

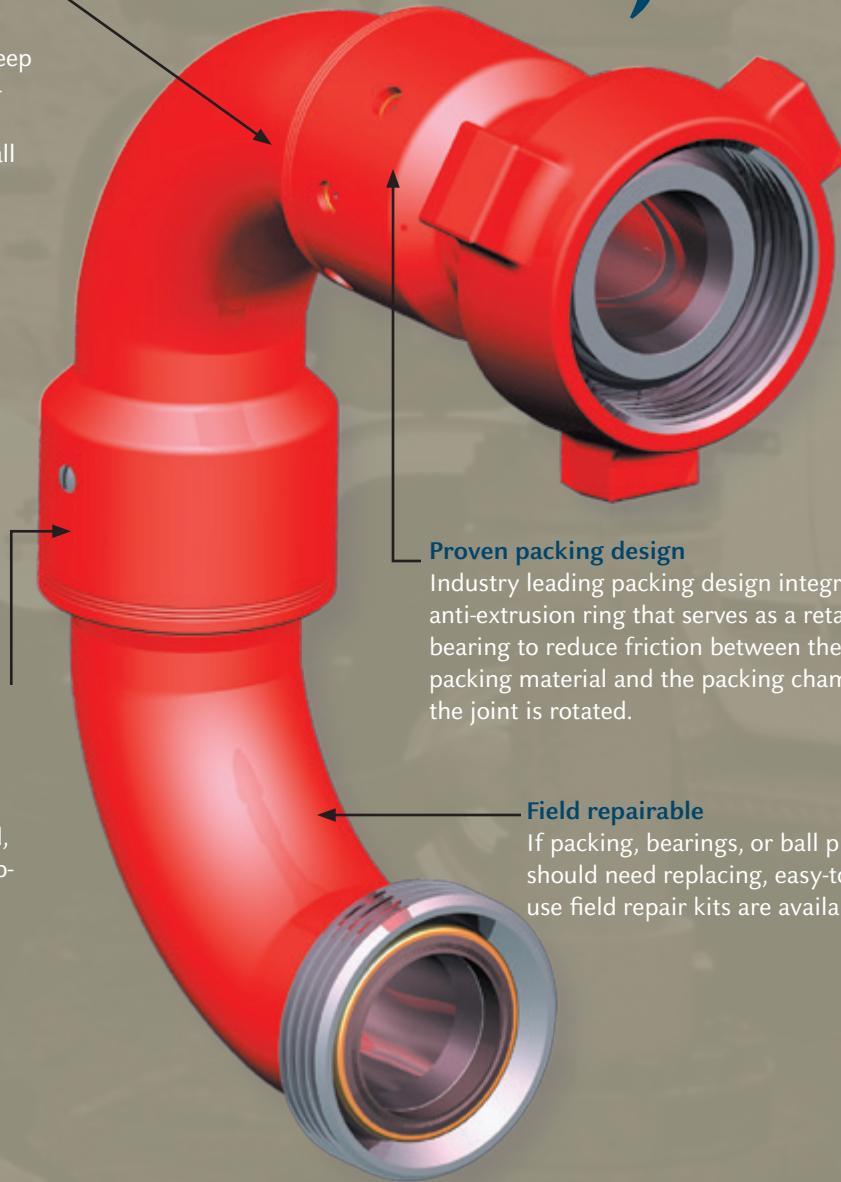


**Flowline Products and Services**  
World Proven Chiksan® and Weco® Equipment  
<http://www.fmctechnologies.com>

# Original Chiksan® Swivel Joints

## Streamlined 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.

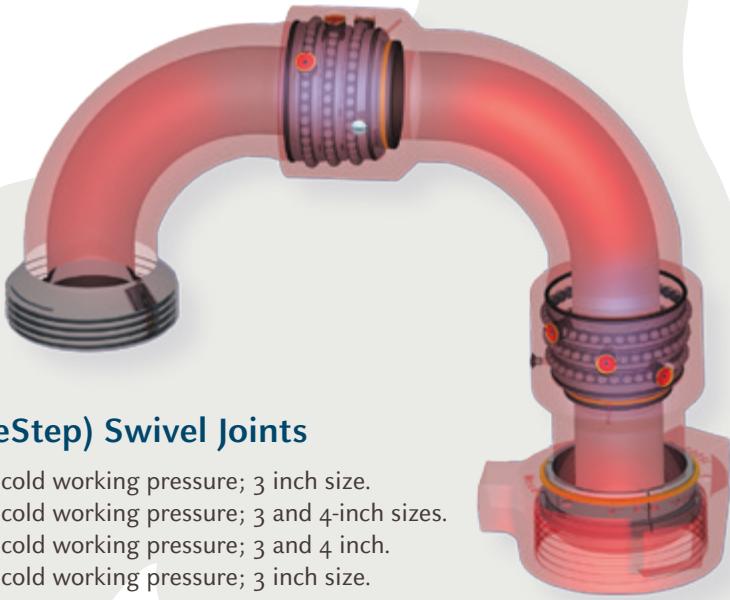
Chiksan swivel joints deliver significantly longer life, superior performance, and reduced maintenance. Designed for standards and sour gas services, these world proven fittings come in  $\frac{3}{8}$  to 12-inch sizes and can handle pressures from vacuum to 20,000 psi. Many different Chiksan assembly 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® 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 psi (bar)	Material	End Connections	Nominal Sizes, in.						Notes		
					3/8	1/2	3/4	1	1 1/4	1 1/2	2		
Low-Pressure Swivel Joints	Dark Green	175 (12)	Ductile Iron	Flanged							✓	✓	
	Blue	285 (20)	Carbon Steel	Flanged							✓	✓	
	Dark Green	600 (41)	Ductile Iron	NPT	✓	✓	✓	✓	✓	✓	✓	✓	
	Blue	1,000 (69)	Carbon Steel	NPT							✓	3	
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	
