

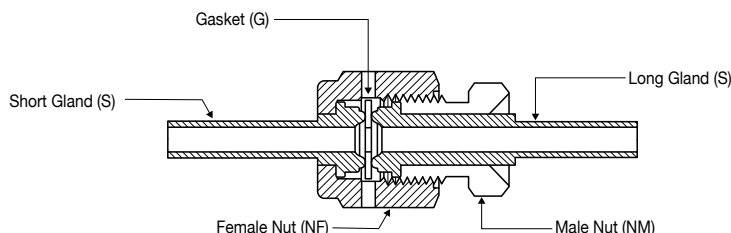
CVC

Clean Vacuum Coupling

Mechanical Metal Gasket
Surface Seal Coupling

KITZ SCT's CVC fittings are fittings with mechanical metal gasket sealing surface. KITZ SCT's unique electropolishing and cleaning, testing, and packaging are done in a clean room. This make them suitable for use in UHP applications.


●The CVC fittings have the following component parts and features.



(1) Female Nut (NF) (2) Gland (S) (3) Gasket (G) (2) Gland (S) (4) Male Nut (MN)

- (1) Female nut (NF): The female threading is silverplated to prevent galling and seizing for reliable tightening.
In addition, the leak test ports (two locations) are positioned above the gasket line for easy verification of gasket installation and leak testing.
- (2) Gland (S): Finished to a smooth inner surface by KITZ SCT's unique surface finish techniques including electropolishing.
- (3) Gasket (G): A standard nickel gasket provides excellent seal with the sleeve from tightening.
- (4) Male nut (NM): The use of rolled threading gives the male nuts strength and enables reliable connections.

■ Product Code Table

Model	Size	Type of Product	Sleeve Dimensions	Space	Grade + Material	
CVC	4	S	28		STD 316L	
CVC Metal Gasket Surface Seal Fittings	2	1/8"	1/8"	12	316	Unpolished + SUS316
	4	1/4"	1/4"	22	STD 316	Mechanical Polished Finish + SUS316
	6	3/8"	3/8"	27	STD 316L	Mechanical Polished Finish + SUS316L
	8	1/2"	1/2"	15	EP 316	Electro Polished Finish + SUS316L
	12	3/4"	3/4"	28	EP 316L	Electro Polished Finish + SUS316L
Gland	S	Gland	3/8"	31	SEP 316LE	Electro Polished Finish + SUS316L (Double Melt Material)
	SB	Blind Gland	1/2"	28		
	□S	Reducing Gland	1/2"	45		
	NF	Female Nut	3/4"	16		
	NM	Male Nut	3/4"	28		
Nut	NSM	Male Short Nut		45		
	NFH	Female Nut (High-flow)		16		
	NMH	Male Nut (High-flow)		28		
	NBF	Female Blind Nut		45		
	NBM	Male Blind Nut		52		
Gasket	G	Gasket				
	RG	Retainer Gasket				
	BG	Blind Gasket				
Union	UM	Male Union				
	UB	Bulkhead Union				
	UBS	Bulkhead Union (Tube End)				
	UF	Female Union				
	UE	Union Elbow				
	UT	Union Tee				
	UC	Union Cross				
	Double Union	USFW	Double Female Union			
UEFW	Doubled Female Union Elbow					
UTFW	Double Female Union Tee					
UCFW	Double Female Union Cross					
USMW	Double Male Union					
UEMW	Double Male Union Elbow					
UTMW	Double Male Union Tee					
UCMW	Double Male Union Cross					
Manifold	ME	Manifold Elbow				
	MT	Manifold Tee				

Gasket only

NI	Electro Polished Finish + Pure nickel
316LE	Electro Polished Finish + SUS316L (Double Melt Material)

*Gasket of 316LE:1/4",1/2" are available
Note: There is a space between the grade and the material.

Gasket only	
NI	Electro Polished Finish + Pure nickel
316LE	Electro Polished Finish + SUS316LE (Double Melt Material)

*Gasket of 316LE:1/4", 1/2" are available
Note: There is a space between the grade and the material.

