

REPLACEABLE PAD OVERVIEW

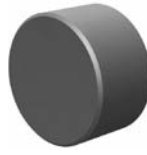
Rest Pads & Gripper Pads



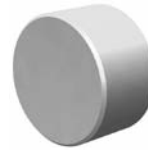
Solid Carbide
High impact carbide pads. Can be brazed or bonded into place.



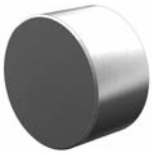
Carbide Tipped
Constructed with a high impact carbide pad brazed to a heat treated alloy steel body. Mounts with tapped hole or a flat on the outside diameter for set screw mounting.



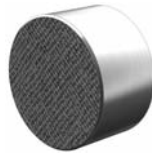
Hardened Steel
Made from 8620 steel, carburized and hardened to Rc 58/60 .050" case with black oxide finish. Mounts with tapped hole or counter bored hole.



Non-Marring Delrin
Manufactured from white Delrin. Mounts with counter bored or tapped hole.



Stainless Steel
The pad is made from 17-4 stainless steel, hardened to Rc 43/46. Mounts with tapped or counter bored hole.



Abrasive Diamond Surface
The abrasive surface is permanently fused to a 17-4 stainless steel pad, hardened to Rc 43/46. The surface texture is comparable to a 100 grit abrasive. Mounts with tapped or counter bored hole.

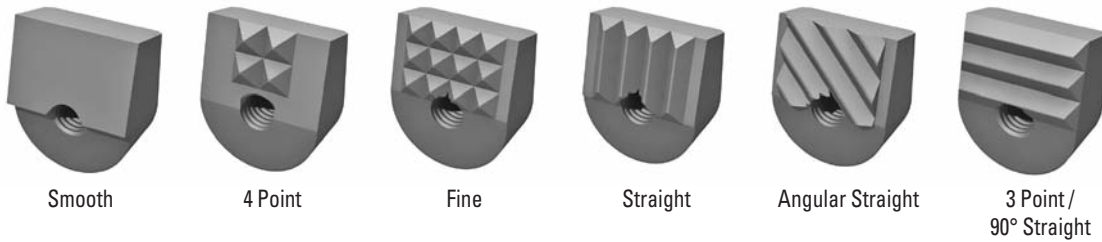


Sof-Top™ Urethane Surface
The urethane surface is permanently bonded to a 300 series stainless steel pad. The urethane provides excellent protection against damage on delicate work surfaces. They are available in three durometers. Tapped hole mounting.

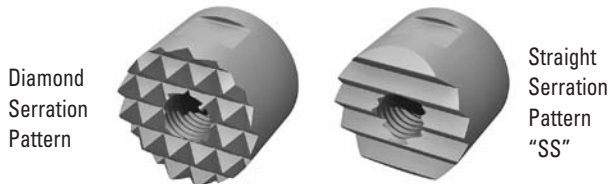
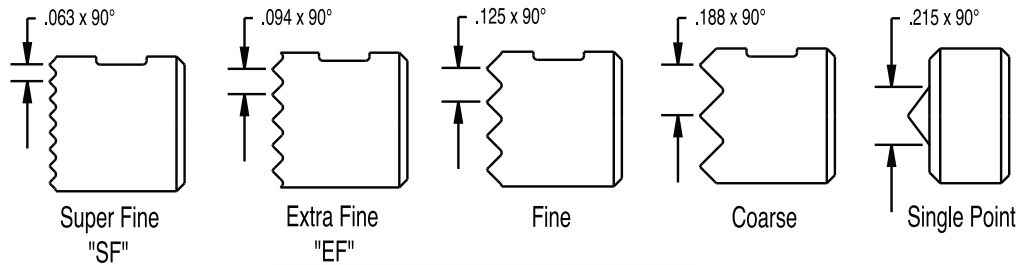
TOOTH PATTERN SPECIFICATIONS

Throughout this catalog, you will find reference to tooth patterns on all serrated grippers. Please use the chart below for specific information regarding these tooth patterns. If additional information is required, please contact us.

Angle Grippers

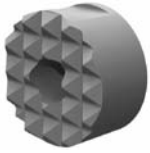


Round and Square Grippers



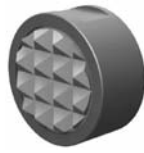
REPLACEABLE PAD OVERVIEW

Serrated Gripper Pads



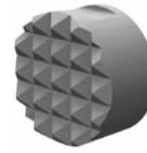
High Speed Tool Steel

Round, square, edge, and angle grippers manufactured from M-2 high speed tool steel, hardened to Rc 60/62 with black oxide finish. Mounts with tapped hole, counter bored hole or a flat on the outside diameter for set screw mounting.



Carbide Tipped

Round, square, and angle grippers constructed with a high impact carbide pad brazed to a heat treated alloy steel body. Mounts with tapped hole or a flat on the outside diameter for set screw mounting.



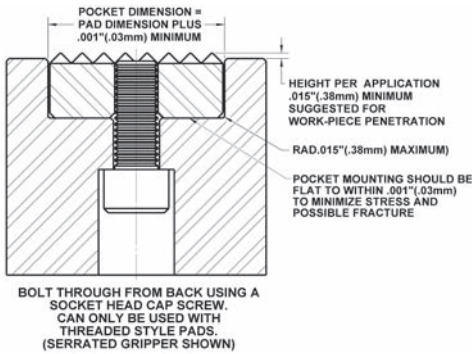
Solid Carbide

Round and square grippers manufactured from high impact carbide in a solid gripper pad or as a solid gripper body with a threaded brazed-in steel insert. Mounts with tapped hole or a flat on the outside diameter for set screw mounting.

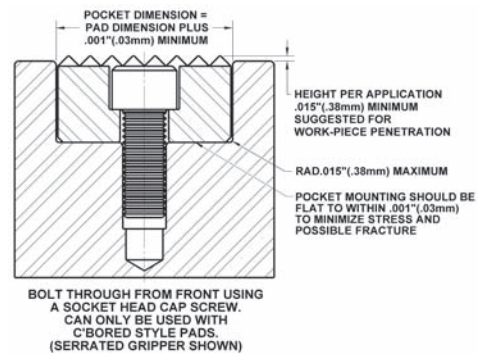
GRIPPER PAD AND REST PAD MOUNTING APPLICATIONS AND SPECIFICATIONS

Below are some of the more common mounting applications for fixed grippers, rest pads and carbide pads shown in this catalog.

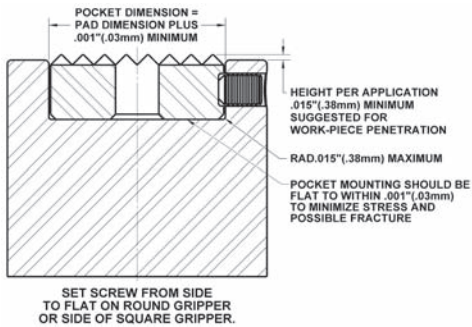
Round or square grippers and rest pads with tapped blind-hole or through hole tap.



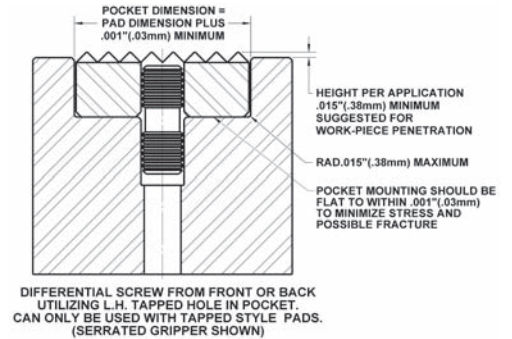
Round or square grippers and rest pads with counter-bored hole.



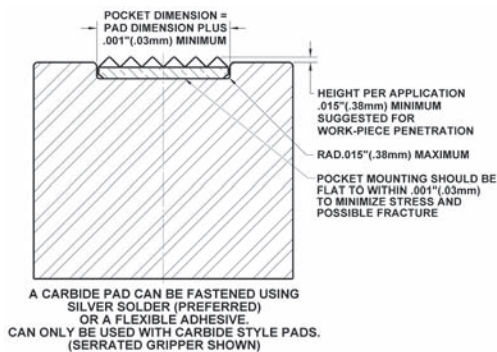
Round grippers with flat on the O.D. for set screw mounting, or square gripper.