	Olive Green (Sour Gas)	15,000 (1034)	Alloy Steel	Female line pipe threads	Weco figure 1002 union	✓	✓	✓	✓	✓	✓	✓	3,6,7
	Red	15,000 (1034)	Alloy Steel	Weco figure 2202 union	Weco figure 1502 union	✓	✓	✓	✓	✓	✓	✓	3
	Black	10,000 (690)	Alloy Steel	Weco figure 1002 union	Weco figure 1502 union	✓	✓	✓	✓	✓	✓	✓	6
TripleStep Swivel Joints	Red	15,000 (1034)	Alloy Steel	Weco figure 1002 union	Weco figure 1502 union	✓	✓	✓	✓	✓	✓	✓	3
	Brown	7,500 (517)	Alloy Steel	Female line pipe threads	Weco figure 2002 union							✓	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 1.2-inch sizes furnished with nitrile packing and stainless steel anti-extrusion ring.
- 5. Furnished with Fluorelastomer 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 could 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. Fluorodlastomer or HNBR packing is used to isolate the races from the line fluid.



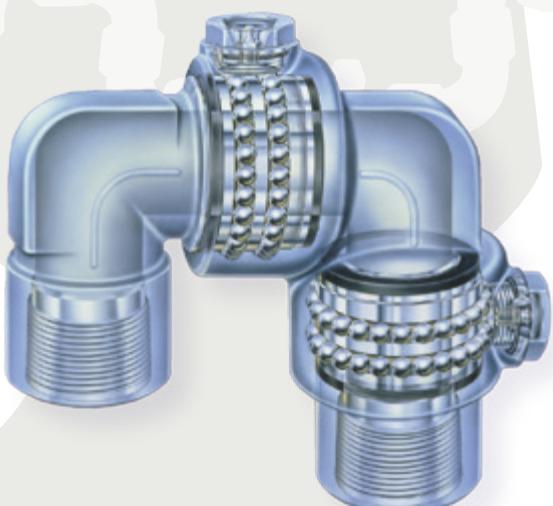
## TSi (TripleStep) Swivel Joints

- 6,000 psi cold working pressure; 3 inch size.
- 10,000 psi cold working pressure; 3 and 4-inch sizes.
- 15,000 psi cold working pressure; 3 and 4 inch.
- 20,000 psi cold working pressure; 3 inch size.

