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Glas-Metall-Verbindungen





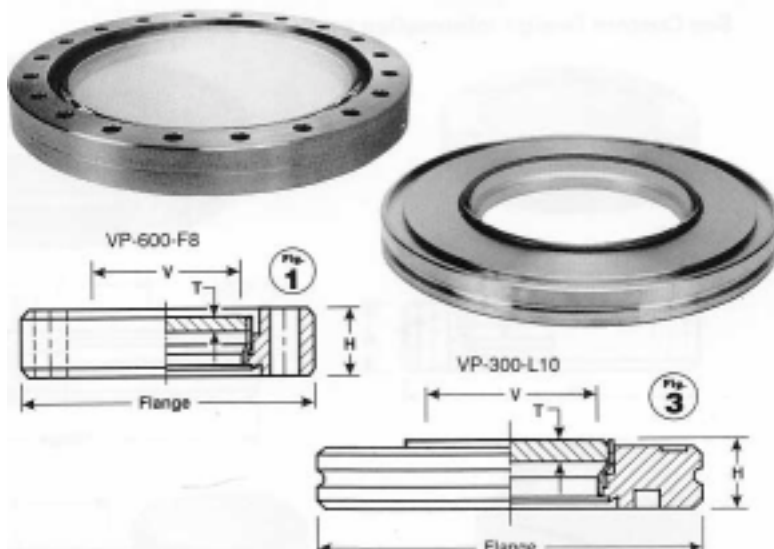
Glass-Viewports

Window Nom Size	Mounting	Ref	Flange O.D.	ISO No	Code	Model Number	Fig #	View V	Thick T	Height H
3/4"	• 3/4" O.D. Tube	T	-	-	-	-	-	-	-	-
	• CF Type 1-1/3" Flange	F1	1.33	-	111102	VP-075-F1	1	.62	.070	.285
	• Kwik-Flange K075	K1	1.18	NW16	111104	VP-075-K1	2	.62	.070	.363
	• Kwik-Flange K100	K2	1.57	NW25	111105	VP-075-K2	2	.62	.070	.470
	• Kwik-Flange K150	K4	2.16	NW40	111106	VP-075-K4	2	.62	.070	.500
1"	• 1" O.D. Tube	T	-	-	-	-	-	-	-	-
	• CF Type 2-3/4" Flange	F2	2.73	-	-	-	-	-	-	-
	• Kwik-Flange K100	K2	1.57	NW25	-	-	-	-	-	-
	• Kwik-Flange K150	K4	2.16	NW40	-	-	-	-	-	-
	• Kwik-Flange K200	K5	2.95	NW50	-	-	-	-	-	-
1-1/2"	• 1-1/2" O.D. Tube	T	-	-	-	-	-	-	-	-
	• CF Type 2-3/4" Flange	F2	2.73	-	111162	VP-150-F2	1	1.40	.105	.500
	• CF Type 3-3/8" Flange	F3	3.37	-	111163	VP-150-F3	1	1.40	.105	.625
	• Kwik-Flange K150	K4	2.16	NW40	-	-	-	-	-	-
	• Kwik-Flange K200	K5	2.95	NW50	111166	VP-150-K5	2	1.40	.105	.500
	• Large-Flange L250	L6	3.74	NW63	111167	VP-150-L6	3	1.40	.105	.730
	• Large-Flange L300	L8	4.33	NW80	111168	VP-150-L8	3	1.40	.105	.730
2"	• 2" O.D. Tube	T	-	-	-	-	-	-	-	-
	• CF Type 3-3/8" Flange	F3	3.37	-	111192*	VP-200-F3	1	1.40*	.105	.625
	• Kwik-Flange K200	K5	2.95	NW50	111194*	VP-200-K5	2	1.40*	.105	.500
	• Large-Flange L250	L6	3.74	NW63	111195*	VP-200-L6	3	1.40*	.105	.730
	• Large-Flange L300	L8	4.33	NW80	111196*	VP-200-L8	3	1.40*	.105	.730



Weitere Versionen in KOVAR und SS und Version 4,5,6 auf Anfrage.

Glass-Viewports

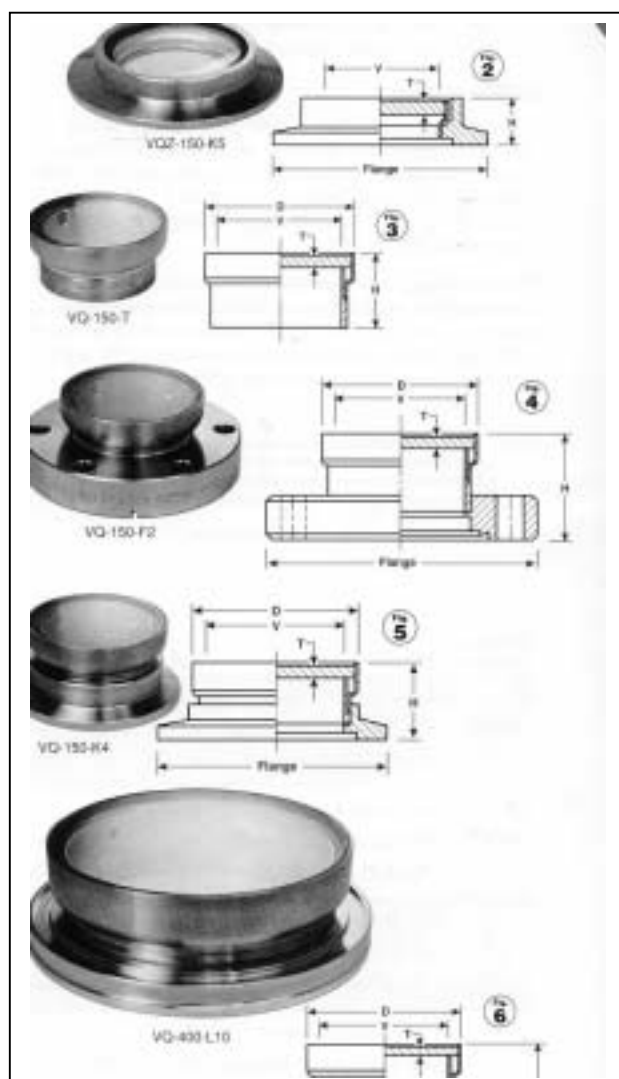


Window Nom Size	Mounting	Ref	Flange O.D.	ISO No	Code	Model Number	Fig #	View V	Thick T	Height H
2-1/2"	• 2-1/2" O.D. Tube	T	-	-	-	-	-	-	-	-
	• CF Type 4-1/2" Flange	F4	4.47	-	111212	VP-250-F4	1	2.69	.170	.680
	• CF Type 4-5/8" Flange	F5	4.62	-	111213	VP-250-F5	1	2.69	.170	.750
	• Large-Flange L250	L6	3.74	NW63	-	-	-	-	-	-
	• Large-Flange L300	L8	4.33	NW80	-	-	-	-	-	-
3"	• 3" O.D. Tube	T	-	-	-	-	-	-	-	-
	• CF Type 4-5/8" Flange	F5	4.62	-	111232	VP-300-F5	1	2.69	.170	.750
	• CF Type 6" Flange	F6	5.97	-	111233	VP-300-F6	1	2.69	.170	.780
	• Large-Flange L300	L8	4.33	NW80	-	-	-	-	-	-
	• Large-Flange L400	L10	5.12	NW100	111235	VP-300-L10	3	2.69	.170	.730
3-1/2"	• 3-1/2" O.D. Tube	T	-	-	-	-	-	-	-	-
	• CF Type 6" Flange	F6	5.97	-	-	-	-	-	-	-
	• Large-Flange L400	L10	5.12	NW100	-	-	-	-	-	-
4"	• 4" O.D. Tube	T	-	-	-	-	-	-	-	-
	• CF Type 6" Flange	F6	5.97	-	111272	VP-400-F6	1	3.88	.200	.780
	• CF Type 6-3/4" Flange	F7	6.75	-	111273	VP-400-F7	1	3.88	.200	.840
	• Large-Flange L400	L10	5.12	NW100	-	-	-	-	-	-
	• Large-Flange L600	L16	7.09	NW160	111275	VP-400-L16	3	3.88	.200	.850
5"	• 5" O.D. Tube	T	-	-	-	-	-	-	-	-
	• CF Type 6-3/4" Flange	F7	6.75	-	111282*	VP-500-F7	1	3.88*	.375	.840
	• Large-Flange L600	L16	7.09	NW160	-	-	-	-	-	-
6"	• 6" O.D. Tube	T	-	-	-	-	-	-	-	-
	• CF Type 8" Flange	F8	7.97	-	111292	VP-600-F8	1	5.38	.375	.880
	• CF Type 10" Flange	F10	9.97	-	111293	VP-600-F10	1	5.38	.375	.880
	• Large-Flange L600	L16	7.09	NW160	-	-	-	-	-	-
	• Large-Flange L800	L20	9.45	NW200	111295	VP-600-L20	3	5.38	.375	.850

Weitere Versionen in KOVAR und SS und Version 4,5,6 auf Anfrage.

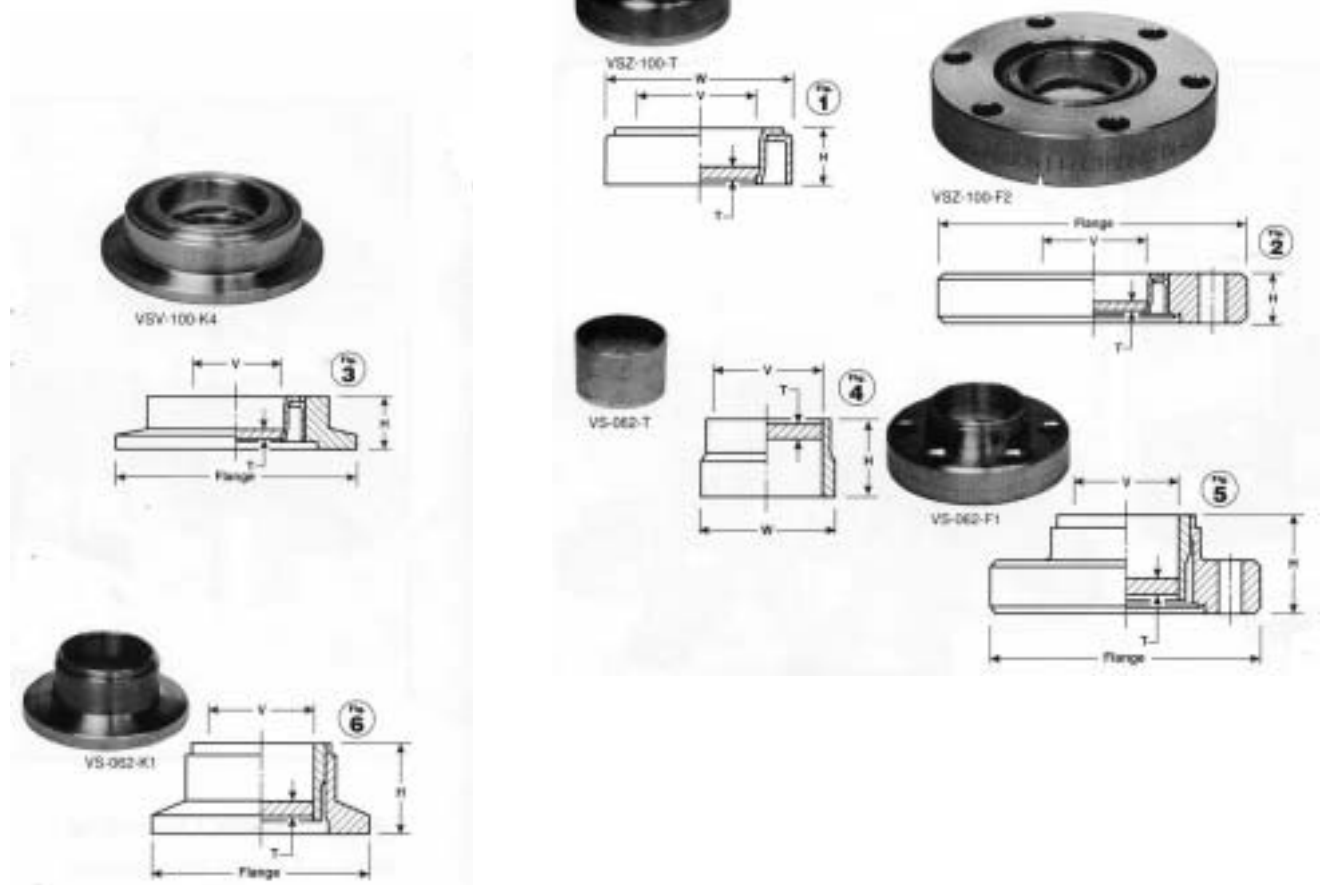
Quartz Viewports

1-1/2" – 8"



Code	Model Number	Dwg. #	View V	Thick T	Height H	Diam D
122161	VQ-150-T	3	1.37	.125	.85	1.76
122162	VQ-150-F2	4	1.37	.125	1.06	1.76
122163	VQ-150-F3	4	1.37	.125	1.06	1.76
122165	VQ-150-K4	5	1.37	.125	1.00	1.76
122166	VQ-150-K5	5	1.37	.125	1.00	1.76
122211	VQ-250-T	3	2.37	.250	1.10	2.88
122212	VQ-250-F4	4	2.37	.250	1.48	2.88
122213	VQ-250-F5	4	2.37	.250	1.48	2.88
122214	VQ-250-L6	6	2.37	.250	1.35	2.88
122271	VQ-400-T	3	3.84	.250	1.35	4.41
122272	VQ-400-F6	4	3.84	.250	1.79	4.41
122273	VQ-400-F7	4	3.84	.250	1.79	4.41
122274	VQ-400-L10	6	3.84	.250	1.60	4.41
122291	VQ-600-T	3	5.78	.375	1.71	6.37
122292	VQ-600-F8	4	5.78	.375	2.21	6.37
122294	VQ-600-L16	6	5.78	.375	2.10	6.37
122301	VQ-800-T	3	7.78	.375	1.75	8.37
122302	VQ-800-F10	4	7.78	.375	2.25	8.37
122303	VQ-800-L20	6	7.78	.375	2.13	8.37

Sapphire Viewports



Window Nom Size	Mounting	Ref	Flange O.D.	ISO No	Code	Model Number	Fig #	View V	Thick T	Height H	Weld OD W
5/8"	• 5/8" O.D. SS Tube	T	-	-	-	-					
	• CF Type 1-1/3" Flange	F1	1.33	-	-	-					
	• Kwik-Flange K075	K1	1.18	NW16	-	-					
3/4"	• SS Weld Adaptor	T	-	-	131101	VSZ-075-T	1	.693	.080	.438	1.50
	• CF Type 2-3/4" Flange	F2	2.73	-	131103	VSZ-075-F2	2	.693	.080	.500	-
	• Kwik-Flange K150	K4	2.16	NW40	131106	VSZ-075-K4	3	.693	.080	.560	-
1"	• SS Weld Adaptor	T	-	-	131121	VSZ-100-T	1	.943	.080	.438	1.50
	• CF Type 2-3/4" Flange	F2	2.73	-	131122	VSZ-100-F2	2	.943	.080	.500	-
	• Kwik-Flange K150	K4	2.16	NW40	131124	VSZ-100-K4	3	.943	.080	.560	-
1-1/2"	• SS Weld Adaptor	T	-	-	131161	VSZ-150-T	1	1.443	.080	.485	2.50
	• CF Type 4-1/2" Flange	F4	4.47	-	131164	VSZ-150-F4	2	1.443	.080	.680	-
2"	• SS Weld Adaptor	T	-	-	131191	VSZ-200-T	1	1.943	.094	.540	2.50
	• CF Type 4-1/2" Flange	F4	4.47	-	131193	VSZ-200-F4	2	1.943	.094	.680	-

Lead Glass Shields

Features

- X-Ray Shield
- Lead equivalent 2mm (.078")
- Light transmission 85%
- Refractive Index 1.76
- Can be mounted with glass-removable or nonremovable
- Glass can be replaced
- Other flange sizes available by special order

Description

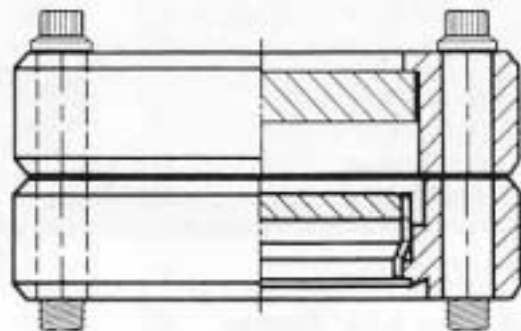
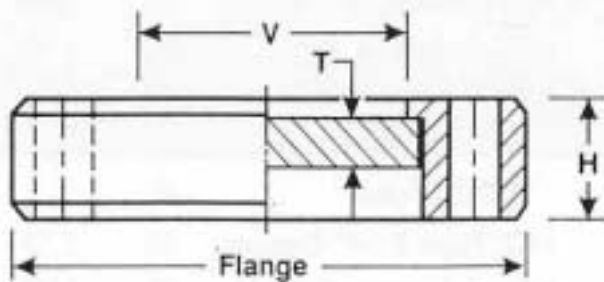
The Lead Glass Shield is mounted to the atmosphere side of a standard CF Type Zero-Length viewport using longer bolts. The vacuum seal is made by the Zero-Length viewport.

