

# 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	1.000	0.467	0.390	1.250	1.125	0.467	0.390	M3	M4
OCT16-6-A	OST16-6-A	.3750									
OCT16-8-A	OST16-8-A	.5000									
OCT21-5-A	OST21-5-A	.3125									
OCT21-6-A	OST21-6-A	.3750	1.313	0.590	0.590	1.875	1.875	0.590	0.590	M3	M4
OCT21-8-A	OST21-8-A	.5000									
OCT21-10-A	OST21-10-A	.6250									
OCT26-6-A	OST26-6-A	.3750									
OCT26-8-A	OST26-8-A	.5000	1.625	0.710	0.710	2.000	2.000	0.710	0.710	M4	M5
OCT26-10-A	OST26-10-A	.6250									
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		TORSIONAL STIFFNESS		RATED TORQUE		BREAK TORQUE		PARALLEL MISALIGNMENT		AXIAL MOTION	
		(in)	(mm)	(Deg/lb-in)	(Deg/Nm)	(lb-in)	(Nm)	(lb-in)	(Nm)	(in)	(mm)	(in)	(mm)
OD8/13-AT	Acetal	0.500	12.7	.072	0.636	6.0	0.68	34	3.9	0.004	0.10	0.002	0.05
OD12/19-AT	Acetal	0.750	19.1	.043	0.380	20.0	2.25	93	10.5	0.008	0.20	0.004	0.10
OD16/25-AT	Acetal	1.000	25.4	.033	0.291	42.0	4.75	168	19.0	0.008	0.20	0.004	0.10
OD21/33-AT	Acetal	1.313	33.3	.009	0.079	70.0	8.00	350	39.5	0.008	0.20	0.006	0.15
OD26/41-AT	Acetal	1.625	41.3	.008	0.068	130.0	14.75	480	54.5	0.010	0.25	0.006	0.15
OD32/51-AT	Acetal	2.000	50.8	.005	0.044	250.0	28.50	750	85.0	0.010	0.25	0.008	0.20
OD36/57-AT	Acetal	2.250	57.2	.003	0.027	375.0	42.50	1100	125.0	0.010	0.25	0.008	0.20
OD8/13-NL	Nylon 11	0.500	12.7	.290	2.560	1.5	0.17	25	2.8	0.004	0.10	0.002	0.05
OD12/19-NL	Nylon 11	0.750	19.1	.140	1.240	5.0	0.57	85	9.6	0.008	0.20	0.004	0.10
OD16/25-NL	Nylon 11	1.000	25.4	.126	1.110	10.0	1.13	140	15.9	0.008	0.20	0.004	0.10
OD21/33-NL	Nylon 11	1.313	33.3	.052	0.460	18.0	2.05	300	34.0	0.008	0.20	0.006	0.15
OD26/41-NL	Nylon 11	1.625	41.3	.037	0.330	32.0	3.65	400	45.3	0.010	0.25	0.006	0.15

**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.

## HUBS

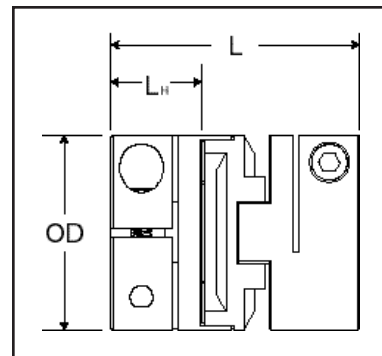
PART NUMBER		SPECIFICATIONS									
CLAMP STYLE	SET SCREW STYLE	BORE (mm)	OUTER DIAM. OD (mm)	HUB LENGTH L <sub>H</sub> (mm)		COUPLING LENGTH L (mm)		SHAFT PENETRATION (mm)		CLAMP SCREW	SET SCREW
				(MOCT)	(MOST)	(MOCT)	(MOST)	(MOCT)	(MOST)		
	MOST13-3-A	3									
	MOST13-4-A	4	12.7		5.6		15.9		5.6		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		12									
MOCT51-14-A		14									
MOCT51-16-A		16	50.8	20.8		59.7		20.8		M5	
MOCT51-20-A		20									
MOCT51-25-A		25									
MOCT57-14-A		14									
MOCT57-16-A		16									
MOCT57-20-A		20	57.2	28.7		78.7		28.7		M6	
MOCT57-25-A		25									
MOCT57-30-A		30									



### ORDERING INFORMATION

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

For example: order OCT16-4-A, OCT16-6-A, and OD16/25-AT to form a complete coupling with a 1" OD, .250" and .375" bores and a zero backlash disk.



