Twin Ferrule Tube Fittings Tubing Data Charts

Index

GYROLOK®

CRANE Instrumentation & Sampling, HOKE®
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For Your Safety

It is solely the responsibility of the system designer and user to select products suitable for their specific application requirements and to ensure proper installation, operation, and maintenance of these products. When selecting products, the total system design must be considered to ensure safe, trouble-free performance. Material compatibility, product ratings and application details should be considered in the selection. Improper selection or use of products described herein can cause personal injury or property damage.

Contact your authorized HOKE® sales and service representative for information about additional sizes and special alloys.

SAFETY WARNING:

HOKE® products are designed for installation only by professional suitably qualified licensed system installers experienced in the applications and environments for which the products are intended. These products are intended for integration into a system. Where these products are to be used with flammable or hazardous media, precautions must be taken by the system designer and installer to ensure the safety of persons and property. Flammable or hazardous media pose risks associated with fire or explosion, as well as burning, poisoning or other injury or death to persons and/or destruction of property. The system designer and installer must provide for the capture and control of such substances from any vents in the product(s). The system installer must not permit any leakage or uncontrolled escape of hazardous or flammable substances. The system operator must be trained to follow appropriate precautions and must inspect and maintain the system and its components including the product(s) and at regular intervals in accordance with timescales recommended by the supplier to prevent unacceptable wear or failure.

Tubing Data Charts

Design

GYROLOK® Twin Ferrule Tube Fittings have been carefully designed for conventional compression tube fitting applications. GYROLOK® XP incorporates patented design innovations that allow the fitting to be assembled onto high yield strength and thicker wall tube.

Pressure Ratings

GYROLOK® and GYROLOK® XP fittings are rated for working pressures higher than the tubing; however, tubing should not be used above its maximum allowable working pressure.

Maximum allowable working pressures for tubing suitable for use with GYROLOK® and GYROLOK® XP are identified herein. If no pressure is identified for a given size and a wall thickness, please contact the factory for guidance as new sizes are continuously being added.

The tubing data charts show working pressure ratings which are deemed to be the maximum allowable working pressure ratings for a given alloy, size and wall thickness. The values are calculated from the allowable stress tables (S) and formulas specified in ASME B31.3, Process Piping.

Vacuum Rating

GYROLOK® offers excellent vacuum capability. With good quality tubing, GYROLOK® fittings will be leak-tight at vacuum levels of 10^{-9} torr while tested with a leakage sensitivity of 10^{-9} sccs.

Materials

GYROLOK® tube fittings are available in Brass, 316/3161, Alloy 6MO, Alloy C276, Alloy 405, Grade 5 titanium, Super Duplex, Duplex, Alloy 625, and Alloy 825. GYROLOK® XP available in 316/3161, Alloy 6MO, Alloy C276, Grade 5 Titanium, Super Duplex, Duplex, Alloy 625, and Alloy 825.

Tubing

Fully annealed tubing to the specifications identified herein are suitable for use with GYROLOK® fittings.

The tubing selected, whether metallic or nonmetallic should be compatible with the process fluid, temperature and applications. The wall thickness selections should be based on pressure and temperature conditions.

Tubing should always be fully annealed. While welded tubing may be used with GYROLOK®, inconsistencies in its manufacture and performance are sometimes encountered. As a result we recommend the use of seamless tubing.

For proper fitting performance, the tubing surface finish should be free from nicks or scratches. Do not use out of round tubing which does not easily pass through fitting components.

Fitting performance is maximized when tube ends are squarely cut, using a tubing cutter, and deburred.

Proper fitting performance demands that the fitting be significantly harder than the tubing on which it is used. Please refer to each alloy's specific tubing data charts for guidance on the recommended maximum surface hardness.

Gas Service

Gases (air, hydrogen, nitrogen, etc.) can escape through smaller leak paths than liquids. As such, the reduction of surface defects (scratches) on tubing becomes more important when the system media contains gases. As tubing wall thickness increases, the ability of the ferrules to coin out imperfections increases. The use of heavier wall tubing will help the ferrules to overcome minor surface defects that could contribute to gas leakage. HOKE recommends the following minimum wall thickness for tubing when system media contains gases.

