TB7			1.79 (45.5)	0.75 (19.1)	
-12-VC-GL-12-D-	-12-VCR-3-12TB7	3/4	3/4	2.03 (51.6)	0.75 (19.1)	0.65 (16.5)
-16-VC-GL-16-D-	-16-VCR-3-16TB7	1	1	2.32 (58.9)	0.75 (19.1)	0.87 (22.1)



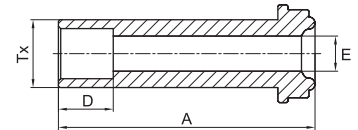
Short Gland

Ordering	Swagelok	VC	OD	A	C	E
-04-VC-GS-04-B-	-4-VCR-3S-4TB2	1/4	1/4	0.60 (15.2)	0.25 (6.4)	0.18 (4.6)
-04-VC-GS-04-C-	-4-VCR-3S-4TB3			0.72 (18.3)	0.38 (9.6)	
-04-VC-GS-04-D-	-4-VCR-3S-4TB7			1.10 (27.9)	0.75 (19.1)	
-08-VC-GS-04-D-	-8-VCR-3S-4TB7	1/2		1.12 (28.4)	0.75 (19.1)	
-08-VC-GS-06-B-	-8-VCR-3S-6TB2	1/2	3/8	0.62 (15.7)	0.25 (6.4)	0.31 (7.9)
-08-VC-GS-06-D-	-8-VCR-3S-6TB7			1.12 (28.4)	0.75 (19.1)	
-08-VC-GS-08-B-	-8-VCR-3S-8TB2	1/2	1/2	0.62 (15.7)	0.25 (6.4)	0.40 (10.2)
-08-VC-GS-08-C-	-8-VCR-3S-8TB3			0.74 (18.8)	0.38 (9.6)	
-08-VC-GS-08-D-	-8-VCR-3S-8TB7			1.12 (28.4)	0.75 (19.1)	



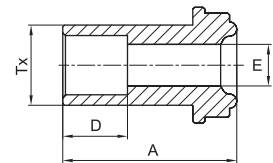
Long Socket Weld

Ordering	Swagelok	VC	OD	A	D	E	TX
SS-02-VC-GLW-01-	SS-1-VCR-3	1/8	1/16"	0.70 (17.8)	0.10 (2.5)	0.05 (1.3)	0.13 (3.3)
SS-02-VC-GLW-02-	SS-2-VCR-3		1/8"	0.70 (17.8)	0.10 (2.5)	0.09 (2.3)	0.20 (5.1)
SS-04-VC-GLW-04-	SS-4-VCR-3	1/4	1/4"	1.31 (33.3)	0.28 (7.1)	0.18 (4.6)	0.35 (8.9)
SS-08-VC-GLW-06-	SS-6-VCR-3	1/2	3/8"	1.50 (38.1)	0.31 (7.9)	0.28 (7.1)	0.60 (15.2)
SS-08-VC-GLW-08-	SS-8-VCR-3		1/2"	1.50 (38.1)	0.38 (9.6)	0.40 (10.2)	0.60 (15.2)
SS-10-VC-GLW-10-	SS-10-VCR-3	5/8	5/8"	1.56 (39.6)	0.41 (10.4)	0.50 (12.7)	0.72 (18.3)
SS-12-VC-GLW-12-	SS-12-VCR-3	3/4	3/4"	2.00 (50.8)	0.44 (11.2)	0.62 (15.7)	0.88 (22.4)
SS-16-VC-GLW-16-	SS-16-VCR-3	1"	1"	2.22 (56.4)	0.62 (15.7)	0.87 (22.1)	1.19 (30.2)



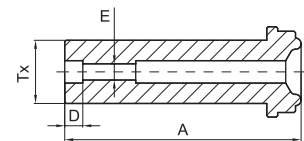
Short Socket Weld

Ordering	Swagelok	VC	OD	A	D	E	TX
SS-04-VC-GSW-0.5L-	SS-4-VCR-3-.50LG	1/4	1/4"	0.50 (12.7)	0.28 (7.1)	0.18 (4.6)	0.35 (8.9)
SS-02-VC-GSW-0.75L-	SS-4-VCR-3-.75LG			0.75 (19.1)			0.35 (8.9)



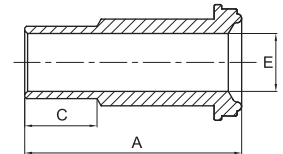
Reducing Socket Weld

Ordering	Swagelok	VC	OD	A	D	E	TX
SS-04-VC-GLRW-2-	SS-4-VCR-3-2TSW	1/4	1/8"	1.31 (33.3)	0.10 (2.5)	0.09 (2.3)	0.35 (8.9)
SS-02-VC-GLRW-4-	SS-8-VCR-3-4TSW	1/2	1/4"	1.50 (38.1)	0.28 (7.1)	0.18 (4.6)	0.60 (15.2)



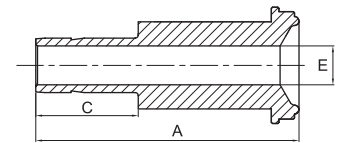
Male Weld

Ordering	Swagelok	VC	OD	A	C	E
SS-02-VC-GLMW-02-	SS-2-VCR-3-2MTW	1/8"	1/8"	0.70 (17.8)	0.28 (7.1)	0.06 (1.5)
SS-04-VC-GLMW-02-	SS-4-VCR-3-2MTW	1/4"		1/4"		
SS-04-VC-GLMW-04-	SS-4-VCR-3-4MTW		1/2"		3/8"	1.50 (38.1)
SS-08-VC-GLMW-04-	SS-8-VCR-3-4MTW	0.41 (10.4)		0.28 (7.1)		
SS-08-VC-GLMW-06-	SS-8-VCR-3-6MTW	0.50 (12.7)		0.40 (10.2)		
SS-08-VC-GLMW-08-	SS-8-VCR-3-8MTW	1/2"	1/2"			
SS-12-VC-GLMW-12-	SS-12-VCR-3-12MTW	3/4"	3/4"	2.00 (50.8)	0.62 (15.7)	0.53 (13.5)
SS-16-VC-GLMW-16-	SS-16-VCR-3-16MTW	1"	1"	2.22 (56.4)	0.81 (20.6)	0.75 (19.1)



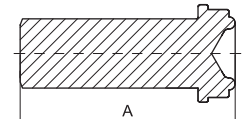
Tube Adapter

Ordering	Swagelok	VC	OD	A	C	E
SS-04-VC-GLTA-4-	SS-4-VCR-3-4TA	1/4"	1/4"	1.62 (41.0)	0.64 (16.2)	0.17 (4.3)
SS-08-VC-GLTA-6-	SS-8-VCR-3-6TA	1/2"	3/8"	1.81 (46.0)	0.70 (17.8)	0.27 (6.8)
SS-08-VC-GLTA-8-	SS-8-VCR-3-8TA	1/2"	1/2"	1.94 (49.3)	0.96 (24.4)	0.37 (9.4)



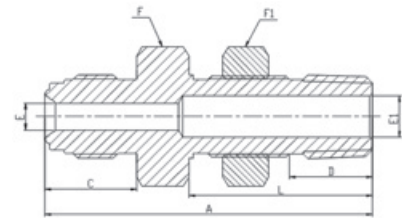
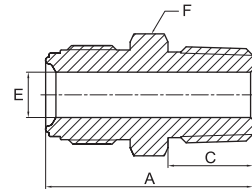
Blind (Undrilled) Gland

Ordering	Swagelok	VC	A
SS-02-VC-GB-	SS-2-VCR-3-BL	1/8"	0.70 (17.8)
SS-04-VC-GB-	SS-4-VCR-3-BL	1/4"	1.31 (33.3)
SS-08-VC-GB-	SS-8-VCR-3-BL	1/2"	1.50 (38.1)
SS-12-VC-GB-	SS-12-VCR-3-BL	3/4"	2.00 (50.8)
SS-16-VC-GB-	SS-16-VCR-3-BL	1"	2.22 (56.4)