**FOR ENGINEERING INFORMATION, SEE PAGE 5. 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: Type II Sulfuric Anodized

## 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

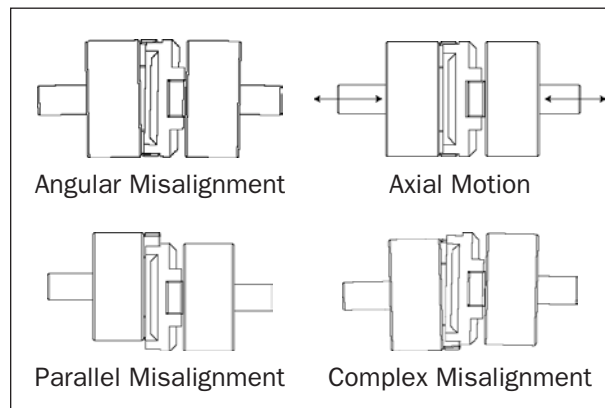
Forged Socket Set Screws: Alloy steel, heat treated, cup point. Meet or exceed ASA specification B18.3

## Temperature Range

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

## Maximum Speed

4,500 rpm



## Hardware Torque Charts

### Torque Ratings—Clamp Screw

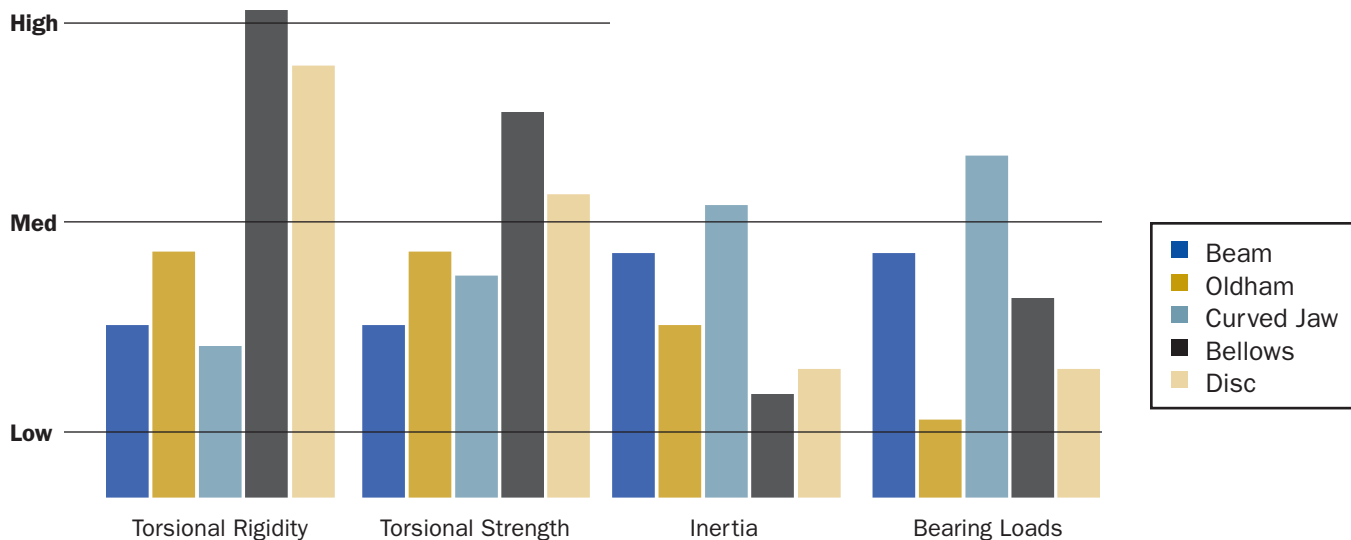
METRIC Clamp Screw	Seating Torque (Nm)	
	ALLOY	STAINLESS STEEL
M2	0.60	0.36
M2.5	1.21	0.73
M3	2.10	1.10
M4	4.60	2.50
M5	9.50	5.40
M6	16.00	9.60

### 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.





# Available from RULAND

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.



## CLAMPING DEVICE

Single and dual taper styles.



## SHAFT COLLAR

One- and two-piece styles.



## DISC COUPLING

Clamp and set screw styles.



## RIGID COUPLING

One- and two-piece styles.



## **RULAND** Manufacturing Co., Inc.

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