

# RULAND

Carefully Made Shaft Collars and Couplings



**OLDHAM COUPLINGS**

# Introduction

Ruland Manufacturing Co., Inc. has been supplying carefully made products since 1937. We have manufactured everything from bicycle pumps to high pressure valves, including the valve that pressurized the spacesuit of the first American to walk in space. In recent years, all of our expertise has been devoted to making the best shaft collars and couplings available. Oldham couplings are just one design in the full line of quality motion control couplings manufactured by Ruland (see back cover for additional products).

Oldham couplings are three piece couplings comprised of two hubs and a center member. The center disk, which is available in a choice of acetal for high torsional stiffness or nylon for vibration and shock absorption, is the torque transmitting element. Torque transmission is accomplished by mating slots in the center disk, located on opposite sides of the disk and oriented 90 degrees apart, with the drive tenons on the hubs. The slots of the disk fit on the tenons of the hub with a slight press fit. This press fit allows the coupling (with an acetal disk) to operate with zero backlash. While over time the sliding of the disk over the tenons will create wear and the coupling will cease to be zero backlash, the disk can be easily replaced and the coupling's original performance restored. In operation, the center disk slides on the tenon of the hub to accommodate misalignment. This design is particularly well suited for handling relatively large amounts of parallel misalignment. The disks are also electrically isolating and can act as a mechanical fuse. When the plastic insert fails, it breaks cleanly and does not allow any transmission of power, preventing other damage from occurring to more expensive machinery components.



## WARRANTY / DISCLAIMER OF UNSTATED WARRANTIES / LIMITATION OF LIABILITY

**Warranty.** Ruland warrants that the products sold hereunder meet Ruland's size and materials specifications as set forth in this catalog. Products not meeting Ruland's size and material specifications will, at Ruland's option, be replaced or the purchase price refunded.

**Disclaimer of unstated warranties.** THE WARRANTY PRINTED ABOVE IS THE ONLY WARRANTY APPLICABLE TO THESE PRODUCTS. ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. It is the responsibility of the user to determine the suitability of Ruland products for a specific application. No person, including employees of Ruland or agents in the company's channels of distribution is authorized to represent on Ruland's behalf, the suitability of Ruland products for a specific purpose.

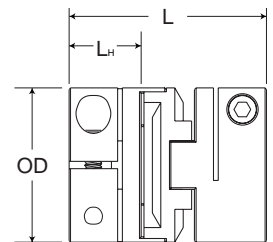
**Limitation of Liability.** IT IS UNDERSTOOD AND AGREED THAT SELLER'S LIABILITY SHALL NOT EXCEED THE AMOUNT OF THE PURCHASE PRICE. SELLER SHALL NOT BE LIABLE FOR SPECIAL, INDIRECT OR CONSEQUENTIAL DAMAGES. THE PRICE STATED FOR THE PRODUCT IS A CONSIDERATION IN LIMITING RULAND'S LIABILITY.

## HUBS

PART NUMBER		SPECIFICATIONS									
CLAMP STYLE	SET SCREW STYLE	BORE (in)	OUTER DIAM. OD (in)	HUB LENGTH L <sub>H</sub> (in)		COUPLING LENGTH L (in)		SHAFT PENETRATION (in)		CLAMP SCREW	SET SCREW
				(OCT)	(OST)	(OCT)	(OST)	(OCT)	(OST)		
	OST8-2-A	.1250									
	OST8-3-A	.1875	0.500		0.222		0.625		0.222		M3
	OST8-4-A	.2500									
OCT12-3-A	OST12-3-A	.1875									
OCT12-4-A	OST12-4-A	.2500	0.750	0.380	0.300	1.000	0.875	0.380	0.300	M2.5	M3
OCT12-5-A	OST12-5-A	.3125									
OCT16-4-A	OST16-4-A	.2500									
OCT16-5-A	OST16-5-A	.3125									
OCT16-6-A	OST16-6-A	.3750	1.000	0.467	0.390	1.250	1.125	0.467	0.390	M3	M4
OCT16-8-A	OST16-8-A	.5000									
OCT21-5-A	OST21-5-A	.3125									
OCT21-6-A	OST21-6-A	.3750									
OCT21-8-A	OST21-8-A	.5000	1.313	0.590	0.590	1.875	1.875	0.590	0.590	M3	M4
OCT21-10-A	OST21-10-A	.6250									
OCT26-6-A	OST26-6-A	.3750									
OCT26-8-A	OST26-8-A	.5000									
OCT26-10-A	OST26-10-A	.6250	1.625	0.710	0.710	2.000	2.000	0.710	0.710	M4	M5
OCT26-12-A	OST26-12-A	.7500									
OCT32-8-A		.5000									
OCT32-10-A		.6250									
OCT32-12-A		.7500	2.000	0.820		2.350		0.820		M5	
OCT32-14-A		.8750									
OCT32-16-A		1.0000									
OCT36-8-A		.5000									
OCT36-10-A		.6250									
OCT36-12-A		.7500	2.250	1.130		3.100		1.130		M6	
OCT36-14-A		.8750									
OCT36-16-A		1.0000									

