

# Pressure Recommendations

**Mark hose assembly with pressure from this chart or hose working pressure, whichever is lower.**

All pressure recommendations are in pounds per square inch (PSI).

1. This chart is intended as a guide only. It only applies to metal couplings as shown for ambient temperature (70°F) applications with true ID hose. It assumes new Dixon supplied couplings, new Dixon supplied clamps, new quality hose and proper installation by a qualified assembler using Dixon procedures and equipment.  
Temperature can affect the coupling retention. For questions relating to temperatures other than ambient (70°F) contact the hose manufacturer or Dixon at 800.355.1991.
2. This chart does not apply to non-Dixon products, with used hose, in non-approved or unsupported applications or in non-standard assemblies.

*Instructions continue at the top of the next page.*

Hose (rubber covered)	DPL sect.	Group ID - Couplings	Couplings	Group ID - Clamps & Ferrules	Clamps & Ferrules	Assembly Procedure	1/4"	3/8"	1/2"	5/8"	3/4"	
<b>Air</b> <i>textile reinforced rubber lined</i>	E	3	Air King Universal	E	Prefomed Band Clamp	2102			150	150	150	
	E	3	Air King Universal	G	Swage/Crimp	2306			150		150	
	E	3	Air King Universal	C	Light Duty Ferrules	2307			150		150	
	F	6	Machined - Short Shank	C	Light Duty Ferrules	2304	200	150	150	100	100	
	F	6	Machined - Short Shank	E	Prefomed Band Clamp	2100-2101			150	100	100	
	G	9	Reusable - Brass	N/A	n/a	2305	250	250	250			
	F	4	King Machined - Medium Shank	E	Prefomed Band Clamp	2100-2101			250	200	200	
<b>Air</b> <i>textile or wire reinforced rubber lined</i>	F	5	King Machined - Long Shank	E	Prefomed Band Clamp	2100-2101			300	300	300	
	F	14	King Crimp ST - Ferrule	K	King Crimp Ferrule	4201						
	E	3	Air King Universal	B,A	Air King or Boss Interlocking Clamp	2000		150	150		150	
	E	3	Air King Universal	G	Swage/Crimp	2306			150		150	
	E	3	Air King Universal	C	Light Duty Ferrules	2307			150		150	
	D	2	Boss Couplings	A	Boss Interlocking Clamp	2000-2004	600	600	600	600	600	
	K	10	Holedall Swage/Crimp	G	Swage/Crimp	see Ram Manual	600	600	600		600	
<b>Asphalt &amp; Hot Tar</b>	F	14	King Crimp ST - Ferrule	K	King Crimp Ferrule	4201						
	D	2	Boss Couplings	A	Boss Interlocking Clamp	2001-2002						
	F	4	King Machined - Medium Shank	E	Prefomed Band Clamp	2100-2101			125		125	
	F	4	King Machined - Medium Shank	D	Band & Buckle	2104						
	F	5	King Machined - Long Shank	E	Prefomed Band Clamp	2100-2101			150		150	
	F	5	King Machined - Long Shank	D	Band & Buckle	2104						
	A	1	Boss-Lock Cam & Groove	E	Prefomed Band Clamp	2100-2101			150		150	
	A	1	Boss-Lock Cam & Groove	D	Band & Buckle	2104						
	A	1	Boss-Lock Cam & Groove	G	Swage/Crimp	see Ram Manual					250	
	K	10	Holedall Swage/Crimp	G	Swage/Crimp	see Ram Manual			600		600	
	F	14	King Crimp ST - Ferrule	K	King Crimp Ferrule	4201						
	F	14	King Crimp ST - Sleeve	J	King Crimp Sleeve	4200						
	A	14	King Crimp Cam & Groove - Ferrule	K	King Crimp Ferrule	4201						
	A	14	King Crimp Cam & Groove - Sleeve	J	King Crimp Sleeve	4200						
<b>Chemical</b> <i>plastic lined for liquid service</i>	F	4	King Machined - Medium Shank	E	Prefomed Band Clamp	2100-2101			125		125	
	F	4	King Machined - Medium Shank	D	Band & Buckle	2104						
	F	5	King Machined - Long Shank	E	Prefomed Band Clamp	2100-2101			150		150	
	F	5	King Machined - Long Shank	D	Band & Buckle	2104						
	A	1	Boss-Lock Cam & Groove	E	Prefomed Band Clamp	2100-2101			150		150	
	A	1	Boss-Lock Cam & Groove	D	Band & Buckle	2104						
	A	1	Boss-Lock Cam & Groove	G	Swage/Crimp	see Ram Manual					250	
	D	2	Boss Couplings	A	Boss Interlocking Clamp	2000-2004			600		600	
	K	11	Holedall Internal Expansion	H	Internal Expansion	see Ram Manual						
	F	14	King Crimp ST - Ferrule	K	King Crimp Ferrule	4201						
	F	14	King Crimp ST - Sleeve	J	King Crimp Sleeve	4200						
	A	14	King Crimp Cam & Groove - Ferrule	K	King Crimp Ferrule	4201						
	A	14	King Crimp Cam & Groove - Sleeve	J	King Crimp Sleeve	4200						
	K	10	Holedall Swage/Crimp	G	Swage/Crimp	see Ram Manual			600		600	
<b>Food Grade conforming to 3A</b>	K	12	Flow Chief Sanitary	H	Internal Expansion	see Ram Manual						
	F	4	King Machined - Medium Shank	E	Prefomed Band Clamp	2100-2101			125		125	
	F	4	King Machined - Medium Shank	D	Band & Buckle	2104						
	A	1	Boss-Lock Cam & Groove	E	Prefomed Band Clamp	2100-2101			150		150	
	A	1	Boss-Lock Cam & Groove	D	Band & Buckle	2104						
	A	1	Boss-Lock Cam & Groove	G	Swage/Crimp	see Ram Manual					250	
	K	11	Holedall Internal Expansion	H	Internal Expansion	see Ram Manual						
	K	10	Holedall Swage/Crimp	G	Swage/Crimp	see Ram Manual			600		600	
	F	14	King Crimp ST - Ferrule	K	King Crimp Ferrule	4201						
	F	14	King Crimp ST - Sleeve	J	King Crimp Sleeve	4200						
	A	14	King Crimp Cam & Groove - Ferrule	K	King Crimp Ferrule	4201						
	A	14	King Crimp Cam & Groove - Sleeve	J	King Crimp Sleeve	4200						
	<b>Food Grade</b> <i>rubber lined</i>	F	4	King Machined - Medium Shank	E	Prefomed Band Clamp	2100-2101			125		125
		F	4	King Machined - Medium Shank	D	Band & Buckle	2104					
A		1	Boss-Lock Cam & Groove	E	Prefomed Band Clamp	2100-2101			150		150	
A		1	Boss-Lock Cam & Groove	D	Band & Buckle	2104						
A		1	Boss-Lock Cam & Groove	G	Swage/Crimp	see Ram Manual					250	
K		11	Holedall Internal Expansion	H	Internal Expansion	see Ram Manual						
K		10	Holedall Swage/Crimp	G	Swage/Crimp	see Ram Manual			600		600	
F		14	King Crimp ST - Ferrule	K	King Crimp Ferrule	4201						
F		14	King Crimp ST - Sleeve	J	King Crimp Sleeve	4200						
A		14	King Crimp Cam & Groove - Ferrule	K	King Crimp Ferrule	4201						
A		14	King Crimp Cam & Groove - Sleeve	J	King Crimp Sleeve	4200						

3. Do not use this chart if it conflicts with the hose manufacturer's recommendations.
4. All hose assemblies should be pressure tested to hose manufacturers or Rubber Manufacturers Association (R.M.A.) specifications prior to being put into service.
5. Our test experience indicates that coupling retention can vary with changes in hose design. For pressure ratings other than those listed and shown, or if questions arise, please call Dixon at 800.355.1991 for assistance.
6. All hose assembly components must be compatible with the materials and environments with which they are to come in contact.
7. Dixon recommends that all hose assemblies be marked with the assembly working pressure and media of the intended application. Under no circumstances should the assembly working pressure exceed the working pressure of the lowest rated component (coupling, clamp, ferrule or hose).
8. For further safety information refer to pages 9, 682-685.

Procedures can be found at [dixonvalve.com](http://dixonvalve.com) or requested by calling 800.355.1991.

Hose (rubber covered)	1"	1-1/4"	1-1/2"	2"	2-1/2"	3"	4"	5"	6"	Notes	
Air textile reinforced rubber lined	150									(2) bands on 5/8" or larger; Must use mating Dixon Air King fittings with safety clip installed.	
	150									Coupling and ferrule are sold assembled. Must use mating Dixon Air King fittings with safety clip installed.	
	150									(14) Coupling and ferrule are sold separately. Must use mating Dixon Air King fittings with safety clip installed.	
	100										
	100										
											(2) bands on 1/2" to 1"
		150									
Air textile or wire reinforced rubber lined	300										
	400		350	300		300	300		230	(13) crimp length would be full length	
	150									Must use mating Dixon Air King fittings with safety clip installed.	
	150									Coupling and ferrule are sold assembled. Must use mating Dixon Air King fittings with safety clip installed.	
	150									(14) Coupling and ferrule are sold separately. Must use mating Dixon Air King fittings with safety clip installed.	
	600	600	600	600	450	450	250		250		
	600	600	600	600	600	600	500	450	400		
Asphalt & Hot Tar	400		350	300		300	300		230	(13) crimp length would be full length	
	200	200	200	200	200	200	200			Consult factory	
	125	125	125	75	75	50	50			(3) bands on 3" & 4"; (2) bands on 1-1/2" to 2-1/2"; (1) band on the rest	
		125	125	75	75	50	50			(3) bands on 3" & 4"; (2) bands on 1-1/2" to 2-1/2"; (1) band on the rest	
	150	150	150	125	100	75	75			(5) bands on 3" & 4"; (4) bands on 2" & 2-1/2"; (3) bands on 1-1/4" & 1-1/2"; (2) bands on the rest	
		150	150	125	100	75	75			(5) bands on 3" & 4"; (4) bands on 2" & 2-1/2"; (3) bands on the rest	
		250	250	250	150	125	100				
Chemical plastic lined for liquid service		250	250	250	150	125	100				
	250		250	250	150	125	100			Requires properly matched stem and ferrule.	
	600	600	600	600	600	600	500				
	400		350	300		300	300		230	(13) crimp length would be full length	
	400		300	250		200	175		75	(13) crimp length would be full length	
	250		250	250		150	150		75	(13) crimp length would be full length	
	250		250	250		125	110		75	(13) crimp length would be full length	
	125	125	125	75	75	50	50			(3) bands on 3" & 4"; (2) bands on 1-1/2" to 2-1/2"; (1) band on the rest	
		125	125	75	75	50	50			(3) bands on 3" & 4"; (2) bands on 1-1/2" to 2-1/2"; (1) band on the rest	
	150	150	150	125	100	75	75			(5) bands on 3" & 4"; (4) bands on 2" & 2-1/2"; (3) bands on 1-1/4" & 1-1/2"; (2) bands on the rest	
		150	150	125	100	75	75			(5) bands on 3" & 4"; (4) bands on 2" & 2-1/2"; (3) bands on the rest	
	250	250	250	250	150	125	100				
		250	250	250	150	125	100				
Chemical rubber lined for liquid service	250		250	250		125	100			Requires properly matched stem and ferrule.	
	600	600	600	600	450	450	250				
	800	800	800	800	600	600	500			Consult factory for ratings on IXF48-3 to IXF48-5 & IXF64-2 to IXF64-5 ferrules. Internal Expansion is NOT recommended for XLPE, UHMWPE & Gum Rubber lined hoses.	
	400		350	300		300	300		230	(13) crimp length would be full length	
	400		300	250		200	175		75	(13) crimp length would be full length	
	250		250	250		150	150		75	(13) crimp length would be full length	
	250		250	250		125	110		75	(13) crimp length would be full length	
	600	600	600	600	600	600	500				
	Food Grade conforming to 3A										Use Stainless Steel Food Grade Ferrule ONLY.
	Food Grade rubber lined	125	125	125	75	75	50	50	25	25	(4) bands on 6"; (3) bands on 3" to 5"; (2) bands on 1-1/2" to 2-1/2"; (1) band on the rest
			125	125	75	75	50	50	25	25	(4) bands on 6"; (3) bands on 3" to 5"; (2) bands on 1-1/2" to 2-1/2"; (1) band on the rest
		250	250	250	250	150	125	100	75	75	(3) bands on 6"; (2) bands on the rest
			250	250	205	150	125	100	75	75	(3) bands on 6"; (2) bands on the rest
250			250	250		125	100			Requires properly matched stem and ferrule.	
250			250	250	250	250	200				
600		600	600	600	600	600	500	450	400		
400			350	300		300	300		230	(13) crimp length would be full length	
400			300	250		200	175		75	(13) crimp length would be full length	
250			250	250		150	150		75	(13) crimp length would be full length	
250		250	250		125	110		75	(13) crimp length would be full length		