Male NPT Connector

Ordering	Swagelok	VC	NPT	A	C	E	F
SS-02-VC-MC-1	SS-2-VCR-1-1	1/8"	1/16"	1.07 (27.2)	0.38 (9.6)	0.09 (2.3)	3/8
SS-02-VC-MC-2	SS-2-VCR-1-2		1/8"				7/16
SS-04-VC-MC-2	SS-4-VCR-1-2	1/4"	1/8"	1.31 (33.3)	0.56 (14.2)	0.18 (4.6)	5/8
SS-04-VC-MC-4	SS-4-VCR-1-4		1/4"	1.49 (37.8)			
SS-08-VC-MC-4	SS-8-VCR-1-4	1/2"	3/8"	1.65 (41.9)	0.75 (19.1)	0.28 (7.1)	15/16
SS-08-VC-MC-6	SS-8-VCR-1-6					0.38 (9.6)	
SS-08-VC-MC-8	SS-8-VCR-1-8		1/2"	1.84 (46.7)		0.40 (10.2)	
SS-12-VC-MC-12	SS-12-VCR-1-12	3/4"	3/4"	2.19 (55.6)	0.94 (23.9)	0.62 (15.7)	1 5/16
SS-16-VC-MC-16	SS-16-VCR-1-16	1"	1"	2.47 (62.7)		0.87 (22.1)	1 5/8

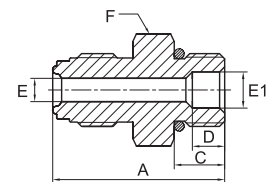
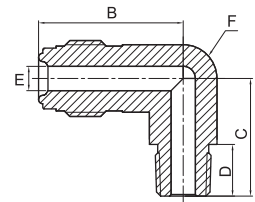


Male NPT Bulkhead Connector

Ordering	Swagelok	VC	NPT	A	C	D	E	E1	F	F1	L	Panel Hole Dia	Max Panel Thickness
SS-04-VC-BMC-4	SS-4-VCR-A1-4M	1/4"	1/4"	2.21 (56.1)	0.62 (15.7)	0.56 (14.2)	0.18 (4.6)	0.28 (7.1)	13/16	13/16	1.24 (31.5)	21/32 (16.8)	0.38 (9.7)
SS-08-VC-BMC-4	SS-8-VCR-A1-4M	1/2"		2.34 (59.4)	0.75 (19.1)		0.40 (10.2)	0.40 (10.2)	15/16				

Male NPT Elbow

Ordering	Swagelok	VC	NPT	B	C	D	E	F
SS-04-VC-ME-2	SS-4-VCR-2-2	1/4"	1/8"	1.07 (27.2)	0.87 (22.1)	0.38 (9.6)	0.18 (4.6)	1/2
SS-04-VC-ME-4	SS-4-VCR-2-4		1/4"	1.07 (27.2)	1.05 (26.7)	0.56 (14.2)		
SS-08-VC-ME-6	SS-8-VCR-2-6	1/2"	3/8"	1.45 (36.8)	1.26 (32.0)		0.40 (10.2)	13/16
SS-08-VC-ME-8	SS-8-VCR-2-8		1/2"		1.45 (36.8)	0.75 (19.1)		

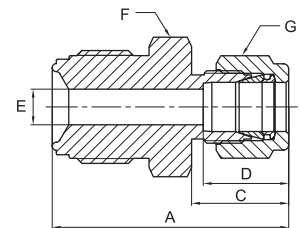
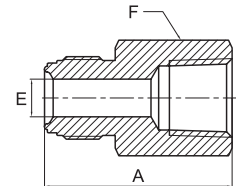


Straight Thread O-Ring Seal Male Connector

Ordering	Swagelok	VC	Straight Thread Size	Uniform O-Ring Size	A	C	D	E	E1	F
SS-04-VC-MCO	SS-4-VCR-1-00032	1/4"	9/16-18	906	1.33 (33.8)	0.39 (9.9)	0.25 (6.4)	0.18 (4.6)	0.28 (7.1)	3/4"
SS-08-VC-MCO	SS-8-VCR-1-00176	1/2"	7/8-14	910	1.66 (42.2)	0.50 (12.7)	0.40 (10.2)	0.28 (7.1)	0.59 (15.0)	1
SS-08-VC-MCO	SS-8-VCR-1-01081		9/16-18	906	1.48 (37.6)	0.39 (9.9)	-		0.28 (7.1)	15/16

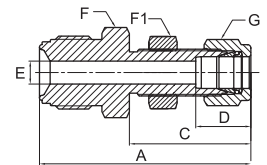
Female NPT Connector

Ordering	Swagelok	VC	NPT	A	E	F
SS-02-VC-FC-1	SS-2-VCR-7-1	1/8"	1/16"	1.10 (27.9)	0.09 (2.3)	7/16
SS-02-VC-FC-2	SS-2-VCR-7-2		1/8"	1.19 (30.2)		9/16
SS-04-VC-FC-2	SS-4-VCR-7-2	1/4"	1/8"	1.41 (35.8)	0.18 (4.6)	5/8
SS-04-VC-FC-4	SS-4-VCR-7-4		1/4"	1.54 (39.1)		3/4
SS-08-VC-FC-6	SS-8-VCR-7-6	1/2"	3/8"	1.76 (44.7)	0.40 (10.2)	15/16
SS-08-VC-FC-8	SS-8-VCR-7-8		1/2"	1.99 (50.5)		1 1/16
SS-12-VC-FC-12	SS-12-VCR-7-12	3/4"	3/4"	2.36 (59.9)	0.62 (15.7)	1 5/16
SS-16-VC-FC-16	SS-16-VCR-7-16	1"	1"	2.51 (63.8)	0.87 (22.1)	1 5/8



SWG Tube Fitting Connector

Ordering	Swagelok	VC	Tube Size	A	C	D	E	F	G
SS-04-VC-US-02	SS-4-VCR-6-200	1/4"	1/8"	1.53 (38.9)	0.60 (15.2)	0.50 (12.7)	0.09 (2.3)	5/8	7/16
SS-04-VC-US-04	SS-4-VCR-6-400		1/4"	1.62 (41.1)	0.70 (17.8)	0.60 (15.2)	0.18 (4.6)		9/16
SS-08-VC-US-06	SS-8-VCR-6-600	1/2"	3/8"	1.84 (46.7)	0.76 (19.3)	0.66 (16.8)	0.28 (7.1)	15/16	11/16
SS-08-VC-US-08	SS-8-VCR-6-810		1/2"	1.95 (49.5)	0.86 (21.8)	0.90 (22.9)	0.40 (10.2)		7/8

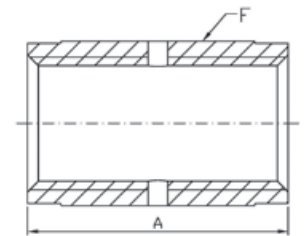


SWG Tube Fitting Bulkhead Connector

Ordering	Swagelok	VC	Tube Size	A	C	D	E	F	F1	G	Panel Hole Dia	Max Panel Thickness
SS-04-VC-BUS-04	SS-4-VCR-A1-400	1/4"	1/4"	2.25 (57.2)	1.32 (33.5)	0.60 (15.2)	0.18 (4.6)	5/8		6/19 (11.9)	15/32 (11.9)	0.40 (10.2)
SS-04-VC-BUS-04	SS-4-VCR-A1S-400			1.88 (47.8)	1.05 (26.7)							0.13 (3.3)
SS-08-VC-BUS-06	SS-8-VCR-A1-600	1/2"	3/8"	2.54 (64.5)	1.45 (36.8)	0.66 (16.8)	0.28 (7.1)	15/16	3/4	1 (15.0) 11/16	19/32 (15.0)	0.44 (11.2)
SS-08-VC-BUS-08	SS-8-VCR-A1-810		1/2"	2.74 (69.6)	1.65 (41.9)	0.90 (22.9)	0.40 (10.2)	15/16		25 (19.8) 7/8	25/32 (19.8)	0.5 (12.7)

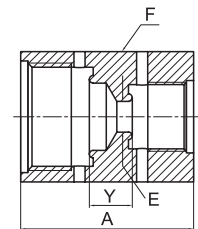
Coupling

Ordering	Swagelok	VC	A	F
SS-04-VC-CU	SS-4-VCR-CG	1/4	1.19 (30.2)	3/4
SS-08-VC-CU	SS-8-VCR-CG	1/2	1.31 (33.3)	1 1/16
SS-12-VC-CU	SS-12-VCR-CG	3/4	1.68 (42.7)	1 1/2
SS-16-VC-CU	SS-16-VCR-CG	1	2.04 (51.8)	1 3/4



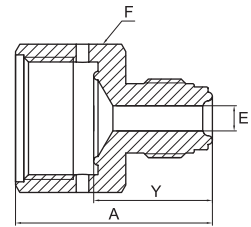
Female Reducing Union

Ordering	Swagelok	VC	A	E	F	Y
6L-04-VC-UFR-2-	SS-4-VCR-6-DF-2	1/4 X 1/8	1.16 (29.5)	0.13 (3.3)	3/4	0.36 (9.1)
6L-08-VC-UFR-4-	SS-8-VCR-6-DF-4	1/2 X 1/4	1.41 (35.8)	0.25 (6.4)	1 1/16	0.35 (8.9)



