CONSTRUCTION MATERIAL

BULK compression fittings have all components made by the same material as the fitting body for thermal compatibility and corrosion resistance. Standard construction materials are listed on table 2 section "how to order".
It is recommended that the tubing and fitting be of same material to allow positive sealing and to avoid galvanic corrosion.

PRESSURE AND TEMPERATURE RATING

BULK compression fittings are rated for working pressure higher than the tubing; therefore, pressure rating depends on choice of tubing which should be based on material, wall thickness and temperature (see table below). Derating factors must be used to determinate tubing working pressure at high temperatures.
RECOMMENDED HARDNESS: 80 HRB OR LESS

Maximum allowable working pressure for fractional size seamless tubing (value in psi) @ 20 °C

Fractional (Inch) Tubing													
Tube O.D. (inch)	Tube Wall Thickness (inch)												
	0,01"	0,012"	0,014"	0,016"	0,02"	0,028"	0,035"	0,049"	0,065"	0,083"	0,095"	0,109"	0,12"
1/16"	5600	6800	8200	9600	12600								
1/8"						8500	11200						
3/16"						5400	7000	10400					
1/4"						4000	5100	7500	10400				
5/16"							4000	5800	8000				
3/8"							3300	4800	6500				
1/2"							2600	3700	5100	6700			
5/8"								2900	4000	5200	6000		
3/4"								2400	3300	4200	4900	5800	
1"									2400	3100	3600	4200	4700

Working pressure in psig.
For gas service, applying tube wall thickness only on outside of grey area

Maximum allowable working pressure for metric size seamless tubing (value in bar) @ 20°C

Metric Tubing										
Tube O.D. (mm)	Tube Wall Thickness (mm)									
	0,8	1	1,2	1,5	1,8	2	2,2	2,5	2,8	3
2	1180									
3	720	950								
4	520	670	840							
6	330	430	520	680						
8		310	380	490						
10		240	300	380	470	530				
12		200	240	310	380	430				
14		180	220	280	340	390	430			
15		170	200	260	320	360	400			
16			190	240	300	330	370	430		
18			170	210	260	290	330	380		
20			150	190	230	260	290	330	380	
22			140	170	210	240	260	300	340	
25				150	180	200	230	260	300	320

Working pressure in bar.
For gas service, applying tube wall thickness only on outside of grey area

Tables are based on the following conditions:

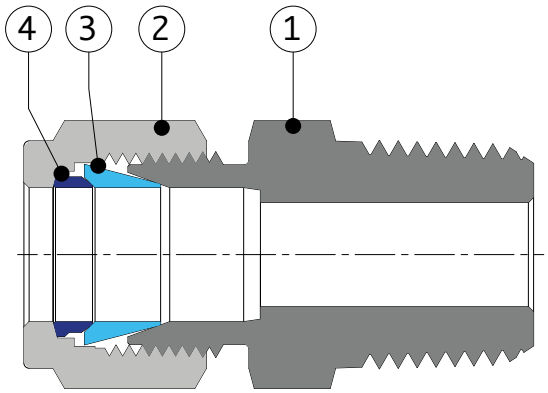
- AISI 316/L stainless steel annealed seamless tubing ASTM A-269 / A-213.
- Metal temperature between –20° to 100° F, –29° to 38°C - Reference ANSI B31.3

Pressure reducing factors in high temperature applications

To determine allowable working pressure at elevated temperature, multiply max allowable working pressure at ambient temperature and factors which are shown in the table.

Temperature		Material
°C	°F	316/L
90	194	1.00
200	392	0.96
310	590	0.85
480	802	0.79
536	996	0.76
644	1227	0.37

Example:
316SS Tubing, 1/2 "ODx0.049" Wall Thickness at 310°C
Max allowable working pressure:
3700 psig x 0.85 = 3145 psig.



BULK compression fittings are made by four parts consisting of **body (1), nut (2), front ferrule (3), back ferrule (4)**.

The bodies of fitting for metric tubes are provided with a collar on the tube end side to differentiate from inch tube fitting.

Assembly instruction

1) Loosen the nut (2)

2) Fully insert the tubing into the fitting. Make sure that the tubing rests firmly on the shoulder of the fitting and that the nut (2) is finger tight.

3) Tighten the nut (2) one and one quarter turns.

Reassembly instruction

1) Firmly insert the tubing end with the previously set ferrules (3)(4) into the fitting body (1) and tighten the nut (2) to a hand tight condition.

2) Tighten the nut until a sharp rise in torque is felt with a wrench

3) Snug with wrench

BULK compression fittings may be disconnected and retightened repeatedly.

Safety Guidelines

1) Never tight or loose a fitting with pressure in the system.

2) Do not bleed the system by loosening the fitting or fitting nut.

3) Always use proper thread lubricants and sealants (suitable to temperature system) on tapered pipe threads.

4) Always leave a length of straight tube between the tube bend and the fitting.

5) Always use a tube insert when assembling fitting to plastic tubing

6) **BULK** does not recommend interchanging its fitting components with other manufacturers'.

7) Tubing must always be softer than the fitting material (HRB 80 maximum for stainless steel).

8) Careful selection, handling and installation of tubing have vital importance to install safe and leak-free system.

9) Contact your local **BULK** distributor for further information.

HOW TO ORDER

M	-	6	-	6	-	K	-	DM	-	L	-	

M	Select M for metric size tubing or P for inch size tubing
6	Tubing outside diameter, inch sizes are expressed in sixteenths of an inch (for example 1/4" = 4) Tubing outside diameter, metric sizes are expressed in mm (for example 6 = 6 mm)
6	Pipe size expressed in sixteenths of an inch (for example 3/8" = 6)
K	Type of threads, select the suffix from TAB. 1
DM	Type of fitting, select from index
L	Material, select the suffix from TAB. 2
	Special executions, select the suffix from TAB. 3

TABLE 1

NO SUFFIX = NPT ANSI B1.20.1
K = BSPP-ISO 228/1
J = BSPT-ISO 7/1-EN10226-2
OTHER THREADS AVAILABLE (I.E. M20, EN 837, ...)

TABLE 2

L = 316/L NACE MR 0175
O = BRASS
MO = MONEL 400
HC276 = HASTELLOY C276
TI = TITANIUM
I625 = INCONEL 625
I825 = INCONEL 825
F51 = DUPLEX F51
F53 = SUPER DUPLEX F53
F55 = SUPER DUPLEX F55
6MO = 6MO

TABLE 3

FB = Connector for thermocouple
Z = Fittings cleaned for oxygen service
N1 = NACE MR 0103