For Longsweep swivels and sizes or pressures not shown,  
consult factory

### Recommended service

Long-radius elbows designed especially for high-pressure abrasive applications such as fracturing, choke-and-kill lines, cementing and circulating hoses, acidizing, and test lines

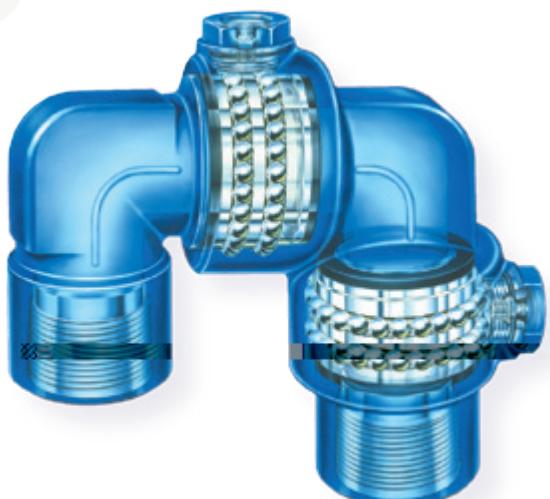


## HP (High-Pressure) Swivel Joints

6,000 psi cold working pressure; 3/8 to 4-inch sizes

### Recommended service

Hydraulic control lines, mud lines, rotary line connections, BOP lines, test lines, offshore wellhead connections, cementing and circulating hoses, and choke-and-kill lines



## Low-Pressure Swivel Joints

175 psi to 1,000 psi cold working pressure;  
3/4 to 12-inch sizes.

### Recommended service

Transfer lines, temporary flow lines, discharge lines, auxiliary flow lines, water lines, and other general-service oilfield applications.

See specifications tables (pg. 58 - 64) for sizes, dimensions, weights, materials, and part numbers.

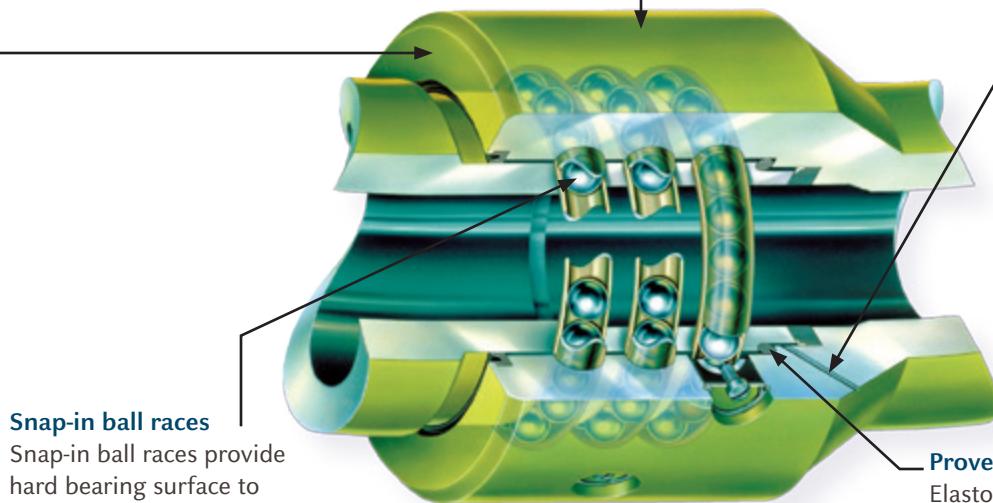
# Chiksan Sour Gas Swivel Joint

## Controlled hardness

Swivel components are specially heat-treated and 100% tested for controlled hardness.

