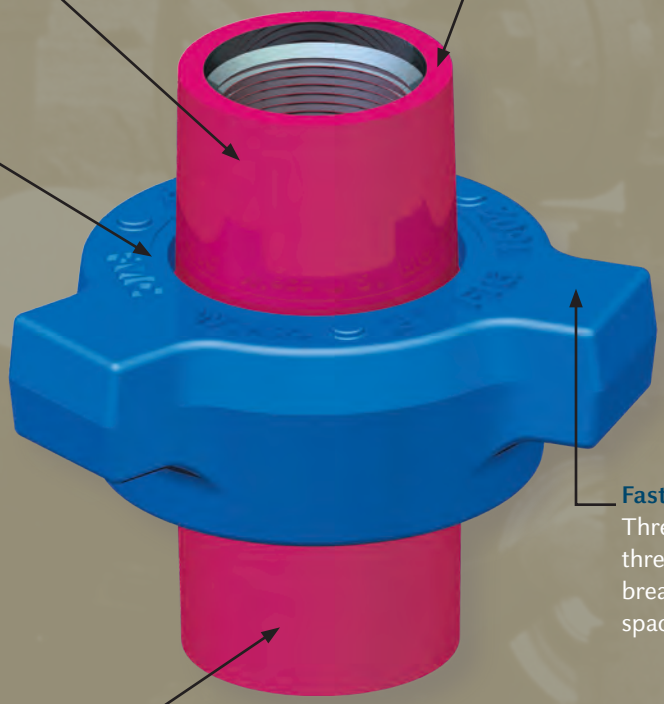
Original Weco® Wing Unions

Simple identification
New, factory-shipped Weco wing unions are color coded for quick identification.

Choice of end connections
Weco wing unions are available with line pipe or tubing threads, butt weld, or non-pressure seal end connections.

Positive identification
For positive identification in the field, all Weco wing union nuts and subs include the Weco name union figure number, size, and pressure rating. Additionally, Weco wing unions for sour gas service are stamped "Sour Gas."

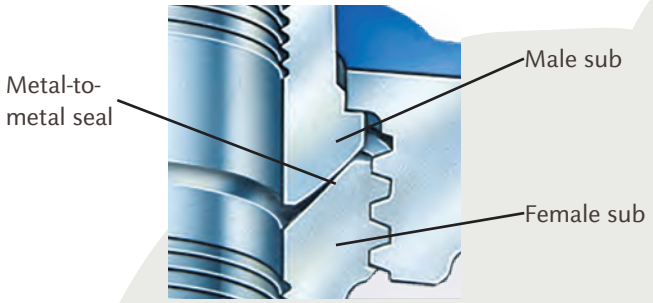


Fast make-up, break-out
Three lug nuts and self-locking ACME threads provide fast make-up and break-out regardless of position or space restrictions.

Interchangeable parts
All Weco wing union parts of the same figure number, size, and pressure rating are interchangeable. This feature makes it easy to mate male and female subs that are frequently made-up and broken-out.

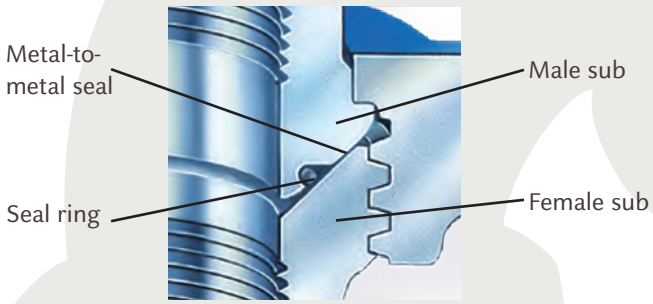
Weco wing unions are the most complete line of standard and sour-gas service pipe connectors in the world. Available in 1 to 12-inch nominal pipe sizes with cold working pressures up to 20,000 psi, Weco wing unions are manufactured using the finest raw materials, tooling procedures, and heat-treating techniques available. Materials meet ASME and AISI standards. Each union is carefully inspected to ensure long, dependable service in the most extreme conditions. Like all pressure containing products, Weco wing unions require special handling (see inside back cover for Warnings and Cautions).

Proven Seal Designs



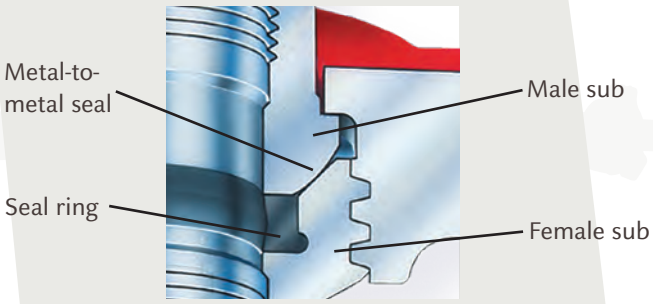
Low-Pressure Services (1,000 to 2,000 psi)

Weco wing unions for low-pressure services feature a primary metal-to-metal seal. The spherical surface of the male sub and conical surface of the female sub provide a large, ball-and-cone sealing surface. This metal-to-metal seal remains leak-proof even when one surface is slightly pitted or misaligned.



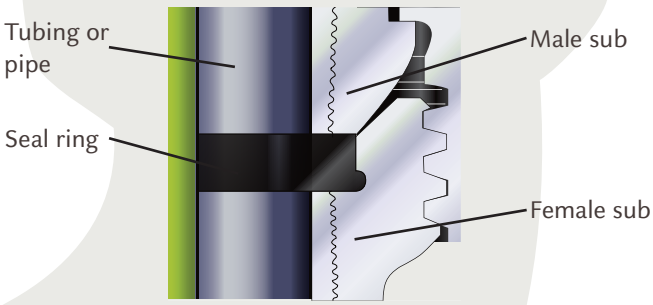
Medium-Pressure Services (2,000 to 4,000 psi)

Many Weco wing union designs supplement the metal-to-metal seal with a resilient O-ring in the male sub. The replaceable O-ring extends union life and protects the metal-to-metal seal against corrosion.



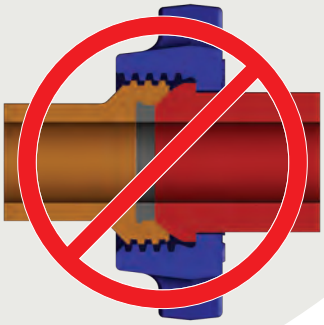
High-Pressure Services (6,000 to 20,000 psi)

Weco wing unions for high-pressure services feature a replaceable, lip-type seal ring in the female sub. This primary seal protects the secondary metal-to-metal seal from abrasion and corrosion while minimizing flow turbulence.



NPS (Non-Pressure Seal) Option Figures 602, 1002, and 1502)

The Weco non-pressure seal option is especially designed for abrasive, high-pressure wing union services where welded connections are undesirable. This design provides strong, permanent end connections without butt welding. The union ends are shop assembled to pipe or tubing. An epoxy thread compound is used to secure the connection.