TUBE OD (inches)	NOMINAL MINIMUM WALL THICKNESS (inches)	TUBE OD (inches)	NOMINAL MINIMUM WALL THICKNESS (inches)
1/8	0.028	3/4	0.065
3/16	0.028	7/8	0.083
1/4	0.028	1	0.083
5/16	0.035	1 1/4	0.109
3/8	0.035	1½	0.134
1/2	0.049	2	0.180

Suggested Allowable Pressure Tables

Figures and tables are for reference only. HOKE makes no implication that these valves can be used for design work. Applicable codes and practices in industry should be reviewed and considered. ASME Codes are the successor to and replacement of ASA Piping Codes. For combinations not shown, consult factory.

For Welded Tubing

For welded tubing, a derating factor must be applied for weld integrity.

1) For double-welded tubing, multiply working pressure by 0.85.
2) For single-welded tubing, multiply working pressure by 0.80.

CAUTION: Limited test data is available on certain alloys and sizers due to tubing availability. Please consult factory for further guidance.

GYROLOK®

Tube Data Charts

Copper Annealed Seamless Tubing

ASTM B-75 or Equivalent, Maximum Recommended Hardness HR_F 55

Maximum Working Pressure (psi) for Fractional Sizes

Allowable Stress = 6,000 psi between –20° F and 100° F

Allowable working pressures are calculated based on equations from ASME B31.1 and ASME B31.3 for a maximum allowable stress (S) of 6,000 psi (41.3 MPa).

For gas service, select a wall thickness that is not shaded (see Gas Service on page 1).

TUBING O.D. (inch)	WALL THICKNESS (inch)														
	0.014	0.020	0.028	0.032	0.035	0.049	0.065	0.083	0.095	0.109	0.120	0.134	0.148	0.156	0.180
1/16	2800	4000													
1/8			2800	3300	3700										
3/16			1800	2100	2300	3400									
1/4			1300	1500	1600	2400	3400								
3/8				900	1000	1500	2100	2800							
1/2					700	1100	1500	2000							
5/8					600	800	1200	1500	1800						
3/4					500	700	900	1200	1500	1700					
7/8					400	600	800	1000	1200	1400					
1					300	500	700	900	1100	1200	1400				
1 1/4							500	700	800	1000	1100	1200	1300	1400	1700
1 1/2							400	600	700	800	900	1000	1100	1200	1400
2							300	400	500	600	600	700	800	800	1000

Maximum Working Pressure (bar) for Metric Sizes

Allowable Stress = 41.3 MPa between –29° C and 38° C

Allowable working pressures are calculated based on equations from ASME B31.1 and ASME B31.3 for a maximum allowable stress (S) of 6,000 psi (41.3 MPa).

For gas service, select a wall thickness that is not shaded (see Gas Service on page 1).

TUBING O.D. (mm)	WALL THICKNESS (mm)						
	0.8	1	1.5	2	2.5	3	4.0
3	240						
4	170	220					
6	100	140	220				
8	80	100	160				
10	60	80	120	170			
12	50	60	100	140			
14		50	80	110	150		
15		50	80	100	140		
16		40	70	100	130	160	
18		40	60	80	110	140	
20		30	50	80	100	120	
22		30	50	70	90	110	
25		30	40	60	80	90	
28		20	40	50	70	80	110
30				50	60	80	100
32				40	60	70	100
38					50	60	80

Ordering Information

High quality, fully annealed seamless tubing, ASTM B75 and EN 1057 or equivalent. Tubing to be free of scratches and suitable for bending. Secondary mechanical finishing is prohibited.

Tubing Data Charts

304 & 316 Stainless Steel Annealed Seamless Tubing

ASTM A-269 UNS S30400 & S31600 or Equivalent, Maximum Recommended Hardness HR_B 90

Maximum Working Pressure (psi) for Fractional Sizes

Allowable Stress = 20,000 psi between –20° F and 100° F

Allowable working pressures are calculated based on equations from ASME B31.1 and ASME B31.3 for a maximum allowable stress (S) of 20,000 psi (137.9 MPa). Values shown below are for seamless annealed tubing only.

For gas service, select a wall thickness that is not shaded (see Gas Service on page 1).
Tubing is suitable for use with either 316 stainless steel or Alloy 6MO GYROLOK® fittings.