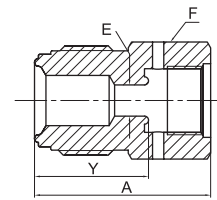
Adapter FM

Ordering	Swagelok	VC	A	E	F	Y
SS-04-VC-AFM-2-	SS-2-VCR-7-4VCRF	1/4 X 1/8	1.19 (30.2)	0.09 (2.3)	3/4	0.69 (17.5)
SS-08-VC-AFM-4-	SS-4-VCR-7-8VCRF	1/2 X 1/4	1.41 (35.8)	0.18 (4.6)	1 1/16	0.85 (21.6)



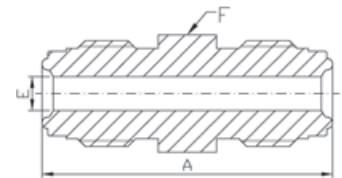
Adapter MF

Ordering	Swagelok	VC	A	E	F	Y
SS-04-VC-AMF-2-	SS-4-VCR-7-2VCRF	1/4 X 1/8	1.06 (26.9)	0.13 (3.3)	5/8	0.76 (19.3)
SS-08-VC-AMF-4-	SS-8-VCR-7-4VCRF	1/2 X 1/4	1.41 (35.8)	0.25 (6.4)	15/16	0.91 (23.1)



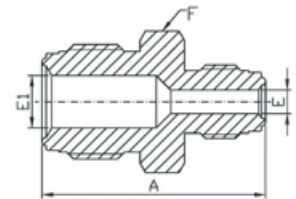
Male Union

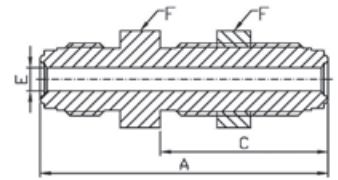
Ordering	Swagelok	VC	A	E	F
SS-04-VC-UM-	SS-4-VCR-6-DM	1/4	1.55 (39.4)	0.18 (4.6)	5/8
SS-08-VC-UM-	SS-8-VCR-6-DM	1/2	1.84 (46.7)	0.40 (10.2)	15/16
SS-12-VC-UM-	SS-12-VCR-6-DM	3/4	2.44 (62.0)	0.62 (15.7)	1 5/16
SS-16-VC-UM-	SS-16-VCR-6-DM	1	2.59 (65.8)	0.87 (22.1)	1 5/8



Reducing Union

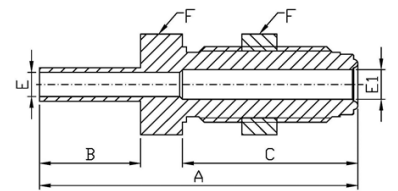
Ordering	Swagelok	VC	A	E	E1	F
SS-08-04-VC-RMU-	SS-8-VCR-6-DM-4	1/2 1/4	1.71 (43.4)	0.18 (4.6)	0.40 (10.2)	15/16





Bulkhead Union

Ordering	Swagelok	VC	A	C	E	F	Panel Hole Dia	Max Panel Thickness
SS-04-VC-BUM	SS-4-VCR-61	1/4	2.23 (56.6)	1.30 (33.0)	0.18 (4.6)	3/4	19/32 (15.0)	0.44 (11.2)
SS-04-VC-BUMS	SS-4-VCR-61S		1.82 (46.2)	0.99 (25.1)				0.13 (3.3)
SS-08-VC-BUM	SS-8-VCR-61	1/2	2.57 (65.3)	1.48 (37.6)	0.40 (10.2)	1 1/16	29/32 (23.1)	0.50 (12.7)
SS-08-VC-BUMS	SS-8-VCR-61S		2.14 (54.4)	1.11 (28.2)				0.13 (3.3)

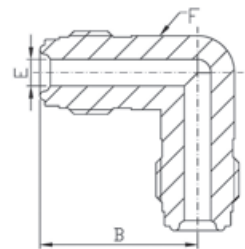


Bulkhead Union to butt weld

Ordering	Swagelok	VC	OD	A	B	C	E	E1	F	Panel Hole Dia	Max Panel Thickness
04-VC-BUMT-4-	6LV-4-VCR-61-4TB7	1/4	1/4	2.36 (59.9)	0.75 (19.1)	1.30 (33.0)	0.18 (4.6)	0.22 (5.6)	3/4	19/32 (15.0)	0.44 (11.2)
04-VC-BUMST-4-	6LV-4-VCR-61S-4TB7			1.95 (49.5)		0.99 (25.1)					0.13 (3.3)

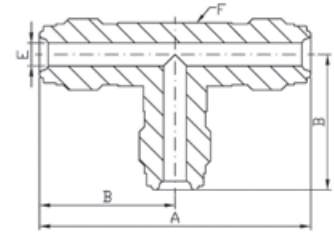
Union Elbow

Ordering	Swagelok	VC	B	E	F
SS-04-VC-UE-FA	SS-4-VCR-9	1/4	1.07 (27.2)	0.18 (4.6)	1/2
SS-08-VC-UE-FA	SS-8-VCR-9	1/2	1.45 (36.8)	0.40 (10.2)	13/16
SS-12-VC-UE-FA	SS-12-VCR-9	3/4	1.92 (48.8)	0.62 (15.7)	1 1/4
SS-16-VC-UE-FA	SS-16-VCR-9	1	2.00 (50.8)	0.87 (22.1)	1 11/16



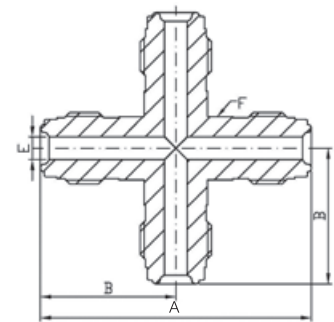
Union Tee

Ordering	Swagelok	VC	A	B	E	F
SS-04-VC-UT-	SS-4-VCR-T	1/4	2.14 (54.4)	1.07 (27.2)	0.18 (4.6)	1/2
SS-08-VC-UT-	SS-8-VCR-T	1/2	2.90 (73.7)	1.45 (36.8)	0.40 (10.2)	13/16
SS-12-VC-UT-	SS-12-VCR-T	3/4	3.84 (97.5)	1.92 (48.8)	0.62 (15.7)	1 1/4
SS-16-VC-UT-	SS-16-VCR-T	1	4.00 (102)	2.00 (50.8)	0.87 (22.1)	1 11/16

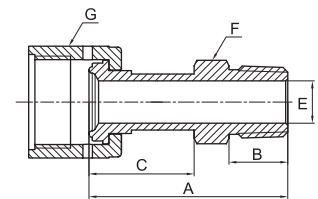


Union Cross

Ordering	Swagelok	VC	A	B	E	F
SS-04-VC-UC-	SS-4-VCR-CS	1/4	2.14 (54.4)	1.07 (27.2)	0.18 (4.6)	1/2
SS-08-VC-UC-	SS-8-VCR-CS	1/2	2.90 (73.7)	1.45 (36.8)	0.40 (10.2)	13/16
SS-12-VC-UC-	SS-12-VCR-CS	3/4	3.84 (97.5)	1.92 (48.8)	0.62 (15.7)	1 1/4
SS-16-VC-UC-	SS-16-VCR-CS	1	4.00 (102)	2.00 (50.8)	0.87 (22.1)	1 11/16

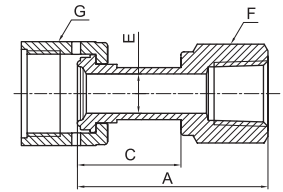


Welded Assemblies



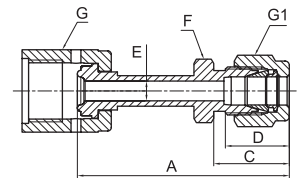
Male NPT Connector

Ordering	Swagelok	VC	NPT	A	B	C	E	F	G
SS-04-VC-RUM-8M	SS-4-WVCR-1-2	1/4	1/8"	1.58 (40.1)	0.38 (9.6)	0.95 (24.1)	0.18 (4.6)	7/16	3/4
SS-04-VC-RUM-4M	SS-4-WVCR-1-4		1/4"	1.79 (45.5)	0.56 (14.2)	0.92 (23.4)	0.18 (4.6)	9/16	
SS-08-VC-RUM-6M	SS-8-WVCR-1-6	1/2	3/8"	1.89 (48.0)	0.56 (14.2)	1.00 (25.4)	0.40 (10.2)	11/16	1 1/16
SS-08-VC-RUM-8M	SS-8-WVCR-1-8		1/2"	2.09 (53.1)	0.75 (19.1)	1.01 (25.6)	0.40 (10.2)	7/8	