## DISKS

PART NUMBER	MATERIAL	OUTER DIAM. OD (in)	TORSIONAL STIFFNESS (Deg/lb-in)	RATED TORQUE (lb-in)	BREAK TORQUE (lb-in)	PARALLEL MISALIGNMENT (in)	AXIAL MOTION (in)
OD8/13-AT	Acetal	0.500	.072	6.0	34	0.004	0.002
OD12/19-AT	Acetal	0.750	.043	20.0	93	0.008	0.004
OD16/25-AT	Acetal	1.000	.033	42.0	168	0.008	0.004
OD21/33-AT	Acetal	1.313	.009	70.0	350	0.008	0.006
OD26/41-AT	Acetal	1.625	.008	130.0	480	0.010	0.006
OD32/51-AT	Acetal	2.000	.005	250.0	750	0.010	0.008
OD36/57-AT	Acetal	2.250	.003	375.0	1100	0.010	0.008
OD8/13-NL	Nylon 11	0.500	.290	1.5	25	0.004	0.002
OD12/19-NL	Nylon 11	0.750	.140	5.0	85	0.008	0.004
OD16/25-NL	Nylon 11	1.000	.126	10.0	140	0.008	0.004
OD21/33-NL	Nylon 11	1.313	.052	18.0	300	0.008	0.006
OD26/41-NL	Nylon 11	1.625	.037	32.0	400	0.010	0.006



**Note 1** Couplings can accommodate angular misalignment up to 0.5°.

**Note 2** Hardware is alloy steel with black oxide finish. Parts OST8, OST12, MOST13 and MOST19 have one set screw on each end. OST16, OST21, OST26, MOST25, MOST33 and MOST41 have two set screws 90° apart.

**Note 3** Performance ratings are for guidance only. The user must determine suitability for a particular application.

**Note 4** Couplings supplied with black anodized aluminum hubs.

**FOR ENGINEERING INFORMATION, SEE PAGE 7. FOR WARRANTY INFORMATION, SEE PAGE 2.**

## HUBS

PART NUMBER		SPECIFICATIONS									
CLAMP STYLE	SET SCREW STYLE	BORE (mm)	OUTER DIAM. OD (mm)	HUB LENGTH L <sub>H</sub> (mm)		COUPLING LENGTH L (mm)		SHAFT PENETRATION (mm)		CLAMP SCREW	SET SCREW
				(MOCT)	(MOST)	(MOCT)	(MOST)	(MOCT)	(MOST)		
	MOST13-3-A	3									
	MOST13-4-A	4	12.7		5.6		15.9		5.6		M3
	MOST13-5-A	5									
	MOST13-6-A	6									
MOCT19-4-A	MOST19-4-A	4									
MOCT19-5-A	MOST19-5-A	5	19.1	9.7	7.6	25.4	22.2	9.7	7.6	M2.5	M3
MOCT19-6-A	MOST19-6-A	6									
MOCT19-8-A	MOST19-8-A	8									
MOCT25-6-A	MOST25-6-A	6									
MOCT25-8-A	MOST25-8-A	8	25.4	11.9	9.9	31.8	28.6	11.9	9.9	M3	M4
MOCT25-10-A	MOST25-10-A	10									
MOCT25-12-A	MOST25-12-A	12									
MOCT33-8-A	MOST33-8-A	8									
MOCT33-10-A	MOST33-10-A	10									
MOCT33-12-A	MOST33-12-A	12	33.3	15.0	15.0	47.6	47.6	15.0	15.0	M3	M4
MOCT33-14-A	MOST33-14-A	14									
MOCT33-16-A	MOST33-16-A	16									
MOCT41-10-A	MOST41-10-A	10									
MOCT41-12-A	MOST41-12-A	12									
MOCT41-14-A	MOST41-14-A	14	41.3	18.0	18.0	50.8	50.8	18.0	18.0	M4	M5
MOCT41-16-A	MOST41-16-A	16									
MOCT41-20-A	MOST41-20-A	20									
MOCT51-12-A	MOST51-12-A	12									
MOCT51-14-A	MOST51-14-A	14									
MOCT51-16-A	MOST51-16-A	16	50.8	20.8		59.7		20.8		M5	
MOCT51-20-A	MOST51-20-A	20									
MOCT51-25-A	MOST51-25-A	25									
MOCT57-14-A	MOST57-14-A	14									
MOCT57-16-A	MOST57-16-A	16									
MOCT57-20-A	MOST57-20-A	20	57.2	28.7		78.7		28.7		M6	
MOCT57-25-A	MOST57-25-A	25									
MOCT57-30-A	MOST57-30-A	30									

