Flowline Products and Services
World Proven Chiksan® and Weco® Equipment
http://www.fmctechnologies.com
Hammerless Union (HL)

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

- Male sub end of conventional iron is unchanged
- Forged eyebrow relief aligns HL Tool to lug
- Lug hole has lead-in chamfer on both sides. HL union has no external impact, surface eliminating grinding of ears
- Large radius edge indicates open side of threaded HL union

Hammerless union has the same inner profile of the traditional hammer union.

- It is stronger with a minimum weight gain
- Hammerless union converts a standard wing union connection into a safe hammerless connection
- Raised rib discourages use of sledge hammer and improves structural integrity while distributing impact load
- Female sub end of conventional iron is unchanged

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.
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.

Warning

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.
<table>
<thead>
<tr>
<th>Figure Number</th>
<th>Assembly Color Key Standard Service</th>
<th>Pressure Rating, psi, bar</th>
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<td></td>
<td>Standard Cold Working</td>
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<td>▶</td>
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<td>2002</td>
<td>▶</td>
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</tr>
<tr>
<td>2202</td>
<td>▶</td>
<td>NA</td>
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</table>

**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 1/4- and 7-inch OD with casing threads.
7. Available in butt-weld ends only.
<table>
<thead>
<tr>
<th>Nominal Pipe Sizes, inches</th>
<th>Notes</th>
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<tr>
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<tr>
<td>2 1⁄4 65</td>
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<td>3 80</td>
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<td>✔</td>
<td>7</td>
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<td>✔</td>
<td>7</td>
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</table>

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

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**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

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**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

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**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

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**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 delivers a positive secondary seal

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**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

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See specifications tables (pg. 65 - 69) 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. 65 - 69) 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. 65 - 69) for sizes, dimensions, weights, materials, and part numbers.
## Weco® Wing Union Specifications

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

<table>
<thead>
<tr>
<th>Nominal Pipe Size</th>
<th>in.</th>
<th>2</th>
<th>2½</th>
<th>3</th>
<th>4</th>
<th>6</th>
<th>8</th>
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<tr>
<td>Union Part No. Qty/Carton</td>
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<td>3200612</td>
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<td>3 ⅜</td>
<td>4 ⅞</td>
<td>5 ⅛</td>
<td>6 ¾</td>
<td>8 ¾</td>
</tr>
<tr>
<td>B Outside Diameter</td>
<td>in.</td>
<td>2 ⅜</td>
<td>3 ⅛</td>
<td>4 ⅞</td>
<td>5 ⅞</td>
<td>7 ¼</td>
<td>9 ¼</td>
</tr>
<tr>
<td>C End-to-end threaded</td>
<td>in.</td>
<td>3 ⅛</td>
<td>4 ⅞</td>
<td>5 ⅞</td>
<td>6 ¾</td>
<td>7 ¼</td>
<td>9 ¼</td>
</tr>
<tr>
<td>D Inside Diameter</td>
<td>in.</td>
<td>2 ⅜</td>
<td>2 ⅞</td>
<td>3 ⅝</td>
<td>4 ⅝</td>
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<td>6 ⅝</td>
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<td>DI</td>
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<td>DI</td>
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### Figure 200 - 2,000 psi (138 bar) cold working pressure

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<th>Nominal Pipe Size</th>
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<th>1¼</th>
<th>1½</th>
<th>2</th>
<th>2½</th>
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<td>2 ⅞</td>
<td>3 ⅞</td>
<td>4 ⅞</td>
<td>4 ⅞</td>
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<tr>
<td>B Outside Diameter</td>
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<td>1 ⅜</td>
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<td>2 ⅞</td>
<td>3 ⅞</td>
<td>4 ⅞</td>
<td>5 ⅞</td>
<td>6 ⅞</td>
<td>8 ⅞</td>
</tr>
<tr>
<td>D Inside Diameter</td>
<td>in.</td>
<td>1 ⅜</td>
<td>1 ⅞</td>
<td>2 ⅞</td>
<td>3 ⅞</td>
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<td>DI</td>
<td>CS</td>
<td>DI</td>
<td>CS</td>
<td>DI</td>
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</table>

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

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<th>Nominal Pipe Size</th>
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<td>2</td>
<td>2</td>
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<td>B Outside Diameter</td>
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<td>2 ⅞</td>
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<tr>
<td>C End-to-end threaded</td>
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<td>2 ⅛</td>
<td>2 ⅞</td>
<td>3 ⅞</td>
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<td>6 ⅞</td>
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<tr>
<td>D Inside Diameter</td>
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**Materials:** AS - Alloy Steel, CS - Carbon Steel, DI - Ductile Iron Casting, SC - Steel Casing, SF - Steel Forging.
Weco® Wing Union Specifications