## Safety Information

	DPL sect.	Group ID - Couplings	Couplings	Group ID - Clamps & Ferrules	Clamps & Ferrules	Assembly Procedure	1/4"	3/8"	1/2"	5/8"	3/4"		
Hose (rubber covered)	F	7	Cast Short Shank	E	Prefomed Band Clamp	2100-2101							
	F	7	Cast Short Shank	D	Band & Buckle	2104							
	F	4	King Machined - Medium Shank	E	Prefomed Band Clamp	2100-2101							
	F	4	King Machined - Medium Shank	D	Band & Buckle	2104							
	F	5	King Machined - Long Shank	E	Prefomed Band Clamp	2100-2101							
	F	5	King Machined - Long Shank	D	Band & Buckle	2104							
	A	1	Boss-Lock Cam & Groove	E	Prefomed Band Clamp	2100-2101							
	A	1	Boss-Lock Cam & Groove	D	Band & Buckle	2104							
	A	1	Boss-Lock Cam & Groove	G	Swage/Crimp	see Ram Manual							
	K	10	Holedall Swage/Crimp	G	Swage/Crimp	see Ram Manual							
	K	11	Holedall Internal Expansion	H	Internal Expansion	see Ram Manual							
	F	14	King Crimp ST - Ferrule	K	King Crimp Ferrule	4201							
	F	14	King Crimp ST - Sleeve	J	King Crimp Sleeve	4200							
	Material Handling <i>rubber lined</i>	A	14	King Crimp Cam & Groove - Ferrule	K	King Crimp Ferrule	4201						
A		14	King Crimp Cam & Groove - Sleeve	J	King Crimp Sleeve	4200							
F		7	Cast Short Shank	F	Double Bolt Clamp	2201							
F		4	King Machined - Medium Shank	F	Double Bolt Clamp	2201							
F		5	King Machined - Long Shank	F	Double Bolt Clamp	2201							
F		14	King Crimp ST - Ferrule	K	King Crimp Ferrule	4201							
F		14	King Crimp ST - Sleeve	J	King Crimp Sleeve	4200							
A		14	King Crimp Cam & Groove - Ferrule	K	King Crimp Ferrule	4201							
A		14	King Crimp Cam & Groove - Sleeve	J	King Crimp Sleeve	4200							
Material Handling <i>no helical wire rubber lined</i>		D	2	Boss Couplings	A	Boss Interlocking Clamp	2000-2004						
		K	10	Holedall Swage/Crimp	G	Swage/Crimp	see Ram Manual						
		K	11	Holedall Internal Expansion	H	Internal Expansion	see Ram Manual						
		F	4	King Machined - Medium Shank	E	Prefomed Band Clamp	2100-2101			125		125	
		F	4	King Machined - Medium Shank	D	Band & Buckle	2104						
	F	5	King Machined - Long Shank	E	Prefomed Band Clamp	2100-2101			150		150		
	F	5	King Machined - Long Shank	D	Band & Buckle	2104							
	A	1	Boss-Lock Cam & Groove	E	Prefomed Band Clamp	2100-2101			150		250		
	A	1	Boss-Lock Cam & Groove	D	Band & Buckle	2104							
	A	1	Boss-Lock Cam & Groove	G	Swage/Crimp	see Ram Manual					250		
	K	11	Holedall Internal Expansion	H	Internal Expansion	see Ram Manual							
	K	10	Holedall Swage/Crimp	G	Swage/Crimp	see Ram Manual			600		600		
	F	14	King Crimp ST - Ferrule	K	King Crimp Ferrule	4201							
	Material Handling <i>cement rubber lined</i>	F	14	King Crimp ST - Sleeve	J	King Crimp Sleeve	4200						
A		14	King Crimp Cam & Groove - Ferrule	K	King Crimp Ferrule	4201							
A		14	King Crimp Cam & Groove - Sleeve	J	King Crimp Sleeve	4200							
Petroleum Transfer		K	13	Holedall Petroleum Internal Expansion	I	Internal Expansion (Petroleum)	see Ram Manual						
		Push-On	G	Push-On	N/A	n/a	2001-2002	350	350	350	350	350	
		Steam	D	Boss Couplings	A	Boss Interlocking Clamp	2000-2004			250		250	
		Water	E	3	Air King Universal	E	Prefomed Band Clamp	2100-2101			150	150	150
			E	3	Air King Universal	B,A	Air King or Boss Interlocking Clamp	2000-2001		150	150		150
			E	3	Air King Universal	C	Light Duty Ferrules	2307			150		150
			F	6	Machined - Short Shank	E	Prefomed Band Clamp	2100-2101			150	100	100
			F	6	Machined - Short Shank	C	Light Duty Ferrules	2304	200	150	150	100	100
			F	7	Cast Short Shank	E	Prefomed Band Clamp	2100-2101			150	100	100
			F	7	Cast Short Shank	D	Band & Buckle	2104					
			F	4	King Machined - Medium Shank	E	Prefomed Band Clamp	2100-2101			250	200	200
	F		5	King Machined - Long Shank	E	Prefomed Band Clamp	2100-2101			300	300	300	
	A		1	Boss-Lock Cam & Groove	E	Prefomed Band Clamp	2100-2101			150		250	
	A		1	Boss-Lock Cam & Groove	D	Band & Buckle	2104						
A	1		Boss-Lock Cam & Groove	G	Swage/Crimp	see Ram Manual					250		
D	2		Boss Couplings	A	Boss Interlocking Clamp	2000-2002	600	600	600	600	600		
K	10		Holedall Swage/Crimp	G	Swage/Crimp	see Ram Manual	600	600	600	600	600		
F	14		King Crimp ST - Ferrule	K	King Crimp Ferrule	4201							
F	14		King Crimp ST - Sleeve	J	King Crimp Sleeve	4200							
A	14		King Crimp Cam & Groove - Ferrule	K	King Crimp Ferrule	4201							
A	14		King Crimp Cam & Groove - Sleeve	J	King Crimp Sleeve	4200							
Water <i>no helical wire</i>	F		7	Cast Short Shank	F	Double Bolt Clamp	2201						
	F		4	King Machined - Medium Shank	F	Double Bolt Clamp	2201						
	F	5	King Machined - Long Shank	F	Double Bolt Clamp	2201							
	F	14	King Crimp ST - Ferrule	K	King Crimp Ferrule	4201							
	F	14	King Crimp ST - Sleeve	J	King Crimp Sleeve	4200							
	A	14	King Crimp Cam & Groove - Ferrule	K	King Crimp Ferrule	4201							
	A	14	King Crimp Cam & Groove - Sleeve	J	King Crimp Sleeve	4200							

## Safety Information

Hose (rubber covered)	1"	1-1/4"	1-1/2"	2"	2-1/2"	3"	4"	5"	6"	Notes	
Material Handling <i>rubber lined</i>			75	75	50	50	50	25	25	(4) bands on 6"; (3) bands on 3" to 5"; (2) bands on 1-1/2" to 2-1/2"	
			75	75	50	50	50	25	25	(4) bands on 6"; (3) bands on 3" to 5"; (2) bands on 1-1/2" to 2-1/2"	
			125	75	75	50	50	25	25	(4) bands on 6"; (3) bands on 3" to 5"; (2) bands on 1-1/2" to 2-1/2"	
			125	75	75	50	50	25	25	(4) bands on 6"; (3) bands on 3" to 5"; (2) bands on 1-1/2" to 2-1/2"	
			150	125	100	75	75			(5) bands on 3" & 4"; (4) bands on 2" & 2-1/2"; (3) bands on the res	
			150	125	100	75	75			(5) bands on 3" & 4"; (4) bands on 2" & 2-1/2"; (3) bands on the res	
			250	250	150	125	100	75	75	(3) bands on 6"; (2) bands on the rest	
			250	250	150	125	100	75	75	(3) bands on 6"; (2) bands on the rest	
			250	250		125	100			Requires properly matched stem and ferrule.	
			600	600	600	600	500	450	400		
			800	800	600	600	500		400	Consult factory for ratings on IXF48-3 to IXF48-5 & IXF64-2 to IXF64-5 ferrules. Internal Expansion is NOT recommended for XLPE, UHMWPE & Gum Rubber lined hoses.	
		400		350	300		300	300		230	(13) crimp length would be full length
		400		300	250		200	175		75	(13) crimp length would be full length
	Material Handling <i>no helical wire rubber lined</i>			75	75	50	50	50	25	25	(3) double bolt clamps on 5" & 6"; (2) double bolt clamps on 3" to 4"; (1) double bolt clamp on the rest
			125	75	75	50	50	25	25	(3) double bolt clamps on 5" & 6"; (2) double bolt clamps on 3" to 4"; (1) double bolt clamp on the rest	
			150	125	100	75	75			(3) double bolt clamps on all sizes	
		400		350	300		300	300		230	(13) crimp length would be full length
		400		300	250		200	175		75	(13) crimp length would be full length
		250		250	250		150	150		75	(13) crimp length would be full length
		250		250	250		125	110		75	(13) crimp length would be full length
Material Handling <i>cement rubber lined</i>		600	600	600	600	450	450	250		250	Cement will erode ID
		600	600	600	600	600	600	500	450	400	Cement will erode ID
		800	800	800	800	600	600	500		400	Cement will erode ID Consult factory for ratings on IXF48-3 to IXF48-5 & IXF64-2 to IXF64-5 ferrules.
	125	125	125	75	75	50	50	25	25	(4) bands on 6"; (3) bands on 3" to 5"; (2) bands on 1-1/2" to 2-1/2"; (1) band on the rest	
		125	125	75	75	50	50	25	25	(4) bands on 6"; (3) bands on 3" to 5"; (2) bands on 1-1/2" to 2-1/2"; (1) band on the rest	
		150	150	150	125	100	75	75			(5) bands on 3" & 4"; (4) bands on 2" & 2-1/2"; (3) bands on 1-1/4" & 1-1/2"; (2) bands on the rest
Petroleum Transfer			150	150	125	100	75	75		(5) bands on 3" & 4"; (4) bands on 2" & 2-1/2"; (3) bands on the rest	
			250	250	250	150	125	100	75	75	(3) bands on 6"; (2) bands on the rest
			250	250	250	150	125	100	75	75	(3) bands on 6"; (2) bands on the rest
			250		250		125	100			Requires properly matched stem and ferrule.
		800	800	800	800	600	600	500		400	Consult factory for ratings on IXF48-3 to IXF48-5 & IXF64-2 to IXF64-5 ferrules.
		600	600	600	600	600	600	500	450	400	
		400		350	300		300	300		230	(13) crimp length would be full length
		400		300	250		200	175		75	(13) crimp length would be full length
		250		250	250		150	150		75	(13) crimp length would be full length
		250		250	250		125	110		75	(13) crimp length would be full length
	Air Craft Refueling conforming to API 1529	300	300	300	300	300	300	300			
	Push-On										Push-On fittings should ONLY be used on Push-On hose.
	Steam	250	250	250	250	250	250	250		250	
Water	150									(2) bands on 5/8" or larger; Must use mating Dixon Air King fittings with safety clip installed. Band & Buckle is NOT recommended for 1-1/2" and smaller.	
	150									Must use mating Dixon Air King fittings with safety clip installed. Band & Buckle is NOT recommended for 1-1/2" and smaller.	
	150									(14) Coupling and ferrule are sold separately. Must use mating Dixon Air King fittings with safety clip installed.	
	100									(1) band; Band & Buckle is NOT recommended for 1-1/2" and smaller.	
	100										
	100	75	75	75	50	50	50	25	25	(4) bands on 6"; (3) bands on 3" to 5"; (2) bands on 1-1/2" to 2-1/2"; (1) band on the rest	
		75	75	75	50	50	50	25	25	(4) bands on 6"; (3) bands on 3" to 5"; (2) bands on 1-1/2" to 2-1/2"; (1) band on the rest	
	150	150	125	75	75	50	50	25	25	(4) bands on 6"; (3) bands on 3" to 5"; (2) bands on 1-1/2" to 2-1/2"; (1) band on the rest	
	300	300	150	125	100	75	75			(5) bands on 3" & 4"; (4) bands on 2" & 2-1/2"; (3) bands on 1-1/4" & 1-1/2"; (2) bands on the rest	
	250	250	250	250	150	125	100	75	75	(3) bands on 6"; (2) bands on the rest	
		250	250	250	150	125	100	75	75	(3) bands on 6"; (2) bands on the rest	
		250		250	250		125	100			Requires properly matched stem and ferrule.
		600	600	600	600	450	450	250		250	
		600	600	600	600	600	600	500	450	400	
	400		350	300		300	300		230	(13) crimp length would be full length	
	400		300	250		200	175		75	(13) crimp length would be full length	
	250		250	250		150	150		75	(13) crimp length would be full length	
	250		250	250		125	110		75	(13) crimp length would be full length	
Water <i>no helical wire</i>			75	75	50	50	50	25	25	(3) double bolt clamps on 5" & 6"; (2) double bolt clamps on 3" to 4"; (1) double bolt clamp on the rest	
			125	75	75	50	50	25	25	(3) double bolt clamps on 5" & 6"; (2) double bolt clamps on 3" to 4"; (1) double bolt clamp on the rest	
			150	125	100	75	75			(3) double bolt clamps on all sizes	
		400		350	300		300	300		230	(13) crimp length would be full length
		400		300	250		200	175		75	(13) crimp length would be full length
		250		250	250		150	150		75	(13) crimp length would be full length
		250		250	250		125	110		75	(13) crimp length would be full length
		250		250	250		125	110		75	(13) crimp length would be full length



## Dixon's Mobile Connection Trailers



Dixon's mobile training trailers provide hands-on opportunities for distributors and end users to learn more about the selection, installation and maintenance of Dixon fittings and accessories. Call 800.355.1991 for additional information.