Female NPT Connector

Ordering	Swagelok	VC	NPT	A	C	E	F	G
SS-04-VC-RUM-4F	SS-4-WVCR-7-4	1/4"	1/4"	1.77 (45.0)	0.92 (23.4)	0.18 (4.6)	3/4	
SS-08-VC-RUM-6F	SS-8-WVCR-7-6	1/2"	3/8"	1.95 (49.5)	1.06 (26.9)	0.40 (10.2)	7/8	1 1/16
SS-08-VC-RUM-8F	SS-8-WVCR-7-8		1/2"	2.18 (55.4)	1.04 (26.4)	0.40 (10.2)	1 1/16	

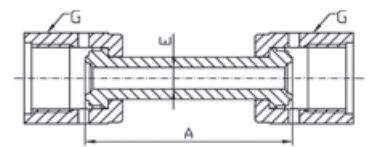


SWG Tube Fitting Connector

Ordering	Swagelok	VC	SWG	A	C	D	E	F	G	G1
SS-04-VC-RUS-4	SS-4-WVCR-6-400	1/4	1/4"	1.94 (49.3)	0.70 (17.8)	0.60 (15.2)	0.18 (4.6)	1/2	3/4	9/16
SS-04-VC-RUS-6	SS-4-WVCR-6-600		3/8"	1.97 (50.0)	0.76 (19.3)	0.66 (16.8)	0.18 (4.6)	5/8	3/4	11/16
SS-04-VC-RUS-8	SS-4-WVCR-6-810	1/2	1/2"	2.23 (56.6)	0.86 (21.8)	0.90 (22.9)	0.40 (10.2)	13/16	1 1/16	7/8

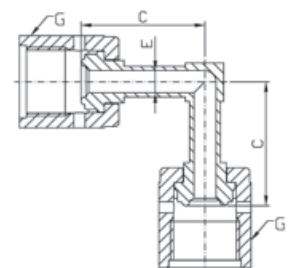
Rotation Female Union

Ordering	Swagelok	VC	A	E	G
-04-VC-RUF-FA	SS-4-WVCR-6-DF	1/4	1.71 (43.4)	0.18 (4.6)	3/4
-08-VC-RUF-FA	SS-8-WVCR-6-DF	1/2	1.84 (46.7)	0.40 (10.2)	1 1/16



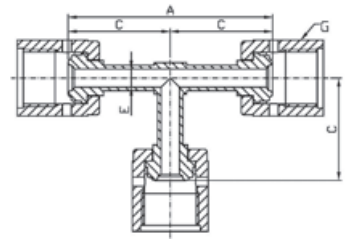
Rotation Female Elbow

Ordering	Swagelok	VC	C	E	G
-04-VC-RUEF-FA	6LV-4-WVCR-9-DF	1/4	1.00 (25.4)	0.18 (4.6)	3/4
-12-VC-RUEF-FA	6LV-8-WVCR-9-DF	1/2	1.15 (29.2)	0.40 (10.2)	1 1/16



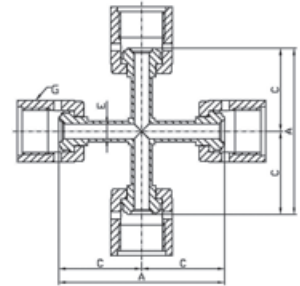
Rotation Female

Ordering	Swagelok	VC	A	C	E	G
-04-VC-RUTF-FA	6LV-4-WVCR-T-DF	1/4	2.00 (50.8)	1.00 (25.4)	0.18 (4.6)	3/4
-08-VC-RUTF-FA	6LV-8-WVCR-T-DF	1/2	2.30 (58.4)	1.15 (29.2)	0.40 (10.2)	1 1/16



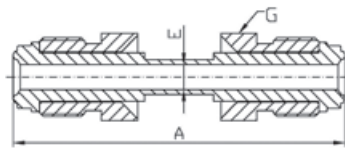
Rotation Female Cross

Ordering	Swagelok	VC	A	C	E	G
-04-VC-RUCF-FA	-	1/4	2.00 (50.8)	1.00 (25.4)	0.18 (4.6)	3/4
-08-VC-RUCF-FA	-	1/2	2.30 (58.4)	1.15 (29.2)	0.40 (10.2)	1 1/16



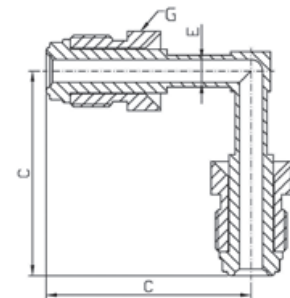
Rotation Male Union

Ordering	Swagelok	VC	A	E	G
-04-VC-RUM-FA	-	1/4	2.40 (60.96)	0.18 (4.6)	5/8
-08-VC-RUM-FA	-	1/2	2.58 (65.64)	0.40 (10.2)	15/16



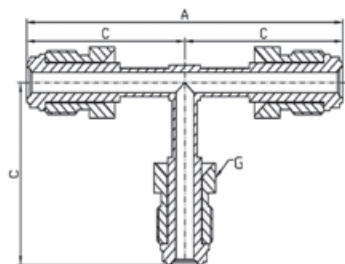
Rotation Male Elbow

Ordering	Swagelok	VC	A	E	G
-04-VC-RUEM-FA	-	1/4	1.61 (40.9)	0.18 (4.6)	5/8
-08-VC-RUEM-FA	-	1/2	1.82 (46.2)	0.40 (10.2)	15/16



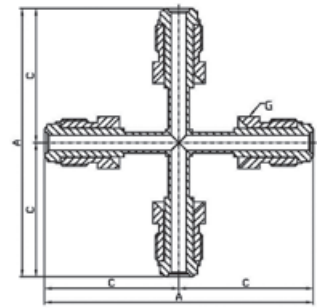
Rotation Male Tee

Ordering	Swagelok	VC	A	C	E	G
-04-VC-RUTM-FA	-	1/4	3.22 (81.8)	1.61 (40.9)	0.18 (4.6)	5/8
-08-VC-RUTM-FA	-	1/2	3.64 (92.5)	1.82 (46.2)	0.40 (10.2)	15/16



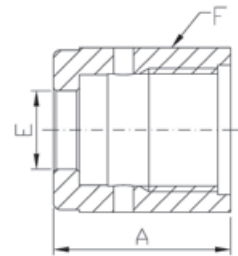
Rotation Male Cross

Ordering	Swagelok	VC	A	C	E	G
-04-VC-RUCM-FA	-	1/4	3.22 (81.8)	1.61 (40.9)	0.18 (4.6)	5/8
-08-VC-RUCM-FA	-	1/2	3.64 (92.5)	1.82 (46.2)	0.40 (10.2)	15/16



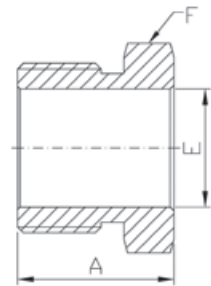
Nut Female

Ordering	Swagelok	VC	A	F	E
SS-04-VC-FN	SS-4-VCR-1	1/4	0.81 (20.6)	3/4	0.36 (9.1)
SS-08-VC-FN	SS-8-VCR-1	1/2	0.88 (22.4)	1 1/16	0.61 (15.5)
SS-12-VC-FN	SS-12-VCR-1	3/4	1.12 (28.4)	1 1/2	0.89 (22.6)
SS-16-VC-FN	SS-16-VCR-1	1	1.34 (34.0)	1 3/4	1.20 (30.5)



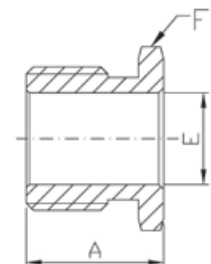
Male

Ordering	Swagelok	VC	A	F	E
SS-04-VC-MN	SS-4-VCR-4	1/4	0.71 (18.0)	5/8	0.36 (9.1)
SS-08-VC-MN	SS-8-VCR-4	1/2	0.81 (20.6)	15/16	0.61 (15.5)
SS-12-VC-MN	SS-12-VCR-4	3/4	1.00 (25.4)	1 5/16	0.89 (22.6)
SS-16-VC-MN	SS-16-VCR-4	1	1.19 (30.2)	1 5/8	1.20 (30.5)