TUBING O.D. (inch)	WALL THICKNESS (inch) - STANDARD GYROLOK®													
	0.010	0.020	0.028	0.035	0.049	0.065	0.083	0.095	0.109	0.120	0.134	0.156	0.165	0.188
1/16	5600	12000												
1/8			8500	10900										
3/16			5400	7000	10200	13800	17300							
1/4			4000	5100	7500	10200	13300$_{xp}$							
3/8				3300	4800	6500	8600							
1/2				2600	3700	5100	6700	7800$_{xp}$	8800$_{xp}$	9800$_{xp}$	11000$_{xp}$	13000$_{xp}$		
5/8					2900	4000	5200	6000	7100					
3/4					2400	3300	4200	4900	5800	6400	7300$_{xp}$			
7/8					2000	2800	3600	4200						
1						2400	3100	3600	4200	4700	5300	6200$_{xp}$	6700$_{xp}$	7700$_{xp}$
1 1/4							2400	2800	3300$_{xp}$	3600$_{xp}$	4100$_{xp}$	4900$_{xp}$		
1 1/2								2300	2700	3000	3400$_{xp}$	4000$_{xp}$	4200$_{xp}$	4900$_{xp}$
2										2200	2500	2900	3100$_{xp}$	3600$_{xp}$

GYROLOK® XP will work on all tube thickness listed in the tables. Where there is an XP suffix, then only GYROLOK® XP will work with this wall thickness.

Maximum Working Pressure (bar) for Metric Sizes

Allowable Stress = 137.9 MPa between –29° C and 38° C

Allowable working pressures are calculated based on equations from ASME B31.1 and ASME B31.3 for a maximum allowable stress (S) of 20,000 psi (137.9 MPa). For gas service, select a wall thickness that is not shaded (see Gas Service on page 1).

GYROLOK®-XP fittings are intended for use where pressures are indicated with the "XP" subscript.
Tubing is suitable for use with either 316 stainless steel or Alloy 6MO GYROLOK® fittings.

TUBING O.D. (mm)	WALL THICKNESS (mm) STANDARD GYROLOK®										
	0.8	1	1.2	1.5	1.8	2	2.2	2.5	3	3.5	4.0
3	710	900									
4	520	660									
6	330	430	520	670	820$_{xp}$	920$_{xp}$					
8		310	380	490							
10		240	300	410	470	530	590$_{xp}$	680$_{xp}$	830$_{xp}$		
12		200	240	310	380	430	480$_{xp}$	560$_{xp}$	680$_{xp}$		
14		180	220	280	340	390					
15		170	200	260	320	360					
16			190	240	300	330					
18			170	210	260	290	330	380			
20			150	190	230	260	290	330			
22				170	210	230	260	300			
25					180	200	230	260	320		
28						180	200	230	280		
30						170	190	210	260	310	
32							170	200	240	290	330
38								170	200	240	280

GYROLOK® XP will work on all tube thickness listed in the tables. Where there is an XP suffix, then only GYROLOK® XP will work with this wall thickness.

Ordering Information

High quality, fully annealed (Type 304, 304/304L, 316, 316/316L, 317/317L) seamless tubing, ASTM A269 or A213 equivalent. Tubing to be free of scratches and suitable for bending. Secondary mechanical finishing is prohibited.

Tubing Data Charts

Alloy 6MO Super Austenitic Stainless Steel

ASTM A-269, A-213, UNS S31254 or Equivalent, Maximum Recommended Hardness HR_B 90

Maximum Working Pressure (psi) for Fractional Sizes

Allowable Stress = 27,100 psi between –20° F and 100° F

Allowable working pressures are calculated based on equations from ASME B31.1 and ASME B31.3 for a maximum allowable stress (S) of 27,100 psi (186.9 MPa).

For gas service, select a wall thickness that is not shaded (see Gas Service on page 1).
Tubing is suitable for use with either 316 stainless steel or Alloy 6MO GYROLOK® fittings.

TUBING O.D. (inch)	WALL THICKNESS (inch) STANDARD GYROLOK®								
	0.028	0.035	0.049	0.065	0.083	0.095	0.109	0.120	0.134
1/8	11500								
1/4	5400	6900	10100	13900					
3/8		4500	6500	8900	11700$_{xp}$				
1/2		3500	5000	6900	9000				
5/8			4000	5400	7100				
3/4			3300	4400	5800				
7/8			2800	3800	4900				
1				3300	4200	4900$_{xp}$	5700$_{xp}$		
1 1/4						3900$_{xp}$	4500$_{xp}$	5000$_{xp}$	
1 1/2							3700$_{xp}$	3700$_{xp}$	4600$_{xp}$

GYROLOK® XP will work on all tube thickness listed in the tables. Where there is an XP suffix, then only GYROLOK® XP will work with this wall thickness.

