RULAND

1937

Carefully Made Shaft Collars and Couplings



ZERO BACKLASH JAW 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. Zero backlash jaw couplings are a new addition to our expanding line of motion control coupling products.

Zero backlash jaw couplings are three piece couplings comprised of two hubs and an elastic element. The spider, made of an advanced polyurethane material, provides dampening of impulse loads, minimizing shock to the motor and other sensitive equipment. Available in two durometers, these spiders allow the user to customize the jaw coupling's performance. Selecting a soft spider will give the jaw coupling the greatest dampening characteristics, while a hard spider will provide the greatest torsional stiffness and strength. All spiders are press fit onto a curved jaw profile, assuring zero backlash operation. The curved jaw profile concentrates the forces to the center of the spider's limbs, improving the effectiveness of the elastomer material. Raised contact points on the spider limbs help maintain proper spacing between the two hubs, assuring electrical isolation and full angular misalignment capabilities. Jaw couplings are considered fail safe because, even if a spider fails, the jaws of the two hubs interlock allowing direct power transmission, allowing the application to be safely shut down for maintenance.

WARRANTY / DISCLAIMER OF UNSTATED WARRANTIES / LIMITATION OF LIABILITY

Warranty. Ruland warranties 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.

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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 LH (in)	COUPLING LENGTH L (in)	SHAFT PENETRATION (in)	CLAMP SCREW	SET SCREW
JC10-2-A	JS10-2-A	.1250						
JC10-3-A	JS10-3-A	.1875	0.590	0.300	0.860	0.300	M2	M3
JC10-4-A	JS10-4-A	.2500						
JC12-3-A	JS12-3-A	.1875						
JC12-4-A	JS12-4-A	.2500	0.750	0.385	1.070	0.385	M2.5	M3
JC12-5-A	JS12-5-A	.3125						
JC16-4-A	JS16-4-A	.2500						
JC16-5-A	JS16-5-A	.3125	1.000	0.467	1.390	0.467	M3	M4
JC16-6-A	JS16-6-A	.3750						
JC16-8-A	JS16-8-A	.5000						
JC21-5-A	JS21-5-A	.3125						
JC21-6-A	JS21-6-A	.3750	1.313	0.590	1.750	0.590	M3	M4
JC21-8-A	JS21-8-A	.5000						
JC21-10-A	JS21-10-A	.6250						
JC26-6-A	JS26-6-A	.3750						
JC26-8-A	JS26-8-A	.5000	1.625	0.710	2.086	0.710	M4	M5
JC26-10-A	JS26-10-A	.6250						
JC26-12-A	JS26-12-A	.7500						
JC32-8-A	JS32-8-A	.5000						
JC32-10-A	JS32-10-A	.6250						
JC32-12-A	JS32-12-A	.7500	2.000	0.820	2.400	0.820	M5	M6
JC32-14-A	JS32-14-A	.8750						
JC32-16-A	JS32-16-A	1.0000						
JC36-8-A	JS36-8-A	.5000						
JC36-10-A	JS36-10-A	.6250						
JC36-12-A	JS36-12-A	.7500						
JC36-14-A	JS36-14-A	.8750	2.250	1.130	3.150	1.130	M6	M8
JC36-16-A	JS36-16-A	1.0000						
JC36-18-A	JS36-18-A	1.1250						
JC36-20-A	JS36-20-A	1.2500						