## Positive identification

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



## Snap-in ball races

Snap-in ball races provide hard bearing surface to deliver extra strength and high load-bearing capacity when handling sour gas.

## Leak detection

A leak detection port between the packing and O-ring seal signals the need for packing replacement.

## Proven packing design

Elastomeric packing with stainless steel anti-extrusion ring and secondary O-ring seal are used to isolate the races and bearings from line fluid.

## 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 does not provide a hard enough bearing surface, Chiksan sour gas swivel joints use snap-in ball races for extra strength and high load-bearing capacity. Sour gas swivel joints come standard with integral Weco wing union end connections. They also have a leak-detection port between the packing and the O-ring seal. If leakage past the packing should occur, it is forced through the port, signaling the need for packing replacement. For positive identification, all Chiksan sour gas swivel joints are 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.

## Chiksan Swivel Joints for Sour Gas Service:

### High-Pressure Swivel Joints

6,000 psi cold working pressure, 2 and 3-inch sizes; Weco Figure 602 wing union end connections

### Longsweep Swivel Joints

7,500 psi cold working pressure, 3-inch size; Weco Figure 1002 wing union end connections

10,000 psi cold working pressure, 1, 2, 3 and 4-inch sizes; Weco Figure 1502 wing union end connections

15,000 psi cold working pressure, 2 and 3-inch sizes; Weco Figure 2202 wing union end connections

# 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



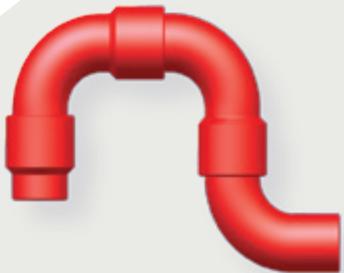
Style 50



Style 60



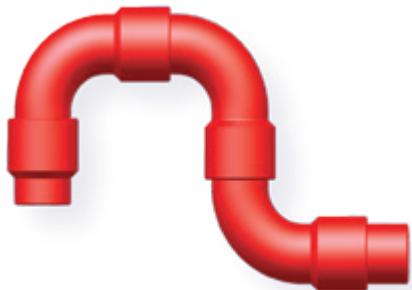
Style 70



Style 80



Style 10

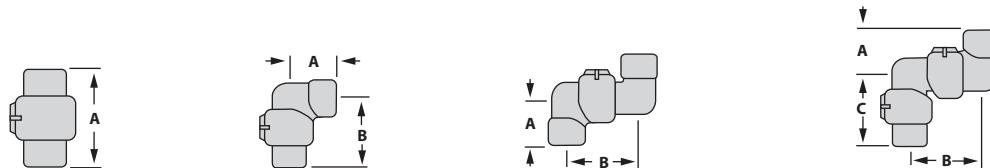


Style 100

See specifications tables (pg. 58 - 64) for sizes, dimensions, weights, materials, and part numbers.