### **Hose Assembly Safety Survey Center for:**

- program introduction
- classroom instruction with audio visual display
- presentation of survey results and follow-up



### **Training for Distributors and End-Users in:**

- product selection
- product installation
- safe product usage

### **Product Displays featuring:**

- Dixon Accessories
- Dixon Bayco
- Dixon Boss
- Dixon Brass
- Dixon Powhatan
- Dixon Quick Coupling
- Dixon Sanitary
- Dixon Specialty Hose



S.T.A.M.P.E.D.


Questions to Ask

- S** Size
- T** Temperature
- A** Application
- M** Media
- P** Pressure
- E** Ends
- D** Dixon

Selecting Materials

This information is intended to help make general comparisons between different available materials.

Material	Features and Benefits
Stainless Steel	A corrosion-resistant material that provides high strength at high temperatures, helps prevent contamination of product being transported, maintains cleanliness, and retains a lustrous appearance. Harder than brass. <i>Type 304</i> is a low-carbon chromium-nickel stainless steel. <i>Type 316</i> is similar to type 304, but has a high nickel content as well as a molybdenum for stronger resistance to heat and corrosion. Often used for water, oil, gas, and steam in low- to high-pressure applications.
Brass	Has good corrosion resistance and is less expensive than stainless steel. Is softer and easier to thread than stainless steel and forms tight seals. It can be used interchangeably with copper where heavier walls are required. Found in plumbing and heating application. Also good with oil, natural gas, and air. Resists corrosion from salt water as well as fresh water polluted with waste from mineral acids and peaty soils. Use in low- to high-pressure applications.
Steel	Used in noncorrosive environments. This carbon- and iron-based metal is hard and strong. It is an economical alternative to stainless steel and brass in high-pressure applications. For use with water, oil, gas, and steam in low- to high-pressure applications where corrosion is not a problem.

 Product application is based not only on material selection but on design of product for intended use. Please contact the factory for selection of the proper fitting for your application.

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## Corrosion Resistance of Coupling Material

### **⚠ WARNING**

The following data has been compiled from generally available sources and should not be relied upon without consulting and following the specific recommendations of the manufacturer regarding particular coupling materials.

### Ratings

Metal
1 = Excellent
2 = Good
3 = Fair
X = Not Recommended
- = Contact Factory

Non-Metal
A = Acceptable
X = Not Recommended
- = Contact Factory

Gasket/Seal Material
T = PTFE
V = Viton®
E = EPDM, EPR
N = Neoprene
B = Buna N

1. Ratings given are based at 70°F. Chemical compatibility varies greatly with temperature. For applications at temperatures other than 70°F, contact the Factory for recommendations at 800.355.1991.
2. Gasket / seal materials are not necessarily listed in order of preference.
3. Chemical resistance of a material does not necessarily indicate the suitability of a fitting in a given application due to variables such as improper clamp and coupling application, special hose construction, gasket material, etc.



*Special caution should be taken when handling hazardous materials.*

Technical Information

AGENT	Aluminum	Brass	Bronze	Hastelloy, C-276	Malleable Iron Carbon Steel	Monel	Stainless Steel, 304	Stainless Steel, 316	Nylon	Polypropylene	Seal Material
Acetate Solvents (Crude)	1	X	X	1	2	2	1	1	A	X	T
Acetate Solvents (Pure)	1	1	1	1	X	1	1	1	A	X	T
Acetic Acid (80%)	3	X	X	1	X	1	1	1	X	X	TEVNB
Acetic Acid (50%)	2	X	X	1	X	2	2	1	X	X	TEVNB
Acetic Acid (20%)	2	X	X	1	X	2	2	1	X	X	TEVNB
Acetic Acid (10%)	2	X	2	1	X	2	1	1	X	X	TEVNB
Acetic Anhydride	2	X	2	1	2	2	2	2	X	X	TNB
Acetone	1	2	2	1	2	1	1	1	A	X	TE
Acetylene	1	X	X	2	2	2	1	1	X	X	TEVNB
Alcohols											
Amyl Alcohol	2	2	2	2	2	1	2	2	A	A	TEVNB
Benzyl Alcohol	2	2	2	2	2	1	1	1	X	A	TVB
Butyl Alcohol	1	2	1	2	2	1	1	1	A	A	TEVN
Diacetone Alcohol	1	1	2	1	2	1	2	2	X	A	TE
Ethyl Alcohol	1	2	2	1	2	2	2	2	X	A	TEVNB
Hexyl Alcohol	-	-	-	1	-	-	-	-	A	-	-
Isobutyl Alcohol	-	-	-	-	-	-	-	-	A	-	-
Isopropyl Alcohol	2	2	2	2	2	2	2	2	A	A	TEVNB
Methyl Alcohol (Methanol)	2	2	2	1	2	2	2	2	A	A	TENB
Octyl Alcohol	-	-	-	-	-	-	-	-	A	-	-
Propyl Alcohol	2	2	2	1	2	2	1	1	X	A	TEVNB
Aluminum											
Aluminum Chloride (Aqu.)	X	X	X	1	X	X	X	X	A	A	TEVNB
Aluminum Fluoride (Sat.)	2	-	-	-	X	2	X	2	X	A	TEVNB
Aluminum Nitrate (Sat.)	3	X	-	-	X	-	2	2	A	A	TEVNB
Aluminum Potassium Sulfate (Alum)	2	2	2	2	X	2	X	2	X	A	TEVNB
Aluminum Sulfate (Sat.)	X	X	2	2	X	2	-	2	A	A	TEVNB
Ammonia											
Ammonia Anhydrous	1	X	X	2	1	1	2	1	A	X	TENB
Ammonia Gas	X	X	X	1	1	X	1	1	A	X	TENB
Ammonia Nitrate	-	-	-	-	-	-	-	-	X	-	-
Ammonium											
Ammonium Bifluoride	-	X	-	2	X	2	-	-	X	A	TEVB
Ammonium Carbonate (Sat.)	2	X	X	2	2	2	2	2	A	A	TEVNB
Ammonium Casenate	-	-	-	-	-	-	-	-	A	-	-
Ammonium Chloride (Sat.)	X	X	2	2	X	2	X	X	A	A	TEVNB
Ammonium Hydroxide (Sat.)	2	X	X	2	1	X	2	2	A	A	TEVNB
Ammonium Nitrate	2	X	X	-	X	X	-	-	A	A	TENB
Ammonium Phosphate (10-40%)	X	X	X	-	X	2	1	2	A	A	TEVNB
Ammonium Sulfate (10-40%)	X	X	3	2	X	2	X	2	A	A	TEVNB
Aniline	-	X	2	2	X	2	1	1	X	X	TV
Arsenic Acid	X	X	2	2	X	X	2	2	X	A	TEVNB
Asphalt	-	-	-	-	2	-	-	2	X	X	TV
Barium											
Barium Carbonate (Sat.)	X	2	2	2	2	2	2	2	A	A	TEVNB
Barium Chloride (Sat.)	-	2	2	1	-	2	X	-	A	A	TEVNB
Barium Hydroxide (Sat.)	X	2	X	2	2	1	2	2	A	A	TEVNB
Barium Sulfate	2	2	2	-	X	2	2	2	A	A	TEVNB
Barium Sulfide	X	X	X	-	2	X	2	2	A	A	TEVNB
Beer	1	2	2	1	2	1	1	1	A	A	TEVNB
Benzaldehyde	2	2	2	2	X	2	2	2	X	X	TE
Benzene, Benzol	1	2	2	2	2	2	2	2	A	X	TV
Benzine	-	-	-	-	-	-	-	-	A	X	-
Benzoic Acid	2	2	2	-	X	2	2	2	X	X	TVN
Black Liquor	X	X	X	X	-	2	2	2	X	A	TEVNB
Bleach (12.5% Active Chlorine)	X	-	-	1	X	-	-	X	X	A	TEVN
Borax	X	2	2	1	2	1	1	1	X	A	TEVNB
Boric Acid	1	X	2	1	X	2	-	-	X	A	TEVNB
Brine Acid	-	2	2	1	-	-	-	-	X	A	TEVNB
Bromic acid	X	X	X	-	-	X	-	-	X	A	TEVN
Bromine Liquid	2	-	-	-	-	-	X	X	X	X	TV
Butadiene, Butylene	2	2	2	2	2	1	2	2	X	X	TVNB
Butane	2	2	2	2	1	1	2	2	X	X	TV
Butyl Acetate	1	2	2	2	2	2	2	2	A	X	T
Butyric Acid	2	2	X	1	X	2	2	2	A	A	TV

Ratings given are based at 70°F.





AGENT	Aluminum	Brass	Bronze	Hastelloy, C-276	Malleable Iron Carbon Steel	Monel	Stainless Steel, 304	Stainless Steel, 316	Nylon	Polypropylene	Seal Material
<b>Calcium</b>											
Calcium Bisulfate	X	-	X	-	X	X	X	2	X	A	T
Calcium Bisulfide	-	-	-	-	-	2	-	2	A	A	TVB
Calcium Bisulfite	X	X	2	2	X	X	-	2	X	A	TVNB
Calcium Bromide	X	2	2	-	X	2	1	X	X	X	T
Calcium Carbonate	X	2	2	2	2	2	1	2	A	A	TEVB
Calcium Chloride (Sat.)	-	2	-	1	2	2	-	-	A	A	TEVNB
Calcium Hydroxide (Sat.)	X	2	X	-	2	2	2	2	A	A	TEVNB
Calcium Hypochlorite (Sat.)	X	X	X	-	X	X	X	2	X	A	TEV
<b>Carbon</b>											
Carbon Bisulfide	1	X	2	2	2	X	2	2	A	X	TV
Carbon Dioxide (Dry)	1	1	2	1	2	1	2	2	A	A	TENB
Carbon Dioxide (Wet)	1	X	-	2	3	-	2	2	X	A	TENB
Carbon Disulfide	1	X	2	2	2	X	2	2	A	X	TV
Carbon Monoxide	1	1	1	1	2	1	1	1	A	A	TEVNB
Carbon Tetrachloride	X	-	1	1	2	1	1	-	A	X	TV
Carbonic Acid	1	2	2	1	2	3	2	2	X	A	TEVNB
Castor Oil	2	2	2	1	2	1	2	2	X	A	TEVNB
Caustic Potash	X	-	-	1	X	-	-	2	A	A	TEVNB
Caustic Soda (see Sodium Hydroxide)											
Cellosolves	2	2	2	2	2	2	2	2	X	A	TE
Chlorine (Liquid)	-	-	-	1	2	2	-	3	X	X	TV
Chloroform	-	-	-	2	X	1	-	-	X	X	TV
Chlorosulfonic Acid	-	X	X	1	2	2	X	X	X	X	T
Clorox (Bleach, 5.5% CL)	X	-	-	-	X	-	-	2	X	-	TEVB
Chromic Acid (50%)	2	X	X	2	X	X	3	-	X	X	TVNB
Citric Acid	3	X	X	1	X	2	-	-	X	A	TEVNB
Coke Oven Gas	2	3	3	-	2	2	2	2	X	X	TEVN
<b>Copper</b>											
Copper Chloride	X	X	X	2	X	X	X	X	A	A	TEVNB
Copper Cyanide	X	X	X	1	-	X	2	2	X	-	TEVNB
Copper Sulfate	X	X	X	1	X	X	-	2	A	A	TEVNB
Cryylic Acid (Conc.)	2	2	X	-	2	3	2	2	X	X	TEV
Cyclohexane	2	2	2	2	2	1	2	2	A	X	TVB
Detergents	2	2	2	1	2	-	1	2	A	A	TEVNB
Dextrose	2	-	-	2	-	2	-	-	A	A	TEVNB
Diesel Fuels	1	1	1	2	2	-	1	1	A	X	TVB
Diethylamine	2	-	X	-	X	1	2	2	X	A	TN
Disodium Phosphate	-	-	-	-	1	-	-	1	A	A	TEV
Ethers	2	2	2	2	2	2	1	1	A	X	TB
<b>Ethyl</b>											
Ethyl Acetate	-	-	2	2	2	2	2	2	A	X	T
Ethyl Chloride	-	-	2	2	2	2	-	1	A	X	TEVB
<b>Ethylene</b>											
Ethylene Chloride	-	-	-	-	2	2	-	-	A	X	TV
Ethylene Dichloride	-	2	X	2	2	1	2	2	A	X	TV
Ethylene Glycol	1	2	2	1	2	2	2	2	A	X	TEVNB
Ethylene Oxide	X	X	X	1	3	2	2	2	X	X	T
Fatty Acids	1	3	3	1	X	2	-	1	A	A	TVNB
<b>Ferric</b>											
Ferric Chloride	X	X	2	2	X	X	X	X	X	A	TEVNB
Ferric Hydroxide	-	-	-	1	-	2	1	1	A	-	TEVNB
Ferric Nitrate (10-50%)	X	X	X	-	X	X	2	2	X	A	TEVNB
Ferric Sulfate	X	X	X	-	X	2	-	-	X	A	TEVNB
<b>Ferrous</b>											
Ferrous Chloride (Sat.)	X	X	2	2	-	X	X	X	X	A	TEVNB
Ferrous Sulfate	2	2	2	2	X	2	2	-	X	A	TEVNB
Fluboric Acid	X	-	-	1	1	2	-	-	X	A	TEVNB
Formaldehyde (50%)	-	2	2	2	X	2	1	1	X	A	TEN
Formic Acid (Anhyd.)	1	X	2	1	X	2	-	-	X	A	TEVN
<b>Freon</b>											
Freon 11	2	2	2	-	X	1	2	2	X	X	TVNB
Freon 12	2	2	2	1	X	2	2	2	X	X	TVNB
Freon 22	2	2	2	2	X	2	2	2	X	X	TN
Fruit Juices	2	2	3	1	X	1	2	2	A	A	TVNB
Fuel Oil	2	2	2	2	2	2	2	2	A	X	TVNB
Furfural	2	2	2	2	2	2	2	2	A	X	TEN

