

# Original Chiksan<sup>®</sup> Swivel Joints

## Steamlined bore minimizes flow restrictions

Smooth, round bore design minimizes turbulence and pressure drop, Longsweep and TripleStep swivel joints have extra-long radius elbows that optimize flow characteristics and extend life in the ball race areas when handling abrasives at extremely high pressures.

## Bearings key to rotation, strength

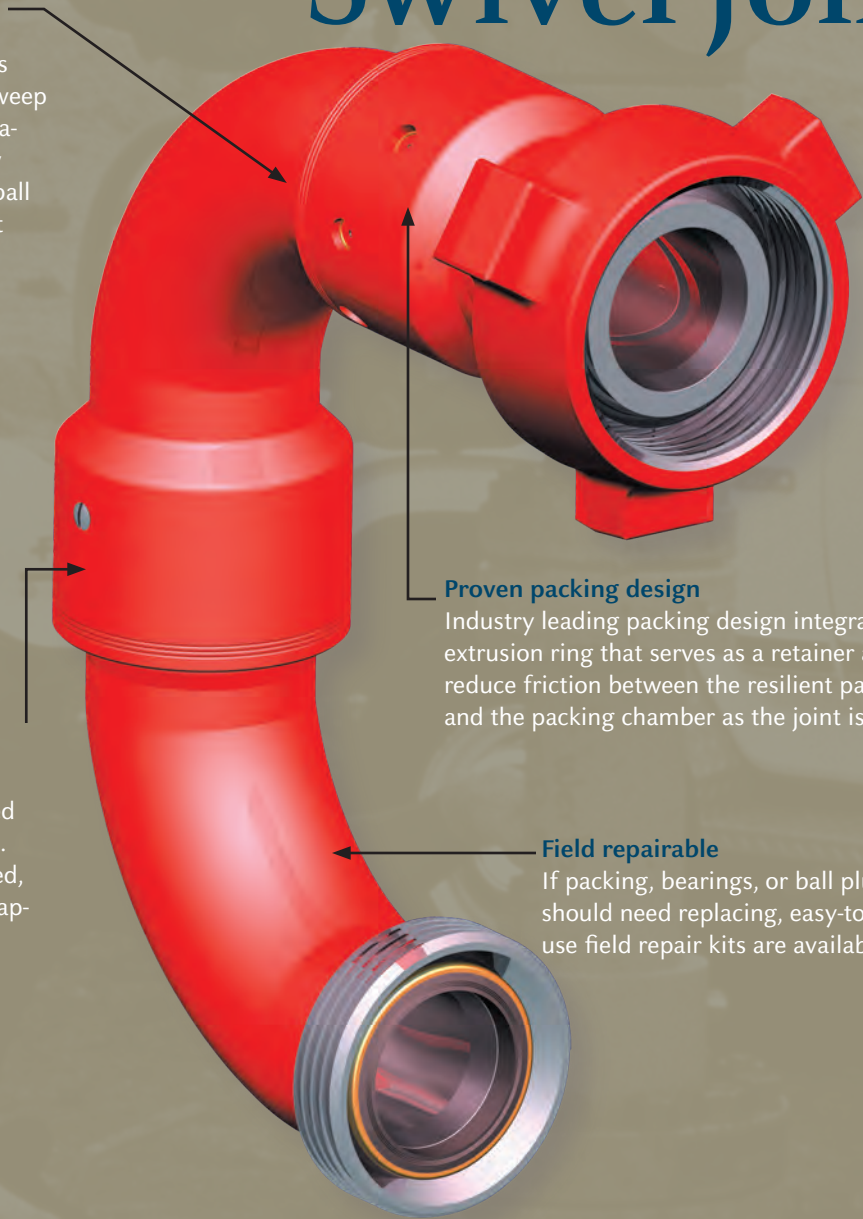
To assure long, dependable service, Chiksan dual and tri-race ball bearing swivels are designed to meet or exceed load capacities and service conditions. All ball races are either flame hardened, carburized and hardened, or have "snap-in" stainless steel ball races.

## Proven packing design

Industry leading packing design integrates an anti-extrusion ring that serves as a retainer and bearing to reduce friction between the resilient packing material and the packing chamber as the joint is rotated.

## Field repairable

If packing, bearings, or ball plugs should need replacing, easy-to-use field repair kits are available.



Chiksan swivel joints deliver significantly longer life, superior performance, and reduced maintenance. Designed for standards and sour gas services, these world proven fittings come in 3/8 to 12-inch sizes and can handle pressures from vacuum to 20,000 psi. Many different Chiksan assembly configurations are available. These styles can be combined in an unlimited variety of ways to suit practically any installation. Available end connections are threaded, integral Weco<sup>®</sup> wing union, beveled for welding, or flanged. Like all pressure containing products, Chiksan swivels require special handling (see inside back cover for Warnings and Cautions).

| Figure Number                     | Color Coding           | Cold Working Pressure<br>psi (bar) | Material     | End Connections          | Nominal Sizes, in. |     |     |   |       |       |   |   | Notes |       |
|-----------------------------------|------------------------|------------------------------------|--------------|--------------------------|--------------------|-----|-----|---|-------|-------|---|---|-------|-------|
|                                   |                        |                                    |              |                          | 3/8                | 1/2 | 3/4 | 1 | 1 1/4 | 1 1/2 | 2 | 3 |       | 4     |
| Low-Pressure Swivel Joints        | Dark Green             | 175 (12)                           | Ductile Iron | Flanged                  |                    |     |     |   |       |       |   | ✓ | ✓     | 1,2,3 |
|                                   | Blue                   | 285 (20)                           | Carbon Steel | Flanged                  |                    |     |     |   |       |       | ✓ | ✓ | ✓     | 1,3,4 |
|                                   | Dark Green             | 600 (41)                           | Ductile Iron | NPT                      |                    |     | ✓   |   |       | ✓     | ✓ | ✓ | ✓     | 2,3   |
|                                   | Blue                   | 1,000 (69)                         | Carbon Steel | NPT                      |                    |     |     |   |       |       | ✓ | ✓ | ✓     | 3     |
| Extra High-Pressure Swivel Joints | Silver                 | 6,000 (414)                        | Carbon Steel | Beveled for welding      |                    |     |     |   |       |       |   | ✓ | ✓     | 3,4   |
|                                   | Black                  | 10,000 (690)                       | Carbon Steel | Female line pipe threads |                    |     | ✓   |   |       | ✓     | ✓ | ✓ | ✓     | 3,6,8 |
|                                   | Olive Green (Sour Gas) | 7,500 (517)                        | Alloy Steel  | Female line pipe threads |                    |     |     |   |       |       |   | ✓ |       | 3,6   |
|                                   | Olive Green (Sour Gas) | 10,000 (690)                       | Alloy Steel  | Weco figure 1002 union   |                    |     |     |   |       |       |   |   | ✓     | 5     |
| Longsweep® Swivel Joints          | Black                  | 10,000 (690)                       | Alloy Steel  | Weco figure 1502 union   |                    |     |     | ✓ |       |       |   | ✓ | ✓     | 5     |
|                                   | Black                  | 10,000 (690)                       | Alloy Steel  | Female line pipe threads |                    |     |     | ✓ |       |       |   | ✓ | ✓     | 3,6,7 |
|                                   | Olive Green (Sour Gas) | 15,000 (1034)                      | Alloy Steel  | Weco figure 2202 union   |                    |     |     |   |       |       |   | ✓ |       | 3     |
|                                   | Red                    | 15,000 (1034)                      | Alloy Steel  | Weco figure 1502 union   |                    |     |     | ✓ |       |       |   | ✓ | ✓     | 6     |
| TripleStep Swivel Joints          | Black                  | 10,000 (690)                       | Alloy Steel  | Weco figure 1002 union   |                    |     |     |   |       |       |   | ✓ | ✓     | 3     |
|                                   | Red                    | 15,000 (1034)                      | Alloy Steel  | Weco figure 1502 union   |                    |     |     | ✓ |       |       |   | ✓ | ✓     | 3     |
|                                   | Brown                  | 7,500 (517)                        | Alloy Steel  | Female line pipe threads |                    |     |     |   |       |       |   |   |       | 3,6   |
|                                   | Light Blue             | 20,000 (1379)                      | Alloy Steel  | Weco figure 2002 union   |                    |     |     |   |       |       |   | ✓ | ✓     | 3     |