## Chiksan® Swivel Joint Specifications

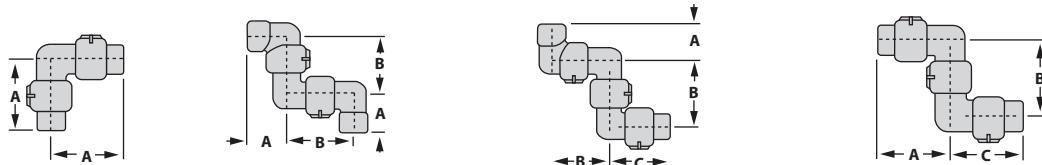
### High-Pressure Swivel Joints



Nom. Sizes in.	CWP psi (bar)	End Connec- tions	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 84	1.5 0.7	3111291	1.94 49	2.81 71	1.8 0.8	3111292	1.94 49	2.13 54	2.5 1.1	3111293	1.94 49	2.88 73	2.81 71	3.3 1.5
.5	6,000 (414)	Threaded	3111314	3.31 84	1.5 0.7	3111315	1.94 49	2.81 71	1.8 0.8	3111316	1.94 49	2.13 54	2.5 1.1	3111317	1.94 49	2.88 73	2.81 71	3.3 1.5
.75	6,000 (414)	Threaded	3220946	5.31 135	2.8 1.3	3220947	2.72 69	4.62 117	3.8 1.7	3220948	2.62 67	4.22 107	4.5 2	3220883	2.72 69	4.22 107	4.62 117	6.8 3.1
1	6,000 (414)	Threaded	3207727	5.31 135	2.8 1.3	3207728	2.72 69	4.62 117	3.6 1.6	3207729	2.62 67	4.22 107	4.5 2	3205399	2.72 69	4.22 107	4.62 117	6.8 3.1
1.25	6,000 (414)	Threaded	3207734	5.47 139	4 1.8	3207735	3.19 81	4.72 120	5 2.3	3207736	3.19 81	4.28 109	6.3 2.8	3207737	3.19 81	4.28 109	4.72 120	8 3.6
1.5	6,000 (414)	Threaded	3207741	5.47 139	4 1.8	3207743	3.19 81	4.72 120	5 2.3	3207744	3.19 81	4.28 109	6.3 2.8	3205400	3.19 81	4.28 109	4.72 120	10 4.5
2	6,000 (414)	Threaded	3207749	6.66 169	12 5.5	3207750	4.03 102	5.84 148	15 6.8	3207751	4.03 102	5.88 149	19.5 8.9	3205637	5.84 148	5.88 149	4.03 102	27 12.3
2.5	6,000 (414)	Threaded	cf	8.25 210	18 8.2	3220167	4.88 124	7.12 181	22 10	3221068	4.88 124	7.68 195	29 13.2	3219959	7.12 181	7.68 195	4.88 124	37 16.8
3	6,000 (414)	Threaded	3207756	9.12 232	25 11.4	3207757	4.62 117	9.44 240	37 16.8	3207758	4.62 117	8.75 222	38 17.3	3207759	4.62 117	7.94 202	8.62 219	53 24.1
4	6,000 (414)	Threaded	3207764	9.62 244	38 17.3	3207765	5.56 141	10.81 275	51 23.2	3207766	5.56 141	10.56 268	64 29.1	3207767	5.56 141	9.83 250	9.88 251	86 39.1

## Chiksan® Swivel Joint Specifications

### High-Pressure Swivel Joints

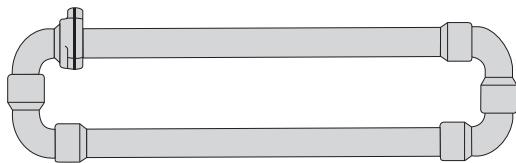


Nom. Sizes in.	CWP psi (bar)	End Connections	Style 60			Style 70			Style 80			Style 10							
			Part No.	A	Wt lb kg	Part No.	A	B	Wt lb kg	Part No.	A	B	C	Wt lb kg	Part No.	A	B	C	Wt lb kg
.38	6,000 (414)	Threaded	3111294	2.81 71	2.8 1.3	cf				N/A					N/A				
.5	6,000 (414)	Threaded	3111318	2.81 71	2.8 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

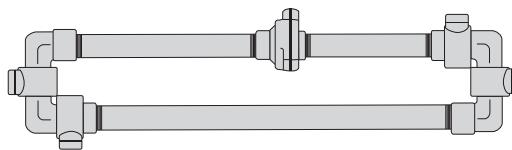
## Chiksan® Swivel Joint Specifications

### ► 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 P/N-LT	lb (kg)	P/N P/N-LT	lb (kg)	P/N 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 3264538-LT	106 (48)	3254780 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 3144394-LT	136 (62)	3144001 3144001-LT	148 (67)	N/A	—
	Red	15,000 (1034)	1502	50 / 10	N/A	—	N/A	—	6102805 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	—