SPIDERS

PART NUMBER	OUTER DIAM. OD		DUROMETER	TORSIONAL STIFFNESS		NOMINAL TORQUE		PEAK TORQUE		ANGULAR MISALIGNMENT	PARALLEL MISALIGNMENT		AXIAL MOTION	
	(in)	(mm)		(Deg/lb-in)	(Deg/Nm)	(lb-in)	(Nm)	(lb-in)	(Nm)	(Deg)	(in)	(mm)	(in)	(mm)
JD10/15-98R	0.590	15.0	98 Shore A	.121	1.068	8	0.9	16	1.8	0.8	0.002	0.05	0.020	0.51
JD12/19-98R	0.750	19.1	98 Shore A	.114	1.007	15	1.7	30	3.4	0.8	0.003	0.08	0.020	0.51
JD16/25-98R	1.000	25.4	98 Shore A	.024	0.212	75	8.5	150	17.0	0.8	0.003	0.08	0.030	0.76
JD21/33-98R	1.313	33.3	98 Shore A	.012	0.106	87	9.9	174	19.7	0.8	0.003	0.08	0.030	0.76
JD26/41-98R	1.625	41.3	98 Shore A	.006	0.053	165	18.7	330	37.4	0.8	0.004	0.10	0.050	1.27
JD32/51-98R	2.000	50.8	98 Shore A	.004	0.035	275	31.2	550	62.3	0.8	0.005	0.13	0.050	1.27
JD36/57-98R	2.250	57.2	98 Shore A	.003	0.026	410	46.5	820	92.9	0.8	0.004	0.10	0.050	1.27
JD10/15-92Y	0.590	15.0	92 Shore A	.270	2.384	5	0.6	10	1.1	0.9	0.004	0.10	0.020	0.51
JD12/19-92Y	0.750	19.1	92 Shore A	.257	2.269	9	1.0	18	2.0	0.9	0.004	0.10	0.020	0.51
JD16/25-92Y	1.000	25.4	92 Shore A	.067	0.592	29	3.3	58	6.6	0.9	0.005	0.13	0.030	0.76
JD21/33-92Y	1.313	33.3	92 Shore A	.045	0.397	35	4.0	70	7.9	0.9	0.005	0.13	0.030	0.76
JD26/41-92Y	1.625	41.3	92 Shore A	.012	0.106	97	11.0	194	22.0	0.9	0.006	0.15	0.050	1.27
JD32/51-92Y	2.000	50.8	92 Shore A	.005	0.044	220	24.9	440	49.8	0.9	0.006	0.15	0.050	1.27
JD36/57-92Y	2.250	57.2	92 Shore A	.004	0.035	285	32.3	570	64.6	0.9	0.005	0.13	0.050	1.27
JD10/15-85B	0.590	15.0	85 Shore A	.450	3.972	2.4	0.3	4.8	0.5	1	0.005	0.13	0.020	0.51
JD12/19-85B	0.750	19.1	85 Shore A	.406	3.583	5	0.6	10	1.1	1	0.005	0.13	0.020	0.51
JD16/25-85B	1.000	25.4	85 Shore A	.108	0.953	15	1.7	30	3.4	1	0.006	0.15	0.030	0.76
JD21/33-85B	1.313	33.3	85 Shore A	.075	0.662	18	2.0	36	4.1	1	0.006	0.15	0.030	0.76
JD26/41-85B	1.625	41.3	85 Shore A	.021	0.185	49	5.6	98	11.1	1	0.006	0.15	0.050	1.27
JD32/51-85B	2.000	50.8	85 Shore A	.008	0.071	108	12.2	216	24.5	1	0.006	0.15	0.050	1.27
JD36/57-85B	2.250	57.2	85 Shore A	.007	0.062	139	15.8	278	31.5	1	0.006	0.15	0.050	1.27

Note 1 Hardware is alloy steel with black oxide finish. Parts JS10, JS12, MJS15 and MJS19 have one set screw on each end. JS16, JS21, JS26, JS32, JS36, MJS25, MJS33, MJS41, MJS51 and MJS57 have two set screws 90° apart.