Zero-Length Glass Repairs

Viewports - purchased from Larson Electronic Glass or other major vacuum component suppliers - can be repaired at our factory. FAX or Phone for details.

Anti-Reflective Coating

Glass Zero-Length viewports are available with anti-reflective coating. Please specify AR after the Model Number (*Example: VP-150-F2-AR*). Refer to price list for additional cost.



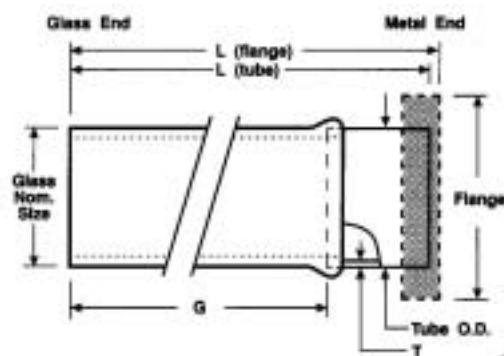
Code	Model Number	Flange Size	view V	Thick T	Height H
141162	LGS-150	2-3/4"	1.5"	1/4"	.50"
141212	LGS-250	4-1/2"	2.5"	1/4"	.63"
141272	LGS-400	6"	4.0"	1/4"	.69"
141292	LGS-600	8"	6.0"	1/4"	.80"

Kovar-to-7740 PYREX

Glass-End Nom Size	Metal-End	Ref	Flange OD	ISO No.	Code	Model Number	Lgth L	Glass G	Metal T
1/8"	• 1/8" O.D.Tube	T	-	-	211011	KP-012-T	5-1/4	4-1/8	.010
	• CF Type 1-1/3" Flange	F1	1.33	-	211012	KP-012-F1	5-3/8	4-1/8	-
	• Kwik-Flange K075	K1	1.18	NW16	211013	KP-012-K1	5-3/8	4-1/8	-
3/16"	• 3/16" O.D.Tube	T	-	-	211021	KP-018-T	5-1/4	4-1/8	.010
	• CF Type 1-1/3" Flange	F1	1.33	-	211022	KP-018-F1	5-3/8	4-1/8	-
	• Kwik-Flange K075	K1	1.18	NW16	211023	KP-018-K1	5-3/8	4-1/8	-
1/4"	• 1/4" O.D.Tube	T	-	-	211031	KP-025-T	5-1/4	4-1/8	.020
	• CF Type 1-1/3" Flange	F1	1.33	-	211032	KP-025-F1	5-3/8	4-1/8	-
	• Kwik-Flange K075	K1	1.18	NW16	211033	KP-025-K1	5-3/8	4-1/8	-
5/16"	• 5/16" O.D.Tube	T	-	-	211041	KP-031-T	5-1/4	4-1/8	.030
	• CF Type 1-1/3" Flange	F1	1.33	-	211042	KP-031-F1	5-3/8	4-1/8	-
	• Kwik-Flange K075	K1	1.18	NW16	211043	KP-031-K1	5-3/8	4-1/8	-
3/8"	• 3/8" O.D.Tube	T	-	-	211051	KP-037-T	5-1/4	4-1/8	.030
	• CF Type 1-1/3" Flange	F1	1.33	-	211052	KP-037-F1	5-3/8	4-1/8	-
	• Kwik-Flange K075	K1	1.18	NW16	211054	KP-037-K1	5-3/8	4-1/8	-
1/2"	• 1/2" O.D.Tube	T	-	-	211071	KP-050-T	5-1/4	4-1/8	.030
	• CF Type 1-1/3" Flange	F1	1.33	-	211072	KP-050-F1	5-3/8	4-1/8	-
	• Kwik-Flange K075	K1	1.18	NW16	211074	KP-050-K1	5-3/8	4-1/8	-
	• Kwik-Flange K100	K2	1.57	NW25	211075	KP-050-K2	5-3/8	4-1/8	-

FEATURES

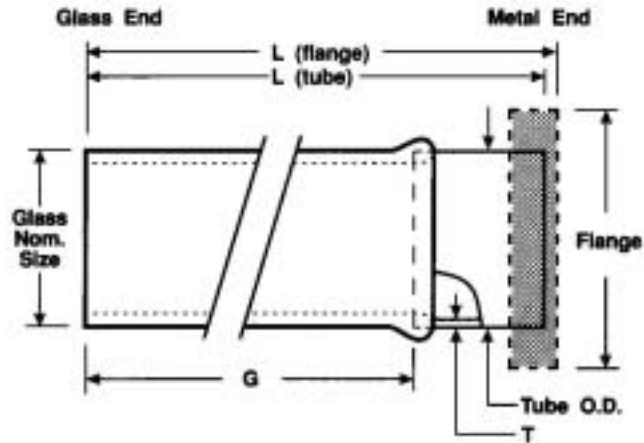
- 27 Sizes from 1/8 thru 6 inch
- Choice of Kovar-to-
 - 7740 PYREX Graded Seal
 - 7052 Glass
 - Special Glass
- Copper-to-7740 PYREX (Tube only)
- Choice of Kovar metal-end vacuum seal:
 - Tube End ISO Large-Flange
 - CF Type Flange Custom Flange
 - ISO Kwik-Flange
- CF Type Flange repeat bakeout cycles to 400°C
- CF Type Flange vacuum range to below 10^{-11} torr.
- ISO flange intermittent bakeout cycles to 200°C⁽³⁾
- ISO flange vacuum range to 10^{-8} torr.



- Notes:
1. Dimensions are in inches except where noted.
 2. Overall lengths (L) and Glass lengths (G) are nominal $\pm 1/8$ inch.
 3. Repeat bakeout cycles will require periodic replacement of O-rings.

Kovar-to-7052 Glass, Copper-to-7740 PYREX auf Anfrage



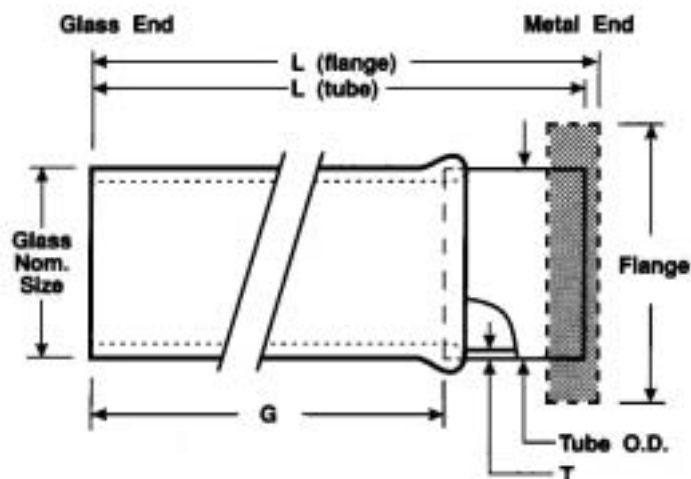


Notes: 1. Dimensions are in inches except where noted.
2. Overall lengths (L) and Glass lengths (G) are nominal $\pm 1/8$ inch.

Glass-End Nom Size	Metal-End	Ref	Flange OD	ISO No.	Code	Model Number	Lgth L	Glass G	Metal T
5/8"	• 5/8" O.D.Tube	T	-	-	211091	KP-062-T	5-1/4	4-1/8	.030
	• CF Type 1-1/3" Flange	F1	1.33	-	211092	KP-062-F1	5-3/8	4-1/8	-
	• Kwik-Flange K075	K1	1.18	NW16	211094	KP-062-K1	5-3/8	4-1/8	-
	• Kwik-Flange K100	K2	1.57	NW25	211095	KP-062-K2	5-3/8	4-1/8	-
3/4"	• 3/4" O.D.Tube	T	-	-	211101	KP-075-T	5-1/4	4-1/8	.030
	• CF Type 1-1/3" Flange	F1	1.33	-	211102	KP-075-F1	5-3/8	4-1/8	-
	• Kwik-Flange K075	K1	1.18	NW16	211104	KP-075-K1	5-3/8	4-1/8	-
	• Kwik-Flange K100	K2	1.57	NW25	211105	KP-075-K2	5-3/8	4-1/8	-
	• Kwik-Flange K150	K4	2.16	NW40	211106	KP-075-K4	5-3/8	4-1/8	-
7/8"	• 7/8" O.D.Tube	T	-	-	211111	KP-087-T	5-1/4	4-1/8	.030
	• CF Type 2-3/4" Flange	F2	2.73	-	211112	KP-087-F2	5-3/8	4-1/8	-
	• Kwik-Flange K100	K2	1.57	NW25	211113	KP-087-K2	5-3/8	4-1/8	-
	• Kwik-Flange K150	K4	2.16	NW40	211114	KP-087-K4	5-3/8	4-1/8	-
1"	• 1" O.D.Tube	T	-	-	211121	KP-100-T	5-1/4	4-1/8	.030
	• CF Type 2-3/4" Flange	F2	2.73	-	211122	KP-100-F2	5-3/8	4-1/8	-
	• Kwik-Flange K100	K2	1.57	NW25	211123	KP-100-K2	5-3/8	4-1/8	-
	• Kwik-Flange K150	K4	2.16	NW40	211124	KP-100-K4	5-3/8	4-1/8	-
	• Kwik-Flange K200	K5	2.95	NW50	211125	KP-100-K5	5-3/8	4-1/8	-
1-1/8"	• 1-1/8" O.D.Tube	T	-	-	211131	KP-112-T	5-1/4	4-1/8	.030
	• CF Type 2-3/4" Flange	F2	2.73	-	211132	KP-112-F2	5-3/8	4-1/8	-
	• Kwik-Flange K150	K4	2.16	NW40	211133	KP-112-K4	5-3/8	4-1/8	-
	• Kwik-Flange K200	K5	2.95	NW50	211134	KP-112-K5	5-3/8	4-1/8	-

Kovar-to-7052 Glass , Copper-to-7740 PYREX auf Anfrage



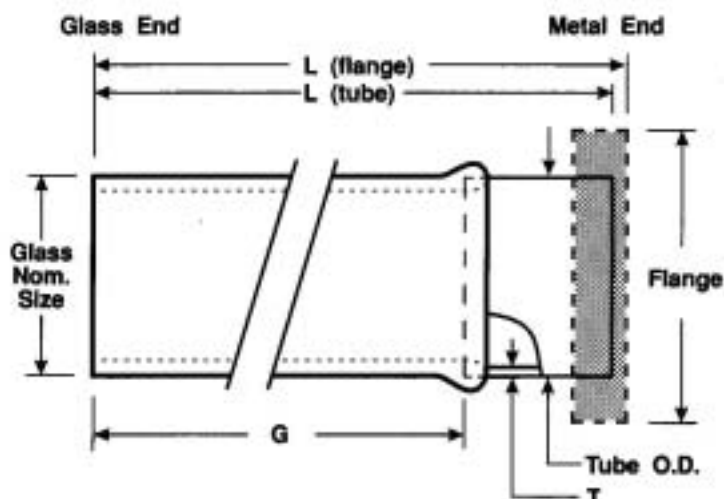


Notes: 1. Dimensions are in inches except where noted.
2. Overall lengths (L) and Glass lengths (G) are nominal $\pm 1/8$ inch.

Glass-End Nom Size	Metal-End	Ref	Flange OD	ISO No.	Code	Model Number	Lgth L	Glass G	Metal T
1-1/4"	• 1-1/4" O.D.Tube	T	-	-	211141	KP-125-T	5-1/4	4-1/8	.030
	• CF Type 2-3/4" Flange	F2	2.73	-	211142	KP-125-F2	5-3/8	4-1/8	-
	• <i>Kwik-Flange</i> K150	K4	2.16	NW40	211143	KP-125-K4	5-3/8	4-1/8	-
	• <i>Kwik-Flange</i> K200	K5	2.95	NW50	211144	KP-125-K5	5-3/8	4-1/8	-
1-3/8"	• 1-3/8" O.D.Tube	T	-	-	211151	KP-137-T	5-1/4	4-1/8	.030
	• CF Type 2-3/4" Flange	F2	2.73	-	211152	KP-137-F2	5-3/8	4-1/8	-
	• <i>Kwik-Flange</i> K150	K4	2.16	NW40	211153	KP-137-K4	5-3/8	4-1/8	-
	• <i>Kwik-Flange</i> K200	K5	2.95	NW50	211154	KP-137-K5	5-3/8	4-1/8	-
1-1/2"	• 1-1/2" O.D.Tube	T	-	-	211161	KP-150-T	5-1/4	4-1/8	.030
	• CF Type 2-3/4" Flange	F2	2.73	-	211162	KP-150-F2	5-3/8	4-1/8	-
	• CF Type 3-3/8" Flange	F3	3.37	-	211163	KP-150-F3	5-3/8	4-1/8	-
	• <i>Kwik-Flange</i> K150	K4	2.16	NW40	211165	KP-150-K4	5-3/8	4-1/8	-
	• <i>Kwik-Flange</i> K200	K5	2.95	NW50	211166	KP-150-K5	5-3/8	4-1/8	-
2"	• 2" O.D.Tube	T	-	-	211191	KP-200-T	5-3/4	4-1/8	.040
	• CF Type 3-3/8" Flange	F3	3.37	-	211192	KP-200-F3	5-7/8	4-1/8	-
	• CF Type 4-1/2" Flange	F4	4.47	-	211193	KP-200-F4	5-7/8	4-1/8	-
	• <i>Kwik-Flange</i> K200	K5	2.95	NW50	211194	KP-200-K5	5-7/8	4-1/8	-
	• <i>Large-Flange</i> L250	L6	3.74	NW63	211195	KP-200-L6	5-7/8	4-1/8	-
2-1/4"	• 2-1/4" O.D.Tube	T	-	-	211201	KP-225-T	5-3/4	4-1/8	.040
	• CF Type 4-1/2" Flange	F4	4.47	-	211202	KP-225-F4	5-7/8	4-1/8	-
	• <i>Large-Flange</i> L250	L6	3.74	NW63	211203	KP-225-L6	5-7/8	4-1/8	-
	• <i>Large-Flange</i> L300	L8	4.33	NW80	211204	KP-225-L8	5-7/8	4-1/8	-

Kovar-to-7052 Glass , Copper-to-7740 PYREX auf Anfrage





Notes: 1. Dimensions are in inches except where noted.
2. Overall lengths (L) and Glass lengths (G) are nominal $\pm 1/8$ inch.

Glass-End Nom Size	Metal-End	Ref	Flange OD	ISO No.	Code	Model Number	Lgth L	Glass G	Metal T
2-1/2"	• 2-1/2" O.D. Tube	T	-	-	211211	KP-250-T	7-3/8	5-3/4	.040
	• CF Type 4-1/2" Flange	F4	4.47	-	211212	KP-250-F4	7-1/2	5-3/4	-
	• <i>Large-Flange</i> L250	L6	3.74	NW63	211214	KP-250-L6	7-1/2	5-3/4	-
	• <i>Large-Flange</i> L300	L8	4.33	NW80	211215	KP-250-L8	7-1/2	5-3/4	-
3"	• 3" O.D. Tube	T	-	-	211231	KP-300-T	7-3/8	5-3/4	.040
	• CF Type 4-5/8" Flange	F5	4.62	-	211232	KP-300-F5	7-1/2	5-3/4	-
	• CF Type 6" Flange	F6	5.97	-	211233	KP-300-F6	7-1/2	5-3/4	-
	• <i>Large-Flange</i> L300	L8	4.33	NW80	211234	KP-300-L8	7-1/2	5-3/4	-
	• <i>Large-Flange</i> L400	L10	5.12	NW100	211235	KP-300-L10	7-1/2	5-3/4	-
4"	• 4" O.D. Tube	T	-	-	211271	KP-400-T	10	8	.030
	• CF Type 6" Flange	F6	5.97	-	211272	KP-400-F6	10-1/8	8	-
	• <i>Large-Flange</i> L400	L10	5.12	NW100	211274	KP-400-L10	10-1/8	8	-
	• <i>Large-Flange</i> L600	L16	7.09	NW160	211275	KP-400-L16	10-1/8	8	-
5"	• 5" O.D. Tube	T	-	-	211281	KP-500-T	10-1/2	8	.040
	• CF Type 6-3/4" Flange	F7	6.75	-	211282	KP-500-F7	10-5/8	8	-
	• <i>Large-Flange</i> L600	L16	7.09	NW160	211283	KP-500-L16	10-5/8	8	-
	• <i>Large-Flange</i> L800	L20	9.45	NW200	211284	KP-500-L20	10-5/8	8	-
6"	• 6" O.D. Tube	T	-	-	211291	KP-600-T	10-1/2	8	.040
	• CF Type 8" Flange	F8	7.97	-	211292	KP-600-F8	10-5/8	8	-
	• <i>Large-Flange</i> L600	L16	7.09	NW160	211294	KP-600-L16	10-5/8	8	-
	• <i>Large-Flange</i> L800	L20	9.45	NW200	211295	KP-600-L20	10-5/8	8	-

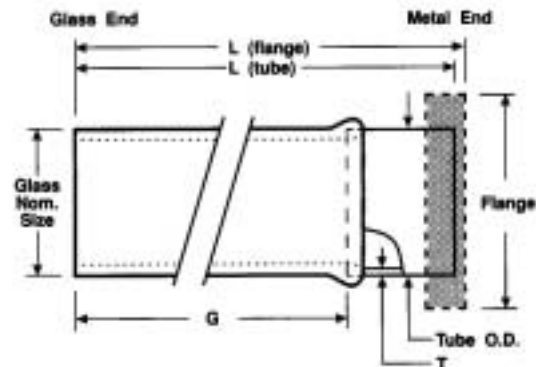
Kovar-to-7052 Glass, Copper-to-7740 PYREX auf Anfrage



SS-to-7740 PYREX

FEATURES

- 27 Sizes from 1/8 thru 6 inch
- Choice of 304 Stainless Steel-to-
 - 7740 PYREX
 - 7052 Glass
 - Quartz
 - Special Glass
- Choice of SS-metal-end vacuum seal:
 - Tube End ISO *Large-Flange*
 - CF Type Flange Custom Flange
 - ISO *Kwik-Flange*
- CF Type Flange repeat bakeout cycles to 450°C⁽¹⁾
- CF Type Flange vacuum range to below 10⁻¹¹ torr.
- ISO flange intermittent bakeout cycles to 200°C⁽²⁾
- ISO flange vacuum range to 10⁻⁹ torr.