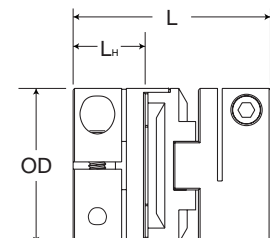
## DISKS

PART NUMBER	MATERIAL	OUTER DIAM. OD (mm)	TORSIONAL STIFFNESS (Deg/Nm)	RATED TORQUE (Nm)	BREAK TORQUE (Nm)	PARALLEL MISALIGNMENT (mm)	AXIAL MOTION (mm)
OD8/13-AT	Acetal	12.7	0.636	0.68	3.9	0.10	0.05
OD12/19-AT	Acetal	19.1	0.380	2.25	10.5	0.20	0.10
OD16/25-AT	Acetal	25.4	0.291	4.75	19.0	0.20	0.10
OD21/33-AT	Acetal	33.3	0.079	8.00	39.5	0.20	0.15
OD26/41-AT	Acetal	41.3	0.068	14.75	54.5	0.25	0.15
OD32/51-AT	Acetal	50.8	0.044	28.50	85.0	0.25	0.20
OD36/57-AT	Acetal	57.2	0.027	42.50	125.0	0.25	0.20
OD8/13-NL	Nylon 11	12.7	2.560	0.17	2.8	0.10	0.05
OD12/19-NL	Nylon 11	19.1	1.240	0.57	9.6	0.20	0.10
OD16/25-NL	Nylon 11	25.4	1.110	1.13	15.9	0.20	0.10
OD21/33-NL	Nylon 11	33.3	0.460	2.05	34.0	0.20	0.15
OD26/41-NL	Nylon 11	41.3	0.330	3.65	45.3	0.25	0.15

### ORDERING INFORMATION

**For a complete coupling, order two hubs and one disk.**

For example: order MOCT19-4-A, MOCT19-6-A, and OD12/19-AT to form a complete coupling with a 19.1 mm OD, 4 mm and 6 mm bores and a zero backlash disk.



**FOR ENGINEERING INFORMATION, SEE PAGE 7. FOR WARRANTY INFORMATION, SEE PAGE 2.**

## HUBS

PART NUMBER		SPECIFICATIONS										
CLAMP STYLE	SET SCREW STYLE	KEYWAY (in)	BORE (in)	OUTER DIAM. OD (in)	HUB LENGTH L <sub>H</sub> (in)		COUPLING LENGTH L (in)		SHAFT PENETRATION (in)		CLAMP SCREW	SET SCREW
					(OCC)	(OSC)	(OCC)	(OSC)	(OCC)	(OSC)		
OCC16-6-A	OSC16-6-A	3/32	.3750	1.000	0.467	0.390	1.250	1.125	0.467	0.390	M3	M4
OCC16-8-A	OSC16-8-A	1/8	.5000									
OCC21-6-A	OSC21-6-A	3/32	.3750	1.313	0.590	0.590	1.875	1.875	0.590	0.590	M3	M4
OCC21-8-A	OSC21-8-A	1/8	.5000									
OCC21-10-A	OSC21-10-A	3/16	.6250									
OCC26-6-A	OSC26-16-A	3/32	.3750	1.625	0.710	0.710	2.000	2.000	0.710	0.710	M4	M5
OCC26-8-A	OSC26-10-A	1/8	.5000									
OCC26-10-A	OSC26-12-A	3/16	.6250									
OCC26-12-A	OSC26-14-A	3/16	.7500									
OCC32-8-A		1/8	.5000	2.000	0.820		2.350		0.820		M5	
OCC32-10-A		3/16	.6250									
OCC32-12-A		3/16	.7500									
OCC32-14-A		3/16	.8750									
OCC32-16-A		1/4	1.000									
OCC36-8-A		1/8	.5000	2.250	1.130		3.100		1.130		M6	
OCC36-10-A		3/16	.6250									
OCC36-12-A		3/16	.7500									
OCC36-14-A		3/16	.8750									
OCC36-16-A		1/4	1.000									