Notes

- All body materials meet ASTM or AISI standards.
  - Consult factory for special sizes, styles, end connections, or packing units.
1. Flanged ends faced and drilled to Class 150 flange specifications, unless otherwise specified.
  2. Not available in Styles 80, 10, or other styles requiring more than two swivel connections.
  3. 3/8 - to 4-inch sizes furnished with nitrile packing and brass or stainless steel anti-extrusion ring.
  4. 6 - to 12-inch sizes furnished with nitrile packing and stainless steel anti-extrusion ring.
  5. Furnished with Fluoroelastomer or HNBR packing and stainless steel anti-extrusion ring. FMC Technologies does not warrant the performance of any elastomer seal for sour gas service.
6. Power make-up must be used for line pipe threaded connections to achieve rated cold working pressure.
  7. 3-inch size rated at 10,000 psi could working pressure with integral Weco 1002 union ends only.
  8. 5-inch size available with threaded or beveled ends; limited to 3,000 psi cold working pressure.
- Sour gas service
- FMC Technologies manufactures Chiksan sour gas swivel joints in accordance with the National Association of Corrosion Engineers (NACE) Standard MR-01-75 and the American Petroleum Institute's (API) Standard RP-14-E. These swivel joints are specially heat-treated and inspected for controlled hardness. Because the specially heat treated steel required for sour gas service does not provide a strong enough bearing surface, Chiksan sour gas swivel joints use patented snap-in ball races to assure extra strength and high load-bearing capacity. Fluoroelastomer or HNBR packing is used to isolate the races from the line fluid.

# Chiksan Swivel Joint Styles

Chiksan swivel joints are available from stock in nine basic styles or configurations. These styles permit 360-degree rotation and movement in one, two, or three planes. They can be combined in an unlimited variety of ways to suit practically any installation. All Chiksan swivel joints are assembled using two or more standard pieces.

## Warning

*Although Chiksan swivel joints can be rotated while under fluid pressure, they are not recommended for service requiring continuous rotary motion. See inside back cover for additional Warnings and Cautions.*



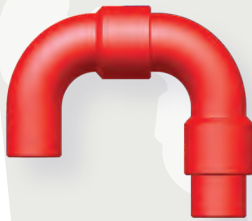
Style 20



Style 30



Style 40



Style 50



Style 60



Style 70



Style 80



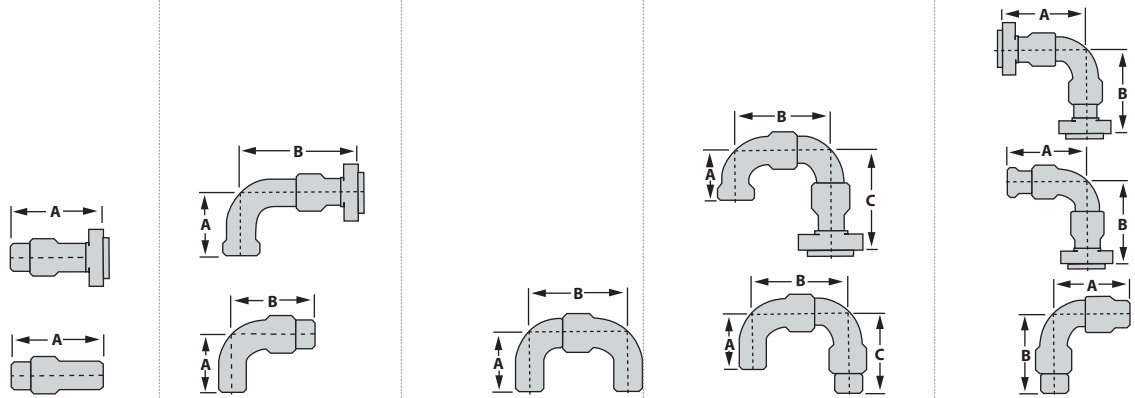
Style 10



Style 100

# Chiksan® Swivel Joint Specifications

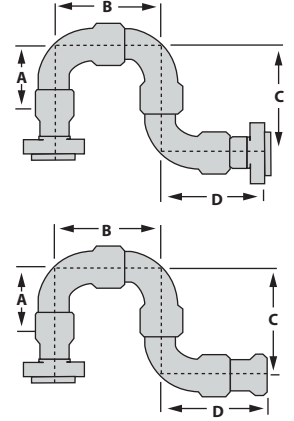
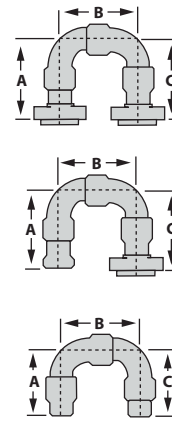
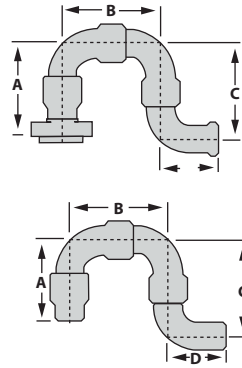
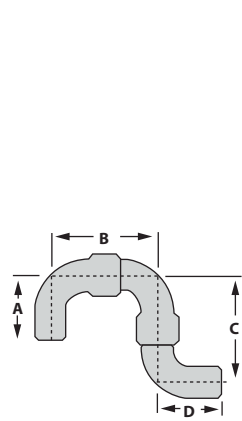
## TripleStep and Longsweep® Swivel Joints