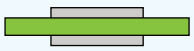


Warning

Interchangeable parts

Weco wing union parts of the same figure number, size and pressure rating are interchangeable, making it easy to match male and female subs that are frequently made-up and broken-out. For positive identification in the field, all Weco wing union nuts and subs include the Weco name, figure number, size and pressure rating. It is vital that the user positively identify union connections and components to avoid mismatch conditions and potential union failure. See inside back cover for details.

Wing Unions

Figure Number	Assembly Color Key Standard Service	Pressure Rating, psi, bar						
		Standard		Sour Gas (see note 8)				
		Cold Working	Test	Cold Working	Test	1 25	1 ¼ 32	1 ½ 40
100		1,000 69	1,500 103	NA	NA			
200		2,000 138	3,000 207	NA	NA	✓	✓	✓
206		2,000 238	3,000 207	NA	NA	✓	✓	✓
207		2,000 138	3,000 207	NA	NA			
211		2,000 138	3,000 207	NA	NA	✓		
400		2,500 172	3,750 259	2,500 172	3,750 259			
400		4,000 276	6,000 414	4,000 276	6,000 414			
602		6,000 414	9,000 621	6,000 414	9,000 621	✓	✓	✓
1002		10,000 690	15,000 1034	7,500 517	11,250 776	✓	✓	✓
1003		10,000 690	15,000 1034	7,500 517	11,250 776			
1502		15,000 1034	22,500 1551	10,000 690	15,000 1034	✓		✓
2002		20,000 1379	30,000 2068	NA	NA			
2202		NA	NA	15,000 1034	22,500 1551			

Notes

- NA - Not Available
- All end connections with line pipe threads unless otherwise noted.

1. Butt-weld available. Consult factory for wall thickness.
2. Non pressure seal configurations available.
3. Power make-up must be used for line pipe threaded connections to achieve rated cold working pressure.
4. Line pipe threads are not offered for sour gas service in this figure number.
5. Line pipe threads are not recommended for sour gas service above 4-inch nominal pipe size.
6. Figure 400 available in 5 ½ - and 7-inch OD with casing threads.
7. Available in butt-weld ends only.

Nominal Pipe Sizes, inches									Notes
2 50	2 ½ 65	3 80	4 100	5 125	6 150	8 200	10 250	12 300	
✓	✓	✓	✓		✓	✓			
✓	✓	✓	✓						1
✓	✓	✓	✓		✓	✓	✓		1
		✓	✓		✓	✓	✓		1
✓									
				✓	✓	✓		✓	1,5,6
✓	✓	✓	✓						1,4
✓	✓	✓	✓						1,2
✓	✓	✓	✓	✓	✓				1,2,3,9
✓		✓	✓	✓					1,3,10
✓	✓	✓	✓						1,2,3
✓		✓							7
✓		✓							7

8. All unions for sour gas service are painted olive green, stamped "SOUR GAS" or "NACE MR-01-75" and have specially modified material properties.
9. 5 and 6-inch sizes rated at 7,500 psi CWP and 11,250 test; 5 and 6-inch unions for sour gas service rated at 5,000 psi CWP and 7,500 psi test.
10. 4 and 5-inch sizes rated at 7,500 psi CWP and 11,250 test; 4 and 5-inch unions for sour gas service rated at 5,000 psi CWP and 7,500 psi test.

Sour gas service
FMC manufactures Weco sour gas unions in accordance with the National Association of Corrosion Engineers (NACE) Standard MR-01-75 and American Petroleum Institute's (API) Standard RP-14-E.

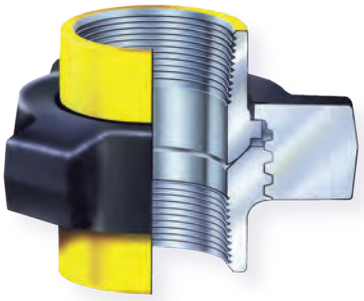


Figure 100
1,000 psi cold working pressure

Recommended service
Manifold and line connections

Features
- Pressure-tight make-up with hammer
- Economical low-pressure union

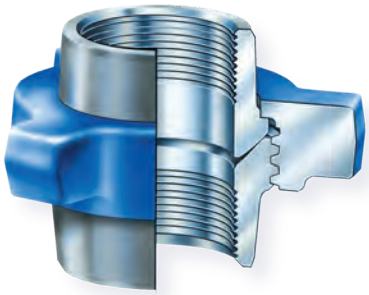


Figure 200
2,000 psi cold working pressure

Recommended service
General service manifolds and lines

Features
- Economical, general-purpose union
- 1 to 4-inch sizes

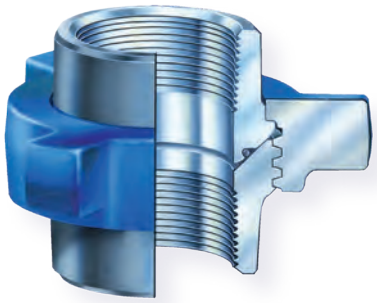


Figure 206
2,000 psi cold working pressure

Recommended service
Manifold line connections, suction service, and corrosion service

Features
- O-ring in male sub improves sealing and protects metal-to-metal seal against corrosion
- Replaceable O-ring extends union service life
- 1 to 10-inch sizes

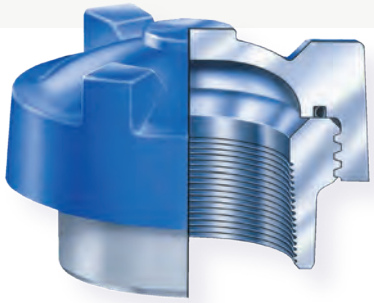


Figure 207
2,000 psi cold working pressure

Recommended service
Seals manifold connections and protects union threads

Features
- Parts interchangeable with Figures 200 and 206
- O-ring on blanking cap ensures a leak-free seal
- Cap can be tapped for pressure gauge
- Available in butt-weld

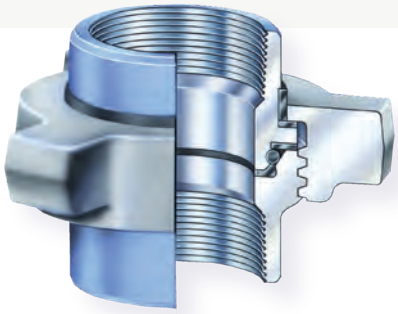


Figure 211
2,000 psi cold working pressure

Recommended service
Production systems with electrolytic corrosion problems

Features
- Laminated insulating rings provide 35 million ohms resistance across the union
- O-ring in male sub provides a positive primary seal
- Seal ring in female sub delvers a positive secondary seal

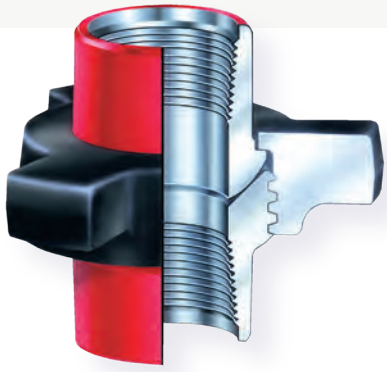


Figure 400
4,000 psi cold working pressure through 4-inch sizes; 2,500 psi cold working pressure, 5 through 12-inch sizes

Recommended service
Manifold line connections, pump suction, and mud services

Features
- 2-1/2 through 12-inch sizes have O-rings for primary seal
- Butt-weld available
- Available for sour gas service

See specifications tables (pg. 67 - 71) for sizes, dimensions, weights, materials, and part numbers.