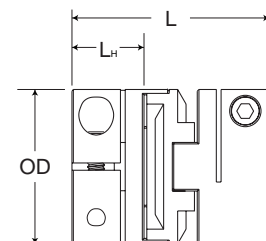
## DISKS

PART NUMBER	MATERIAL	OUTER DIAM. OD (in)	RATED TORQUE (lb-in)	TORSIONAL STIFFNESS (Deg/lb-in)	BREAK TORQUE (lb-in)	ANGULAR (Deg)	PARALLEL MISALIGNMENT (in)	AXIAL MOTION (in)
OD8/13-AT	Acetal	0.500	6	.072	34	0.5	0.004	0.002
OD12/19-AT	Acetal	0.750	20	.043	93	0.5	0.008	0.004
OD16/25-AT	Acetal	1.000	42	.033	168	0.5	0.008	0.004
OD21/33-AT	Acetal	1.313	70	.009	350	0.5	0.008	0.006
OD26/41-AT	Acetal	1.625	130	.008	480	0.5	0.010	0.006
OD32/51-AT	Acetal	2.000	250	.005	750	0.5	0.010	0.008
OD36/57-AT	Acetal	2.250	375	.003	1100	0.5	0.010	0.008
OD8/13-NL	Nylon 11	0.500	1.5	.290	25	0.5	0.004	0.002
OD12/19-NL	Nylon 11	0.750	5.0	.140	85	0.5	0.008	0.004
OD16/25-NL	Nylon 11	1.000	10.0	.126	140	0.5	0.008	0.004
OD21/33-NL	Nylon 11	1.313	18.0	.052	300	0.5	0.008	0.006
OD26/41-NL	Nylon 11	1.625	32.0	.037	400	0.5	0.010	0.006

### ORDERING INFORMATION

**For a complete coupling, order two hubs and one disk.**

For example: order OCC32-12-A, OCC32-10-A and OD32/51-AT to form a complete coupling with a 2 in OD, .75 in and .625 in bores and a zero backlash disk.



**Note 1** Hardware is alloy steel with black oxide finish.

**Note 2** Performance ratings are for guidance only. The user must determine suitability for a particular application.

**Note 3** Couplings supplied with black anodized aluminum hubs.

**FOR ENGINEERING INFORMATION, SEE PAGE 7. FOR WARRANTY INFORMATION, SEE PAGE 2.**

**HUBS**

PART NUMBER		SPECIFICATIONS										
CLAMP STYLE	SET SCREW STYLE	KEYWAY (mm)	BORE (mm)	OUTER DIAM. OD (mm)	HUB LENGTH L <sub>H</sub> (mm)		COUPLING LENGTH L (mm)		SHAFT PENETRATION (mm)		CLAMP SCREW	SET SCREW
					(MOCC)	(MOSC)	(MOCC)	(MOSC)	(MOCC)	(MOSC)		
MOCC25-10-A	MOSC25-10-A	3	10	25.4	11.9	9.9	31.8	28.6	11.9	9.9	M3	M4
MOCC25-12-A	MOSC25-12-A	4	12									
MOCC33-10-A	MOSC33-10-A	3	10	33.3	15.0	15.0	47.6	47.6	15.0	15.0	M3	M4
MOCC33-12-A	MOSC33-12-A	4	12									
MOCC33-14-A	MOSC33-14-A	5	14									
MOCC33-16-A	MOSC33-16-A	5	16									
MOCC41-10-A	MOSC41-10-A	3	10									
MOCC41-12-A	MOSC41-12-A	4	12	41.3	18.0	18.0	50.8	50.8	18.0	18.0	M4	M5
MOCC41-14-A	MOSC41-14-A	5	14									
MOCC41-16-A	MOSC41-16-A	5	16									
MOCC41-20-A	MOSC41-20-A	6	20									
MOCC51-12-A		4	12									
MOCC51-14-A		5	14	50.8	20.8	59.7	20.8	M5				
MOCC51-16-A		5	16									
MOCC51-20-A		6	20									
MOCC51-25-A		8	25									
MOCC57-14-A		5	14									
MOCC57-16-A		5	16	57.2	28.7	78.7	28.7	M6				
MOCC57-20-A		6	20									
MOCC57-25-A		8	25									
MOCC57-30-A		8	30									

