

AXIAL LOAD CAPABILITY

Collar resistance to axial motion on the shaft is primarily a function of screw size. The tables indicate maximum static load that a collar will support without slippage. It is based on screws at full recommended seating torque and, for set screw collars, shaft hardness not exceeding Rockwell C35.

Load capability is reduced with stainless steel screws because of lower seating torque. Load capability may be nearly doubled with set screw collars by adding a second set screw. Threaded collars and shafts have much greater axial load capability.

The Axial Load data presented is based on the median bore size for a particular screw size.



	CLAMPING SCREW SEATING TORQUE & AXIAL LOAD DATA				SET SCREW SEATING TORQUE & AXIAL LOAD DATA			
	SEATING TORQUE ALLOY STEEL SCREW (IN-LB)	MAXIMUM AXIAL LOAD ALLOY STEEL SCREW (LB)	SEATING TORQUE STAINLESS STEEL SCREW (IN-LB)	MAXIMUM AXIAL LOAD STAINLESS STEEL SCREW (LB)	SEATING TORQUE ALLOY STEEL SCREW (IN-LB)	MAXIMUM AXIAL LOAD ALLOY STEEL SCREW (LB)	SEATING TORQUE STAINLESS STEEL SCREW (IN-LB)	MAXIMUM AXIAL LOAD STAINLESS STEEL SCREW (LB)
IMPERIAL SCREW SIZE								
4-40	15	200	8	150	150	-	-	-
6-32	25	500	15	200	200	250	7	135
8-32	50	950	30	600	600	375	15	200
10-32	75	1750	45	800	800	550	25	300
1/4-20	-	-	-	-	-	950	70	550
1/4-28	175	2600	115	1400	1400	-	-	-
5/16-18	-	-	-	-	-	1500	135	900
5/16-24	340	6200	200	2800	2800	1500	135	1000
3/8-16	-	-	-	-	-	2200	235	1200
3/8-24	600	7200	350	3800	3800	-	-	-
1/2-13	-	-	-	-	-	3000	500	1200
1/2-20	1500	18000	875	9500	9500	-	-	-
METRIC SCREW SIZE								
M2	-	-	-	-	1.75	-	0.875	-
M3	18	253	9	177	8	-	3.5	-
M4	41	450	22	225	18	-	12	-
M5	85	900	45	320	41	-	24	-
M6	145	1957	76	570	68	-	44	-
M8	345	4014	183	2561	157	-	105	-
M10	690	6384	366	4171	310	-	210	-

Note:

- A “-” indicates data is not available.
- For further information and/or technical assistance, please contact Climax Metal Products Company.

Disclaimer:

- The values in the above tables are “typical” values based on limited testing and analysis.
- They are not a guarantee of average, maximum, or minimum values under all conditions.
- The values are provided solely as a reference for the user to procure appropriate testing equipment and assess suitability of parts for their application.
- Climax Metal Products Company does not intend these values to serve as a warranty.

APPROXIMATE TORQUE TRANSMISSION CAPACITY OF NON-KEYED COUPLINGS



A sample calculation for approximating the amount of torque a non-keyed clamping / set screw coupling will transmit

Example: Need to determine approximate torque transmission capacity (**T**) of 2ISCC-100-100

Step 1: Find size of screws being used on 2ISCC-100-100 from the catalog. It is 1/4-28 clamping screw

Step 2: Find material of the screw. It is alloy steel

Step 3: Locate the seating torque and maximum axial load (**F**) for a 1/4-28 alloy steel clamping screw from the table. Seating torque is 175 in-lb and maximum axial load is 2,600 lb

Step 4: Calculate the radius (**R**) of the coupling bore. Radius is half the inside diameter. 2ISCC-100-100 bore radius is (1.000" / 2) = 0.500"

Step 5: Approximate torque transmission capacity of 2ISCC-100-100 can now be calculated as

$$T = (F \times 2) \times R$$

$$T = 2,600 \text{ lb} \times 2 \times 0.500"$$

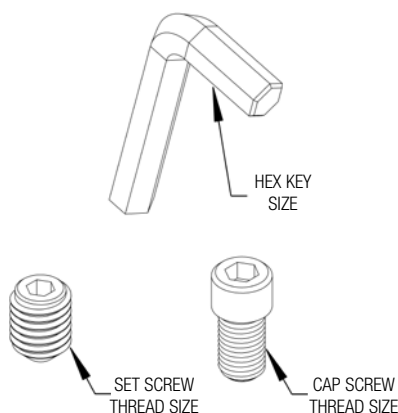
$$T = 2,600 \text{ in-lb}$$

Disclaimer:

- The torque transmission capacity calculation shown above yields approximate values. These values are not intended to be a guarantee of coupling performance under all conditions.
- The above calculation is provided solely as a reference for the user to procure appropriate testing equipment and assess suitability of parts for their application.
- Climax Metal Products Company does not intend the values calculated using this method to serve as a warranty.

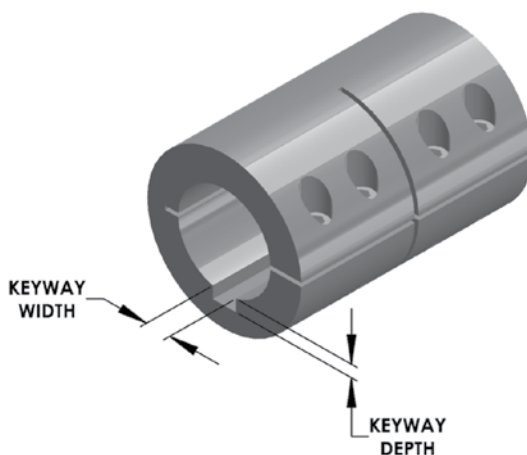
FASTENER KEY SIZES

INCH			
SET SCREW THREAD SIZE	HEX KEY SIZE	CAP SCREW THREAD SIZE	HEX KEY SIZE
2-56	0.035	4-40	3/32
4-40	0.050	6-32	7/64
6-32	1/16	8-32	9/64
8-32	5/64	10-32	5/32
10-32	3/32	1/4-28	3/16
1/4-20	1/8	5/16-24	1/4
5/16-18	5/32	3/8-24	5/16
3/8-16	3/16	1/2-13	3/8
1/2-13	1/4		



METRIC			
SET SCREW THREAD SIZE	HEX KEY SIZE	CAP SCREW THREAD SIZE	HEX KEY SIZE
M 2	0.9	M 3	2.5
M 3	1.5	M 4	3.0
M 4	2.0	M 5	4.0
M 5	2.5	M 6	5.0
M 6	3.0	M 8	6.0
M 8	4.0	M 10	8.0
M 10	5.0		

KEYWAY SIZES FOR INCH AND METRIC BORES



INCH	
BORE	KEYWAY SIZE WIDTH X DEPTH
3/8 to 7/16	3/32 X 3/64
1/2 to 9/16	1/8 X 1/16
5/8 to 7/8	3/16 X 3/32
1 to 1-1/4	1/4 X 1/8
1-5/16 to 1-3/8	5/16 X 5/32
1-7/16 to 1-3/4	3/8 X 3/16
1-7/8 to 2-1/4	1/2 X 1/4
2-7/16 to 2-3/4	5/8 X 5/16
2-15/16 to 3-1/4	3/4 X 3/8
3-7/16 to 3-3/4	7/8 X 7/16
3-15/16 to 4-1/2	1 X 1/2

METRIC	
BORE	KEYWAY SIZE WIDTH X DEPTH
7 to 8	2 X 1
9 to 10	3 X 1.4
11 to 12	4 X 1.8
13 to 17	5 X 2.3
18 to 22	6 X 2.8
23 to 30	8 X 3.3
31 to 38	10 X 3.3
39 to 44	12 X 3.3
45 to 50	14 X 3.8

SPECIFICATIONS FOR CATALOG SERIES COLLARS & COUPLINGS

MATERIAL

Steel High Strength, Low Carbon Steel
 Stainless Steel Type 303 Austenitic or Type 316 Austenitic
 Aluminum Type 6061 – T651 or equivalent
 Acetal Delrin®

FINISH

Steel Black Oxide, Zinc Plated or Yellow Zinc
 Stainless Steel Plain
 Aluminum Plain

SCREWS

Steel, Set Hex Socket, Cup Point, 3A Thread, ASTM F912
 Steel, Cap Hex Socket, 3A Thread, ASTM A574
 Stainless Steel, Set Hex Socket, Cup Point, 3A Thread, ASTM F880
 Stainless Steel, Cap Hex Socket, 3A Thread, ASTM F837

- Steel screws are supplied with steel and aluminum collars and couplings.
- Stainless steel screws are supplied with stainless steel collars and couplings and all non-metallic collars.