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

HUBS

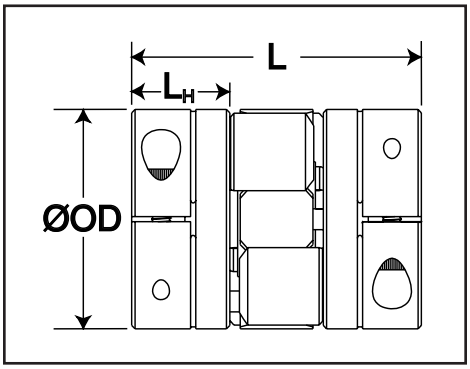
PART NUMBER		SPECIFICATIONS						
CLAMP STYLE	SET SCREW STYLE	BORE (mm)	OUTER DIAM. OD (mm)	HUB LENGTH L_H (mm)	COUPLING LENGTH L (mm)	SHAFT PENETRATION (mm)	CLAMP SCREW	SET SCREW
MJC15-3-A	MJS15-3-A	3						
MJC15-4-A	MJS15-4-A	4	15.0	7.6	21.8	7.6	M2	M3
MJC15-5-A	MJS15-5-A	5						
MJC15-6-A	MJS15-6-A	6						
MJC19-4-A	MJS19-4-A	4						
MJC19-5-A	MJS19-5-A	5	19.1	9.8	27.2	9.8	M2.5	M3
MJC19-6-A	MJS19-6-A	6						
MJC19-8-A	MJS19-8-A	8						
MJC25-6-A	MJS25-6-A	6						
MJC25-8-A	MJS25-8-A	8	25.4	11.9	35.3	11.9	M3	M4
MJC25-10-A	MJS25-10-A	10						
MJC25-12-A	MJS25-12-A	12						
MJC33-8-A	MJS33-8-A	8						
MJC33-10-A	MJS33-10-A	10						
MJC33-12-A	MJS33-12-A	12	33.3	15.0	44.5	15.0	M3	M4
MJC33-14-A	MJS33-14-A	14						
MJC33-15-A	MJS33-15-A	15						
MJC33-16-A	MJS33-16-A	16						
MJC41-10-A	MJS41-10-A	10						
MJC41-12-A	MJS41-12-A	12						
MJC41-14-A	MJS41-14-A	14	41.3	18.0	53.0	18.0	M4	M5
MJC41-15-A	MJS41-15-A	15						
MJC41-16-A	MJS41-16-A	16						
MJC41-20-A	MJS41-20-A	20						
MJC51-12-A	MJS51-12-A	12						
MJC51-14-A	MJS51-14-A	14						
MJC51-15-A	MJS51-15-A	15	50.8	20.8	61.0	20.8	M5	M6
MJC51-16-A	MJS51-16-A	16						
MJC51-20-A	MJS51-20-A	20						
MJC51-25-A	MJS51-25-A	25						
MJC57-14-A	MJS57-14-A	14						
MJC57-15-A	MJS57-15-A	15						
MJC57-16-A	MJS57-16-A	16	57.2	28.7	80.0	28.7	M6	M8
MJC57-20-A	MJS57-20-A	20						
MJC57-25-A	MJS57-25-A	25						
MJC57-30-A	MJS57-30-A	30						



ORDERING INFORMATION

For a complete coupling, order two hubs and one spider.

For example: order JC16-4-A, JC16-6-A, and JD16/25-98R to form a complete coupling with a 1" OD, .250" and .375" bores and a 98 Shore A durometer spider.



FOR ENGINEERING AND WARRANTY INFORMATION SEE WWW.RULAND.COM

Technical Information

Materials
Spiders: Polyurethane
Hubs: 2024 T351 or 7075 T651 Extruded and Drawn Aluminum Bar