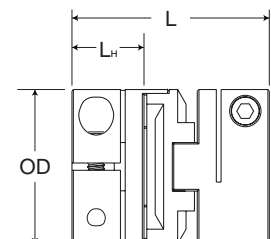
**DISKS**

PART NUMBER	MATERIAL	OUTER DIAM. OD (mm)	RATED TORQUE (Nm)	TORSIONAL STIFFNESS (Deg/Nm)	BREAK TORQUE (Nm)	ANGULAR (Deg)	PARALLEL MISALIGNMENT (mm)	AXIAL MOTION (mm)
OD8/13-AT	Acetal	12.7	0.68	0.636	3.9	0.5	0.10	0.05
OD12/19-AT	Acetal	19.1	2.25	0.380	10.5	0.5	0.20	0.10
OD16/25-AT	Acetal	25.4	4.75	0.291	19.0	0.5	0.20	0.10
OD21/33-AT	Acetal	33.3	8.00	0.079	39.5	0.5	0.20	0.15
OD26/41-AT	Acetal	41.3	14.75	0.068	54.5	0.5	0.25	0.15
OD32/51-AT	Acetal	50.8	28.50	0.044	85.0	0.5	0.25	0.20
OD36/57-AT	Acetal	57.2	42.50	0.027	125.0	0.5	0.25	0.20
OD8/13-NL	Nylon 11	12.7	0.17	2.560	2.8	0.5	0.10	0.05
OD12/19-NL	Nylon 11	19.1	0.57	1.240	9.6	0.5	0.20	0.10
OD16/25-NL	Nylon 11	25.4	1.13	1.110	15.9	0.5	0.20	0.10
OD21/33-NL	Nylon 11	33.3	2.05	0.460	34.0	0.5	0.20	0.15
OD26/41-NL	Nylon 11	41.3	3.65	0.330	45.3	0.5	0.25	0.15

**ORDERING INFORMATION**

**For a complete coupling, order two hubs and one disk.**

For example: order MOCC33-14-A, MOCC33-10-A and OD21/33-AT to form a complete coupling with a 33.3 mm OD, 14 mm and 10 mm bores and a zero backlash disk.



**Note 1** Hardware is alloy steel with black oxide finish.

**Note 2** Performance ratings are for guidance only. The user must determine suitability for a particular application.

**Note 3** Couplings supplied with black anodized aluminum hubs.

**FOR ENGINEERING INFORMATION, SEE PAGE 7. FOR WARRANTY INFORMATION, SEE PAGE 2.**

# Technical Information

## Materials

Torque Disks: Acetal or Nylon 11  
 Hubs: 2024 T351 or 7075 T651 Extruded and Drawn Aluminum Bar

## Surface Finish

Hubs: Sulfuric Anodized MIL-A-8625 Type II, class 2

## Hardware

Socket Head Cap Screws: Alloy steel, heat treated. Meet or exceed ASA specification B18.3. Metric hardware meets or exceeds ASA specifications B18.3.1M and ASTM A574M property class 12.9

Forged Socket Set Screws: Alloy steel, heat treated, cup point. Meet or exceed ASA specification B18.3