Note

Note: To enhance safety, 2" Figure 602 and 1002 female subs have been modified so they cannot engage the 2" Figure 1502 nut. Also, a Go No-Go identification ring is available to determine whether the female sub is a 2" Figure 602/1002 or a 2" Figure 1502.

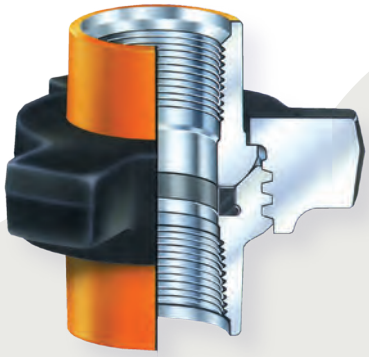


Figure 602

6,000 psi cold working pressure

Recommended service

Manifold line connections and mud service

Features

- Replaceable, lip-type seal provides primary seal, protects secondary metal-to-metal seal, and minimizes flow turbulence
- Butt-weld available
- Available for sour gas service at 6,000 psi cold working pressure

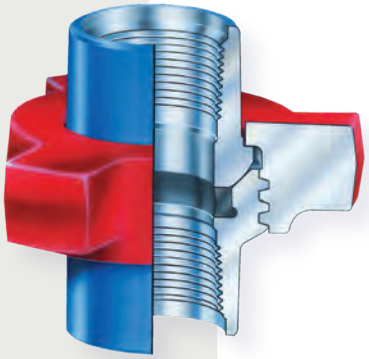


Figure 1002

10,000 psi cold working pressure through 4-inch sizes; 7,500 psi cold working pressure, 5 and 6-inch sizes

Recommended service

Cementing, fracturing, acidizing, testing, and choke-and-kill lines

Features

- O-ring in male sub improves sealing and protects metal-to-metal seal against corrosion
- Replaceable O-ring extends union service life
- 1 to 10-inch sizes

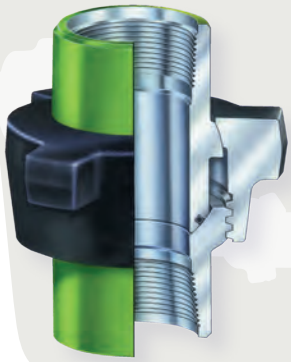


Figure 1003
Misaligning union

10,000 psi cold working pressure, 2 and 3-inch sizes; 7,500 psi cold working pressure, 4 and 5-inch sizes

Recommended service

For high-pressure connections where lines cannot be aligned

Features

- Ball seat provides positive seal with up to 7-1/2° misalignment; 2-inch model up to 4°
- Replaceable O-ring on male sub provides primary seal
- Available with threaded or butt-weld ends

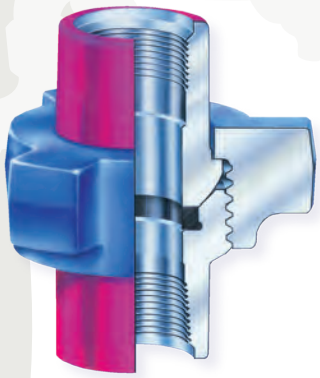


Figure 1502

15,000 psi cold working pressure

Recommended service

Cementing, fracturing, acidizing, testing, and choke-and-kill lines

Features

- Replaceable, lip-type seal
- Available for sour gas service: 10,000 psi cold working pressure; butt-weld or non-pressure seal configurations only
- Butt-weld available

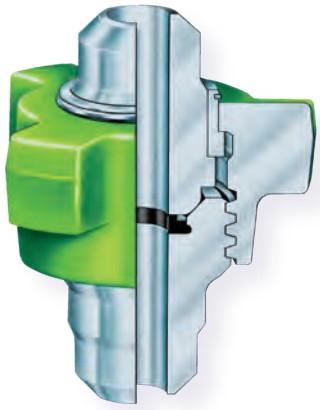


Figure 2002

20,000 psi cold working pressure

Recommended service

Cementing, fracturing, acidizing, testing, and choke-and-kill lines

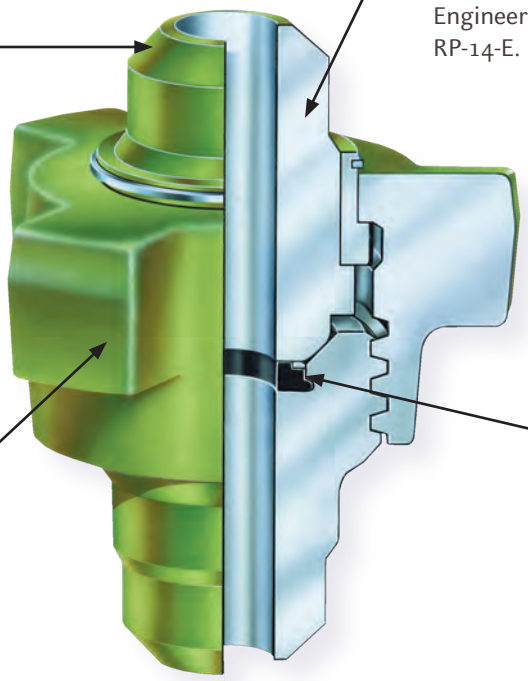
Features

- Replaceable, lip-type seal
- 2 and 3-inch line sizes
- Butt-weld configurations only

See specifications tables (pg. 67 - 71) for sizes, dimensions, weights, materials, and part numbers.

Quick, positive identification
Weco unions for sour gas service are stamped "Sour Gas" and painted with an olive green zinc-chromate primer to ensure quick, positive identification.

Meets industry standards
All Weco wing unions for sour gas service meet both the National Association of Corrosion Engineers Standard MR-01-75 and API Standard RP-14-E.



Controlled hardness
Weco union subs and nuts are specially heat-treated and 100% tested for controlled hardness.

Positive sealing
Primary fluoroelastomer seal and metal-to-metal seal combine to deliver positive sealing throughout the stated pressure range.

Sour Gas Service

FMC Technologies manufactures Weco sour gas wing unions in accordance with the National Association of Corrosion Engineers (NACE) Standard MR-01-75 and American Petroleum Institute (API) Standard RP-14-E. These outstanding, field-proven unions are specially heat treated for controlled hardness. For fast, sure identification, each Weco sour gas union is stamped "Sour Gas" or "NACE MR-01-75" using low stress dot stamping and painted with an olive green zinc-chromate primer that is unique to sour gas equipment. FMC Fluid Control uses fluoroelastomer seals or O-rings in all sour gas unions, but does not warrant the performance of any elastomer for sour gas service.