Product Grade

Grade	STD	EP	SEP
Material	SUS316, SUS316L, SUS316LE (Double melt material)		
Surface Roughness	≤ Rz 3.2 μm	≤ Rz 0.7 μm	
Polish	Mechanical Polished	Electro Polished	
Cleaning	Degreasing + Precision cleaning		
Clean Room Enviroment	Class10		
Packaging *1	Single bagged package	Double bagged package	

*1 All gaskets are single bagged package.

*Max.temperature and pressure may be referred to the table and graph below.

Production Range Table

			SUS316			SUS316L		SUS316LE	NI
			Un-polished	STD	EP	STD	EP	SEP	EP
Gland	S	Gland	×	×	×	○	○	○	×
	SB	Blind Gland							
	□S	Reducing Gland							
Nut	NF	Female Nut	○	×	×	×	×	×	×
	NM	Male Nut							
	NSM	Male Short Nut							
	NFH	Female Nut (High-flow)							
	NMH	Male Nut (High-flow)							
	NBF	Female Blind Nut							
	NBM	Male Blind Nut							
Gasket	G	Gasket	×	×	×	×	×	○	○
	RG	Retainer Gasket							
	BG	Blind Gasket							
Union	UM	Male Union	×	○	○	Optional	Optional	×	×
	UF	Female Union	○	×	×	×	×	×	×
	UB	Bulkhead Union	×	○	Optional	×	×	×	×
	UBS	Bulkhead Union (Tube End)	×	×	×	○	○	Optional	×
	UE	Union Elbow	×	×	×	○	○	○	×
	UT	Union Tee							
	UC	Union Cross							
Double union	USFW	Double Female Union	×	×	×	○	○	○	×
	UEFW	Doubled Female Union Elbow							
	UTFW	Double Female Union Tee							
	UCFW	Double Female Union Cross							
	USMW	Double Male Union							
	UEMW	Double Male Union Elbow							
	UTMW	Double Male Union Tee							
	UCMW	Double Male Union Cross							
Manifold	ME	Manifold Elbow	×	×	×	○	○	○	×
	MT	Manifold Tee							

Note: Polish designator for the nuts, female unions, and gaskets are omitted from the model number for simplification purpose.

*Gasket of 316LE:1/4",1/2" are available

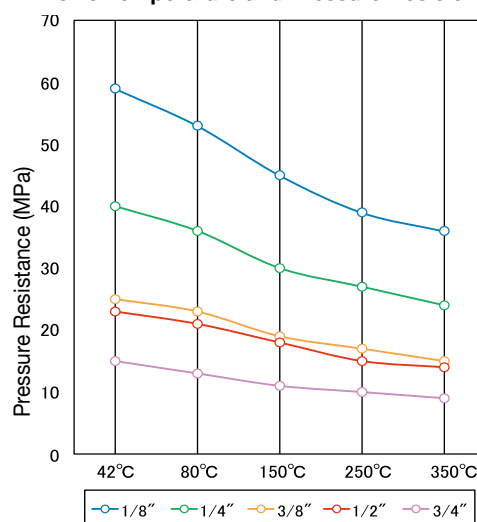
Temperature and Pressure Resistance

Sleeve Size			Maximum Operating Pressure (MPa)				
Size	Outer Diameter	Thickness	42°C	80°C	150°C	250°C	350°C
1/8"	3.18	0.7	59	53	45	39	36
1/4"	6.35	1	40	36	30	27	24
3/8"	9.53	1	25	23	19	17	15
1/2"	12.7	1.24	23	21	18	15	14
3/4"	19.05	1.24	15	13	11	10	9


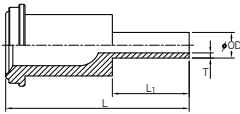
[note] 1.Max Pressure in the table are calculated by each wall thickness.


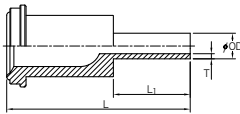
2.Temperature above 300°C, durability for re-assembly tend to decrease.