Notes:

1. Dimensions are in inches except where noted.
2. Overall lengths (L) and Glass lengths (G) are nominal $\pm 1/8$ inch.
3. End of SS .085 wall (T) tubular-seals are thinned to .030 for welding.
4. (G) includes Quartz plus graded seal section. Up to 1-1/2 OD sizes, Quartz is approx. 3" long; 1-3/4 OD and larger sizes, Quartz is 3-1/2" long.
5. 304 SS-to-7052 Glass (Tube & CF Flange models) bakeout to 400°C.
6. Repeat bakeout cycles will require periodic replacement of O-rings.

Glass-End Nom Size	Metal-End	Ref	Flange OD	ISO No.	Code	Model Number	Lgth L	Glass G	Metal T
1/8"	• 1/8" O.D. Tube	T	-	-	214011	SP-012-T	4-3/4	3	.010
	• CF Type 1-1/3" Flange	F1	1.33	-	214012	SP-012-F1	4-7/8	3	-
	• <i>Kwik-Flange</i> K075	K1	1.18	NW16	214013	SP-012-K1	4-7/8	3	-
3/16"	• 3/16" O.D. Tube	T	-	-	214021	SP-018-T	4-3/4	3	.010
	• CF Type 1-1/3" Flange	F1	1.33	-	214022	SP-018-F1	4-7/8	3	-
	• <i>Kwik-Flange</i> K075	K1	1.18	NW16	214023	SP-018-K1	4-7/8	3	-
1/4"	• 1/4" O.D. Tube	T	-	-	214031	SP-025-T	4-3/4	3	.020
	• CF Type 1-1/3" Flange	F1	1.33	-	214032	SP-025-F1	4-7/8	3	-
	• <i>Kwik-Flange</i> K075	K1	1.18	NW16	214033	SP-025-K1	4-7/8	3	-
5/16"	• 5/16" O.D. Tube	T	-	-	214041	SP-031-T	4-3/4	3	.020
	• CF Type 1-1/3" Flange	F1	1.33	-	214042	SP-031-F1	4-7/8	3	-
	• <i>Kwik-Flange</i> K075	K1	1.18	NW16	214043	SP-031-K1	4-7/8	3	-
3/8"	• 3/8" O.D. Tube	T	-	-	214051	SP-037-T	4-3/4	3	.035
	• CF Type 1-1/3" Flange	F1	1.33	-	214052	SP-037-F1	4-7/8	3	-
	• <i>Kwik-Flange</i> K075	K1	1.18	NW16	214054	SP-037-K1	4-7/8	3	-
1/2"	• 1/2" O.D. Tube	T	-	-	214071	SP-050-T	4-3/4	3	.035
	• CF Type 1-1/3" Flange	F1	1.33	-	214072	SP-050-F1	4-7/8	3	-
	• <i>Kwik-Flange</i> K075	K1	1.18	NW16	214074	SP-050-K1	4-7/8	3	-
	• <i>Kwik-Flange</i> K100	K2	1.57	NW25	214075	SP-050-K2	4-7/8	3	-

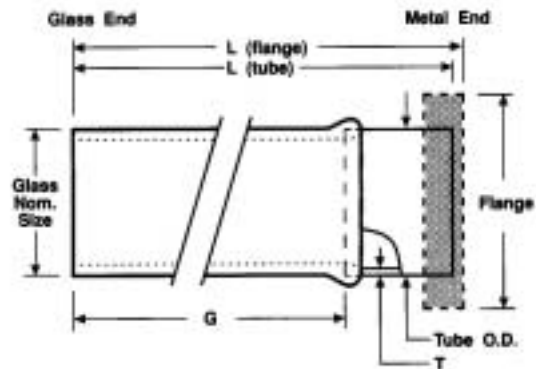
SS-to-7052 Glass , SS-to-Quartz auf Anfrage

SS-to-7740 PYREX

FEATURES

- 27 Sizes from 1/8 thru 6 inch
- Choice of 304 Stainless Steel-to-
 - 7740 PYREX
 - 7052 Glass
 - Quartz
 - Special Glass
- Choice of SS-metal-end vacuum seal:

Tube End	ISO Large-Flange
CF Type Flange	Custom Flange
ISO Kwik-Flange	
- CF Type Flange repeat bakeout cycles to 450°C⁽¹⁾
- CF Type Flange vacuum range to below 10⁻¹¹ torr.
- ISO flange intermittent bakeout cycles to 200°C⁽²⁾
- ISO flange vacuum range to 10⁻⁹ torr.



Notes:

1. Dimensions are in inches except where noted.
2. Overall lengths (L) and Glass lengths (G) are nominal $\pm 1/8$ inch.
3. End of SS .085 wall (T) tubular-seals are thinned to .030 for welding.
4. (G) includes Quartz plus graded seal section. Up to 1-1/2" O.D. sizes, Quartz is approx. 3" long; 1-3/4" O.D. and larger sizes, Quartz is 3-1/2" long.
5. 304 SS-to-7052 Glass (Tube & CF Flange models) bakeout to 400°C.
6. Repeat bakeout cycles will require periodic replacement of O-rings.

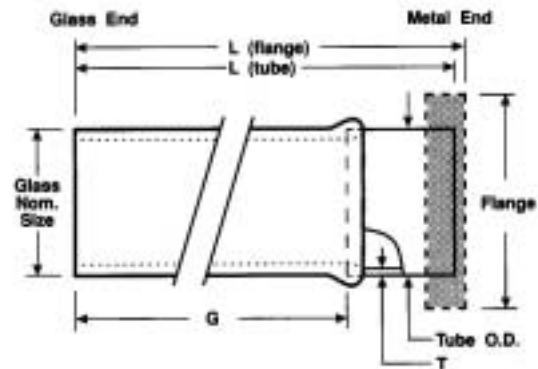
Glass-End Nom Size	Metal-End	Ref	Flange OD	ISO No.	Code	Model Number	Lgth L	Glass G	Metal T ⁽³⁾
5/8"	• 5/8" O.D. Tube	T	-	-	214091	SP-062-T	4-3/4	3	.035
	• CF Type 1-1/3" Flange	F1	1.33	-	214092	SP-062-F1	4-7/8	3	-
	• Kwik-Flange K075	K1	1.18	NW16	214094	SP-062-K1	4-7/8	3	-
	• Kwik-Flange K100	K2	1.57	NW25	214095	SP-062-K2	4-7/8	3	-
3/4"	• 3/4" O.D. Tube	T	-	-	214101	SP-075-T	4-3/4	3	.035
	• CF Type 1-1/3" Flange	F1	1.33	-	214102	SP-075-F1	4-7/8	3	-
	• Kwik-Flange K075	K1	1.18	NW16	214104	SP-075-K1	4-7/8	3	-
	• Kwik-Flange K100	K2	1.57	NW25	214105	SP-075-K2	4-7/8	3	-
	• Kwik-Flange K150	K4	2.16	NW40	214106	SP-075-K4	4-7/8	3	-
7/8"	• 7/8" O.D. Tube	T	-	-	214111	SP-087-T	4-3/4	3	.035
	• CF Type 2-3/4" Flange	F2	2.73	-	214112	SP-087-F2	4-7/8	3	-
	• Kwik-Flange K100	K2	1.57	NW25	214113	SP-087-K2	4-7/8	3	-
	• Kwik-Flange K150	K4	2.16	NW40	214114	SP-087-K4	4-7/8	3	-
1"	• 1" O.D. Tube	T	-	-	214121	SP-100-T	4-3/4	3	.035
	• CF Type 2-3/4" Flange	F2	2.73	-	214122	SP-100-F2	4-7/8	3	-
	• Kwik-Flange K100	K2	1.57	NW25	214123	SP-100-K2	4-7/8	3	-
	• Kwik-Flange K150	K4	2.16	NW40	214124	SP-100-K4	4-7/8	3	-
	• Kwik-Flange K200	K5	2.95	NW50	214125	SP-100-K5	4-7/8	3	-
1-1/8"	• 1-1/8" O.D. Tube	T	-	-	214131	SP-112-T	4-3/4	3	.065
	• CF Type 2-3/4" Flange	F2	2.73	-	214132	SP-112-F2	4-7/8	3	-
	• Kwik-Flange K150	K4	2.16	NW40	214133	SP-112-K4	4-7/8	3	-
	• Kwik-Flange K200	K5	2.95	NW50	214134	SP-112-K5	4-7/8	3	-

SS-to-7052 Glass , SS-to-Quartz auf Anfrage

SS-to-7740 PYREX

FEATURES

- 27 Sizes from 1/8 thru 6 inch
- Choice of 304 Stainless Steel-to-
 - 7740 PYREX
 - 7052 Glass
 - Quartz
 - Special Glass
- Choice of SS-metal-end vacuum seal:
 - Tube End ISO *Large-Flange*
 - CF Type Flange Custom Flange
 - ISO *Kwik-Flange*
- CF Type Flange repeat bakeout cycles to 450°C⁽¹⁾
- CF Type Flange vacuum range to below 10⁻¹¹ torr.
- ISO flange intermittent bakeout cycles to 200°C⁽²⁾
- ISO flange vacuum range to 10⁻⁹ torr.



Notes:

1. Dimensions are in inches except where noted.
2. Overall lengths (L) and Glass lengths (G) are nominal $\pm 1/8$ inch.
3. End of SS .065 wall (T) tubular-seals are thinned to .030 for welding.
4. (G) includes Quartz plus graded seal section. Up to 1-1/2" O.D. sizes, Quartz is approx. 3" long; 1-3/4" O.D. and larger sizes, Quartz is 3-1/2" long.
5. 304 SS-to-7052 Glass (Tube & CF Flange models) bakeout to 400°C.
6. Repeat bakeout cycles will require periodic replacement of O-rings.

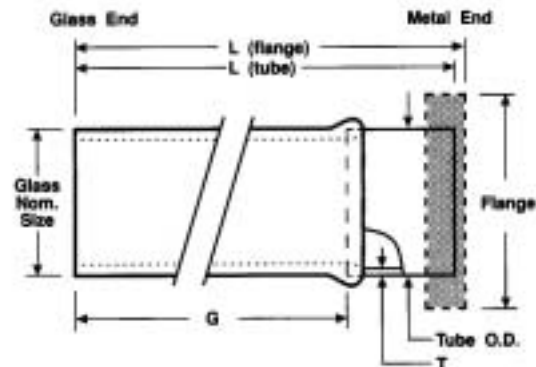
Glass-End Nom Size	Metal-End	Ref	Flange OD	ISO No.	Code	Model Number	Lgth L	Glass G	Metal T ⁽³⁾
2"	• 2" O.D. Tube	T	-	-	214191	SP-200-T	5-1/4	3	.065
	• CF Type 3-3/8" Flange	F3	3.37	-	214192	SP-200-F3	5-3/8	3	-
	• CF Type 4-1/2" Flange	F4	4.47	-	214193	SP-200-F4	5-3/8	3	-
	• <i>Kwik-Flange</i> K200	K5	2.95	NW50	214194	SP-200-K5	5-3/8	3	-
	• <i>Large-Flange</i> L250	L6	3.74	NW63	214195	SP-200-L6	5-3/8	3	-
2-1/4"	• 2-1/4" O.D. Tube	T	-	-	214201	SP-225-T	5-1/4	3	.065
	• CF Type 4-1/2" Flange	F4	4.47	-	214202	SP-225-F4	5-3/8	3	-
	• <i>Large-Flange</i> L250	L6	3.74	NW63	214203	SP-225-L6	5-3/8	3	-
	• <i>Large-Flange</i> L300	L8	4.33	NW80	214204	SP-225-L8	5-3/8	3	-
2-1/2"	• 2-1/2" O.D. Tube	T	-	-	214211	SP-250-T	5-1/4	3	.065
	• CF Type 4-1/2" Flange	F4	4.47	-	214212	SP-250-F4	5-3/8	3	-
	• <i>Large-Flange</i> L250	L6	3.74	NW63	214214	SP-250-L6	5-3/8	3	-
	• <i>Large-Flange</i> L300	L8	4.33	NW80	214215	SP-250-L8	5-3/8	3	-
2-3/4"	• 2-3/4" O.D. Tube	T	-	-	214221	SP-275-T	5-1/4	3	.065
	• CF Type 4-5/8" Flange	F5	4.62	-	214222	SP-275-F5	5-3/8	3	-
	• <i>Large-Flange</i> L300	L8	4.33	NW80	214223	SP-275-L8	5-3/8	3	-
3"	• 3" O.D. Tube	T	-	-	214231	SP-300-T	6-1/4	4	.065
	• CF Type 4-5/8" Flange	F5	4.62	-	214232	SP-300-F5	6-3/8	4	-
	• CF Type 6" Flange	F6	5.97	-	214233	SP-300-F6	6-3/8	4	-
	• <i>Large-Flange</i> L300	L8	4.33	NW80	214234	SP-300-L8	6-3/8	4	-
	• <i>Large-Flange</i> L400	L10	5.12	NW100	214235	SP-300-L10	6-3/8	4	-

SS-to-7052 Glass , SS-to-Quartz auf Anfrage

SS-to-7740 PYREX

FEATURES

- 27 Sizes from 1/8 thru 6 inch
- Choice of 304 Stainless Steel-to-
 - 7740 PYREX
 - 7052 Glass
 - Quartz
 - Special Glass
- Choice of SS-metal-end vacuum seal:
 - Tube End ISO *Large-Flange*
 - CF Type Flange Custom Flange
 - ISO *Kwik-Flange*
- CF Type Flange repeat bakeout cycles to 450°C⁽¹⁾
- CF Type Flange vacuum range to below 10⁻¹¹ torr.
- ISO flange intermittent bakeout cycles to 200°C⁽²⁾
- ISO flange vacuum range to 10⁻⁹ torr.



Notes:

1. Dimensions are in inches except where noted.
2. Overall lengths (L) and Glass lengths (G) are nominal $\pm 1/8$ inch.
3. End of SS .065 wall (T) tubular-seals are thinned to .030 for welding.
4. (G) includes Quartz plus graded seal section. Up to 1-1/2" OD sizes, Quartz is approx. 3" long; 1-3/4" OD and larger sizes, Quartz is 3-1/2" long.
5. 304 SS-to-7052 Glass (Tube & CF Flange models) bakeout to 400°C.
6. Repeat bakeout cycles will require periodic replacement of O-rings.