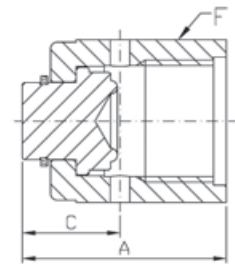
Short Male

Ordering	Swagelok	VC	A	F	E
SS-04-VC-SMN-.54-BA	SS-4-VCR-4--.54NC	1/4	0.54 (13.7)	5/8	0.36 (9.1)
SS-04-VC-SMN-.65-BA	SS-4-VCR-4--.65NC		0.65 (16.5)		



Cap

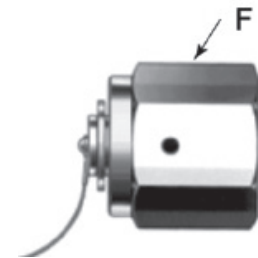
Ordering	Swagelok	VC	A	C	F
6L-04-VC-C	SS-4-VCR-CP	1/4	0.94 (23.9)	0.44 (11.2)	3/4
6L-08-VC-C	SS-8-VCR-CP	1/2	1.01 (25.6)	0.45 (11.4)	1 1/16
6L-12-VC-C	SS-12-VCR-CP	3/4	1.29 (32.8)	0.54 (13.7)	1 1/2
6-16-VC-C	SS-16-VCR-CP	1	1.54 (39.1)	0.63 (16.0)	1 3/4



Cap with Lanyard

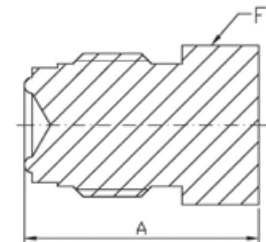
Lanyard material is 304 SS . Lanyard length is 6 in . (15.2 cm)

Ordering	Swagelok	VC	A	C	F
6L-04-VC-CLY	SS-4-VCR-CP-BP	1/4	0.94 (23.9)	0.44 (11.2)	3/4
6L-08-VC-CLY	SS-8-VCR-CP-BP	1/2	1.01 (25.6)	0.45 (11.4)	1 1/16



Plug

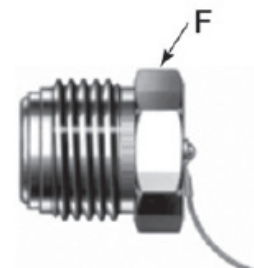
Ordering	Swagelok	VC	A	F
6L-04-VC-P-	SS-4-VCR-P	1/4	0.92 (23.4)	5/8
6L-08-VC-P-	SS-8-VCR-P	1/2	1.08 (27.4)	15/16
6L-12-VC-P-	SS-12-VCR-P	3/4	1.43 (36.3)	1 5/16
6L-16-VC-P-	SS-16-VCR-P	1	1.52 (38.6)	1 5/8



Plug with Lanyard

Lanyard material is 304 SS . Lanyard length is 6 in . (15.2 cm)

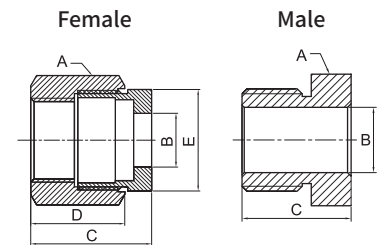
Ordering	Swagelok	VC	A	F
6L-04-VC-PLY-	SS-4-VCR-BP	1/4	0.92 (23.4)	5/8
6L-08-VC-PLY-	SS-8-VCR-BP	1/2	1.08 (27.4)	15/16



Nuts, Caps, and Plugs

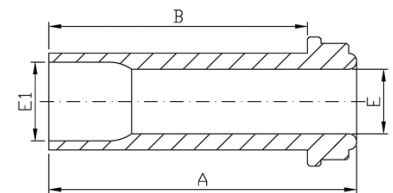
Split-Nut Assemblies

Ordering	Swagelok	VC	A	B	C	D	E
SS-04-VC-MN-NS	SS-4-VCR-1-SN	1/4	3/4	0.36 (9.1)	0.81 (20.6)	0.63 (16.0)	0.68 (17.4)
SS-08-VC-FN-NS	SS-4-VCR-4-SN	1/4	5/8		0.60 (15.2)	-	-



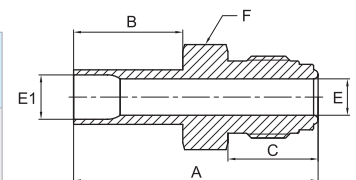
Gland High Flow Gland

Ordering	Swagelok	VC	Tube Size	A	B	E	E1
-04-VC-GH-6-L-	-4-HVCR-3-.60SR	1/4	3/8	0.60 (15.2)	0.41 (10.4)	0.25 (6.4)	0.31 (7.9)
-04-VC-GH-6-M-	-4-HVCR-3-1.19SR			1.19 (30.2)	1.00 (25.4)		
-04-VC-GH-6-N-	-4-HVCR-3-1.31SR			1.31 (33.3)	1.12 (28.4)		



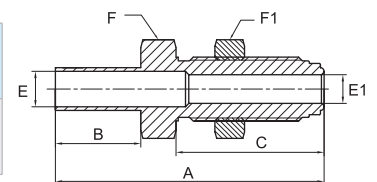
Tube High Flow Butt Weld

Ordering	Swagelok	VC	Tube Size	A	B	C	E	E1	F
-04-VC-HUMT-6D	6LV-4-HVCR-1-6TB7	1/4	3/8	1.68 (42.7)	0.75 (19.1)	0.62 (15.7)	0.25 (6.4)	0.31 (7.9)	5/8



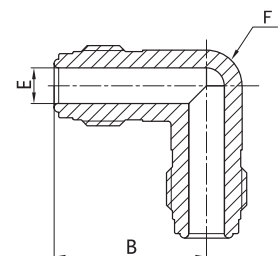
Bulkhead Connector

Ordering	Swagelok	VC	Tube Size	A	B	C	E	E1	F	F1
-04-VC-BHUMT-6D-	6LV-4-HVCR-61-6TB7	1/4	3/8	2.36 (59.9)	0.75 (19.1)	1.30 (33.0)	0.31 (7.9)	0.25 (6.4)	3/4	3/4



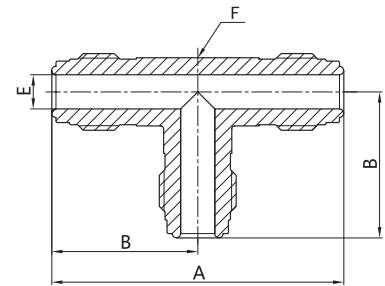
High Flow Union Elbow

Size VC	Nanopure	Swagelok	Dimensions in, (mm)			Working Pressure Psig (bar)
			B	E	F	
1/4"	6L-4-VC-HUE	SS-4-HVCR-9	1.07 (27.2)	0.25 (6.4)	1/2	10 000 (689)



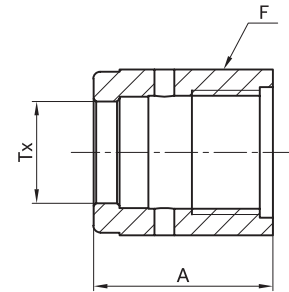
High Flow Union Tee

Size VC	Nanopure	Swagelok	Dimensions in, (mm)				Working Pressure Psig (bar)
			A	B	E	F	
1/4"	6L-4-VC-HUT	SS-4-HVCR-T	2.14 (54.4)	1.07 (27.2)	0.25 (6.4)	1/2	10 000 (689)



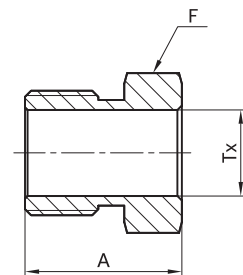
High Flow Female Nut

Size VC	Nanopure	Swagelok	Dimensions in, (mm)		
			A	F	Tx
1/4	SS-04-VC-HFNSR	SS-4-HVCR-1SR	0.81 (20.6)	3/4	0.39 (9.9)
	SS-04-VC-HFN	SS-4-HVCR-1			0.46 (11.7)



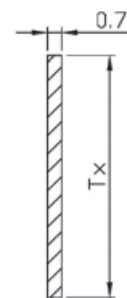
High Flow Male Nut

Size VC	Nanopure	Swagelok	Dimensions in, (mm)		
			A	F	Tx
1/4	SS-04-VC-HMN	SS-4-HVCR-4SR	0.71 (18.0)	5/8	0.39 (9.9)