Technical Information

AGENT	Aluminum	Brass	Bronze	Hastelloy, C-276	Malleable Iron Carbon Steel	Monel	Stainless Steel, 304	Stainless Steel, 316	Nylon	Polypropylene	Seal Material
Gasoline											
Refined Gasoline	2	2	2	2	2	2	2	2	A	X	TVNB
Sour Gasoline	X	2	2	2	2	X	2	2	A	X	TVNB
Gelatin	2	2	2	-	X	2	2	2	A	A	TEVNB
Glucose	2	2	2	-	2	2	2	2	A	A	TEVNB
Glue	2	2	2	1	2	2	-	2	-	A	TEVNB
Glycerine	1	1	2	1	2	1	1	1	A	A	TEVNB
Glycols	2	2	2	-	2	2	2	2	A	A	TEVNB
Green Liquor	-	-	-	-	2	-	-	-	-	A	TEVNB
Heptane	2	2	2	1	2	2	2	2	A	X	TVNB
Hexane	2	2	2	1	2	2	1	1	A	X	TVNB
Hydrobromic Acid (50%)	X	X	X	2	X	X	X	X	X	A	TEV
Hydrobromic Acid (20%)	X	X	X	1	X	X	X	X	X	A	TEV
Hydrochloric Acid (20%)	X	X	X	1	X	3	X	X	X	A	TEVNB
Hydrochloric Acid (38%)	X	X	X	1	X	X	X	X	X	A	TEVN
Hydrocyanic Acid	2	X	X	2	2	2	2	2	X	A	TEVN
Hydrofluosilicic Acid (10-50%)	X	2	X	2	X	2	X	2	X	-	TEVNB
Hydrogen											
Hydrogen Peroxide (50%)	-	X	X	2	X	2	-	-	X	A	TEV
Hydrogen Sulfide (Aqu.)	-	-	-	2	-	2	X	2	X	A	TE
Hydrogen Chloride (Dry Gas)	X	2	-	1	2	1	-	-	X	A	TEVN
Hydrogen Gas	1	1	1	1	-	1	1	1	X	A	TEVNB
Hypochlorous Acid	X	X	X	2	X	X	X	X	X	X	TEV
Iodine	1	X	X	-	X	1	X	X	X	A	TEV
Isopropyl Ether	-	2	2	-	-	2	1	2	A	X	T
Jet Fuel (JP4, JP5)	2	1	2	1	2	2	2	2	X	X	TV
Kerosene	2	2	2	2	2	2	2	2	X	X	TVNB
Ketones	2	2	2	1	2	2	2	2	A	X	T
Lactic Acid (25%)	3	2	2	1	X	X	-	-	A	A	TEVN
Lactic Acid (80%)	2	2	X	2	X	-	-	-	A	A	TEVN
Lard Oil	2	-	2	1	3	2	2	2	A	A	TVB
Lead											
Lead Acetate	X	X	X	2	X	2	2	2	X	A	TENB
Lead Chloride	X	-	-	2	-	-	2	2	X	-	TVNB
Lead Sulfate	X	-	-	2	X	2	2	2	X	-	TEVNB
Lime Sulphur	X	X	X	-	X	2	2	2	X	A	TEVN
Linoleic Acid	2	X	3	2	X	2	2	2	X	A	TVB
Linseed Oil	2	2	2	2	2	2	2	2	A	A	TVNB
Lubricants (Oil)	2	1	-	-	2	2	2	2	A	X	TVNB
Magnesium											
Magnesium Carbonate	2	-	-	-	-	2	2	2	X	A	TEVNB
Magnesium Chloride	X	X	2	1	-	-	-	-	X	A	TEVNB
Magnesium Hydroxide	2	2	2	1	2	2	1	1	X	A	TEVNB
Magnesium Nitrate	2	2	2	1	2	2	2	2	X	A	TEVNB
Magnesium Oxide	-	-	-	-	-	-	-	-	X	-	-
Magnesium Sulfate	2	-	2	-	-	1	2	2	X	A	TEVNB
Maleic Acid	-	2	3	2	X	-	-	2	X	A	TEV
Mercuric											
Mercuric Chloride	X	X	X	-	X	X	X	-	X	A	TEVB
Mercuric Cyanide	X	X	X	2	X	2	2	2	X	A	TEVB
Mercury	X	X	X	1	2	-	1	1	A	A	TEVNB
Methane	1	1	2	1	2	1	1	1	A	X	TEVNB
Methanol	2	2	2	1	2	2	2	2	A	A	TENB
Methyl											
Methyl Bromide	X	-	-	-	2	-	2	2	X	X	TV
Methyl Ethyl Ketone	2	2	2	2	2	2	2	2	A	X	TE
Methyl Isobutyl Ketone	2	2	2	2	2	2	2	2	A	X	T
Methyl Methacrylate	2	-	-	-	X	-	2	2	X	A	T
Methylene Chloride	-	2	2	X	2	-	-	-	A	X	T
Milk	1	X	X	1	2	X	1	1	A	A	TEVNB
Mineral Oil	2	1	-	-	2	1	1	2	A	A	TVNB
Muriatic Acid	X	-	-	1	-	X	X	X	X	A	TV
Napthalene	2	2	2	2	2	2	1	1	A	A	TV
Naptha	2	2	2	2	2	2	2	2	A	X	TVB

Ratings given are based at 70°F.



Technical Information

AGENT	Aluminum	Brass	Bronze	Hastelloy, C-276	Malleable Iron Carbon Steel	Monel	Stainless Steel, 304	Stainless Steel, 316	Nylon	Polypropylene	Seal Material
<b>Nickel</b>											
Nickel Chloride	X	X	X	-	X	2	-	-	X	A	TEVNB
Nickel Sulfate	X	X	-	2	-	-	2	2	X	A	TEVNB
<b>Nitric</b>											
Nitric Acid (100%)	1	X	X	2	X	X	2	-	X	X	TV
Nitric Acid (50%)	X	X	X	1	X	X	2	-	X	X	TV
Nitric Acid (30%)	X	X	X	1	X	X	1	-	X	X	TV
Nitrobenzene	1	2	2	-	2	2	2	2	A	A	T
<b>Oils</b>											
Castor Oil	2	2	2	1	2	1	2	2	A	A	TEVNB
Coconut Oil	2	-	2	-	3	2	2	2	A	A	TVB
Corn Oil	2	2	2	-	2	2	-	2	A	A	TVNB
Cotton Seed Oil	2	2	2	-	2	1	2	2	A	A	TVNB
Fuel Oil	2	2	2	2	2	2	2	2	A	X	TVNB
Linseed Oil	2	2	2	2	2	2	2	2	A	A	TVNB
Mineral Oil	2	1	-	-	2	1	1	2	A	A	TVNB
Silicon Oil	2	1	2	-	2	-	2	2	A	A	TEVB
Vegetable Oil	2	2	2	1	2	1	1	1	A	X	TVNB
Oleic Acid	2	3	2	2	2	1	-	1	A	X	TB
Oleum	2	X	X	-	2	X	2	2	X	X	TV
Oxalic Acid (Sat.)	2	-	2	2	X	2	X	X	X	A	TEV
Oxygen	2	2	2	-	2	2	2	2	X	X	TEVNB
Palmitic Acid (Sat.)	2	3	2	-	3	2	2	2	X	A	TVB
Paraffin	2	2	2	2	2	2	2	2	A	A	TVNB
Perchloroethylene	2	2	2	2	2	1	-	-	X	X	TV
Petrolatum	2	-	2	-	3	2	2	2	A	-	TVNB
Phenol (Carbolic Acid)	1	1	X	1	2	1	-	1	X	X	TV
<b>Phosphoric Acid</b>											
Phosphoric Acid (25-50%)	X	X	2	1	X	X	-	-	X	A	TEVN
Phosphoric Acid (50-85%)	X	X	X	1	X	3	-	-	X	A	TEV
<b>Photographic Solutions</b>											
Phthalic Anhydride	-	2	2	1	2	1	1	1	X	X	TEV
Picric Acid	1	X	X	2	X	X	2	2	X	-	TEVNB
<b>Plating Solutions</b>											
Brass Plating Solution	-	-	-	1	-	-	-	2	X	A	TEVNB
Cadmium Plating Solution	-	-	-	1	-	-	-	2	X	A	TEVNB
Chrome 40% Plating Solution	X	2	2	1	X	X	2	2	X	A	TEVN
Copper (Cyanide) Plating Solution	-	-	-	1	-	-	-	-	X	A	TEVNB
Gold Plating Solution	-	-	-	1	-	-	-	1	X	A	TEVNB
Iron Plating Solution	-	-	-	-	-	-	-	-	X	A	TEVB
Lead Plating Solution	-	-	-	-	-	-	1	1	X	A	TEVNB
Nickel Plating Solution	-	-	-	1	-	-	1	1	X	A	TEVNB
Silver Plating Solution	-	-	-	1	-	-	1	1	X	A	TEVNB
Tin Plating Solution	-	-	-	1	-	-	-	3	X	A	TEVNB
Zinc Plating Solution	-	-	-	1	-	-	-	-	X	A	TEVNB
<b>Potassium</b>											
Potassium Acetate	X	X	X	-	2	-	-	-	A	A	TEVB
Potassium Bicarbonate (30%)	X	2	-	2	2	2	1	1	A	A	TEVNB
Potassium Carbonate (50%)	X	2	X	2	2	2	1	1	A	A	TEVNB
Potassium Chlorate (30%)	2	X	X	-	2	2	2	1	X	A	TEVNB
Potassium Chloride (30%)	X	X	2	-	2	1	-	-	A	A	TEVNB
Potassium Chromate (30%)	2	2	2	2	-	2	2	2	X	A	TEVB
Potassium Cyanide Solution (30%)	X	X	X	2	2	2	2	2	X	A	TEVNB
Potassium Dichromate (30%)	1	2	2	2	2	2	1	1	X	A	TEVB
Potassium Hydroxide (90%)	X	X	X	2	-	2	X	-	X	A	TENB
Potassium Nitrate (80%)	1	2	2	2	2	2	2	2	X	A	TEVNB
Potassium Permanganate (20%)	2	2	2	1	2	2	2	2	X	A	TEVN
Potassium Sulfate (10%)	1	2	2	1	2	1	1	1	A	A	TEVNB
<b>Propane</b>											
Propane	1	1	1	2	2	1	2	2	X	X	TVB
<b>Propylene Glycol</b>											
Propylene Glycol	2	2	2	2	2	2	2	2	A	A	TVNB
<b>Propylene Oxide (90%)</b>											
Propylene Oxide (90%)	-	-	-	-	-	-	1	1	X	X	TE
<b>Pyridine</b>											
Pyridine	2	2	2	-	2	2	2	2	A	X	T
<b>Pyrogalllic Acid</b>											
Pyrogalllic Acid	2	2	2	2	2	2	2	2	X	X	TVNB
<b>Silver Nitrate</b>											
Silver Nitrate	X	X	X	-	X	X	2	1	X	A	TEVNB
<b>Soap Solutions</b>											
Soap Solutions	2	2	2	1	2	2	2	2	A	A	TEVNB

Ratings given are based at 70°F.