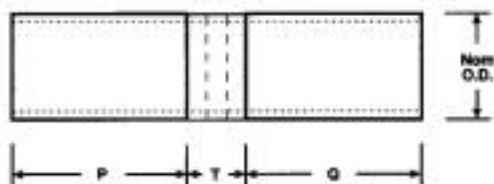
Glass-End Nom Size	Metal-End	Ref	Flange OD	ISO No.	Code	Model Number	Lgth L	Glass G	Metal T ⁽³⁾
3-1/4"	• 3-1/4" O.D. Tube	T	-	-	214241	SP-325-T	6-1/4	4	.065
	• CF Type 6" Flange	F6	5.97	-	214242	SP-325-F6	6-3/8	4	-
	• <i>Large-Flange</i> L400	L10	5.12	NW100	214243	SP-325-L10	6-3/8	4	-
3-1/2"	• 3-1/2" O.D. Tube	T	-	-	214251	SP-350-T	6-1/4	4	.065
	• CF Type 6" Flange	F6	5.97	-	214252	SP-350-F6	6-3/8	4	-
	• <i>Large-Flange</i> L400	L10	5.12	NW100	214253	SP-350-L10	6-3/8	4	-
3-3/4"	• 3-3/4" O.D. Tube	T	-	-	214261	SP-375-T	6-1/4	4	.065
	• CF Type 6" Flange	F6	5.97	-	214262	SP-375-F6	6-3/8	4	-
	• <i>Large-Flange</i> L400	L10	5.12	NW100	214263	SP-375-L10	6-3/8	4	-
	• <i>Large-Flange</i> L600	L16	7.09	NW160	214264	SP-375-L16	6-3/8	4	-
4"	• 4" O.D. Tube	T	-	-	214271	SP-400-T	6-1/4	4	.065
	• CF Type 6" Flange	F6	5.97	-	214272	SP-400-F6	6-3/8	4	-
	• <i>Large-Flange</i> L400	L10	5.12	NW100	214274	SP-400-L10	6-3/8	4	-
	• <i>Large-Flange</i> L600	L16	7.09	NW160	214275	SP-400-L16	6-3/8	4	-
5"	• 5" O.D. Tube	T	-	-	214281	SP-500-T	8-1/4	6	.065
	• CF Type 6-3/4" Flange	F7	6.75	-	214282	SP-500-F7	8-3/8	6	-
	• <i>Large-Flange</i> L600	L16	7.09	NW160	214283	SP-500-L16	8-3/8	6	-
	• <i>Large-Flange</i> L800	L20	9.45	NW200	214284	SP-500-L20	8-3/8	6	-
6"	• 6" O.D. Tube	T	-	-	214291	SP-600-T	8-1/4	6	.065
	• CF Type 8" Flange	F8	7.97	-	214292	SP-600-F8	8-3/8	6	-
	• <i>Large-Flange</i> L600	L16	7.09	NW160	214294	SP-600-L16	8-3/8	6	-
	• <i>Large-Flange</i> L800	L20	9.45	NW200	214295	SP-600-L20	8-3/8	6	-

SS-to-7052 Glass auf Anfrage

PYREX-to-Quartz

FEATURES

- 29 PYREX-to-Quartz standard sizes from 1/8 thru 3 inch (4 mm to 75 mm) with graded glass seal
- 5 PYREX-to-Soft Glass standard sizes from 3/8 thru 3/4 inch (9 mm to 19 mm) with stainless steel transition section
- Other non-standard sizes available
- Other glass combinations available

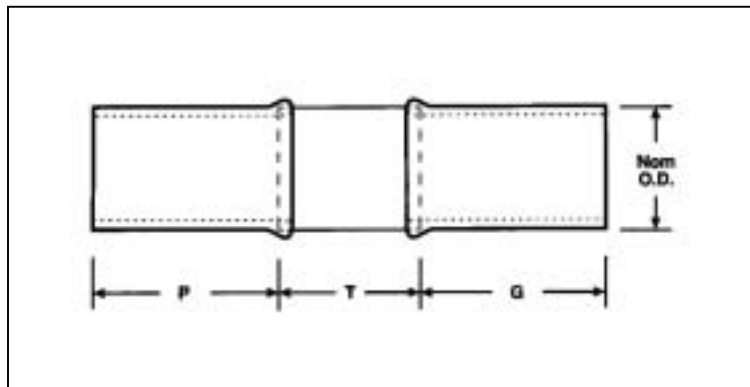


Notes:

1. Dimensions are in inches except where noted.
2. PYREX, Quartz, and Soft Glass lengths are nominal $\pm 1/8$ inch.
3. Graded glass transition seal (T) is nominal.

Nom OD	OD mm	Code	Model Number	PYREX P	Transition T ⁽³⁾	Quartz Q
1/8"	4	217004	PQ004	4	1/4	3
3/16"	5	217005	PQ005	4	1/4	3
-	6	217006	PQ006	4	1/4	3
1/4"	7	217007	PQ007	4	1/4	3
5/16"	8	217008	PQ008	4	1/4	3
-	9	217009	PQ009	4	3/8	3
3/8"	10	217010	PQ010	4	3/8	3
-	11	217011	PQ011	4	3/8	3
-	12	217012	PQ012	4	3/8	3
1/2"	13	217013	PQ013	4	3/8	3
-	14	217014	PQ014	4	1/2	3
-	15	217015	PQ015	4	1/2	3
5/8"	16	217016	PQ016	4	5/8	3
-	17	217017	PQ017	4	5/8	3
-	18	217018	PQ018	4	3/4	3
3/4"	19	217019	PQ019	4	3/4	3
-	20	217020	PQ020	4	7/8	3
7/8"	22	217022	PQ022	4	7/8	3
1"	25	217025	PQ025	4	1	3
1-1/8"	28	217028	PQ028	4	1	3
1-1/4"	32	217032	PQ032	4	1-1/8	3
1-3/8"	35	217035	PQ035	4	1-1/8	3
1-1/2"	38	217038	PQ038	4	1-1/4	3
1-3/4"	45	217045	PQ045	4	1-1/4	3-1/2
2"	51	217051	PQ051	4	1-1/2	3-1/2
2-1/4"	57	217057	PQ057	4	1-1/2	3-1/2
2-1/2"	64	217064	PQ064	4	1-3/4	3-1/2
2-3/4"	69	217069	PQ069	4	1-3/4	3-1/2
3"	75	217075	PQ075	4	2	3-1/2

PYREX-to-Soft Glas



Nom OD	OD mm	Code	Model Number	PYREX P	Transition T	Glass G
-	-					
-	-					
-	-					
-	-					
-	-					
-	-					
3/8"	9	218009	PX009	4	1-1/4	3
-	10	218010	PX010	4	1-1/4	3
-	-					
1/2"	13	218013	PX013	4	1-1/2	3
-	-					
-	-					
5/8"	16	218016	PX016	4	1-1/2	3
-	-					
-	-					
3/4"	19	218019	PX019	4	1-3/4	3
-	-					
-	-					
-	-					
-	-					



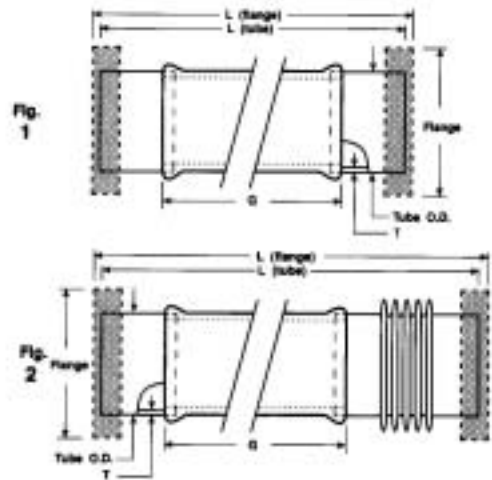
Double Ended Glas Adaptors

FEATURES

- 10 standard sizes 1/2 thru 6"; Custom sizes available
- Choice of materials:
 - 304 SS-to-7740 PYREX
 - Kovar-to-7052 Glass
 - Kovar-to-7052 Glass with Bellows at one end
 - Quartz and Special Glass available
- Choice of Standard Length (L1) & Long Length (L2)
- Tube or choice of flanges at both ends:
CF Type Flanges, ISO *Kwik-Flange*,
ISO *Large-Flange*, or Custom Flanges
- CF Type Flange repeat bakeout cycles to 400°C⁽¹⁾
- CF Type Flange vacuum range to below 10⁻¹¹ torr.
- ISO flange intermittent bakeout cycles to 200°C⁽¹⁾
- ISO flange vacuum range to 10⁻⁷ torr.

Notes:

1. Dimensions are in inches except where noted.
2. Overall lengths (L) and Glass lengths (G) are nominal $\pm 1/8$ inch.
3. End of SS .085 wall (T) tubular-seals are thinned to .030 for welding.
4. 304 SS-to-PYREX (Tube and CF Flange models) bakeable to 450°C.
5. Repeat bakeout cycles will require periodic replacement of O-rings.



Glass-to-Kovar

Nom Size	Glass Nom ID	Description Both Ends	Ref	Flange OD	ISO No.	Code	Model Number	Fig #	Lgth L	Glass G	Metal T
1/2"	• 5/16	1/2" O.D. Tube	T-L1	-	-	221071	KGK-050-T-L1	1	2-7/8	1	.030
	• 5/16	1/2" O.D. Tube	T-L2	-	-	221371	KGK-050-T-L2	1	7-7/8	6	.030
	• 5/16	CF 1-1/3" Flange	F1-L1	1.33	-	221072	KGK-050-F1-L1	1	3	1	-
	• 5/16	CF 1-1/3" Flange	F1-L2	1.33	-	221372	KGK-050-F1-L2	1	8	6	-
	• 5/16	<i>Kwik-Flange</i> K075	K1-L1	1.18	NW16	221074	KGK-050-K1-L1	1	3	1	-
	• 5/16	<i>Kwik-Flange</i> K075	K1-L2	1.18	NW16	221374	KGK-050-K1-L2	1	8	6	-
	• 5/16	<i>Kwik-Flange</i> K100	K2-L1	1.57	NW25	221075	KGK-050-K2-L1	1	3	1	-
	• 5/16	<i>Kwik-Flange</i> K100	K2-L2	1.57	NW25	221375	KGK-050-K2-L2	1	8	6	-
	• 9/16	3/4" O.D. Tube	T-L1	-	-	221101	KGK-075-T-L1	1	2-7/8	1	.030
	• 9/16	3/4" O.D. Tube	T-L2	-	-	221401	KGK-075-T-L2	1	7-7/8	6	.030
3/4"	• 9/16	CF 1-1/3" Flange	F1-L1	1.33	-	221102	KGK-075-F1-L1	1	3	1	-
	• 9/16	CF 1-1/3" Flange	F1-L2	1.33	-	221402	KGK-075-F1-L2	1	8	6	-
	• 9/16	<i>Kwik-Flange</i> K075	K1-L1	1.18	NW16	221104	KGK-075-K1-L1	1	3	1	-
	• 9/16	<i>Kwik-Flange</i> K075	K1-L2	1.18	NW16	221404	KGK-075-K1-L2	1	8	6	-
	• 9/16	<i>Kwik-Flange</i> K100	K2-L1	1.57	NW25	221105	KGK-075-K2-L1	1	3	1	-
	• 9/16	<i>Kwik-Flange</i> K100	K2-L2	1.57	NW25	221405	KGK-075-K2-L2	1	8	6	-
	• 9/16	<i>Kwik-Flange</i> K150	K4-L1	2.16	NW40	221106	KGK-075-K4-L1	1	3	1	-
	• 9/16	<i>Kwik-Flange</i> K150	K4-L2	2.16	NW40	221406	KGK-075-K4-L2	1	8	6	-
	• 13/16	1" O.D. Tube	T-L1	-	-	221121	KGK-100-T-L1	1	2-7/8	1	.030
	• 13/16	1" O.D. Tube	T-L2	-	-	221421	KGK-100-T-L2	1	7-7/8	6	.030
1"	• 13/16	CF 2-3/4" Flange	F2-L1	2.73	-	221122	KGK-100-F2-L1	1	3	1	-
	• 13/16	CF 2-3/4" Flange	F2-L2	2.73	-	221422	KGK-100-F2-L2	1	8	6	-
	• 13/16	<i>Kwik-Flange</i> K100	K2-L1	1.57	NW25	221123	KGK-100-K2-L1	1	3	1	-
	• 13/16	<i>Kwik-Flange</i> K100	K2-L2	1.57	NW25	221423	KGK-100-K2-L2	1	8	6	-
	• 13/16	<i>Kwik-Flange</i> K150	K4-L1	2.16	NW40	221124	KGK-100-K4-L1	1	3	1	-
	• 13/16	<i>Kwik-Flange</i> K150	K4-L2	2.16	NW40	221424	KGK-100-K4-L2	1	8	6	-
	• 13/16	<i>Kwik-Flange</i> K200	K5-L1	2.95	NW50	221125	KGK-100-K5-L1	1	3	1	-
	• 13/16	<i>Kwik-Flange</i> K200	K5-L2	2.95	NW50	221425	KGK-100-K5-L2	1	8	6	-

Kovar-to-7052 Glass-to-Bellows
 Bellows 1" Flex Lgth., .006" Thick

Code	Model Number	Fig #	Lgth L	Glass G	Metal T
222071	KGB-050-T-L1	2	4-7/8	1	.030
222371	KGB-050-T-L2	2	9-7/8	6	.030
222072	KGB-050-F1-L1	2	5	1	-
222372	KGB-050-F1-L2	2	10	6	-
222074	KGB-050-K1-L1	2	5	1	-
222374	KGB-050-K1-L2	2	10	6	-
222075	KGB-050-K2-L1	2	5	1	-
222375	KGB-050-K2-L2	2	10	6	-

222101	KGB-075-T-L1	2	4-7/8	1	.030
222401	KGB-075-T-L2	2	9-7/8	6	.030
222102	KGB-075-F1-L1	2	5	1	-
222402	KGB-075-F1-L2	2	10	6	-
222104	KGB-075-K1-L1	2	5	1	-
222404	KGB-075-K1-L2	2	10	6	-
222105	KGB-075-K2-L1	2	5	1	-
222405	KGB-075-K2-L2	2	10	6	-
222106	KGB-075-K4-L1	2	5	1	-
222406	KGB-075-K4-L2	2	10	6	-

222121	KGB-100-T-L1	2	4-7/8	1	.030
222421	KGB-100-T-L2	2	9-7/8	6	.030
222122	KGB-100-F2-L1	2	5	1	-
222422	KGB-100-F2-L2	2	10	6	-
222123	KGB-100-K2-L1	2	5	1	-
222423	KGB-100-K2-L2	2	10	6	-
222124	KGB-100-K4-L1	2	5	1	-
222424	KGB-100-K4-L2	2	10	6	-
222125	KGB-100-K5-L1	2	5	1	-
222425	KGB-100-K5-L2	2	10	6	-

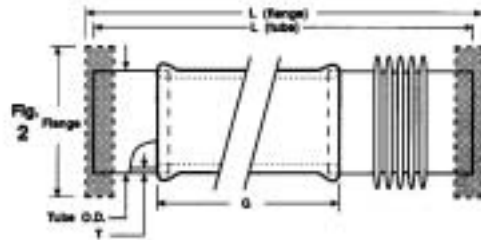
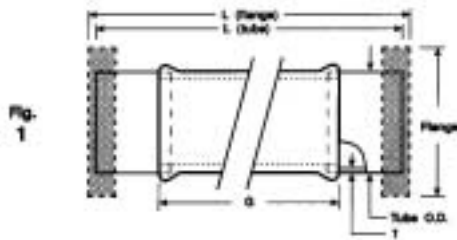
304 SS-to-7740 PYREX-to-304 SS^(d)

Code	Model Number	Fig #	Lgth L	Glass G	Metal T
223071	SPS-050-T-L1	1	4-1/4	1	.035
223371	SPS-050-T-L2	1	9-1/4	6	.035
223072	SPS-050-F1-L1	1	4-3/8	1	-
223372	SPS-050-F1-L2	1	9-3/8	6	-
223074	SPS-050-K1-L1	1	4-3/8	1	-
223374	SPS-050-K1-L2	1	9-3/8	6	-
223075	SPS-050-K2-L1	1	4-3/8	1	-
223375	SPS-050-K2-L2	1	9-3/8	6	-

223101	SPS-075-T-L1	1	4-1/4	1	.035
223401	SPS-075-T-L2	1	9-1/4	6	.035
223102	SPS-075-F1-L1	1	4-3/8	1	-
223402	SPS-075-F1-L2	1	9-3/8	6	-
223104	SPS-075-K1-L1	1	4-3/8	1	-
223404	SPS-075-K1-L2	1	9-3/8	6	-
223105	SPS-075-K2-L1	1	4-3/8	1	-
223405	SPS-075-K2-L2	1	9-3/8	6	-
223106	SPS-075-K4-L1	1	4-3/8	1	-
223406	SPS-075-K4-L2	1	9-3/8	6	-

223121	SPS-100-T-L1	1	4-1/4	1	.035
223421	SPS-100-T-L2	1	9-1/4	6	.035
223122	SPS-100-F2-L1	1	4-3/8	1	-
223422	SPS-100-F2-L2	1	9-3/8	6	-
223123	SPS-100-K2-L1	1	4-3/8	1	-
223423	SPS-100-K2-L2	1	9-3/8	6	-
223124	SPS-100-K4-L1	1	4-3/8	1	-
223424	SPS-100-K4-L2	1	9-3/8	6	-
223125	SPS-100-K5-L1	1	4-3/8	1	-
223425	SPS-100-K5-L2	1	9-3/8	6	-

Double Ended Glass Adaptors



Notes:

1. Dimensions are in inches except where noted.
2. Overall lengths (L) and Glass lengths (G) are nominal $\pm 1/8$ inch.
3. End of SS .065 wall (T) tubular-seals are thinned to .030 for welding.
4. 304 SS-to-PYREX (Tube and CF Flange models) bakeable to 450°C.