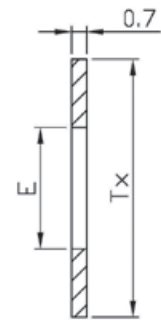
Gasket Blind Gasket

Ordering	Swagelok	VC	Tx
-04-VC-BG-	-	1/4	0.47 (11.9)
-08-VC-BG-	-	1/2	0.78 (19.8)
-12-VC-BG-	-	3/4	1.14 (29.0)
-16-VC-BG-	-	1	1.40 (35.6)



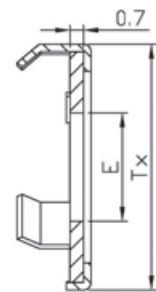
Gasket

Ordering	Swagelok	VC	E	Tx
-04-VC-GA-	-4-VCR-2	1/4	0.22 (5.6)	0.47 (11.9)
-08-VC-GA-	-8-VCR-2	1/2	0.44 (11.2)	0.78 (19.8)
-12-VC-GA-	-12-VCR-2	3/4	0.66 (16.8)	1.14 (29.0)
-16-VC-GA-	-16-VCR-2	1	0.89 (22.6)	1.40 (35.6)



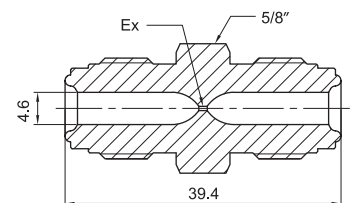
Retainer Gasket

Ordering	Swagelok	VC	E	Tx
-04-VC-RGA-	-4-VCR-2-GR	1/4	0.24 (6.1)	0.50 (12.7)
-08-VC-RGA-	-8-VCR-2-GR	1/2	0.44 (11.2)	0.79 (20.1)
-12-VC-RGA-	-12-VCR-2-GR	3/4	0.66 (16.8)	1.14 (29.0)
-16-VC-RGA-	-16-VCR-2-GR	1	0.89 (22.6)	1.40 (35.6)



Flow Restrictors (Orifice)

Ordering	Swagelok	Ex in . (mm)	Ex in . (mm)
6V-04-VC-UMO—0.01-FA	6LV-4-VCR-6-DM-010P	0.010 (0.254)	0.050 (1.270)
		0.012 (0.305)	0.055 (1.397)
		0.015 (0.381)	0.060 (1.529)
		0.017 (0.432)	0.065 (1.651)
		0.020 (0.508)	0.070 (1.778)
		0.023 (0.584)	0.075 (1.905)
		0.025 (0.635)	0.080 (2.032)
		0.026 (0.660)	0.085 (2.159)
		0.027 (0.686)	0.090 (2.286)
		0.030 (0.762)	0.093 (2.362)
		0.035 (0.889)	0.095 (2.413)
		0.040 (1.016)	0.100 (2.540)
		0.045 (1.143)	-



VC Fitting

6V - 04 - VC - GL - 04 - D - FA

Materials		VC Size		Series	Type			Tube Size		Gland Length			Electropolished		
6L	316L	02	1/8"	VC	Gland	GL	Long Gland	02	1/8"	D	1/8"	19.1mm	FA	EP Ra ≤ 5 μin (0.13 μm)	
6V	316L VAR	04	1/4"			GS	Short Gland	04	1/4"	B	1/4"	6.4mm	FB	EP Ra ≤ 10 μin (0.25 μm)	
6VV	316L VIM/VAR	06	3/8"			GLW	Long Socket Weled	06	3/8"	C		9.6mm	BA	BA Ra ≤ 20 μin (0.5 μm)	
NI	Nickel	08	1/2"			GSW	Short Socket Weled	08	1/2"	D		19.1mm			
SS	316	12	3/4"			GLMW	Adapter FM	12	3/4"	B	3/8"	6.4mm			
		16	1"			GLRW	Adapter MF	16	1"	D		19.1mm			
						GLTA	Tube Adapter			B		6.4mm			
						GB	Gland Blind			C	1/2"	9.6mm			
						GH	High Flow Gland			D		19.1mm			
						GLR	Long Gland Reducer			D		3/4"	19.1mm		
						GLS	Short Gland Reducer			D	1"	19.1mm			
						GB	Blind Gland			High Gland Length					
						VC Fitting	MC	Male NPT			L	3/8"	10.4mm		
							BMC	Bulkhead Male NPT			M		25.4mm		
							ME	Male NPT Elbow			N		28.4mm		
					MCO		O-Ring Seal Male Connector								
					FC		Female NPT								
					US		VC to SWG								
					BUS		Bulkhead VC to SWG								
					UFR		Female R-Union								
					AFM		Adapter FM								
					AMF		Adapter MF								
					UM		Male Union								
					RUM		R-Union								
					BUM		Bulkhead Union								
					UE		Union Elbow								
					UT		Union Tee								
					UC	Union Cross									
					BUMT	Bulkhead Union butt weld									
					HUMT	Tube High Flow butt weld									
					HBUMT	Tube High Flow Bulkhead butt weld									
					Nut	FN	Female Nut								
						MN	Male Nut								
						SMN	Short Male Nut								
						HFN	High Flow Female Nut								
						HMN	High Flow Male Nut								
						CN	Coupling Nut								
					Cap	NS	Split-Nut Assemblies								
						C	Cap								
					Plug	CLY	Cap With Lanyard								
						P	Plug								
					Gasket	PLY	Plug With Lanyard								
						BG	BlInd Gasket								
					Rotating Union	GA	Gasket								
						RGA	Retainer Gasket								
						RUF	Female Union								
					Orifice	RUEF	Female Elbow								
						RUTF	Female Tee								
						RUCF	Female Cross								
						RUM	Male Union								
						RUEM	Male Elbow								
						RUTM	Male Tee								
						RUCM	Male Cross								
					Orifice	UMO	Orifice								

KMC

Series

KMC Series



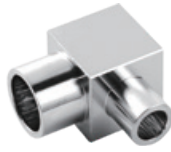
Reducing Union

Page 33



Union Elbow

Page 33



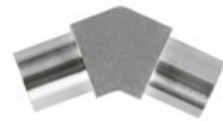
Reducing Elbow

Page 34



Extended 90° Union Elbow

Page 34



45° Union Elbow

Page 34



Union Tee

Page 35



Reducing Tee

Page 35



Extended Branch Leg Union Tee

Page 36



Extended Run Leg Union Tee

Page 36



Union Cross

Page 36



Tribow Tee

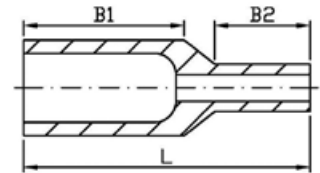
Page 36

Production Range Table

Type	Description		Materials		
			316	316L	VAR or VIM/VAR
KMC Fitting	RU	Reducing Union	X	O	
	UE	Union Elbow			
	RE	Reducing Elbow			
	HRE	45° Union Elbow			
	UT	Union Tee			
	RT	Reducing Tee			
	UC	Union Cross			
	TT	Tribow Tee			

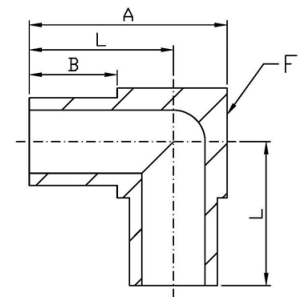
Reducing Union

Ordering	Swagelok	Size		L	B1	B2
-KMC-04-RD-2-	6LV-4MW-6-2	1/4	1/8	0.75 (19.0)	0.42 (10.7)	0.25 (6.4)
-KMC-06-RD-4-	6LV-6MW-6-4	3/8	1/4			
-KMC-08-RD-4-	6LV-8MW-6-4	1/2	1/4			
-KMC-08-RD-6-	6LV-8MW-6-6		3/8			
-KMC-12-RD-4-	-	3/4	1/4	0.75 (19.0)	0.42 (10.7)	0.25 (6.4)
-KMC-12-RD-6-	-		3/8			
-KMC-12-RD-8-	-		1/2			



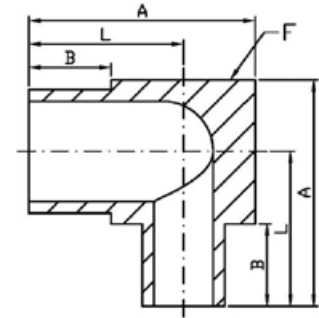
Union Elbow

Ordering	Swagelok	Size	A	B	F	L
-KMC-02-UE-FA	6LV-2MW-9	1/8	0.56 (14.2)	0.25 (6.4)	5/16	0.41 (10.4)
-KMC-04-UE-FA	6LV-4MW-9	1/4			7/16	0.47 (11.9)
-KMC-06-UE-FA	6LV-6MW-9	3/8	0.69 (17.5)			
-KMC-08-UE-FA	6LV-8MW-9	1/2	0.81 (20.6)		9/16	0.53 (13.5)
-KMC-12-UE-FA	-	3/4	1.06 (26.9)		13/16	0.66 (16.8)