| Size/Model<br>Bore in.<br>(mm) | CWP<br>psi<br>(bar) | End<br>Connections | Style 20              |       |                | Style 30              |            |       |                | Style 40   |      |            |                | Style 50      |      |            |       | Style 60       |             |      |            |                |
|--------------------------------|---------------------|--------------------|-----------------------|-------|----------------|-----------------------|------------|-------|----------------|------------|------|------------|----------------|---------------|------|------------|-------|----------------|-------------|------|------------|----------------|
|                                |                     |                    | Part<br>No.           | A     | Wt<br>lb<br>kg | Part No.              | A          | B     | Wt<br>lb<br>kg | Part No.   | A    | B          | Wt<br>lb<br>kg | P/N<br>P/N-LT | A    | B          | C     | Wt<br>lb<br>kg | Part<br>No. | A    | B          | Wt<br>lb<br>kg |
| 1" LS10<br>.88 (22)            | 10,000<br>(690)     | Threaded           | CF                    |       |                | 6101537               | 4.38       | 7.14  | 8              | N/A        |      |            |                | 3139546       | 4.38 | 7.28       | 7.02  | 16             | CF          |      |            |                |
|                                |                     |                    |                       |       |                | 6101537-LT            | 111        | 181   | 3.6            |            |      |            |                | 3139546-LT    | 111  | 185        | 178   | 7.2            |             |      |            |                |
| 1" LS15<br>.88 (22)            | 15,000<br>(1034)    | 1502 (MxF)         | CF                    |       |                | 3259291               | 4.06       | 8.4   | 12             | N/A        |      |            |                | 3139547       | 4.06 | 7.35       | 8.4   | 22             | CF          |      |            |                |
|                                |                     | 1502 (MxM)         | CF                    |       |                | 3259291-LT            | 103        | 213   | 5.5            |            |      |            |                | 3139547-LT    | 103  | 187        | 213   | 10.2           |             |      |            |                |
| 1.5" LS10<br>1.3 (33)          | 10,000<br>(690)     | Threaded           | P506047<br>P506047-LT | 6.53  | 8              | CF                    |            |       |                | N/A        |      |            |                | 3139779       | 7.96 | 9.37       | 7.96  | 26             | CF          |      |            |                |
|                                |                     |                    |                       | 166   | 3.6            |                       |            |       |                |            |      |            |                | 3139779-LT    | 202  | 238        | 202   | 11.8           |             |      |            |                |
| 1.5" LS15<br>1.3 (33)          | 15,000<br>(1034)    | 1502 (MxF)         | P510860<br>P510860-LT | 10.87 | 26             | CF                    |            |       |                | N/A        |      |            |                | 3139778       | 5    | 9.4        | 10.1  | 34             | CF          |      |            |                |
|                                |                     | 1502 (MxM)         | CF                    |       |                |                       |            |       |                |            |      |            |                | 3139778-LT    | 127  | 239        | 257   | 15.5           |             |      |            |                |
| 2" LS10<br>1.88 (48)           | 10,000<br>(690)     | Threaded           | P523525               | 7.2   | 14             | 3139888               | 6.38       | 9.01  | 21             | 3139890    | 6.36 | 10.73      | 30             | 3139904       | 6.4  | 10.74      | 9     | 37             | 3144545     | 9    | 9          | 23             |
|                                |                     |                    |                       | 183   | 6.2            |                       | 3139888-LT | 162   | 229            |            | 9.5  | 3139890-LT | 162            | 273           | 13.6 | 3139904-LT | 163   | 273            | 229         | 16.8 | 3144545-LT | 229            |
| 2" LS15<br>1.88 (48)           | 15,000<br>(1034)    | 1502 (MxF)         | P514100               | 11.15 | 37             | 3144126               | 5.5        | 10.91 | 36             | N/A        |      |            |                | 3139475       | 5.5  | 10.74      | 10.92 | 56             | 3144630     | 11   | 11         | 48             |
|                                |                     | 1502 (MxM)         | CF                    |       |                | 3144126-LT            | 140        | 277   | 16.3           |            |      |            |                | 3139475-LT    | 140  | 273        | 277   | 25.5           | 3144630-LT  | 279  | 279        | 22             |
|                                |                     | 1502 (FxF)         | CF                    |       |                | N/A                   |            |       |                |            |      |            |                | 3267203       | 7.28 | 10.74      | 10.92 | 60             | 6101559     | 11   | 11         | 62             |
|                                |                     |                    |                       |       |                | N/A                   |            |       |                |            |      |            |                | 3267203-LT    | 185  | 273        | 277   | 27.2           | 6101559-LT  | 279  | 279        | 28.1           |
| 2" LS20<br>1.88 (48)           | 20,000<br>(1379)    | 2002 (MxF)         | CF                    |       |                | CF                    |            |       |                | N/A        |      |            |                | 3144569       | 5.12 | 10.9       | 12.42 | 62             | CF          |      |            |                |
|                                |                     | 2002 (MxM)         | CF                    |       |                | P524579<br>P524579-LT |            |       |                |            |      |            |                | 3144569-LT    | 130  | 277        | 315   | 28.3           |             |      |            |                |
| 3" TSi15<br>2.75 (70)          | 7,500<br>(517)      | Threaded           | CF                    |       |                | N/A                   |            |       |                | N/A        |      |            |                | N/A           |      |            |       |                | CF          |      |            |                |
| 3" TSi15<br>2.75 (70)          | 15,000<br>(1034)    | 1502 (MxF)         | P505417<br>P505417-LT | 12.6  | 52             | P505416               | 7.9        | 14.4  | 68             |            |      |            |                | N/A           |      |            |       | P505327        |             |      |            |                |
|                                |                     | 1502 (MxM)         | CF                    |       |                | P505416-LT            | 201        | 366   | 31             | P505327-LT | 201  | 417        | 366            |               |      |            |       | 48.4           | P505420-LT  | 368  | 368        | 41.3           |
| 3" TSi20<br>3 (76)             | 20,000<br>(1379)    | 2002 (MxF)         | CF                    |       |                | CF                    |            |       |                | N/A        |      |            |                | P527340       | 9.69 | 21.2       | 20.4  | 288            | CF          |      |            |                |
|                                |                     |                    |                       |       |                |                       |            |       |                |            |      |            |                | P527340-LT    | 246  | 538        | 518   | 131            |             |      |            |                |
| 4" TSi10<br>3.88 (98)          | 10,000<br>(690)     | 1002 (MxF)         | P516092<br>P516092-LT | 14.5  | 74             | P517487               | 8.3        | 16.2  | 99             | N/A        |      |            |                | P516091       | 8.3  | 18.1       | 16.2  | 161            | CF          |      |            |                |
|                                |                     | 1002 (MxM)         | CF                    |       |                | P517487-LT            | 211        | 411   | 45             |            |      |            |                | P516091-LT    | 211  | 460        | 411   | 73.3           |             |      |            |                |
| 4" TSi15<br>3.5 (89)           | 15,000<br>(690)     | 1502 (MxF)         | P530256<br>P530256-LT | 19.6  | 141            | CF                    |            |       |                | N/A        |      |            |                | P527331       | 9.69 | 21.2       | 20.4  | 255            | CF          |      |            |                |
|                                |                     |                    |                       | 443   |                |                       |            |       |                |            |      |            |                | P527331-LT    | 246  | 538        | 518   | 116            |             |      |            |                |

# Chiksan® Swivel Joint Specifications

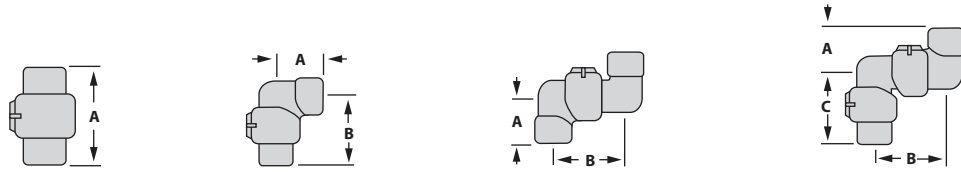
## TripleStep and Longsweep® Swivel Joints



