

J13 and WJ13 Gasketless Tube Joints



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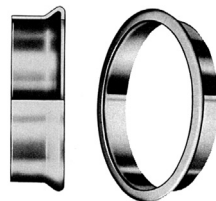
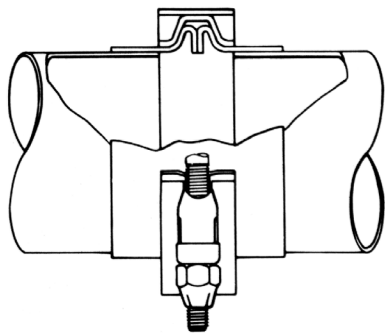
Material Specifications

Eaton's lightweight J13 Joint provides efficient sealing where low leakage rate is permissible. It is particularly useful on ducting where weight is a critical factor. The joint is recommended for applications with temperatures -65°F to +1000°F (-54°C to +537°C).

The WJ13 Joint is a wide radius flange. Various flange materials are available, including stainless steel, titanium, INCONEL 718 and INCONEL 625. The joint consists of one T-Bolt latch style coupling with two flanges.



Joint



Standard Flange for J13 Joints

AMS 5510 (321 CRES)
AMS 4902 (Titanium)
AMS 5599 (INCONEL 625)
AMS 5596 (INCONEL 718)



Wide Flange for WJ13 joints

AMS 5510 (321 CRES)
AMS 4901 (Titanium)
AMS 5599 (INCONEL 625)
AMS 5596 (INCONEL 718)

Dimensional Data

Flanges

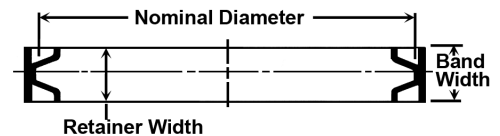
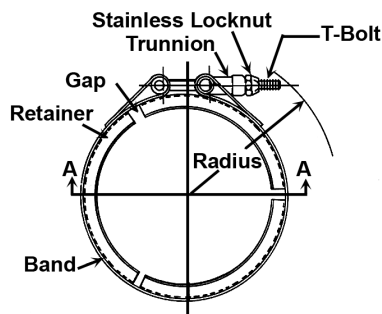


Flange Part Number	Material Gauge	L
24538	.032	.75
MFB69633S	.032	.85
56408-1	.040	.75**
MFB69633T	.040*	.85
MFB65202	.032	.71
MFB69633GC	.032	.85
MFB64764	.032	.71
MFB67145	.040	.88

* .032 Material gauge for tube O.D. under 2.00 in.

** .71 long for tube O.D. under 2.50

Couplings



Coupling Part Number	Nom. Diameter	Strap Width	Retainer Width	T-Bolt Size
24540	Tube + .64	.75	.75	10-32
MVB64757	Tube + .64	.75	.75	1/4-28
MVB68248	Tube + .69	.75	.75	1/4-28
NM102420	Tube + .64	.75	.75	1/4-28
NM102421	Tube + .59	.75	.94	10-32
NM102422	Tube + .67	.75	.91	1/4-28

The two principal types of loading experienced in this type of joint are pressure and bending. The charts shown on this page are designed to help you determine the ability of the J13 type joints to withstand a given load or combination of loads.

Step 1

If there is only one type of loading, the capability may be easily determined. Draw a vertical line upward from the joint size on the bottom scale until it intersects the appropriate curve for type of loading.

Step 2

Draw a horizontal line from this intersection to the appropriate loading scale and read load rating. Compare this with your design load to determine suitability of the joint.

Step 3

If a combined loading exists (bending and pressure) determine joint capabilities for each load separately as in Steps 1 and 2 above.

Step 4

Divide load rating into actual load condition for each type of loading and express answer as a percent. Add percentage of load rating for each type of loading. If your answer is less than 100%, the difference represents your safety margin.

Example: (J13 Joint)

3.00 dia. Joint to operate at 800°F (427°C)

400 psi burst pressure

1000 lb. in. bending moment

Steps 1-3

Rated loads are as follows:

770 psi burst pressure

4200 lb. in. bending moment

Step 4

$\frac{400}{770} = 52\%$ of pressure load rating

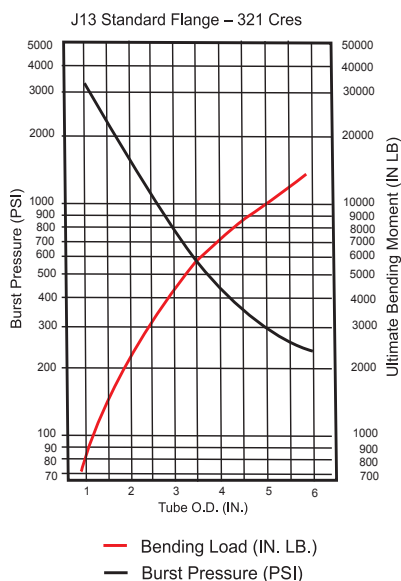
$\frac{1000}{4200} = 24\%$ of bending load rating

