411 Steel Couplings
Material Specifications

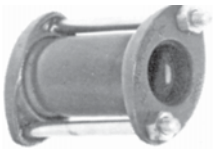
Gasket Material Specifications

STANDARD: Nitrile (Buna-N)-NSF 61 Compounded to produce superior storage and performance characteristics while resisting water, acids, alkalis, most (aliphatic) hydrocarbons and many other chemicals. Temperature range -20°F. to 180°F. Consult manufacturer for specific applications or other service temperatures.

Optional: Nitrile (Buna N) Protected.
A continuous brass spring molded into the leading edge of the gasket to insure metal contact between the pipe and the coupling sleeve. Extra protection is given against line content and the coupling is electrically bonded to the pipe.

Material Specifications are subject to change.

1/2” - 2” (12mm - 50 mm)



Standard weight, two bolt design with cast follower, steel sleeve, and electro-galvanized steel bolts and nuts.

Material Specifications

SLEEVE:	Carbon steel having a minimum yield of 30,000 psi.
FOLLOWERS:	Ductile iron ASTM A536.
BOLTS & NUTS:	Carbon steel ASTM A307 electrogalvanized with di-chromate seal. *Optional: Stainless steel.*
FINISH:	Fusion bonded Flexi-Coat Epoxy per AWWA C213.

Material Specifications are subject to change.

2” - 12” (50mm - 300mm)

Standard weight design with cast follower, steel sleeve and low-alloy bolts and nuts.

Material Specifications

SLEEVE:	ASTM A53, ASTM A513 or carbon steel having a minimum yield of 30,000 psi.
FOLLOWERS:	Ductile iron ASTM A536 or carbon steel having a minimum yield of 30,000 psi.
BOLTS & NUTS:	High-strength, low-alloy steel with heavy semi-finished hexagon nuts. *Optional: Stainless steel and electro-galvanized.*
FINISH:	Fusion bonded Flexi-Coat Epoxy per AWWA C213.

Material Specifications are subject to change.

3” - 12” (70mm - 300mm)

Standard weight design with steel followers, steel sleeve, and high-strength low-alloy bolts and nuts.

Material Specifications

SLEEVE:	ASTM A53, ASTM A513 or carbon steel having a minimum yield of 30,000 psi.
FOLLOWERS:	ASTM A1011 Grade 80 HSLA Steel.
BOLTS & NUTS:	High strength, low-alloy steel with heavy, semi-finished hexagon nuts. *Optional: Stainless Steel and electro-galvanized.*
FINISH:	Fusion bonded Flexi-Coat Epoxy per AWWA C213.

Material Specifications are subject to change.

14” - 60” (355mm - 1500mm)

Standard and heavy weight design with heavy rolled steel follower, steel sleeve and high strength low-alloy bolts and nuts.

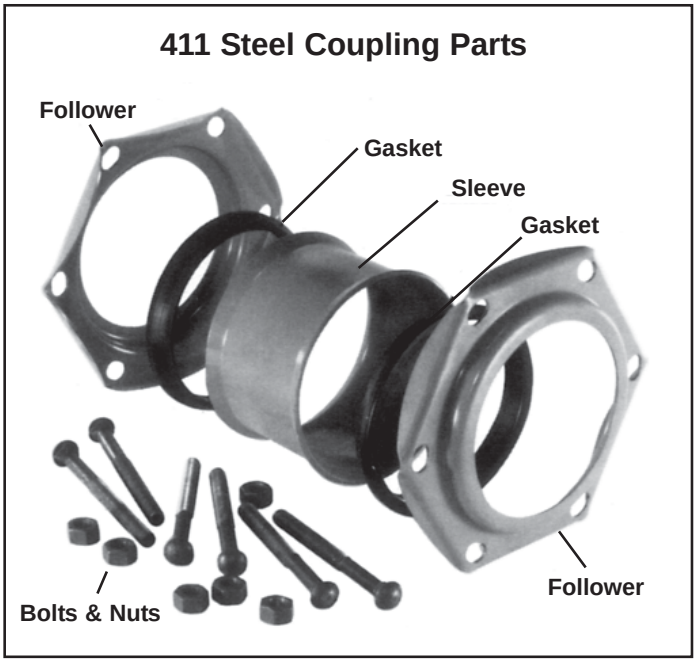
Material Specifications

SLEEVE:	Carbon steel having a minimum yield of 30,000 psi.
FOLLOWERS:	AISI C1020 steel.
BOLTS & NUTS:	High strength, low-alloy steel with heavy, semi-finished hexagon nuts. *Optional: Stainless Steel and electro-galvanized.*
FINISH:	Fusion bonded Flexi-Coat Epoxy per AWWA C213.

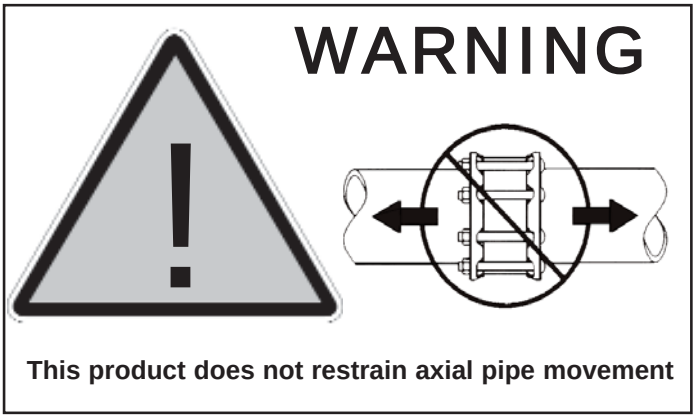
Material Specifications are subject to change.

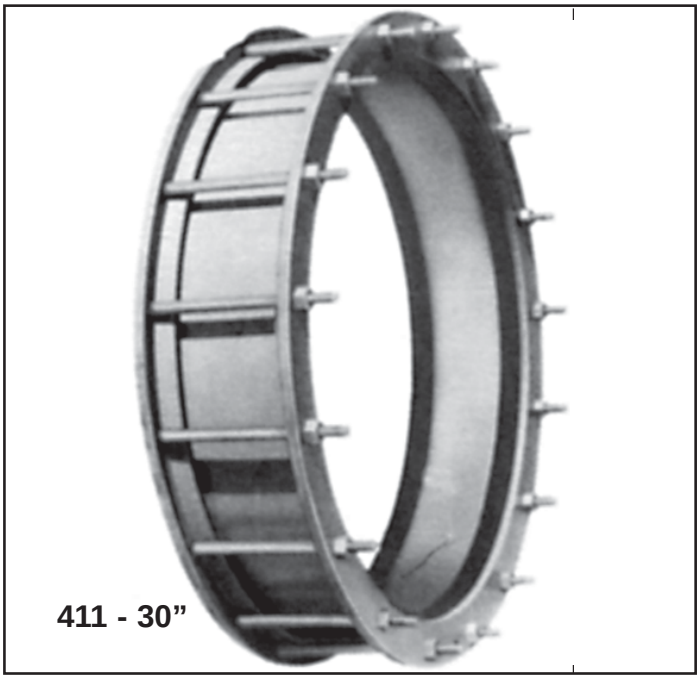
411 Steel Couplings

Smith-Blair Pipe Couplings offer many distinct advantages when installed in a piping system. Properly selected and installed flexible couplings maintain the continuity of the pipe system, retain the line contents under internal pressure and prevent infiltration under vacuum.



Smith-Blair water couplings consists of one cylindrical sleeve with conical inner surfaces at each end; two resilient, wedge shaped, specially-compounded rubber gaskets; two ring shaped followers; and a set of high-strength, low-alloy track head, oval neck, rolled-thread bolts with heavy hex nuts.





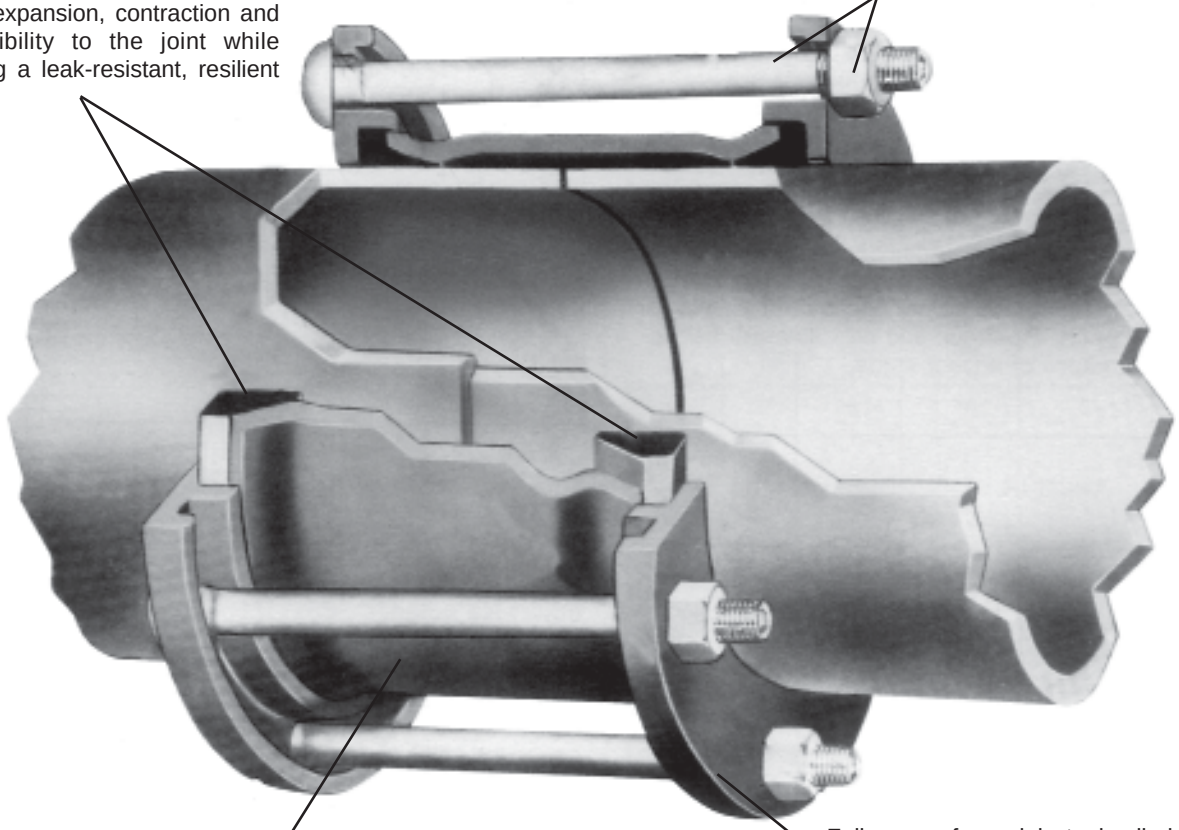
411 Steel Coupling Advantages

- No special pipe end preparation required.
- Simple installation requires only a wrench.
- Pipe does not have to be cut to exact length.
- Exact alignment of pipe ends is not necessary.
- Coupling fits on outside wall of pipe so there are no internal projections to disturb flow and no damage to the pipe lining.
- Many types of pipe, including pipes of different materials, can be joined.
- Every joint is a union (a length of pipe can be removed by disassembling the coupling).
- Coupling allows for limited expansion and contraction.
- Coupling dampens vibration.
- Deflection capability of coupling permits installation of curves or changes in grade without the use of special pipe fabrications.
- Coupling allows for angular deflection caused by settlement or lateral movement after installation.
- Coupling can be installed in any environment, so weather is not a factor.
- Fire hazard eliminated because no welding is required.
- Coupling increases the hoop strength of the pipe at the joint.