Technical Information

AGENT	Aluminum	Brass	Bronze	Hastelloy, C-276	Malleable Iron Carbon Steel	Monel	Stainless Steel, 304	Stainless Steel, 316	Nylon	Polypropylene	Seal Material
Sodium											
Sodium Acetate	1	2	2	-	X	2	2	2	A	A	TEN
Sodium Bicarbonate (20%)	2	2	2	1	3	1	1	1	A	A	TEVNB
Sodium Bisulfate	X	-	2	2	2	-	-	-	A	A	TEVNB
Sodium Bisulfite	X	2	X	2	X	-	-	-	A	A	TEVNB
Sodium Borate	2	2	2	2	3	2	2	2	A	A	TEVNB
Sodium Perborate (10%)	2	X	2	2	2	2	2	2	X	A	TEVNB
Sodium Carbonate	X	2	-	2	2	1	-	2	A	A	TEVNB
Sodium Chlorate (50%)	2	2	2	1	X	1	2	2	X	A	TEVNB
Sodium Cyanide	X	X	X	2	2	X	-	-	A	A	TEVNB
Sodium Dichromate	2	X	X	1	2	-	2	2	X	A	TE
Sodium Hydroxide (70%)	X	X	X	1	3	1	2	2	X	A	TENB
Sodium Hydroxide (50%)	X	X	3	1	3	1	1	-	X	A	TENB
Sodium Hydroxide (30%)	X	2	3	2	2	1	1	1	X	A	TENB
Sodium Chloride (30%)	X	2	2	2	2	1	-	-	X	A	TEVNB
Sodium Hypochlorite	X	X	X	-	X	X	-	-	X	A	TEV
Sodium Metaphosphate	X	X	2	-	X	2	2	2	X	X	TEVNB
Sodium Nitrate (40%)	1	2	-	-	2	2	1	1	A	A	TENB
Sodium Perborate (10%)	2	X	2	2	2	2	2	2	X	A	TEVNB
Sodium Peroxide (10%)	2	X	X	2	2	2	2	2	X	A	TEVNB
Sodium Silicate	1	2	2	2	2	2	2	2	A	A	TEVNB
Sodium Sulfate	-	2	2	2	2	-	-	1	A	A	TEVNB
Sodium Sulfide (50%)	X	X	X	2	2	2	-	2	X	A	TEVNB
Sodium Thiosulphate	2	X	X	2	X	2	2	2	A	A	TEVNB
Stannic Chloride	X	X	X	-	X	X	X	X	X	A	TEVNB
Stannous Chloride	X	X	X	2	X	-	X	-	X	X	TEVNB
Steam	-	-	-	-	-	-	-	-	X	-	-
Stearic Acid	2	3	2	1	3	3	2	1	A	A	TVNB
Stoddard's Solvent	2	2	2	1	2	2	2	2	X	A	TVB
Sugar Liquors (Cane)	1	2	1	-	2	2	2	2	A	A	TEVNB
Sugar Liquors (Beet)	1	2	1	-	2	1	1	1	A	A	TEVNB
Sulfate Liquors	2	X	X	2	3	2	-	2	X	A	TVNB
Sulfite Liquors	X	X	-	1	X	X	2	2	X	X	TVNB
Sulfur Chloride	X	-	X	2	X	X	-	-	X	X	TV
Sulfur Dioxide (Dry)	2	2	2	2	1	2	-	2	X	A	TE
Sulfur Trioxide	2	2	X	2	2	2	-	2	X	X	TEV
Sulfuric Acid (TO 10%)	X	2	X	1	X	X	X	X	X	A	TEVNB
Sulfuric Acid (100%)	X	X	X	1	2	X	-	-	X	X	TV
Sulfurous Acid	2	2	X	-	X	X	X	-	X	A	TV
Tannic Acid	X	-	X	-	X	2	2	2	X	A	TEVNB
Tanning Liquors	1	-	2	1	-	-	1	1	X	A	TVNB
Tartaric Acid	-	-	2	2	-	-	1	1	A	A	TVNB
Titanium Tetrachloride	X	X	X	2	2	2	-	2	X	X	TV
Toluene	1	1	1	1	1	1	1	1	A	X	TVB
Tetrahydrofuran	X	-	2	1	1	-	1	2	A	X	T
Tomato Juice	2	-	3	2	3	2	2	2	X	A	TEVNB
Trichloroethylene	1	-	2	1	2	-	-	-	A	X	TV
Triethanolamine	2	X	2	2	2	2	2	2	A	X	TEVN
Triethylamine	-	-	-	-	-	2	2	2	A	X	TVB
Trisodium Phosphate (10%)	X	2	-	1	2	2	1	1	A	A	TVNB
Turpentine	2	X	2	2	2	1	1	1	X	X	TVB
Urea (50%)	2	-	2	-	2	2	2	2	A	A	TEVNB
Urine	-	-	-	-	2	-	1	1	X	A	TEVNB
Vinegar	2	X	2	2	2	2	2	2	X	A	TEVN
Water Acid (Mine)	X	X	X	1	X	-	-	-	X	A	TEVNB
Water (Distilled)	X	2	2	1	X	X	2	2	A	A	TEVNB
Water (Sea)	2	2	2	1	X	2	2	2	A	A	TEVNB
Whiskey	X	2	2	1	2	2	1	1	X	A	TEVNB
White Liquor (Pulp)	2	-	X	2	X	X	2	2	X	A	TEVNB
Wine	X	2	2	1	X	2	1	1	X	A	TEVNB
Xylene	2	2	2	1	2	2	2	2	A	X	TV
Zinc											
Zinc Chloride	X	X	X	2	X	-	X	2	A	A	TEVNB
Zinc Nitrate	-	-	-	-	-	-	2	2	X	A	TEVNB
Zinc Sulfate (50%)	X	2	2	2	X	2	1	1	X	A	TEVNB

Ratings given are based at 70°F.

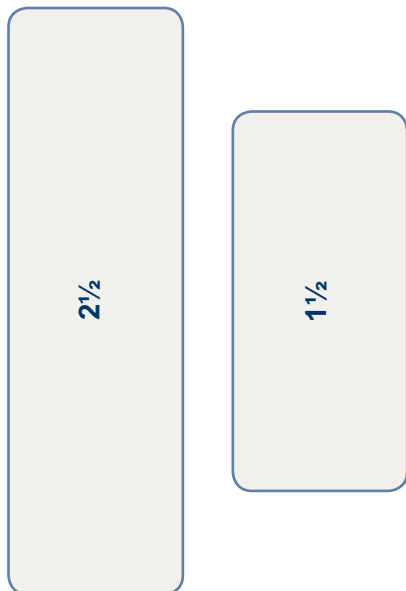


### Fittings Size Chart

#### Male NPT Thread Sizes



#### Male NST Thread Sizes



### Temperature Conversions

Look up reading in middle column (shaded). If in degrees Centigrade, read Fahrenheit equivalent in right-hand column; if in degrees Fahrenheit, read Centigrade equivalent in left-hand column.

°C	°F	°C	°F	°C	°F	°C	°F	
-73	-100	-148	5.0	41	105.8	33.3	92	197.6
-68	-90	-130	5.6	42	107.6	33.9	93	199.4
-62	-80	-112	6.1	43	109.4	34.4	94	201.2
-57	-70	-94	6.7	44	111.2	35.0	95	203.0
-51	-60	-76	.72	45	113.0	35.6	96	204.8
-46	-50	-58	7.8	46	114.8	36.1	97	206.6
-40	-40	-40	8.3	47	116.6	36.7	98	208.4
-34	-30	-22	8.9	48	118.4	37.2	99	210.2
-29	-20	-4	9.4	49	120.2	37.8	100	212.0
-23	-10	14	10.0	50	122.0			
-17.8	0	32	10.6	51	123.8	43	110	230
-17.2	1	33.8	11.1	52	125.6	49	120	248
-16.7	2	35.6	11.7	53	127.4	54	130	266
-16.1	3	37.4	12.2	54	129.2	60	140	284
-15.6	4	39.2	12.8	55	131.0	66	150	302
-15.0	5	41.0	13.3	56	132.8	71	160	320
-14.4	6	42.8	13.9	57	134.6	77	170	338
-13.9	7	44.6	14.4	58	136.4	82	180	356
-13.3	8	46.4	15.0	59	138.2	88	190	374
-12.8	9	48.2	15.6	60	140.0	93	200	392
-12.2	10	50.0	16.1	61	141.8	99	210	410
-11.7	11	51.8	16.7	62	143.6	100	212	413.6
-11.1	12	53.6	17.2	63	145.4	104	220	428
-10.6	13	55.4	17.8	64	147.2	110	230	446
-10.0	14	57.2	18.3	65	149.0	116	240	464
-9.4	15	59.0	18.9	66	150.8	121	250	482
-8.9	16	60.8	19.4	67	152.6	127	260	500
-8.3	17	62.6	20.0	68	154.4	132	270	518
-7.8	18	64.4	20.6	69	156.2	138	280	536
-7.2	19	66.2	21.1	70	158.0	143	290	554
-6.7	20	68.0	21.7	71	159.8	149	300	572
-6.1	21	69.8	22.2	72	161.6	154	310	590
-5.6	22	71.6	22.8	73	163.4	160	320	608
-5.0	23	73.4	23.3	74	165.2	166	320	626
-4.4	24	75.2	23.9	75	167.0	170	338	640
-3.9	25	77.0	24.4	76	168.8	171	340	644
-3.3	26	78.8	25.0	77	170.6	177	350	662
-2.8	27	80.6	25.6	78	172.4	182	360	680
-2.2	28	82.4	26.1	79	174.2	186	366	691
-1.7	29	84.2	26.7	80	176.0	188	370	698
-1.1	30	86.0	27.2	81	177.8	193	380	716
-.6	31	87.8	27.8	82	179.6	198	388	730
0	32	89.6	28.3	83	181.4	199	390	734
.6	33	91.4	28.9	84	183.2	204	400	752
1.1	34	93.2	29.4	85	185.0	208	406	763
1.7	35	95.0	30.0	86	186.8	210	410	770
2.2	36	96.8	30.6	87	188.6	216	420	788
2.8	37	98.6	31.1	88	190.4	221	430	806
3.3	38	100.4	31.7	89	192.2	227	440	824
3.9	39	102.2	32.2	90	194.0	232	450	842
4.4	40	104.0	32.8	91	195.8			

# Steam Temperature - Pressure Conversion Guide

## Temperature - Pressure Equivalents of Saturated Steam Gauge Pressure at Sea Level

• Degrees Celsius = 5/9 (Degrees F - 32)