Loads are 76% of joint capability

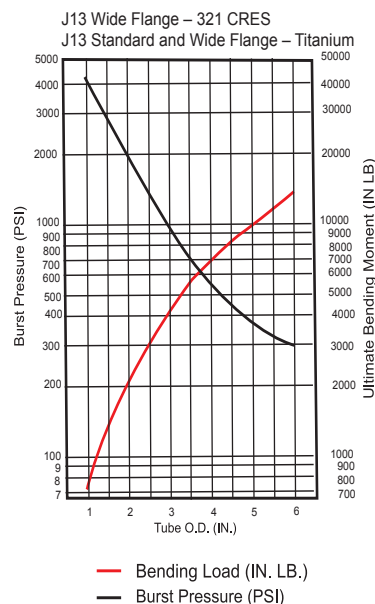
Temperature Correction Factor

Temperature (°F)	RT	200	400	500	600	800	1000
Titanium Flange	1.00	.80	.57	.46	*	*	*
321 CRES Flange	1.00	.88	.76	.73	.70	.63	*
Inconel 718 Flange	1.00	.96	.92	.91	.90	.88	.85
Inconel 625 Flange	1.00	.91	.83	.80	.79	.77	.77

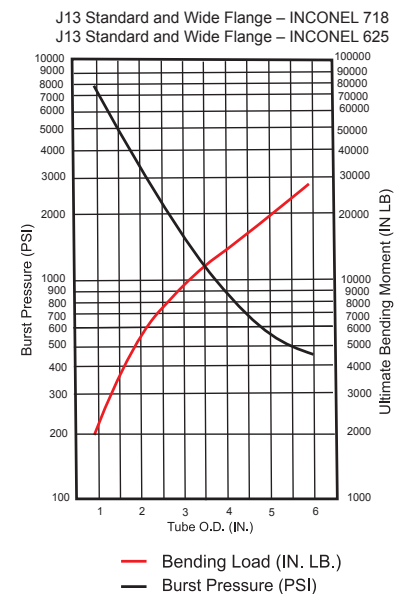
* Not recommended for use at this temperature



Performance Chart No. 1



Performance Chart No. 2



Performance Chart No. 3

Specifications and Dimensions

321 Stainless Steel Flange and 300 Series Stainless Steel Couplings

J13 Style Gasketless Tube Joint

Standard Flange

See Performance Chart 1

Tube O.D.	Coupling Part Number	Weight Lbs.	Radius Max.	Recommended Torque Lb. In.	----- Flange ----- Part Number	Weight Lbs.
1.00	24540-100	.15	1.78	35	24538-100	.04
1.25	24540-125	.16	1.84	35	24538-125	.05
1.50	24540-150	.17	2.09	35	24538-150	.05
1.75	24540-175	.19	2.14	35	24538-175	.06
2.00	24540-200	.21	2.22	35	24538-200	.07
2.25	24540-225	.23	2.70	35	24538-225	.08
2.50	24540-250	.24	2.78	35	24538-250	.08
2.75	24540-275	.26	2.87	35	24538-275	.09
3.00	24540-300	.28	2.96	40	24538-300	.10
3.50	24540-350	.30	3.15	40	24538-350	.11
4.00	24540-400	.33	3.34	40	24538-400	.12
4.50	24540-450	.36	3.54	40	24538-450	.14
5.00	24540-500	.39	3.75	45	24538-500	.15
5.50	24540-550	.43	3.96	45	24538-550	.16
6.00	24540-600	.45	4.25	50	24538-600	.18

All dimensions in inches.

WJ13 Style Gasketless Tube Joint

Wide Flange

See Performance Chart 2

Tube O.D.	Coupling Part Number	Weight Lbs.	Radius Max.	Recommended Torque Lb. In.	----- Flange ----- Part Number	Weight Lbs.
1.00	NM102421H0100	.19	2.28	40	MFB69633S100	.03
1.25	NM102421H0125	.21	2.33	40	MFB69633S125	.04
1.50	NM102422H0150	.27	2.48	40	MFB69633S150	.05
1.75	NM102422H0175	.29	2.56	40	MFB69633S175	.06
2.00	NM102422H0200	.31	2.64	40	MFB69633S200	.07
2.25	NM102422H0225	.33	2.73	40	MFB69633S225	.08
2.50	NM102422H0250	.35	3.00	40	MFB69633S250	.09
2.75	NM102422H0275	.37	3.10	50	MFB69633S275	.09
3.00	NM102422H0300	.40	3.18	50	MFB69633S300	.10
3.50	NM102422H0350	.44	3.37	50	MFB69633S350	.12
4.00	NM102422H0400	.48	3.57	50	MFB69633S400	.14
4.50	NM102422H0450	.52	3.77	60	MFB69633S450	.16
5.00	NM102422H0500	.56	3.97	60	MFB69633S500	.17
5.50	NM102422H0550	.60	4.32	60	MFB69633S550	.18
6.00	NM102422H0600	.64	4.53	60	MFB69633S600	.20

All dimensions in inches.

