

Advantages of Grooved Fittings



Built in deflection tolerances allow for quick installation and easy pipe alignment in uneven areas, or, where ground settling may occur



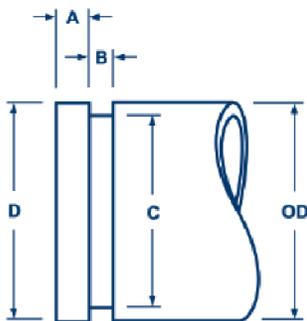
Grooved couplings allow for some linear expansion and contraction as well as horizontal variance. These features eliminate limited pipeline stresses without the use of costly expansion joints.

Comparative Advantages	Threaded	Flanged	Welded	Grooved
Allows angular deflection-misalignment	---	---	---	✓
Reclaimable, contraction or, no need for expansion joint	---	---	---	✓
Reclaimable, no need for union	---	✓	---	✓
Allows fast connection with valves	---	---	---	✓
Allows rotation of pipe for alignment	---	✓	---	✓
No special skills required to assemble	✓	---	---	✓
No welding slags	✓	---	---	✓
No weakening of pipe at joints	---	✓	---	✓
No fire hazard during installation	✓	✓	✓	✓
Speed of installation	✓	---	---	✓
Allows prefabrication	✓	✓	---	✓
Low installation cost	✓	---	---	✓

Features and Benefits

- combine the features of a straight line or a flexible coupling, a union and an extension at each pipe joint
- housings engage the groove around the entire pipe circumference, locking the pipe together
- allow easy removal of pipe sections for replacement, cleaning and service
- grooves are not as deeply cut as threaded pipe, so less metal is removed and more of the pressure rating of the pipe is retained
- installation time and cost are low, since only a socket wrench is required

Groove Dimensions



Size	OD	A	B	C	D
1½"	1.900	5/8	5/16	1.775	1.900
2"	2.375	5/8	5/16	2.250	2.375
2½"	2.875	5/8	5/16	2.750	2.875
3"	3.500	5/8	5/16	3.344	3.500
4"	4.500	5/8	3/8	4.334	4.500
5"	5.563	5/8	3/8	5.395	5.563
6"	6.625	5/8	3/8	6.455	6.625
8"	8.625	3/4	7/16	8.441	8.625
10"	10.750	3/4	1/2	10.562	10.750
12"	12.750	3/4	1/2	12.531	12.750

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Couplings

Standard Couplings - Series S, Style 11



Application:

- designed for a wide range of applications including commercial/industrial construction, mining, and process piping

Sizes:

- 1½", 2", 2½", 3", 4", 6", 8" 10", 12"

Materials:

- body: ductile iron with rust inhibiting paint
- gaskets: EPDM or Buna-N

Feature:

- housing design provides for optimum strength without excessive casting weight

Specifications:

- maximum working pressure at 70°F (21°C):
1000 PSI for sizes: 1½", 2", 2½", 3", 4", 6"
800 PSI for sizes: 8", 10", 12"
- comparable to:
Victaulic's #77
Grinnell's #7001

Approvals:

- Underwriters Listed
- Factory Mutual approved



Lightweight Flexible Couplings - Series L, Style 10



Application:

- designed for applications requiring moderate internal pressure or where weight is a factor such as general purpose, mining, irrigation, and compressed air where a deflection of 5% or less is required

Sizes:

- 1½", 2", 2½", 3", 4", 5", 6", 8" 10", 12"

Materials:

- body: ductile iron with rust inhibiting paint
- gaskets: EPDM or Buna-N

Feature:

- lightweight and flexible

Specifications:

- maximum working pressure at 70°F (21°C):
500 PSI for sizes 1½", 2"
300 PSI for sizes 2½", 3", 4", 5", 6", 8", 10", 12"
- comparable to:
Victaulic's #75
Grinnell's #7000

Approvals:

- Underwriters Listed
- Factory Mutual approved



Rigid Couplings - Series R, Style 5



Application:

- ideal for fire protection, plumbing, low pressure air and drainage

Sizes:

- 2", 2½", 3", 4", 6", 8"

Materials:

- body: galvanized ductile iron
- gaskets: EPDM or Buna-N

Features:

- lightweight, low pressure
- small gripping teeth hold the housing into the groove allowing a straight run of pipe and preventing any flex at the joint

Specification:

- maximum working pressure: **175 PSI** at ambient temperature 70°F (21°C)

Approvals:

- Underwriters Listed
- Factory Mutual approved



Couplings

Quick Release Couplings - Series Q

**Application:**

- designed applications requiring a quick connection and/or disconnection of a pipe joint,

Sizes:

- 1½", 2", 2½", 3", 4", 6"

Materials:

- body: ductile iron with zinc plating
- gaskets: EPDM or Buna-N
- safety clip: steel

Feature:

- locking pin through the handle prevents accidental opening of the coupling

Specifications:

- maximum working pressure: **300 PSI** at ambient temperature **70°F (21°C)**
- comparable to:
Victaulic's #78
Grinnell's #7003

Approvals:

- Underwriters Listed
- Factory Mutual approved



ANSI Split Flange Couplings - Series SF

**Application:**

- provides a direct connection between a grooved adapter and an ANSI Class 125 and 150 raised face flanged component

Sizes:

- 1½", 2", 2½", 3", 4", 6", 8" 10", 12"

Materials:

- body: ductile iron with rust inhibiting paint
- gaskets: EPDM
- Buna-N gasket available upon request

Features:

- can be used with flat face flanges by removing the raised projections on the outside face of the flange

Specifications:

- maximum working pressure: **300 PSI** at ambient temperature **70°F (21°C)**
- comparable to:
Victaulic's #741
Grinnell's #7012

Approvals:

- Underwriters Listed
- Factory Mutual approved



Lite® Couplings - Stainless Steel

**Application:**

- designed for use on rigid, locked-in pipe connections

Sizes:

- 2", 3", 4"

Materials:

- body, nuts, bolts: 316 cast stainless steel
- gasket: fluoro-elastomer

Feature:

- ideal for corrosive environments

Specifications:

- maximum working pressure **300 PSI** at **300°F (149°C)**
- use of suitable anti-galling thread compound is recommended for the fluoro-elastomer gasket
- comparable to Grinnell's #7400SS

Approval:

- certified to ANSI/NSF 61

Grooved End Fittings

Elbows - Series 45



Application

- designed to provide minimum pressure drop and uniform strength

Sizes:

- 2", 2½", 3", 4", 5", 6", 8"

Material:

- ductile iron with rust inhibiting paint

Specifications:

- maximum working pressure: **1000 PSI** at ambient temperature **70°F (21°C)**
- comparable to:
Victaulic's #110
Grinnell's #7051

Approvals:

- Underwriters Listed
- Factory Mutual approved



Elbows - Series 90



Application

- designed to provide minimum pressure drop and uniform strength

Sizes:

- 2", 2½", 3", 4", 6", 8"

Material:

- ductile iron with rust inhibiting paint

Specifications:

- maximum working pressure: **1000 PSI** at ambient temperature **70°F (21°C)**
- comparable to:
Victaulic's #10
Grinnell's #7050

Approvals:

- Underwriters Listed
- Factory Mutual approved



Elbows - Series T



Application

- designed to provide minimum pressure drop and uniform strength

Sizes:

- 2", 2½", 3", 4", 6", 8"

Material:

- ductile iron with rust inhibiting paint

Specifications:

- maximum working pressure: **1000 PSI** at ambient temperature **70°F (21°C)**
- comparable to:
Victaulic's #20
Grinnell's #7060

Approvals:

- Underwriters Listed
- Factory Mutual approved



Adapters



Reducing Adapters - Series RA

**Sizes:**

- 2", 2½", 3", 4", 5", 6"

Material:

- ductile iron with rust inhibiting paint

Specifications:

- comparable to:
Victaulic's #50
Grinnell's #7072

Approvals:

