

# Tube and Pipe Qualification

DM 20 Series - NPS Pipe		
Size	Min. Wall	Max. Wall
1/4"	Sch.10	Sch.80
3/8"	Sch.10	Sch.80
1/2"	Sch.10	Sch.80
3/4"	Sch.10	Sch.80
1"	Sch.10	Sch.160
1-1/4"	Sch.10	Sch.160
1-1/2"	Sch.10	Sch.160
2"	Sch.10	Sch.160
3"	Sch.80	Sch.160

DM 60 Series - OD Tube		
Size	Min. Wall	Max. Wall
1/4"	0.028"	0.083"
3/8"	0.028"	0.095"
1/2"	0.035"	0.120"
5/8"	0.035"	0.120"
3/4"	0.049"	0.180"
1"	0.049"	0.180"
1-1/4"	0.065"	0.220"
1-1/2"	0.065"	0.220"
2"	0.065"	0.220"

DM 80 Series - Metric Tube		
Size	Min. Wall	Max. Wall
6mm	1mm	2mm
8mm	1mm	2mm
10mm	1mm	3mm
12mm	1mm	3mm
15mm	1mm	3mm
16mm	1mm	3mm
18mm	1mm	3mm
20mm	1mm	4mm
22mm	1mm	4mm
25mm	2mm	4mm
28mm	2mm	4mm
30mm	2mm	4mm
35mm	2mm	4mm
38mm	3mm	5mm
42mm	3mm	5mm
50mm	3mm	5mm
60mm	3mm	8mm

DM 80 Series - JIS Metric Tube			
Size	OD	Min. Wall	Max. Wall
06A	10.50mm	1.00mm	3.00mm
08A	13.80mm	1.00mm	3.00mm
10A	17.30mm	1.00mm	3.20mm
15A	21.70mm	1.00mm	4.00mm
20A	27.20mm	2.00mm	4.00mm
25A	34.00mm	2.00mm	6.40mm
32A	42.70mm	3.00mm	6.40mm
40A	48.60mm	3.00mm	7.14mm
50A	60.50mm	3.00mm	8.71mm

DP 40 Series - NPS Low Pressure		
Size	Min. Wall	Max. Wall
2-1/2"	Sch.10	Sch.80
3"	Sch.10	Sch.80
4"	Sch.10	Sch.80

DP 04 Series - Metric Pipe CuNi Tube		
Size	Min. Wall	Max. Wall
44.5mm	1mm	3mm
57mm	1mm	3mm
76mm	1mm	3mm

Allowable Outside Pipe/Tube Diameter Tolerances for PYPLOK®		
NPS Pipe	1/4" to 1-1/2"	+/- 0.015" (0.381mm)
	2" - 4"	+/- 0.030" (0.762mm)
OD Tube	1/4" to 3/8"	+/- 0.005" (0.127mm)
	1/2" to 1-1/2"	+/- 0.010" (0.254mm)
	2"	+/- 0.015" (0.381mm)
Metric Tube	6mm to 38mm	+/- 0.254mm (0.010")
	42mm to 60mm	+/- 0.381mm (0.015")
JIS Metric Tube	06A - 25A	+/- 0.254mm (0.010")
	32A - 50A	+/- 0.381mm (0.015")

*Qualified Pipe/Tube		
Stainless Steel PYPLOK®	Carbon Steel PYPLOK®	Copper Nickel PYPLOK®
ASTM A312/A269 (304/304L/316/316L) EN 10216-5 (304/304L/316/316L) EN10305-4 (E355N/ST52.4)	ASTM A106 Gr. A/B/C A53 ERW Gr. A/B EN10305-4 (E355N/E235N/ST52.4/ST37.4) API 5L Seamless/ERW ASTM A333 Gr.6	MIL-T-16420 (70/30 & 90/10)

\*As there are numerous pipe/tube specs, not every spec has been listed. If you do not see your spec please consult the factory to confirm pipe/tube qualification.