| Size/<br>Model<br>Bore in.<br>(mm) | CWP<br>psi<br>(bar) | End<br>Connections | Style 70    |      |       |       |      | Style 80       |             |       |       |       | Style 10 |                |               |       |       | Style 100 |                |             |       |       |       |       |                |
|------------------------------------|---------------------|--------------------|-------------|------|-------|-------|------|----------------|-------------|-------|-------|-------|----------|----------------|---------------|-------|-------|-----------|----------------|-------------|-------|-------|-------|-------|----------------|
|                                    |                     |                    | Part<br>No. | A    | B     | C     | D    | Wt<br>lb<br>kg | Part<br>No. | A     | B     | C     | D        | Wt<br>lb<br>kg | P/N<br>P/N-LT | A     | B     | C         | Wt<br>lb<br>kg | Part<br>No. | A     | B     | C     | D     | Wt<br>lb<br>kg |
| 1" LS10<br>.88 (22)                | 10,000<br>(690)     | Threaded           | N/A         |      |       |       |      |                | CF          |       |       |       |          |                | 3141454       | 7.14  | 7.46  | 7.14      | 24             | N/A         |       |       |       |       |                |
|                                    |                     |                    |             |      |       |       |      |                |             |       |       |       |          |                | 3141454-LT    | 181   | 189   | 181       | 10.9           |             |       |       |       |       |                |
| 1" LS15<br>.88 (22)                | 15,000<br>(1034)    | 1502 (MxF)         | N/A         |      |       |       |      |                | P516135     | 8.4   | 7.47  | 7.47  | 4.06     | 28             | 3139550       | 8.4   | 7.4   | 8.4       | 27             | CF          |       |       |       |       |                |
|                                    |                     | 1502 (MxM)         | N/A         |      |       |       |      |                | P516135-LT  | 181   | 190   | 190   | 103      | 12.9           | 3139550-LT    | 213   | 188   | 213       | 12.1           |             |       |       |       |       |                |
| 1.5" LS10<br>1.3 (33)              | 10,000<br>(690)     | Threaded           | N/A         |      |       |       |      |                | CF          |       |       |       |          |                | P501542       | 7.96  | 9.37  | 7.96      | 26             | N/A         |       |       |       |       |                |
|                                    |                     |                    |             |      |       |       |      |                |             |       |       |       |          |                | P501542-LT    | 202   | 238   | 202       | 11.8           |             |       |       |       |       |                |
| 1.5" LS15<br>1.3 (33)              | 15,000<br>(1034)    | 1502 (MxF)         | N/A         |      |       |       |      |                | P502504     | 10.12 | 9.37  | 9.37  | 5        | 47             | 3139781       | 10.12 | 9.37  | 10.12     | 44             | CF          |       |       |       |       |                |
|                                    |                     | 1502 (MxM)         | N/A         |      |       |       |      |                | P502504-LT  | 257   | 238   | 238   | 127      | 21.1           | 3139781-LT    | 257   | 238   | 257       | 20             |             |       |       |       |       |                |
| 2" LS10<br>1.88 (48)               | 10,000<br>(690)     | Threaded           | 3139891     | 6.38 | 10.73 | 10.73 | 6.38 | 47             | 3139892     | 8.91  | 10.73 | 10.73 | 6.38     | 56             | 3139476       | 9     | 10.7  | 9         | 45             | N/A         |       |       |       |       |                |
|                                    |                     |                    | 3139891-LT  | 162  | 273   | 273   | 162  | 21.2           | 3139892-LT  | 226   | 273   | 273   | 162      | 25.6           | 3139476-LT    | 229   | 272   | 229       | 20.5           |             |       |       |       |       |                |
| 2" LS15<br>1.88 (48)               | 15,000<br>(1034)    | 1502 (MxF)         | P505482     | 5.5  | 10.73 | 10.73 | 5.5  | 60             | 3139901     | 10.9  | 10.73 | 10.73 | 5.5      | 80             | 3139905       | 10.9  | 10.7  | 10.9      | 61             | 3144094     | 10.97 | 10.73 | 10.73 | 10.91 | 82             |
|                                    |                     | 1502 (MxM)         | P505482-LT  | 140  | 273   | 273   | 140  | 27.2           | 3139901-LT  | 277   | 256   | 256   | 140      | 36.5           | 3139905-LT    | 277   | 272   | 277       | 27.7           | 3144094-LT  | 279   | 273   | 273   | 277   | 37.5           |
| 2" LS20<br>1.88 (48)               | 20,000<br>1379      | 2002 (MxF)         | N/A         |      |       |       |      |                | CF          |       |       |       |          |                | 3144570       | 10.9  | 10.81 | 12.42     | 78             | CF          |       |       |       |       |                |
|                                    |                     | 2002 (MxM)         | N/A         |      |       |       |      |                |             |       |       |       |          |                | 3144571       | 12.51 | 10.91 | 12.52     | 87             | 3144572     | 12.5  | 10.9  | 10.9  | 12.5  | 108            |
| 3" TS15<br>2.75 (70)               | 7,500<br>(517)      | Threaded           | N/A         |      |       |       |      |                | N/A         |       |       |       |          |                | P524218       | 12.88 | 16.42 | 12.88     | 102            | CF          |       |       |       |       |                |
|                                    |                     |                    |             |      |       |       |      |                |             |       |       |       |          |                | P524218-LT    | 327   | 417   | 327       | 46.4           |             |       |       |       |       |                |
| 3" TS15<br>2.75 (70)               | 15,000<br>(1034)    | 1502 (MxF)         | N/A         |      |       |       |      |                | P505409     | 14.4  | 16.4  | 16.4  | 7.9      | 145            | P505325       | 14.5  | 16.4  | 14.4      | 129            | P505410     | 14.4  | 16.4  | 16.4  | 14.6  | 168            |
|                                    |                     | 1502 (MxM)         | N/A         |      |       |       |      |                | P505409-LT  | 366   | 417   | 417   | 201      | 65.9           | P505325-LT    | 368   | 417   | 366       | 58.7           | P505410-LT  | 366   | 417   | 417   | 371   | 76.1           |
| 3" TS20<br>3 (76)                  | 20,000<br>(1379)    | 2002 (MxF)         | N/A         |      |       |       |      |                | CF          |       |       |       |          |                | P505326       | 14.4  | 16.4  | 14.4      | 143            | P505411     | 14.4  | 16.4  | 16.4  | 14.6  | 181            |
|                                    |                     |                    |             |      |       |       |      |                |             |       |       |       |          |                | P505326-LT    | 366   | 417   | 366       | 64.8           | P505411-LT  | 366   | 417   | 417   | 371   | 82.2           |
| 4" TS10<br>3.88 (98)               | 10,000<br>(690)     | 1002 (MxF)         | N/A         |      |       |       |      |                | CF          |       |       |       |          |                | P516094       | 16.1  | 18.1  | 16.2      | 198            | CF          |       |       |       |       |                |
|                                    |                     | 1002 (MxM)         | N/A         |      |       |       |      |                |             |       |       |       |          |                | P516094-LT    | 409   | 460   | 411       | 89.8           |             |       |       |       |       |                |
| 4" XHTL<br>3.5 (89)                | 10,000<br>(690)     | 1502 (MxF)         | N/A         |      |       |       |      |                | CF          |       |       |       |          |                | P516093       | 15.9  | 18.1  | 16.2      | 209            | CF          |       |       |       |       |                |
|                                    |                     |                    |             |      |       |       |      |                |             |       |       |       |          |                | P516093-LT    | 404   | 460   | 411       | 95             |             |       |       |       |       |                |
|                                    |                     |                    | N/A         |      |       |       |      |                | CF          |       |       |       |          |                | 3130501       | 20.4  | 21.2  | 20.4      | 338            | CF          |       |       |       |       |                |
|                                    |                     |                    |             |      |       |       |      |                |             |       |       |       |          |                |               | 518   | 538   | 518       | 154            |             |       |       |       |       |                |