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

<table>
<thead>
<tr>
<th>Nominal Pipe Size</th>
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<td>14 ¼</td>
</tr>
<tr>
<td>B Outside Diameter</td>
<td>mm</td>
<td>4 ½</td>
<td>5 ½</td>
<td>7 ½</td>
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<tr>
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<td>mm</td>
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<td>8 ½</td>
<td>9 ¾</td>
</tr>
<tr>
<td>D Inside Diameter</td>
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<td>4 ½</td>
<td>6 ½</td>
<td>8 ½</td>
<td>10 ½</td>
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Figure 211 - 2,000 psi (138 bar) cold working pressure

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<td>B Outside Diameter</td>
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<tr>
<td>C End-to-end Threaded</td>
<td>mm</td>
<td>2 ¼</td>
<td>3 ⁵⁄₁₆</td>
</tr>
<tr>
<td>D Inside Diameter</td>
<td>mm</td>
<td>1 ³⁄₁₆</td>
<td>2 ³⁄₁₆</td>
</tr>
<tr>
<td>Weight</td>
<td>lb</td>
<td>2</td>
<td>6</td>
</tr>
<tr>
<td>Material, Sub</td>
<td>CS</td>
<td>SF</td>
<td></td>
</tr>
<tr>
<td>Material, Nut</td>
<td>DI</td>
<td>DI</td>
<td></td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Nominal Pipe Size</th>
<th>in.</th>
<th>2</th>
<th>2 ½</th>
<th>3</th>
<th>4</th>
<th>5 ½ OD*</th>
<th>6</th>
<th>7 OD*</th>
<th>8</th>
<th>12</th>
</tr>
</thead>
<tbody>
<tr>
<td>Union Part No. Qty/Carton</td>
<td>3202291</td>
<td>3202290</td>
<td>320292</td>
<td>3200337</td>
<td>3206347</td>
<td>320179</td>
<td>3204333</td>
<td>3202060</td>
<td>3201578</td>
<td></td>
</tr>
<tr>
<td>A Clearance Radius</td>
<td>in.</td>
<td>3 ½</td>
<td>4 ½</td>
<td>5 ¼</td>
<td>5 ¼</td>
<td>5 ¼</td>
<td>6 ¾</td>
<td>6 ½</td>
<td>6 ½</td>
<td>6 ¼</td>
</tr>
<tr>
<td>B Outside Diameter</td>
<td>in.</td>
<td>3 ½</td>
<td>4 ½</td>
<td>5 ¼</td>
<td>5 ¼</td>
<td>5 ¼</td>
<td>6 ½</td>
<td>6 ¼</td>
<td>6 ¼</td>
<td>6 ¼</td>
</tr>
<tr>
<td>C End-to-end Threaded</td>
<td>in.</td>
<td>3 ½</td>
<td>4 ½</td>
<td>5 ¼</td>
<td>5 ¼</td>
<td>5 ¼</td>
<td>6 ½</td>
<td>6 ¼</td>
<td>6 ¼</td>
<td>6 ¼</td>
</tr>
<tr>
<td>D Inside Diameter</td>
<td>in.</td>
<td>2 ¼</td>
<td>3 ¼</td>
<td>4 ¼</td>
<td>4 ¼</td>
<td>4 ¼</td>
<td>5 ¼</td>
<td>5 ¼</td>
<td>5 ¼</td>
<td>5 ¼</td>
</tr>
<tr>
<td>Weight</td>
<td>lb</td>
<td>11</td>
<td>16</td>
<td>19</td>
<td>28</td>
<td>47</td>
<td>64</td>
<td>61</td>
<td>95</td>
<td>163</td>
</tr>
<tr>
<td>Material, Sub</td>
<td>SF</td>
<td>CS</td>
<td>SF</td>
<td>SF</td>
<td>SF</td>
<td>SF</td>
<td>CS</td>
<td>CS</td>
<td>SF</td>
<td>SC</td>
</tr>
<tr>
<td>Material, Nut</td>
<td>SF</td>
<td>SF</td>
<td>SF</td>
<td>SF</td>
<td>SF</td>
<td>SF</td>
<td>SC</td>
<td>SC</td>
<td>SF</td>
<td>SC</td>
</tr>
</tbody>
</table>

* 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
**Weco® Wing Union Specifications**

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

<table>
<thead>
<tr>
<th>Nominal Pipe Size</th>
<th>in.</th>
<th>1</th>
<th>1 ¼</th>
<th>1 ½</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Union Part No. Qty/Carton</td>
<td></td>
<td>3202377 32</td>
<td>3202434 9</td>
<td>3202428 9</td>
<td>P335646</td>
<td>3202416 4</td>
<td>3202399 2</td>
</tr>
</tbody>
</table>