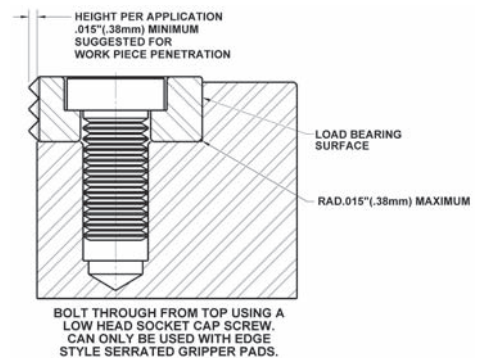
Round or square grippers with through tapped hole.



Round or square carbide pads.



Counter-bored edge grippers.



THREADED ADJUSTABLE GRIPPER OVERVIEW



Carbide Tipped

Round and Hex head styles constructed with a steel body. Carbide tipped for positive holding and wear resistance.



High Speed Steel

Manufactured from M-2 high speed tool steel, hardened to Rc 55/58. Internal hex on backside allows for positioning adjustment.



AdjustaGrip™

The gripper pad can be replaced when it becomes worn. Uses tapped through hole grippers.



AccuGrip™

Designed to fit within chuck jaws to adjust concentricity. Carbide tipped for wear resistance.

SWIVOTS® & THRUST SCREW OVERVIEW

Swivots® & Thrust Screw Replaceable Balls



Sof-Top™ Urethane Surface Cone

The urethane surface is permanently bonded to a stainless steel ball. Provides excellent protection and non-slip grip on finished and other delicate surfaces. Available in 3 durometers.



Non-Marring Delrin Cone

Made from white Delrin plastic. Non-marring and non-staining for finished and other delicate surfaces.



Stainless Steel Cone

Made from stainless steel. Provides excellent corrosion resistance in harsh environments.



Abrasive Diamond Surface

The diamond surface is permanently bonded to stainless steel ball. The surface texture is comparable to a 100 grit abrasive. Provides excellent grip on a variety of surfaces with minimal penetration.



High Speed Steel -Serrated

Made from hardened M-2 high speed tool steel. Available in 3 different serration patterns.



Non-Marring Delrin

Made from white Delrin plastic. Non-marring and non-staining for finished and other delicate surfaces. Available with different stand off heights.



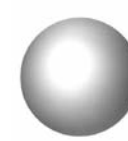
Flat Tool Steel

Made from hardened M-2 high speed tool steel. Heat treated to Rc 60/62. Available with different stand off heights.



Round Delrin Ball

Made from white Delrin plastic. Non-marring and non-staining.

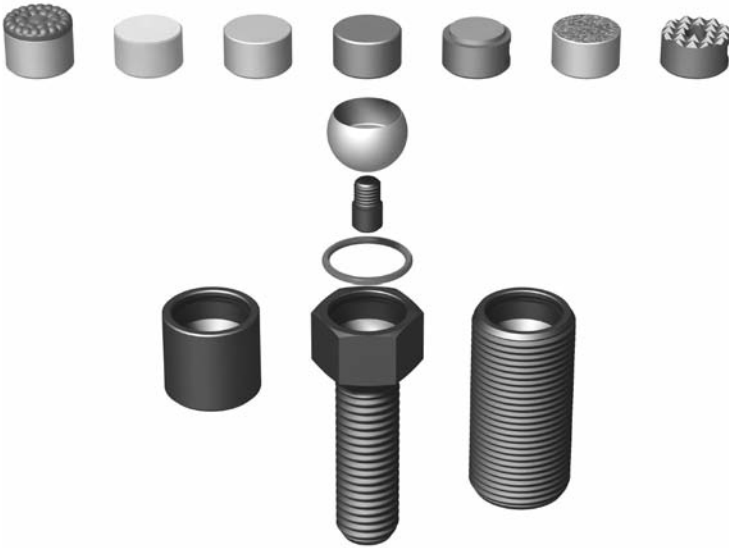


Round Stainless Steel Ball

Made from 440c stainless steel. Heat treated to Rc 58/62.

SWIVOTS® & THRUST SCREW OVERVIEW

Replaceable Pad Style Swivots®



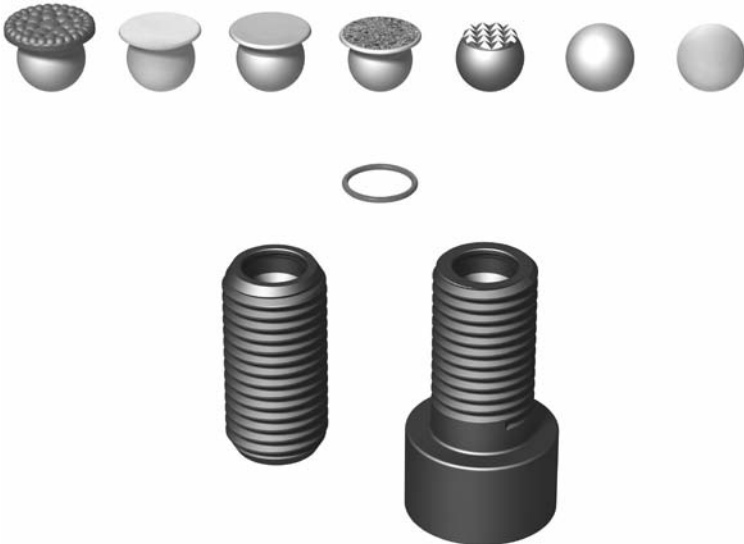
- Unique design allows the pad and ball cup to swivel, tilt, clamp, grip, hold position and secure a work piece.
- The internal ball cup allows the pad to rotate 360 degrees and tilt at varying degrees from center.
- Interchangeable parts speed setups and changeovers.
- O-ring holds the ball in place and keeps out dirt and other contaminants.
- Replaceable pad design allows for easy change out when the pad is worn or a different contact surface is required.

Replaceable Swivel Ball Style Swivots®



- The unique design of the Swivots prevent the ball from exceeding the specified degree of swivel which stops the ball from rolling over in the housing.
- The replaceable ball can be changed when it is worn or another contact surface is required.
- The ball is held in place with a Viton o-ring which allows for smooth movement and keeps out dirt and contaminants.
- The replaceable balls are available in several different styles to meet a wide range of workholding and positioning applications.

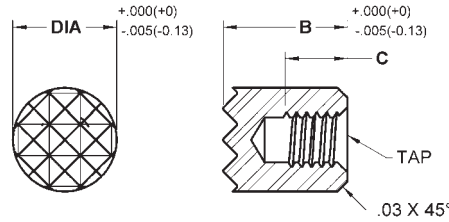
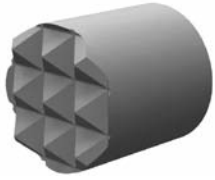
Replaceable Swivel Ball Style Thrust Screw Assemblies



- The free floating ball design allows the thrust screw to continue rotating while the ball remains stationary against the contact surface.
- They are ideal for holding and positioning irregular shaped or contoured work pieces.
- The different housing styles allow for a variety of mounting options.
- The ball is held in place with a Viton o-ring which allows for smooth movement and keeps out dirt and other contaminants.

FIXED GRIPPERS

Round Style | Tool Steel | Serrated | Tapped Hole | Inch & Metric



Made from M-2 high speed steel. Hardened to Rc 60/62 with black oxide finish. Serrated for positive holding in tough applications. Blind-hole tap for back side mounting. See page 90 for tooth pattern specifications. See page 91 for mounting specifications.