Maximum Working Pressure (bar) for Metric Sizes

Allowable Stress = 186.9 MPa between –29° C and 38° C

Allowable working pressures are calculated based on equations from ASME B31.1 and ASME B31.3 for a maximum allowable stress (S) of 186.9 MPa (27,100 psi).

For gas service, select a wall thickness that is not shaded (see Gas Service on page 1).

Tubing is suitable for use with either 316 stainless steel or Alloy 6MO GYROLOK® fittings.

TUBING O.D. (mm)	WALL THICKNESS (mm) STANDARD GYROLOK®										
	0.8	1	1.2	1.5	1.8	2	2.2	2.5	3	3.5	4
3	960	1220									
6	410	580	710	910							
8		420	520	670							
10		330	400	520	640	720	800$_{xp}$	920$_{xp}$			
12		270	330	420	520	590					
16			260	330	400	450					
18			230	290	350	400	440$_{xp}$	510$_{xp}$			
20			200	260	320	350	390	450			
25					250	280	310	360	430	520$_{xp}$	600$_{xp}$
30									360$_{xp}$	420$_{xp}$	490$_{xp}$
38									270$_{xp}$	320$_{xp}$	380$_{xp}$

GYROLOK® XP will work on all tube thickness listed in the tables. Where there is an XP suffix, then only GYROLOK® XP will work with this wall thickness.

Ordering Information

High quality, fully annealed 6 MO tubing, ASTM A269 or equivalent. Tubing to be free of scratches and suitable for bending. Secondary mechanical finishing is prohibited.

Tubing Data Charts

Alloy C-276 Solution Annealed Seamless Tubing

ASTM B622 UNS N10276 or Equivalent, Maximum Recommended Hardness HRB 98

Maximum Working Pressure (psi) for Fractional Sizes

Allowable Stress = 27,300 psi between –20° F and 400° F

Allowable working pressures are calculated based on equations from ASME B31.1 and ASME B31.3 for a maximum allowable stress (S) of 27,300 psi (188.2 MPa).

TUBING	WALL THICKNESS (inch) STANDARD GYROLOK®						
O.D. (inch)	0.010	0.014	0.028	0.035	0.049	0.065	0.083
1/16	7600	11100					
1/8			11600	14800			
1/4			5500	7000	10200		
3/8				4500	6500	8900	
1/2				3500	5100	6900	9100_{xp}
5/8					4000		
3/4					3500	4500	
1						3300	

GYROLOK® XP will work on all tube thickness listed in the tables. Where there is an XP suffix, then only GYROLOK® XP will work with this wall thickness.

Maximum Working Pressure (bar) for Metric Sizes

Allowable Stress = 188.2 MPa psi between –29° C and 204° C

Allowable working pressures are calculated based on equations from ASME B31.1 and ASME B31.3 for a maximum allowable stress (S) of 188.2 MPa (27,300 psi).

TUBING	WALL THICKNESS (mm)				
O.D. (mm)	0.8	1.0	1.2	1.5	2.0
3	970	1230			
6	450	580	720_{xp}	920_{xp}	
8		420	520		
10		330	410	520	
12		270	330	430	590_{xp}
18				290	400
20				260	
25				210	280

GYROLOK® XP will work on all tube thickness listed in the tables. Where there is an XP suffix, then only GYROLOK® XP will work with this wall thickness.

Ordering Information

High quality, fully seamless alloy C-276 tubing, ASTM B622 or equivalent. Tubing to be free of scratches and suitable for bending. Secondary mechanical finishing is prohibited.

Tubing Data Charts

Alloy 400 (Nickel-Copper) Annealed Seamless Tubing

ASTM B-165 UNS N04400 or Equivalent, Maximum Recommended Hardness HRB 75

Maximum Working Pressure (psi) for Fractional Sizes
Allowable Stress = 18,700 psi between –20° F and 100° F

Allowable working pressures are calculated based on equations from ASME B31.1 and ASME B31.3 for a maximum allowable stress (S) of 18,700 psi (128.9 MPa).