411 Steel Couplings

Specially compounded gaskets of all new materials formulated to resist compression set. They absorb vibration, expansion, contraction and allow flexibility to the joint while maintaining a leak-resistant, resilient seal.

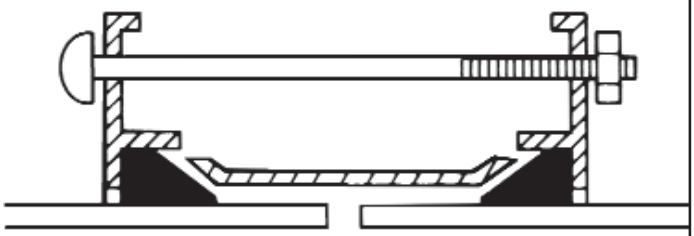
High-strength bolts with double radius track head, rolled threads and heavy hexagon nuts.



Center sleeve made from carbon steel rolled to Smith-Blair's specifications.

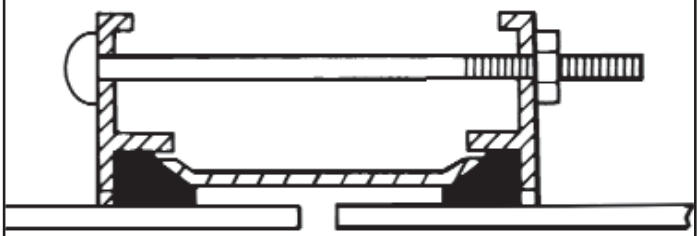
Followers of special steel rolled mill section, high-strength ductile iron or stamped high-strength, low alloy steel.

Coupling Parts Loose on Pipe



The coupling is assembled on the pipes with the sleeve centered over the pipe ends, a wedge-shaped gasket engaging the conical inner surface on each end of the sleeve, a follower confining the outer surface of each gasket and the bolts joining the followers.

Coupling Parts After Tightening Bolts



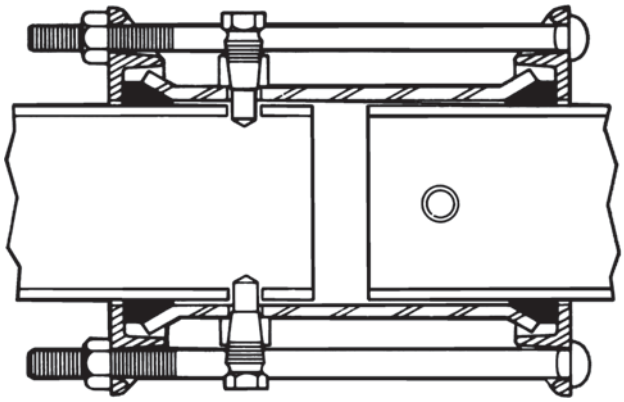
As the bolts are tightened, the followers are drawn toward each other compacting the gaskets in the cavity formed by the sleeve conical surface, follower and the pipe wall. This forms a flexible, leak-resistant, safe method of joining pipe. The coupling is floating on the pipe and stresses caused by expansion, contraction or angular deflection can be absorbed.

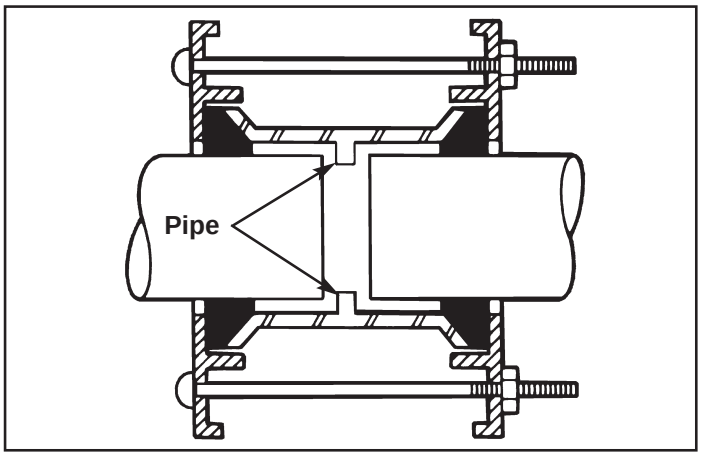
Anchor Stud Couplings and Pipe Stops (Optional)

Smith-Blair Anchor Stud Couplings are designed as an alternative coupling method to harness assemblies for applications where moderate longitudinal stresses are encountered. They have been used successfully in: power plant situations where fluctuating pressures are present, on tank risers in earthquake prone areas, in sprinkler systems and anywhere extra axial holding strength is required.

The drawing to the right illustrates how leak-resistant anchor studs are threaded through the coupling and into the pipe to provide a secure lock. Please consult Smith-Blair engineers for specific anchor stud coupling recommendations to fit your special application. Anchor studs do not eliminate the need for fixed pipe support. Pipe type and condition will be factors in performance of anchor studs.

Anchor Stud Coupling





Pipe stops consists of a restriction in the center of the coupling sleeve to prevent the pipe from passing through the sleeve, and are available in most couplings upon request.

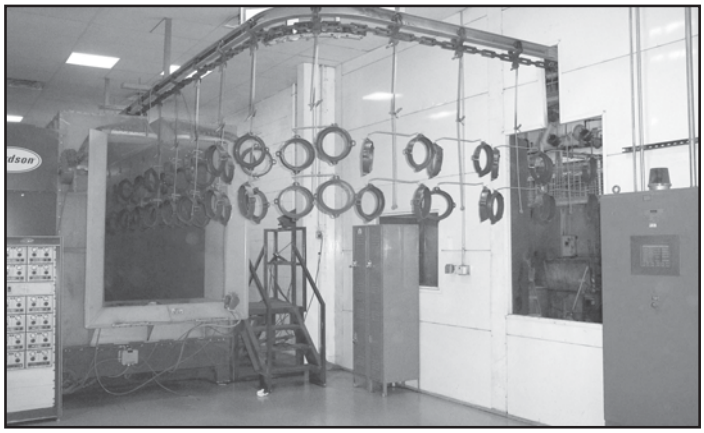
Pipe stops serve to keep the coupling centered over the pipe ends under service conditions that could possibly cause the coupling to move, such as extreme vibration or shock. They also facilitate installation of long runs of new pipeline in some circumstances.

Pipe stops limit the versatility of couplings. The inability to slide the coupling sleeve completely onto one pipe makes it necessary to cut pipe to open the pipeline for future modifications or repairs. They also limit the use of couplings to insert equipment, fittings or sections of pipe into existing pipelines.

Flexi-Coat Epoxy Powder Coating

Fusion Bonded Flexi-Coat® Epoxy Powder Coating furnished by Smith-Blair is applied by an electrostatic process. This process is a positive method of obtaining a uniform coating of controlled mil thickness with minimum field touch-up required. It is FDA approved and certified to NSF®/ANSI 61-G. for use on potable water systems, and it meets application methods AWWA C550, C213 and C219.

Note: From a technical standpoint, it is not considered good practice to apply wet type finish coatings prior to installation of pipe couplings. The handling of these fittings, prior to and during installation, is likely to damage the coating beyond repair.



411 Steel Couplings

Standard Length Sleeves 1/2” thru 12” Steel Pipe Sizes

Nom. Pipe Size In.	Pipe O.D. Inches	Catalog No. Buna-N Gasket	Sleeve Thk. X Lgth. In.		Flange O.D. Inches (D)	Bolts			Approx. Ship Wt. Lbs.
			(A)	(B)		No.	Dia. In.	Lgth. In. (L)	
1/2	.084	411-00008401-003	.120	4 1/2	3 5/8	2	1/2	7	2 1/4
3/4	1.05	411-00010501-003	.120	4 1/2	3 7/8	2	1/2	7	2 1/2
1	1.32	411-00013201-003	.120	5	4 1/4	2	1/2	7	3 1/4
1 1/4	1.66	411-00016601-003	.120	5	4 9/16	2	1/2	7	4
1 1/2	1.90	411-00019001-003	.120	5	4 13/16	2	1/2	7	4 1/4
2	2.00	411-00020001-003	.120	5	4 13/16	2	1/2	7	4 1/4
2	2.38	411-00023801-003	.120	5	5 5/16	2	1/2	7	4 3/4
		411-00023851-003	.120	5	5 11/16	2	5/8	8	5 1/2
		411-00023861-003	.120	5	5 11/16	3	5/8	8	6 1/2
		411-00023802-003	.120	7	5 11/196	3	5/8	10 1/2	9 1/2
2 1/2	2.88	411-00028801-003	.203	5	6 1/2	3	5/8	8	12 3/4
3	3.00	411-00030001-003	.203	5	6 9/16	3	5/8	8	12 3/4
+3	3.50	411-90035001-003	.180	5	8.03	3	5/8	6	11 1/2
3		411-00035051-003	.180	5	7.09	4	5/8	8	12 1/4
+3		411-90035002-003	.180	7	8.03	3	5/8	10 1/2	14 1/2
3 1/2-4	4.00	411-00040001-003	.188	5	7 9/16	4	5/8	8 1/2	17 1/2
+4	4.50	411-90045001-003	.188	5	9.05	4	5/8	6	13
		411-90045002-003	.188	7	9.05	4	5/8	8	15 1/2
4 1/2-5	5.00	411-00050001-003	.250	5	8 5/8	4	5/8	8	20 1/2
5	5.56	411-00055601-003	.250	5	9 3/16	4	5/8	8	20 1/2
		411-00055602-003	.250	7	9 3/16	4	5/8	10 1/2	23 1/2
		411-00055603-003	.250	10	9 3/16	4	5/8	13 1/2	31 1/2
+6	6.63	411-90066301-003	.250	5	11 1/2	6	5/8	6	22 3/4
		411-90066302-003	.250	7	11 1/2	6	5/8	8	26
		411-90066303-003	.250	10	11 1/2	6	5/8	10 1/2	34 1/4
+8	8.63	411-90086301-003	.250	5	13 1/2	6	5/8	6	28
		411-90086302-003	.250	7	13 1/2	6	5/8	8	32
		411-90086303-003	.250	10	13 1/2	6	5/8	10 1/2	42
10	10.00	411-00100001-003	.250	5	14 5/16	8	5/8	8	33
		411-00100002-003	.250	7	14 5/16	8	5/8	10 1/2	38
		411-00100003-003	.250	10	14 5/16	8	5/8	13 1/2	50
+10	10.75	411-90107501-003	.250	5	15.61	8	5/8	6	34
		411-90107502-003	.250	7	15.61	8	5/8	8	40
		411-90107507-003	.375	7	15.61	8	5/8	8	49
		411-90107503-003	.250	10	15.61	8	5/8	10 1/2	52
12	12.00	411-00120001-003	.250	5	16 5/16	8	5/8	8	37
		411-00120002-003	.250	7	16 5/16	8	5/8	10 1/2	44
		411-00120003-003	.250	10	16 5/16	8	5/8	13 1/2	56
+12	12.75	411-90127501-003	.250	5	17.61	8	5/8	6	39
		411-90127502-003	.250	7	17.61	8	5/8	8	46
		411-90127507-003	.375	7	17.61	8	5/8	8	56
		411-90127503-003	.250	10	17.61	8	5/8	10 1/2	59

+ Indicates couplings furnished with steel “Z” section, High Strength Follower Flanges.