INCH

Part #	B Height	C Tap Depth	Tooth Pattern
1/4" Dia - #8-32 Tap			
HS-20	3/8	3/16	EF
HS-20-SF	3/8	3/16	SF
HS-205	1/2	5/16	EF
HS-205-SF	1/2	5/16	SF
5/16" Dia - #8-32 Tap			
HS-30	3/8	3/16	EF
HS-30-SF	3/8	3/16	SF
HS-305	1/2	5/16	EF
HS-305-SF	1/2	5/16	SF

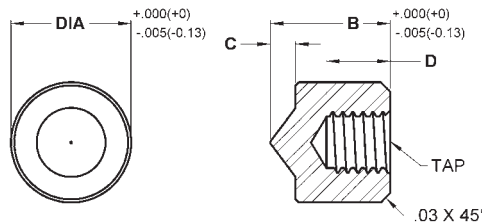
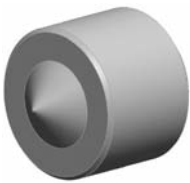
Part #	B Height	C Tap Depth	Tooth Pattern
3/8" Dia - #10-32 Tap			
HS-40-BL	3/8	3/16	EF
HS-40-BL-SF	3/8	3/16	SF
HS-405-BL	1/2	5/16	EF
HS-405-BL-SF	1/2	5/16	SF
1/2" Dia - #10-32 Tap			
HS-50-BL	3/8	3/16	Fine
HS-50-BL-EF	3/8	3/16	EF
HS-50-BL-SF	3/8	3/16	SF
HS-53-BL	1/2	5/16	Fine
HS-53-BL-EF	1/2	5/16	EF
HS-53-BL-SF	1/2	5/16	SF

METRIC

Part #	B Height	C Tap Depth	Tooth Pattern
6mm Dia - M3x0.5 Tap			
MHS-060-SF	10	5	SF
MHS-062-SF	12	7	SF

Part #	B Height	C Tap Depth	Tooth Pattern
8mm Dia - M4x0.7 Tap			
MHS-080-SF	10	5	SF
MHS-082-SF	12	7	SF

Round Style | Tool Steel | Single Point | Tapped Hole | Inch



Made from M-2 high speed steel. Hardened to Rc 60/62 with black oxide finish. Single point contact allows for reduced force yet deeper penetration. Blind-hole tap for back side mounting. See page 91 for mounting specifications.

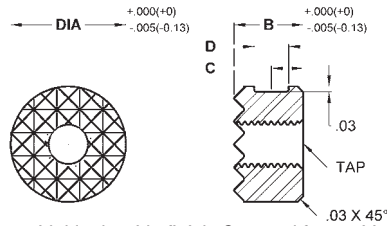
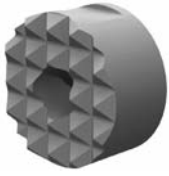
INCH

Part #	B Height	C Stand Off	D Tap Depth
1/4" Dia - #8-32 Tap			
HS-20-1	3/8	5/64	1/8
HS-205-1	1/2	5/64	1/4
5/16" Dia - #8-32 Tap			
HS-30-1	3/8	5/64	1/8
HS-305-1	1/2	5/64	1/4

Part #	B Height	C Stand Off	D Tap Depth
3/8" Dia - #10-32 Tap			
HS-40-1	3/8	5/64	1/8
HS-405-1	1/2	5/64	1/4
1/2" Dia - #10-32 Tap			
HS-50-1	3/8	5/64	1/8
HS-53-1	1/2	5/64	1/4

FIXED GRIPPERS

Round Style | Tool Steel | Serrated | Tapped Hole | Inch & Metric



Made from M-2 high speed steel. Hardened to Rc 60/62 with black oxide finish. Serrated for positive holding in tough applications. Thru-hole tap. Flat on O.D. for set screw mounting. See page 90 for tooth pattern specifications. See page 91 for mounting specifications.

INCH

Part #	B Height	C Flat Pos.	D Flat Width	Tooth Pattern
3/8" Dia - #10-32 Tap				
HS-40	3/8	11/64	3/16	EF
HS-40-SF	3/8	11/64	3/16	SF
HS-405	1/2	15/64	3/16	EF
HS-405-SF	1/2	15/64	3/16	SF
1/2" Dia - #10-32 Tap				
HS-50	3/8	11/64	3/16	Fine
HS-50-EF	3/8	11/64	3/16	EF
HS-50-SF	3/8	11/64	3/16	SF
HS-51	1/2	15/64	3/16	Coarse
HS-52*	1/2	Keyway	-	Fine
HS-52-EF*	1/2	Keyway	-	EF
HS-53	1/2	15/64	3/16	Fine
HS-53-EF	1/2	15/64	3/16	EF
HS-53-SF	1/2	15/64	3/16	SF
HS-54	.651	19/64	3/16	Fine
HS-54-EF	.651	19/64	3/16	EF

*Keyway = .130" width, .060" depth

Part #	B Height	C Flat Pos.	D Flat Width	Tooth Pattern
5/8" Dia - 1/4-28 Tap				
HS-62	3/8	11/64	3/16	Fine
HS-62-EF	3/8	11/64	3/16	EF
HS-63	3/8	11/64	3/16	Coarse
HS-625	1/2	15/64	3/16	Fine
HS-625-EF	1/2	15/64	3/16	EF
HS-635	1/2	15/64	3/16	Coarse
3/4" Dia - 1/4-28 Tap				
HS-75	3/8	11/64	3/16	Fine
HS-75-EF	3/8	11/64	3/16	EF
HS-76	3/8	11/64	3/16	Coarse
HS-755	1/2	15/64	3/16	Fine
HS-755-EF	1/2	15/64	3/16	EF
HS-765	1/2	15/64	3/16	Coarse
1" Dia - 1/4-28 Tap				
HS-81	3/8	11/64	3/16	Coarse
HS-82	3/8	11/64	3/16	Fine
HS-82-EF	3/8	11/64	3/16	EF
HS-815	1/2	15/64	3/16	Coarse
HS-825	1/2	15/64	3/16	Fine
HS-825-EF	1/2	15/64	3/16	EF

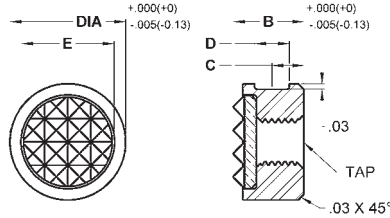
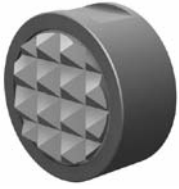
METRIC

Part #	B Height	C Flat Pos.	D Flat Width	Tooth Pattern
10mm Dia - M5x0.8 Tap				
MHS-100	10	4.5	4.75	EF
MHS-102	12	6	4.75	EF
12mm Dia - M5x0.8 Tap				
MHS-120	10	4.5	4.75	Fine
MHS-122	12	6	4.75	Fine
16mm Dia - M6x1.0 Tap				
MHS-160	10	4.5	4.75	Fine
MHS-162	12	6	4.75	Fine

Part #	B Height	C Flat Pos.	D Flat Width	Tooth Pattern
20mm Dia - M6x1.0 Tap				
MHS-200	10	4.5	4.75	Fine
MHS-202	12	6	4.75	Fine
25mm Dia - M6x1.0 Tap				
MHS-250	10	4.5	4.75	Fine
MHS-252	12	6	4.75	Fine

FIXED GRIPPERS

Round Style | Carbide Tipped | Serrated | Tapped Hole | Inch & Metric



Constructed with a serrated carbide gripper pad brazed to a heat treated alloy steel body. Blind-hole tap for back side mounting. Flat on O.D. for set screw mounting. See page 90 for tooth pattern specifications. See page 91 for mounting specifications.