- Underwriters Listed
 - Factory Mutual approved
-

Flange Adapters - Series FA

**Application:**

- used to connect an ANSI Class 125 and 150 flange to a grooved pipe using a grooved clamp

Sizes:

- 2", 3", 4", 6", 8"

Material:

- ductile iron with rust inhibiting paint

Features:

- a rigid one piece connection that can be disconnected by removing the clamp assembly
- to assemble to another flange, position bolt heads on the adapter (grooved) side

Specification:

- maximum working pressure: **300 PSI** at ambient temperature **70°F (21°C)**

Approvals:

- Underwriters Listed
 - Factory Mutual approved
-



Mechanical T's - Series T

**Application:**

- designed to provide minimum pressure drop and uniform strength

Sizes:

- 2", 2½", 3", 4", 6", 8"

Material:

- ductile iron with rust inhibiting paint

Features:

- fast, easy way to install a threaded connection along a length of pipe
- after drilling or cutting a hole in the pipe at the location of the branch connection, simply attach the clamps around the pipe for a leak-free threaded outlet connection

Specifications:

- maximum working pressure: **500 PSI** at ambient temperature **70°F (21°C)**
- comparable to:
Victaulic's #20
Grinnell's #7060

Approvals:

- Underwriters Listed
- Factory Mutual approved

Grooved Bolted Clamps

Application:

- intended for tank truck applications only

Sizes:

- 2", 3", 4"

Materials:

- body, nuts, bolts, aluminum
- gaskets:
 - 2" available in FKM-B, Baylast™
 - 3" available in FKM-B, Baylast™, Buna-N
 - 4" available in FKM-B, Baylast™, Buna-N and white Buna-N

Features

- unlike steel groove clamps that secure pipe ends with high clamp force against the tubing walls, the Dixon® bolted clamp takes the full bolt force and locks in the groove of the tube preventing distortion of the tube diameter
- precision casting and machined dimensions provide an exact fit and great appearance
- use of lock nuts prevents clamps from loosening in high vibration applications
- leak-tight connection
- white buna-N for use in dry bulk food applications

Specifications:

- 2" pressure rating: **400 PSI**
- 3" pressure rating: **170 PSI**
- 4" pressure rating: **120 PSI**
- bolt torque: 20 ft. lbs.
- temperature ratings for FKM-B is **20°F to 300°F (-7°C to 149°C)**
- temperature ratings for Baylast™ is **-20°F to 180°F (-29°C to 82°C)**

Approvals:

- FKM-B rated for 100% biodiesel and Ethanol
- Buna-N rated for petroleum service, Ethanol to E100 and biodiesel to B20
- Baylast™ rated for petroleum service, Ethanol to E100 and biodiesel to B100



clamp with black buna gasket
Note: Supplied clamp gasket must be installed prior to use, ships separately.



End Caps

ANSI Caps with Tapped Outlet - Series EC

Sizes:

- 2", 2½", 3", 4", 6", 8"

Material:

- ductile iron with rust inhibiting paint



Blank End Caps - Series BE



Sizes:

- 2", 2½", 3", 4", 6", 8"

Material:

- ductile iron with rust inhibiting paint

Specifications:

- comparable to:
 - Victaulic's #60
 - Grinnell's #7074

Approvals:

- Underwriters Listed
- Factory Mutual approved



Grooved End Butterfly Valves

**Application:**

- for water and air applications

Sizes:

- 2", 2½", 3", 4", 6", 8"

Materials:

- body: epoxy coated ductile iron
- disc: ductile iron, EPDM encapsulated
- stem: stainless steel
- notch plate: zinc plated steel
- seal: EPDM

Specifications:

- working pressure: **300 PSI**
- maximum temperature: **210°F (99°C)**

Adapter Nipples

Long Pipe Style

**Application:**

- designed to provide minimum pressure drop and uniform strength

Sizes:

- 2", 2½", 3", 4", 5", 6"

Material:

- carbon steel

Grooved End x Weld

**Application:**

- designed to provide minimum pressure drop and uniform strength

Sizes:

- 2", 2½", 3", 4", 5", 6"

Materials:

- aluminum
- carbon steel
- 316 stainless steel

Combination Nipples

PF Shank King™ - NPT Threaded

**Application:**

- shank specifically designed for chemical transport hoses having Crosslinked Polyethylene (XLPE) or Ultra High Molecular Weight Polyethylene (UHMW) tubes where shank retention can be a problem when using conventional band clamps

Sizes:

- 2", 3", 4", 6"

Materials:

- plated steel
- 316 stainless steel

Feature:

- recommended for discharge and suction service

Specification:

- not intended for compressed air



King™ x Grooved End

**Application:**

- recommended for low pressure discharge and suction service for compatible liquids

Sizes:

- 1", 1¼", 1½", 2", 2½", 3", 4", 5", 6", 8", 10", 12"

Materials:

- unplated steel
- 316 stainless steel
- available in brass and aluminum in select sizes

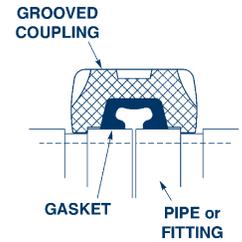
Specifications:

- sizes 1¼" and above are not for compressible products such as air or nitrogen
- King™ Combination Nipples are not recommended for steam



Gaskets

- check gasket color code (*see below*) to be certain it is recommended for the service intended
- use lubricant on gasket
- for services not listed contact Dixon® for recommendations



Buna-N Gaskets

Application:

- petroleum products, vegetable oils, mineral oils, and air contaminated with petroleum oils

Sizes:

- 1½", 2", 2½", 3", 4", 5", 6", 8", 10", 12"

Feature:

- color code: black with orange stripe or white

Specifications:

- temperature range: **-24°F to 176°F (-4°C to 80°C)**
- not for use in hot water services



EPDM Gaskets

Application:

- for use with water, dilute acids, alkalis, salts and many chemical services not involving hydrocarbons, oils or gases

Sizes:

- 1½", 2", 2½", 3", 4", 5", 6", 8", 10", 12"

Features:

- water, dilute acids, alkalis, salts, and many chemical services not involving hydrocarbons, oils, or gases
- excellent oxidation resistance
- color code: black with green stripe

Specifications:

- temperature range: **-22°F to 230°F (-30°C to 110°C)**
- not for use with hydrocarbons



FKM Gaskets

Application:

- resistant to oxidizing acids, petroleum oils, hydraulic fluids, halogenated hydrocarbons and lubricants

Sizes:

- 2", 3", 4", 6", 8", 10", 12"

Features:

- water, dilute acids, alkalis, salts, and many chemical services not involving hydrocarbons, oils, or gases
- excellent oxidation resistance
- color code: black with blue stripe

Specifications:

- temperature range: **-13°F to 350°F (-11°C to 177°C)**
- not for use with hydrocarbons



Holedall™ Fittings



- proper ferrule selection is very important in achieving a correct coupling-to-hose assembly
- for higher work pressure applications use long style stems and ferrules
- Holedall™ stems and ferrules are specifically designed to be used together as a coupling system
- due to differences in dimensions and tolerances, for safety reasons, do not use other manufacturer's stems or ferrules with Holedall™ products

External Swage Stems



- sizes: 1¼", 1½", 2", 2½", 3", 4", 5", 6", 8", 10"
- materials: plated carbon steel, 316 stainless steel

External Swage Ferrules



- sizes: 1¼", 1½", 2", 2½", 3", 4", 5", 6", 8", 10"
- material: plated carbon steel

Internal Expansion Stems



- sizes: 1¼", 1½", 2", 2½", 3", 4"
- material: carbon steel

Internal Expansion Ferrules



- sizes: 1", 1¼", 1½", 2", 2½", 3", 4", 6"
- material: plated carbon steel

Scovill Style Stems



- sizes: ¾", 1", 1¼", 1⅜", 1½", 2", 2½", 3"
- material: brass
- designed for internal expansion only
- recommended for discharge and suction service
- intended for fuel delivery service
- couplings are compact, light and streamlined to eliminate catching curbs and shrubs
- stem is expanded to nominal hose I.D. for rigid, uniform, full-flow area