The basic design of bolted compression couplings does not provide for anchoring the pipes against pull-out. Suitable anchorage must be provided when excessive pipe movement could cause the pipe to move out of the coupling.

NOTE: Couplings working pressures depend on many variables such as pipe type, pipe diameter, sleeve thickness, sleeve material, gasket cross section, follower type and number of bolts. Consult Smith-Blair® regarding your specific coupling pressure requirements.

411 Steel Couplings

Standard Length Sleeves 14” thru 24” Steel Pipe Sizes

Nom. Pipe Size In.	Pipe O.D. Inches	Catalog No. Buna-N Gasket	Sleeve Thk. X Lgth. In.		Flange O.D. Inches (D)	Bolts			Approx. Ship Wt. Lbs.
			(A)	(B)		No.	Dia. In.	Lgth. In. (L)	
14	14.00	411-00140001-003	1/4	5	18 5/16	6	5/8	8	41
		411-00140002-003	1/4	7	18 5/16	6	5/8	10 1/2	48
		411-00140007-003	3/8	7	18 7/16	6	5/8	10 1/2	75
		411-00140008-003	3/8	10	18 7/16	6	5/8	13 1/2	94
16	16.00	411-00160002-003	1/4	7	20 5/16	8	5/8	10 1/2	56
		411-00160007-003	3/8	7	20 7/16	8	5/8	10 1/2	87
		411-00160003-003	1/4	10	20 5/16	8	5/8	10 1/2	72
		411-00160008-003	3/8	10	20 7/16	8	5/8	10 1/2	108
18	18.00	411-00180002-003	1/4	7	22 7/16	8	5/8	10 1/2	81
		411-00180007-003	3/8	7	22 7/16	8	5/8	10 1/2	96
		411-00180003-003	1/4	10	22 7/16	8	5/8	13 1/2	109
		411-00180008-003	3/8	10	22 7/16	8	5/8	13 1/2	119
20	20.00	411-00200002-003	1/4	7	24 7/16	10	5/8	10 1/2	91
		411-00200007-003	3/8	7	24 7/16	10	5/8	10 1/2	107
		411-00200003-003	1/4	10	24 7/16	10	5/8	13 1/2	122
		411-00200008-003	3/8	10	24 7/16	10	5/8	13 1/2	134
22	22.00	411-00220002-003	1/4	7	26 7/16	10	5/8	10 1/2	98
		411-00220007-003	3/8	7	26 7/16	10	5/8	10 1/2	116
		411-00220003-003	1/4	10	26 7/16	10	5/8	13 1/2	132
		411-00220008-003	3/8	10	26 7/16	10	5/8	13 1/2	145
24	24.00	411-00240002-003	1/4	7	28 7/16	10	5/8	10 1/2	106
		411-00240007-003	3/8	7	28 7/16	10	5/8	10 1/2	125
		411-00240003-003	1/4	10	28 7/16	10	5/8	13 1/2	142
		411-00240008-003	3/8	10	28 7/16	10	5/8	13 1/2	156

The basic design of bolted compression couplings does not provide for anchoring the pipes against pull-out. Suitable anchorage must be provided when excessive pipe movement could cause the pipe to move out of the coupling.

NOTE: Couplings working pressures depend on many variables such as pipe type, pipe diameter, sleeve thickness, sleeve material, gasket cross section, follower type and number of bolts. Consult Smith-Blair® regarding your specific coupling pressure requirements.

411 Steel Couplings

Long Length Sleeves 1/2” thru 24” Steel Pipe Sizes

Nom. Pipe Size In.	Pipe O.D. Inches	Catalog No. Buna-N Gasket	Sleeve Thk. X Lgth. In.		Flange O.D. Inches (D)	Bolts			Approx. Ship Wt. Lbs.
			(A)	(B)		No.	Dia. In.	Lgth. In. (L)	
1/2	.084	411-00008410-003	0.120	12	3 5/8	2	1/2	14	4
3/4	1.05	411-00010510-003	0.120	12	3 7/8	2	1/2	14	4 1/2
1	1.32	411-00013210-003	0.120	12	4 1/2	2	1/2	14	5 1/2
1 1/4	1.66	411-00016610-003	0.120	12	4 9/16	2	1/2	14	7
1 1/2	1.90	411-00019010-003	0.120	12	4 13/16	2	1/2	14	7 1/2
2	2.00	411-00020010-003	0.120	12	4 13/16	2	1/2	14	7 1/2
	2.38	411-00023810-003	0.120	12	5 11/16	3	5/8	15	13
2 1/2	2.88	411-00028810-003	0.203	12	6 1/2	3	5/8	15	17
+3	3.50	411-90035010-003	0.180	12	8.03	3	5/8	15	20 1/2
3 1/2-4	4.00	411-00040010-003	0.180	12	7 9/16	4	5/8	15	25
+4	4.50	411-90045010-003	0.188	12	9.05	4	5/8	13 1/2	22
		411-90045011-003	0.188	16	9.05	4	5/8	17	27 1/2
		411-90045012-003	0.188	24	9.05	4	5/8	25	38 1/2
4 1/2-5	5.00	411-00050010-003	0.250	12	8 5/8	4	5/8	15	30
5	5.56	411-00055611-003	0.250	16	9 3/16	4	5/8	19 1/2	41
		411-00055612-003	0.250	24	9 3/16	4	5/8	27 1/2	52
+6	6.63	411-90066311-003	0.250	16	11 1/2	6	5/8	17	46 1/2
		411-90066312-003	0.250	24	11 1/2	6	5/8	25	65
+8	8.63	411-90086311-000	0.250	16	13 1/2	6	5/8	17	57
		411-90086312-003	0.250	24	13 1/2	6	5/8	25	79
10	10.00	411-00100012-003	0.250	16	14 5/16	8	5/8	19 1/2	67
		411-00100012-003	0.250	24	14 5/16	8	5/8	27 1/2	97
+10	10.75	411-90107511-003	0.250	16	15.61	8	5/8	17	71
		411-90107512-003	0.250	24	15.61	8	5/8	25	99
12	12.00	411-00120011-003	0.250	16	16 1/16	8	5/8	19 1/2	77
		411-00120012-003	0.250	24	16 1/16	8	5/8	27 1/2	108
+12	12.75	411-90127511-003	0.250	16	17.61	8	5/8	17	81
		411-90127512-003	0.250	24	17.61	8	5/8	25	113
		411-90127516-003	0.375	24	17.61	8	5/8	25	148
14	14.00	411-00140015-003	0.375	16	18 7/16	6	5/8	19 1/2	126
		411-00140016-003	0.375	24	18 7/16	6	5/8	27 1/2	171
16	16.00	411-00160015-003	0.375	16	20 7/16	8	5/8	19 1/2	146
		411-00160016-003	0.375	24	20 7/16	8	5/8	27 1/2	197
18	18.00	411-00180015-003	0.375	16	22 7/16	8	5/8	19 1/2	160
		411-00180016-003	0.375	24	22 7/16	8	5/8	27 1/2	219
20	20.00	411-00200015-003	0.375	16	24 7/16	10	5/8	19 1/2	180
		411-00200016-003	0.375	24	24 7/16	10	5/8	27 1/2	245
22	22.00	411-00220015-003	0.375	16	26 7/16	10	5/8	19 1/2	196
		411-00220016-003	0.375	24	26 7/16	10	5/8	27 1/2	265
24	24.00	411-00240015-003	0.375	16	28 7/16	10	5/8	19 1/2	210
		411-00240016-003	0.375	24	28 7/16	10	5/8	27 1/2	286

+ Indicates couplings furnished with steel “Z” section, High Strength Follower Flanges.

The basic design of bolted compression couplings does not provide for anchoring the pipes against pull-out. Suitable anchorage must be provided when excessive pipe movement could cause the pipe to move out of the coupling.

NOTE: Coupling working pressures depend on many variables such as pipe type, pipe diameter, sleeve thickness, sleeve material, gasket cross section, follower type and number of bolts. Consult Smith-Blair regarding your specific coupling pressure requirements.

411 Steel Couplings (Standard)
for Cast and Ductile Iron Pipe Sizes

Smith-Blair's 411 Steel Coupling for cast iron, asbestos cement and steel pipe provides a means for connecting cast iron, steel, asbestos cement, plastic or other type of pipe with a coupling having a steel sleeve. The sleeve has a fusion bonded epoxy coating that provides protection from corrosive environments or line contents.

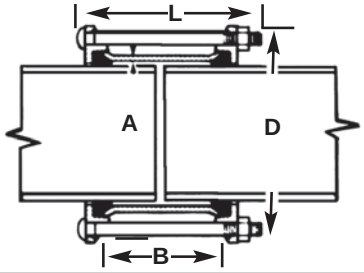
Dimensions

A: Sleeve wall thickness

B: Sleeve length

D: Overall coupling diameter

L: Overall coupling length



Material Specifications

SLEEVE: ASTM A-53, ASTM A512 or carbon steel having a minimum yield of 30,000 psi. Fusion bonded epoxy provides an average 12 mil protective coating and is FDA approved for potable water systems.

FOLLOWERS: Ductile iron ASTM A-536 or steel AISI C1020. Designed for high strength/weight ratio. Follower thickness determined by coupling size.

BOLTS & NUTS: High-strength, low-alloy steel with heavy semi-finished hexagon nuts.

GASKETS: Nitrile (Buna N) NSF® 61 compounded to produce superior storage and performance characteristics while resisting water, acids, alkalis, most (aliphatic) hydrocarbons and many other chemicals.
Temperatures range: -20°F. to 180°F (consult manufacturer for specific applications or other service temperatures).

FINISH: Fusion bonded Flexi-Coat® Epoxy per AWWA C213.

Material Specifications are subject to change.

Standard Length Sleeves 2" thru 14" pipe sizes.