INCH

Part #	B Height	C Flat Pos.	D Flat Width	E Pad Dia.	Tooth Pattern
3/8" Dia - #10-32 Tap					
CT-830	3/8	11/64	3/16	5/16	EF
CT-830-4	3/8	11/64	3/16	5/16	4 Point
CT-835	1/2	15/64	3/16	5/16	EF
CT-835-4	1/2	15/64	3/16	5/16	4 Point
1/2" Dia - #10-32 Tap					
CT-840	1/2	15/64	3/16	3/8	Fine
CT-840-EF	1/2	15/64	3/16	3/8	EF
CT-840-4	1/2	15/64	3/16	3/8	4 Point
CT-841	3/8	11/64	3/16	3/8	Fine
CT-841-EF	3/8	11/64	3/16	3/8	EF
CT-841-4	3/8	11/64	3/16	3/8	4 Point
CT-842	.651	19/64	3/16	3/8	Fine
CT-842-EF	.651	19/64	3/16	3/8	EF
CT-842-4	.651	19/64	3/16	3/8	4 Point
CT-844*	1/2	Keyway	-	3/8	Fine
CT-844-EF*	1/2	Keyway	-	3/8	EF
CT-844-4*	1/2	Keyway	-	3/8	4 Point
5/8" Dia - 1/4-28 Tap					
CT-850	3/8	11/64	3/16	1/2	Fine
CT-850-EF	3/8	11/64	3/16	1/2	EF
CT-855	1/2	15/64	3/16	1/2	Fine
CT-855-EF	1/2	15/64	3/16	1/2	EF
CT-071*	5/8	Keyway	-	1/2	Fine
CT-071-EF*	5/8	Keyway	-	1/2	EF
CT-071-4*	5/8	Keyway	-	1/2	4 Point
3/4" Dia - 1/4-28 Tap					
CT-860	3/8	11/64	3/16	5/8	Fine
CT-860-EF	3/8	11/64	3/16	5/8	EF
CT-862	1/2	15/64	3/16	5/8	Fine
CT-862-EF	1/2	15/64	3/16	5/8	EF
1" Dia - 1/4-28 Tap					
CT-865	3/8	11/64	3/16	3/4	Fine
CT-865-EF	3/8	11/64	3/16	3/4	EF

*Keyway= .130" width, .060" depth

METRIC

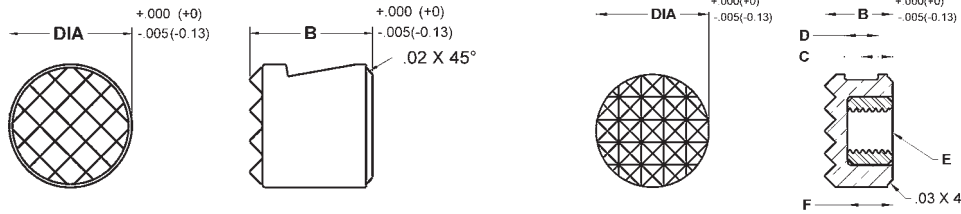
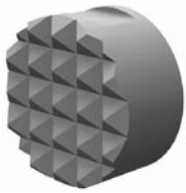
Part #	B Height	C Flat Pos.	D Flat Width	E Pad Dia.	Tooth Pattern
10mm Dia - M5x0.8 Tap					
MCT-100	10	4.5	4.75	5/16	EF
MCT-102	12	6.0	4.75	5/16	EF
12mm Dia - M5x0.8 Tap					
MCT-120	10	4.5	4.75	3/8	Fine
MCT-122	12	6.0	4.75	3/8	Fine
16mm Dia - M6x1.0 Tap					
MCT-160	10	4.5	4.75	1/2	Fine
MCT-162	12	6.0	4.75	1/2	Fine
20mm Dia - M6x1.0 Tap					
MCT-200	10	4.5	4.75	5/8	Fine
MCT-202	12	6.0	4.75	5/8	Fine
25mm Dia - M6x1.0 Tap					
MCT-250	10	4.5	4.75	3/4	Fine
MCT-252	12	6.0	4.75	3/4	Fine

INCH DIAMETERS WITH METRIC THREADS

Part #	B Height	C Flat Pos.	D Flat Width	E Pad Dia.	Tooth Pattern
1/2" Dia - M6x1.0 Tap					
MCT-840-EF	1/2	15/64	3/16	3/8	EF
MCT-841-EF	3/8	11/64	3/16	3/8	EF
MCT-842-EF	.651	19/64	3/16	3/8	EF
5/8" Dia - M6x1.0 Tap					
MCT-850-EF	3/8	11/64	3/16	1/2	EF
3/4" Dia - M6x1.0 Tap					
MCT-860-EF	3/8	11/64	3/16	5/8	EF

FIXED GRIPPERS

Round Style | Solid Carbide | Serrated | Tapped Hole | Inch



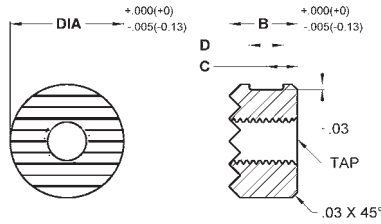
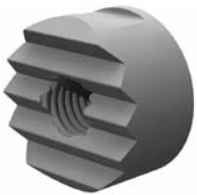
Made from solid carbide for high wear and high load applications. Serrated for positive holding in tough applications. Blind-hole tap for back side mounting. Flat on O.D. for set screw mounting. See page 90 for tooth pattern specifications. See page 91 for mounting specifications.

INCH

Part#	B Height	C Flat Pos.	D Flat Width	E Thread Size	F Tap Depth	Tooth Pattern
1/4" Dia						
FSC-20-SF-SL	3/8	—	—	—	—	SF
FSC-20-4-SL	3/8	—	—	—	—	4 Point
5/16" Dia						
FSC-30-SL	3/8	—	—	—	—	EF
FSC-30-4-SL	3/8	—	—	—	—	4 Point
3/8" Dia						
FSC-40-SL	3/8	—	—	—	—	EF
FSC-40-4-SL	3/8	—	—	—	—	4 Point

Part#	B Height	C Flat Pos.	D Flat Width	E Thread Size	F Tap Depth	Tooth Pattern
1/2" Dia						
FSC-841	3/8	11/64	3/16	#10-32	3/16	Fine
FSC-844-4	1/2	15/64	3/16	#10-32	5/16	4 Point
FSC-844	1/2	15/64	3/16	#10-32	5/16	Fine
FSC-844-SL	1/2	15/64	3/16	—	—	Fine
FSC-070-4	1/2	—	Keyway	#10-32	5/16	4 Point
FSC-070	1/2	—	Keyway	#10-32	5/16	Fine
5/8" Dia						
FSC-850	3/8	11/64	3/16	1/4-28	3/16	Fine
3/4" Dia						
FSC-860	3/8	11/64	3/16	1/4-28	3/16	Fine

Round Style | Tool Steel | Straight Serrations | Tapped Hole | Inch



Made from M-2 high speed steel. Hardened to Rc 60/62 with black oxide finish. Serrated for positive holding in tough applications. Thru-hole tap. Flat on O.D. for set screw mounting. See page 90 for tooth pattern specifications. See page 91 for mounting specifications.

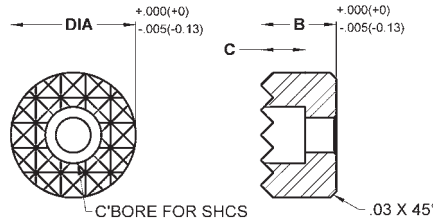
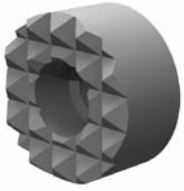
INCH

Part#	B Height	C Flat Pos.	D Flat Width	Tooth Pattern
3/8" Dia - #10-32 Tap				
HS-40-SS	3/8	11/64	3/16	EF
HS-40-SS-SF	3/8	11/64	3/16	SF
HS-405-SS	1/2	15/64	3/16	EF
HS-405-SS-SF	1/2	15/64	3/16	SF
1/2" Dia - #10-32 Tap				
HS-50-SS	3/8	11/64	3/16	Fine
HS-50-SS-EF	3/8	11/64	3/16	EF
HS-50-SS-SF	3/8	11/64	3/16	SF
HS-51-SS	1/2	15/64	3/16	Coarse
HS-53-SS	1/2	15/64	3/16	Fine
HS-53-SS-EF	1/2	15/64	3/16	EF
HS-53-SS-SF	1/2	15/64	3/16	SF
5/8" Dia - 1/4-28 Tap				
HS-62-SS	3/8	11/64	3/16	Fine
HS-62-SS-EF	3/8	11/64	3/16	EF
HS-63-SS	3/8	11/64	3/16	Coarse
HS-625-SS	1/2	15/64	3/16	Fine
HS-625-SS-EF	1/2	15/64	3/16	EF
HS-635-SS	1/2	15/64	3/16	Coarse