**2" NPS DM 20 Series Carbon Steel PYPLOK® cannot be used on EN 10305-4 (E355N/ST52.4) pipe/tube but as replacement 2" NPS DM 20 Series Stainless Steel PYPLOK® or 60mm DM 80 Series Carbon Steel PYPLOK® can be used.**

# PYPLOK® Standard Pressure Ratings

## DM 20 Series – NPS Pipe

Pressure Ratings are based on system temperatures of -15°F to 400°F (-26°C to 205°C) and are limited to the maximum rating of the adjoining tube and/or end connection. Consideration must be taken on PYPLOK® Pressure Ratings and adjoining connection with the lower rated end being the limiting factor.

Stainless Steel Pressure Ratings				
Size NPS	4:1 Safety Factor		3:1 Safety Factor	
	PSI	bar	PSI	bar
1/4"	6000	415	8000	552
3/8"	6000	415	8000	552
1/2"	5900	407	7866	543
3/4"	5800	400	7733	533
1"	5700	393	7600	524
1-1/4"	5650	390	7533	520
1-1/2"	5650	390	7533	520
2"	4800	330	6400	441
3"	2625	180	3500	240

Carbon Steel Pressure Ratings				
Size NPS	4:1 Safety Factor		3:1 Safety Factor	
	PSI	bar	PSI	bar
1/4"	5000	345	6667	460
3/8"	5000	345	6667	460
1/2"	4917	339	6555	452
3/4"	4833	333	6444	444
1"	4750	328	6333	437
1-1/4"	4710	325	6278	433
1-1/2"	4710	325	6278	433
2"	4000	276	5333	368
3"	2625	180	3500	240

Copper Nickel Pressure Ratings				
Size NPS	4:1 Safety Factor		3:1 Safety Factor	
	PSI	bar	PSI	bar
1/4"	3896	269	5195	358
3/8"	3896	269	5195	358
1/2"	3831	264	5108	352
3/4"	3766	260	5022	346
1"	3701	255	4935	340
1-1/4"	3669	253	4892	337
1-1/2"	3669	253	4892	337
2"	3117	215	4156	287

# PYPLOK® Pressure Ratings According to ASME B31.1 & ASME B31.3 DM 20 Series – NPS Pipe

Pressure Ratings are based on system temperatures that are listed below and are limited to the maximum rating of the adjoining tube and/or end connection. Consideration must be taken on PYPLOK® Pressure Ratings and adjoining connection with the lower rated end being the limiting factor.

Stainless Steel Pressure Ratings				
Size NPS	ASME B31.1 (PSI)			
	-20°F to 100°F	200°F	300°F	400°F
1/4"	5800	5800	5800	5600
3/8"	5600	5600	5600	5400
1/2"	5400	5400	5400	5200
3/4"	5100	5100	5100	5000
1"	4800	4800	4800	4700
1-1/4"	4400	4400	4400	4200
1-1/2"	4200	4200	4200	4000
2"	3700	3700	3700	3600

Carbon Steel Pressure Ratings				
Size NPS	ASME B31.1 (PSI)			
	-20°F to 100°F	200°F	300°F	400°F
1/4"	5200	5200	5200	5200
3/8"	5000	5000	5000	5000
1/2"	4900	4900	4900	4900
3/4"	4700	4700	4700	4700
1"	4400	4400	4400	4400
1-1/4"	4100	4100	4100	4100
1-1/2"	3900	3900	3900	3900
2"	3500	3500	3500	3500

Stainless Steel Pressure Ratings				
Size NPS	ASME B31.3 (PSI)			
	-20°F to 100°F	200°F	300°F	400°F
1/4"	5800	5800	5800	5600
3/8"	5600	5600	5600	5400
1/2"	5400	5400	5400	5200
3/4"	5100	5100	5100	5000
1"	4800	4800	4800	4700
1-1/4"	4400	4400	4400	4200
1-1/2"	4200	4200	4200	4000
2"	3700	3700	3700	3600