J13 Style Gasketless Tube Joint

Standard Flange

See Performance Chart 2

Tube O.D.	Coupling Part Number	Weight Lbs.	Radius Max.	Recommended Torque Lb. In.	----- Flange ----- Part Number	Weight Lbs.
1.20	NM102420-0100	.21	2.30	40	56408-1-100	.02
1.25	NM102420-0125	.22	2.37	40	56408-1-125	.03
1.50	NM102420-0150	.24	2.41	40	56408-1-150	.03
1.75	NM102420-0175	.26	2.48	40	56408-1-175	.04
2.00	NM102420-0200	.27	2.58	45	56408-1-200	.04
2.25	NM102420-0225	.29	2.66	45	56408-1-225	.05
2.50	NM102420-0250	.32	3.00	45	56408-1-250	.06
2.75	NM102420-0275	.34	3.10	45	56408-1-275	.06
3.00	NM102420-0300	.35	3.18	50	56408-1-300	.07
3.50	NM102420-0350	.40	3.37	50	56408-1-350	.08
4.00	NM102420-0400	.43	3.56	50	56408-1-400	.09
4.50	NM102420-0450	.45	3.76	50	56408-1-450	.10
5.00	NM102420-0500	.47	3.97	55	56408-1-500	.11
5.50	NM102420-0550	.52	4.31	55	56408-1-550	.12
6.00	NM102420-0600	.56	4.52	55	56408-1-600	.13

All dimensions in inches.

WJ13 Style Gasketless Tube Joint

Wide Flange

See Performance Chart 2

Tube O.D.	Coupling Part Number	Weight Lbs.	Radius Max.	Recommended Torque Lb. In.	----- Flange ----- Part Number	Weight Lbs.
1.00	NM102421H0100	.19	2.28	40	MFB69633T100	.01
1.25	NM102421H0125	.21	2.33	40	MFB69633T125	.02
1.50	NM102422H0150	.27	2.48	40	MFB69633T150	.02
1.75	NM102422H0175	.29	2.56	40	MFB69633T175	.03
2.00	NM102422H0200	.31	2.64	40	MFB69633T200	.04
2.25	NM102422H0225	.33	2.73	40	MFB69633T225	.05
2.50	NM102422H0250	.35	3.00	40	MFB69633T250	.05
2.75	NM102422H0275	.37	3.10	50	MFB69633T275	.06
3.00	NM102422H0300	.40	3.18	50	MFB69633T300	.06
3.50	NM102422H0350	.44	3.37	50	MFB69633T350	.07
4.00	NM102422H0400	.48	3.57	50	MFB69633T400	.09
4.50	NM102422H0450	.52	3.77	60	MFB69633T450	.10
5.00	NM102422H0500	.56	3.97	60	MFB69633T500	.11
5.50	NM102422H0550	.60	4.32	60	MFB69633T550	.12
6.00	NM102422H0600	.64	4.53	60	MFB69633T600	.13

All dimensions in inches.

Specifications and Dimensions

INCONEL 718 Flange and INCONEL 718 Coupling

J13 Style Gasketless Tube Joint

Standard Flange **See Performance Chart 3**

Tube O.D.	Coupling Part Number	Weight Lbs.	Radius Max.	Recommended Torque Lb. In.	----- Flange -----	
					Part Number	Weight Lbs.
1.00	MVB64757-100	.22	2.30	40	MFB64764-100	.03
1.25	MVB64757-125	.23	2.37	40	MFB64764-125	.04
1.50	MVB64757-150	.25	2.41	40	MFB64764-150	.05
1.75	MVB64757-175	.27	2.48	40	MFB64764-175	.05
2.00	MVB64757-200	.28	2.58	40	MFB64764-200	.06
2.25	MVB64757-225	.30	2.66	40	MFB64764-225	.07
2.50	MVB64757-250	.33	3.00	40	MFB64764-250	.08
2.75	MVB64757-275	.35	3.10	45	MFB64764-275	.09
3.00	MVB64757-300	.36	3.18	45	MFB64764-300	.10
3.50	MVB64757-350	.41	3.37	45	MFB64764-350	.11
4.00	MVB64757-400	.44	3.56	45	MFB64764-400	.13
4.50	MVB64757-450	.46	3.76	90	MFB64764-450	.14
5.00	MVB68248-500	.53	3.97	90	MFB64764-500	.16
5.50	MVB68248-550	.59	4.31	90	MFB64764-550	.17
6.00	MVB68248-600	.63	4.52	90	MFB64764-600	.19

All dimensions in inches.