# Chiksan® Swivel Joint Specifications

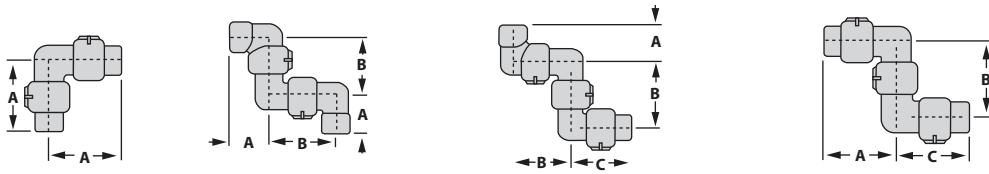
## High-Pressure Swivel Joints



| Nom. Sizes in. | CWP psi (bar) | End Connections | Style 20 |             |            | Style 30 |             |              |            | Style 40 |             |              |             | Style 50 |             |             |             |            |
|----------------|---------------|-----------------|----------|-------------|------------|----------|-------------|--------------|------------|----------|-------------|--------------|-------------|----------|-------------|-------------|-------------|------------|
|                |               |                 | Part No. | A           | Wt lb kg   | Part No. | A           | B            | Wt lb kg   | Part No. | A           | B            | Wt lb kg    | Part No. | A           | B           | C           | Wt lb kg   |
| .38            | 6,000 (414)   | Threaded        | 3111290  | 3.31<br>84  | 1.5<br>0.7 | 3111291  | 1.94<br>49  | 2.81<br>71   | 1.8<br>0.8 | 3111292  | 1.94<br>49  | 2.13<br>54   | 2.5<br>1.1  | 3111293  | 1.94<br>49  | 2.88<br>73  | 2.81<br>71  | 3.3<br>1.5 |
| .5             | 6,000 (414)   | Threaded        | 3111314  | 3.31<br>84  | 1.5<br>0.7 | 3111315  | 1.94<br>49  | 2.81<br>71   | 1.8<br>0.8 | 3111316  | 1.94<br>49  | 2.13<br>54   | 2.5<br>1.1  | 3111317  | 1.94<br>49  | 2.88<br>73  | 2.81<br>71  | 3.3<br>1.5 |
| .75            | 6,000 (414)   | Threaded        | 3220946  | 5.31<br>135 | 2.8<br>1.3 | 3220947  | 2.72<br>69  | 4.62<br>117  | 3.8<br>1.7 | 3220948  | 2.62<br>67  | 4.22<br>107  | 4.5<br>2    | 3220883  | 2.72<br>69  | 4.22<br>107 | 4.62<br>117 | 6.8<br>3.1 |
| 1              | 6,000 (414)   | Threaded        | 3207727  | 5.31<br>135 | 2.8<br>1.3 | 3207728  | 2.72<br>69  | 4.62<br>117  | 3.6<br>1.6 | 3207729  | 2.62<br>67  | 4.22<br>107  | 4.5<br>2    | 3205399  | 2.72<br>69  | 4.22<br>107 | 4.62<br>117 | 6.8<br>3.1 |
| 1.25           | 6,000 (414)   | Threaded        | 3207734  | 5.47<br>139 | 4<br>1.8   | 3207735  | 3.19<br>81  | 4.72<br>120  | 5<br>2.3   | 3207736  | 3.19<br>81  | 4.28<br>109  | 6.3<br>2.8  | 3207737  | 3.19<br>81  | 4.28<br>109 | 4.72<br>120 | 8<br>3.6   |
| 1.5            | 6,000 (414)   | Threaded        | 3207741  | 5.47<br>139 | 4<br>1.8   | 3207743  | 3.19<br>81  | 4.72<br>120  | 5<br>2.3   | 3207744  | 3.19<br>81  | 4.28<br>109  | 6.3<br>2.8  | 3205400  | 3.19<br>81  | 4.28<br>109 | 4.72<br>120 | 10<br>4.5  |
| 2              | 6,000 (414)   | Threaded        | 3207749  | 6.66<br>169 | 12<br>5.5  | 3207750  | 4.03<br>102 | 5.84<br>148  | 15<br>6.8  | 3207751  | 4.03<br>102 | 5.88<br>149  | 19.5<br>8.9 | 3205637  | 5.84<br>148 | 5.88<br>149 | 4.03<br>102 | 27<br>12.3 |
| 2.5            | 6,000 (414)   | Threaded        | cf       | 8.25<br>210 | 18<br>8.2  | 3220167  | 4.88<br>124 | 7.12<br>181  | 22<br>10   | 3221068  | 4.88<br>124 | 7.68<br>195  | 29<br>13.2  | 3219959  | 7.12<br>181 | 7.68<br>195 | 4.88<br>124 | 37<br>16.8 |
| 3              | 6,000 (414)   | Threaded        | 3207756  | 9.12<br>232 | 25<br>11.4 | 3207757  | 4.62<br>117 | 9.44<br>240  | 37<br>16.8 | 3207758  | 4.62<br>117 | 8.75<br>222  | 38<br>17.3  | 3207759  | 4.62<br>117 | 7.94<br>202 | 8.62<br>219 | 53<br>24.1 |
| 4              | 6,000 (414)   | Threaded        | 3207764  | 9.62<br>244 | 38<br>17.3 | 3207765  | 5.56<br>141 | 10.81<br>275 | 51<br>23.2 | 3207766  | 5.56<br>141 | 10.56<br>268 | 64<br>29.1  | 3207767  | 5.56<br>141 | 9.83<br>250 | 9.88<br>251 | 86<br>39.1 |

# Chiksan® Swivel Joint Specifications

## High-Pressure Swivel Joints

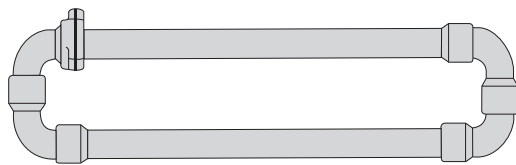


| Nom. Sizes in. | CWP psi (bar) | End Connections | Style 60 |          |          | Style 70 |          |          | Style 80 |          |          |          |           | Style 10 |          |          |           |           |          |
|----------------|---------------|-----------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|-----------|----------|----------|----------|-----------|-----------|----------|
|                |               |                 | Part No. | A        | Wt lb kg | Part No. | A        | B        | Wt lb kg | Part No. | A        | B        | C         | Wt lb kg | Part No. | A        | B         | C         | Wt lb kg |
| .38            | 6,000 (414)   | Threaded        | 3111294  | 2.81 71  | 2.8 1.3  | cf       |          |          |          | N/A      |          |          |           |          | N/A      |          |           |           |          |
| .5             | 6,000 (414)   | Threaded        | 3111318  | 2.81 71  | 2.8 1.3  | CF       |          |          |          | 3111320  | 1.94 49  | 2.88 73  | 2.81 71   | 4.8 2.2  | 3111313  | 3.12 79  | 2.88 73   | 3.12 79   | 4 1.8    |
| .75            | 6,000 (414)   | Threaded        | 3220949  | 4.62 117 | 5.8 2.6  | CF       |          |          |          | 3220952  | 2.72 69  | 4.22 107 | 4.62 117  | 10 4.5   | 3220951  | 4.62 117 | 4.22 107  | 4.62 117  | 9 4.1    |
| 1              | 6,000 (414)   | Threaded        | 3207730  | 4.62 117 | 8.8 4    | 3207731  | 2.72 69  | 4.22 107 | 8 3.6    | 3207732  | 2.72 69  | 4.22 107 | 4.62 117  | 10 4.5   | 3207726  | 4.62 117 | 4.22 107  | 4.62 117  | 9 4.1    |
| 1.25           | 6,000 (414)   | Threaded        | 3207738  | 4.72 120 | 7 3.2    | 3207739  | 3.19 81  | 4.28 109 | 9.4 4.3  | 3207740  | 3.19 81  | 4.28 109 | 4.72 120  | 12 5.2   | 3207733  | 4.72 120 | 4.28 109  | 4.72 120  | 10 4.5   |
| 1.5            | 6,000 (414)   | Threaded        | 3207745  | 4.72 120 | 7 3.2    | 3207746  | 3.19 81  | 4.28 109 | 9.4 4.3  | 3207747  | 3.19 81  | 4.28 109 | 4.72 120  | 14 6.4   | 3207741  | 4.72 120 | 4.28 109  | 4.72 120  | 10 4.5   |
| 2              | 6,000 (414)   | Threaded        | 3207752  | 5.84 148 | 20 9.1   | 3207753  | 4.03 102 | 5.88 149 | 31 14.1  | 3207754  | 4.03 102 | 5.88 149 | 5.84 148  | 38 17.3  | 3207748  | 5.84 148 | 5.88 149  | 5.84 148  | 33 15    |
| 2.5            | 6,000 (414)   | Threaded        | N/A      |          |          | N/A      |          |          |          | N/A      |          |          |           |          | N/A      |          |           |           |          |
| 3              | 6,000 (414)   | Threaded        | 3207760  | 8.62 219 | 48 21.8  | 3207761  | 4.62 117 | 7.94 202 | 57 25.9  | 3207762  | 4.62 117 | 7.94 202 | 9.44 240  | 77 35    | 3207762  | 8.62 219 | 7.94 202  | 9.44 240  | 71 32.3  |
| 4              | 6,000 (414)   | Threaded        | 3207768  | 9.88 251 | 73 33.2  | 3207769  | 5.56 141 | 9.62 244 | 101 45.9 | 3207763  | 5.56 141 | 9.62 244 | 10.81 275 | 123 55.9 | 3207763  | 9.88 251 | 10.31 262 | 10.81 275 | 111 50.2 |