**NOTES:**
- Material, Nut
- Material, Sub
- Weight

**Figure 1002 - 10,000 psi (690 bar) 2”-3”; 7,500 psi (517 bar) cold working pressure, 5”-6” *

<table>
<thead>
<tr>
<th>Nominal Pipe Size</th>
<th>in.</th>
<th>1</th>
<th>1 ¼</th>
<th>1 ½</th>
<th>2</th>
<th>2 ½</th>
<th>2 ½ (EUE)</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Union Part No. Qty/Carton</td>
<td></td>
<td>3205681 32</td>
<td>3205675 10</td>
<td>3205665 10</td>
<td>P35063 6</td>
<td>3205626 5</td>
<td>3206927 5</td>
<td>3205565 4</td>
<td>3205533 2</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Nominal Pipe Size</th>
<th>in.</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Union Part No. Qty/Carton</td>
<td></td>
<td>3208519 6</td>
<td>3219928 2</td>
<td>3219932 1</td>
</tr>
</tbody>
</table>

**NOTES:**
- Material, Nut
- Weight

* 5”-6” available with butt weld ends; consult factory for other configurations.
### Weco® Wing Union Specifications

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

<table>
<thead>
<tr>
<th>Nominal Pipe Size</th>
<th>in.</th>
<th>1</th>
<th>1 ½</th>
<th>2</th>
<th>2 ½</th>
<th>3</th>
<th>4*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Union Part No.</td>
<td>Qty/Carton</td>
<td>Union Part No. Qty/Carton</td>
<td>3254059 19</td>
<td>3254057 10</td>
<td>3201570 5</td>
<td>3203088 4</td>
<td>3207510 3</td>
</tr>
<tr>
<td>A Clearance Radius</td>
<td>in.</td>
<td>2 ½</td>
<td>3 ½</td>
<td>¾</td>
<td>4 ½</td>
<td>4 ½</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>mm</td>
<td>73</td>
<td>93</td>
<td>99</td>
<td>106</td>
<td>114</td>
<td>146</td>
</tr>
<tr>
<td>B Outside Diameter</td>
<td>in.</td>
<td>2 ½</td>
<td>3 ½</td>
<td>¾</td>
<td>4 ½</td>
<td>4 ½</td>
<td>5 ½</td>
</tr>
<tr>
<td></td>
<td>mm</td>
<td>55</td>
<td>75</td>
<td>81</td>
<td>95</td>
<td>112</td>
<td>146</td>
</tr>
<tr>
<td>C End-to-end Threaded</td>
<td>in.</td>
<td>4 ½</td>
<td>5 ½</td>
<td>7</td>
<td>7 ½</td>
<td>7 ½</td>
<td>8 ½</td>
</tr>
<tr>
<td></td>
<td>mm</td>
<td>110</td>
<td>137</td>
<td>178</td>
<td>184</td>
<td>194</td>
<td>216</td>
</tr>
<tr>
<td>D Inside Diameter</td>
<td>in.</td>
<td>1 ½</td>
<td>1 ½</td>
<td>2 ½</td>
<td>2 ½</td>
<td>2 ½</td>
<td>—</td>
</tr>
<tr>
<td></td>
<td>mm</td>
<td>28</td>
<td>43</td>
<td>52</td>
<td>65</td>
<td>81</td>
<td>—</td>
</tr>
<tr>
<td>Weight</td>
<td>lb</td>
<td>9</td>
<td>17</td>
<td>19</td>
<td>22</td>
<td>30</td>
<td>64</td>
</tr>
<tr>
<td>Material, Nut</td>
<td></td>
<td>AS</td>
<td>AS</td>
<td>SF</td>
<td>AS</td>
<td>AS</td>
<td>AS</td>
</tr>
<tr>
<td>Material, Sub</td>
<td></td>
<td>SF</td>
<td>SF</td>
<td>SF</td>
<td>SF</td>
<td>SF</td>
<td>SF</td>
</tr>
</tbody>
</table>