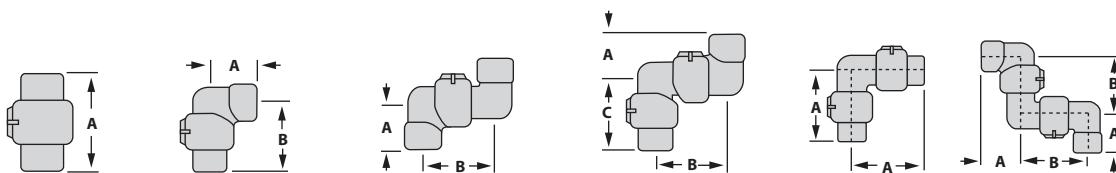


Typical Integral Construction



Typical Threaded Construction

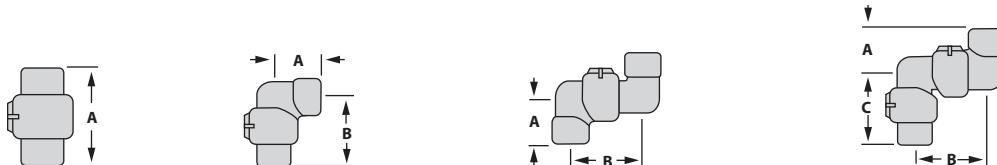
### ► Low-Pressure Swivel Joints - Ductile Iron



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

## Chiksan® Swivel Joint Specifications

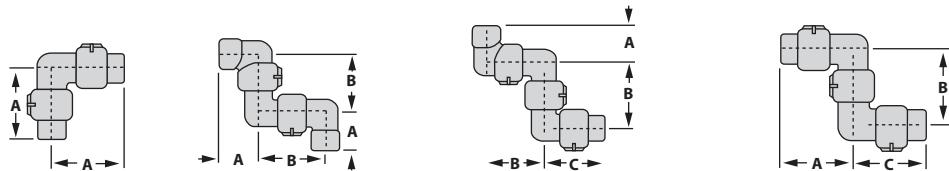
### Low-Pressure Swivel Joints - Carbon Steel