Scovill Style Ferrules



- sizes: ¾", 1⅜", 1½", 2", 2½", 3"
- materials: brass or stainless steel
- for use with Scovill Style stems

Nuts and Bolts



- nelectroplated carbon steel
- conform to ASTM A183
- nuts are a heavy duty hexagon design
- bolts are specifically designed for use with the couplings in this brochure

Gruvlok Lubricant



- water soluble
- non-toxic
- non-corrosive
- non-flammable
- NSF approved for use with potable water
- should not be used with HDPE pipe



Grooved Piping System Guidelines

Grooved piping systems require a careful coupling selection. To ensure a properly set up system use the following guidelines:

- 1) The coupling must suit the pipe O.D., and pressure rating for the application in which it is to be used.
- 2) Use the correct gasket to suit the media being transported/conveyed.
- 3) Make sure the correct groove dimension is used to ensure the correct fittings of the coupling to the pipe.

The following industry standards must be followed to ensure a correct pipe joint assembly.

- a) All bolts should be torqued evenly to achieve metal to metal contact at the bolt pads.
- b) Tongue and recess housings must be checked for correct alignment.
- c) Apply Dixon gasket lubricant to all rubber surfaces to ensure a no pinch assembly.
- d) Test the system slowly (preferably hydrostatically) and check for leaks.
- e) Depressurize the system before carefully dismantling the couplings.

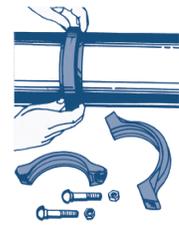
Installation Instructions



- 1**
A socket wrench is the only tool needed to assemble the gasket, housing, nuts and bolts.



- 2**
Before installing the gasket, make sure that the pipe ends are correctly grooved. Remove any burrs, scores, rust or other imperfections from the pipe ends and gasket.



- 3**
Smear ordinary rubber grease on the inside and outside of the gasket. Stretch the gasket over one pipe end and bring the other pipe to be coupled into alignment. Slide the gasket into the center between the grooves on the two pipe ends.



- 4**
Attach the two sections of the housings and insert the bolts and nuts.



- 5**
Tighten the bolts evenly until the housings are firmly together with the metal touching.

Safety

Dixon™ couplings and retention devices are designed to work safely for their intended use. The selection of the proper hose, coupling and retention device, and the proper application of the coupling to the hose are of utmost importance.

Users must consider the size, temperature, application, media, pressure and hose and coupling manufacturer's recommendations when selecting the proper hose assembly components. Dixon™ recommends that all hose assemblies be tested in accordance with the Association for Rubber Products Manufacturer's (ARPM) recommendations and be inspected regularly (before each use) to ensure that they are not damaged or have become loose. Visit ARPMINC.com for more information.

Where safety devices are integral to the coupling, they must be working and utilized. The use of supplementary safety devices such as safety clips or safety cables are recommended.

If any problem is detected, couplings must be removed from service immediately.

Dixon™ is available to consult, train and recommend the proper selection and application of all fittings we sell. We strongly recommend that distributors and end users make use of Dixon Testing and Recommendation Services. Call 877.963.4966 or click dixonvalve.com to learn more.

Dixon, founded in 1916, is a premier manufacturer and supplier of hose couplings, valves, dry-disconnects, swivels, and other fluid transfer and control products. The company's global reach includes a wide range of products for numerous industries including petroleum exploration, refining, transportation, chemical processing, food & beverage, steel, fire protection, construction, mining and manufacturing. Dixon's strategic objective is to create solutions that make products safer, leak-free, longer lasting, and always available.

dixonvalve.com • *Customer Service:* 877.963.4966



The Right Connection®

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