* Non-Pressure Seal

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

<table>
<thead>
<tr>
<th>Nominal Pipe Size</th>
<th>in.</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Union Part No. Qty/Carton</td>
<td>3222761 5</td>
<td>3245911 1</td>
<td></td>
</tr>
<tr>
<td>A Clearance Radius</td>
<td>in.</td>
<td>3 ½</td>
<td>6 ½</td>
</tr>
<tr>
<td></td>
<td>mm</td>
<td>95</td>
<td>155</td>
</tr>
<tr>
<td>B Outside Diameter</td>
<td>in.</td>
<td>2 ¼</td>
<td>5 ½</td>
</tr>
<tr>
<td></td>
<td>mm</td>
<td>66</td>
<td>140</td>
</tr>
<tr>
<td>C End-to-end Threaded</td>
<td>in.</td>
<td>7 ½</td>
<td>10 ½</td>
</tr>
<tr>
<td></td>
<td>mm</td>
<td>188</td>
<td>267</td>
</tr>
<tr>
<td>D Inside Diameter</td>
<td>in.</td>
<td>1 ½</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>mm</td>
<td>33</td>
<td>76</td>
</tr>
<tr>
<td>Weight</td>
<td>lb</td>
<td>21</td>
<td>87</td>
</tr>
<tr>
<td>Material</td>
<td></td>
<td>AS</td>
<td>AS</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Nominal Pipe Size</th>
<th>in.</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Union Part No. Qty/Carton</td>
<td>3235746 5</td>
<td>3257994 1</td>
<td></td>
</tr>
<tr>
<td>A Clearance Radius</td>
<td>in.</td>
<td>3 ½</td>
<td>6 ½</td>
</tr>
<tr>
<td></td>
<td>mm</td>
<td>95</td>
<td>155</td>
</tr>
<tr>
<td>B Outside Diameter</td>
<td>in.</td>
<td>2 ¼</td>
<td>5 ½</td>
</tr>
<tr>
<td></td>
<td>mm</td>
<td>73</td>
<td>140</td>
</tr>
<tr>
<td>C End-to-end Threaded</td>
<td>in.</td>
<td>8 ½</td>
<td>10 ½</td>
</tr>
<tr>
<td></td>
<td>mm</td>
<td>224</td>
<td>267</td>
</tr>
<tr>
<td>D Inside Diameter</td>
<td>in.</td>
<td>1 ¼</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>mm</td>
<td>33</td>
<td>76</td>
</tr>
<tr>
<td>Weight</td>
<td>lb</td>
<td>22</td>
<td>53</td>
</tr>
<tr>
<td>Material</td>
<td></td>
<td>AS</td>
<td>AS</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Nominal Pipe Size</th>
<th>in.</th>
<th>6</th>
<th>8</th>
<th>10</th>
<th>12</th>
</tr>
</thead>
<tbody>
<tr>
<td>Union Part No. Qty/Carton</td>
<td>3250561 2</td>
<td>3254864 1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A Clearance Radius</td>
<td>in.</td>
<td>6 ¼</td>
<td>7 ½</td>
<td>8 ¼</td>
<td>9 ½</td>
</tr>
<tr>
<td></td>
<td>mm</td>
<td>159</td>
<td>191</td>
<td>213</td>
<td>244</td>
</tr>
<tr>
<td>B Outside Diameter</td>
<td>in.</td>
<td>7 ¼</td>
<td>9 ½</td>
<td>11 ½</td>
<td>14</td>
</tr>
<tr>
<td></td>
<td>mm</td>
<td>199</td>
<td>247</td>
<td>297</td>
<td>356</td>
</tr>
<tr>
<td>C End-to-Face</td>
<td>in.</td>
<td>4 ¼</td>
<td>4 ½</td>
<td>4 ½</td>
<td>4 ½</td>
</tr>
<tr>
<td></td>
<td>mm</td>
<td>111</td>
<td>114</td>
<td>114</td>
<td>114</td>
</tr>
<tr>
<td>D Inside Diameter</td>
<td>in.</td>
<td>¾</td>
<td>¾</td>
<td>¾</td>
<td>¾</td>
</tr>
<tr>
<td></td>
<td>mm</td>
<td>19</td>
<td>19</td>
<td>19</td>
<td>19</td>
</tr>
<tr>
<td>E Seal Inside Diameter</td>
<td>in.</td>
<td>6 ¼</td>
<td>8 ½</td>
<td>10 ¼</td>
<td>12 ½</td>
</tr>
<tr>
<td></td>
<td>mm</td>
<td>168</td>
<td>219</td>
<td>273</td>
<td>324</td>
</tr>
<tr>
<td>F BW Inside Diameter</td>
<td>in.</td>
<td>7 ¼</td>
<td>9 ½</td>
<td>11 ½</td>
<td>13 ½</td>
</tr>
<tr>
<td></td>
<td>mm</td>
<td>187</td>
<td>237</td>
<td>289</td>
<td>343</td>
</tr>
<tr>
<td>Weight</td>
<td>lb</td>
<td>22</td>
<td>31</td>
<td>37</td>
<td>58</td>
</tr>
<tr>
<td>Material</td>
<td></td>
<td>SC</td>
<td>SC</td>
<td>SC</td>
<td>SC</td>
</tr>
</tbody>
</table>

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

---

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