Temperature		Lbs. per Sq. Inch	Temperature		Lbs. per Sq. Inch	Temperature		Lbs. per Sq. Inch
°F	°C		°F	°C		°F	°C	
212	100.0	0.0	286	141.1	39.4	336	168.9	97.1
214	101.1	0.6	287	141.7	40.3	337	169.4	98.7
216	102.2	1.2	288	142.2	41.1	338	170.0	100.2
218	103.3	1.8	289	142.8	42.0	339	170.6	101.8
220	104.4	2.5	290	143.3	42.9	340	171.1	103.3
222	105.6	3.2	291	143.9	43.8	341	171.7	105.0
224	106.7	3.9	292	144.4	44.7	342	172.2	106.5
226	107.8	4.6	293	145.0	45.6	343	172.8	108.2
228	108.9	5.3	294	145.6	46.5	344	173.3	109.8
230	110.0	6.1	295	146.1	47.5	345	173.9	111.5
232	111.1	6.9	296	146.7	48.4	346	174.4	113.1
234	112.2	7.7	297	147.2	49.4	347	175.0	114.8
236	113.3	8.5	298	147.8	50.3	348	175.6	116.5
238	114.4	9.4	299	148.3	51.3	349	176.1	118.2
240	115.6	10.3	300	148.9	52.3	350	176.7	119.9
242	116.7	11.2	301	149.4	53.4	352	177.8	123.5
244	117.8	12.1	302	150.0	54.4	354	178.9	127.1
246	118.9	13.1	303	150.6	55.4	356	180.0	130.8
248	120.0	14.1	304	151.1	56.4	358	181.1	134.5
250	121.1	15.1	305	151.7	57.5	360	182.2	138.3
252	122.2	16.2	306	152.2	58.6	362	183.3	142.3
254	123.3	17.3	307	152.8	59.7	364	184.4	146.2
256	124.4	18.4	308	153.3	60.7	366	185.6	150.3
258	125.6	19.6	309	153.9	61.9	368	186.7	154.4
260	126.7	20.7	310	154.4	63.0	370	187.8	158.7
261	127.2	21.4	311	155.0	64.2	372	188.9	163.0
262	127.8	22.0	312	155.6	65.3	374	190.0	167.4
263	128.3	22.6	313	156.1	66.5	376	191.1	171.9
264	128.9	23.2	314	156.7	67.6	378	192.2	176.4
265	129.4	23.9	315	157.2	68.8	380	193.3	181.1
266	130.0	24.5	316	157.8	70.0	382	194.4	185.8
267	130.6	25.2	317	158.3	71.3	384	195.6	190.6
268	131.1	25.8	318	158.9	72.5	386	196.7	195.6
269	131.7	26.5	319	159.4	73.7	388	197.8	200.6
270	132.2	27.2	320	160.0	75.0	390	198.9	205.7
271	132.8	27.9	321	160.6	76.3	392	200.0	210.9
272	133.3	28.6	322	161.1	77.5	394	201.1	216.2
273	133.9	29.3	323	161.7	78.8	396	202.2	221.5
274	134.4	30.0	324	162.2	80.1	398	203.3	227.0
275	135.0	30.8	325	162.8	81.5	400	204.4	232.6
276	135.6	31.5	326	163.3	82.8	402	205.5	238.0
277	136.1	32.3	327	163.9	84.2	404	206.7	244.0
278	136.7	33.0	328	164.4	85.6	406	207.8	250.0
279	137.2	33.8	329	165.0	87.0	408	208.9	256.0
280	137.8	34.5	330	165.6	88.4	410	210.0	262.0
281	138.3	35.3	331	166.1	89.8	412	211.1	268.0
282	138.9	36.1	332	166.7	91.2	414	212.2	275.0
283	139.4	36.9	333	167.2	92.7	416	213.3	281.0
284	140.0	37.7	334	167.8	94.1	418	214.4	288.0
285	140.6	38.6	335	168.3	95.6	420	215.6	294.0



## Pressure Conversions

100 PSI = 6.9 Bars  
 250 PSI = 17.25 Bars  
 600 PSI = 41.4 Bars

5 Bars = 72.5 PSI  
 10 Bars = 145 PSI  
 25 Bars = 362.5 PSI

## Measurement Information

### Measures of Pressure

1 Pound Per Square Inch = 144 Pounds Per Square Foot = 0.068 Atmosphere = 2.042 Inches of Mercury at 62°F = 27.7 Inches of Water at 62°F = 2.31 Feet of Water at 62°F.

1 Atmosphere = 30 Inches of Mercury at 62°F = 14.7 Pounds Per Square Inch = 2116.3 Pounds Per Square Foot = 33.95 Feet of Water at 62°F.

1 Foot of Water at 62°F = 62.355 Pounds Per Square Foot = 0.433 Pounds Per Square Inch.

1 Inch of Mercury at 62°F = 1.132 Feet of Water = 13.58 Inches of Water = 0.491 Pounds Per Square Inch.

Column of Water 12 Inches High, 1 Inch in Diameter = .341 Pounds

If temperature is kept constant, the volume of a given mass of gas is inversely proportional to the pressure which is exerted upon it.

## Length Conversion Constants

Millimeters x .039370 = Inches  
 Meters x 39.370 = Inches  
 Meters x 3.2808 = Feet  
 Meters x 1.09361 = Yards  
 Kilometers x 3,280.8 = Feet  
 Kilometers x .62137 = Statute Mile  
 Kilometers x .53959 = Nautical Miles

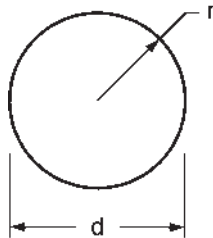
Inches x 25.4001 = Millimeters  
 Inches x .0254 = Meters  
 Feet x .30480 = Meters  
 Yards x .91440 = Meters  
 Feet x .0003048 = Kilometers  
 Statute Miles x 1.60935 = Kilometers  
 Nautical Miles x 1.85325 = Kilometers

## Weight Conversion Constants

Grams x .03527 = Ounces (Avd.)  
 Grams x .033818 = Fluid Ounces (Water)  
 Kilograms x 35.27 = Ounces (Avd.)  
 Kilograms x 2.20462 = Pounds (Avd.)

Ounces (Avd.) x 28.35 = Grams  
 Fluid Ounces (Water) x 29.57 = Grams  
 Ounces (Avd.) x .02835 = Kilograms  
 Pounds (Avd.) x .45359 = Kilograms

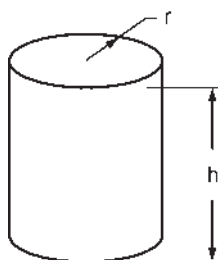
## Circumference of a Circle



$$\text{Circumference} = 2\pi r = \pi d = 3.14159 d$$

$$\text{Area} = \pi r^2 = \pi \frac{d^2}{4} = .78539 d^2$$

## Right Cylinder



r = radius  
 h = length

$$\text{Volume} = \pi r^2 h$$

$$\text{Surface Area} = 2\pi r (r + h)$$

If end planes are parallel but not at 90° to h, the same formulas apply, but a slice at 90° through the cylinder must be used to determine r.

## Bolt Tightening Sequence for Dixon Boss Clamps

1. The correct size Boss clamp must be used.
2. Bolts in Boss clamps are designed to bend as they are tightened. This allows the clamp to conform to the hose outside diameter.
3. Always tighten bolts to their specified torque value. This torque value can be found on the pages 99-100.
4. Periodic re-tightening of bolts is required due to "cold flow" phenomenon present in all rubber hoses.
5. Boss Clamps are for single use only! Once removed they are to be discarded.

### 2 Bolt Dixon Boss Clamp Bolt Tightening Sequence

Using a torque wrench, begin tightening the bolts as follows:

- a) First bolt (nut facing assembler) 1 full turn.
- b) Second bolt (opposite first bolt) 1 full turn.
- c) Repeat procedure "a" and "b" until both bolts have reached the recommended torque.
- d) Remove assembly from vise.

### 4 Bolt Dixon Boss Clamp Bolt Tightening Sequence

Using a torque wrench, begin tightening the bolts as follows:

- a) Back bolt (bolt with nut facing assembler that is furthest away from gripping finger) 1 full turn.
- b) Front bolt (bolt with nut facing assembler that is closest to gripping finger) 1 full turn.
- c) Snug by hand (if bolts are loose) nuts on opposite side of bolts just torqued.
- d) Opposite side back bolt (bolt with nut facing assembler furthest away from gripping finger) 1 full turn.
- e) Opposite side front bolt (bolt with nut facing assembler closest to gripping finger) 1 full turn.
- f) Snug by hand (if bolts are loose) nuts on opposite side of bolts just torqued.
- g) Repeat above procedure "a" through "f" until all of the bolts have reached the recommended torque.
- h) Remove assembly from vise.

### 6 Bolt Dixon Boss Clamp Bolt Tightening Sequence

Using a torque wrench, begin tightening the bolts as follows:

- a) Back bolt (bolt with nut facing assembler that is furthest away from gripping finger) having "X" near it one full turn.
- b) Front bolt (bolt with nut facing assembler that is closest to gripping finger) of same segment one full turn.
- c) Moving to clamp segment to the left of the one just tightened, snug bolts by hand (if bolts are loose).
- d) Back bolt to one full turn.
- e) Front bolt one full turn.
- f) Moving to clamp segment to the left of the one just tightened, snug bolts by hand (if bolts are loose).
- g) Back bolt one full turn.
- h) Front bolt one full turn.
- i) Repeat above procedure "a" through "h" until all of the bolts have reached the recommended torque.
- j) Remove assembly from vise.



## Fraction - Decimal Conversion Chart

	<u>Inches</u>	<u>Millimeters</u>		<u>Inches</u>	<u>Millimeters</u>
$\frac{1}{32}$	$\frac{1}{64}$ .015625	.3969	$\frac{17}{32}$	$\frac{33}{64}$ .515625	13.0969
$\frac{1}{16}$	$\frac{3}{64}$ .046875	1.1906	$\frac{9}{16}$	$\frac{35}{64}$ .546875	13.8907
$\frac{3}{32}$	$\frac{5}{64}$ .078125	1.9844	$\frac{19}{32}$	$\frac{37}{64}$ .578125	14.6844
$\frac{1}{8}$	$\frac{7}{64}$ .109375	2.7781	$\frac{5}{8}$	$\frac{39}{64}$ .609375	15.4782
$\frac{5}{32}$	$\frac{9}{64}$ .140625	3.5719	$\frac{21}{32}$	$\frac{41}{64}$ .640625	16.2719
$\frac{3}{16}$	$\frac{11}{64}$ .171875	4.3656	$\frac{11}{16}$	$\frac{43}{64}$ .671875	17.0657
$\frac{7}{32}$	$\frac{13}{64}$ .203125	5.1594	$\frac{23}{32}$	$\frac{45}{64}$ .703125	17.8594
$\frac{1}{4}$	$\frac{15}{64}$ .234375	5.9531	$\frac{3}{4}$	$\frac{47}{64}$ .734375	18.6532
$\frac{9}{32}$	$\frac{17}{64}$ .265625	6.7469	$\frac{25}{32}$	$\frac{49}{64}$ .765625	19.4470
$\frac{5}{16}$	$\frac{19}{64}$ .296875	7.5406	$\frac{13}{16}$	$\frac{51}{64}$ .796875	20.2407
$\frac{11}{32}$	$\frac{21}{64}$ .328125	8.3344	$\frac{27}{32}$	$\frac{53}{64}$ .828125	21.0345
$\frac{3}{8}$	$\frac{23}{64}$ .359375	9.1282	$\frac{7}{8}$	$\frac{55}{64}$ .859375	21.8282
$\frac{13}{32}$	$\frac{25}{64}$ .390625	9.9219	$\frac{29}{32}$	$\frac{57}{64}$ .890625	22.6220
$\frac{7}{16}$	$\frac{27}{64}$ .421875	10.7157	$\frac{15}{16}$	$\frac{59}{64}$ .921875	23.4157
$\frac{15}{32}$	$\frac{29}{64}$ .453125	11.5094	$\frac{31}{32}$	$\frac{61}{64}$ .953125	24.2095
$\frac{1}{2}$	$\frac{31}{64}$ .484375	12.3032	$\frac{63}{64}$	$\frac{63}{64}$ .984375	25.0032
		12.7001	1	1.000	25.4001

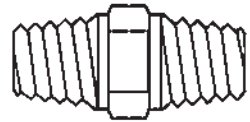
# Identifying Threads

## Pipe Threads

Pipe threads are either tapered or straight (parallel). The two styles may or may not be compatible. Refer to thread information chart on page 706.

### Tapered threads

Tapered threads are the most common type of thread available. As the name implies, they have a slight taper. When mated together and tightened, the threads compress and may form a seal. Usually a thread sealant is required. The mating threads both hold the fitting in place and seal the connection. The most widely used pipe threads in North America are NPT (National Pipe Taper). Some confusion may result from the use of NPT, FPT, and MPT in describing threads. Both FPT and MPT are NPT threads, with FPT meaning female threads (internal) and MPT meaning male threads (external).

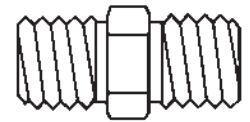


tapered threads

NPTF (Dryseal) threads are modified NPT threads, which are less likely to leak without a sealant. For a leak-free seal, we recommend using a sealant compound or PTFE tape. You can use NPTF threads with NPT threads, but you'll lose some of the leak-free characteristics.