## Temperature Range

-10° F to 150° F with Acetal disk  
 -10° F to 130° F with Nylon 11 disk

## Bore Tolerance

+.002"/-.000"  
 +.050 mm/-.000 mm

## Maximum Speed

4,500 rpm



## Hardware Torque Charts

### Torque Ratings—Clamp Screw

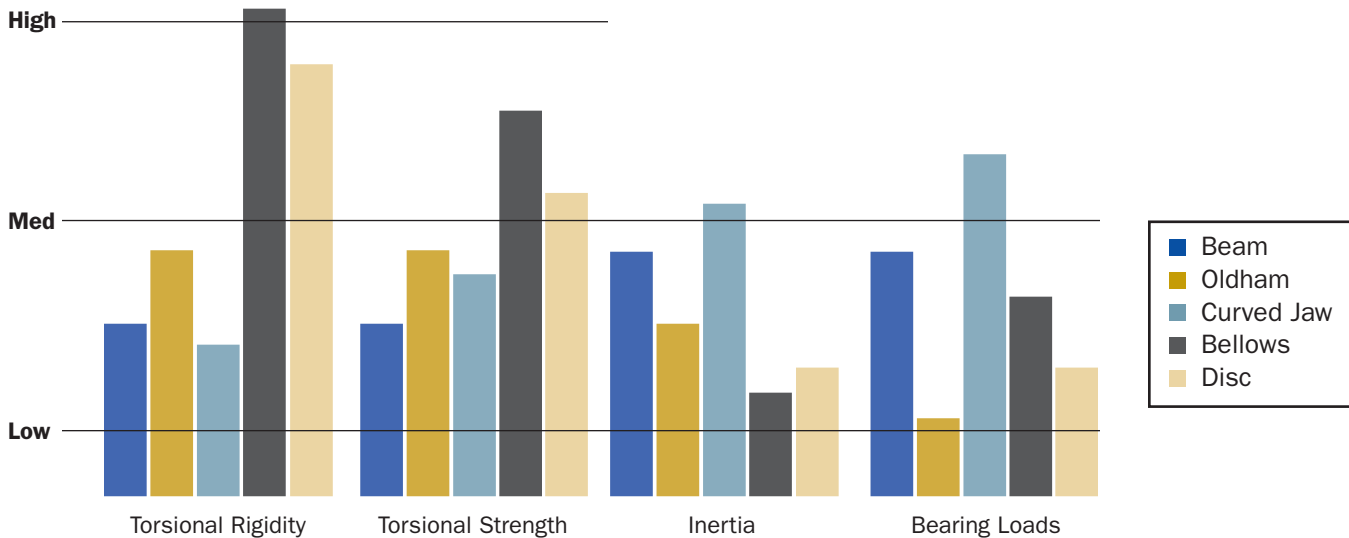
METRIC Clamp Screw	Seating Torque (Nm)	
	ALLOY	STAINLESS STEEL
M2	0.60	0.36
M2.5	1.21	0.73
M3	2.10	1.10
M4	4.60	2.50
M5	9.50	5.40
M6	16.00	9.60

### Torque Ratings—Set Screw

METRIC Set Screw	Seating Torque (Nm)	
	ALLOY	STAINLESS STEEL
M2.5	0.57	0.44
M3	0.92	0.73
M4	2.20	1.76
M5	4.00	3.20
M6	7.20	5.76

## Installation Instructions

1. Assure that the misalignment between shafts is within the coupling's ratings.
2. Slide a hub onto each shaft to be joined with the drive tenons facing each other.
3. Rotate the hubs on the shaft so the drive tenons are located 90° from each other.
4. Place a torque disk so one groove fits over the drive tenons of a hub and center the disk by hand.
5. Insert a shim with the thickness of the coupling's axial motion rating into the groove of the torque disk.
6. Slide the tenons of the second hub into the mating groove in the disk until it touches the shim stock.
7. Fully tighten the screw(s) on each hub to their recommended seating torque (see charts above).
8. Remove the shim stock to leave a small gap between the top of the drive tenons and the torque disk to allow for axial movement.



We are committed to have the largest variety of sizes and styles in the industry. In addition to the items listed below, we can manufacture an extensive variety of special designs. Please contact us with your custom needs.

## OLDHAM COUPLING

Clamp and  
set screw  
styles.



## BELLOWS COUPLING

Clamp and  
set screw  
styles.



## BEAM COUPLING

Clamp and  
set screw  
styles.



## JAW COUPLING

Clamp and  
set screw  
styles.



## QUICK-CLAMP COLLAR

One-piece  
integral  
lever style.



## SHAFT COLLAR

One- and  
two-piece  
styles.



## DISC COUPLING

Clamp and  
set screw  
styles.



## RIGID COUPLING

One- and  
two-piece  
styles.

