

# Technical Information

## Specifications for Catalog Series Collars & Couplings

Material	Finish	Screws
Steel ..... High Strength, Low Carbon Steel	Steel ..... Black Oxide, Zinc Plated or Yellow Zinc	Steel, Set ..... Hex Socket, Cup Point, 3A Thread, ASTM F912
Stainless Steel ..... Type 303 Austenitic or Type 316 Austenitic	Stainless Steel ..... Plain	Steel, Cap ..... Hex Socket, 3A Thread, ASTM A574
Aluminum ..... Type 6061 – T651 or equivalent	Aluminum ..... Plain	Stainless Steel, Set ..... Hex Socket, Cup Point, 3A Thread, ASTM F880
Acetal ..... Delrin		Stainless Steel, Cap ..... Hex Socket, 3A Thread, ASTM F837
	Tolerances	
	Bore Diameter ..... As specified on individual catalog pages	
	Width, Collars ..... ± 0.005 inch	
	Length, Couplings ..... ± 0.015 inch	

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.

## 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 tables also indicate “typical” maximum values and are not a guarantee under all conditions. Values are only a guide and must be evaluated by customers based on individual application. Climax Metal Products Company does not intend these values to serve as a warranty.

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

### Set Screw Collars

Socket Set Screw Size	Seating Torque Alloy (in-lb)	Maximum Alloy Axial Load (lb)	Maximum Seating Torque Stainless (in-lb)	Stainless Axial Load (lb)
6-32	10	250	7	135
8-32	20	375	15	200
10-32	35	550	25	300
1/4-20	90	950	70	550
5/16-18	170	1500	135	900
5/16-24	170	1500	135	1000
3/8-16	300	2200	235	1200
1/2-13	625	3000	500	1200

### Clamping Collars

Socket Head Cap Screw Size	Seating Torque Alloy (in-lb)	Maximum Alloy Axial Load (lb)	Seating Torque Stainless (in-lb)	Maximum Stainless Axial Load (lb)
4-40	15	200	8	150
6-32	25	500	15	200
8-32	50	950	30	600
10-32	75	1750	45	800
1/4-28	175	2600	115	1400
5/16-24	340	6200	200	2800
3/8-24	600	7200	350	3800
1/2-20	1500	18000	875	9500

T = Torque required to rotate shaft in coupling (in-lb)  
F = Axial load based on a given screw size (lb)  
R = Bore radius (inch)     $T = (F \times 2) \times R$

Disclaimer: The Axial Load and Torque data presented are based on limited test results and are not a guarantee of minimum or maximum values under all conditions

# Technical Information

## Seating Torque

### Socket Head Cap Screws

Screw Size (Inch)	Seating Torque Alloy (in-lb)	Seating Torque Stainless (in-lb)
4-40	15	8
6-32	25	15
8-32	50	30
10-32	75	45
1/4-28	175	115
5/16-24	340	200
3/8-24	600	350
1/2-20	1500	875

Screw Size (Metric)	Seating Torque Alloy (in-lb)	Seating Torque Stainless (in-lb)
M 3	18	9
M 4	41	22
M 5	85	45
M 6	145	76
M 8	345	183
M 10	690	366

### Socket Set Screws

Screw Size (Inch)	Seating Torque Alloy (in-lb)	Seating Torque Stainless (in-lb)
6-32	10	7
8-32	20	15
10-32	35	25
1/4-20	90	70
5/16-18	170	135
5/16-24	170	135
3/8-16	300	235
1/2-13	625	500

Screw Size (Metric)	Seating Torque Alloy (in-lb)	Seating Torque Stainless (in-lb)
M 2	1.75	0.875
M 3	8	3.5
M 4	18	12
M 5	41	24
M 6	68	44
M 8	157	105
M 10	310	210

### Fastener Key Sizes

#### Inch

Set Screw Thread Size	Hex Key Size (in)	SHCS Thread Size	Hex Key Size (in)
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 (mm)	SHCS Thread Size	Hex Key Size (mm)
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		

### Keyways

Inch Bore	Key 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

Metric Bore	Key Size Width x Depth
7 to 8	2 X 1.2
9 to 10	3 X 1.8
11 to 12	4 X 2.5
13 to 17	5 X 3
18 to 22	6 X 3.5
23 to 30	8 X 4
31 to 38	10 X 5
39 to 44	12 X 5
45 to 50	14 X 5.5

## 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 800-352-0418.