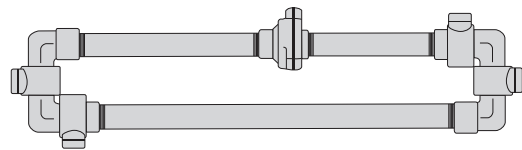
# Chiksan® Swivel Joint Specifications

## TripleStep and Longsweep® Swivel Joints

| Nominal Size/Model | Color Code             | Cold Working Pressure psi (bar) | Weco Fig. No. | Swivel Joint Styles #1 / #2 | Method of Construction Length in Extended Condition, Weight |          |                       |           |                       |          |
|--------------------|------------------------|---------------------------------|---------------|-----------------------------|---|----------|-----------------------|-----------|-----------------------|----------|
|                    |                        |                                 |               |                             | Threaded 10 ft  |          | Threaded 12 ft        |           | Integral 9.5 ft*      |          |
|                    |                        |                                 |               |                             | P/N<br>P/N-LT   | lb (kg)  | P/N<br>P/N-LT         | lb (kg)   | P/N<br>P/N-LT         | lb (kg)  |
| 1" HP              | Silver                 | 6,000 (414)                     | 602           | 50 / 50                     | 3211995   | 37 (17)  | 3207644               | 41 (19)   | N/A                   | —        |
| 1 - 1/2" HP        | Silver                 | 6,000 (414)                     | 602           | 50 / 50                     | 3206211   | 86 (39)  | 3205870               | 100 (45)  | N/A                   | —        |
| 1 - 1/2" LS        | Black                  | 10,000 (690)                    | 1502          | 50 / 50                     | 3264538<br>3264538-LT                                       | 106 (48) | 3254780<br>3254780-LT | —         | N/A                   | —        |
|                    | Red                    | 15,000 (1034)                   | 1502          | 50 / 10                     | N/A   | —        | N/A                   | —         | 3267266               | 132 (60) |
| 2" HP              | Silver                 | 6,000 (414)                     | 602           | 50 / 50                     | 3206495   | 114 (52) | 3205876               | 180 (820) | N/A                   | —        |
| 2" LS              | Black                  | 10,000 (690)                    | 1502          | 50 / 50                     | 3144394<br>3144394-LT                                       | 136 (62) | 3144001<br>3144001-LT | 148 (67)  | N/A                   | —        |
|                    | Red                    | 15,000 (1034)                   | 1502          | 50 / 10                     | N/A   | —        | N/A                   | —         | 6102805<br>6102805-LT | 159 (72) |
| 2" LSG             | Olive Green (Sour Gas) | 10,000 (690)                    | 1502          | 50 / 10                     | N/A   | —        | N/A                   | —         | 6102809               | 159 (72) |
| 3" HP              | Silver                 | 6,000 (414)                     | 602           | 50 / 50                     | 3247975   | 213 (97) | 3231262               | 234 (106) | N/A                   | —        |