TUBING O.D. (inch)	WALL THICKNESS (inch) STANDARD GYROLOK®					
	0.01	0.028	0.035	0.049	0.065	0.083
1/16	5200					
1/8		7900	10200			
1/4		3700	4800	7000		
3/8			3100	4400		
1/2			2400	3500	4700	6200
5/8				2700	3700	
3/4				2200	3000	
1					2200	

Maximum Working Pressure (bar) for Metric Sizes
Allowable Stress = 128.9 MPa psi between –29° C and 38° C

Allowable working pressures are calculated based on equations from ASME B31.1 and ASME B31.3 for a maximum allowable stress (S) of 128.9 MPa (18,700 psi).

TUBING O.D. (mm)	WALL THICKNESS (mm) STANDARD GYROLOK®			
	0.8	1	1.2	1.5
3	660	840		
6	310	400		
8		290		
10		230	280	360
12		190	230	290

Ordering Information
High quality, fully annealed seamless alloy 400 hydraulic tubing, ASTM B165 or equivalent.
Tubing to be free of scratches and suitable for bending. Secondary mechanical finishing is prohibited.

Tubing Data Charts

Grade 2 Titanium Annealed Seamless Tubing

ASTM B-338 UNS R50400 or Equivalent, Maximum Recommended Hardness HRB 90

Maximum Working Pressure (psi) for Fractional Sizes
Allowable Stress = 16,700 psi between –20° F and 100° F

Allowable working pressures are calculated based on equations from ASME B31.1 and ASME B31.3 for a maximum allowable stress (S) of 16,700 psi (115.1 MPa). For working pressure in accordance with ASME B31.1, multiply by 0.85.

TUBING	WALL THICKNESS (inch) STANDARD GYROLOK®			
O.D. (inch)	0.028	0.035	0.049	0.065
1/8		9100	12800	
1/4	3300	4200	6200	8500
3/8		2700	4000	5400
1/2		2100	3100	4200
3/4			2000	2700
1			1500	2000

Maximum Working Pressure (bar) for Metric Sizes
Allowable Stress = 115.1 MPa psi between –29° C and 38° C

Allowable working pressures are calculated based on equations from ASME B31.1 and ASME B31.3 for a maximum allowable stress (S) of 115.1 MPa (16,700 psi).

TUBING	WALL THICKNESS (mm) STANDARD GYROLOK®									
O.D. (mm)	0.8	1	1.2	1.5	1.8	2.0	2.5	3.0	3.5	4.0
6	280	350	440	560						
10		200	250	320	390	440				
12		170	200	260	320	360	460			
14				230	290	320				
16				200						
18				180	220_{xp}	240_{xp}				
20						220	280	340	410_{xp}	460_{xp}
25				120	150	170				

GYROLOK® XP will work on all tube thickness listed in the tables. Where there is an XP suffix, then only GYROLOK® XP will work with this wall thickness.

Ordering Information
High quality, fully annealed seamless grade 2 titanium, ASTM B338 or equivalent.
Tubing to be free of scratches and suitable for bending. Secondary mechanical finishing is prohibited.

Tubing Data Charts

Super Duplex Stainless Steel

ASTM A789 UNS S32750 or Equivalent, Maximum Recommended Hardness HRc 32

Maximum Working Pressure (psi) for Fractional Sizes

Allowable Stress = 36,300 psi between –20° F and 200° F

Allowable working pressures are calculated based on equations from ASME B31.1 and ASME B31.3 for a maximum allowable stress (S) of 36,300 psi (250.3 MPa).

TUBING O.D. (inch)	WALL THICKNESS (mm) STANDARD GYROLOK®						
	0.035	0.049	0.065	0.083	0.095	0.109	0.120
¼	9900	14500_{xp}	19800_{xp}				
⅜	6400	9200	12700_{xp}				
½	5000	7200	9800	12900_{xp}			
¾		4700	6300	8300	9600_{xp}	11200_{xp}	12500_{xp}
1			4700	6100_{xp}			

GYROLOK® XP will work on all tube thickness listed in the tables. Where there is an XP suffix, then only GYROLOK® XP will work with this wall thickness.