Carbon Steel Pressure Ratings				
Size NPS	ASME B31.3 (PSI)			
	-20°F to 100°F	200°F	300°F	400°F
1/4"	5200	4900	4700	4500
3/8"	5000	4800	4600	4400
1/2"	4900	4600	4400	4300
3/4"	4700	4400	4200	4100
1"	4400	4200	4000	3900
1-1/4"	4100	3900	3700	3600
1-1/2"	3900	3700	3500	3400
2"	3500	3300	3100	3000

Introduction

Technical Information

DM 20 – NPS Pipe

DM 60 – OD Tube

DM 80 – Metric & JIS Tube

DP 40 – NPS Low Pressure

DP 04 – Metric Pipe CuNi

PYPLOK® Tooling

Installation Procedures

Appendix

# PYPLOK® Standard Pressure Ratings

## DM 60 Series – OD Tube

Pressure Ratings are based on system temperatures of -15°F to 400°F (-26°C to 205°C) and are limited to the maximum rating of the adjoining tube and/or end connection. Consideration must be taken on PYPLOK® Pressure Ratings and adjoining connection with the lower rated end being the limiting factor.

Stainless Steel Pressure Ratings				
Size OD	4:1 Safety Factor		3:1 Safety Factor	
	PSI	bar	PSI	bar
1/4"	7000	483	9333	644
3/8"	5800	400	7733	533
1/2"	6100	420	8133	561
5/8"	6100	420	8133	561
3/4"	6000	414	8000	552
1"	5800	400	7733	533
1-1/4"	5800	400	7733	533
1-1/2"	5650	390	7533	520
2"	4800	330	6400	441

Carbon Steel Pressure Ratings				
Size OD	4:1 Safety Factor		3:1 Safety Factor	
	PSI	bar	PSI	bar
1/4"	5833	402	7778	536
3/8"	4833	333	6444	444
1/2"	5100	350	6778	467
5/8"	5100	350	6778	467
3/4"	5000	345	6667	460
1"	4833	333	6444	444
1-1/4"	4833	333	6444	444
1-1/2"	4710	325	6278	433
2"	4000	275	5333	368

Copper Nickel Pressure Ratings				
Size OD	4:1 Safety Factor		3:1 Safety Factor	
	PSI	bar	PSI	bar
1/4"	4545	313	6060	418
3/8"	3766	260	5022	346
1/2"	3961	273	5281	364
5/8"	3961	273	5281	364
3/4"	3896	269	5195	358
1"	3766	260	5022	346
1-1/4"	3766	260	5022	346
1-1/2"	3669	253	4892	337
2"	3117	215	4156	287

# PYPLOK® Standard Pressure Ratings

## DM 80 Series – Metric Tube

Pressure Ratings are based on system temperatures of -15°F to 400°F (-26°C to 205°C) and are limited to the maximum rating of the adjoining tube and/or end connection. Consideration must be taken on PYPLOK® Pressure Ratings and adjoining connection with the lower rated end being the limiting factor.

Stainless Steel Pressure Ratings				
Size OD (mm)	4:1 Safety Factor		3:1 Safety Factor	
	PSI	bar	PSI	bar
6	6500	450	8665	600
8	6200	430	8265	570
10	6000	415	8000	550
12	5800	400	7735	535
15	5800	400	7735	535
16	5800	400	7735	535
18	4500	310	6000	415
20	5650	390	7535	520
22	4425	305	5900	405
25	5650	390	7535	520
28	4350	300	5800	400
30	5650	390	7535	520
35	4275	295	5700	395
38	5650	390	7535	520
42	5650	390	7535	520
50	5100	350	6800	470
60	4800	330	6400	440