Caution:

It is possible to interchange sour gas parts with standard service products. Users must adopt safe practices for identification, installation, use, maintenance, and storage of sour gas equipment. (See inside back cover for additional Warnings and Cautions.)

Weco® Wing Unions for Sour Gas Service

Figure 400
4,000 psi cold working pressure, 1 through 4-inch sizes;
2,500 psi cold working pressure, 5 through 12-inch; butt-weld only above 4-inch sizes

Figure 602
6,000 psi cold working pressure, 1 through 4-inch sizes

Figure 1002
7,500 psi cold working pressure, 1 through 4-inch sizes;
5,000 psi cold working pressure, 5 and 6-inch sizes

Figure 1003
7,500 psi cold working pressure, 2 and 3-inch sizes;
5,000 psi cold working pressure, 4 and 5-inch sizes

Figure 1502
10,000 psi cold working pressure, 1 through 4-inch sizes; butt-weld or non-pressure seal configurations only

Figure 2202
15,000 psi cold working pressure, 2, and 3-inch sizes; butt-weld only

See specifications tables (pg. 67 - 71) for sizes, dimensions, weights, materials, and part numbers.

Other Weco® Unions

Tank Unions

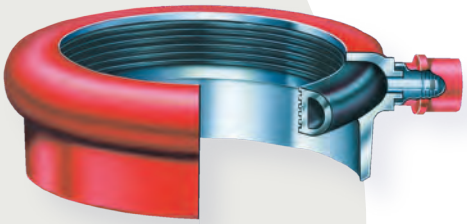
500 psi maximum line pressure, 6, 8, 10 and 12-inch sizes

Recommended service

Mud tanks, mud tank connecting lines, and pump suction flanges

Features

- Molded nitrile seal provides a compression seal
- Makes up with hammer
- Elongated cross-section of seal ring ensures greater sealing surface when in contact with the pipe
- Accepts up to 7° pipe misalignment
- 6, 8 and 10-inch sizes may be socket welded to pipe or butt welded to tubing; 12-inch sizes require butt-weld



Air-O-Unions

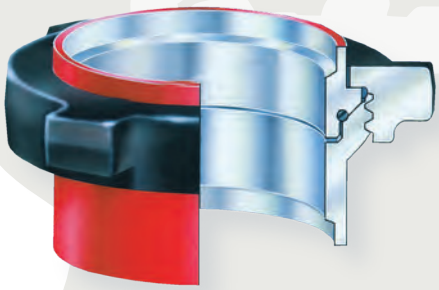
150 psi maximum line pressure, 4, 6, 8, 10, 13-3/8, and 16-inch sizes

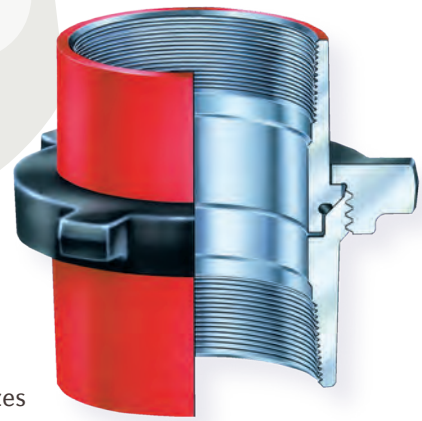
Recommended service

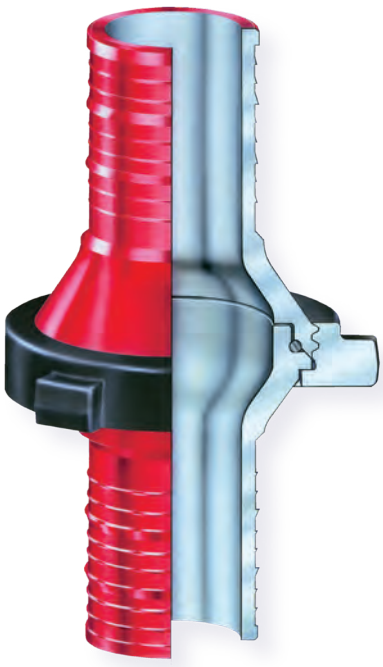
Mud suction and return lines and low-pressure fluid lines

Features

- Shot of rig air inflates tube to seal around pipe
- Fast, easy make-up without close alignment
- Allows pipe expansion or misalignment without breaking the seal
- No nuts, bolts, or wrenches required







Suction-Hose Unions

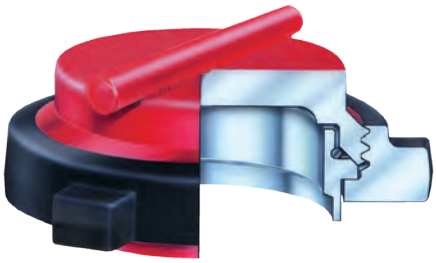
500 psi maximum line pressure, 4, 5, and 6-inch sizes

Recommended service

Mud system suction lines

Features

- Replaceable O-ring seal
- Choice of end fittings
- Secondary metal-to-metal seal
- Socket welded, threaded, or hose nipple