TYPICAL TOLERANCES

Bore Diameter As specified on individual catalog pages
 Width, Collars ± 0.005 inch
 Length, Couplings ± 0.015 inch

OPERATING TEMPERATURE RANGE FOR SHAFT COLLARS & RIGID COUPLINGS

Climax shaft collars and couplings can be used in applications over a wide range of operating temperatures. The table below lists these ambient operating temperature ranges for our shaft collars and rigid couplings based on material.

MATERIAL	AMBIENT OPERATING MIN (°F)	AMBIENT OPERATING MAX (°F)
Steel - High Strength, Low Carbon Steel	-40	350
Stainless Steel - Type 303 / Type 316	-40	350
Aluminum - Type 6061 - T651 or equivalent	-40	225
Acetal - Delrin®	-10	185

Note that the numbers listed in the table are ambient temperatures and are not applicable when the part is directly exposed to a heat source. These values are 'typical' operating temperature ranges and are not a guarantee under all conditions. They are meant to be a guide and must be evaluated by the customer based on individual application. For applications where the shaft collar and/or rigid couplings would be subjected to temperatures outside the ambient operating temperature range presented above, please contact a Climax applications engineer.

PROPER TECHNIQUE FOR REBORING RE-MACHINABLE COUPLINGS

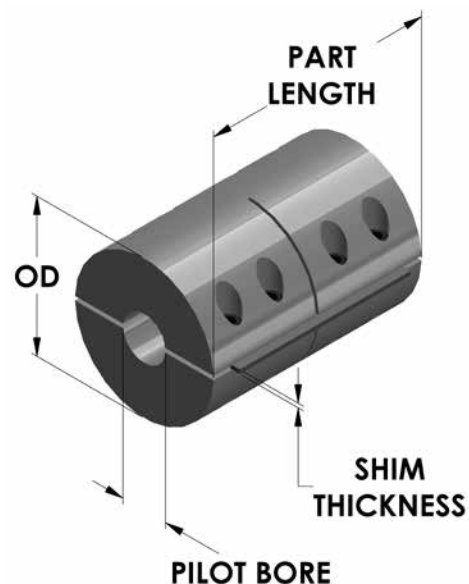
Climax R2CC-Series Re-Machinable Two-Piece Clamping Couplings are supplied with a pilot bore. These unique couplings allow the user room to re-bore the ID without damaging the clamp screws. The ID can be safely opened to the maximum bore size listed in the table below.

When re boring the R2CC-Series couplings:

1. Start by inserting a shim in the saw cuts on both sides of the coupling as illustrated.
Shim thickness is provided in the chart below.

PILOT BORE (IN)	MAX BORE (IN)	OD (IN)	PART LENGTH (IN)	SHIM THICKNESS (IN)
1/4	3/4	1-3/4	2-5/8	0.093
1/2	1	2	3	0.093
3/4	1-1/2	2-1/2	3-3/4	0.093
1	2	3-1/4	4-7/8	0.093

2. Tighten the clamp screws so that the coupling clamps down on the shims.
3. The coupling bore is then machined with the installation screws tightened and the shims on both sides holding the two halves of the coupling apart.



WARRANTY

Climax Metal Products Company warrants that all parts listed in this catalog meet the size and materials specifications within. Any non-conforming product will be replaced, or the purchase price refunded at the Company's option. The user is responsible for determining the suitability of a part for a particular application and performance. No employee of Climax Metal Products Company or its agents has the authority to represent these products for a particular application or use. Climax's liability is limited to the price of the part and neither Climax nor the seller's liability shall exceed the price of the part.

DISCLAIMER

Please note dimensional differences may exist from manufacturer to manufacturer. While size may vary slightly, in no way does this effect form, fit or function. For exact product specifications, please contact the factory 800-542-6552.

ISO CERTIFICATION

Climax is dedicated to maintaining the highest manufacturing practices possible. We are an ISO certified company. Our current ISO Certificate can be found online.

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