Carbon Steel Pressure Ratings				
Size OD (mm)	4:1 Safety Factor		3:1 Safety Factor	
	PSI	bar	PSI	bar
6	5420	375	7225	500
8	5170	355	6890	475
10	5000	345	6670	460
12	4835	335	6445	445
15	4835	335	6445	445
16	4835	335	6445	445
18	3750	260	5000	345
20	4710	325	6280	435
22	3690	255	4920	340
25	4710	325	6280	435
28	3625	250	4835	335
30	4710	325	6280	435
35	3560	245	4750	325
38	4710	325	6280	435
42	4710	325	6280	435
50	4250	295	5670	390
60	4000	275	5335	370

# PYPLOK® Standard Pressure Ratings

## DM 80 Series – Metric Tube

Pressure Ratings are based on system temperatures of -15°F to 400°F (-26°C to 205°C) and are limited to the maximum rating of the adjoining tube and/or end connection. Consideration must be taken on PYPLOK® Pressure Ratings and adjoining connection with the lower rated end being the limiting factor.

<b>Copper Nickel Pressure Ratings</b>				
<b>Size OD (mm)</b>	<b>4:1 Safety Factor</b>		<b>3:1 Safety Factor</b>	
	<b>PSI</b>	<b>bar</b>	<b>PSI</b>	<b>bar</b>
6	4220	290	5630	390
8	4025	280	5370	370
10	3895	270	5195	360
12	3765	260	5025	345
16	3765	260	5025	345
20	3670	255	4895	335
25	3670	255	4895	335
30	3670	255	4895	335
38	3670	255	4895	335
42	3670	255	4895	335
50	3315	230	4415	305
60	3120	215	4155	285

# PYPLOK® Standard Pressure Ratings

## DM 80 Series – JIS Metric Tube

Pressure Ratings are based on system temperatures of -15°F to 400°F (-26°C to 205°C) and are limited to the maximum rating of the adjoining tube and/or end connection. Consideration must be taken on PYPLOK® Pressure Ratings and adjoining connection with the lower rated end being the limiting factor.

Stainless Steel Pressure Ratings				
JIS Size	4:1 Safety Factor		3:1 Safety Factor	
	PSI	bar	PSI	bar
06A	3750	260	5000	347
08A	3750	260	5000	347
10A	3750	260	5000	347
15A	3690	255	4920	340
20A	3625	250	4833	333
25A	3560	245	4747	327
32A	3750	260	5000	347
40A	3750	260	5000	347
50A	3750	260	5000	347

Carbon Steel Pressure Ratings				
JIS Size	4:1 Safety Factor		3:1 Safety Factor	
	PSI	bar	PSI	bar
06A	3750	260	5000	347
08A	3750	260	5000	347
10A	3750	260	5000	347
15A	3690	255	4920	340
20A	3625	250	4833	333
25A	3560	245	4747	327
32A	3750	260	5000	347
40A	3750	260	5000	347
50A	3750	260	5000	347

Copper Nickel Pressure Ratings				
JIS Size	4:1 Safety Factor		3:1 Safety Factor	
	PSI	bar	PSI	bar
06A	3750	260	5000	347
08A	3750	260	5000	347
10A	3750	260	5000	347
15A	3670	253	4893	337
20A	3625	250	4833	333
25A	3670	253	4893	337
32A	3315	230	4420	307
40A	3315	230	4420	307
50A	3120	215	4160	287

# PYPLOK® Standard Pressure Ratings

## DP 40 Series – NPS Low Pressure

Pressure Ratings are based on system temperatures of -15°F to 400°F (-26°C to 205°C) and are limited to the maximum rating of the adjoining tube and/or end connection. Consideration must be taken on PYPLOK® Pressure Ratings and adjoining connection with the lower rated end being the limiting factor.