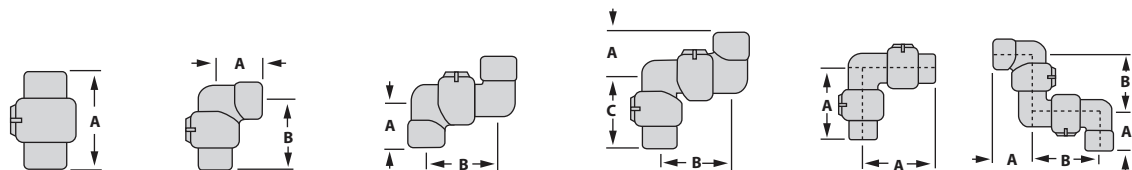


Typical Integral Construction



Typical Threaded Construction

## Low-Pressure Swivel Joints - Ductile Iron

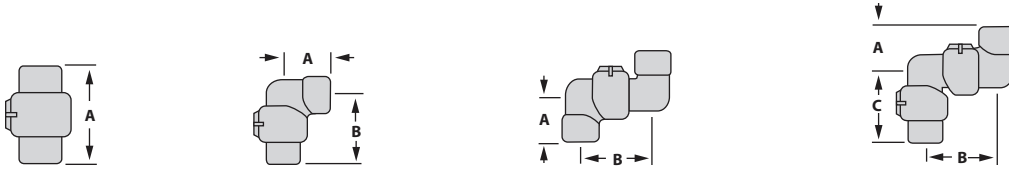


| Nom. Sizes in. | CWP psi (bar) | End Connections | Style 20 |             |            | Style 30 |             |             | Style 40   |          |             | Style 50    |            |          | Style 60   |            |            | Style 70   |          |             |            |          |               |             |            |
|----------------|---------------|-----------------|----------|-------------|------------|----------|-------------|-------------|------------|----------|-------------|-------------|------------|----------|------------|------------|------------|------------|----------|-------------|------------|----------|---------------|-------------|------------|
|                |               |                 | Part No. | A           | Wt lb kg   | Part No. | A           | B           | Wt lb kg   | Part No. | A           | B           | Wt lb kg   | Part No. | A          | B          | C          | Wt lb kg   | Part No. | A           | B          | Wt lb kg |               |             |            |
| .75            | 600 (41)      | Threaded        | 3131926  | 4.5<br>114  | 2<br>1     | 3131927  | 2.5<br>64   | 3.88<br>99  | 3<br>1.2   | 3131886  | 2.5<br>64   | 3.6<br>91   | 3<br>1.4   | 3132053  | 2.5<br>64  | 3.6<br>91  | 3.9<br>1.7 | 4<br>1.8   | 3131928  | 3.88<br>99  | 4<br>1.7   | 3131929  | 3.64<br>92    | 2.4<br>61   | 6<br>2.5   |
| 1              | 600 (41)      | Threaded        | 3131930  | 4.5<br>114  | 2<br>1     | 3131931  | 2.5<br>64   | 3.88<br>99  | 3<br>1.3   | 3131932  | 2.5<br>64   | 3.6<br>91   | 3<br>1.4   | 3132054  | 2.5<br>64  | 3.6<br>91  | 3.9<br>1.7 | 4<br>1.8   | 3131933  | 3.88<br>99  | 4<br>1.7   | 3131934  | 3.63<br>92    | 2.5<br>64   | 5<br>2.3   |
| 1.25           | 600 (41)      | Threaded        | 3131935  | 5<br>127    | 3<br>1.5   | 3131936  | 3<br>76     | 4.5<br>114  | 6<br>2.5   | 3131937  | 3<br>76     | 4.2<br>107  | 5<br>2.3   | 3131937  | 3<br>76    | 4.2<br>107 | 4.5<br>114 | 7<br>3.1   | 3131938  | 4.5<br>114  | 6<br>2.5   | CF       |               |             |            |
| 1.5            | 600 (41)      | Threaded        | 3131940  | 5<br>127    | 3<br>1.5   | 3131941  | 3<br>76     | 4.5<br>114  | 5<br>2.2   | 3131942  | 3<br>76     | 4.2<br>107  | 5<br>2.3   | 3132056  | 3<br>76    | 4.2<br>107 | 4.5<br>114 | 7<br>3.1   | 3131943  | 4.5<br>114  | 6<br>2.5   | 3131944  | 4.25<br>108   | 3<br>76     | 8<br>3.6   |
| 2              | 600 (41)      | Threaded        | 3131945  | 5.75<br>146 | 8<br>3.5   | 3131946  | 3.5<br>89   | 5.75<br>146 | 10<br>4.5  | 3131947  | 3.5<br>89   | 6.1<br>155  | 13<br>5.9  | 3132011  | 3.5<br>89  | 6.1<br>155 | 5.8<br>147 | 17<br>7.9  | 3131951  | 5.75<br>146 | 15<br>6.8  | 3131952  | 6.13<br>156   | 3.5<br>89   | 22<br>9.8  |
| 2.5            | 600 (41)      | Threaded        | 3131954  | 6.63<br>168 | 17<br>7.5  | 3131955  | 4.63<br>118 | 6.88<br>175 | 19<br>8.6  | 3131957  | 4.6<br>117  | 7.63<br>194 | 23<br>10.5 | 3131959  | 4.6<br>117 | 7.6<br>193 | 6.9<br>175 | 28<br>12.7 | 3131962  | 6.88<br>175 | 23<br>10.2 | 3131963  | 7.63<br>194   | 4.63<br>118 | 35<br>15.9 |
|                | 600 (41)      | Threaded        | 3131965  | 6.63<br>168 | 13<br>5.7  | 3131966  | 4.63<br>118 | 6.88<br>175 | 16<br>5.7  | 3131968  | 4.6<br>117  | 7.63<br>194 | 16<br>7.3  | 3131970  | 4.6<br>117 | 7.6<br>193 | 6.9<br>175 | 21<br>9.5  | 3131973  | 6.88<br>175 | 23<br>10.2 | 3131974  | 7.63<br>194   | 4.63<br>118 | 8<br>3.5   |
| 3              | 175 (12)      | Flanged         | 3132204  | 6.63<br>168 | 27<br>12.3 | 3131976  | 5.5<br>140  | 6.88<br>175 | 33<br>14.8 | 3131979  | 5.5<br>140  | 7.63<br>194 | 39<br>17.7 | CF       |            |            |            |            | CF       |             |            | CF       |               |             |            |
|                | 600 (41)      | Threaded        | 3131987  | 7.25<br>184 | 18<br>8    | 3131988  | 5<br>127    | 7.75<br>197 | 24<br>8    | 3131990  | 5<br>127    | 9.2<br>234  | 31<br>14.1 | 3131992  | 5<br>127   | 9.1<br>231 | 7.6<br>193 | 42<br>19.1 | 3131996  | 7.63<br>194 | 35<br>15.9 | 3131996  | 9.13<br>231.9 | 5<br>127    | 50<br>22.7 |
| 4              | 175 (12)      | Flanged         | 3131356  | 7.5<br>191  | 39<br>17.7 | 3131998  | 6.13<br>156 | 8.13<br>207 | 47<br>21.4 | 3132001  | 6.13<br>156 | 9.5<br>241  | 56<br>25.5 | CF       |            |            |            |            | CF       |             |            | CF       |               |             |            |



# Chiksan® Swivel Joint Specifications

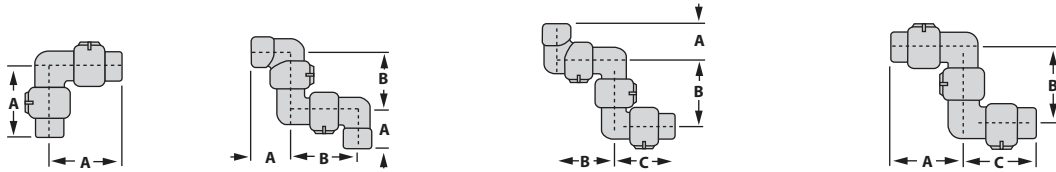
## Low-Pressure Swivel Joints - Carbon Steel



| Nom. Sizes in. | CWP psi (bar) | End Connections | Style 20 |                |             | Style 30 |             |              |             | Style 40 |             |              |             | Style 50 |              |              |              |             |
|----------------|---------------|-----------------|----------|----------------|-------------|----------|-------------|--------------|-------------|----------|-------------|--------------|-------------|----------|--------------|--------------|--------------|-------------|
|                |               |                 | Part No. | A              | Wt lb kg    | Part No. | A           | B            | Wt lb kg    | Part No. | A           | B            | Wt lb kg    | Part No. | A            | B            | C            | Wt lb kg    |
| 2              | 1,000 (69)    | Threaded        | 313048   | 5.75<br>146    | 8<br>3.4    | 3131049  | 3.5<br>89   | 5.75<br>146  | 10<br>4.5   | 3131050  | 3.5<br>89   | 6.1<br>155   | 13<br>5.8   | 3131052  | 3.5<br>89    | 6.13<br>156  | 5.8<br>147   | 18<br>8     |
|                | 275 (19)      | Flanged         | CF       |                |             | 3131218  | 4.25<br>108 | 6.29<br>160  | 20<br>8.9   | 3131220  | 5.94<br>151 | 6.1<br>155   | 22<br>10    | CF       |              |              |              |             |
|                | 1,000 (69)    | Beveled         | 3131225  | 5.75<br>146    | 8<br>3.6    | 3131226  | 3.5<br>89   | 5.75<br>146  | 13<br>5.8   | 3131229  | 3.5<br>89   | 6.1<br>155   | 13<br>5.8   | 3131231  | 3.5<br>89    | 6.13<br>156  | 5.75<br>146  | 18<br>8     |
| 3              | 1,000 (69)    | Threaded        | 3131272  | 6.63<br>168    | 12<br>5.2   | 3131273  | 4.62<br>117 | 6.88<br>175  | 16<br>7     | 3131276  | 4.76<br>121 | 7.6<br>193   | 21<br>9.3   | 3131278  | 4.6<br>117   | 7.6<br>193   | 6.9<br>175   | 33<br>15    |
|                | 275 (19)      | Flanged         | 3131635  | 6.63<br>168    | 29<br>13.2  | 3131286  | 5.5<br>140  | 6.88<br>175  | 34<br>15.5  | 3131289  | 5.5<br>140  | 7.63<br>194  | 40<br>18.2  | 3131291  | 5.5<br>140   | 7.63<br>194  | 6.88<br>175  | 46<br>20.9  |
|                | 1,000 (69)    | Beveled         | 3131299  | 6.63<br>168    | 12<br>5.2   | 3131300  | 4.63<br>118 | 6.88<br>175  | 16<br>7     | 3131303  | 4.6<br>117  | 7.6<br>193   | 21<br>9.3   | 3131305  | 4.63<br>118  | 7.63<br>194  | 6.88<br>175  | 28<br>12.7  |
| 4              | 1,000 (69)    | Threaded        | 3131316  | 7.25<br>184    | 18<br>8     | 3131317  | 5.00<br>127 | 7.75<br>197  | 24<br>10.7  | 3131320  | 5<br>127    | 9.2<br>234   | 31<br>14.1  | 3131322  | 5<br>127     | 9.1<br>231   | 7.6<br>193   | 40<br>18.2  |
|                | 275 (19)      | Flanged         | 3134977  | 7.5<br>191     | 43<br>19.5  | 3131330  | 6.13<br>156 | 8.13<br>207  | 50<br>22.7  | 3131333  | 6.13<br>156 | 9.5<br>241   | 57<br>25.9  | 3131335  | 6.13<br>156  | 9.13<br>232  | 8<br>203     | 66<br>30    |
|                | 1,000 (69)    | Beveled         | 3131343  | 7.25<br>184    | 18<br>8     | 3131344  | 5<br>127    | 7.75<br>197  | 24<br>10.7  | 3131347  | 5<br>127    | 9.2<br>234   | 31<br>14.1  | 3131349  | 5<br>127     | 9.13<br>232  | 7.63<br>194  | 40<br>18.2  |
| 6              | 1,000 (69)    | Threaded        | 3131069  | 13.94<br>354   | 66<br>30    | 3131070  | 9.75<br>248 | 16.19<br>411 | 76<br>34.5  | 3131071  | 9.75<br>248 | 18.48<br>469 | 73<br>33.3  | CF       |              |              |              |             |
|                | 275 (19)      | Flanged         | 3131077  | 13.44<br>341.4 | 96<br>43.6  | 3131078  | 9.5<br>241  | 15.94<br>405 | 112<br>50.9 | 3131079  | 9.5<br>241  | 18.5<br>470  | 127<br>57.7 | CF       |              |              |              |             |
|                | 1,000 (69)    | Beveled         | 3131088  | 6.44<br>164    | 42<br>19.2  | 3131089  | 2.44<br>62  | 6<br>152     | 59<br>27    | 3131090  | 6<br>152    | 18.5<br>470  | 97<br>44.2  | 3131091  | 6<br>152     | 18.48<br>469 | 12.48<br>317 | 123<br>55.9 |
| 8              | 1,000 (69)    | Threaded        | 3131096  | 16.25<br>413   | 106<br>48.4 | 3131097  | 12.5<br>318 | 19.75<br>502 | 137<br>62.4 | P523643  | 12.5<br>318 | 23.2<br>589  | 167<br>75.9 | CF       |              |              |              |             |
|                | 275 (19)      | Flanged         | 3131104  | 15.25<br>387   | 138<br>62.9 | 3131105  | 12<br>305   | 19.25<br>489 | 169<br>77   | 3131106  | 12<br>305   | 23.2<br>589  | 200<br>91   | 3131107  | 12.03<br>306 | 23.28<br>591 | 19.35<br>491 | 261<br>119  |
|                | 1,000 (69)    | Beveled         | 3131114  | 7.25<br>184    | 62<br>28    | 3131115  | 8<br>203    | 15.25<br>387 | 91<br>41.5  | 3131116  | 8<br>203    | 23.2<br>589  | 121<br>54.8 | CF       |              |              |              |             |