Part#	B Height	C Flat Pos.	D Flat Width	Tooth Pattern
3/4" Dia - 1/4-28 Tap				
HS-75-SS	3/8	11/64	3/16	Fine
HS-75-SS-EF	3/8	11/64	3/16	EF
HS-76-SS	3/8	11/64	3/16	Coarse
HS-755-SS	1/2	15/64	3/16	Fine
HS-755-SS-EF	1/2	15/64	3/16	EF
HS-765-SS	1/2	15/64	3/16	Coarse
1" Dia - 1/4-28 Tap				
HS-81-SS	3/8	11/64	3/16	Coarse
HS-82-SS	3/8	11/64	3/16	Fine
HS-82-SS-EF	3/8	11/64	3/16	EF
HS-815-SS	1/2	15/64	3/16	Coarse
HS-825-SS	1/2	15/64	3/16	Fine
HS-825-SS-EF	1/2	15/64	3/16	EF

FIXED GRIPPERS

Round Style | Tool Steel | Serrated | Counter Bored Hole | Inch & Metric

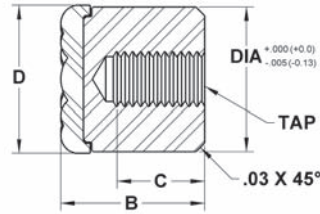
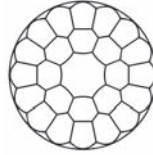


Made from M-2 high speed steel. Hardened to Rc 60/62 with black oxide finish. Serrated for positive holding in tough applications. Counter bored hole for front mounting with a socket head cap screw. See page 90 for tooth pattern specifications. See page 91 for mounting specifications.

INCH				METRIC			
Part #	B Height	C C'Bore Depth	Tooth Pattern	Part #	B Height	C C'Bore Depth	Tooth Pattern
1/2" Dia - Counter Bored for #8 SHCS				12mm Dia - Counter Bored for M4 SHCS			
HS-50-C	3/8	7/32	Fine	MHS-120-C	10	5.6	Fine
HS-50-C-EF	3/8	7/32	EF	MHS-122-C	12	5.6	Fine
HS-50-C-SF	3/8	7/32	SF	16mm Dia - Counter Bored for M4 SHCS			
HS-53-C	1/2	7/32	Fine	MHS-160-C	10	5.6	Fine
HS-53-C-EF	1/2	7/32	EF	MHS-162-C	12	5.6	Fine
HS-53-C-SF	1/2	7/32	SF	20mm Dia - Counter Bored for M5 SHCS			
5/8" Dia - Counter Bored for #8 SHCS				MHS-200-C	10	6.6	Fine
HS-62-C	3/8	7/32	Fine	MHS-202-C	12	6.6	Fine
HS-62-C-EF	3/8	7/32	EF	25mm Dia - Counter Bored for M6 SHCS			
HS-625-C	1/2	7/32	Fine	MHS-250-C	10	7.6	Fine
HS-625-C-EF	1/2	7/32	EF	MHS-252-C	12	7.6	Fine
3/4" Dia - Counter Bored for #10 SHCS							
HS-75-C	3/8	1/4	Fine				
HS-75-C-EF	3/8	1/4	EF				
HS-755-C	1/2	1/4	Fine				
HS-755-C-EF	1/2	1/4	EF				
HS-76-C	3/8	1/4	Coarse				
HS-765-C	1/2	5/16	Coarse				
1" Dia - Counter Bored for 1/4" SHCS							
HS-81-C	1/2	5/16	Coarse				
HS-82-C	1/2	5/16	Fine				
HS-82-C-EF	1/2	5/16	EF				

FIXED GRIPPERS

Round Style | Stainless Steel | Sof-Top Urethane Surface | Tapped | Inch & Metric



The urethane surface is permanently bonded to a 300 series stainless steel pad. The non-marking, non-staining urethane provides excellent protection against damage on delicate work surfaces. The "bubbled" texture of the urethane top offers firm holding and allows air to escape so no suction is created between the contact surface and the top of the rest pad as it is compressed. Because the top is made of urethane it offers superior abrasion and wear resistance. They are available in three durometers to meet a wide variety of application needs. Blind-hole tap for back side mounting. See page 91 for mounting specifications.

INCH

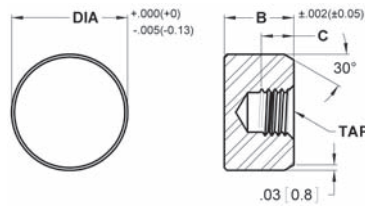
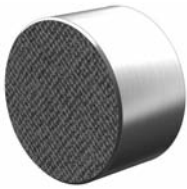
Part #	B Height	C Tap Depth	D Contact Dia.	Durometer
5/16" Dia - #8-32 Tap				
CSRP-305-35UR	1/2	1/4	.315	35
CSRP-305-60UR	1/2	1/4	.315	60
CSRP-305-80UR	1/2	1/4	.315	80
3/8" Dia - #10-32 Tap				
CSRP-405-35UR	1/2	1/4	.394	35
CSRP-405-60UR	1/2	1/4	.394	60
CSRP-405-80UR	1/2	1/4	.394	80
1/2" Dia - #10-32 Tap				
CSRP-53-35UR	1/2	1/4	.512	35
CSRP-53-60UR	1/2	1/4	.512	60
CSRP-53-80UR	1/2	1/4	.512	80
5/8" Dia - 1/4-28 Tap				
CSRP-625-35UR	1/2	3/8	.630	35
CSRP-625-60UR	1/2	3/8	.630	60
CSRP-625-80UR	1/2	3/8	.630	80
3/4" Dia - 1/4-28 Tap				
CSRP-755-35UR	1/2	3/8	.827	35
CSRP-755-60UR	1/2	3/8	.827	60
CSRP-755-80UR	1/2	3/8	.827	80
1" Dia - 1/4-28 Tap				
CSRP-815-35UR	1/2	3/8	1.063	35
CSRP-815-60UR	1/2	3/8	1.063	60
CSRP-815-80UR	1/2	3/8	1.063	80

METRIC

Part #	B Height	C Tap Depth	D Contact Dia.	Durometer
8mm Dia - M4x0.7 Tap				
MCSR-082-35UR	12	6	8	35
MCSR-082-60UR	12	6	8	60
MCSR-082-80UR	12	6	8	80
10mm Dia - M5x0.8 Tap				
MCSR-102-35UR	12	6	10	35
MCSR-102-60UR	12	6	10	60
MCSR-102-80UR	12	6	10	80
12mm Dia - M5x0.8 Tap				
MCSR-122-35UR	12	6	13	35
MCSR-122-60UR	12	6	13	60
MCSR-122-80UR	12	6	13	80
16mm Dia - M6x1.0 Tap				
MCSR-162-35UR	12	9.5	16	35
MCSR-162-60UR	12	9.5	16	60
MCSR-162-80UR	12	9.5	16	80
20mm Dia - M6x1.0 Tap				
MCSR-202-35UR	12	9.5	21	35
MCSR-202-60UR	12	9.5	21	60
MCSR-202-80UR	12	9.5	21	80
25mm Dia - M6x1.0 Tap				
MCSR-252-35UR	12	9.5	27	35
MCSR-252-60UR	12	9.5	27	60
MCSR-252-80UR	12	9.5	27	80

FIXED GRIPPERS

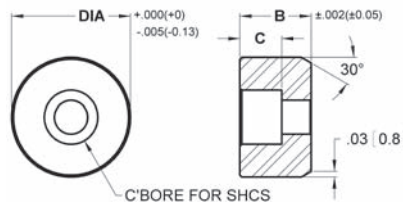
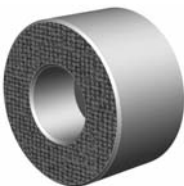
Round Style | Stainless Steel | Abrasive Diamond Surface | Tapped | Inch & Metric



The abrasive surface is permanently fused to a stainless steel pad. The surface texture is comparable to a 100 grit abrasive. They are ideal for holding smooth or slippery applications with a minimum of clamping pressure. Individual diamond particles transfer holding pressure to a very small and well distributed area, providing superior holding with minimal surface marking. The diamond surface also provides unparalleled wear resistance. The pad is made from 17-4 stainless steel which provides high strength as well as protection against chemical and environmental corrosion. Heat treated to Rc 43/46. Blind-hole tap for back side mounting. See page 91 for mounting specifications.