Stainless Steel Pressure Ratings				
Size NPS	4:1 Safety Factor		3:1 Safety Factor	
	PSI	bar	PSI	bar
2-1/2"	750	52	1000	70
3"	750	52	1000	70
4"	500	35	665	45

Carbon Steel Pressure Ratings				
Size NPS	4:1 Safety Factor		3:1 Safety Factor	
	PSI	bar	PSI	bar
2-1/2"	750	52	1000	70
3"	750	52	1000	70
4"	500	35	665	45

Copper Nickel Pressure Ratings				
Size NPS	4:1 Safety Factor		3:1 Safety Factor	
	PSI	bar	PSI	bar
2-1/2"	188	13	250	17
3"	188	13	250	17

## DP 04 Series – Metric Pipe CuNi

Pressure Ratings are based on system temperatures of -15°F to 400°F (-26°C to 205°C) and are limited to the maximum rating of the adjoining tube and/or end connection. Consideration must be taken on PYPLOK® Pressure Ratings and adjoining connection with the lower rated end being the limiting factor.

Copper Nickel Pressure Ratings				
Size OD (mm)	4:1 Safety Factor		3:1 Safety Factor	
	PSI	bar	PSI	bar
44.5	450	30	600	40
57	450	30	600	40



# Seal Selection

PYPLOK® Fittings are offered with two types of standard seal materials which cover a very broad range of temperatures and compatibility with numerous fluids and gases. The standard seals are VITON and EPDM, both having large application range but many other seal material grades are available to meet specific application requirements. It is the responsibility of the end user to ensure that the seals in the fittings are compatible with the piping system medium and temperature limits. Consult the factory for confirmation of seal compatibility for each system intending to use PYPLOK®. The table below is intended as a reference only for basic guidance to the typical mediums each seal material is appropriate for.

<b>VITON</b>	
<b>Recommended For</b>	<b>Not Recommended For</b>
Petroleum, Mineral and Vegetable Oils Silicone Oils and Grease Aromatic Hydrocarbons (Benzene, Toluene) Chlorinated Hydrocarbons Hydraulic Fluids Solvents and Chemicals	Hot Water and Steam Auto and Brake Fluids Amines Ketones Low Molecular Weight Esters and Ethers

<b>EPDM</b>	
<b>Recommended For</b>	<b>Not Recommended For</b>
Hot Water and Steam Glycol Based Brake Fluids Organic and Inorganic Acids Cleaning Agents, Soda and Potassium Alkalis Phosphate – Ester Hydraulic Fluids Polar Solvents (Alcohols, Ketones, Esters)	Mineral Oil Products Hydrocarbons Greases and Oils

# Thread Size Charts

Dash Thread Size								
Size	4	6	8	12	16	20	24	32
JIC	7/16-20	9/16-18	3/4-16	1 1/16-12	1 5/16-12	1 5/8-12	1 7/8-12	2 1/2-12
NPT	1/4-18	3/8-18	1/2-14	3/4-14	1-11 1/2	1 1/4-11 1/2	1 1/2-11 1/2	2-11 1/2
SAE	7/16-20	9/16-18	3/4-16	1 1/16-12	1 5/16-12	1 5/8-12	1 7/8-12	2 1/2-12
BSPP	1/4-19	3/8-19	1/2-14	3/4-14	1-11	1 1/4-11	1 1/2-11	2-11
ORFS	9/16-18	11/16-16	13/16-16	1 3/16-12	1 7/16-12	1 11/16-12	2-12	N/A

Metric Thread Size "S"									
Size	6S	8S	10S	12S	16S	20S	25S	30S	38S
DIN 2353	M14 x 1.5	M16 x 1.5	M18 x 1.5	M20 x 1.5	M24 x 1.5	M30 x 2.0	M36 x 2.0	M42 x 2.0	M52 x 2.0

Metric Thread Size "L"										
Size	6L	8L	10L	12L	15L	18L	22L	28L	35L	42L
ISO 8434-1	M12 x 1.5	M14 x 1.5	M16 x 1.5	M18 x 1.5	M22 x 1.5	M26 x 1.5	M30 x 2.0	M36 x 2.0	M45 x 2.0	M52 x 2.0