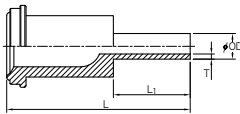
CVC Temperature and Pressure Resistance


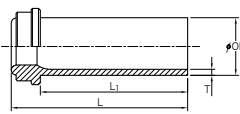



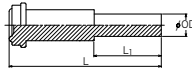
Unit: inch (mm)


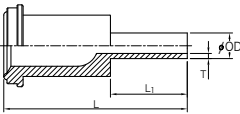
CVC Gland, for use with Female Nut		Type	Size	OD	T	L	L ₁
 		CVC2-S12	1/8"	0.125 (3.18)	0.028 (0.70)	0.480 (12.20)	0.276 (7.00)
		CVC4-S15	1/4"	0.250 (6.35)	0.039 (1.00)	0.598 (15.20)	0.250 (6.35)
		CVC6-S16	3/8"	0.375 (9.53)	0.039 (1.00)	0.650 (16.50)	0.323 (8.20)
		CVC8-S16	1/2"	0.500 (12.70)	0.049 (1.24)	0.650 (16.50)	0.323 (8.20)


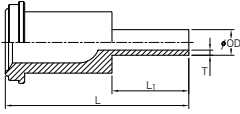
CVC Gland, for use with Female Nut		Type	Size	OD	T	L	L ₁
 		CVC2-S27	1/8"	0.125 (3.18)	0.028 (0.70)	1.079 (27.40)	0.750 (19.05)
		CVC4-S28	1/4"	0.250 (6.35)	0.039 (1.00)	1.098 (27.90)	0.750 (19.05)
		CVC6-S28	3/8"	0.375 (9.53)	0.039 (1.00)	1.122 (28.50)	0.750 (19.05)
		CVC8-S28	1/2"	0.500 (12.70)	0.049 (1.24)	1.122 (28.50)	0.750 (19.05)


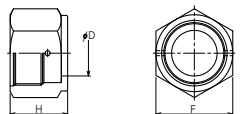
CVC Gland, for use with Male Nut		Type	Size	OD	T	L	L ₁
 		CVC2-S22	1/8"	0.125 (3.18)	0.028 (0.70)	0.866 (22.00)	0.276 (7.00)
		CVC4-S31	1/4"	0.250 (6.35)	0.039 (1.00)	1.220 (31.00)	0.750 (19.05)
		CVC4-S43	1/4"	0.250 (6.35)	0.039 (1.00)	1.701 (43.20)	0.750 (19.05)
		CVC6-S45	3/8"	0.375 (9.53)	0.039 (1.00)	1.791 (45.50)	0.750 (19.05)
		CVC8-S45	1/2"	0.500 (12.70)	0.049 (1.24)	1.791 (45.50)	0.750 (19.05)
		CVC12-S52	3/4"	0.750 (19.05)	0.049 (1.24)	2.031 (51.60)	0.750 (19.05)


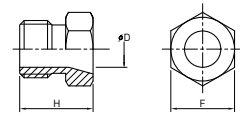
CVC Reducing Gland, High Flow Type		Type	Size	OD	T	L	L ₁
 		CVC4-6S15	1/4"×3/8"	0.375 (9.53)	0.039 (1.00)	0.610 (15.50)	0.421 (10.70)
		CVC4-6S28	1/4"×3/8"	0.375 (9.53)	0.039 (1.00)	1.130 (28.70)	0.941 (23.90)
		CVC4-6S31	1/4"×3/8"	0.375 (9.53)	0.039 (1.00)	1.220 (31.00)	1.031 (26.20)
		CVC4-6S43	1/4"×3/8"	0.375 (9.53)	0.039 (1.00)	1.701 (43.20)	1.512 (38.40)


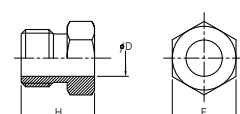
CVC Blind Gland		Type	Size	OD	L	L ₁
 		CVC2-SB22	1/8"	0.125 (3.18)	0.866 (22.00)	0.276 (7.00)
		CVC4-SB28	1/4"	0.250 (6.35)	1.098 (27.90)	0.750 (19.05)
		CVC4-SB43	1/4"	0.250 (6.35)	1.701 (43.20)	0.750 (19.05)
		CVC8-SB45	1/2"(3/8")	0.500 (12.70)	1.791 (45.50)	0.750 (19.05)