### Straight threads

Straight (parallel) threads are used for mechanical joining. They serve one purpose - to hold a fitting in place. As a result, an O-ring (elastomer), hard metal seal or a soft seat seal is required. Straight pipe threads include NPSM (National Pipe Straight Mechanical), and NPSH (National Pipe Straight Hose) Sizing and pitches may differ from the NPT threads



straight threads

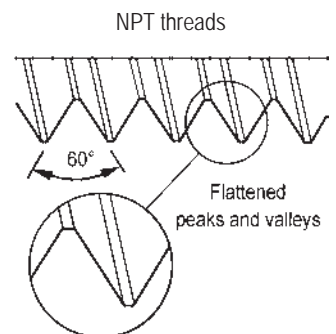
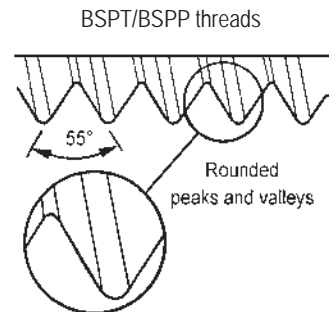
Less common straight threads are GHT (Garden Hose) and NST (fire hose coupling).

## NPT vs. BSP (British Standard Pipe)

BSP threads are common in many countries outside the United States. BSP consists of two types of threads - BSPT (British Standard Pipe Taper) and BSPP (British Standard Pipe Parallel).

BSPT threads have a slight taper similar to NPT. BSPP threads are straight (parallel) threads and have the same thread angle, shape and threads per inch (pitch) as BSPT threads. *BSPT and BSPP threads should not be substituted for NPT threads.*

NPT and BSPT/BSPP threads have different angles, shape, and (in most cases) threads per inch (pitch). The thread angle is 60° for NPT threads; 55° for BSPT/BSPP threads. NPT threads are flattened at the peaks and valleys, while BSPT/BSPP threads are rounded.



Nominal Pipe Size	Threads per inch	
	NPT	BSPT / BSPP
1/16"	27	---
1/8"	27	28
1/4"	18	19
3/8"	18	19
1/2"	14	14
3/4"	14	14
1"	11½	11
1-1/4"	11½	11
1-1/2"	11½	11
2"	11½	11
2-1/2"	8	11
3"	8	11
3-1/2"	8	11
4"	8	11
5"	8	11
6"	8	11
8"	8	11

# Identifying Threads

*It is important to identify the threads required before ordering couplings.*

Identifying threads can sometimes be the most difficult and frustrating part of coupling selection. However, without the right combination of threads, you may not provide a functional or safe connection.

The diameters, threads per inch (TPI) and thread pitch, etc. are necessary to completely identify a thread. Ring, plug and GO/NOGO gauges are required to accurately gauge or identify threads. In the field, in the absence of these gauges, thread leaf gauges can be used to identify the Threads Per Inch (TPI) and the thread pitch. On threads you have determined to be straight threads, a caliper can be used to measure the Outside Diameter of the male (ODM) or the Inside Diameter of the female (IDF). A caliper can also be used to take measurements of tapered thread diameters. However, these are more difficult to define because of the taper. Fortunately, there are few tapered threads to deal with and these can usually be identified from the nominal ODM and the TPI.

However, identifying the thread may not fully identify what is needed in a mating fitting. The application is the primary *limiting factor on the thread type used*. Dixon offers products with a wide variety of threads used with hose, pipe and hydraulics.

When attempting to choose a fitting, it is always advisable to first identify the thread to which it must connect. This may entail checking with a fitting or equipment manufacturer.

*The fire hose thread specifications for some local municipal fire equipment and hydrants may vary according to local specifications. These can generally be most easily identified by contacting the local fire department responsible for the hydrant.* The most common thread used on fire equipment is National Standard Thread (NST), also known as National Hose thread (NH).

When it is not possible to identify the thread:

1. Determine the number of threads per inch by measuring the distance from peak of thread to peak of thread across the largest number of whole threads. Then divide the number of threads by the measurement (this will provide the TPI).

2. Check to see if the thread is straight or tapered.

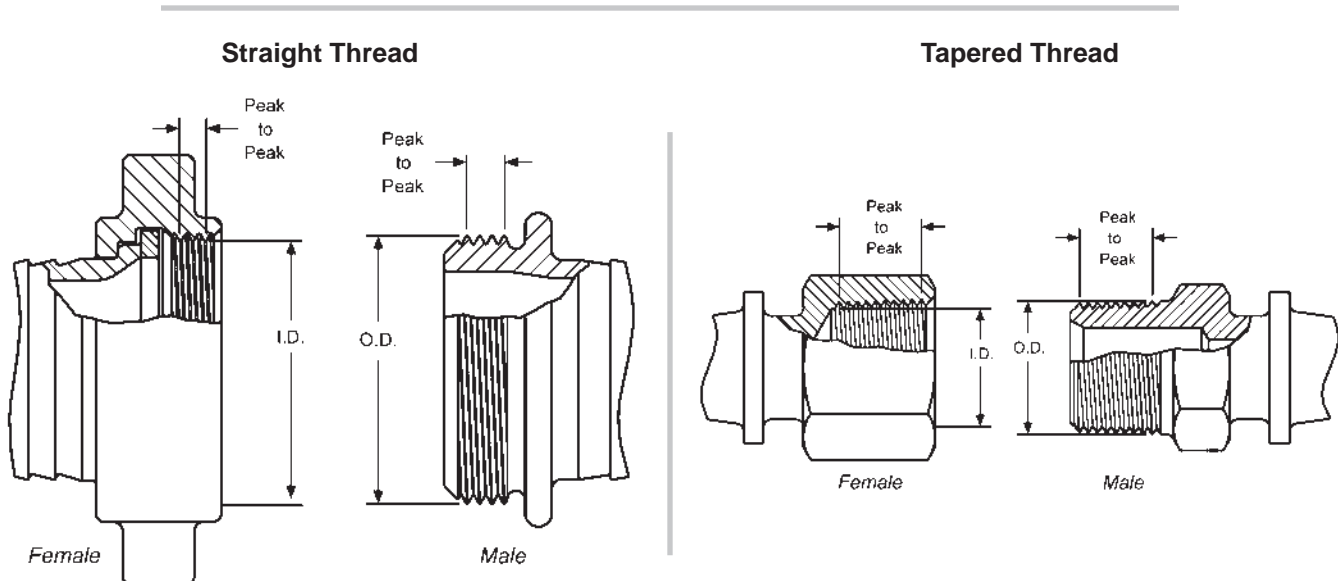
a) Straight Threads

Measure the Outside Diameter of the Male (ODM) or the Inside Diameter of the Female (IDF), from peak of thread to peak of thread.

b) Tapered Threads

Measure the Outside Diameter of the Male (ODM) at the large end and the small end, or the Inside Diameter of the Female (IDF) at the large end and the small end, from peak of thread to peak of thread. Then measure the Outside Diameter (OD) of the unthreaded pipe.

Once the application and these two pieces of information have been determined, the thread can generally be determined. When in doubt, call the Factory at 800.355.1991.



## Threading Information

Abbreviation	System Name	Compatibility	Seal Method
<b>BSPP</b>	<b>British Standard Pipe Parallel</b>	male BSPP with female BSPP	washer
		female BSPP with male BSPP	washer
		female BSPP with male BSPT	washer
<b>BSPTTr</b>	<b>British Standard Pipe Taper</b>	male BSPTTr with female BSPTTr	thread
		male BSPTTr with female BSPP	washer
		female BSPTTr with male BSPTTr	
		<i>female BSPTTr not compatible with male BSPP</i>	thread
<b>CHT</b>	American Standard Fire Hose Thread (1" National Hose Thread is <b>C</b> hemical <b>H</b> ose <b>T</b> hread, also known as <b>B</b> ooster <b>H</b> ose <b>T</b> hread)	1" male NH (NST) with 1" female NH (NST)	washer
		1" female NH (NST) with 1" male NH (NST)	washer
		1" thread is used on both ¾" hose & 1" hose	not compatible
<b>GHT</b>	<b>Garden Hose Thread</b>	male GHT with female GHT	washer
		female GHT with male GHT	washer
		thread is same for all size hose	not compatible
<b>IPS</b>	<b>Iron Pipe Straight Thread</b>	generic name for Straight Pipe Thread <i>see NPSH for compatibility</i>	washer
<b>IPT</b>	<b>Iron Pipe Thread</b>	generic name for All Pipe Thread	more information required
<b>JIC</b>	<b>Joint Industrial Committee</b>	used with other mating JIC threads	mechanical
<b>NH or NST</b>	American Standard Fire Hose Coupling Thread ( <b>N</b> ational <b>H</b> ose thread also known as <b>N</b> ational <b>S</b> tandard <b>T</b> hread)	male NH (NST) with female NH (NST)	washer
		female NH (NST) with male NH (NST) thread pitch and diameters of fire threads may vary according to local and municipal regulations <i>not compatible with other systems</i>	washer
<b>NPT</b>	American Standard Taper Pipe Thread ( <b>N</b> ational <b>P</b> ipe <b>T</b> apered)	male NPT with female NPT	thread
		male NPT with female NPTF	thread
		male NPT with female NPSM	washer
		male NPT with female NPSH	washer
		female NPT with male NPT	thread
		female NPT with male NPTF <i>female NPT not compatible with male NPSM or male NPSH</i>	thread
<b>NPTF</b>	American Standard Taper Pipe Fuel Dryseal Thread ( <b>N</b> ational <b>P</b> ipe <b>T</b> apered <b>D</b> ryseal)	male NPTF with female NPTF	thread
		male NPTF with female NPT	thread
		male NPTF with female NPSM	washer
		male NPTF with female NPSH	washer
		female NPTF with male NPTF	thread
		female NPTF with male NPT	thread
		female NPTF with male NPSM or NPSH <i>NPTF with NPTF threads do not require sealant for the initial use, after that, sealant is required</i>	not compatible
<b>NPSH</b>	American Standard Straight Pipe for Hose Couplings ( <b>N</b> ational <b>P</b> ipe <b>S</b> traight <b>H</b> ose)	male NPSH with female NPSH	washer
		female NPSH with male NPSH	washer
		female NPSH with male NPT	washer
		female NPSH with male NPTF	washer
		female NPSH with male NPSM	washer
<b>NPSM</b>	American Standard Straight Mechanical Joints ( <b>N</b> ational <b>P</b> ipe <b>S</b> traight <b>M</b> echanical)	male NPSM with female NPSM	Seal can be either mechanical or washer. Mating fittings must be of same type.
		male NPSM with female NPSH	
		female NPSM with male NPSM	
		female NPSM with male NPT	
		female NPSM with male NPTF	
<b>SIPT</b>	<b>Straight Iron Pipe Thread</b>	generic name for Straight Pipe Thread	washer
<b>TIPT</b>	<b>Tapered Iron Pipe Thread</b>	generic name for Tapered Pipe Thread	thread
<b>NYC</b>	<b>NYC Fire Department</b>	straight thread used in New York City	washer
<b>Chicago</b>	<b>Chicago Fire Department</b>	straight thread used in Chicago	washer

# Thread Dimensions

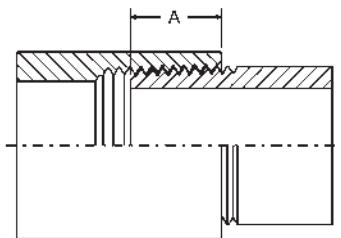
## Nominal Dimensions of Standard Threads

- ODM = Outside Diameter of the Male
- IDF = Inside Diameter of the Female
- TPI = Threads Per Inch
- GHT (3/4") -- 1.0625 ODM, 11-1/2 TPI
- Female NPT (Tapered Pipe) thread is not available on hose swivel nuts.

Size	Pipe OD	Tapered Threads		Straight Threads											
		NPT	BSPT <sub>r</sub>	NPSH			NPSM			NST (NH)			BSPP		
		TPI	TPI	TPI	ODM (max)	IDF (min)	TPI	ODM (max)	IDF (min)	TPI	ODM (max)	IDF (min)	TPI	ODM (max)	IDF (min)
1/8"	.405	27.0	28				27.0	0.397	0.358					0.383	0.337
1/4"	.540	18.0	19				18.0	0.526	0.468					0.516	0.450
3/8"	.675	18.0	19				18.0	0.662	0.603					0.656	0.588
1/2"	.840	14.0	14	14.0	0.8248	0.7395	14.0	0.823	0.747					0.825	0.733
3/4"	1.050	14.0	14	14.0	1.0353	0.9500	14.0	1.034	0.958					1.041	0.950
1"	1.315	11.5	11	11.5	1.2951	1.1921	11.5	1.293	1.201	8.0	1.375	1.2246	11	1.309	1.193
1-1/4"	1.660	11.5	11	11.5	1.6399	1.5369	11.5	1.638	1.546				11	1.650	1.534
1-1/2"	1.900	11.5	11	11.5	1.8788	1.7758	11.5	1.877	1.785	9.0	1.990	1.8577	11	1.882	1.766
2"	2.375	11.5	11	11.5	2.3528	2.2498	11.5	2.351	2.259				11	2.347	2.231
2-1/2"	2.875	8.0	11	8.0	2.8434	2.6930	8.0	2.841	2.708	7.5	3.068	2.9104	11	2.960	2.844
3"	3.500	8.0	11				8.0	3.467	3.334	6.0	3.623	3.5306	11	3.460	3.344
4"	4.500	8.0	11				8.0	4.466	4.333	4.0	5.010	4.7111	11	4.450	4.334
4-1/2"										4.0	5.760	5.4611			
5"	5.563	8.0	11				8.0	5.528	5.395	4.0	6.260	5.9602	11	5.450	5.359
6"	6.625	8.0	11				8.0	6.585	6.452	4.0	7.025	6.7252	11	6.450	6.359
8"	8.625	8.0													
10"	10.750	8.0													
12"	12.750	8.0													

## Normal Engagement Length of NPT Thread in Inches (A)

- Dimensions given do not allow for variations in tapping or threading.