Nom. Pipe Size In.	Pipe O.D. Inches	Catalog No.	Sleeve Thk. X Lgth. In.		Overall Dia.	Bolts			Approx. Ship Wt. Lbs.
			(A)	(B)	(D)	No.	Dia. In.	Lgth. In. (L)	
2	2.34-2.56	411-00025002-003 411-00025003-003	.216 .216	7 10	6.3/16 6.3/16	2 2	5/8 5/8	10 1/2 13 1/2	13.5 16.3
2 1/2	2.75-2.88	411-00027502-003 411-00027503-003	.203 .203	7 10	6.3/16 6.3/16	3 3	5/8 5/8	11 14	14.8 17.8
3	3.75-3.86	411-00038002-003 411-00038003-003	.237 .237	7 10	7 13/16 7 13/16	3 3	5/8 5/8	10 1/2 13 1/2	20.3 24.6
3-4	3.87-4.04	411-00039602-003 411-00039603-003	.188 .188	7 10	7 11/32 7 11/32	4 4	5/8 5/8	11 14	21.4 25.7
4	4.07-4.19	411-00041302-003 411-00041303-003	.188 .188	7 10	8 3/32 8 3/32	4 4	5/8 5/8	11 14	22.3 26.8
4	4.74-5.06	411-00050002-003 411-00050003-003	.250 .250	7 10	8 19/32 8 19/32	4 4	5/8 5/8	11 14	27 32.5
4-5	5.00-5.16	411-00051002-003 411-00051003-003	.250 .250	7 10	9 5/32 9 5/32	4 4	5/8 5/8	11 14	27.5 33.1
6	6.84-6.96	411-00069002-003 411-00069003-003	.250 .250	7 10	10 9/16 10 9/16	5 5	5/8 5/8	11 14	37.2 44.8
6	7.04-7.16	411-00071002-003 411-00071003-003	.250 .250	7 10	10 9/16 10 9/16	5 5	5/8 5/8	11 14	38.3 46.1
6	7.14-7.26	411-00072002-003 411-00072003-003	.250 .250	7 10	11 5/16 11 5/16	5 5	5/8 5/8	11 14	38.8 46.8
8	8.91-9.30	411-00090502-003 411-00090503-003	.250 .250	7 10	12 13/16 12 13/16	6 6	5/8 5/8	11 14	48.8 58.8
8	9.30-9.50	411-00094202-003 411-00094203-003	.250 .250	7 10	13 23/32 13 23/32	6 6	5/8 5/8	11 14	50.8 61.2
10	11.04-11.16	411-00111002-003 411-00111003-003	.250 .250	7 10	15 1/8 15 1/8	7 7	5/8 5/8	11 14	59.9 72.1
10	11.34-11.46	411-00114002-003 411-00114003-003	.250 .250	7 10	15 1/8 15 1/8	7 7	5/8 5/8	11 14	61.5 74.1
10	11.84-12.00	411-00119502-003 411-00119503-003	.250 .250	7 10	16 16	8 8	5/8 5/8	11 14	64.5 77.7
12	13.14-13.26	411-00132007-003 411-00132008-003	.375 .375	7 10	17 5/8 17 5/8	8 8	5/8 5/8	11 14	71.3 85.8
12	13.44-13.56	411-00135007-003 411-00135008-003	.375 .375	7 10	17 7/8 17 7/8	8 8	5/8 5/8	11 14	72.9 87.8
12-14	13.88-14.06	411-00139207-003 411-00139208-003	.375 .375	7 10	18 15/16 18 15/16	6 6	5/8 5/8	11 14	75.2 90.5

411 Steel Couplings (Standard & Long) for Cast Iron Pipe Sizes

Standard and Long Length Sleeves 14” thru 24”

Nom. Pipe Size In.	Pipe O.D. Inches	Catalog No. ***	Sleeve Thk. X Lgth. In.		Flange O.D. Inches (D)	Bolts			Approx. Ship Wt. Lbs.
			(A)	(B)		No.	Dia. In.	Lgth. In. (L)	
14	15.30	411-00153007-003	3/8	7	19 7/8	8	5/8	11	86
		411-00153008-003	3/8	10	19 7/8	8	5/8	14	107
		411-00153015-003	3/8	16	19 7/8	8	5/8	20	144
		411-00153016-003	3/8	24	19 7/8	8	5/8	28	196
14	15.65	411-00156507-003	3/8	7	20 3/16	8	5/8	11	88
		411-00156508-003	3/8	10	20 3/16	8	5/8	14	109
		411-00156515-003	3/8	16	20 3/16	8	5/8	20	146
		411-00156516-003	3/8	24	20 3/16	8	5/8	28	200
16	17.40	411-00174007-003	3/8	7	21 15/16	8	5/8	11	92
		411-00174008-003	3/8	10	21 15/16	8	5/8	14	119
		411-00174015-003	3/8	16	21 15/16	8	5/8	20	160
		411-00174016-003	3/8	24	21 15/16	8	5/8	28	218
16	17.80	411-00178007-003	3/8	7	22 3/8	8	5/8	11	93
		411-00178008-003	3/8	10	22 3/8	8	5/8	14	120
		411-00178015-003	3/8	16	22 3/8	8	5/8	20	162
		411-00178016-003	3/8	24	22 3/8	8	5/8	28	221
18	19.50	411-00195007-003	3/8	7	24 1/16	10	5/8	11	107
		411-00195008-003	3/8	10	24 1/16	10	5/8	14	133
		411-00195015-003	3/8	16	24 1/16	10	5/8	20	179
		411-00195016-003	3/8	24	24 1/16	10	5/8	28	245
18	19.92	411-00199207-003	3/8	7	24 1/2	10	5/8	11	109
		411-00199208-003	3/8	10	24 1/2	10	5/8	14	135
		411-00199215-003	3/8	16	24 1/2	10	5/8	20	182
		411-00199216-003	3/8	24	24 1/2	10	5/8	28	249
20	21.60	411-00216007-003	3/8	7	26 1/8	10	5/8	11	117
		411-00216008-003	3/8	10	26 1/8	10	5/8	14	145
		411-00216015-003	3/8	16	26 1/8	10	5/8	20	195
		411-00216016-003	3/8	24	26 1/8	10	5/8	28	266
20	22.06	411-00220607-003	3/8	7	26 5/8	10	5/8	11	119
		411-00220608-003	3/8	10	26 5/8	10	5/8	14	148
		411-00220615-003	3/8	16	26 5/8	10	5/8	20	200
		411-00220616-003	3/8	24	26 5/8	10	5/8	28	271
24	25.80	411-00258007-003	3/8	7	30 3/8	12	5/8	11	138
		411-00258008-003	3/8	10	30 3/8	12	5/8	14	171
		411-00258015-003	3/8	16	30 3/8	12	5/8	20	231
		411-00258016-003	3/8	24	30 3/8	12	5/8	28	315
24	26.32	411-00263207-003	3/8	7	30 7/8	12	5/8	11	140
		411-00263208-003	3/8	10	30 7/8	12	5/8	14	174
		411-00263215-003	3/8	16	30 7/8	12	5/8	20	235
		411-00263216-003	3/8	24	30 7/8	12	5/8	28	321

The basic design of bolted compression couplings does not provide for anchoring the pipes against pull-out. Suitable anchorage must be provided when excessive pipe movement could cause the pipe to move out of the coupling.

NOTE: Coupling working pressures depend on many variables such as pipe type, pipe diameter, sleeve thickness, sleeve material, gasket cross section, follower type and number of bolts. Consult Smith-Blair regarding your specific coupling pressure requirements.

***The last three numbers of the catalog number indicate the type of gasket. (Buna N) gaskets are furnished as standard.
BUNA-N - 003
BUNA-N Protected -015
(with brass spring molded into leading edge)

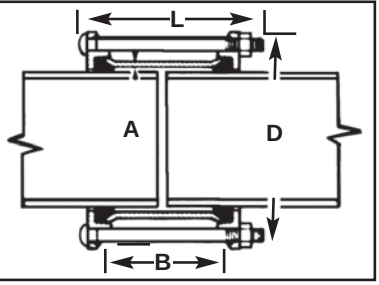
Dimensions

A: Sleeve wall thickness

B: Sleeve length

D: Overall coupling diameter

L: Overall coupling length



411 Steel Couplings for Large Diameter

Large steel couplings provide a method of simplifying many pipe fitting problems and protecting pipelines from various environmental conditions. They are cost effective against flanged or welded joints.

Consult Smith-Blair engineers for assistance in selecting couplings for large pipelines or special applications.

Large Diameter Pipe - Standard Length Sleeves

Nom. Pipe Size In.	Pipe O.D. Inches	Sleeve Thk. X Lgth (A) (B) Inches	Follower Flange O.D. Inches	Bolts		Catalog Number	Approx. Ship Wt. Lbs.
				No.	Dia. x Lgth (L)		
30	30.00	1/4 x 7	34 7/16	12	5/8 x 11	411-00300002-003	132
		1/4 x 10	34 7/16	12	5/8 x 14	411-00300003-003	152
		3/8 x 7	34 7/16	12	5/8 x 11	411-00300007-003	155
		3/8 x 10	34 7/16	12	5/8 x 14	411-00300008-003	187
		1/2 x 10	34 7/16	12	5/8 x 14	411-00300009-003	221
30	30.50	1/4 x 7	34 15/16	12	5/8 x 11	411-00305002-003	133
		1/4 x 10	34 15/16	12	5/8 x 14	411-00305003-003	154
		3/8 x 7	34 15/16	12	5/8 x 11	411-00305007-003	157
		3/8 x 10	34 15/16	12	5/8 x 14	411-00305008-003	189
		1/2 x 10	34 15/16	12	5/8 x 14	411-00305009-003	224
30	31.74	1/4 x 7	36 3/16	14	5/8 x 11	411-00317402-003	139
		1/4 x 10	36 3/16	14	5/8 x 14	411-00317403-003	163
		3/8 x 7	36 3/16	14	5/8 x 11	411-00317407-003	164
		3/8 x 10	36 3/16	14	5/8 x 14	411-00317408-003	198
		1/2 x 10	36 3/16	14	5/8 x 14	411-00317409-003	235
30	32.00	1/4 x 7	36 7/16	14	5/8 x 11	411-00320002-003	140
		1/4 x 10	36 7/16	14	5/8 x 14	411-00320003-003	164
		3/8 x 7	36 7/16	14	5/8 x 11	411-00320007-003	166
		3/8 x 10	36 7/16	14	5/8 x 14	411-00320008-003	201
		1/2 x 10	36 7/16	14	5/8 x 14	411-00320009-003	237
30	34.00	1/4 x 7	38 7/16	14	5/8 x 11	411-00340002-003	148
		1/4 x 10	38 7/16	14	5/8 x 14	411-00340003-003	173
		3/8 x 7	38 7/16	14	5/8 x 11	411-00340007-003	175
		3/8 x 10	38 7/16	14	5/8 x 14	411-00340008-003	211
		1/2 x 10	38 7/16	14	5/8 x 14	411-00340009-003	250
36	36.00	1/4 x 7	40 7/16	16	5/8 x 11	411-00360002-003	158
		1/4 x 10	40 7/16	16	5/8 x 14	411-00360003-003	184
		3/8 x 7	40 7/16	16	5/8 x 11	411-00360007-003	183
		3/8 x 10	40 7/16	16	5/8 x 14	411-00360008-003	225
		1/2 x 10	40 7/16	16	5/8 x 14	411-00360009-003	266
36	36.50	1/4 x 7	40 15/16	16	5/8 x 11	411-00365002-003	159
		1/4 x 10	40 15/16	16	5/8 x 14	411-00365003-003	186
		3/8 x 7	40 15/16	16	5/8 x 11	411-00365007-003	188
		3/8 x 10	40 15/16	16	5/8 x 14	411-00365008-003	227
		1/2 x 10	40 15/16	16	5/8 x 14	411-00365009-003	269
36	36.63	1/4 x 7	41 1/16	16	5/8 x 11	411-00366302-003	160
		1/4 x 10	41 1/16	16	5/8 x 14	411-00366303-003	187
		3/8 x 7	41 1/16	16	5/8 x 11	411-00366307-003	189
		3/8 x 10	41 1/16	16	5/8 x 14	411-00366308-003	228
		1/2 x 10	41 1/16	16	5/8 x 14	411-00366309-003	270
36	37.96	1/4 x 7	42 13/32	16	5/8 x 11	411-00379602-003	162
		1/4 x 10	42 13/32	16	5/8 x 14	411-00379603-003	189
		3/8 x 7	42 13/32	16	5/8 x 11	411-00379607-003	191
		3/8 x 10	42 13/32	16	5/8 x 14	411-00379608-003	230
		1/2 x 10	42 13/32	16	5/8 x 14	411-00379609-003	272

The basic design of bolted compression couplings does not provide for anchoring the pipes against pullout. Suitable anchorage must be provided when excessive pipe movement could cause the pipe to move out of the coupling.