Kovar-to-7052 Glass-to-Kovar

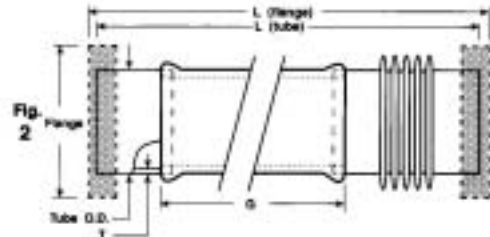
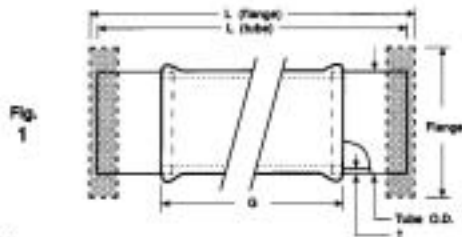
Nom Size	Glass Nom ID	Description Both Ends	Ref	Flange OD	ISO No.	Code	Model Number	Fig #	Lgth L	Glass G	Metal T
1-1/2"	• 1-5/16	1-1/2" O.D. Tube	T-L1	-	-	221161	KGK-150-T-L1	1	2-7/8	1	.030
	• 1-5/16	1-1/2" O.D. Tube	T-L2	-	-	221461	KGK-150-T-L2	1	7-7/8	6	.030
	• 1-5/16	CF 2-3/4" Flange	F2-L1	2.73	-	221162	KGK-150-F2-L1	1	3	1	-
	• 1-5/16	CF 2-3/4" Flange	F2-L2	2.73	-	221462	KGK-150-F2-L2	1	8	6	-
	• 1-5/16	CF 3-3/8" Flange	F3-L1	3.37	-	221163	KGK-150-F3-L1	1	3	1	-
	• 1-5/16	CF 3-3/8" Flange	F3-L2	3.37	-	221463	KGK-150-F3-L2	1	8	6	-
	• 1-5/16	Kwik-Flange K150	K4-L1	2.16	NW40	221165	KGK-150-K4-L1	1	3	1	-
	• 1-5/16	Kwik-Flange K150	K4-L2	2.16	NW40	221465	KGK-150-K4-L2	1	8	6	-
	• 1-5/16	Kwik-Flange K200	K5-L1	2.95	NW50	221166	KGK-150-K5-L1	1	3	1	-
	• 1-5/16	Kwik-Flange K200	K5-L2	2.95	NW50	221466	KGK-150-K5-L2	1	8	6	-
2"	• 1-13/16	2" O.D. Tube	T-L1	-	-	221191	KGK-200-T-L1	1	3-3/8	1	.040
	• 1-13/16	2" O.D. Tube	T-L2	-	-	221491	KGK-200-T-L2	1	8-3/8	6	.040
	• 1-13/16	CF 3-3/8" Flange	F3-L1	3.37	-	221192	KGK-200-F3-L1	1	3-1/2	1	-
	• 1-13/16	CF 3-3/8" Flange	F3-L2	3.37	-	221492	KGK-200-F3-L2	1	8-1/2	6	-
	• 1-13/16	CF 4-1/2" Flange	F4-L1	4.47	-	221193	KGK-200-F4-L1	1	3-1/2	1	-
	• 1-13/16	CF 4-1/2" Flange	F4-L2	4.47	-	221493	KGK-200-F4-L2	1	8-1/2	6	-
	• 1-13/16	Kwik-Flange K200	K5-L1	2.95	NW50	221194	KGK-200-K5-L1	1	3-1/2	1	-
	• 1-13/16	Kwik-Flange K200	K5-L2	2.95	NW50	221494	KGK-200-K5-L2	1	8-1/2	6	-
	• 1-13/16	Large-Flange L250	L6-L1	3.74	NW63	221195	KGK-200-L6-L1	1	3-1/2	1	-
	• 1-13/16	Large-Flange L250	L6-L2	3.74	NW63	221495	KGK-200-L6-L2	1	8-1/2	6	-
2-1/2"	• 2-3/16	2-1/2" O.D. Tube	T-L1	-	-	221211	KGK-250-T-L1	1	4-3/8	1-3/4	.040
	• 2-3/16	2-1/2" O.D. Tube	T-L2	-	-	221511	KGK-250-T-L2	1	9-3/8	6-3/4	.040
	• 2-3/16	CF 4-1/2" Flange	F4-L1	4.47	-	221212	KGK-250-F4-L1	1	4-1/2	1-3/4	-
	• 2-3/16	CF 4-1/2" Flange	F4-L2	4.47	-	221512	KGK-250-F4-L2	1	9-1/2	6-3/4	-
	• 2-3/16	Large-Flange L250	L6-L1	3.74	NW63	221214	KGK-250-L6-L1	1	4-1/2	1-3/4	-
	• 2-3/16	Large-Flange L250	L6-L2	3.74	NW63	221514	KGK-250-L6-L2	1	9-1/2	6-3/4	-
	• 2-3/16	Large-Flange L300	L8-L1	4.33	NW80	221215	KGK-250-L8-L1	1	4-1/2	1-3/4	-
	• 2-3/16	Large-Flange L300	L8-L2	4.35	NW80	221515	KGK-250-L8-L2	1	9-1/2	6-3/4	-

Double Ended Glas Adaptors



Kovar-to-7052 Glass-to-Bellows Bellows 1" Flex Lgth., .006 Thick						304 SS-to-7740 PYREX-to-304 SS ⁽⁴⁾					
Code	Model Number	Fig #	Lgth L	Glass G	Metal T	Code	Model Number	Fig #	Lgth L	Glass G	Metal T ⁽³⁾
222161	KGB-150-T-L1	2	4-7/8	1	.030	223161	SPS-150-T-L1	1	4-1/4	1	.065
222461	KGB-150-T-L2	2	9-7/8	6	.030	223461	SPS-150-T-L2	1	9-1/4	6	.065
222162 ^(a)	KGB-150-F2-L1	2	5	1	-	223162	SPS-150-F2-L1	1	4-3/8	1	-
222462 ^(a)	KGB-150-F2-L2	2	10	6	-	223462	SPS-150-F2-L2	1	9-3/8	6	-
222163	KGB-150-F3-L1	2	5	1	-	223163	SPS-150-F3-L1	1	4-3/8	1	-
222463	KGB-150-F3-L2	2	10	6	-	223463	SPS-150-F3-L2	1	9-3/8	6	-
222165	KGB-150-K4-L1	2	5	1	-	223165	SPS-150-K4-L1	1	4-3/8	1	-
222465	KGB-150-K4-L2	2	10	6	-	223465	SPS-150-K4-L2	1	9-3/8	6	-
222166	KGB-150-K5-L1	2	5	1	-	223166	SPS-150-K5-L1	1	4-3/8	1	-
222466	KGB-150-K5-L2	2	10	6	-	223466	SPS-150-K5-L2	1	9-3/8	6	-
222191	KGB-200-T-L1	2	5-1/8	1	.040	223191	SPS-200-T-L1	1	5	1	.065
222491	KGB-200-T-L2	2	10-1/8	6	.040	223491	SPS-200-T-L2	1	10	6	.065
222192 ^(b)	KGB-200-F3-L1	2	5-1/4	1	-	223192	SPS-200-F3-L1	1	5-1/8	1	-
222492 ^(b)	KGB-200-F3-L2	2	10-1/4	6	-	223492	SPS-200-F3-L2	1	10-1/8	6	-
222193	KGB-200-F4-L1	2	5-1/4	1	-	223193	SPS-200-F4-L1	1	5-1/8	1	-
222493	KGB-200-F4-L2	2	10-1/4	6	-	223493	SPS-200-F4-L2	1	10-1/8	6	-
222194	KGB-200-K5-L1	2	5-1/4	1	-	223194	SPS-200-K5-L1	1	5-1/8	1	-
222494	KGB-200-K5-L2	2	10-1/4	6	-	223494	SPS-200-K5-L2	1	10-1/8	6	-
222195	KGB-200-L6-L1	2	5-1/4	1	-	223195	SPS-200-L6-L1	1	5-1/8	1	-
222495	KGB-200-L6-L2	2	10-1/4	6	-	223495	SPS-200-L6-L2	1	10-1/8	6	-
222211	KGB-250-T-L1	2	5-1/8	1	.040	223211	SPS-250-T-L1	1	5	1	.065
222511	KGB-250-T-L2	2	10-1/8	6	.040	223511	SPS-250-T-L2	1	10	6	.065
222212 ^(c)	KGB-250-F4-L1	2	5-1/4	1	-	223212	SPS-250-F4-L1	1	5-1/8	1	-
222512 ^(c)	KGB-250-F4-L2	2	10-1/4	6	-	223512	SPS-250-F4-L2	1	10-1/8	6	-
222214	KGB-250-L6-L1	2	5-1/4	1	-	223214	SPS-250-L6-L1	1	5-1/8	1	-
222514	KGB-250-L6-L2	2	10-1/4	6	-	223514	SPS-250-L6-L2	1	10-1/8	6	-
222215	KGB-250-L8-L1	2	5-1/4	1	-	223215	SPS-250-L8-L1	1	5-1/8	1	-
222515	KGB-250-L8-L2	2	10-1/4	6	-	223515	SPS-250-L8-L2	1	10-1/8	6	-

Double Ended Glas Adaptors



Notes:

1. Dimensions are in inches except where noted.
2. Overall lengths (L) and Glass lengths (G) are nominal $\pm 1/8$ inch.
3. End of SS .065 wall (T) tubular-seals are thinned to .030 for welding.
4. 304 SS-to-PyREX (Tube and CF Flange models) bakeable to 450°C.

Kovar-to-7052 Glass-to-Kovar

Nom Size	Glass Nom ID	Description Both Ends	Ref	Flange OD	ISO No.	Code	Model Number	Fig #	Lgth L	Glass G	Metal T
3"	• 2-11/16	3" O.D. Tube	T-L1	-	-	221231	KGK-300-T-L1	1	4-3/8	2	.040
	• 2-11/16	3" O.D. Tube	T-L2	-	-	221531	KGK-300-T-L2	1	9-3/8	7	.040
	• 2-11/16	CF 4-5/8" Flange	F5-L1	4.62	-	221232	KGK-300-F5-L1	1	4-1/2	2	-
	• 2-11/16	CF 4-5/8" Flange	F5-L2	4.62	-	221532	KGK-300-F5-L2	1	9-1/2	7	-
	• 2-11/16	CF 6" Flange	F6-L1	5.97	-	221233	KGK-300-F6-L1	1	4-1/2	2	-
	• 2-11/16	CF 6" Flange	F6-L2	5.97	-	221533	KGK-300-F6-L2	1	9-1/2	7	-
	• 2-11/16	Large-Flange L300	L8-L1	4.33	NW80	221234	KGK-300-L8-L1	1	4-1/2	2	-
	• 2-11/16	Large-Flange L300	L8-L2	4.33	NW80	221534	KGK-300-L8-L2	1	9-1/2	7	-
	• 2-11/16	Large-Flange L400	L10-L1	5.12	NW100	221235	KGK-300-L10-L1	1	4-1/2	2	-
	• 2-11/16	Large-Flange L400	L10-L2	5.12	NW100	221535	KGK-300-L10-L2	1	9-1/2	7	-
	• 3-11/16	4" O.D. Tube	T-L1	-	-	221271	KGK-400-T-L1	1	4-3/8	1	.030
	• 3-11/16	4" O.D. Tube	T-L2	-	-	221571	KGK-400-T-L2	1	9-3/8	6	.030
4"	• 3-11/16	CF 6" Flange	F6-L1	5.97	-	221272	KGK-400-F6-L1	1	4-1/2	1	-
	• 3-11/16	CF 6" Flange	F6-L2	5.97	-	221572	KGK-400-F6-L2	1	9-1/2	6	-
	• 3-11/16	Large-Flange L400	L10-L1	5.12	NW100	221274	KGK-400-L10-L1	1	4-1/2	1	-
	• 3-11/16	Large-Flange L400	L10-L2	5.12	NW100	221574	KGK-400-L10-L2	1	9-1/2	6	-
	• 3-11/16	Large-Flange L600	L16-L1	7.09	NW160	221275	KGK-400-L16-L1	1	4-1/2	1	-
	• 3-11/16	Large-Flange L600	L16-L2	7.09	NW160	221575	KGK-400-L16-L2	1	9-1/2	6	-
5"	• 4-1/2	5" O.D. Tube	T-L1	-	-	221281	KGK-500-T-L1	1	4-3/8	1	.040
	• 4-1/2	5" O.D. Tube	T-L2	-	-	221581	KGK-500-T-L2	1	9-3/8	6	.040
	• 4-1/2	CF 6-3/4" Flange	F7-L1	6.75	-	221282	KGK-500-F7-L1	1	4-1/2	1	-
	• 4-1/2	CF 6-3/4" Flange	F7-L2	6.75	-	221582	KGK-500-F7-L2	1	9-1/2	6	-
	• 4-1/2	Large-Flange L600	L16-L1	7.09	NW160	221283	KGK-500-L16-L1	1	4-1/2	1	-
	• 4-1/2	Large-Flange L600	L16-L2	7.09	NW160	221583	KGK-500-L16-L2	1	9-1/2	6	-
	• 4-1/2	Large-Flange L800	L20-L1	9.45	NW200	221284	KGK-500-L20-L1	1	4-1/2	1	-
	• 4-1/2	Large-Flange L800	L20-L2	9.45	NW200	221584	KGK-500-L20-L2	1	9-1/2	6	-
6"	• 5-1/2	6" O.D. Tube	T-L1	-	-	221291	KGK-600-T-L1	1	4-3/8	1	.040
	• 5-1/2	6" O.D. Tube	T-L2	-	-	221591	KGK-600-T-L2	1	9-3/8	6	.040
	• 5-1/2	CF 8" Flange	F8-L1	7.97	-	221292	KGK-600-F8-L1	1	4-1/2	1	-
	• 5-1/2	CF 8" Flange	F8-L2	7.97	-	221592	KGK-600-F8-L2	1	9-1/2	6	-
	• 5-1/2	Large-Flange L600	L16-L1	7.09	NW160	221294	KGK-600-L16-L1	1	4-1/2	1	-
	• 5-1/2	Large-Flange L600	L16-L2	7.09	NW160	221594	KGK-600-L16-L2	1	9-1/2	6	-
	• 5-1/2	Large-Flange L800	L20-L1	9.45	NW200	221295	KGK-600-L20-L1	1	4-1/2	1	-
	• 5-1/2	Large-Flange L800	L20-L2	9.45	NW200	221595	KGK-600-L20-L2	1	9-1/2	6	-

Double Ended Glas Adaptors

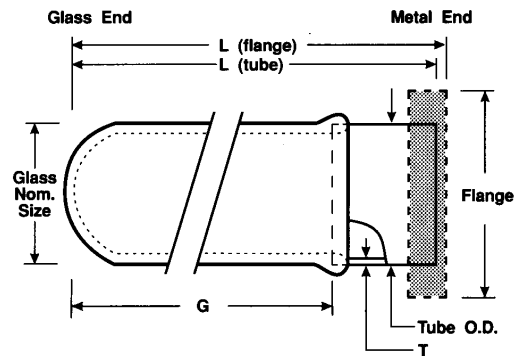


Kovar-to-7052 Glass-to-Bellows Bellows 1" Flex Lgth., .006 Thick						304 SS-to-7740 PYREX-to-304 SS ⁽⁴⁾					
Code	Model Number	Fig #	Lgth L	Glass G	Metal T	Code	Model Number	Fig #	Lgth L	Glass G	Metal T ⁽³⁾
222161	KGB-150-T-L1	2	4-7/8	1	.030	223161	SPS-150-T-L1	1	4-1/4	1	.065
222461	KGB-150-T-L2	2	9-7/8	6	.030	223461	SPS-150-T-L2	1	9-1/4	6	.065
222162 ^(a)	KGB-150-F2-L1	2	5	1	-	223162	SPS-150-F2-L1	1	4-3/8	1	-
222462 ^(a)	KGB-150-F2-L2	2	10	6	-	223462	SPS-150-F2-L2	1	9-3/8	6	-
222163	KGB-150-F3-L1	2	5	1	-	223163	SPS-150-F3-L1	1	4-3/8	1	-
222463	KGB-150-F3-L2	2	10	6	-	223463	SPS-150-F3-L2	1	9-3/8	6	-
222165	KGB-150-K4-L1	2	5	1	-	223165	SPS-150-K4-L1	1	4-3/8	1	-
222465	KGB-150-K4-L2	2	10	6	-	223465	SPS-150-K4-L2	1	9-3/8	6	-
222166	KGB-150-K5-L1	2	5	1	-	223166	SPS-150-K5-L1	1	4-3/8	1	-
222466	KGB-150-K5-L2	2	10	6	-	223466	SPS-150-K5-L2	1	9-3/8	6	-
222191	KGB-200-T-L1	2	5-1/8	1	.040	223191	SPS-200-T-L1	1	5	1	.065
222491	KGB-200-T-L2	2	10-1/8	6	.040	223491	SPS-200-T-L2	1	10	6	.065
222192 ^(b)	KGB-200-F3-L1	2	5-1/4	1	-	223192	SPS-200-F3-L1	1	5-1/8	1	-
222492 ^(b)	KGB-200-F3-L2	2	10-1/4	6	-	223492	SPS-200-F3-L2	1	10-1/8	6	-
222193	KGB-200-F4-L1	2	5-1/4	1	-	223193	SPS-200-F4-L1	1	5-1/8	1	-
222493	KGB-200-F4-L2	2	10-1/4	6	-	223493	SPS-200-F4-L2	1	10-1/8	6	-
222194	KGB-200-K5-L1	2	5-1/4	1	-	223194	SPS-200-K5-L1	1	5-1/8	1	-
222494	KGB-200-K5-L2	2	10-1/4	6	-	223494	SPS-200-K5-L2	1	10-1/8	6	-
222195	KGB-200-L6-L1	2	5-1/4	1	-	223195	SPS-200-L6-L1	1	5-1/8	1	-
222495	KGB-200-L6-L2	2	10-1/4	6	-	223495	SPS-200-L6-L2	1	10-1/8	6	-
222211	KGB-250-T-L1	2	5-1/8	1	.040	223211	SPS-250-T-L1	1	5	1	.065
222511	KGB-250-T-L2	2	10-1/8	6	.040	223511	SPS-250-T-L2	1	10	6	.065
222212 ^(c)	KGB-250-F4-L1	2	5-1/4	1	-	223212	SPS-250-F4-L1	1	5-1/8	1	-
222512 ^(c)	KGB-250-F4-L2	2	10-1/4	6	-	223512	SPS-250-F4-L2	1	10-1/8	6	-
222214	KGB-250-L6-L1	2	5-1/4	1	-	223214	SPS-250-L6-L1	1	5-1/8	1	-
222514	KGB-250-L6-L2	2	10-1/4	6	-	223514	SPS-250-L6-L2	1	10-1/8	6	-
222215	KGB-250-L8-L1	2	5-1/4	1	-	223215	SPS-250-L8-L1	1	5-1/8	1	-
222515	KGB-250-L8-L2	2	10-1/4	6	-	223515	SPS-250-L8-L2	1	10-1/8	6	-

Closed End Glass Adaptors Kovar-to-7052 Glass

FEATURES

- 10 standard sizes from 1/2 thru 6 inch
- Other non-standard sizes available
- Choice of materials:
 - Kovar-to-7052 Glass
 - 304 SS-to-7740 PYREX
 - 304 SS-to-Quartz
 - Special Glass available
- Choice of glass length:
 - Standard length (L1)
 - Long Length (L2)
 - Custom Lengths
- Choice of SS metal-end vacuum seal:
 - Tubular Seal
 - CF Type Flange
 - ISO Kwik-Flange
 - ISO Large-Flange
 - Custom Flange
- CF Type Flange repeat bakeout cycles to 450°C⁽⁵⁾
- CF Type Flange vacuum range to below 10⁻¹¹ torr.
- ISO flange intermittent bakeout cycles to 200°C⁽⁶⁾
- ISO flange vacuum range to 10⁻⁹ torr.