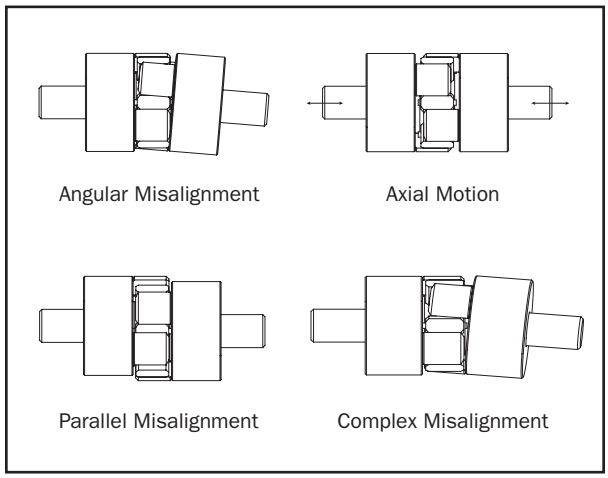
Surface Finish
Hubs: Bright Finish

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 180° F

Maximum Speed
8,000 rpm



Hardware Torque Charts

TORQUE RATINGS—CLAMP SCREW

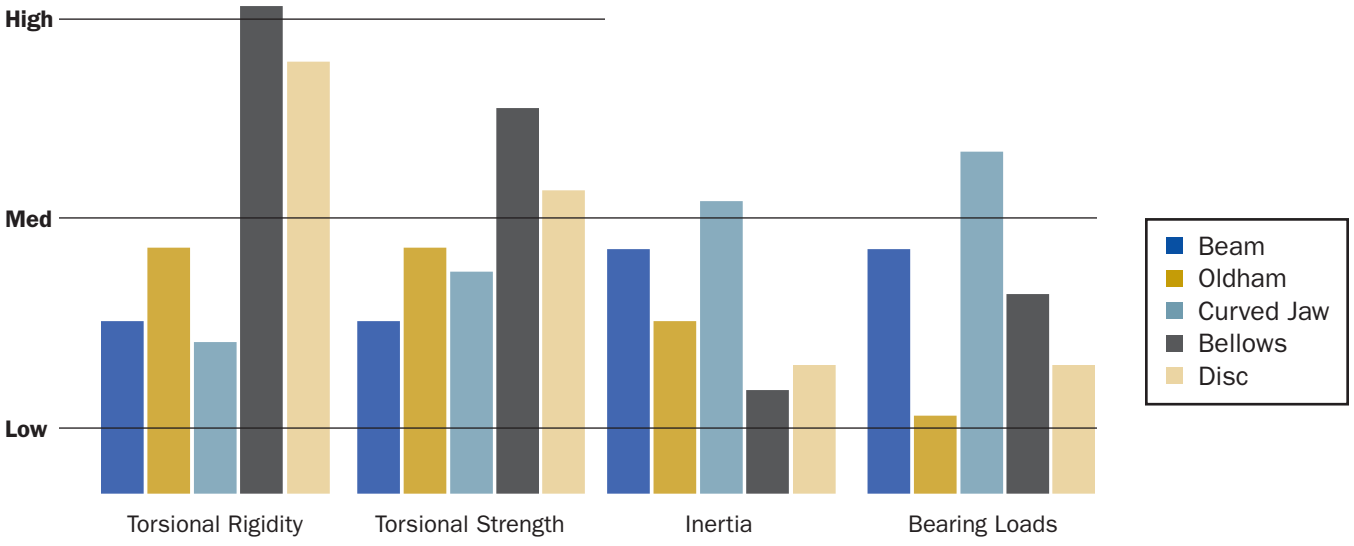
METRIC Clamp Screw	Seating Torque (Nm) ALLOY	STAINLESS STEEL
M2	0.60	0.36
M2.5	1.21	0.73
M3	2.10	1.10
M4	4.60	2.50
M5	9.50	5.40
M6	16.00	9.60

TORQUE RATINGS—SET SCREW

METRIC Set Screw	Seating Torque (Nm) ALLOY	STAINLESS STEEL
M3	0.92	0.73
M4	2.20	1.76
M5	4.00	3.20
M6	7.20	5.76
M8	17.00	13.60

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. Fully tighten the screw(s) on the first hub to the recommended seating torque (see charts above).
4. Insert a spider into the jaws of one hub until the raised points contact the base of the hub.
5. Insert the jaws of the second hub into the spider openings until the raised points contact the base of the second hub. Some force will be required to insert the second hub. This is normal.
6. Assure that a gap is maintained between the two hubs so there is no metal to metal contact. Fully tighten the screw(s) on the second hub to the recommended seating torque (see charts above).



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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

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