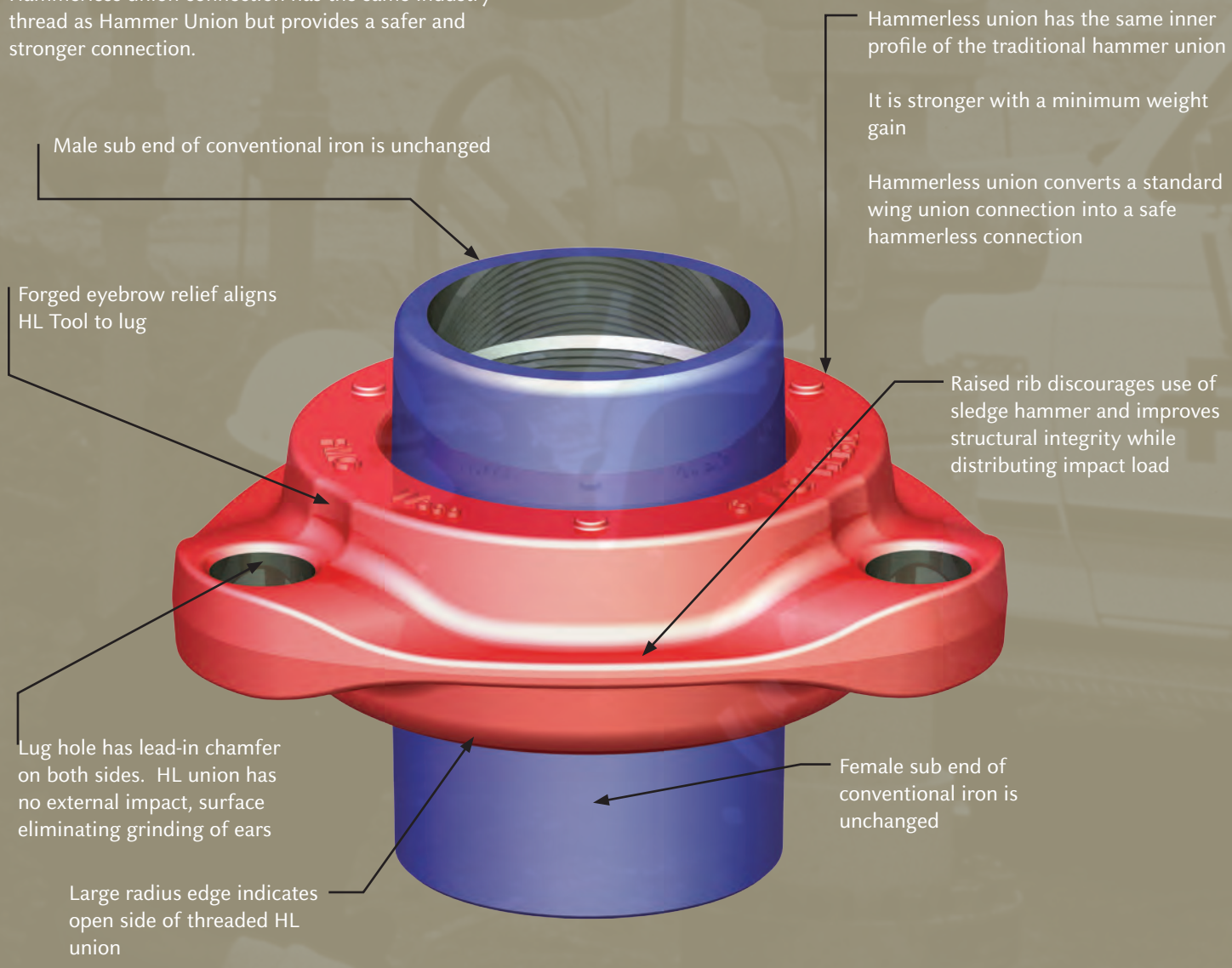


See specifications tables (pg. 67 - 71) for sizes, dimensions, weights, materials, and part numbers.

Hammerless Union (HL)

Recommended service

Hammerless union connection has the same industry thread as Hammer Union but provides a safer and stronger connection.



The Hammerless union is the next generation of union products targeted at eliminating the use of sledge hammer in making up high pressure temporary flowline connections in the field. This product was inspired by the desire for improved safety through the elimination of hammer related injuries.

Anticipated applications for the Hammerless union is well service temporary flow lines, with particular attention toward applications in fracturing, stimulation, cementing, and pipelines operations. However, any area in which space is constrained or swinging a hammer is dangerous, this product is a probable fit.

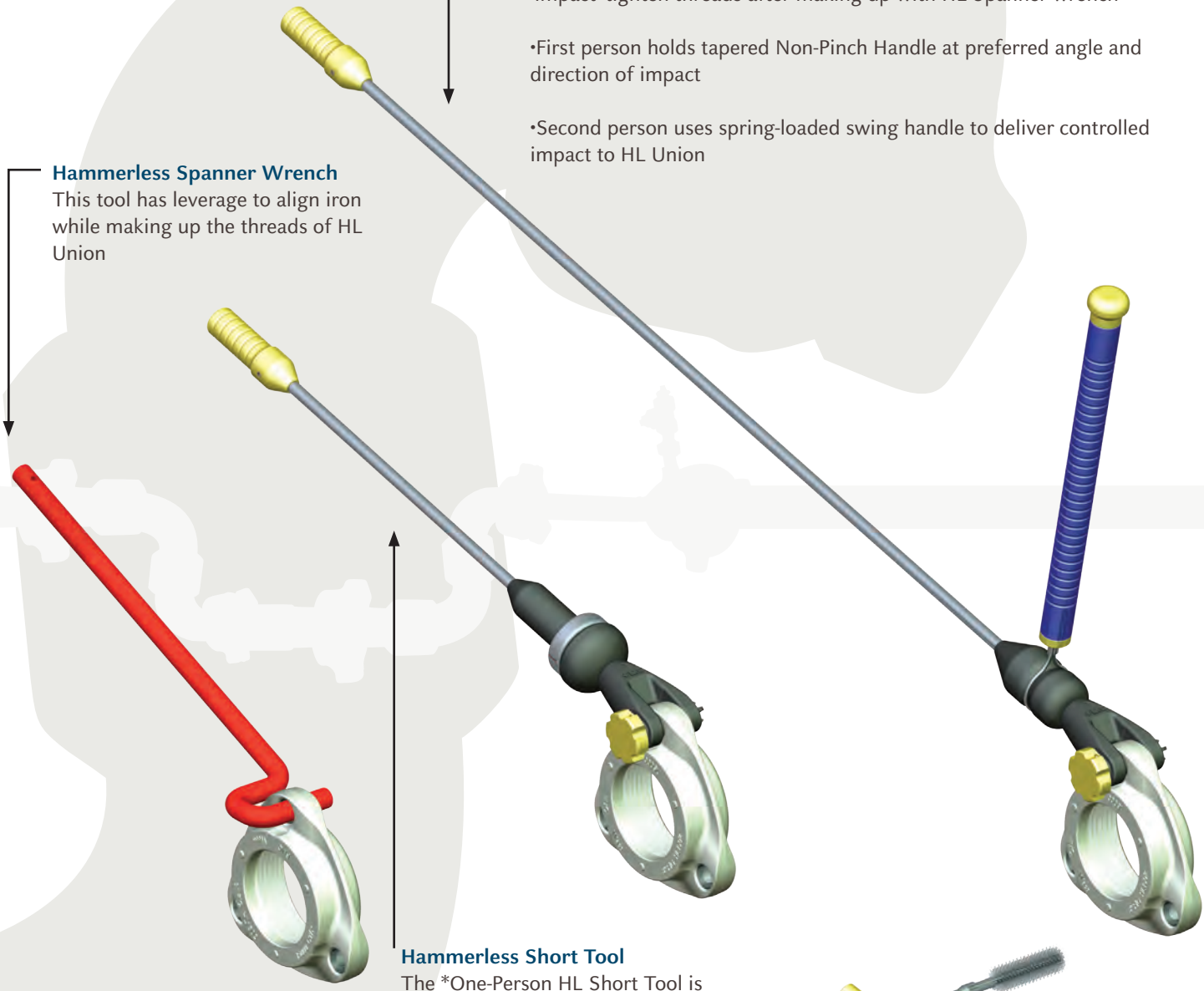
Hammerless Union Tools

Hammerless Long Tool
The Two-Person HL Long Tool is connected to HL union lug to safely 'impact' tighten threads after making up with HL Spanner wrench

•First person holds tapered Non-Pinch Handle at preferred angle and direction of impact

•Second person uses spring-loaded swing handle to deliver controlled impact to HL Union

Hammerless Spanner Wrench
This tool has leverage to align iron while making up the threads of HL Union



Hammerless Short Tool
The *One-Person HL Short Tool is connected to HL union lug to safely impact tighten threads after making up with HL Spanner Wrench. Operator uses this tool at elevated wellhead connections to tighten HL Union using one hand while tool remains safely attached

Round Wire Brush
Use to clean Iron threads and HL union threads

Use to clean HL union lug hole before attaching HL Tools

One Tool fits all HL sizes.