Thread Size	Dimension A
1/8"	1/4"
1/4"	3/8"
3/8"	3/8"
1/2"	1/2"
3/4"	9/16"
1"	11/16"
1-1/4"	11/16"
1-1/2"	11/16"
2"	3/4"
2-1/2"	15/16"
3"	1"
4"	1-1/8"
5"	1-1/4"
6"	1-5/16"
8"	1-7/16"
10"	1-5/8"
12"	1-3/4"

# Thread Sealing Tips

## Thread Sealing Tips

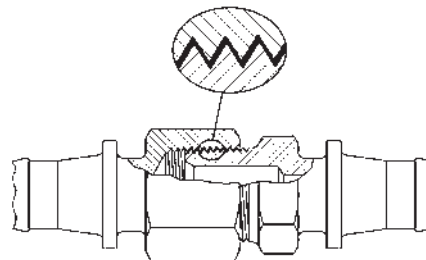
Sealing NPT threads can be an exasperating experience if certain techniques are not followed. The following tips will help alleviate many common problems in thread sealing:

1. Always use some type of sealant (tape or paste) and apply sealant to male thread only. If using a hydraulic sealant, allow sufficient curing time before system is pressurized.
2. When using tape sealant, wrap the threads in a clockwise motion starting at the first thread and, as layers are applied, work towards the imperfect (vanishing) thread. If the system that the connection being made to cannot tolerate foreign matter (i.e. air systems), leave the first thread exposed and apply the tape sealant as outlined above.
3. When using paste sealant, apply to threads with a brush, using the brush to work the sealant into the threads. Apply enough sealant to fill in all the threads all the way around.
4. When connecting one stainless steel part to another stainless steel part that will require future disassembly, use a thread sealant that is designed for stainless steel (see page 667). This stainless steel thread sealant is also useful when connecting aluminum to aluminum that needs to be disconnected in the future. These two materials gall easily, and if the correct sealant is not used, it can be next to impossible to disassemble.
5. When connecting parts made of dissimilar metals (i.e. steel and aluminum), standard tape or paste sealant performs satisfactory.
6. For sizes 2" and below, tape or paste performs satisfactory. When using thread tape, four wraps (covering all necessary threads) is usually sufficient.
7. For sizes 2½" and above, thread paste is recommended. If thread tape is used, eight wraps (covering all necessary threads) is usually sufficient. Apply more wraps if necessary.
8. For stubborn to seal threads, apply a normal coating of thread paste followed by a normal layer of thread tape.
9. For extremely stubborn to seal threads, apply a normal coating of thread paste followed by a single layer of gauze bandage followed by a normal layer of thread tape.

### **Caution!**

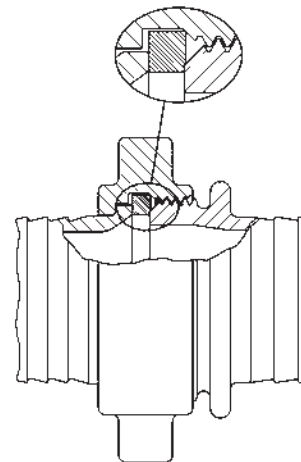
When this procedure is done, the connection becomes permanent. Extreme measures will be necessary to disconnect these components. *All other measures to seal the threads should be explored prior to use of this technique.*

10. Over-tightening threads can be just as detrimental as insufficient tightening. For sizes 2" and below, hand tighten the components and, with a wrench, tighten 3 full turns. For sizes 2½" and above, hand tighten the components and, with a wrench, tighten 2 full turns.



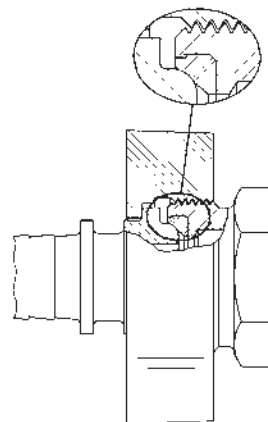
### Thread Seal Type

- A seal is obtained by applying a sealant to the male thread before engaging.
- The sealant is used to prevent spiral leakage.
- Thread tape or paste is the preferred sealant in this type of application.
- Please refer to page 667 for thread tape options.



### Washer Seal Type

- A seal is obtained when the male thread is tightened down onto the washer of the female assembly.
- The washer should be inspected regularly and replaced as needed to prevent leakage.
- Please refer to pages 273, 275 and 645 for replacement washers.



### Mechanical Seal Type

- A seal is obtained through metal to metal contact or metal to seal contact, i.e. JIC couplings (page 380) have a metal to metal seal. Boss Ground Joint couplings (pages 94, 96) have a metal to seal contact, (shown above).
- The couplings should be retightened as needed to prevent leakage.

## Force Chart

- For hose ID's from 1¼" to 12" the force in pounds is greater than the PSI.
- Force is the dynamic power which is exported longitudinally through a hose, towards the ends. To arrive at the number of pounds of force exerted, you merely multiply the area of the ID times the working pressure being used.
- Area of a circle:  $r^2$  (PI [3.1416] times radius squared)
- Force = Area x Pressure

### Force (In Pounds)

Hose ID	25 PSI	50 PSI	75 PSI	100 PSI	150 PSI	200 PSI	250 PSI	300 PSI	500 PSI	1000 PSI
1/4"	1	2	4	5	7	10	12	15	25	49
3/8"	3	6	8	11	17	22	28	33	55	110
1/2"	5	10	15	20	29	39	49	59	98	196
3/4"	11	22	33	44	66	88	110	133	221	442
1"	20	39	59	79	118	157	196	236	393	785
1-1/4"	31	61	92	123	184	245	307	368	614	1227
1-1/2"	44	88	133	177	265	353	442	530	884	1767
2"	79	157	236	314	471	628	785	942	1571	3142
2-1/2"	123	245	368	491	736	982	1227	1473	2454	4909
3"	177	353	530	707	1060	1414	1767	2121	3534	7069
4"	314	628	942	1257	1885	2513	3142	3770	6283	12566
5"	491	982	1473	1964	2945	3927	4909	5891	9818	19635
6"	707	1414	2121	2827	4241	5655	7069	8482	14137	28274
8"	1257	2513	3770	5027	7540	10053	12566	15080	25133	50266
10"	1964	3927	5891	7854	11781	15708	19635	23562	39270	78540
12"	2827	5655	8482	11310	16965	22620	28274	33929	56549	113098

## Pressure - Temperature Ratings

- Ratings apply to all products covered by ANSI B16.5 valves conforming to the requirements of this standard must, in other respects, merit these ratings.
- All ratings are maximum allowable non-shock pressures (PSIG) at the tabulated temperatures (degree Fahrenheit). Temperatures are those on the inside of the pressure retaining structure.
- The use of these ratings requires gaskets conforming to the requirements of ANSI B16.5. The user is responsible for selecting gaskets of dimensions and materials to withstand the required bolt loading without injurious crushing, and suitable for the service conditions in all other respects.

Pressure Class	150	300
Test Pressure	425	1100
Service Temperature	Working Pressure	
-20 to 100	275	720
150	255	710
200	240	700
250	225	690
300	210	680
350	195	675
400	180	665
450	165	650
500	150	625
550	140	590
600	130	555
650	120	515
700	110	470
750	100	425

## Pipe Dimensions

### Dimensions of Seamless and Welded Steel Pipe ASA-B36.10 and B36.19

Nominal Pipe Size	OD (inches)	Pipe Schedule Wall Thickness												
		10	20	30	Stand.	40	60	Extra Strong	80	100	120	140	160	XXX Strong
1/8"	0.405	0.049	---	---	0.068	0.068	---	0.095	0.095	---	---	---	---	---
1/4"	0.540	0.065	---	---	0.088	0.088	---	0.119	0.119	---	---	---	---	---
3/8"	0.675	0.065	---	---	0.091	0.091	---	0.126	0.126	---	---	---	---	---
1/2"	0.840	0.083	---	---	0.109	0.109	---	0.147	0.147	---	---	---	0.188	0.294
3/4"	1.050	0.083	---	---	0.113	0.113	---	0.154	0.154	---	---	---	0.219	0.308
1"	1.315	0.109	---	---	0.133	0.133	---	0.179	0.179	---	---	---	0.250	0.358
1-1/4"	1.660	0.109	---	---	0.140	0.140	---	0.191	0.191	---	---	---	0.250	0.382
1-1/2"	1.900	0.109	---	---	0.145	0.145	---	0.200	0.200	---	---	---	0.281	0.400
2"	2.375	0.109	---	---	0.154	0.154	---	0.218	0.218	---	---	---	0.344	0.436
2-1/2"	2.875	0.120	---	---	0.203	0.203	---	0.276	0.276	---	---	---	0.375	0.552
3"	3.500	0.120	---	---	0.216	0.216	---	0.300	0.300	---	---	---	0.438	0.600
3-1/2"	4.000	0.120	---	---	0.226	0.226	---	0.318	0.318	---	---	---	---	---
4"	4.500	0.120	---	---	0.237	0.237	---	0.337	0.337	---	0.438	---	0.531	0.674
5"	5.563	0.134	---	---	0.258	0.258	---	0.375	0.375	---	0.500	---	0.625	0.750
6"	6.625	0.134	---	---	0.280	0.280	---	0.432	0.432	---	0.562	---	0.719	0.864
8"	8.625	0.148	0.250	0.277	0.322	0.322	0.406	0.500	0.500	0.594	0.719	0.812	0.906	0.873
10"	10.750	0.165	0.250	0.307	0.365	0.365	0.500	0.500	0.594	0.719	0.844	1.000	1.125	1.000
12"	12.750	0.180	0.250	0.330	0.375	0.406	0.562	0.500	0.688	0.844	1.000	1.125	1.312	1.000

### Definitive Cross-Reference from NPS to DN Specification Sizes

Nominal Pipe Size	DN	OD (inches)	Pipe Schedule Wall Thickness													
			5S	5	10S	10	20	30	40S	40	60	80S	80	100	120	160
1/8"	6	0.405	---	0.035	---	0.049	---	0.057	---	0.068	---	---	0.095	---	---	---
1/4"	8	0.540	---	0.049	---	0.065	---	0.073	---	0.088	---	---	0.119	---	---	---
1/2"	15	0.840	---	0.065	---	0.083	---	0.095	---	0.109	---	---	0.147	---	0.170	0.188
3/4"	20	1.050	---	0.065	---	0.083	---	0.095	---	0.113	---	---	0.154	---	0.170	0.219
1"	25	1.315	---	0.065	---	0.109	---	0.114	---	0.133	---	---	0.179	---	0.200	0.250
1-1/4"	32	1.660	---	0.065	---	0.109	---	0.117	---	0.140	---	---	0.191	---	0.215	0.250
1-1/2"	40	1.900	---	0.065	---	0.109	---	0.125	---	0.145	---	---	0.200	---	0.225	0.281
2"	50	2.375	---	0.065	---	0.109	---	---	---	0.154	---	---	0.218	---	0.250	0.344
2-1/2"	65	2.875	---	0.083	---	0.120	---	---	---	0.203	---	---	0.276	---	0.300	0.375
3"	80	3.500	---	0.083	---	0.120	---	---	---	0.216	---	---	0.330	---	0.350	0.438
4"	100	4.500	---	0.083	---	0.120	---	---	---	0.237	0.281	---	0.377	---	0.437	0.531
5"	125	5.563	---	0.109	---	0.134	---	---	---	0.258	---	---	0.375	---	0.500	0.625
6"	150	6.625	---	0.109	---	0.134	---	---	---	0.280	---	---	0.432	---	0.562	0.719
8"	200	8.625	---	0.109	---	0.148	0.250	0.277	---	0.322	0.406	---	0.500	0.593	0.718	0.906
10"	250	10.750	0.134	0.134	0.165	0.165	0.250	0.307	0.365	0.365	0.500	0.500	0.593	0.718	0.843	---
12"	300	12.750	0.156	0.165	0.180	0.180	0.250	0.330	0.375	0.406	0.500	0.500	0.687	0.843	1.000	---