CVC Reducing Gland, for use with Female Nut		Type	Size	OD	T	L	L ₁
		CVC4-2S15	1/4"×1/8"	0.125 (3.18)	0.028 (0.70)	0.598 (15.20)	0.250 (6.35)
		CVC4-2S28	1/4"×1/8"	0.125 (3.18)	0.028 (0.70)	1.098 (27.90)	0.628 (15.95)
		CVC4-2S31	1/4"×1/8"	0.125 (3.18)	0.028 (0.70)	1.220 (31.00)	0.750 (19.05)
		CVC8-4S16	1/2"×1/4"	0.250 (6.35)	0.039 (1.00)	0.650 (16.50)	0.250 (6.35)
		CVC8-4S28	1/2"×1/4"	0.250 (6.35)	0.039 (1.00)	1.122 (28.50)	0.750 (19.05)


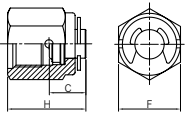
CVC Reducing Gland, for use with Male Nut		Type	Size	OD	T	L	L ₁
		CVC4-2S43	1/4"×1/8"	0.125 (3.18)	0.028 (0.70)	1.701 (43.20)	0.750 (19.05)
		CVC8-4S45	1/2"×1/4"	0.250 (6.35)	0.039 (1.00)	1.791 (45.50)	0.750 (19.05)


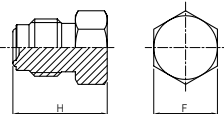
CVC Female Nut		Type	Size	D	H	F 2 surface width
		CVC2-NF	1/8"	0.213 (5.40)	0.531 (13.50)	0.433 (11.00)
		CVC4-NF	1/4"	0.362 (9.20)	0.815 (20.70)	0.748 (19.00)
		CVC4-NF-H	1/4"	0.382 (9.70)	0.815 (20.70)	0.748 (19.00)
		CVC8-NF	1/2" (3/8")	0.610 (15.50)	0.882 (22.40)	1.063 (27.00)
		CVC12-NF	3/4"	0.890 (22.60)	1.122 (28.50)	1.500 (38.10)


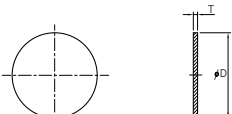
CVC Male Nut		Type	Size	D	H	F 2 surface width
		CVC2-NM	1/8"	0.213 (5.40)	0.500 (12.70)	0.374 (9.50)
		CVC4-NM	1/4"	0.362 (9.20)	0.717 (18.20)	0.622 (15.80)
		CVC4-NM-H	1/4"	0.382 (9.70)	0.717 (18.20)	0.622 (15.80)
		CVC8-NM	1/2" (3/8")	0.610 (15.50)	0.811 (20.60)	0.937 (23.80)
		CVC12-NM	3/4"	0.890 (22.60)	1.000 (25.40)	1.315 (33.40)

CVC Male Short Nut		Type	Size	D	H	F 2 surface width
		CVC4-NSM	1/4"	0.362 (9.20)	0.591 (15.00)	0.622 (15.80)
		CVC8-NSM	1/2" (3/8")	0.610 (15.50)	0.657 (16.70)	0.937 (23.80)


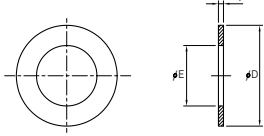
Unit: inch (mm)


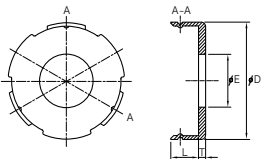
CVC Female Blind Nut		Type	Size	C	H	F 2 surface width
		CVC2-NBF	1/8"	0.315 (8.00)	0.638 (16.20)	0.433 (11.00)
		CVC4-NBF	1/4"	0.441 (11.20)	0.941 (23.90)	0.748 (19.00)
		CVC8-NBF	1/2" (3/8")	0.449 (11.40)	1.012 (25.70)	1.063 (27.00)
		CVC12-NBF	3/4"	0.528 (13.40)	1.276 (32.40)	1.500 (38.10)


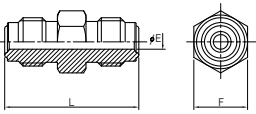
CVC Male Blind Nut		Type	Size	H	F 2 surface width
		CVC2-NBM	1/8"	0.618 (15.70)	0.374 (9.50)
		CVC4-NBM	1/4"	0.921 (23.40)	0.622 (15.80)
		CVC8-NBM	1/2" (3/8")	1.079 (27.40)	0.937 (23.80)
		CVC12-NBM	3/4"	1.429 (36.30)	1.315 (33.40)