Note: Coupling working pressure depends on many variables such as pipe type, pipe diameter, sleeve thickness, sleeve material, gasket cross section, follower type and number of bolts. Consult Smith-Blair regarding your specific coupling pressure requirements.

411 Steel Couplings for Large Diameter

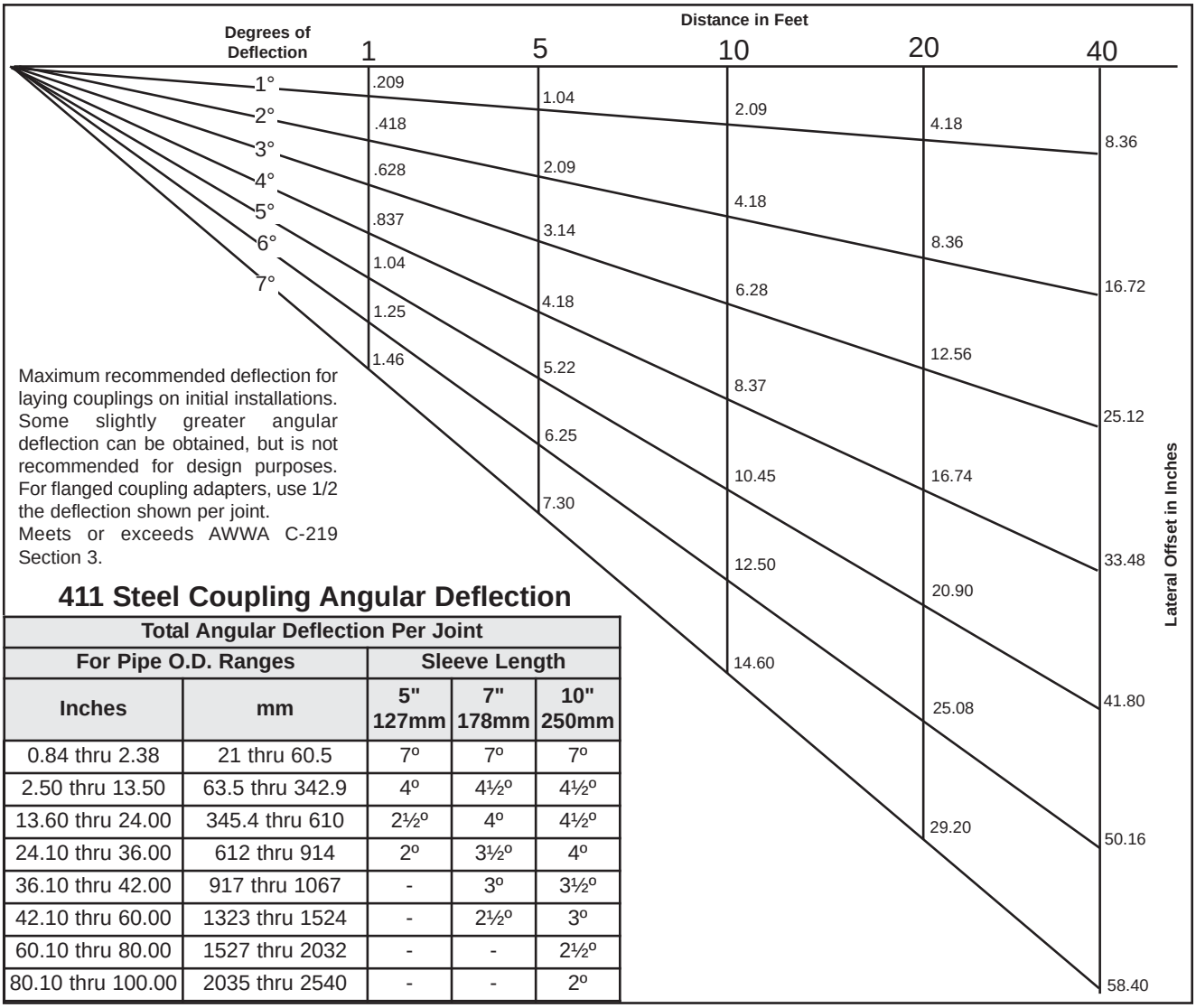
Large Diameter Steel and Cast Iron Pipe - Standard Length Sleeves

Nom. Pipe Size In.	Pipe O.D. Inches	Sleeve Thk. X Lgth (A) (B) Inches	Follower Flange O.D. Inches	Bolts		Catalog Number	Approx. Ship Wt. Lbs.
				No.	Dia. x Lgth (L)		
36	38.30	1/4 x 7	42 3/4	16	5/8 x 11	411-00383002-003	166
		1/4 x 10	42 3/4	16	5/8 x 14	411-00383003-003	194
		3/8 x 7	42 3/4	16	5/8 x 11	411-00383007-003	196
		3/8 x 10	42 3/4	16	5/8 x 14	411-00383008-003	237
		1/2 x 10	42 3/4	16	5/8 x 14	411-00383009-003	281
42	42.00	1/4 x 7	46 1/2	18	5/8 x 11	411-00420002-003	123
		1/4 x 10	46 1/2	18	5/8 x 14	411-00420003-003	214
		3/8 x 7	46 1/2	18	5/8 x 11	411-00420007-003	216
		3/8 x 10	46 1/2	18	5/8 x 14	411-00420008-003	262
		1/2 x 10	46 1/2	18	5/8 x 14	411-00420009-003	310
42	42.50	1/4 x 7	47	18	5/8 x 11	411-00425002-003	186
		1/4 x 10	47	18	5/8 x 14	411-00425003-003	215
		3/8 x 7	47	18	5/8 x 11	411-00425007-003	220
		3/8 x 10	47	18	5/8 x 14	411-00425008-003	263
		1/2 x 10	47	18	5/8 x 14	411-00425009-003	312
42	42.75	1/4 x 7	47 1/4	18	5/8 x 11	411-00427502-003	187
		1/4 x 10	47 1/4	18	5/8 x 14	411-00427503-003	216
		3/8 x 7	47 1/4	18	5/8 x 11	411-00427507-003	221
		3/8 x 10	47 1/4	18	5/8 x 14	411-00427508-003	264
		1/2 x 10	47 1/4	18	5/8 x 14	411-00427509-003	315
42	44.20	1/4 x 7	48 11/16	18	5/8 x 11	411-00442002-003	190
		1/4 x 10	48 11/16	18	5/8 x 14	411-00442003-003	225
		3/8 x 7	48 11/16	18	5/8 x 11	411-00442007-003	225
		3/8 x 10	48 11/16	18	5/8 x 14	411-00442008-003	275
		1/2 x 10	48 11/16	18	5/8 x 14	411-00442009-003	325
42	44.50	1/4 x 7	49	18	5/8 x 11	411-00445002-003	193
		1/4 x 10	49	18	5/8 x 14	411-00445003-003	228
		3/8 x 7	49	18	5/8 x 11	411-00445007-003	228
		3/8 x 10	49	18	5/8 x 14	411-00445008-003	278
		1/2 x 10	49	18	5/8 x 14	411-00445009-003	329
48	48.00	1/4 x 7	52 1/2	20	5/8 x 11	411-00480002-003	208
		1/4 x 10	52 1/2	20	5/8 x 14	411-00480003-003	245
		3/8 x 7	52 1/2	20	5/8 x 11	411-00480007-003	246
		3/8 x 10	52 1/2	20	5/8 x 14	411-00480008-003	299
		1/2 x 10	52 1/2	20	5/8 x 14	411-00480009-003	354
48	48.75	1/4 x 7	53 1/4	20	5/8 x 11	411-00487502-003	212
		1/4 x 10	53 1/4	20	5/8 x 14	411-00487503-003	249
		3/8 x 7	53 1/4	20	5/8 x 11	411-00487507-003	246
		3/8 x 10	53 1/4	20	5/8 x 14	411-00487508-003	303
		1/2 x 10	53 1/4	20	5/8 x 14	411-00487509-003	358
48	50.50	1/4 x 7	55	20	5/8 x 11	411-00505002-003	217
		1/4 x 10	55	20	5/8 x 14	411-00505003-003	255
		3/8 x 7	55	20	5/8 x 11	411-00505007-003	258
		3/8 x 10	55	20	5/8 x 14	411-00505008-003	312
		1/2 x 10	55	20	5/8 x 14	411-00505009-003	372
48	50.80	1/4 x 7	55 5/16	20	5/8 x 11	411-00508002-003	220
		1/4 x 10	55 5/16	20	5/8 x 14	411-00508003-003	260
		3/8 x 7	55 5/16	20	5/8 x 11	411-00508007-003	261
		3/8 x 10	55 5/16	20	5/8 x 14	411-00508008-003	317
		1/2 x 10	55 5/16	20	5/8 x 14	411-00508009-003	375
54	57.10	1/4 x 7	61 19/32	24	5/8 x 11	411-00571002-003	238
		1/4 x 10	61 19/32	24	5/8 x 14	411-00571003-003	286
		3/8 x 7	61 19/32	24	5/8 x 11	411-00571007-003	292
		3/8 x 10	61 19/32	24	5/8 x 14	411-00571008-003	349
		1/2 x 10	61 19/32	24	5/8 x 14	411-00571009-003	414

The basic design of bolted compression couplings does not provide for anchoring the pipes against pullout. Suitable anchorage must be provided when excessive pipe movement could cause the pipe to move out of the coupling.

Note: Coupling working pressure depends on many variables such as pipe type, pipe diameter, sleeve thickness, sleeve material, gasket cross section, follower type and number of bolts. Consult Smith-Blair regarding your specific coupling pressure requirements.

Lateral Offset Per Degree of Deflection At Distances Indicated



Maximum recommended deflection for laying couplings on initial installations. Some slightly greater angular deflection can be obtained, but is not recommended for design purposes. For flanged coupling adapters, use 1/2 the deflection shown per joint.
Meets or exceeds AWWA C-219 Section 3.

411 Steel Coupling Angular Deflection

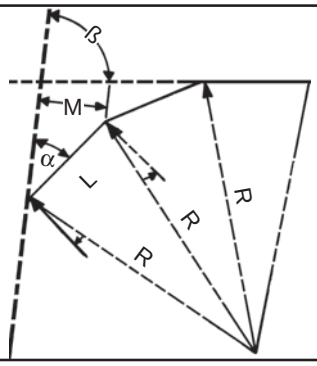
Total Angular Deflection Per Joint				
For Pipe O.D. Ranges		Sleeve Length		
Inches	mm	5" 127mm	7" 178mm	10" 250mm
0.84 thru 2.38	21 thru 60.5	7º	7º	7º
2.50 thru 13.50	63.5 thru 342.9	4º	4½º	4½º
13.60 thru 24.00	345.4 thru 610	2½º	4º	4½º
24.10 thru 36.00	612 thru 914	2º	3½º	4º
36.10 thru 42.00	917 thru 1067	-	3º	3½º
42.10 thru 60.00	1323 thru 1524	-	2½º	3º
60.10 thru 80.00	1527 thru 2032	-	-	2½º
80.10 thru 100.00	2035 thru 2540	-	-	2º

Formulas

ß=Nα where:
- ß=Total angular deflection of pipeline (degrees)
- N=Number of couplings
- α=Degrees of deflection per coupling

R=L / 2TANα where:
- L=Length of pipe section
- R=Radius of curve

M=L SINα where:
- M=Distance each pipe section is offset from centerline



Pipeline Curve Plotting

The length of pipe sections and angular deflection allowances for any given radius can be calculated by using the formulas above. Lateral offset and angular deflection may also be determined from the charts above. Careful planning of pipe length and deflection can allow the use of standard fittings and eliminate the need for expensive “special” fittings or time consuming excavation of the pipe bed.