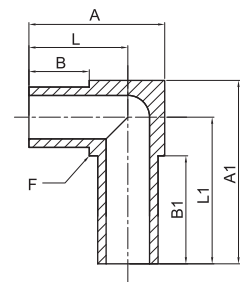
Reducing Elbow

Ordering	Size		A	B	F	L
-KMC-06-RU-4-	3/8	1/4	0.69 (17.5)	0.25 (6.4)	7/16	0.47 (11.9)
-KMC-08-RU-4-	1/2	1/4	0.81 (20.6)		9/16	0.53 (13.5)
-KMC-08-RU-6-		3/8				
-KMC-12-RU-4-	3/4	1/4	1.06 (26.9)		13/16	0.66 (16.8)
-KMC-12-RU-6-		3/8				
-KMC-12-RU-8-		1/2				



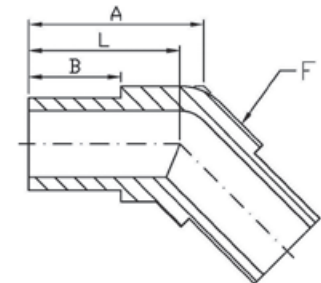
Extended 90° Union Elbow

Ordering	Swagelok	Size	A	A1	B	B1	F	L	L1
-KMC-04-RUL-A-	6LV-4MW-9-03442	1/4	0.56 (14.2)	0.76 (19.3)	0.25 (6.4)	0.45 (11.4)	5/16	0.41 (10.4)	0.61 (15.5)
-KMC-04-RUL-B-	6LV-4MW-9-03443			0.81 (20.6)		0.50 (12.7)			0.66 (16.8)
-KMC-04-RUL-C-	6LV-4MW-9-03444		0.76 (19.3)		0.45 (11.4)			0.61 (15.5)	
-KMC-04-RUL-D-	6LV-4MW-9-03445		0.81 (20.6)		0.50 (12.7)			0.66 (16.8)	



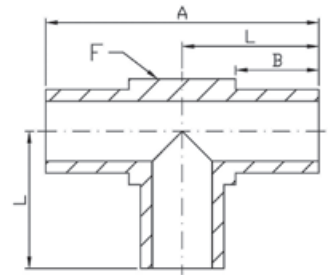
45° Union Elbow

Ordering	Swagelok	Size	A	B	F	L
-KMC-04-HUE-	6LV-4MW-5	1/4	0.47 (11.9)	0.25 (6.4)	5/16	0.41 (10.4)
-KMC-06-HUE-	6LV-6MW-5	3/8	0.56 (14.2)		7/16	0.47 (11.9)
-KMC-08-HUE-	6LV-8MW-5	1/2	0.64 (16.3)		9/16	0.53 (13.5)
-KMC-12-HUE-	-	3/4	0.83 (21.1)		13/16	0.66 (16.8)



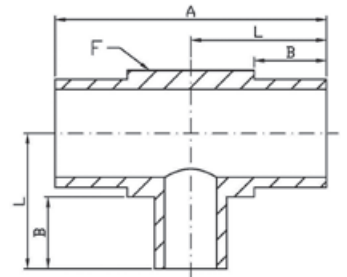
Union Tee

Ordering	Swagelok	Size	A	B	F	L
-KMC-02-UT-	6LV-2MW-3	1/8	0.82 (20.8)	0.25 (6.4)	5/16	0.41 (10.4)
-KMC-04-UT-	6LV-4MW-3	1/4	0.82 (20.8)		5/16	0.41 (10.4)
-KMC-06-UT-	6LV-6MW-3	3/8	0.94 (23.9)		7/16	0.47 (11.9)
-KMC-08-UT-	6LV-8MW-3	1/2	1.06 (26.9)		9/16	0.53 (13.5)
-KMC-12-UT-	-	3/4	1.31 (33.3)		13/16	0.66 (16.8)



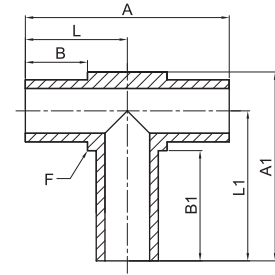
Reducing Tee

Ordering	Swagelok	Size		A	B	F	L
-KMC-06-RT-04	6LV-6MW-3-6-4	3/8	1/4	0.94 (23.9)	0.25 (6.4)	7/16	0.47 (11.9)
-KMC-08-RT-04	6LV-8MW-3-8-4	1/2	1/4	1.06 (26.9)	0.25 (6.4)	9/16	0.53 (13.5)
-KMC-08-RT-06	6LV-8MW-3-8-6		3/8				
-KMC-12-RT-04	-	3/4	1/4	1.31 (33.3)		13/16	0.66 (16.8)
-KMC-12-RT-06	-		3/8				
-KMC-12-RT-08	-		1/2				



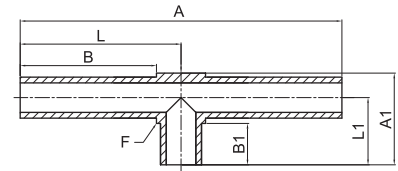
Extended Branch Leg Union Tee

Ordering	Size	A	A1	B	B1	F	L	L1
-KMC-04-UTBL-	1/4	0.82 (20.8)	0.76 (19.3)	0.25 (6.4)	0.45 (11.4)	5/16	0.41 (10.4)	0.61 (15.5)



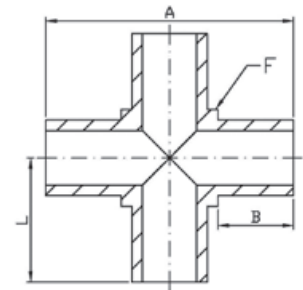
Extended Run Leg Union Tee

Ordering	Size	A	A1	B	B1	F	L	L1
-KMC-04-UTRL-	1/4	1.96 (49.8)	0.56 (14.2)	0.83 (21.1)	0.25 (6.4)	5/16	0.98 (24.9)	0.41 (10.4)



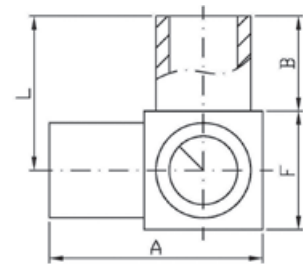
Union Cross

Ordering	Swagelok	Size	A	B	F	L
-KMC-02-UC-	6LV-2MW-4	1/8	0.82 (20.8)	0.25 (6.4)	5/16	0.41 (10.4)
-KMC-04-UC-	6LV-4MW-4	1/4	0.82 (20.8)		5/16	0.41 (10.4)
-KMC-06-UC-	6LV-6MW-4	3/8	0.94 (23.9)		7/16	0.47 (11.9)
-KMC-08-UC-	6LV-8MW-4	1/2	1.06 (26.9)		9/16	0.53 (13.5)
-KMC-12-UC-	-	3/4	1.31 (33.3)		13/16	0.66 (16.8)



Tribow Tee

Ordering	Swagelok	Size	A	B	F	L
-KMC-04-TT-	6LV-4MW-91	1/4	0.56 (14.2)	0.25 (6.4)	5/16	0.41 (10.4)
-KMC-06-TT-	6LV-6MW-91	3/8	0.69 (17.5)		7/16	0.47 (11.9)
-KMC-08-TT-	6LV-8MW-91	1/2	0.81 (20.6)		9/16	0.53 (13.5)



KMC Fitting

6VV - KMC - 04 - UT - 2 - FA

Materials		Series	Size (A)		Type		Size (B)		Grade			
6L	316L	KMC	02	1/8"	RD	Reducer Union	02	1/8"	FA	EP: Ra ≤ 5µin (0.13µm)		
6VV	316L VIM / VAR		04	1/4"	UE	90o Union Elbow	04	1/4"	BA	Ra ≤ 20µin (5µm)		
			06	3/8"	UEE	90o Union Elbow Extended	06	3/8"				
			08	1/2"	RU	90o Reducing Elbow	1/2"	08				
			12	3/4"	TT	Tribow Tee	3/4"	12				
							HUE	45o Union Elbow				
							UT	Union Tee				
							RT	Reducing Tee				
BET	Branch Extended Tee											
RET	Run Extended Tee											
				UC	Union Cross							