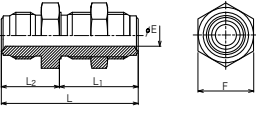
CVC Blind Gasket		Type	Size	T	D
		CVC2-BG	1/8"	0.020 (0.50)	0.250 (6.35)
		CVC4-BG	1/4"	0.031 (0.80)	0.469 (11.90)
		CVC8-BG	1/2" (3/8")	0.031 (0.80)	0.780 (19.80)
		CVC12-BG	3/4"	0.031 (0.80)	1.134 (28.80)


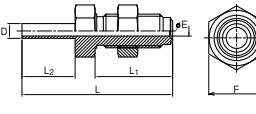
※ Orifice gaskets of each size can be manufactured. For further inquiries, please consult your local sales representative.


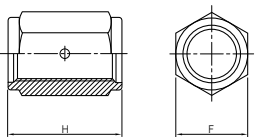
CVC Gasket		Type	Size	E	T	D
		CVC2-G	1/8"	0.091 (2.30)	0.020 (0.50)	0.250 (6.35)
		CVC4-G	1/4"	0.220 (5.60)	0.031 (0.80)	0.469 (11.90)
		CVC8-G	1/2" (3/8")	0.441 (11.20)	0.031 (0.80)	0.780 (19.80)
		CVC12-G	3/4"	0.669 (17.00)	0.031 (0.80)	1.134 (28.80)


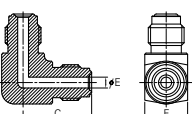
CVC Retainer Gasket		Type	Size	E	T	L	D
		CVC4-RG-NI	1/4"	0.240 (6.10)	0.031 (0.80)	0.118 (3.00)	0.488 (12.40)
		CVC4-RG-LE		0.220 (5.60)	0.031 (0.80)	0.118 (3.00)	0.488 (12.40)
		CVC8-RG-NI	1/2"	0.453 (11.50)	0.031 (0.80)	0.118 (3.00)	0.780 (19.80)
		CVC8-RG-LE		0.453 (11.50)	0.031 (0.80)	0.118 (3.00)	0.780 (19.80)

CVC Male Union		Type	Size	E	L	F 2surfacewidth
		CVC2-UM	1/8"	0.071 (1.80)	1.130 (28.70)	0.374 (9.50)
		CVC4-UM	1/4"	0.169 (4.30)	1.551 (39.40)	0.622 (15.80)
		CVC8-UM	1/2" (3/8")	0.402 (10.20)	1.839 (46.70)	0.937 (23.80)


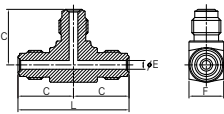
CVC Bulkhead Union		Type	Size	E	L	L ₁	L ₂	F2 surfacewidth	Panel hole diameter	Panel thickness (Max)
		CVC2-UB	1/8"	0.071 (1.80)	1.693 (43.00)	1.004 (25.50)	0.689 (17.50)	0.433 (11.00)	0.354 (9.00)	0.236 (6.00)
		CVC4-UB	1/4"	0.169 (4.30)	2.228 (56.60)	1.299 (33.00)	0.929 (23.60)	0.748 (19.00)	0.579 (14.70)	0.433 (11.00)
		CVC8-UB	1/2" (3/8")	0.402 (10.20)	2.571 (65.30)	1.480 (37.60)	1.091 (27.70)	1.063 (27.00)	0.890 (22.60)	0.866 (22.00)