Expansion and Contraction

Couplings are capable of absorbing up to 3/8" (9.5mm) axial pipe movement.

Coupling Size	Total Axial Pipe Movement Per Each Coupling
3/4" thru 2" 19.5mm thru 50mm	1/8" 3.2mm
2 1/2" thru 10 O.D. 63.5mm thru 250mm O.D.	1/4" 6.4mm
10 3/4" and up 270mm	3/8" 9.5mm

3/8" (9.5mm) pipe movement is equal to the expansion or contraction of a 40 foot(12m) length of carbon steel pipe resulting from a 120ºF. (38 C.) degree temperature change.

Accommodating pipe movement is a function of the coupling gaskets.

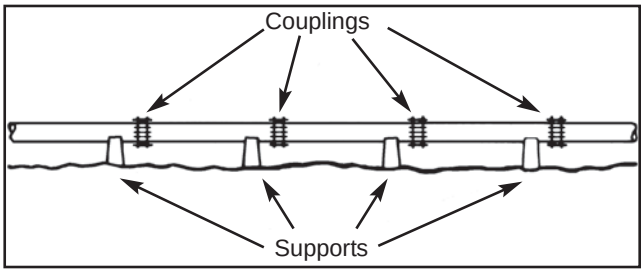
Buried or above ground pipelines may be joined using flexible couplings. The basic design of flexible couplings does not provide for anchoring the pipe in the coupling. For design purposes, the resistance to pipe pullout or holding strength must be considered to be zero. Suitable support and anchorage must be provided to resist those forces that could cause the pipe to move out of the coupling.

Above ground pipelines must be properly supported and be suitably harnessed or anchored at each flexible coupling.

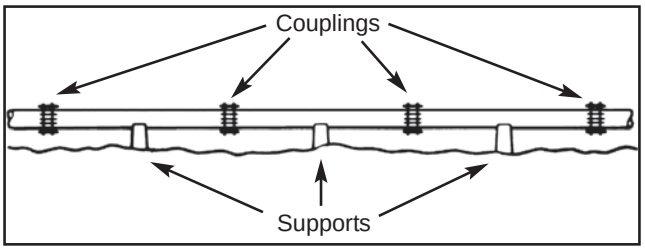
The illustrations to the right show how mechanically coupled pipelines should be supported and anchored. Supports must be designed to carry the weight of the pipe and its contents and must also have the capability of preventing total pipe movement from accumulating in any one coupling.

Anchors are to be located at the terminal points of the pipeline, or where there is a change in direction. Anchors (thrust blocks) should be designed with a suitable safety factor to withstand the resultant forces of internal line pressure.

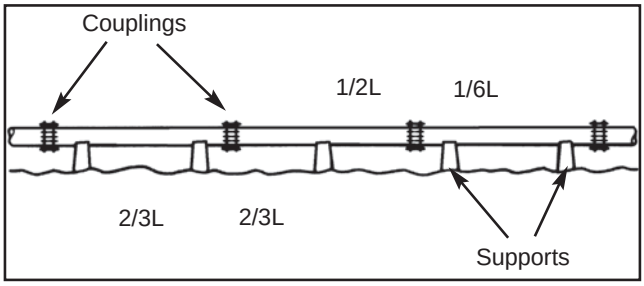
Supporting and Anchoring Coupled Pipelines



Support for 6 inch (150mm) and smaller diameter pipe in pipe length up to 20 ft. (6m) suitable for any pressure. Pipe must be tied to each support to accommodate high pressures and to isolate the pipe movement resulting from expansion/contraction in each length of pipe.



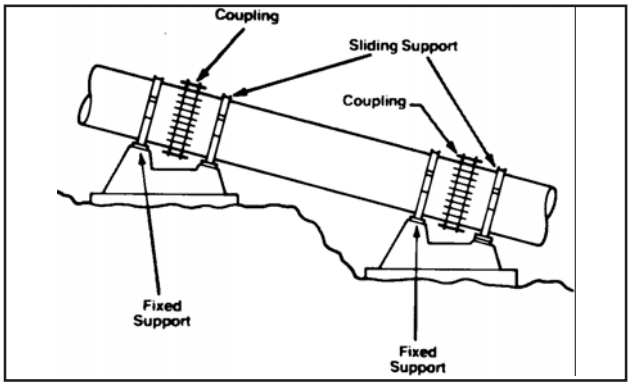
Support for 6 to 16 inch (150m to 400mm) diameter pipe in length to 20 ft. (6m) at pressures not to exceed 25 psi (1.7 Bar). Pipe to be tied to each support.



Support for pipes any size in length to 40 ft. (12m) Suitable for any pressure. Each length to be tied to one support to allow for expansion/contraction and isolate movement to each length of pipe. For use only where terrain is relatively level.

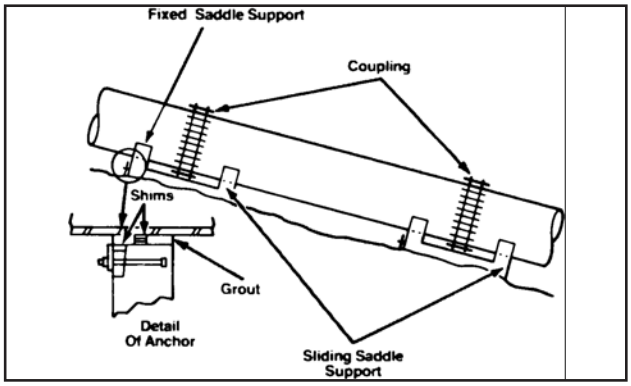
Supporting and Anchoring Coupled Pipelines

Ring Girder Support



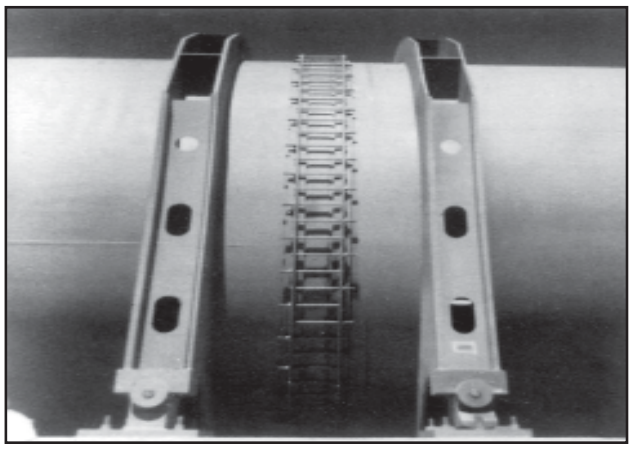
Support for all sizes of pipe in length to 40 ft. (12m). Suitable for any pressure. For any terrain including steep grades (hillsides). Pipe must be tied to only one support.

Saddle Support



Support for all sizes of pipe in lengths to 40 ft. (12m). Suitable for any pressure. For any terrain including steep grades (hillsides). Pipe must be tied to only one support.

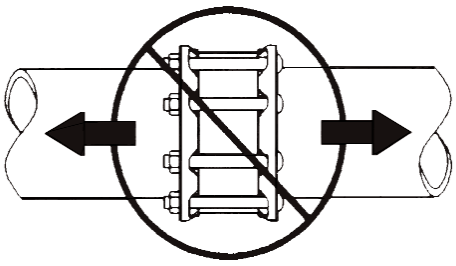
Typical Ring Girder Installation.



Assuming a straight pipeline with the pipe supported by one of the five foregoing methods, an anchor would be at each end of the pipeline to contain the forces caused by internal pressure. Each length of pipe is tied to one support. This permits free axial movement of that pipe but isolates the expansion/contraction movement within each length of pipe, allowing each coupling to independently absorb the movement within a single length of pipe. The total pipe movement is prevented from accumulating in any single coupling. The ties from each length of pipe to support need only be strong enough to accommodate the differential tightness of the couplings. The force at any one support between anchors caused by movement of the pipe is balanced and the net force is practically zero.

WARNING

This product does not restrain axial pipe movement



Anchoring Methods

Unbalanced forces occur where the pipeline has a change in direction. Properly compacted, good stable soil is normally sufficient to restrain these forces. Straight runs of buried pipeline in stable soil do not usually require harnessing or other anchoring.

Where there is unstable soil, a bend in the pipeline, lateral connections or a change in direction, suitable harnessing or anchoring must be provided if calculations show the resultant forces could cause the pipe to move out of the coupling.

The illustrations on this page show the location of pipe supports and thrust blocks in relationship to couplings. The couplings highlighted depict where pipe pull out may occur due to thrust forces. Two alternate methods of joint restraint are shown that may be used over the couplings in lieu of thrust blocks.

Pipe to Pipe Harness Assembly Spanning Coupling

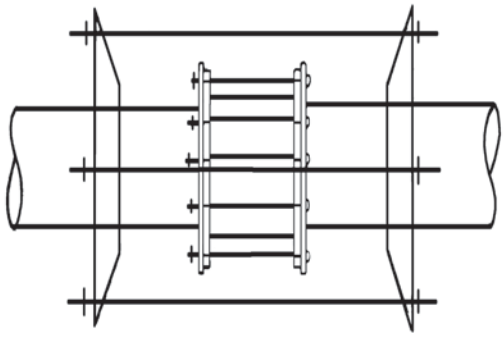
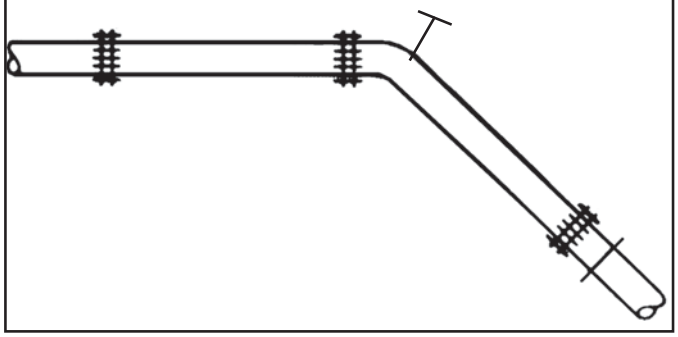
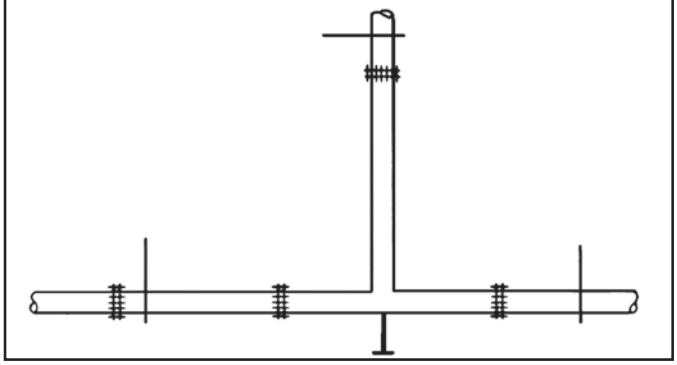