WJ13 Style Gasketless Tube Joint

Wide Flange **See Performance Chart 3**

Tube O.D.	Coupling Part Number	Weight Lbs.	Radius Max.	Recommended Torque Lb. In.	----- Flange -----	
					Part Number	Weight Lbs.
1.00	Not Available					
1.25	NM102422G0125	.25	2.40	40	MFB67145-125	.04
1.50	NM102422G0150	.27	2.48	40	MFB67145-150	.05
1.75	NM102422G0175	.29	2.56	40	MFB67145-175	.06
2.00	NM102422G0200	.31	2.64	40	MFB67145-200	.06
2.25	NM102422G0225	.33	2.73	40	MFB67145-225	.07
2.50	NM102422G0250	.35	3.00	40	MFB67145-250	.08
2.75	NM102422G0150	.37	3.10	50	MFB67145-275	.09
3.00	NM102422G0300	.40	3.18	50	MFB67145-300	.09
3.50	NM102422G0350	.44	3.37	50	MFB67145-350	.11
4.00	NM102422G0400	.48	3.57	50	MFB67145-400	.13
4.50	NM102422G0450	.52	3.77	60	MFB67145-450	.14
5.00	NM102422G0500	.56	3.97	60	MFB67145-500	.17
5.50	NM102422G0550	.51	4.32	60	MFB67145-550	.19
6.00	NM102422G0600	.64	4.53	60	MFB67145-600	.20

All dimensions in inches.

J13 Style Gasketless Tube Joint

Standard Flange **See Performance Chart 3**

Tube O.D.	Coupling Part Number	Weight Lbs.	Radius Max.	Recommended Torque Lb. In.	----- Flange -----	
					Part Number	Weight Lbs.
1.00	MVB64757-100	.22	2.30	40	MFB65202-100	.03
1.25	MVB64757-125	.23	2.37	40	MFB65202-125	.04
1.50	MVB64757-150	.25	2.41	40	MFB65202-150	.05
1.75	MVB64757-175	.27	2.48	40	MFB65202-175	.05
2.00	MVB64757-200	.28	2.58	40	MFB65202-200	.06
2.25	MVB64757-225	.30	2.66	40	MFB65202-225	.07
2.50	MVB64757-250	.33	3.00	40	MFB65202-250	.08
2.75	MVB64757-275	.35	3.10	45	MFB65202-275	.09
3.00	MVB64757-300	.36	3.18	45	MFB65202-300	.10
3.50	MVB64757-350	.41	3.37	45	MFB65202-350	.11
4.00	MVB64757-400	.44	3.56	45	MFB65202-400	.13
4.50	MVB64757-450	.46	3.76	90	MFB65202-450	.14
5.00	MVB64757-500	.48	3.97	90	MFB65202-500	.16
5.50	MVB64757-550	.53	4.31	90	MFB65202-550	.17
6.00	MVB64757-600	.57	4.52	90	MFB65202-600	.19

All dimensions in inches.

WJ13 Style Gasketless Tube Joint

Wide Flange **See Performance Chart 3**

Tube O.D.	Coupling Part Number	Weight Lbs.	Radius Max.	Recommended Torque Lb. In.	----- Flange -----	
					Part Number	Weight Lbs.
1.00	NM102421G0100	.19	2.28	40	MFB69633GC100	.03
1.25	NM102421G0125	.21	2.33	40	MFB69633GC125	.04
1.50	NM102422G0150	.27	2.48	40	MFB69633GC150	.05
1.75	NM102422G0175	.29	2.56	40	MFB69633GC175	.06
2.00	NM102422G0200	.31	2.64	40	MFB69633GC200	.07
2.25	NM102422G0225	.33	2.73	40	MFB69633GC225	.08
2.50	NM102422G0250	.35	3.00	40	MFB69633GC250	.09
2.75	NM102422G0150	.37	3.10	50	MFB69633GC275	.09
3.00	NM102422G0300	.40	3.18	50	MFB69633GC300	.10
3.50	NM102422G0350	.44	3.37	50	MFB69633GC350	.12
4.00	NM102422G0400	.48	3.57	50	MFB69633GC400	.14
4.50	NM102422G0450	.52	3.77	60	MFB69633GC450	.16
5.00	NM102422G0500	.56	3.97	60	MFB69633GC500	.17
5.50	NM102422G0550	.60	4.32	60	MFB69633GC550	.18
6.00	NM102422G0600	.64	4.53	60	MFB69633GC600	.20

All dimensions in inches.

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