INCH			METRIC		
Part #	B Height	C Tap Depth	Part #	B Height	C Tap Depth
5/16" Dia - #8-32 Tap			5/8" Dia - 1/4-28 Tap		
CSRP-30-DS	3/8	3/16	CSRP-62-DS	3/8	3/16
CSRP-305-DS	1/2	5/16	CSRP-625-DS	1/2	5/16
3/8" Dia - #10-32 Tap			3/4" Dia - 1/4-28 Tap		
CSRP-40-DS	3/8	3/16	CSRP-75-DS	3/8	3/16
CSRP-405-DS	1/2	5/16	CSRP-755-DS	1/2	5/16
1/2" Dia - #10-32 Tap			1" Dia - 1/4-28 Tap		
CSRP-50-DS	3/8	3/16	CSRP-81-DS	3/8	3/16
CSRP-53-DS	1/2	5/16	CSRP-815-DS	1/2	5/16
			8mm Dia - M4x0.7 Tap		
			MCSR-080-DS	10	5
			MCSR-082-DS	12	6.4
			10mm Dia - M5x0.8 Tap		
			MCSR-100-DS	10	5
			MCSR-102-DS	12	6.4
			12mm Dia - M5x0.8 Tap		
			MCSR-120-DS	10	5
			MCSR-122-DS	12	6.4
			16mm Dia - M6x1.0 Tap		
			MCSR-160-DS	10	5
			MCSR-162-DS	12	6.4
			20mm Dia - M6x1.0 Tap		
			MCSR-200-DS	10	5
			MCSR-202-DS	12	6.4
			25mm Dia - M6x1.0 Tap		
			MCSR-250-DS	10	5
			MCSR-252-DS	12	6.4

Round Style | Stainless Steel | Abrasive Diamond Surface | Counter Bored | Inch & Metric

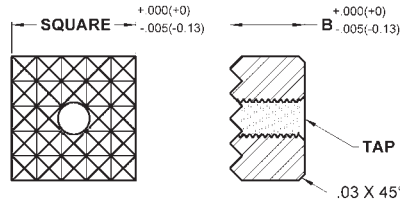
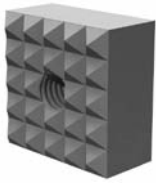


The abrasive surface is permanently fused to a stainless steel pad. The surface texture is comparable to a 100 grit abrasive. They are ideal for holding smooth or slippery applications with a minimum of clamping pressure. Individual diamond particles transfer holding pressure to a very small and well distributed area, providing superior holding with minimal surface marking. The diamond surface also provides unparalleled wear resistance. The pad is made from 17-4 stainless steel which provides high strength as well as protection against chemical and environmental corrosion. Heat treated to Rc 43/46. Counter bored hole for front mounting with a socket head cap screw. See page 91 for mounting specifications.

INCH			METRIC		
Part #	B Height	C C'Bores Depth	Part #	B Height	C C'Bores Depth
3/8" Dia - Counter Bored for #6 SHCS			3/4" Dia - Counter Bored for #10 SHCS		
CSRP-40-C-DS	3/8	3/16	CSRP-75-C-DS	3/8	1/4
CSRP-405-C-DS	1/2	3/16	CSRP-755-C-DS	1/2	1/4
1/2" Dia - Counter Bored for #8 SHCS			1" Dia - Counter Bored for 1/4" SHCS		
CSRP-50-C-DS	3/8	7/32	CSRP-81-C-DS	3/8	9/32
CSRP-53-C-DS	1/2	7/32	CSRP-815-C-DS	1/2	9/32
5/8" Dia - Counter Bored for #8 SHCS					
CSRP-62-C-DS	3/8	7/32			
CSRP-625-C-DS	1/2	7/32			
			10mm Dia - Counter Bored for M3 SHCS		
			MCSR-100-C-DS	10	4
			MCSR-102-C-DS	12	4
			12mm Dia - Counter Bored for M4 SHCS		
			MCSR-120-C-DS	10	5.6
			MCSR-122-C-DS	12	5.6
			16mm Dia - Counter Bored for M5 SHCS		
			MCSR-160-C-DS	10	6.6
			MCSR-162-C-DS	12	6.6
			20mm Dia - Counter Bored for M6 SHCS		
			MCSR-200-C-DS	10	7.6
			MCSR-202-C-DS	12	7.6
			25mm Dia - Counter Bored for M6 SHCS		
			MCSR-250-C-DS	10	7.6
			MCSR-252-C-DS	12	7.6

FIXED GRIPPERS

Square Style | Tool Steel | Serrated | Tapped Hole | Inch & Metric



Made from M-2 high speed steel. Hardened to Rc 60/62 with black oxide finish. Serrated for positive holding in tough applications. Thru-hole tap. See page 90 for tooth pattern specifications. See page 91 for mounting specifications.

INCH

Part #	B Height	Tooth Pattern
3/8" Square - #10-32 Tap		
HS-90	3/8	EF
HS-90-SF	3/8	SF
HS-905	1/2	EF
HS-905-SF	1/2	SF
1/2" Square - #10-32 Tap		
HS-95	3/8	Fine
HS-95-EF	3/8	EF
HS-95-SF	3/8	SF
HS-955	1/2	Fine
HS-955-EF	1/2	EF
HS-955-SF	1/2	SF
HS-96	3/8	Coarse
HS-965	1/2	Coarse

Part #	B Height	Tooth Pattern
5/8" Square - #10-32 Tap		
HS-962	3/8	Fine
HS-962-EF	3/8	EF
HS-963	3/8	Coarse
HS-9625	1/2	Fine
HS-9625-EF	1/2	EF
HS-9635	1/2	Coarse
3/4" Square - #10-32 Tap		
HS-97	3/8	Fine
HS-97-EF	3/8	EF
HS-98	3/8	Coarse
HS-975	1/2	Fine
HS-975-EF	1/2	EF
HS-985	1/2	Coarse

Part #	B Height	Tooth Pattern
1" Square - 1/4-28 Tap		
HS-101	3/8	Fine
HS-101-EF	3/8	EF
HS-102	3/8	Coarse
HS-105	1/2	Fine
HS-105-EF	1/2	EF
HS-106	1/2	Coarse

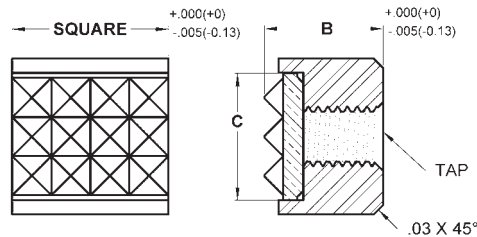
METRIC

Part #	B Height	Tooth Pattern
10mm Square - M5x0.8 Tap		
MHS-9100	10	EF
MHS-9102	12	EF
12mm Square - M5x0.8 Tap		
MHS-9120	10	Fine
MHS-9122	12	Fine

Part #	B Height	Tooth Pattern
16mm Square - M6x1.0 Tap		
MHS-9160	10	Fine
MHS-9162	12	Fine
20mm Square - M5x0.8 Tap		
MHS-9200	10	Fine
MHS-9202	12	Fine

Part #	B Height	Tooth Pattern
25mm Square - M6x1.0 Tap		
MHS-9250	10	Fine
MHS-9252	12	Fine

Square Style | Carbide Tipped | Serrated | Tapped Hole | Inch & Metric



Constructed with a serrated carbide gripper pad brazed to a heat treated alloy steel body. Blind-hole tap for back side mounting. See page 90 for tooth pattern specifications. See page 91 for mounting specifications.