Maximum Working Pressure (bar) for Metric Sizes

Allowable Stress = 250.3 MPa psi between –29° C and 93° C

Allowable working pressures are calculated based on equations from ASME B31.1 and ASME B31.3 for a maximum allowable stress (S) of 250.3 MPa (36,300 psi).

TUBING O.D. (mm)	WALL THICKNESS (mm) STANDARD GYROLOK®				
	0.8	1.0	1.2	1.5	2.0
6	640	830			
10		480	580	740	
12		390	480	610	
18		270	330	420	570
20		240	290	370	510
25				290	400_{xp}

GYROLOK® XP will work on all tube thickness listed in the tables. Where there is an XP suffix, then only GYROLOK® XP will work with this wall thickness.

Ordering Information

High quality, fully annealed seamless 2507 super duplex tubing, ASTM A789 or equivalent.
Tubing to be free of scratches and suitable for bending. Secondary mechanical finishing is prohibited.

Tubing Data Charts

Duplex Stainless Steel

ASTM A789 UNS S31803 or Equivalent, Maximum Recommended Hardness HRc 30.5

Maximum Working Pressure (psi) for Fractional Sizes

Allowable Stress = 30,000 psi between –20° F and 200° F

Allowable working pressures are calculated based on equations from ASME B31.1 and ASME B31.3 for a maximum allowable stress (S) of 30,000 psi (206.8 MPa).

TUBING O.D. (inch)	WALL THICKNESS (mm) STANDARD GYROLOK®				
	0.035	0.049	0.065	0.083	0.095
¼	7700	11200_{xp}	15400_{xp}		
⅜	5000	7200	9800		
½		5600	7600	10000	
⅝		4400	6000		
¾		3600	4900	6400	7400_{xp}
1			3600	4700_{xp}	

GYROLOK® XP will work on all tube thickness listed in the tables. Where there is an XP suffix, then only GYROLOK® XP will work with this wall thickness.

Maximum Working Pressure (bar) for Metric Sizes

Allowable Stress = 206.8 MPa psi between –20° C and 93° C

Allowable working pressures are calculated based on equations from ASME B31.1 and ASME B31.3 for a maximum allowable stress (S) of 206.8 MPa (30,000 psi).

TUBING O.D. (mm)	WALL THICKNESS (mm) STANDARD GYROLOK®				
	0.8	1	1.2	1.5	2
6	500	640			
10		370	450	570	
12		300	370	470	
18				320	440
20				290	390
25				230	310

GYROLOK® XP will work on all tube thickness listed in the tables. Where there is an XP suffix, then only GYROLOK® XP will work with this wall thickness.

Ordering Information

High quality, fully annealed seamless 2205 duplex tubing, ASTM A789 or equivalent.
Tubing to be free of scratches and suitable for bending. Secondary mechanical finishing is prohibited.

Tubing Data Charts

Alloy 625 Nickel -Chromium-Molybdenum Alloy

ASTM B-444 UNS N06625 Grade 2 or Equivalent

Maximum Working Pressure (psi) for Fractional Sizes

Allowable Stress = 26,700 psi between –20° F and 100° F

Allowable working pressures are calculated based on equations from ASME B31.1 and ASME B31.3 for a maximum allowable stress (S) of 26,700 psi (275.8 MPa).

TUBING O.D. (inch)	WALL THICKNESS (mm) STANDARD GYROLOK®			
	0.035	0.049	0.065	0.083
3/16	9400			
1/4	6800	10000	13700$_{xp}$	
3/8	4400	6400	8700	11500$_{xp}$
1/2	3500	5000	6800	8900
3/4		3200	4400	5700$_{xp}$
1			3200	4200$_{xp}$

GYROLOK® XP will work on all tube thickness listed in the tables. Where there is an XP suffix, then only GYROLOK® XP will work with this wall thickness.

Maximum Working Pressure (bar) for Metric Sizes

Allowable Stress = 184.1 MPa psi between –28° C and 37° C

Allowable working pressures are calculated based on equations from ASME B31.1 and ASME B31.3 for a maximum allowable stress (S) of 184.1 MPa (26,700 psi).

TUBING O.D. (mm)	WALL THICKNESS (mm) STANDARD GYROLOK®			
	1.0	1.2	1.5	2.0
6	570			
10	330	400	510	
12	270	330	420	
20				320

GYROLOK® XP will work on all tube thickness listed in the tables. Where there is an XP suffix, then only GYROLOK® XP will work with this wall thickness.