Weco® Wing Union Specifications

Figure 100 - 1,000 psi (69 bar) cold working pressure

Nominal Pipe Size		in.	2	2 ½	3	4	6	8
Union Part No. Qty/Carton			3200609 16	3200610 10	3200611 6	3200612 4	3200795 1	3200796 1
A	Clearance Radius	in. mm	3 3/16	3 15/16 100	4 1/2 114	5 5/16 135	6 15/16 176	8 7/32 209
B	Outside Diameter	in. mm	2 3/4	3 1/4 83	4 102	5 3/16 132	7 5/16 186	9 15/32 241
C	End-to-end Threaded	in. mm	3 5/8	4 9/32 109	4 7/8 124	5 3/4 146	6 23/32 171	7 3/16 183
D	Inside Diameter	in. mm	2 5/32	2 9/16 65	3 3/16 81	4 3/16 106	6 9/32 160	8 1/4 209
Weight		lb kg	6 2.7	10 4.5	14 6.4	22 10	45 20.4	66 30
Material, Sub Material, Nut			DI DI	DI DI	DI DI	DI DI	DI DI	DI DI

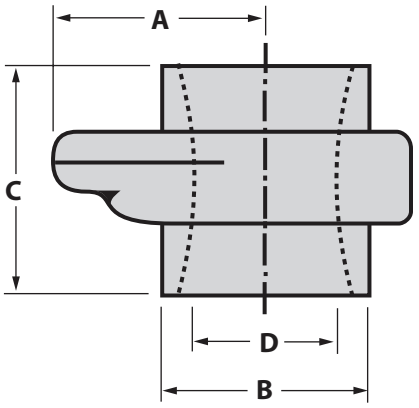


Figure 200 - 2,000 psi (138 bar) cold working pressure

Nominal Pipe Size		in.	1	1 ¼	1 ½	2	2 ½	3	4
Union Part No. Qty/Carton			3200829 40	3200960 28	3200773 28	3200778 16	3200899 10	3200782 6	3200912 4
A	Clearance Radius	in. mm	1 31/32 50	2 1/4 57	2 1/2 64	3 76	3 9/16 90	4 102	4 11/16 119
B	Outside Diameter	in. mm	1 19/32 40	2 51	2 1/4 57	2 29/32 74	3 13/32 84	4 3/32 104	5 1/8 130
C	End-to-end Threaded	in. mm	2 19/32 66	2 25/32 71	2 25/32 71	3 9/16 90	4 1/8 105	4 17/32 115	4 15/16 125
D	Inside Diameter	in. mm	1 1/8 28	1 15/32 37	1 22/32 43	2 5/32 55	2 9/16 65	3 3/16 81	4 3/16 106
Weight		lb kg	2 0.9	2 0.9	3 1.4	5 2.3	9 4.1	13 5.9	18 8.2
Material, Sub Material, Nut			CS DI	CS DI	CS DI	DI DI	CS DI	SF SF	SF SF

Figure 206 - 2,000 psi (138 bar) cold working pressure

Nominal Pipe Size		in.	1	1 ¼	1 ½	2	2 ½	3	4	6	8	10
Union Part No. Qty/Carton			3207627 40	3207633 28	3207636 28	3207281 16	3207278 10	3203048 6	3205449 4	3202521 1	3202552 1	3202566 1
A	Clearance Radius	in. mm	2 51	2 1/4 57	2 1/2 64	3 76	3 9/16 90	4 102	4 11/16 119	6 1/4 159	7 7/16 189	9 229
B	Outside Diameter	in. mm	1 19/32 40	1 31/32 50	2 1/4 57	2 13/16 71	3 11/32 85	4 3/32 104	5 1/8 130	7 1/2 191	9 9/16 243	11 1/2 292
C	End-to-end Threaded	in. mm	2 21/32 67	2 25/32 71	2 25/32 71	3 1/4 83	4 1/8 105	4 17/32 115	5 127	6 21/32 169	7 3/16 183	9 3/32 231
D	Inside Diameter	in. mm	1 1/8 28	1 15/32 37	1 22/32 43	2 5/32 55	2 9/16 65	3 3/16 81	4 3/16 106	6 9/32 160	8 1/4 209	10 5/16 262
Weight		lb kg	2 0.9	2 0.9	3 1.4	5 2.3	8 3.6	13 5.9	18 8.2	42 19.1	65 29.5	90 40.8
Material, Sub Material, Nut			CS DI	CS DI	CS DI	SF DI	CS DI	SF SF	SF SF	SF SF	SF SC	SF SC

Materials: AS - Alloy Steel, CS - Carbon Steel, DI - Ductile Iron Casting, SC - Steel Casing, SF - Steel Forging

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Figure 207 - 2,000 psi (138 bar) cold working pressure

Nominal Pipe Size		in.	3	4	6	8	10
Union Part No. Qty/Carton			3207906 8	3207907 4	3207908 1	3207981 1	3207982 1
A	Clearance Radius	in. mm	5 3/4 146	7 3/16 135	9 15/16 252	12 3/8 314	14 1/2 368
B	Outside Diameter	in. mm	4 3/32 104	5 1/8 130	7 1/2 191	9 9/16 243	11 1/2 292
C	End-to-end Threaded	in. mm	3 3/4 95	4 5/16 109	5 13/16 148	8 5/8 219	9 11/16 246
D	Inside Diameter	in. mm	3 3/16 81	4 3/16 106	6 9/32 160	8 1/4 209	10 5/16 262
Weight		lb kg	10 4.5	16 7.3	37 16.8	70 31.9	96 43.5
Material, Sub Material, Nut			SF SC	SF SF	SF SC	SF SC	SF SC

Figure 211 - 2,000 psi (138 bar) cold working pressure

Nominal Pipe Size		in.	1	2
Union Part No. Qty/Carton			3205369 40	3205343 16
A	Clearance Radius	in. mm	2 1/8 54	3 1/8 79
B	Outside Diameter	in. mm	1 9/16 40	2 7/8 73
C	End-to-end Threaded	in. mm	2 3/4 70	3 15/32 88
D	Inside Diameter	in. mm	1 1/8 28	2 5/32 55
Weight		lb kg	2 0.9	6 2.7
Material, Sub Material, Nut			CS DI	SF DI

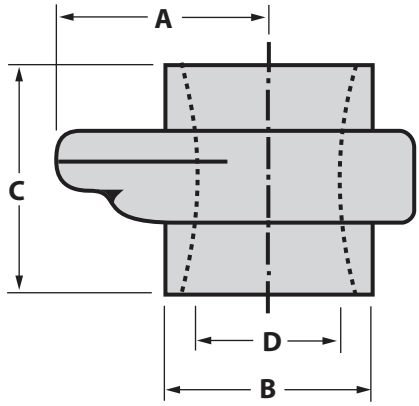

Figure 400 - 4,000 psi (276 bar) to 4"; 2,500 psi (172 bar) cold working pressure, 5" to 12"