INCH

Part #	B Height	C	Tooth Pattern
1/2" Square - #10-32 Tap			
CT-870	3/8	13/32	Fine
CT-870-EF	3/8	13/32	EF
CT-875	1/2	13/32	Fine
CT-875-EF	1/2	13/32	EF

INCH WITH METRIC THREADS

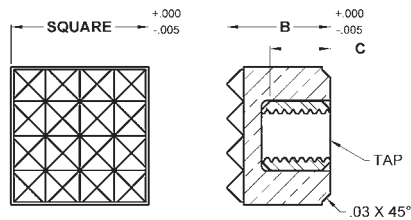
Part #	B Height	C	Tooth Pattern
1/2" Square - M6x1.0 Tap			
MCT-870-EF	3/8	13/32	EF

METRIC

Part #	B Height	C	Tooth Pattern
12mm Square - M5x0.8 Tap			
MCT-9120	10	13/32	Fine
MCT-9122	12	13/32	Fine

FIXED GRIPPERS

Square Style | Solid Carbide | Serrated | Tapped Hole | Inch

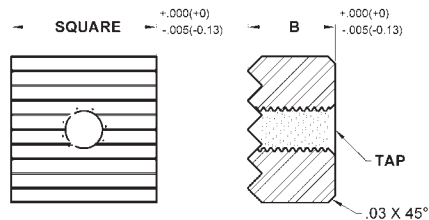
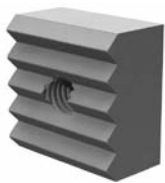


Made from solid carbide for high wear and high load applications. Serrated for positive holding in tough applications. Blind-hole tap for back side mounting. See page 90 for tooth pattern specifications. See page 91 for mounting specifications.

INCH

Part #	B Height	C Tap Depth	Tooth Pattern
1/2" Square - #10-32 Tap			
FSC-870	3/8	3/16	Fine
FSC-875	1/2	5/16	Fine

Square Style | Tool Steel | Straight Serrations | Tapped Hole | Inch



Made from M-2 high speed steel. Hardened to Rc 60/62 with black oxide finish. Serrated for positive holding in tough applications. Thru-hole tap. See page 90 for tooth pattern specifications. See page 91 for mounting specifications.

INCH

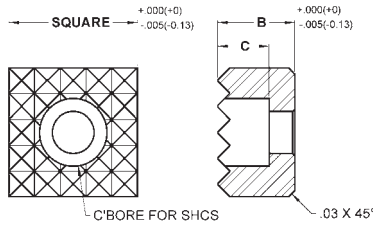
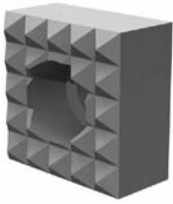
Part #	B Height	Tooth Pattern
3/8" Square - #10-32 Tap		
HS-90-SS	3/8	EF
HS-90-SS-SF	3/8	SF
HS-905-SS	1/2	EF
HS-905-SS-SF	1/2	SF
1/2" Square - #10-32 Tap		
HS-95-SS	3/8	Fine
HS-95-SS-EF	3/8	EF
HS-95-SS-SF	3/8	SF
HS-955-SS	1/2	Fine
HS-955-SS-EF	1/2	EF
HS-955-SS-SF	1/2	SF
HS-96-SS	3/8	Coarse
HS-965-SS	1/2	Coarse

Part #	B Height	Tooth Pattern
5/8" Square - #10-32 Tap		
HS-962-SS	3/8	Fine
HS-962-SS-EF	3/8	EF
HS-9625-SS	1/2	Fine
HS-9625-SS-EF	1/2	EF
HS-963-SS	3/8	Coarse
HS-9635-SS	1/2	Coarse
3/4" Square - #10-32 Tap		
HS-97-SS	3/8	Fine
HS-97-SS-EF	3/8	EF
HS-975-SS	1/2	Fine
HS-975-SS-EF	1/2	EF
HS-98-SS	3/8	Coarse
HS-985-SS	1/2	Coarse

Part #	B Height	Tooth Pattern
1" Square - 1/4-28 Tap		
HS-101-SS	3/8	Fine
HS-101-SS-EF	3/8	EF
HS-102-SS	3/8	Coarse
HS-105-SS	1/2	Fine
HS-105-SS-EF	1/2	EF
HS-106-SS	1/2	Coarse

FIXED GRIPPERS

Square Style | Tool Steel | Serrated | Counter Bored Hole | Inch & Metric

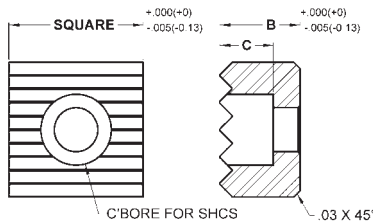
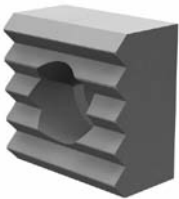


Made from M-2 high speed steel. Hardened to Rc 60/62 with black oxide finish. Serrated for positive holding in tough applications. Counter bored hole for front mounting with a socket head cap screw. See page 90 for tooth pattern specifications. See page 91 for mounting specifications.

INCH			
Part #	B Height	C C'Bores Depth	Tooth Pattern
1/2" Square - Counter Bored for #10 SHCS			
HS-92-C	3/8	1/4	Fine
HS-92-C-EF	3/8	1/4	EF
HS-92-C-SF	3/8	1/4	SF
HS-95-C	1/2	1/4	Fine
HS-95-C-EF	1/2	1/4	EF
HS-95-C-SF	1/2	1/4	SF
5/8" Square - Counter Bored for #10 SHCS			
HS-962-C	3/8	1/4	Fine
HS-962-C-EF	3/8	1/4	EF
HS-9625-C	1/2	1/4	Fine
HS-9625-C-EF	1/2	1/4	EF
HS-963-C	3/8	1/4	Coarse
HS-9635-C	1/2	1/4	Coarse
3/4" Square - Counter Bored for 1/4" SHCS			
HS-97-C	1/2	5/16	Fine
HS-97-C-EF	1/2	5/16	EF
HS-98-C	1/2	5/16	Coarse
1" Square - Counter Bored for 1/4" SHCS			
HS-101-C	1/2	5/16	Fine
HS-101-C-EF	1/2	5/16	EF
HS-102-C	1/2	5/16	Coarse

METRIC			
Part #	B Height	C C'Bores Depth	Tooth Pattern
12mm Square - Counter Bored for M4 SHCS			
MHS-9120-C	10	5.6	Fine
MHS-9122-C	12	5.6	Fine
16mm Square - Counter Bored for M4 SHCS			
MHS-9160-C	10	5.6	Fine
MHS-9162-C	12	5.6	Fine
20mm Square - Counter Bored for M5 SHCS			
MHS-9200-C	10	6.6	Fine
MHS-9202-C	12	6.6	Fine
25mm Square - Counter Bored for M6 SHCS			
MHS-9250-C	10	7.6	Fine
MHS-9252-C	12	7.6	Fine

Square Style | Tool Steel | Straight Serrations | Counter Bored Hole | Inch

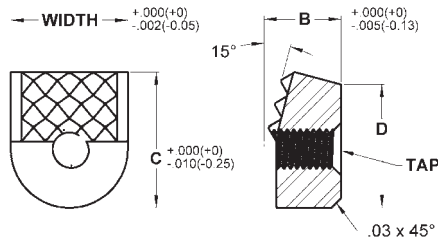


Made from M-2 high speed steel. Hardened to Rc 60/62 with black oxide finish. Serrated for positive holding in tough applications. Counter bored hole for front mounting with a socket head cap screw. See page 90 for tooth pattern specifications. See page 91 for mounting specifications.