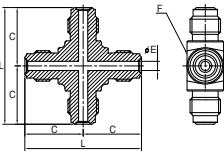
CVC Bulkhead Union (Tube End)		Type	Size	OD	E	L	L ₁	L ₂	F2 surfacewidth	Panel hole diameter	Panel thickness (Max)
		CVC4-UBS28	1/4"	0.250 (6.35)	0.169 (4.30)	2.358 (59.90)	1.299 (33.00)	0.750 (19.05)	0.748 (19.00)	0.579 (14.70)	0.433 (11.00)
		CVC6-UBS28	3/8"	0.375 (9.53)	0.295 (7.50)	2.571 (65.30)	1.480 (37.60)	0.750 (19.05)	1.063 (27.00)	0.890 (22.60)	0.866 (22.00)
		CVC8-UBS28	1/2" (3/8")	0.500 (12.70)	0.402 (10.20)	2.571 (65.30)	1.480 (37.60)	0.750 (19.05)	1.063 (27.00)	0.890 (22.60)	0.866 (22.00)


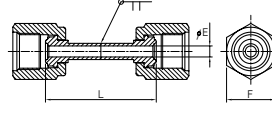
CVC Female Union		Type	Size	H	F 2surfacewidth
		CVC2-UF	1/8"	0.661 (16.80)	0.433 (11.00)
		CVC4-UF	1/4"	1.189 (30.20)	0.748 (19.00)
		CVC8-UF	1/2" (3/8")	1.311 (33.30)	1.063 (27.00)


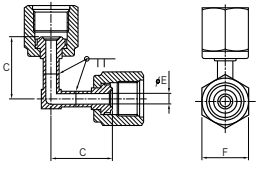
CVC Union Elbow		Type	Size	E	C	F 2surfacewidth
		CVC2-UE	1/8"	0.071 (1.80)	0.890 (22.60)	0.433 (11.00)
		CVC4-UE	1/4"	0.171 (4.35)	1.071 (27.20)	0.669 (17.00)
		CVC8-UE	1/2" (3/8")	0.402 (10.22)	1.449 (36.80)	0.984 (25.00)


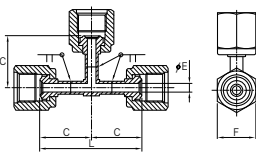
Unit: inch (mm)


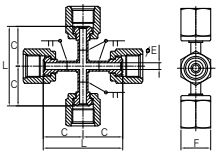
CVC Union Tee	Type	Size	E	L	C	F 2 surface width
 	CVC2-UT	1/8"	0.071 (1.80)	1.780 (45.20)	0.890 (22.60)	0.433 (11.00)
	CVC4-UT	1/4"	0.171 (4.35)	2.142 (54.40)	1.071 (27.20)	0.669 (17.00)
	CVC8-UT	1/2" (3/8")	0.402 (10.22)	2.898 (73.60)	1.449 (36.80)	0.984 (25.00)


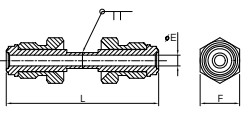
CVC Double Union Cross	Type	Size	E	L	C	F 2 surface width
 	CVC2-UC	1/8"	0.071 (1.80)	1.780 (45.20)	0.890 (22.60)	0.433 (11.00)
	CVC4-UC	1/4"	0.171 (4.35)	2.142 (54.40)	1.071 (27.20)	0.669 (17.00)
	CVC8-UC	1/2" (3/8")	0.402 (10.22)	2.898 (73.60)	1.449 (36.80)	0.984 (25.00)


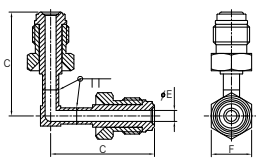
CVC Double Female Union	Type	Size	E	L	F 2 surface width
 	CVC2-USFW	1/8"	0.071 (1.80)	1.142 (29.00)	0.433 (11.00)
	CVC4-USFW	1/4"	0.171 (4.35)	1.709 (43.40)	0.748 (19.00)
	CVC8-USFW	1/2" (3/8")	0.402 (10.20)	1.850 (47.00)	1.063 (27.00)


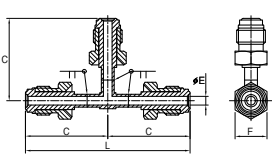
CVC Double Female Union Elbow	Type	Size	E	C	F 2 surface width
 	CVC2-UEFW	1/8"	0.071 (1.80)	0.886 (22.50)	0.433 (11.00)
	CVC4-UEFW	1/4"	0.171 (4.35)	1.000 (25.40)	0.748 (19.00)
	CVC8-UEFW	1/2" (3/8")	0.402 (10.20)	1.173 (29.80)	1.063 (27.00)