Nominal Pipe Size		in.	2	2 ½	3	4	5 ½ OD*	6	7 OD*	8	12
Union Part No. Qty/Carton			3200291 6	3200290 5	3200292 4	3200337 3	3206347 1	3202179 1	3204333 1	3202060 1	3201578 1
A	Clearance Radius	in. mm	3 1/2 89	4 1/32 103	4 3/8 111	5 127	5 16/16 148	6 3/4 171	6 3/4 171	7 13/16 198	10 23/32 272
B	Outside Diameter	in. mm	3 1/16 78	3 1/2 89	4 5/32 106	5 7/32 133	6 1/4 159	7 3/4 197	7 3/4 171	9 19/32 244	14 356
C	End-to-end Threaded	in. mm	5 1/4 133	6 1/16 154	6 7/32 158	8 7/32 209	10 15/32 266	11 1/16 281	11 1/16 281	11 7/16 291	10 15/16 278
D	Inside Diameter	in. mm	2 5/32 55	2 9/16 65	3 3/16 81	4 3/16 106	5 1/8 130	6 9/32 160	6 21/32 169	8 1/4 209	12 11/32 313
Weight		lb kg	11 5	16 7.3	19 8.6	28 12.7	47 21.3	64 29	61 27.7	95 43.1	163 73.9
Material, Sub Material, Nut			SF SF	CS SF	SF SF	SF SF	SF SC	CS SC	CS SC	SF SC	SC SC

* Casing thread standard

Note: 2 inch does have O-ring

Materials: AS - Alloy Steel, CS - Carbon Steel, DI - Ductile Iron Casting, SC - Steel Casing, SF - Steel Forging

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Figure 602 - 6,000 psi (414 bar) cold working pressure

	Nominal Pipe Size	in.	1	1 ¼	1 ½	2	3	4
Union Part No. Qty/Carton			3202377 32	3202434 9	3202428 9	P533564 6	3202416 4	3202399 2
A	Clearance Radius	in.	2 3/8	3 1/4	3 1/4	3 5/8	4 1/2	5 3/16
		mm	60	83	83	92	114	132
B	Outside Diameter	in.	1 3/4	2 9/16	2 9/16	3 3/32	4 5/32	5 7/32
		mm	44	65	65	78	106	133
C	End-to-end Threaded	in.	3 17/32	4 7/8	4 7/8	5 3/4	6 1/4	8 1/4
		mm	90	124	124	146	159	210
D	Inside Diameter	in.	1 1/8	1 13/32	1 11/16	2 1/16	3 3/16	4 3/16
		mm	28	36	43	52	81	106
Weight		lb	3	10	9	15	21	31
		kg	1.4	4.5	4.1	6.8	9.5	14
Material, Sub			CS	CS	CS	SF	SF	SF
Material, Nut			SF	SF	SF	SF	SF	SF

NOTES: AS - Alloy Steel, CS - Carbon Steel, DI - Ductile Iron Casting, CS - Steel Casting, SF - Steel Forging

Figure 1002 - 10,000 psi (690 bar) to 4"; 7,500 psi (517 bar) cold working pressure, 5"-6" *

	Nominal Pipe Size	in.	1	1 ¼	1 ½	2	2 ½	2 ½ (EUE)	3	4
Union Part No. Qty/Carton			3205681 32	3205675 10	3205665 10	P535063 6	3205626 5	3206927 5	3205565 4	3205533 2
A	Clearance Radius	in.	2 7/32	3 1/32	3 1/32	3 13/16	3 7/8	4	4 17/32	4 31/32
		mm	56	77	77	97	99	102	115	126
B	Outside Diameter	in.	1 3/4	2 9/16	2 9/16	3 3/32	3 1/2	3 11/16	4 1/4	5 5/16
		mm	44	65	65	78	89	94	108	135
C	End-to-end Threaded	in.	3 17/32	4 7/8	4 7/8	5 3/4	6 1/8	5 15/16	6 7/32	8 7/32
		mm	90	124	124	146	156	151	158	209
D	Inside Diameter	in.	1 1/8	1 13/32	1 11/16	2 1/16	2 9/16	2 13/16	3 3/16	4 3/16
		mm	28	36	43	52	65	71	81	106
Weight		lb	4	10	9	16	18	16	22	32
		kg	1.8	4.5	4.1	7.3	8.2	7.3	10	14.5
Material, Sub			AS	AS	AS	SF	AS	AS	AS	AS
Material, Nut			SF	SF	SF	SF	SC	SF	SF	SF

* 5" - 6" available with butt weld ends; consult factory for other configurations.

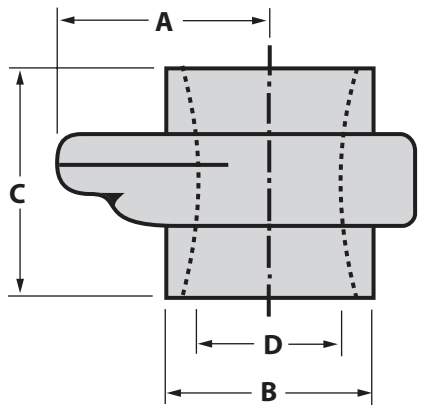

Figure 1003 - 10,000 psi (690 bar) 2"-3"; 7,500 psi (517 bar) cold working pressure 4"-5" *

	Nominal Pipe Size	in.	2	3	4
Union Part No. Qty/Carton			3208519 6	3219928 2	3219932 1
A	Clearance Radius	in.	3 3/4	4 7/8	5 3/4
		mm	95	124	146
B	Outside Diameter	in.	3	4 3/8	5 1/2
		mm	76	111	140
C	End-to-end Threaded	in.	4 21/32	9 1/8	10 15/16
		mm	118	232	278
D	Inside Diameter	in.	2 5/32	3 3/16	4
		mm	55	81	102
Weight		lb	12	45	74
		kg	5.4	20.4	33.6
Material, Sub			AS	AS	AS
Material, Nut			SF	SC	SF

* 5" available with butt weld ends; consult factory for other configurations.