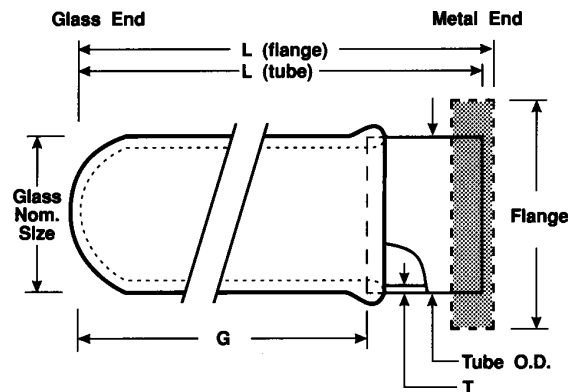


Nom Size	Glass Nom ID	Metal-End	Ref	Flange OD	ISO No.	Code	Model Number	Lgth L	Glass G	Metal T
1/2"	• 5/16	1/2" O.D. Tube	T-L1	-	-	231071	KGD-050-T-L1	5-7/8	4-3/4	.030
	• 5/16	1/2" O.D. Tube	T-L2	-	-	231371	KGD-050-T-L2	9-7/8	8-3/4	.030
	• 5/16	CF 1-1/3" Flange	F1-L1	1.33	-	231072	KGD-050-F1-L1	6	4-3/4	-
	• 5/16	CF 1-1/3" Flange	F1-L2	1.33	-	231372	KGD-050-F1-L2	10	8-3/4	-
	• 5/16	Kwik-Flange K075	K1-L1	1.18	NW16	231074	KGD-050-K1-L1	6	4-3/4	-
	• 5/16	Kwik-Flange K075	K1-L2	1.18	NW16	231374	KGD-050-K1-L2	10	8-3/4	-
	• 5/16	Kwik-Flange K100	K2-L1	1.57	NW25	231075	KGD-050-K2-L1	6	4-3/4	-
	• 5/16	Kwik-Flange K100	K2-L2	1.57	NW25	231375	KGD-050-K2-L2	10	8-3/4	-
3/4"	• 9/16	3/4" O.D. Tube	T-L1	-	-	231101	KGD-075-T-L1	5-7/8	4-3/4	.030
	• 9/16	3/4" O.D. Tube	T-L2	-	-	231401	KGD-075-T-L2	9-7/8	8-3/4	.030
	• 9/16	CF 1-1/3" Flange	F1-L1	1.33	-	231102	KGD-075-F1-L1	6	4-3/4	-
	• 9/16	CF 1-1/3" Flange	F1-L2	1.33	-	231402	KGD-075-F1-L2	10	8-3/4	-
	• 9/16	Kwik-Flange K075	K1-L1	1.18	NW16	231104	KGD-075-K1-L1	6	4-3/4	-
	• 9/16	Kwik-Flange K075	K1-L2	1.18	NW16	231404	KGD-075-K1-L2	10	8-3/4	-
	• 9/16	Kwik-Flange K100	K2-L1	1.57	NW25	231105	KGD-075-K2-L1	6	4-3/4	-
	• 9/16	Kwik-Flange K100	K2-L2	1.57	NW25	231405	KGD-075-K2-L2	10	8-3/4	-
	• 9/16	Kwik-Flange K150	K4-L1	2.16	NW40	231106	KGD-075-K4-L1	6	4-3/4	-
	• 9/16	Kwik-Flange K150	K4-L2	2.16	NW40	231406	KGD-075-K4-L2	10	8-3/4	-
1"	• 13/16	1" O.D. Tube	T-L1	-	-	231121	KGD-100-T-L1	5-7/8	4-3/4	.030
	• 13/16	1" O.D. Tube	T-L2	-	-	231421	KGD-100-T-L2	9-7/8	8-3/4	.030
	• 13/16	CF 2-3/4" Flange	F2-L1	2.73	-	231122	KGD-100-F2-L1	6	4-3/4	-
	• 13/16	CF 2-3/4" Flange	F2-L2	2.73	-	231422	KGD-100-F2-L2	10	8-3/4	-
	• 13/16	Kwik-Flange K100	K2-L1	1.57	NW25	231123	KGD-100-K2-L1	6	4-3/4	-
	• 13/16	Kwik-Flange K100	K2-L2	1.57	NW25	231423	KGD-100-K2-L2	10	8-3/4	-
	• 13/16	Kwik-Flange K150	K4-L1	2.16	NW40	231124	KGD-100-K4-L1	6	4-3/4	-
	• 13/16	Kwik-Flange K150	K4-L2	2.16	NW40	231424	KGD-100-K4-L2	10	8-3/4	-
	• 13/16	Kwik-Flange K200	K5-L1	2.95	NW50	231125	KGD-100-K5-L1	6	4-3/4	-
	• 13/16	Kwik-Flange K200	K5-L2	2.95	NW50	231425	KGD-100-K5-L2	10	8-3/4	-

SS-to-7740 PYREX ; SS-to-Quartz auf Anfrage



Closed End Glass Adaptors Kovar-to-7052 Glass



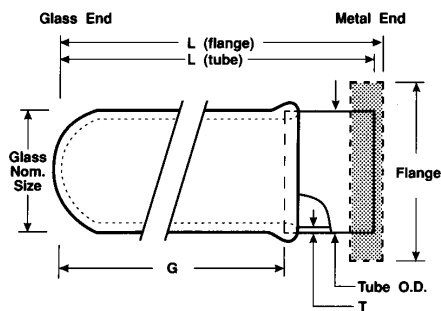
Notes:

1. Dimensions are in inches except where noted.
2. Overall lengths (L) and Glass lengths (G) are nominal $\pm 1/8$ inch.
3. End of SS .065 wall (T) tubular-seals are thinned to .030 for welding.
4. (G) section of L1 std. lgth. models includes approx. 4" of Quartz; (G) section of L2 long lgth. is approx. 8" Quartz. Remainder is graded seal.
5. Kovar-to-7052 Glass (Tube and CF Flange models) bakeable to 400°C.

Nom Size	Glass Nom ID	Metal-End	Ref	Flange OD	ISO No.	Code	Model Number	Lgth L	Glass G	Metal T
1-1/2"	• 1-5/16	1-1/2" O.D. Tube	T-L1	-	-	231161	KGD-150-T-L1	5-7/8	4-3/4	.030
	• 1-5/16	1-1/2" O.D. Tube	T-L2	-	-	231461	KGD-150-T-L2	9-7/8	8-3/4	.030
	• 1-5/16	CF 2-3/4" Flange	F2-L1	2.73	-	231162	KGD-150-F2-L1	6	4-3/4	-
	• 1-5/16	CF 2-3/4" Flange	F2-L2	2.73	-	231462	KGD-150-F2-L2	10	8-3/4	-
	• 1-5/16	CF 3-3/8" Flange	F3-L1	3.37	-	231163	KGD-150-F3-L1	6	4-3/4	-
	• 1-5/16	CF 3-3/8" Flange	F3-L2	3.37	-	231463	KGD-150-F3-L2	10	8-3/4	-
	• 1-5/16	Kwik-Flange K150	K4-L1	2.16	NW40	231165	KGD-150-K4-L1	6	4-3/4	-
	• 1-5/16	Kwik-Flange K150	K4-L2	2.16	NW40	231465	KGD-150-K4-L2	10	8-3/4	-
	• 1-5/16	Kwik-Flange K200	K5-L1	2.95	NW50	231166	KGD-150-K5-L1	6	4-3/4	-
	• 1-5/16	Kwik-Flange K200	K5-L2	2.95	NW50	231466	KGD-150-K5-L2	10	8-3/4	-
2"	• 1-13/16	2" O.D. Tube	T-L1	-	-	231191	KGD-200-T-L1	5-7/8	4-1/4	.040
	• 1-13/16	2" O.D. Tube	T-L2	-	-	231491	KGD-200-T-L2	9-7/8	8-1/4	.040
	• 1-13/16	CF 3-3/8" Flange	F3-L1	3.37	-	231192	KGD-200-F3-L1	6	4-1/4	-
	• 1-13/16	CF 3-3/8" Flange	F3-L2	3.37	-	231492	KGD-200-F3-L2	10	8-1/4	-
	• 1-13/16	CF 4-1/2" Flange	F4-L1	4.47	-	231193	KGD-200-F4-L1	6	4-1/4	-
	• 1-13/16	CF 4-1/2" Flange	F4-L2	4.47	-	231493	KGD-200-F4-L2	10	8-1/4	-
	• 1-13/16	Kwik-Flange K200	K5-L1	2.95	NW50	231194	KGD-200-K5-L1	6	4-1/4	-
	• 1-13/16	Kwik-Flange K200	K5-L2	2.95	NW50	231494	KGD-200-K5-L2	10	8-1/4	-
	• 1-13/16	Large-Flange L250	L6-L1	3.74	NW63	231195	KGD-200-L6-L1	6	4-1/4	-
	• 1-13/16	Large-Flange L250	L6-L2	3.74	NW63	231495	KGD-200-L6-L2	10	8-1/4	-
2-1/2"	• 2-3/16	2-1/2" O.D. Tube	T-L1	-	-	231211	KGD-250-T-L1	5-7/8	4-1/4	.040
	• 2-3/16	2-1/2" O.D. Tube	T-L2	-	-	231511	KGD-250-T-L2	9-7/8	8-1/4	.040
	• 2-3/16	CF 4-1/2" Flange	F4-L1	4.47	-	231212	KGD-250-F4-L1	6	4-1/4	-
	• 2-3/16	CF 4-1/2" Flange	F4-L2	4.47	-	231512	KGD-250-F4-L2	10	8-1/4	-
	• 2-3/16	Large-Flange L250	L6-L1	3.74	NW63	231214	KGD-250-L6-L1	6	4-1/4	-
	• 2-3/16	Large-Flange L250	L6-L2	3.74	NW63	231514	KGD-250-L6-L2	10	8-1/4	-
	• 2-3/16	Large-Flange L300	L8-L1	4.33	NW80	231215	KGD-250-L8-L1	6	4-1/4	-
	• 2-3/16	Large-Flange L300	L8-L2	4.33	NW80	231515	KGD-250-L8-L2	10	8-1/4	-

SS-to-7740 PYREX ; SS-to-Quartz auf Anfrage

Closed End Glass Adaptors Kovar-to-7052 Glass



Notes:

1. Dimensions are in inches except where noted.
2. Overall lengths (L) and Glass lengths (G) are nominal $\pm 1/8$ inch.
3. End of SS .065 wall (T) tubular-seals are thinned to .030 for welding.
4. (G) section of L1 std. lgth. models includes approx. 4" of Quartz; (G) section of L2 long lgth. is approx. 8" Quartz. Remainder is graded seal.
5. Kovar-to-7052 Glass (Tube and CF Flange models) bakeable to 400°C.

Nom Size	Glass Nom ID	Metal-End	Ref	Flange OD	ISO No.	Code	Model Number	Lgth L	Glass G	Metal T
3"	• 2-11/16	3" O.D. Tube	T-L1	-	-	231231	KGD-300-T-L1	5-7/8	4-1/4	.040
	• 2-11/16	3" O.D. Tube	T-L2	-	-	231531	KGD-300-T-L2	9-7/8	8-1/4	.040
	• 2-11/16	CF 4-5/8" Flange	F5-L1	4.62	-	231232	KGD-300-F5-L1	6	4-1/4	-
	• 2-11/16	CF 4-5/8" Flange	F5-L1	4.62	-	231532	KGD-300-F5-L2	10	8-1/4	-
	• 2-11/16	CF 6" Flange	F6-L1	5.97	-	231233	KGD-300-F6-L1	6	4-1/4	-
	• 2-11/16	CF 6" Flange	F6-L2	5.97	-	231533	KGD-300-F6-L2	10	8-1/4	-
	• 2-11/16	Large-Flange L300	L8-L1	4.33	NW80	231234	KGD-300-L8-L1	6	4-1/4	-
	• 2-11/16	Large-Flange L300	L8-L2	4.33	NW80	231534	KGD-300-L8-L2	10	8-1/4	-
	• 2-11/16	Large-Flange L400	L10-L1	5.12	NW100	231235	KGD-300-L10-L1	6	4-1/4	-
	• 2-11/16	Large-Flange L400	L10-L2	5.12	NW100	231535	KGD-300-L10-L2	10	8-1/4	-
4"	• 3-11/16	4" O.D. Tube	T-L1	-	-	231271	KGD-400-T-L1	5-7/8	3-7/8	.030
	• 3-11/16	4" O.D. Tube	T-L2	-	-	231571	KGD-400-T-L2	9-7/8	7-7/8	.030
	• 3-11/16	CF 6" Flange	F6-L1	5.97	-	231272	KGD-400-F6-L1	6	3-7/8	-
	• 3-11/16	CF 6" Flange	F6-L2	5.97	-	231572	KGD-400-F6-L2	10	7-7/8	-
	• 3-11/16	Large-Flange L400	L10-L1	5.12	NW100	231274	KGD-400-L10-L1	6	3-7/8	-
	• 3-11/16	Large-Flange L400	L10-L2	5.12	NW100	231574	KGD-400-L10-L2	10	7-7/8	-
	• 3-11/16	Large-Flange L600	L16-L1	7.09	NW160	231275	KGD-400-L16-L1	6	3-7/8	-
	• 3-11/16	Large-Flange L600	L16-L2	7.09	NW160	231575	KGD-400-L16-L2	10	7-7/8	-
5"	• 4-1/2	5" O.D. Tube	T-L1	-	-	231281	KGD-500-T-L1	5-7/8	3-7/8	.040
	• 4-1/2	5" O.D. Tube	T-L2	-	-	231581	KGD-500-T-L2	9-7/8	7-7/8	.040
	• 4-1/2	CF 6-3/4" Flange	F7-L1	6.75	-	231282	KGD-500-F7-L1	6	3-7/8	-
	• 4-1/2	CF 6-3/4" Flange	F7-L2	6.75	-	231582	KGD-500-F7-L2	10	7-7/8	-
	• 4-1/2	Large-Flange L600	L16-L1	7.09	NW160	231283	KGD-500-L16-L1	6	3-7/8	-
	• 4-1/2	Large-Flange L600	L16-L2	7.09	NW160	231583	KGD-500-L16-L2	10	7-7/8	-
	• 4-1/2	Large-Flange L800	L20-L1	9.45	NW200	231284	KGD-500-L20-L1	6	3-7/8	-
	• 4-1/2	Large-Flange L800	L20-L2	9.45	NW200	231584	KGD-500-L20-L2	10	7-7/8	-
6"	• 5-1/2	6" O.D. Tube	T-L1	-	-	231291	KGD-600-T-L1	5-7/8	3-7/8	.040
	• 5-1/2	6" O.D. Tube	T-L2	-	-	231591	KGD-600-T-L2	9-7/8	7-7/8	.040
	• 5-1/2	CF 8" Flange	F8-L1	7.97	-	231292	KGD-600-F8-L1	6	3-7/8	-
	• 5-1/2	CF 8" Flange	F8-L2	7.97	-	231592	KGD-600-F8-L2	10	7-7/8	-
	• 5-1/2	Large-Flange L600	L16-L1	7.09	NW160	231294	KGD-600-L16-L1	6	3-7/8	-
	• 5-1/2	Large-Flange L600	L16-L2	7.09	NW160	231594	KGD-600-L16-L2	10	7-7/8	-
	• 5-1/2	Large-Flange L800	L20-L1	9.45	NW200	231295	KGD-600-L20-L1	6	3-7/8	-
	• 5-1/2	Large-Flange L800	L20-L2	9.45	NW200	231595	KGD-600-L20-L2	10	7-7/8	-