# Chiksan® Swivel Joint Specifications

## Low-Pressure Swivel Joints - Carbon Steel



| Nom. Sizes in. | CWP psi (bar) | End Connections | Style 60 |              |            | Style 70 |             |              | Style 80   |          |             |             | Style 10     |             |          |             |             |             |            |
|----------------|---------------|-----------------|----------|--------------|------------|----------|-------------|--------------|------------|----------|-------------|-------------|--------------|-------------|----------|-------------|-------------|-------------|------------|
|                |               |                 | Part No. | A            | Wt lb kg   | Part No. | A           | B            | Wt lb kg   | Part No. | A           | B           | C            | Wt lb kg    | Part No. | A           | B           | C           | Wt lb kg   |
| 2              | 1,000 (69)    | Threaded        | 3131053  | 5.75<br>146  | 15<br>6.7  | 3131054  | 2.4<br>61   | 3.64<br>92   | 21<br>9.3  | 3131055  | 3.5<br>89   | 6.13<br>156 | 5.75<br>146  | 25<br>11.5  | 3131047  | 5.73<br>146 | 6.13<br>156 | 6.13<br>156 | 22<br>10.2 |
|                | 275 (19)      | Flanged         | 3134978  | 6.2<br>157   | 30<br>13.6 | CF       |             |              |            | CF       |             |             |              |             | CF       |             |             |             |            |
|                | 1,000 (69)    | Beveled         | CF       |              |            | CF       |             |              |            | CF       |             |             |              |             | P511523  | 5.73<br>146 | 6.07<br>154 | 5.73<br>146 | 24<br>10.8 |
| 3              | 1,000 (69)    | Threaded        | 3131281  | 6.88<br>175  | 23<br>10.5 | 3131282  | 4.63<br>118 | 7.63<br>194  | 33<br>15   | 3131284  | 4.63<br>118 | 7.63<br>194 | 6.88<br>175  | 46<br>20.9  | 3131271  | 6.88<br>175 | 7.63<br>194 | 6.88<br>175 | 35<br>15.9 |
|                | 275 (19)      | Flanged         | 3131294  | 6.88<br>175  | 40<br>18.2 | CF       |             |              |            | CF       |             |             |              |             | CF       |             |             |             |            |
|                | 1,000 (69)    | Beveled         | 3131308  | 6.88<br>175  | 24<br>10.9 | P505098  | 4.63<br>118 | 7.63<br>194  | 32<br>14.7 | CF       |             |             |              |             | CF       |             |             |             |            |
| 4              | 1,000 (69)    | Threaded        | 3131325  | 7.63<br>194  | 24<br>10.7 | 3131327  | 5<br>127    | 9.13<br>232  | 47<br>21.4 | 3131328  | 5<br>127    | 9.13<br>232 | 7.63<br>194  | 58<br>26.4  | 3131315  | 7.63<br>194 | 9.13<br>232 | 7.63<br>194 | 53<br>24.1 |
|                | 275 (19)      | Flanged         | 3131338  | 8<br>203     | 59<br>26.8 | CF       |             |              |            | CF       |             |             |              |             | CF       |             |             |             |            |
|                | 1,000 (69)    | Beveled         | 3131352  | 7.63<br>194  | 24<br>10.7 | 3134423  | 5<br>127    | 9.13<br>232  | 47<br>21.4 | CF       |             |             |              |             | 3265987  | 7.62<br>194 | 9.12<br>232 | 7.62<br>194 | 53<br>24.1 |
| 6              | 1,000 (69)    | Threaded        | CF       |              |            | CF       |             |              |            | CF       |             |             |              |             | CF       |             |             |             |            |
|                | 275 (19)      | Flanged         | 3131081  | 15.94<br>194 | 154<br>70  | 3131082  | 6<br>152    | 18.6<br>472  | 185<br>84  | CF       |             |             |              |             | CF       |             |             |             |            |
|                | 1,000 (69)    | Beveled         | CF       |              |            | 3131093  | 9.5<br>241  | 18.44<br>468 | 130<br>59  | 3267081  | 6<br>152    | 18.6<br>472 | 12.54<br>319 | 171<br>77.7 | CF       |             |             |             |            |
| 8              | 1,000 (69)    | Threaded        | CF       |              |            | CF       |             |              |            | CF       |             |             |              |             | CF       |             |             |             |            |
|                | 275 (19)      | Flanged         | 3131108  | 19.41<br>493 | 230<br>104 | CF       |             |              |            | CF       |             |             |              |             | CF       |             |             |             |            |
|                | 1,000 (69)    | Beveled         | CF       |              |            | CF       |             |              |            | CF       |             |             |              |             | CF       |             |             |             |            |