Nom. Sizes in.	CWP psi (bar)	End Connec- tions	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	5.75 146	8 3.4	3131049	3.5 89	5.75 146	10 4.5	3131050	3.5 89	6.1 155	13 5.8	3131052	3.5 89	6.13 156	5.8 147	18 8
	275 (19)	Flanged	CF			3131218	4.25 108	6.29 160	20 8.9	3131220	5.94 151	6.1 155	22 10	CF				
	1,000 (69)	Beveled	3131225	5.75 146	8 3.6	3131226	3.5 89	5.75 146	13 5.8	3131229	3.5 89	6.1 155	13 5.8	3131231	3.5 89	6.13 156	5.75 146	18 8
3	1,000 (69)	Threaded	3131272	6.63 168	12 5.2	3131273	4.62 117	6.88 175	16 7	3131276	4.76 121	7.6 193	21 9.3	3131278	4.6 117	7.6 193	6.9 175	33 15
	275 (19)	Flanged	3131635	6.63 168	29 13.2	3131286	5.5 140	6.88 175	34 15.5	3131289	5.5 140	7.63 194	40 18.2	3131291	5.5 140	7.63 194	6.88 175	46 20.9
	1,000 (69)	Beveled	3131299	6.63 168	12 5.2	3131300	4.63 118	6.88 175	16 7	3131303	4.6 117	7.6 193	21 9.3	3131305	4.63 118	7.63 194	6.88 175	28 12.7
4	1,000 (69)	Threaded	3131316	7.25 184	18 8	3131317	5.00 127	7.75 197	24 10.7	3131320	5 127	9.2 234	31 14.1	3131322	5 127	9.1 231	7.6 193	40 18.2
	275 (19)	Flanged	3134977	7.5 191	43 19.5	3131330	6.13 156	8.13 207	50 22.7	3131333	6.13 156	9.5 241	57 25.9	3131335	6.13 156	9.13 232	8 203	66 30
	1,000 (69)	Beveled	3131343	7.25 184	18 8	3131344	5 127	7.75 197	24 10.7	3131347	5 127	9.2 234	31 14.1	3131349	5 127	9.13 232	7.63 194	40 18.2
6	1,000 (69)	Threaded	3131069	13.94 354	66 30	3131070	9.75 248	16.19 411	76 34.5	3131071	9.75 248	18.48 469	73 33.3	CF				
	275 (19)	Flanged	3131077	13.44 341.4	96 43.6	3131078	9.5 241	15.94 405	112 50.9	3131079	9.5 241	18.5 470	127 57.7	CF				
	1,000 (69)	Beveled	3131088	6.44 164	42 19.2	3131089	2.44 62	6 152	59 27	3131090	6 152	18.5 470	97 44.2	3131091	6 152	18.48 469	12.48 317	123 55.9
8	1,000 (69)	Threaded	3131096	16.25 413	106 48.4	3131097	12.5 318	19.75 502	137 62.4	P523643	12.5 318	23.2 589	167 75.9	CF				
	275 (19)	Flanged	3131104	15.25 387	138 62.9	3131105	12 305	19.25 489	169 77	3131106	12 305	23.2 589	200 91	3131107	12.03 306	23.28 591	19.35 491	261 119
	1,000 (69)	Beveled	3131114	7.25 184	62 28	3131115	8 203	15.25 387	91 41.5	3131116	8 203	23.2 589	121 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	5.75 146	15 6.7	3131054	2.4 61	3.64 92	21 9.3	3131055	3.5 89	6.13 156	5.75 146	25 11.5	3131047	5.73 146	6.13 156	6.13 156	22 10.2
	275 (19)	Flanged	3134978	6.2 157	30 13.6	CF				CF					CF				
	1,000 (69)	Beveled	CF			CF				CF					P511523	5.73 146	6.07 154	5.73 146	24 10.8
3	1,000 (69)	Threaded	3131281	6.88 175	23 10.5	3131282	4.63 118	7.63 194	33 15	3131284	4.63 118	7.63 194	6.88 175	46 20.9	3131271	6.88 175	7.63 194	6.88 175	35 15.9
	275 (19)	Flanged	3131294	6.88 175	40 18.2	CF				CF					CF				
	1,000 (69)	Beveled	3131308	6.88 175	24 10.9	P505098	4.63 118	7.63 194	32 14.7	CF					CF				
4	1,000 (69)	Threaded	3131325	7.63 194	24 10.7	3131327	5 127	9.13 232	47 21.4	3131328	5 127	9.13 232	7.63 194	58 26.4	3131315	7.63 194	9.13 232	7.63 194	53 24.1
	275 (19)	Flanged	3131338	8 203	59 26.8	CF				CF					CF				
	1,000 (69)	Beveled	3131352	7.63 194	24 10.7	3134423	5 127	9.13 232	47 21.4	CF					3265987	7.62 194	9.12 232	7.62 194	53 24.1
6	1,000 (69)	Threaded	CF			CF				CF					CF				
	275 (19)	Flanged	3131081	15.94 194	154 70	3131082	6 152	18.6 472	185 84	CF					CF				
	1,000 (69)	Beveled	CF			3131093	9.5 241	18.44 468	130 59	3267081	6 152	18.6 472	12.54 319	171 77.7	CF				
8	1,000 (69)	Threaded	CF			CF				CF					CF				
	275 (19)	Flanged	3131108	19.41 493	230 104	CF				CF					CF				
	1,000 (69)	Beveled	CF			CF				CF					CF				