Ordering Information

High quality, fully annealed seamless alloy 625 tubing, ASTM B444 or equivalent.
Tubing to be free of scratches and suitable for bending. Secondary mechanical finishing is prohibited.

Tubing Data Charts

Alloy 825 Nickel-Iron-Chromium Alloy

ASTM B-423 UNS N08825 or Equivalent

Maximum Working Pressure (psi) for Fractional Sizes

Allowable Stress = 23,300 psi between –20° F and 100° F

Allowable working pressures are calculated based on equations from ASME B31.1 and ASME B31.3 for a maximum allowable stress (S) of 23,300 psi (160.6 MPa).

TUBING	WALL THICKNESS (mm) STANDARD GYROLOK®						
O.D. (inch)	0.035	0.049	0.065	0.083	0.095	0.109	0.120
1/8	12700						
3/16	8200						
1/4	5900	8700	11900				
3/8	3800	5500	7600	10000	11700		
1/2	3000	4300	5900	7800			
3/4			3800	5000			
1			2800	3600	4200	4900	5400

GYROLOK® XP will work on all tube thickness listed in the tables. Where there is an XP suffix, then only GYROLOK® XP will work with this wall thickness.

Maximum Working Pressure (bar) for Metric Sizes

Allowable Stress = 160.6 MPa psi between –29° C and 38° C

Allowable working pressures are calculated based on equations from ASME B31.1 and ASME B31.3 for a maximum allowable stress (S) of 160.6 MPa (23,300 psi).

TUBING	WALL THICKNESS (mm) STANDARD GYROLOK®		
O.D. (mm)	1	1.2	1.5
6	500		
10	280	350	440
12	230	280	360

Ordering Information

High quality, fully annealed seamless alloy 825 tubing, ASTM B423 or equivalent.
Tubing to be free of scratches and suitable for bending. Secondary mechanical finishing is prohibited.

Maximum Allowable Pressure Derating Factors, Elevated Temperatures

(Multiply value in Tubing Date Chart by value in Chart Below)

Temperature °F	100	200	300	400	500	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200	1250
Temperature °C	**38**	**93.33**	**148.9**	**204.4**	**260**	**315.6**	**343.3**	**371.1**	**398.9**	**426.7**	**454.4**	**482**	**510**	**538**	**566**	**593**	**621**	**649**	**677**
316 Stainless Steel	—	—	—	0.97	0.90	0.85	0.84	0.82	0.81	0.80	0.79	0.78	0.77	0.77	0.73	0.62	0.49	0.37	0.28
Alloy 6MO	—	—	—	0.95	0.86	0.82	0.81	0.80	0.80	0.79	0.79	—	—	—	—	—	—	—	—
Alloy C276	—	—	—	—	0.99	0.92	0.90	0.88	0.86	0.85	0.84	0.83	0.82	0.81	0.68	0.55	0.45	0.36	0.29
Alloy 400	—	0.88	0.81	0.79	0.79	0.79	0.79	0.78	0.78	0.76	0.59	0.43	—	—	—	—	—	—	—
Titanium	—	0.93	0.868	0.80	0.72	0.67	0.67	0.62	0.57	0.53	0.49	0.46	—	—	—	—	—	—	—
Super Duplex	—	0.99	0.94	0.91	0.88	0.88	—	—	—	—	—	—	—	—	—	—	—	—	—
Duplex	—	—	0.96	0.93	0.91	0.90	—	—	—	—	—	—	—	—	—	—	—	—	—
Alloy 625	—	—	0.99	0.98	0.97	0.95	0.94	0.93	0.92	0.91	0.90	0.90	0.89	0.78	0.78	0.58	0.53	0.33	—
Alloy 825	—	—	—	—	—	—	—	—	0.99	0.99	0.98	0.98	0.97	0.96	—	—	—	—	—
Monel	—	0.81	0.81	0.79	0.78	0.78	0.78	0.78	0.77	0.76	0.66	0.48	—	—	—	—	—	—	—

EXAMPLE:	
Alloy	316 Stainless Steel
Temperature	500° F
Tube Size	1/2" x .065"
MAWP from Chart	5100 psi
New MAWP	MAWP * Derate Factor
New MAWP	5100 * .90
New MAWP	**4590**

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