SS-to-7740 PYREX ; SS-to-Quartz auf Anfrage

Closed End Glass Adaptors
Kovar-to-7052 Glass

3" ; 4"

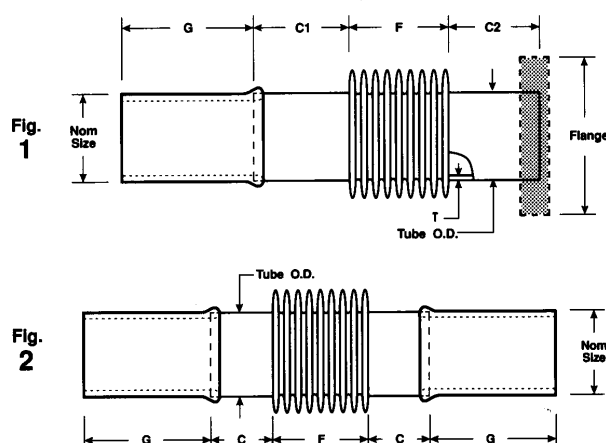
304 Stainless Steel-to-7740 PYREX					304 Stainless Steel-to-Quartz with PYREX-to-Quartz Graded Seal				
Code	Model Number	Lgth L	Glass G	Metal T ⁽³⁾	Code	Model Number	Lgth L	Glass G ⁽⁴⁾	Metal T ⁽³⁾
232231	SPD-300-T-L1	6-1/2	4-1/4	.065	233231	SQD-300-T-L1	9	6-3/4	.065
232531	SPD-300-T-L2	10-1/2	8-1/4	.065	233531	SQD-300-T-L2	13	10-3/4	.065
232232	SPD-300-F5-L1	6-5/8	4-1/4	-	233232	SQD-300-F5-L1	9-1/8	6-3/4	-
232532	SPD-300-F5-L2	10-5/8	8-1/4	-	233532	SQD-300-F5-L2	13-1/8	10-3/4	-
232233	SPD-300-F6-L1	6-5/8	4-1/4	-	233233	SQD-300-F6-L1	9-1/8	6-3/4	-
232533	SPD-300-F6-L2	10-5/8	8-1/4	-	233533	SQD-300-F6-L2	13-1/8	10-3/4	-
232234	SPD-300-L8-L1	6-5/8	4-1/4	-	233234	SQD-300-L8-L1	9-1/8	6-3/4	-
232534	SPD-300-L8-L2	10-5/8	8-1/4	-	233534	SQD-300-L8-L2	13-1/8	10-3/4	-
232235	SPD-300-L10-L1	6-5/8	4-1/4	-	233235	SQD-300-L10-L1	9-1/8	6-3/4	-
232535	SPD-300-L10-L2	10-5/8	8-1/4	-	233535	SQD-300-L10-L2	13-1/8	10-3/4	-
232271	SPD-400-T-L1	6-1/2	4-1/4	.065	-	-	-	-	-
232571	SPD-400-T-L2	10-1/2	8-1/4	.065	-	-	-	-	-
232272	SPD-400-F6-L1	6-5/8	4-1/4	-	-	-	-	-	-
232572	SPD-400-F6-L2	10-5/8	8-1/4	-	-	-	-	-	-
232274	SPD-400-L10-L1	6-5/8	4-1/4	-	-	-	-	-	-
232574	SPD-400-L10-L2	10-5/8	8-1/4	-	-	-	-	-	-
232275	SPD-400-L16-L1	6-5/8	4-1/4	-	-	-	-	-	-
232575	SPD-400-L16-L2	10-5/8	8-1/4	-	-	-	-	-	-



SS Bellows-to-PYREX Adaptors

FEATURES

- 9 standard sizes from 1/4 thru 3 inch
- Other non-standard sizes available
- Choice of configurations:
Type 321 SS-to-7740 PYREX at one end and standard cuff, heavy cuff or flange at other end
Type 321 SS-to-7740 PYREX at both ends
- Choice of two Flex Lengths (F) in each size
- Custom Flex Lengths available
- *Quartz and special glass available*
- Choice of flanges:
CF Type Flanges
ISO *Kwik-Flange*
ISO *Large-Flange*
Custom Flanges
- CF Type Flange repeat bakeout cycles to 450°C
- CF Type Flange vacuum range to below 10⁻¹¹ torr.
- ISO flange intermittent bakeout cycles to 200°C⁽⁴⁾
- ISO flange vacuum range to 10⁻⁹ torr.



Glass End Nom Size	Metal-End	Ref	Flange OD	ISO No.	Max Bend	Code	Model Number	Fig #	Flex F	Cuffs C ^{1&2}	Glass G	Metal T
1/4"	• 1/4" O.D. Tube	T-L2	-	-	180°	311031	BP1-025-ST-L2	1	2	3/4	3	.006
	• 1/4" O.D. Tube	T-L4	-	-	360°	311331	BP1-025-ST-L4	1	4	3/4	3	.006
	• CF 1-1/3" Flange	F1-L2	1.33	-	180°	311032	BP1-025-F1-L2	1	2	3/4	3	.006
	• CF 1-1/3" Flange	F1-L4	1.33	-	360°	311332	BP1-025-F1-L4	1	4	3/4	3	.006
	• <i>Kwik-Flange</i> K075	K1-L2	1.18	NW16	180°	311033	BP1-025-K1-L2	1	2	3/4	3	.006
	• <i>Kwik-Flange</i> K075	K1-L4	1.18	NW16	360°	311333	BP1-025-K1-L4	1	4	3/4	3	.006
	• <i>Kwik-Flange</i> K100	K2-L2	1.57	NW25	180°	311034	BP1-025-K2-L2	1	2	3/4	3	.006
	• <i>Kwik-Flange</i> K100	K2-L4	1.57	NW25	360°	311334	BP1-025-K2-L4	1	4	3/4	3	.006
	• 3/8" O.D. Tube	T-L1	-	-	90°	311051	BP1-037-ST-L1	1	1	3/4	3	.006
	• 3/8" O.D. Tube	T-L3	-	-	225°	311351	BP1-037-ST-L3	1	3	3/4	3	.006
3/8"	• CF 1-1/3" Flange	F1-L1	1.33	-	90°	311052	BP1-037-F1-L1	1	1	3/4	3	.006
	• CF 1-1/3" Flange	F1-L3	1.33	-	225°	311352	BP1-037-F1-L3	1	3	3/4	3	.006
	• <i>Kwik-Flange</i> K075	K1-L1	1.18	NW16	90°	311054	BP1-037-K1-L1	1	1	3/4	3	.006
	• <i>Kwik-Flange</i> K075	K1-L3	1.18	NW16	225°	311354	BP1-037-K1-L3	1	3	3/4	3	.006
	• <i>Kwik-Flange</i> K100	K2-L1	1.57	NW25	90°	311055	BP1-037-K2-L1	1	1	3/4	3	.006
	• <i>Kwik-Flange</i> K100	K2-L3	1.57	NW25	225°	311355	BP1-037-K2-L3	1	3	3/4	3	.006
	• 1/2" O.D. Tube	T-L1	-	-	45°	311071	BP1-050-ST-L1	1	1	1	3	.006
	• 1/2" O.D. Tube	T-L3	-	-	180°	311371	BP1-050-ST-L3	1	3	1	3	.006
	• CF 1-1/3" Flange	F1-L1	1.33	-	45°	311072	BP1-050-F1-L1	1	1	1	3	.006
	• CF 1-1/3" Flange	F1-L3	1.33	-	180°	311372	BP1-050-F1-L3	1	3	1	3	.006
1/2"	• <i>Kwik-Flange</i> K075	K1-L1	1.18	NW16	45°	311074	BP1-050-K1-L1	1	1	1	3	.006
	• <i>Kwik-Flange</i> K075	K1-L3	1.18	NW16	180°	311374	BP1-050-K1-L3	1	3	1	3	.006
	• <i>Kwik-Flange</i> K100	K2-L1	1.57	NW25	45°	311075	BP1-050-K2-L1	1	1	1	3	.006
	• <i>Kwik-Flange</i> K100	K2-L3	1.57	NW25	180°	311375	BP1-050-K2-L3	1	3	1	3	.006

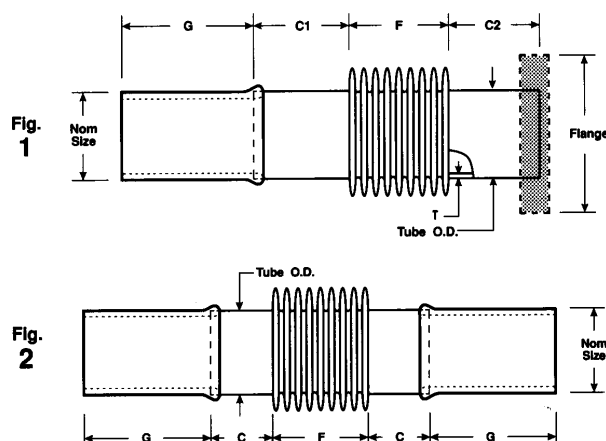
Both ends; Heavy cuff auf Anfrage



SS Bellows-to-PYREX Adaptors

FEATURES

- 9 standard sizes from 1/4 thru 3 inch
- Other non-standard sizes available
- Choice of configurations:
Type 321 SS-to-7740 PYREX at one end and standard cuff, heavy cuff or flange at other end
Type 321 SS-to-7740 PYREX at both ends
- Choice of two Flex Lengths (F) in each size
- Custom Flex Lengths available
- *Quartz and special glass available*
- Choice of flanges:
CF Type Flanges
ISO *Kwik-Flange*
ISO *Large-Flange*
Custom Flanges
- CF Type Flange repeat bakeout cycles to 450°C
- CF Type Flange vacuum range to below 10⁻¹¹ torr.
- ISO flange intermittent bakeout cycles to 200°C⁽⁴⁾
- ISO flange vacuum range to 10⁻⁹ torr.



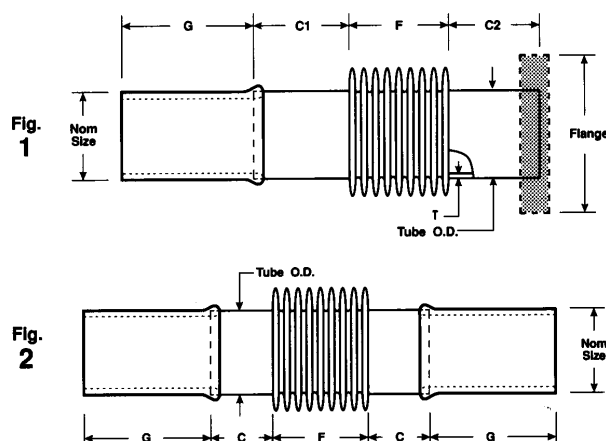
Glass End Nom Size	Metal-End	Ref	Flange OD	ISO No.	Max Bend	Code	Model Number	Fig #	Flex F	Cuffs C1&2	Glass G	Metal T
3/4"	• 3/4" O.D. Tube	T-L1	-	-	30°	311101	BP1-075-ST-L1	1	1	1	3	.006
	• 3/4" O.D. Tube	T-L3	-	-	90°	311401	BP1-075-ST-L3	1	3	1	3	.006
	• CF 1-1/3" Flange	F1-L1	1.33	-	30°	311102 ^(a)	BP1-075-F1-L1	1	1	1	3	.006
	• CF 1-1/3" Flange	F1-L3	1.33	-	90°	311402 ^(a)	BP1-075-F1-L3	1	3	1	3	.006
	• CF 2-3/4" Flange	F2-L1	2.73	-	30°	311103	BP1-075-F2-L1	1	1	1	3	.006
	• CF 2-3/4" Flange	F2-L3	2.73	-	90°	311403	BP1-075-F2-L3	1	3	1	3	.006
	• <i>Kwik-Flange</i> K075	K1-L1	1.18	NW16	30°	311104 ^(a)	BP1-075-K1-L1	1	1	1	3	.006
	• <i>Kwik-Flange</i> K075	K1-L3	1.18	NW16	90°	311404 ^(a)	BP1-075-K1-L3	1	3	1	3	.006
	• <i>Kwik-Flange</i> K100	K2-L1	1.57	NW25	30°	311105	BP1-075-K2-L1	1	1	1	3	.006
	• <i>Kwik-Flange</i> K100	K2-L3	1.57	NW25	90°	311405	BP1-075-K2-L3	1	3	1	3	.006
	• <i>Kwik-Flange</i> K150	K4-L1	2.16	NW40	30°	311106	BP1-075-K4-L1	1	1	1	3	.006
	• <i>Kwik-Flange</i> K150	K4-L3	2.16	NW40	90°	311406	BP1-075-K4-L3	1	3	1	3	.006
1"	• 1" O.D. Tube	T-L1	-	-	20°	311121	BP1-100-ST-L1	1	1	1	3	.006
	• 1" O.D. Tube	T-L3	-	-	90°	311421	BP1-100-ST-L3	1	3	1	3	.006
	• CF 2-3/4" Flange	F2-L1	2.73	-	20°	311122	BP1-100-F2-L1	1	1	1	3	.006
	• CF 2-3/4" Flange	F2-L3	2.73	-	90°	311422	BP1-100-F2-L3	1	3	1	3	.006
	• <i>Kwik-Flange</i> K100	K2-L1	1.57	NW25	20°	311123	BP1-100-K2-L1	1	1	1	3	.006
	• <i>Kwik-Flange</i> K100	K2-L3	1.57	NW25	90°	311423	BP1-100-K2-L3	1	3	1	3	.006
	• <i>Kwik-Flange</i> K150	K4-L1	2.16	NW40	20°	311124	BP1-100-K4-L1	1	1	1	3	.006
	• <i>Kwik-Flange</i> K150	K4-L3	2.16	NW40	90°	311424	BP1-100-K4-L3	1	3	1	3	.006
	• <i>Kwik-Flange</i> K200	K5-L1	2.95	NW50	20°	311125	BP1-100-K5-L1	1	1	1	3	.006
	• <i>Kwik-Flange</i> K200	K5-L3	2.95	NW50	90°	311425	BP1-100-K5-L3	1	3	1	3	.006

Both ends; Heavy cuff auf Anfrage

SS Bellows-to-PYREX Adaptors

FEATURES

- 9 standard sizes from 1/4 thru 3 inch
- Other non-standard sizes available
- Choice of configurations:
Type 321 SS-to-7740 PYREX at one end and standard cuff, heavy cuff or flange at other end
Type 321 SS-to-7740 PYREX at both ends
- Choice of two Flex Lengths (F) in each size
- Custom Flex Lengths available
- *Quartz and special glass available*
- Choice of flanges:
CF Type Flanges
ISO *Kwik-Flange*
ISO *Large-Flange*
Custom Flanges
- CF Type Flange repeat bakeout cycles to 450°C
- CF Type Flange vacuum range to below 10⁻¹¹ torr.
- ISO flange intermittent bakeout cycles to 200°C⁽⁴⁾
- ISO flange vacuum range to 10⁻⁹ torr.