Diagram Key

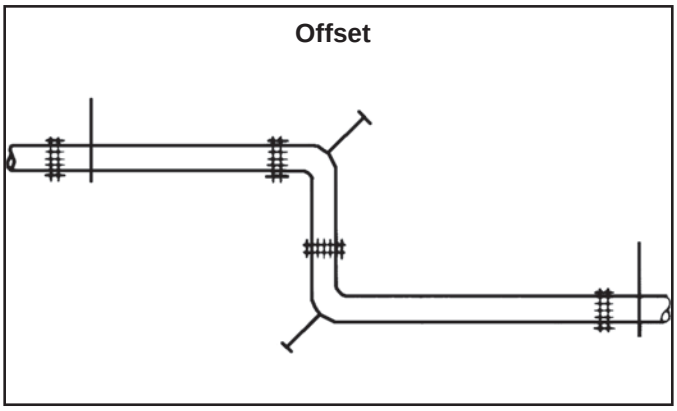
Angular Direction Change



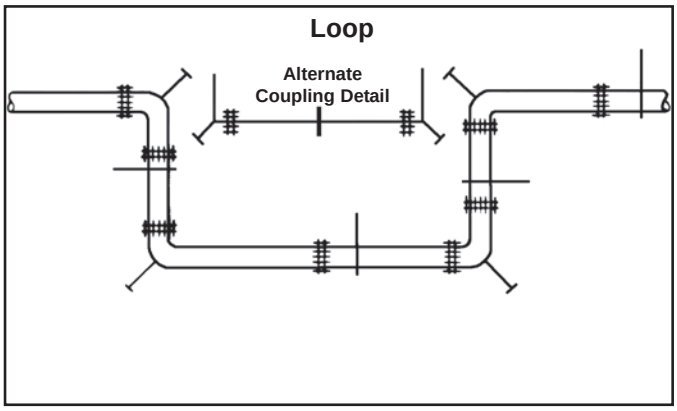
Branch



Offset



Loop



Angular Deflection, Parallel Offset and Lateral Displacement

Provisions must be made for lateral displacement (parallel offset) wherever there will be differential settlement between a structure (tank, building, foundation, etc.) and the pipeline. Such movement can also be caused by the thermal expansion/contraction in a branch line.

Couplings should be used in pairs when they are used to provide for lateral displacement (parallel offset). A single coupling will accommodate very little lateral displacement because the coupling is placed in shear.

Lateral displacement is accomplished by angular deflection of a spool piece (section of pipe) between two couplings. Two couplings with a length of pipe between act as universal joints and will allow for lateral movement in any direction.

Displacement can be in any direction, therefore, the allowable movement in any plane is twice the displacement.

The length of the spool piece will determine the amount of lateral displacement for a given angular deflection. The spool piece length is calculated as follows:

$$X = \frac{Y}{\text{Sine of Allowable Coupling Angle of Deflection}}$$

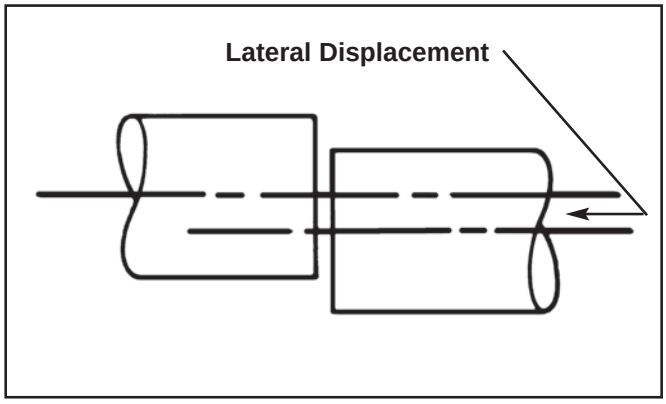
X=Length of spool piece
Y=Lateral displacement

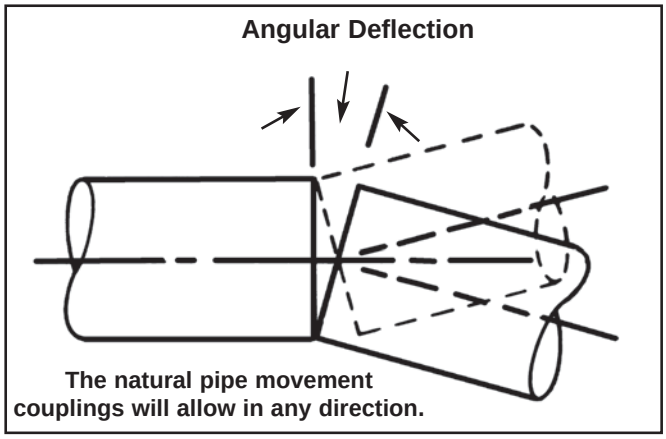
The lateral displacement capability of couplings can be used to good advantage to protect pipelines where:

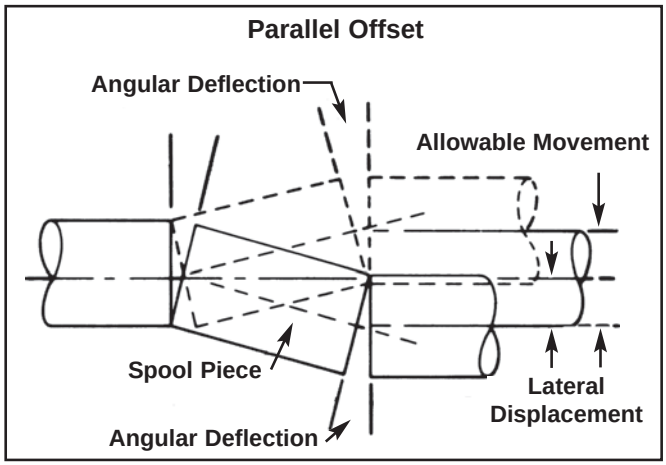
1. Branch Connections
A lateral connection (tee) is made to a long pipe subject to thermal expansion/contraction. Two couplings used in the branch connection will relieve the bending stresses.
Pipelines entering a building bulk head, foundation or other structure. Two couplings and a spool piece will accommodate the differential settlement between the pipeline and building.

2. Tank Connections.
Two couplings and a spool will accommodate the differential settlement between the pipeline and tank.