KLC

Series

KLC Long Weld Fitting



90° Elbow

Page 40



Reducing 90° Elbow

Page 40



Tee

Page 41



R-Tee

Page 41



Cross

Page 42



Reduce

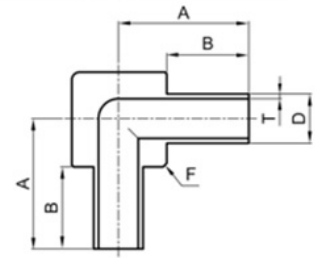
Page 42

Production Range Table

Type	Description		Materials
KLC Fitting	UE	Elbow	316L
	RUE	R-Elbow	
	UT	Tee	
	RUT	R-Tee	
	UC	Cross	
	RD	Reducer	

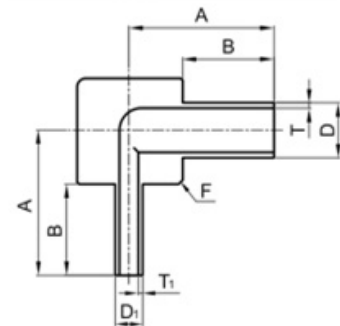
90° Elbow

Ordering	Swagelok	Size	D	T	A	B	F
6L-KLC-04-UE-	316L-4TB7-9	1/4"	6.35	0.89	25	19.05	7/16
6L-KLC-06-UE-	316L-6TB7-9	3/8"	9.53	0.89			
6L-KLC-08-UE-	316L-8TB7-9	1/2"	12.70	1.24	29		11/16
6L-KLC-12-UE-	316L-12TB7-9	3/4"	19.05	1.24	31.5		15/16
6L-KLC-16-UE-	316L-16TB7-9	1"	25.4	1.65	36		1-3/16



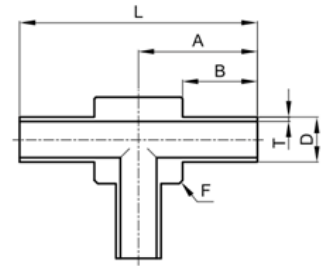
Reducing 90° Elbow

Ordering	Swagelok	Size	D	D1	T	T1	B	A	F
6L-KLC-06-RUE-04-	--	3/8" x 1/4"	9.53	6.35	0.89	0.89	19.05	25	7/16
6L-KLC-08-RUE-04-	--	1/2" x 1/4"	12.70						29
6L-KLC-08-RUE-06-	--	1/2" x 3/8"		9.53					
6L-KLC-12-RUE-04-	--	3/4" x 1/4"	19.05	6.35	1.24	1.24		31.5	15/16
6L-KLC-12-RUE-06-	--	3/4" x 3/8"		9.53					
6L-KLC-12-RUE-08-	--	3/4" x 1/2"		12.7					
6L-KLC-16-RUE-04-	--	1" x 1/4"	25.4	6.35	1.65	0.89	36	1-3/16	
6L-KLC-16-RUE-06-	--	1" x 3/8"		9.53					
6L-KLC-16-RUE-08-	--	1" x 1/2"		12.7		1.24			
6L-KLC-16-RUE-12-	--	1" x 3/4"		19.05		1.24			



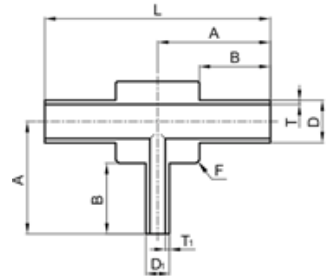
Tee

Ordering	Swagelok	Size	D	T	L	B	F	A
6L-KLC-04-UT-	316L-4TB7-3	1/4"	6.35	0.89	50	19.05	7/16	25
6L-KLC-06-UT-	316L-6TB7-3	3/8"	9.53	0.89				
6L-KLC-08-UT-	316L-8TB7-3	1/2"	12.70	1.24	58		11/16	29
6L-KLC-12-UT-	316L-12TB7-3	3/4"	19.05	1.24	63		15/16	31.5
6L-KLC-16-UT-	316L-16TB7-3	1"	25.4	1.65	72		1-3/16	36



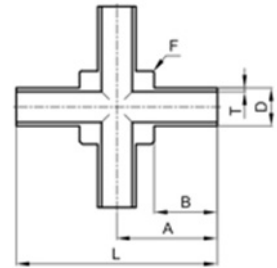
R-Tee

Ordering	Swagelok	Size	D	D1	T	T1	B	F	A	L
6L-KLC-06-RUT-04-	316L-6TB7-3-6-4	3/8" x 1/4"	9.53	6.35	0.89	0.89	19.05	7/16	25	50
6L-KLC-08-RUT-04-	316L-8TB7-3-8-4	1/2" x 1/4"	12.70		1.24			11/16	29	58
6L-KLC-08-RUT-06-	316L-8TB7-3-8-6	1/2" x 3/8"		9.53						
6L-KLC-12-RUT-04-	316L-12TB7-3-12-4	3/4" x 1/4"	19.05	6.35	1.24	15/16		31.5	63	
6L-KLC-12-RUT-06-	316L-12TB7-3-12-6	3/4" x 3/8"		9.53						
6L-KLC-12-RUT-08-	316L-12TB7-3-12-8	3/4" x 1/2"		12.7						
6L-KLC-16-RUT-04-	316L-16TB7-3-16-4	1" x 1/4"	25.4	6.35	1.65	0.89		1-3/16	36	72
6L-KLC-16-RUT-06-	316L-16TB7-3-16-6	1" x 3/8"		9.53						
6L-KLC-16-RUT-08-	316L-16TB7-3-16-8	1" x 1/2"		12.7						
6L-KLC-16-RUT-12-	316L-16TB7-3-16-12	1" x 3/4"		19.05	1.24					



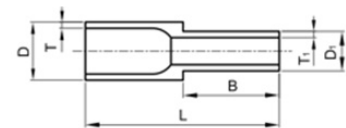
Cross

Ordering	Swagelok	Size	D	T	L	B	F	A
6L-KLC-04-UC-	316L-4TB7-4	1/4"	6.35	0.89	50	19.05	7/16	25
6L-KLC-06-UC-	316L-6TB7-4	3/8"	9.53	0.89			11/16	29
6L-KLC-08-UC-	316L-8TB7-4	1/2"	12.70	1.24	58		15/16	31.5
6L-KLC-12-UC-	316L-12TB7-4	3/4"	19.05	1.24	63		1-3/16	36
6L-KLC-16-UC-	316L-16TB7-4	1"	25.4	1.65	72			



Reduce

Ordering	Swagelok	Size	D	D1	T	T1	B	L	
6L-KLC-06-RD-04-	316L-6TB7-6-4	3/8" x 1/4"	9.53	6.35	0.89	0.89	19.05	38.1	
6L-KLC-08-RD-04-	316L-8TB7-6-4	1/2" x 1/4"	12.70		9.53				
6L-KLC-08-RD-06-	316L-8TB7-6-6	1/2" x 3/8"							
6L-KLC-12-RD-04-	316L-12TB7-6-4	3/4" x 1/4"	19.05	6.35	1.24				
6L-KLC-12-RD-06-	316L-12TB7-6-6	3/4" x 3/8"		9.53					
6L-KLC-12-RD-08-	316L-12TB7-6-8	3/4" x 1/2"		12.7	1.24				
6L-KLC-16-RD-04-	316L-16TB7-6-4	1" x 1/4"	25.4	6.35	1.65	0.89			
6L-KLC-16-RD-06-	316L-16TB7-6-6	1" x 3/8"		9.53					
6L-KLC-16-RD-08-	316L-16TB7-6-8	1" x 1/2"		12.7		1.24			
6L-KLC-16-RD-12-	316L-16TB7-6-12	1" x 3/4"		19.05		1.24			



KLC Fitting

6L - KLC - 04 - UT - 04 - FB

Materials		Series	Size		Type		Size		Grade	
6L	316L	KLC	04	1/4"	UE	Elbow	04	1/4"	FB	EP: Ra: 0.25 µm (10 µin)
			06	3/8"	RUE	R-Elbow	06	3/8"	BA	Ra: 0.4 µm (20 µin)
			08	1/2"	UT	Tee	08	1/2"		
			12	3/4"	RUT	R-Tee	12	3/4"		
			16	1"	UC	Cross	16	1"		
					RD	Reducer				

[illegible]

[illegible]

NanoPure

Lion Hygienic Materials Co., Ltd

No.22 Lufeng west road, Kunshan,
Jiangsu, P. R. China

Tel: 86-512-5767 1815

Fax: 86-512-5787 1472

Email: info@lion-kl.com

www.kl-nanopure.com