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Figure 1502 - 15,000 psi (1034 bar) cold working pressure

Nominal Pipe Size		in.	1	1 ½	2	2 ½	3	4*
Union Part No. Qty/Carton			3254059 19	3254057 10	3201570 5	3203088 4	3207510 3	3252926 1
A	Clearance Radius	in. mm	2 7/8 73	3 21/32 93	3 29/32 99	4 5/32 106	4 ½ 114	6 300
B	Outside Diameter	in. mm	2 3/16 55	2 31/32 75	3 3/16 81	3 ¾ 95	4 13/32 112	5 ¾ 146
C	End-to-end Threaded	in. mm	4 11/32 110	5 13/32 137	7 178	7 ¼ 184	7 5/8 194	8 ½* 216
D	Inside Diameter	in. mm	1 ⅛ 28	1 11/16 43	2 1/16 52	2 9/16 65	3 3/16 81	— —
Weight		lb kg	9 4.1	17 7.7	19 8.6	22 10	30 13.6	64 29
Material, Sub Material, Nut			AS SF	AS SF	SF SF	AS SC	AS SF	AS SF

* Non-Pressure Seal

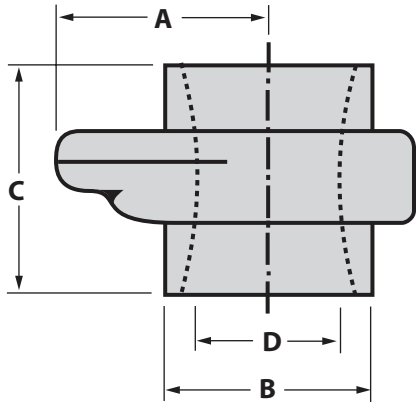


Figure 2002 - 20,000 psi (1380 bar) cold working pressure

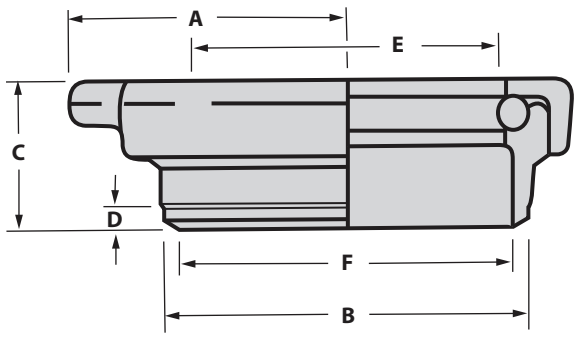
Nominal Pipe Size		in.	2	3
Union Part No. Qty/Carton			3222761 5	3245911 1
A	Clearance Radius	in. mm	3 ¾ 95	6 3/32 155
B	Outside Diameter	in. mm	2 19/32 66	5 ½ 140
C	End-to-end Threaded	in. mm	7 13/32 188	10 ½ 267
D	Inside Diameter	in. mm	1 5/16 33	3 76
Weight		lb kg	21 9.5	87 39.5
Material			AS	AS

Figure 2202 - 15,000 psi (1034 bar) cold working pressure

Nominal Pipe Size		in.	2	3
Union Part No. Qty/Carton			3235746 5	3257994 1
A	Clearance Radius	in. mm	3 ¾ 95	6 3/32 155
B	Outside Diameter	in. mm	2 7/8 73	5 ½ 140
C	End-to-end Threaded	in. mm	8 13/16 224	10 ½ 267
D	Inside Diameter	in. mm	1 5/16 33	3 76
Weight		lb kg	22 10	53 24
Material			AS	AS

Tank unions - 500 psi (34 bar) maximum line pressure

Nominal Pipe Size		in.	6	8	10	12
Union Part No. Qty/Carton			3255061 2	3254864 1	3255064 1	3255067 1
A	Clearance Radius	in. mm	6 ¼ 159	7 ½ 191	8 ½ 213	9 ¾ 244
B	Outside Diameter	in. mm	7 7/8 199	9 7/8 247	11 7/8 297	14 356
C	End-to-face	in. mm	4 3/8 111	4 3/8 111	4 ½ 114	4 ½ 114
D	Inside Diameter	in. mm	3/8 19	3/8 19	3/8 19	3/8 19
E	Seal inside diameter	in. mm	6 5/8 168	8 5/8 219	10 ¾ 273	12 ¾ 324
F	BW inside diameter	in mm	7 3/8 187	9 5/16 237	11 3/8 289	13 ½ 343
Weight		lb kg	22 10	31 14.1	37 16.8	58 21.8
Material			SC	SC	SC	SC



NOTES: AS - Alloy Steel, CS - Carbon Steel, DI - Ductile Iron Casting, CS - Steel Casting, SF - Steel Forging

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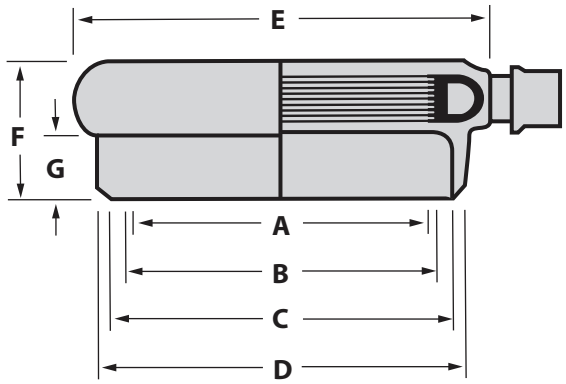
Air-o-unions - 150 psi (10 bar) maximum line pressure

Nominal Pipe Size		in.	4	6	8	10	12	13	16
Union Part No. Qty/Carton			3207504 8	3207130 2	3207894 2	3207149 2	3207897 1	3207900 1	3207903 1
A	Tube inside diameter	in.	4 19/32	6 3/4	8 3/4	10 15/16	12 15/16	13 5/8	16 1/4
		mm	117	171	222	278	329	346	413
B	Body inside diameter	in.	4 19/32	6 15/16	8 15/16	11 1/8	13 1/8	13 3/4	16 3/8
		mm	117	176	227	283	333	349	416
C	Butt-weld inside dia.	in.	5 1/16	8	10 1/8	12 1/8	13 3/8	15 3/8	17 3/8
		mm	129	203	257	308	340	391	441
D	Butt-weld outside dia.	in.	5 9/16	8 5/8	10 3/4	12 3/4	14	16	18
		mm	141	219	273	324	356	406	457
E		in.	6 5/8	10 1/4	12 1/4	14 1/2	16 1/2	17 3/16	19 13/16
		mm	168	260	311	368	419	437	503
F	End-to-face	in.	3 1/8	4	4	4 1/4	4 1/4	4 3/8	4 1/4
		mm	79	102	102	108	108	111	108
G		in.	1 1/2	2	2	2	2	2	2
		mm	38	51	51	51	51	51	51
Misalignment, degrees			6	14	14	14	14	14	14
Weight		lb	7	18	22	26	30	42	45
		kg	3.2	8.2	10	11.8	13.6	19.1	20.4



Suction-hose unions - 500 psi (34 bar) maximum line pressure

Size/Type	Part No.	Qty./ Carton	Length		Nut radius		Materials		Weight	
			in.	mm	in.	mm	Nut	Sub	lb	kg
6-inch hose	P512200	1	14 1/4	356	5	127	SF	CS	40	18.1
5-inch hose	3251341	1	14 1/4	356	5	127	SF	CS	22	10
5-inch socket weld	3202072	4	4 4/32	104	5	127	SF	SF	18	8.2
5-inch line pipe thread	3248972	2	7 3/4	194	5	127	SF	DI	25	11.3
4-inch line pipe thread	3215198	2	5 15/16	161	5	127	SF	DI	23	10.4
4-inch hose	3207912	2	14 15/32	368	5	127	SF	DI	22	10
Blanking cap assy.	3220990	2	3 11/16	92	5	127	SF	CS	22	10

NOTES: AS - Alloy Steel, CS - Carbon Steel, DI - Ductile Iron Casting, CS - Steel Casting, SF - Steel Forging