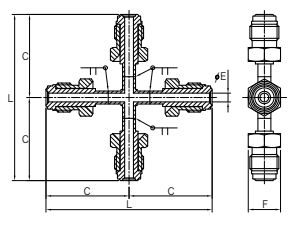
CVC Double Female Union Tee	Type	Size	E	L	C	F 2 surface width
 	CVC2-UTFW	1/8"	0.071 (1.80)	1.772 (45.00)	0.886 (22.50)	0.433 (11.00)
	CVC4-UTFW	1/4"	0.171 (4.35)	2.000 (50.80)	1.000 (25.40)	0.748 (19.00)
	CVC8-UTFW	1/2" (3/8")	0.402 (10.20)	2.346 (59.60)	1.173 (29.80)	1.063 (27.00)

CVC Double Female Union Cross	Type	Size	E	L	C	F 2 surface width
 	CVC2-UCFW	1/8"	0.071 (1.80)	1.772 (45.00)	0.886 (22.50)	0.433 (11.00)
	CVC4-UCFW	1/4"	0.171 (4.35)	2.000 (50.80)	1.000 (25.40)	0.748 (19.00)
	CVC8-UCFW	1/2" (3/8")	0.402 (10.20)	2.346 (59.60)	1.173 (29.80)	1.063 (27.00)


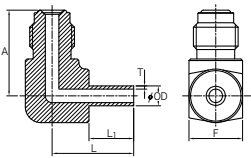
CVC Double Male Union	Type	Size	E	L	F 2 surface width
 	CVC2-USMW	1/8"	0.071 (1.80)	1.732 (44.00)	0.374 (9.50)
	CVC4-USMW	1/4"	0.171 (4.35)	2.402 (61.00)	0.622 (15.80)
	CVC8-USMW	1/2" (3/8")	0.402 (10.20)	2.520 (64.00)	0.937 (23.80)


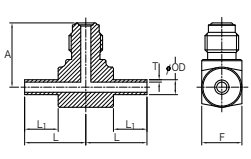
CVC Double Male Union Elbow	Type	Size	E	C	F 2 surface width
 	CVC2-UEMW	1/8"	0.071 (1.80)	1.274 (32.35)	0.374 (9.50)
	CVC4-UEMW	1/4"	0.171 (4.35)	1.600 (40.65)	0.622 (15.80)
	CVC8-UEMW	1/2" (3/8")	0.402 (10.20)	1.783 (45.30)	0.937 (23.80)

CVC Double Male Union Tee	Type	Size	E	L	C	F 2 surface width
 	CVC2-UTMW	1/8"	0.071 (1.80)	2.547 (64.70)	1.274 (32.35)	0.374 (9.50)
	CVC4-UTMW	1/4"	0.171 (4.35)	3.201 (81.30)	1.600 (40.65)	0.622 (15.80)
	CVC8-UTMW	1/2" (3/8")	0.402 (10.20)	3.567 (90.60)	1.783 (45.30)	0.937 (23.80)

CVC Double Male Union Cross	Type	Size	E	L	C	F 2 surface width
 	CVC2-UCMW	1/8"	0.071 (1.80)	2.547 (64.70)	1.274 (32.35)	0.374 (9.50)
	CVC4-UCMW	1/4"	0.171 (4.35)	3.201 (81.30)	1.600 (40.65)	0.622 (15.80)
	CVC8-UCMW	1/2" (3/8")	0.402 (10.20)	3.567 (90.60)	1.783 (45.30)	0.937 (23.80)

Unit: inch (mm)

CVC Manifold Elbow	Type	Size	OD	T	L	L ₁	A	F 2 surface width
 	CVC4-ME	1/4"	0.250 (6.35)	0.039 (1.00)	0.984 (25.00)	0.524 (13.30)	1.071 (27.20)	0.669 (17.00)

CVC Manifold Tee	Type	Size	OD	T	L	L ₁	A	F 2 surface width
 	CVC4-MT	1/4"	0.250 (6.35)	0.039 (1.00)	0.984 (25.00)	0.524 (13.30)	1.071 (27.20)	0.669 (17.00)