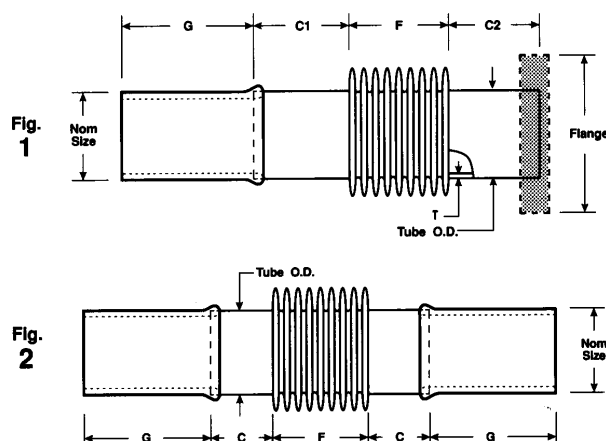
Glass End Nom Size	Metal-End	Ref	Flange OD	ISO No.	Max Bend	Code	Model Number	Fig #	Flex F	Cuffs C ^{1&2}	Glass G	Metal T
1-1/2"	• 1-1/2" O.D. Tube	T-L1	-	-	15°	311161	BP1-150-ST-L1	1	1	1	3	.006
	• 1-1/2" O.D. Tube	T-L3	-	-	60°	311461	BP1-150-ST-L3	1	3	1	3	.006
	• CF 2-3/4" Flange	F2-L1	2.73	-	15°	311162 ^(a)	BP1-150-F2-L1	1	1	1	3	.006
	• CF 2-3/4" Flange	F2-L3	2.73	-	60°	311462 ^(a)	BP1-150-F2-L3	1	3	1	3	.006
	• CF 3-3/8" Flange	F3-L1	3.37	-	15°	311163	BP1-150-F3-L1	1	1	1	3	.006
	• CF 3-3/8" Flange	F3-L3	3.37	-	60°	311463	BP1-150-F3-L3	1	3	1	3	.006
	• <i>Kwik-Flange</i> K150	K4-L1	2.16	NW40	15°	311165	BP1-150-K4-L1	1	1	1	3	.006
	• <i>Kwik-Flange</i> K150	K4-L3	2.16	NW40	60°	311465	BP1-150-K4-L3	1	3	1	3	.006
	• <i>Kwik-Flange</i> K200	K5-L1	2.95	NW50	15°	311166	BP1-150-K5-L1	1	1	1	3	.006
	• <i>Kwik-Flange</i> K200	K5-L3	2.95	NW50	60°	311466	BP1-150-K5-L3	1	3	1	3	.006
2"	• 2" O.D. Tube	T-L1	-	-	10°	311191	BP1-200-ST-L1	1	1	1	3	.006
	• 2" O.D. Tube	T-L3	-	-	30°	311491	BP1-200-ST-L3	1	3	1	3	.006
	• CF 4-1/2" Flange	F4-L1	4.47	-	10°	311193	BP1-200-F4-L1	1	1	1	3	.006
	• CF 4-1/2" Flange	F4-L3	4.47	-	30°	311493	BP1-200-F4-L3	1	3	1	3	.006
	• <i>Kwik-Flange</i> K200	K5-L1	2.95	NW50	10°	311194	BP1-200-K5-L1	1	1	1	3	.006
	• <i>Kwik-Flange</i> K200	K5-L3	2.95	NW50	30°	311494	BP1-200-K5-L3	1	3	1	3	.006
	• <i>Large-Flange</i> L250	L6-L1	3.74	NW63	10°	311195	BP1-200-L6-L1	1	1	1	3	.006
	• <i>Large-Flange</i> L250	L6-L3	3.74	NW63	30°	311495	BP1-200-L6-L3	1	3	1	3	.006

Both ends; Heavy cuff auf Anfrage

SS Bellows-to-PYREX Adaptors

FEATURES

- 9 standard sizes from 1/4 thru 3 inch
- Other non-standard sizes available
- Choice of configurations:
Type 321 SS-to-7740 PYREX at one end and standard cuff, heavy cuff or flange at other end
Type 321 SS-to-7740 PYREX at both ends
- Choice of two Flex Lengths (F) in each size
- Custom Flex Lengths available
- *Quartz and special glass available*
- Choice of flanges:
CF Type Flanges
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ISO *Large-Flange*
Custom Flanges
- CF Type Flange repeat bakeout cycles to 450°C
- CF Type Flange vacuum range to below 10⁻¹¹ torr.
- ISO flange intermittent bakeout cycles to 200°C⁽⁴⁾
- ISO flange vacuum range to 10⁻⁹ torr.



Glass End Nom Size	Metal-End	Ref	Flange OD	ISO No.	Max Bend	Code	Model Number	Fig #	Flex F	Cuffs C ^{1&2}	Glass G	Metal T
2-1/2"	• 2-1/2" O.D. Tube	T-L1	-	-	15°	311211	BP1-250-ST-L1	1	1	1	3	.006
	• 2-1/2" O.D. Tube	T-L3	-	-	35°	311511	BP1-250-ST-L3	1	3	1	3	.006
	• CF 4-1/2" Flange	F4-L1	4.47	-	15°	311212 ^(a)	BP1-250-F4-L1	1	1	1	3	.006
	• CF 4-1/2" Flange	F4-L3	4.47	-	35°	311512 ^(a)	BP1-250-F4-L3	1	3	1	3	.006
	• CF 4-5/8" Flange	F5-L1	4.62	-	15°	311213	BP1-250-F5-L1	1	1	1	3	.006
	• CF 4-5/8" Flange	F5-L3	4.62	-	35°	311513	BP1-250-F5-L3	1	3	1	3	.006
	• Large-Flange L250	L6-L1	3.74	NW63	15°	311214	BP1-250-L6-L1	1	1	1	3	.006
	• Large-Flange L250	L6-L3	3.74	NW63	35°	311514	BP1-250-L6-L3	1	3	1	3	.006
	• Large-Flange L300	L8-L1	4.43	NW80	15°	311215	BP1-250-L8-L1	1	1	1	3	.006
	• Large-Flange L300	L8-L3	4.43	NW80	35°	311515	BP1-250-L8-L3	1	3	1	3	.006
3"	• 3" O.D. Tube	T-L1	-	-	10°	311231	BP1-300-ST-L1	1	1	1	4	.008
	• 3" O.D. Tube	T-L3	-	-	30°	311531	BP1-300-ST-L3	1	3	1	4	.008
	• CF 6" Flange	F6-L1	5.97	-	10°	311233	BP1-300-F6-L1	1	1	1	4	.008
	• CF 6" Flange	F6-L3	5.97	-	30°	311533	BP1-300-F6-L3	1	3	1	4	.008
	• Large-Flange L300	L8-L1	4.43	NW80	10°	311234	BP1-300-L8-L1	1	1	1	4	.008
	• Large-Flange L300	L8-L3	4.43	NW80	30°	311534	BP1-300-L8-L3	1	3	1	4	.008
	• Large-Flange L400	L10-L1	5.12	NW100	10°	311235	BP1-300-L10-L1	1	1	1	4	.008
	• Large-Flange L400	L10-L3	5.12	NW100	30°	311535	BP1-300-L10-L3	1	3	1	4	.008

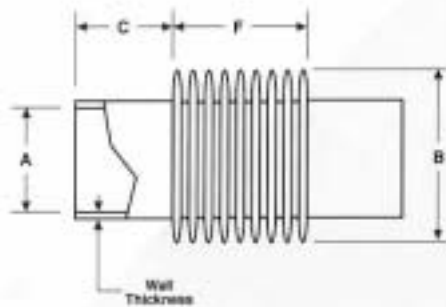
Both ends; Heavy cuff auf Anfrage



SS Bellows

FEATURES

- 23 standard sizes from 1/4 thru 6 inch
- Other non-standard sizes available



Notes:

1. Couplings are listed by mating tube size. Bellows I.D.'s are smaller.
2. Dimensions are in inches except where noted.

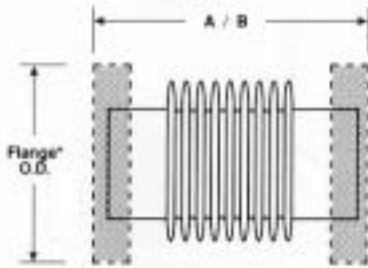


Size	Code	Model Number	Thickness Wall	I.D. A	Max O.D. B	Cuff C	Flex F	Deflection + Or -
1/4"	321001	SB-025	.005	.25	.37	.50	1.00	.25
5/16"	321002	SB-031	.005	.31	.46	.50	1.00	.25
3/8"	321003	SB-037	.005	.37	.57	.50	1.50	.38
1/2"	321004	SB-050	.006	.50	.75	.50	1.50	.38
5/8"	321005	SB-062	.006	.62	.87	.50	1.50	.38
3/4"	321006	SB-075	.006	.75	1.04	.50	1.50	.50
7/8"	321007	SB-087	.006	.87	1.25	.50	2.00	.50
1"	321008	SB-100	.006	1.00	1.37	.75	2.00	.50
1-1/8"	321009	SB-112	.006	1.12	1.46	.75	2.00	.50
1-1/4"	321010	SB-125	.006	1.25	1.60	.75	2.00	.50
1-3/8"	321011	SB-137	.006	1.37	1.81	.75	2.00	.50
1-1/2"	321012	SB-150	.006	1.50	1.90	.75	2.00	.50
1-5/8"	321013	SB-162	.006	1.62	2.05	.75	2.00	.50
1-3/4"	321014	SB-175	.006	1.75	2.24	.75	2.00	.50
2"	321015	SB-200	.006	2.00	2.43	.75	2.50	.75
2-1/4"	321016	SB-225	.006	2.25	2.81	.75	2.50	.75
2-1/2"	321017	SB-250	.006	2.50	2.98	.75	2.50	.75
3"	321018	SB-300	.008	3.00	3.77	1.00	3.00	.75
3-1/2"	321019	SB-350	.008	3.50	4.25	1.00	3.50	.75
4"	321020	SB-400	.008	4.00	4.78	1.00	4.00	1.25
4-1/2"	321021	SB-450	.008	4.50	5.28	1.00	4.00	1.25
5"	321022	SB-500	.008	5.00	5.75	1.00	5.00	1.50
6"	321023	SB-600	.010	6.00	6.85	1.25	5.00	1.50

SS Bellows with Flexible Couplings

FEATURES

- 8 standard sizes from 3/4 thru 6 inch
- Other non-standard sizes available
- Type 321 stainless steel bellows
- Choice of type 304 SS flanges:
 - CF Type Flanges
 - ISO *Kwik-Flange*
 - ISO *Large-Flange*
 - Custom Flanges
- CF Type Flange repeat bakeout cycles to 400°C
- CF Type Flange vacuum range to below 10^{-11} torr.
- ISO flange intermittent bakeout cycles to 200°C⁽³⁾
- ISO flange vacuum range to 10^{-9} torr.



⁽¹⁾CF Type (only) Rotatable at one end.

Notes:

1. Bellows sizes are listed by Inside Diameter of Cuff. Flex Length; I.D. is slightly smaller.
2. Dimensions are in inches except where noted.
3. Repeat bakeout cycles will require periodic replacement of O-rings.



SFC-250-L8



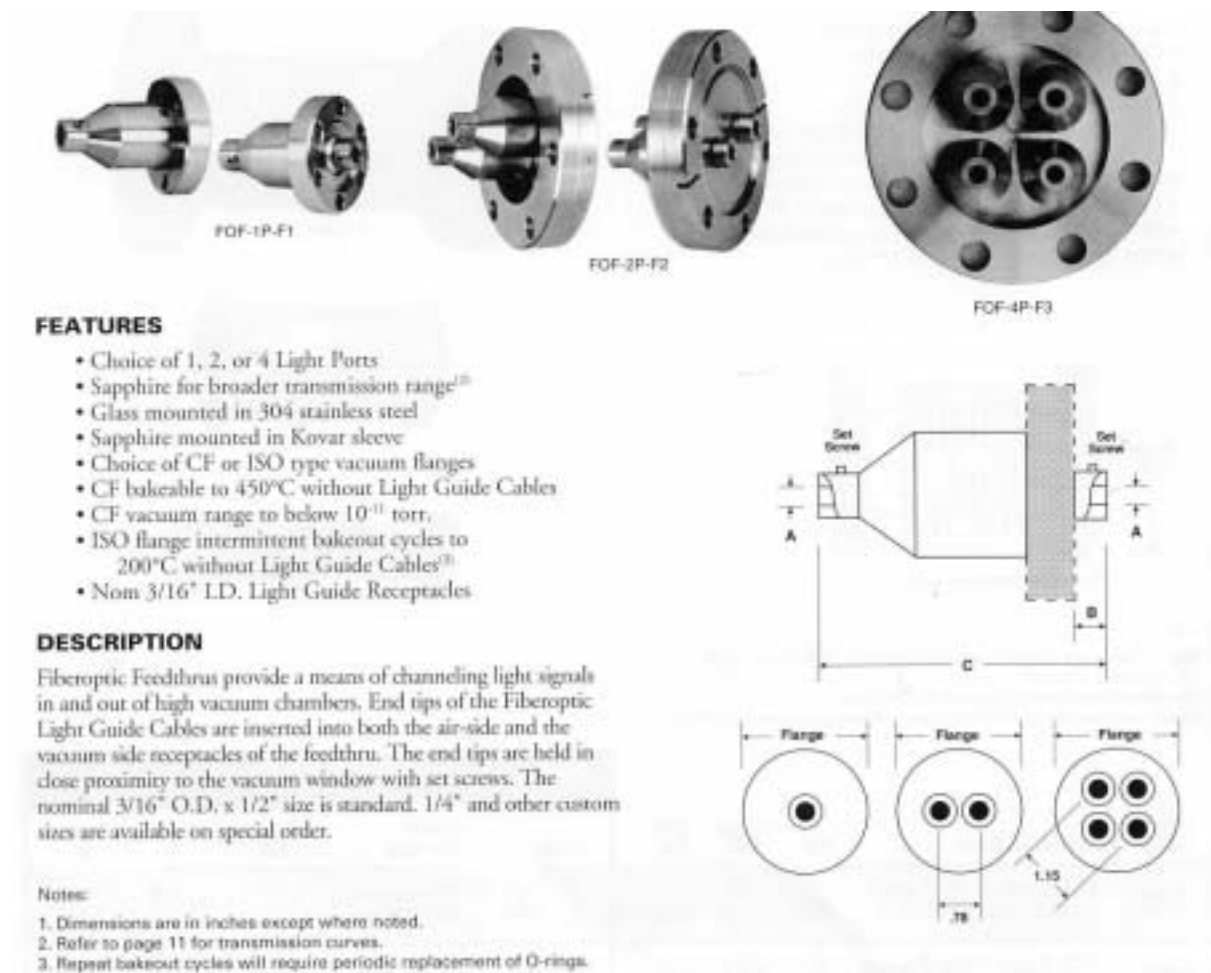
SFC-150-K4



SFC-075-F1

Nom Size ⁽¹⁾	Vacuum Seal	Ref	Flange OD	ISO No.	Code	Model Number	Bellows I.D.	Free A	Compressed B
3/4"	• CF Type 1-1/3" Flange	F1	1.33	-	322102	SFC-075-F1	.67	4-1/2	3-3/4
	• <i>Kwik-Flange</i> K075	K1	1.18	NW16	322104	SFC-075-K1	.67	4	3-1/8
1"	• CF Type 2-3/4" Flange	F2	2.73	-	322122	SFC-100-F2	1.00	4	3-1/8
	• <i>Kwik-Flange</i> K100	K2	1.57	NW25	322123	SFC-100-K2	1.00	4	3-1/8
1-1/2"	• CF Type 2-3/4" Flange	F2	2.73	-	322162	SFC-150-F2	1.25	4	3-1/8
	• <i>Kwik-Flange</i> K150	K4	2.16	NW40	322165	SFC-150-K4	1.25	4	3-1/8
2"	• CF Type 3-3/8" Flange	F3	3.37	-	322192	SFC-200-F3	1.75	4	3-1/8
	• <i>Kwik-Flange</i> K200	K5	2.95	NW50	322194	SFC-200-K5	1.75	4	3-1/8
2-1/2"	• CF Type 4-1/2" Flange	F4	4.47	-	322212	SFC-250-F4	2.25	6	4-1/2
	• <i>Large-Flange</i> L250	L6	3.74	NW63	322214	SFC-250-L6	2.25	6	4-1/2
3"	• CF Type 4-5/8" Flange	F5	4.62	-	322232	SFC-300-F5	2.50	6	4-1/2
	• <i>Large-Flange</i> L300	L8	4.33	NW80	322234	SFC-300-L8	2.50	6	4-1/2
4"	• CF Type 6" Flange	F6	5.97	-	322272	SFC-400-F6	3.50	6	4-1/2
	• <i>Large-Flange</i> L400	L10	5.12	NW100	322274	SFC-400-L10	3.50	6	4-1/2
6"	• CF Type 8" Flange	F8	7.97	-	322292	SFC-600-F8	5.50	8	5-3/4
	• <i>Large-Flange</i> L600	L16	7.09	NW160	322294	SFC-600-L16	5.50	8	5-3/4

Fiberoptic Feedthru



Number of Light Ports	Nom Size	Mounting	Ref	Flange OD	ISO No.	Code	Model Number	I.D. A	B	Overall C
1	• 3/16	CF 1-1/3" Flange	F1	1.33	-	410132	FOF-1P-F1	3/16	3/16	1-3/4
	• 3/16	CF 2-3/4" Flange	F2	2.73	-	410133	FOF-1P-F2	3/16	3/16	1-3/4
	• 3/16	<i>Kwik-Flange</i> K075	K1	1.18	NW16	410141	FOF-1P-K1	3/16	1/4	1-3/4
	• 3/16	<i>Kwik-Flange</i> K100	K2	1.57	NW25	410142	FOF-1P-K2	3/16	1/4	1-3/4
2	• 3/16	CF 2-3/4" Flange	F2	2.73	-	410233	FOF-2P-F2	3/16	3/16	1-3/4
	• 3/16	CF 3-3/8" Flange	F3	3.37	-	410234	FOF-2P-F3	3/16	3/16	1-3/4
	• 3/16	<i>Kwik-Flange</i> K150	K4	2.16	NW40	410243	FOF-2P-K4	3/16	1/4	1-3/4
	• 3/16	<i>Kwik-Flange</i> K200	K5	2.95	NW50	410244	FOF-2P-K5	3/16	1/4	1-3/4
4	• 3/16	CF 3-3/8" Flange	F3	3.37	-	410434	FOF-4P-F3	3/16	3/16	1-3/4
	• 3/16	CF 4-1/2" Flange	F4	4.47	-	410435	FOF-4P-F4	3/16	3/16	1-3/4
	• 3/16	<i>Kwik-Flange</i> K200	K5	2.95	NW50	410444	FOF-4P-K5	3/16	1/4	1-3/4