3. Risers.
Two couplings and a spool will take care of movement in any direction.

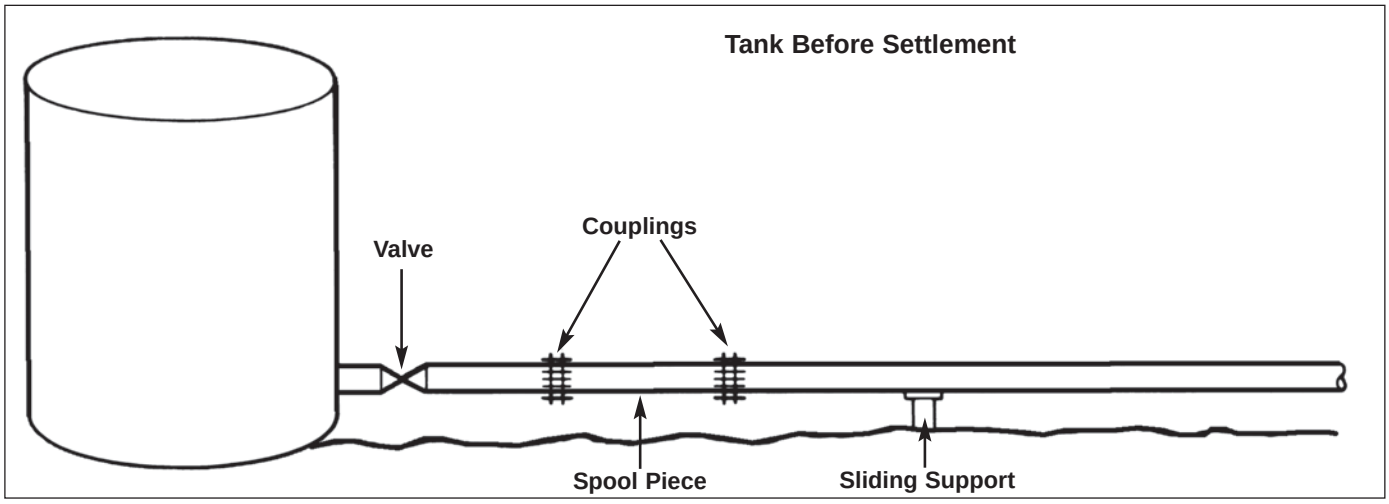


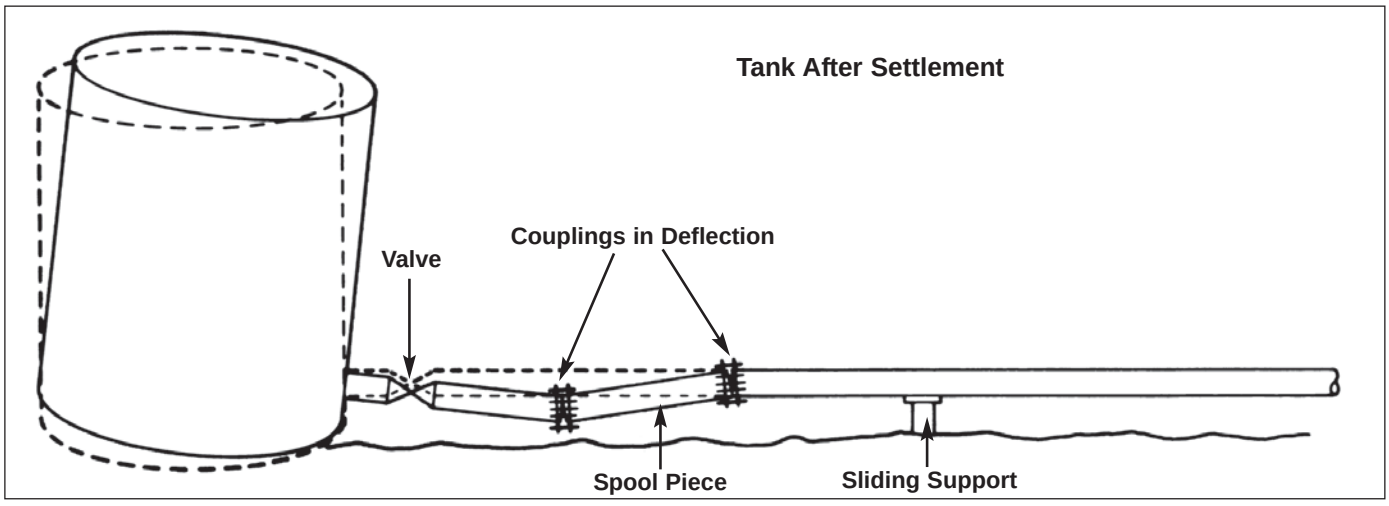




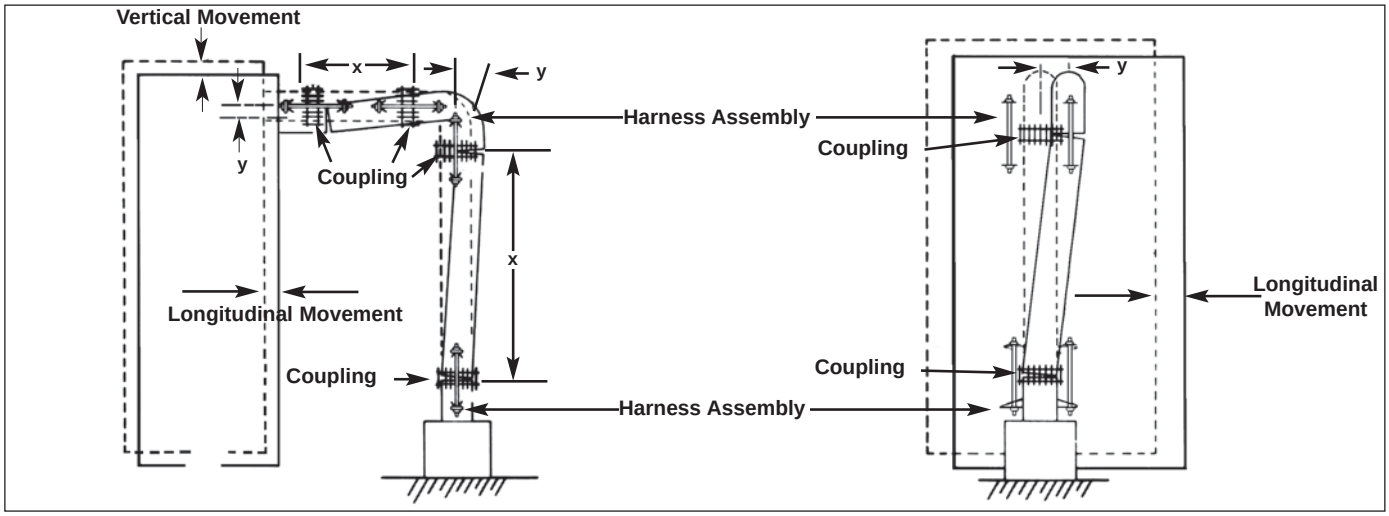
Angular Deflection, Parallel Offset and Lateral Displacement

Typical Tank Connection





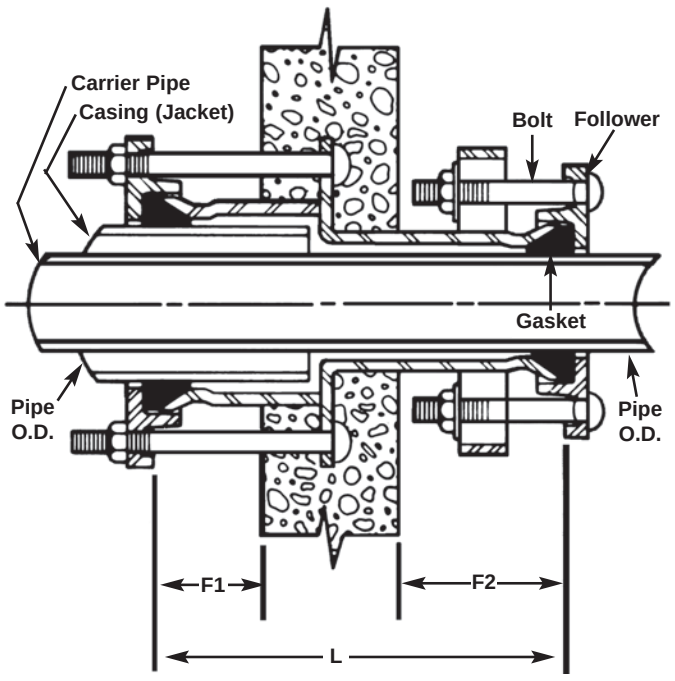
Typical Riser Installation



Wall Sleeves

Couplings are readily adaptable for use as wall sleeves. Whenever a pipeline must pass through a building wall or bulkhead, a wall sleeve should be used. The wall sleeve relieves the stress that expansion/contraction of the pipe exerts against the wall or bulkhead. It provides a bottle tight seal against surface water infiltration and facilitates removal of the pipeline without damage to the wall.

Wall Sleeve - For Jacketed Steamlines

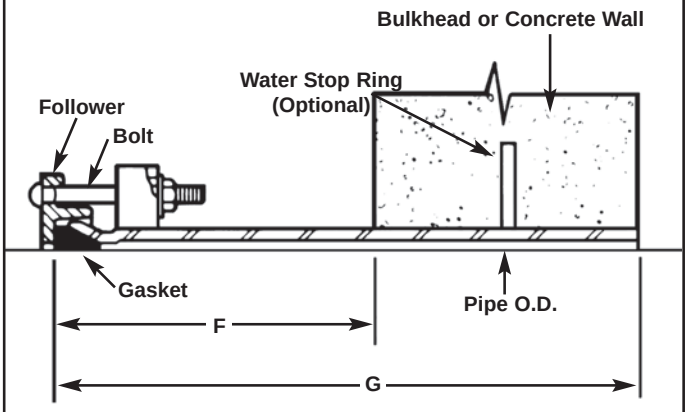


L = F1 + F2 + Wall Thickness

L = Sleeve Length
F1 = Distance Sleeve large end is to extend beyond wall
F2 = Distance Sleeve small end is to extend beyond wall

Wall Sleeves can be manufactured to fit any size and type of pipe and any thickness of bulkhead or concrete wall normally encountered in the piping industry.

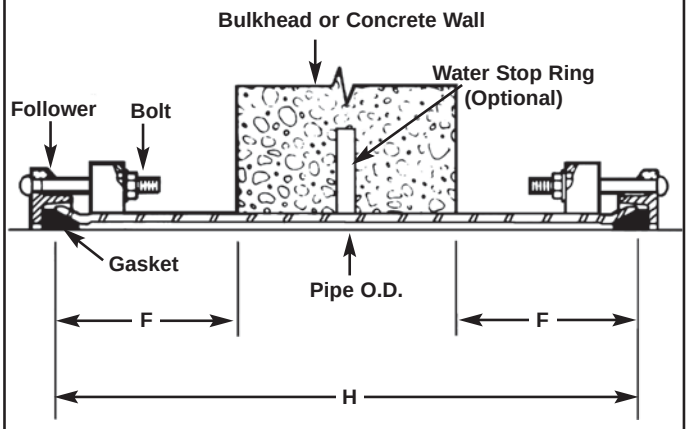
Wall Sleeve - Single End



G = F + Wall Thickness
G = Sleeve Length

F = Distance sleeve is to extend beyond wall

Wall Sleeve - Double End



H = 2F + Wall Thickness

H = Sleeve Length
F = Distance sleeve is to extend beyond wall

Pipe Tolerances & Dimensions of Plain End Steel Pipe with Smith-Blair Flexible Couplings.

Sealing Surface

For a distance of 10 inches (250 mm) from the end of the pipe, the pipe shall be sufficiently free from flat spots, indentations, projections, roll marks or pits to provide a smooth surface for the coupling gasket to seal against to make a leak-proof joint.

Pipe Ends

10-3/4 inch (273mm) and smaller: Plain end pipe shall not be more than 1/64 inch (.4mm) smaller than the specified outside diameter for a distance of 10 inches (250mm) from the end of the pipe and shall permit the passage over the end, for a distance of 10 inches (250mm), of a ring gage which has a bore 1/16 inch(1.6mm) larger than the specified outside diameter of the pipe.

12 3/4 inch (324mm) to 20 inch (500mm) inclusive: Plain end pipe shall not be more than 1/32 inch (.8mm) smaller than the specified outside diameter for a distance of 10 inches (250 mm) from the end of the pipe and shall permit passage over end, for a distance of 10 inches (250mm), of a ring gauge which has a bore 3/32 (2.4mm) larger than the specified outside diameter of the pipe.

22 inch (550mm) and larger: plain end pipe shall not be more than 1/32 inch (.8mm) smaller nor more than 1/32 inch (.8mm) larger than the specified outside diameter for a distance of 10 inches (250mm) from the end of the pipe, as measured with a diameter tape.

The minimum outside pipe diameter shall be determined by circumferentially applying a steel diameter tape to the pipe for a distance of 10 inches (250mm) from the end of the pipe, as measured with a diameter tape.

Pipe Tolerances & Dimensions of Plain End Cast Iron Pipe for use with Smith-Blair flexible couplings.

Sealing Surface

For a distance of 10 inches (250mm) from the end, the pipe shall be sufficiently free from flat spots, pits or indentations to provide a smooth round surface for the coupling gasket to seal against to make a leak-proof joint.

Pipe Ends

The pipe ends shall be furnished with smooth, round, plain ends for bolted compression couplings in compliance with AWWA specifcations governing tolerances.

- Pipe outside diameter 1/2” (12mm) to 16” (400mm) shall not exceed +/- .06” (1.5mm).
- Pipe outside diameter 16” (400mm) to 24” (600mm) shall not exceed +/- .08” (2.0mm).
- Pipe outside diameter 24” (600mm) to 42 (1060mm) shall not exceed +/- .10” (2.5mm).
- Pipe outside diameter larger than 42” (1060mm) shall not exceed +/- .12”/- +/-3.0mm”.

Maximum outside diameter shall permit the passage for a distance of 10 inches (250mm) from the end of the pipe of a ring gauge having a bore .01” (25mm) larger than the maximum allowable outside diameter.

Minimum outside diameter shall be determined by circumfrentially measuring with a steel diameter tape for a distance of 10 inches (250mm) from the end of the pipe.

Pipe Coatings

Pipe coatings of insufficient strength to resist the sealing pressure of the coupling gasket and coatings sufficiently porous to permit the line content to seep through the coating must be held back from the end of the pipe for a distance of 10 inches (250mm) to provide an impermeable surface for the coupling gasket to seal against.

Information required to order or obtain a quotation

To ensure the product furnished is the most suitable one for the intended application, the following information is required when placing an order or requesting a quotation:

1. Name of product (i.e. Smith-Blair Steel Coupling)
2. Product type, if known, (i.e. Smith-Blair 411).
   Furnish complete catalog number, if known.
3. Kind of pipe (cast iron, steel, asbestos cement, etc.)
   a. If steel, give wall thickness and pipe O.D.
   b. If cast iron, give class and pipe O.D.
   c. If asbestos cement, give class and if it is milled section, machined end or rough barrel and pipe O.D.
   d. Other pipe--give complete description including material, wall thickness, pressure rating, etc. and pipe O.D.
4. Nominal size and exact diameter of pipe.
5. Line content (water, raw water, sewage, chemicals, etc.)
6. Line pressure (operating pressure and test pressure)
7. Any pertinent environmental data (i.e. aggressive soil, marshland, etc.
8. Type of pipeline (buried, above ground, plant piping, etc.)
9. Any special coating or material requirements.
10. Quantity desired.

Standard Couplings as listed in Smith-Blair’s price book, when intended for normal application and service, may be ordered simply by supplying the catalog number and quantity.