INCH			
Part #	B Height	C C'Bores Depth	Tooth Pattern
1/2" Square - Counter Bored for #10 SHCS			
HS-92-C-SS	3/8	1/4	Fine
HS-92-C-SS-EF	3/8	1/4	EF
HS-92-C-SS-SF	3/8	1/4	SF
HS-95-C-SS	1/2	1/4	Fine
HS-95-C-SS-EF	1/2	1/4	EF
HS-95-C-SS-SF	1/2	1/4	SF
5/8" Square - Counter Bored for #10 SHCS			
HS-962-C-SS	3/8	1/4	Fine
HS-962-C-SS-EF	3/8	1/4	EF
HS-9625-C-SS	1/2	1/4	Fine
HS-9625-C-SS-EF	1/2	1/4	EF
HS-963-C-SS	3/8	1/4	Coarse
HS-9635-C-SS	1/2	1/4	Coarse
3/4" Square - Counter Bored for 1/4" SHCS			
HS-97-C-SS	1/2	5/16	Fine
HS-97-C-SS-EF	1/2	5/16	EF
HS-98-C-SS	1/2	5/16	Coarse
1" Square - Counter Bored for 1/4" SHCS			
HS-101-C-SS	1/2	5/16	Fine
HS-101-C-SS-EF	1/2	5/16	EF
HS-102-C-SS	1/2	5/16	Coarse

FIXED GRIPPERS

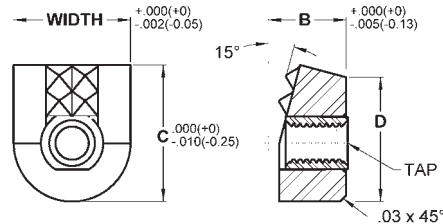
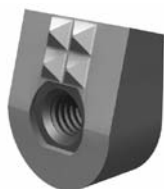
Angled Style | Tool Steel | Tapped | Inch & Metric



Made from M-2 high speed steel. Hardened to Rc 60/62 with black oxide finish. Serrated and smooth styles available. Grippers are angled at 15 degrees to fit Woodworth, Maxi-Grip, and Ultra-Grip rocker style chucks. Thru-hole tap. See page 90 for tooth pattern specifications.

INCH					METRIC				
Part #	B	C	D	Tooth Pattern	Part #	B	C	D	Tooth Pattern
9/16" Width - #10-32 Tap					10mm Width - #10-32 Tap				
HS-110	3/8	.65	.60	Smooth	HS-110-10MM	3/8	.65	.60	Smooth
HS-127-4	3/8	.65	.60	4 Point	HS-127-4-10MM	3/8	.65	.60	4 Point
HS-127-12	3/8	.65	.60	Fine	HS-130-4-10MM	3/8	.65	.60	Straight
HS-130-4	3/8	.65	.60	Straight	HS-145-5-10MM	3/8	.65	.60	Angular
HS-145-5	3/8	.65	.60	Angular	HS-150-3-10MM	3/8	.65	.60	3 Point/90°ST
HS-150-3	3/8	.65	.60	3 Point/90°ST	10mm Width - M5x0.8 Tap				
9/16" Width - M5x0.8 Tap					MHS-110-10MM	3/8	.65	.60	Smooth
MHS-110	3/8	.65	.60	Smooth	MHS-127-4-10MM	3/8	.65	.60	4 Point
MHS-127-4	3/8	.65	.60	4 Point	MHS-130-4-10MM	3/8	.65	.60	Straight
MHS-127-12	3/8	.65	.60	Fine	MHS-145-5-10MM	3/8	.65	.60	Angular
MHS-130-4	3/8	.65	.60	Straight	MHS-150-3-10MM	3/8	.65	.60	3 Point/90°ST
MHS-145-5	3/8	.65	.60	Angular					
MHS-150-3	3/8	.65	.60	3 Point/90°ST					
3/4" Width - 1/4-28 Tap									
HS-128-4	1/2	.88	.81	4 Point					
HS-128-22	1/2	.88	.81	Fine					
HS-158-3	1/2	.88	.81	3 Point/90°ST					

Angled Style | Solid Carbide | Tapped | Inch & Metric

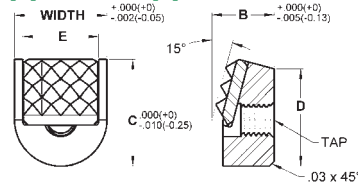


Made from solid carbide for high wear and high load applications. Serrated for positive holding in tough applications. Grippers are angled at 15 degrees to fit Woodworth, Maxi-Grip, and Ultra-Grip rocker style chucks. Thru-hole tap. See page 90 for tooth pattern specifications.

INCH					METRIC				
Part #	B	C	D	Tooth Pattern	Part #	B	C	D	Tooth Pattern
9/16" Width - #10-32 Tap					10mm Width - #10-32 Tap				
FSC-127-4	3/8	.65	.60	4 Point	FSC-127-4-10MM	3/8	.65	.60	4 Point
FSC-127-10	3/8	.65	.60	Fine	FSC-130-2-10MM	3/8	.65	.60	Straight
FSC-130-4	3/8	.65	.60	Straight	10mm Width - M5x0.8 Tap				
FSC-145-5	3/8	.65	.60	Angular	MFSC-127-4-10MM	3/8	.65	.60	4 Point
9/16" Width - M5x0.8 Tap					MFSC-130-2-10MM	3/8	.65	.60	Straight
MFSC-127-4	3/8	.65	.60	4 Point					
MFSC-127-10	3/8	.65	.60	Fine					
MFSC-130-4	3/8	.65	.60	Straight					
MFSC-145-5	3/8	.65	.60	Angular					

FIXED GRIPPERS

Angled Style | Carbide Tipped | Tapped | Inch & Metric

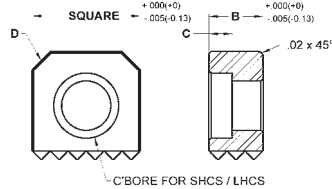
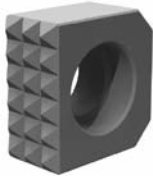


Constructed with a serrated carbide gripper pad brazed to a heat treated alloy steel body. Serrated for positive holding in tough applications. Grippers are angled at 15 degrees to fit Woodworth, Maxi-Grip, and Ultra-Grip rocker style chucks. See page 90 for tooth pattern specifications.

INCH					
Part #	B	C	D	E	Tooth Pattern
9/16" Width - #10-32 Tap					
CT-127-4	3/8	.65	.60	15/32	4 Point
CT-127-12	3/8	.65	.60	15/32	Fine
CT-130-4	3/8	.65	.60	15/32	Straight
CT-145-5	3/8	.65	.60	15/32	Angular

INCH WITH METRIC THREADS					
Part #	B	C	D	E	Tooth Pattern
9/16" Width - M5x0.8 Tap					
MCT-127-4	3/8	.65	.60	15/32	4 Point
MCT-127-12	3/8	.65	.60	15/32	Fine
MCT-130-4	3/8	.65	.60	15/32	Straight
MCT-145-5	3/8	.65	.60	15/32	Angular

Edge Style | Tool Steel | Serrated | Counter Bored | Inch & Metric



Made from M-2 high speed steel. Hardened to Rc 60/62 with black oxide finish. Square edge grippers have serrations on one side. Counter bored hole for front mounting with a socket head or low head cap screw. See page 90 for tooth pattern specifications. See page 91 for mounting specifications.

INCH				
Part #	B Height	C C' Bore Depth	D Chamfer	Tooth Pattern
3/8" Square - Counter Bored for #6 SHCS				
HSE-902	1/4	.146	1/16 x 45°	EF
HSE-902-SF	1/4	.146	1/16 x 45°	SF
HSE-903	3/8	.146	1/16 x 45°	EF
HSE-903-SF	3/8	.146	1/16 x 45°	SF
HSE-905	1/2	.146	1/16 x 45°	EF
HSE-905-SF	1/2	.146	1/16 x 45°	SF
1/2" Square - Counter Bored for #8 SHCS				
HSE-952	1/4	.170	3/32 x 45°	Fine
HSE-952-EF	1/4	.170	3/32 x 45°	EF
HSE-952-SF	1/4	.170	3/32 x 45°	SF
HSE-953	3/8	.175	3/32 x 45°	Fine
HSE-953-EF	3/8	.175	3/32 x 45°	EF
HSE-953-SF	3/8	.175	3/32 x 45°	SF
HSE-955	1/2	.175	3/32 x 45°	Fine
HSE-955-EF	1/2	.175	3/32 x 45°	EF
HSE-955-SF	1/2	.175	3/32 x 45°	SF

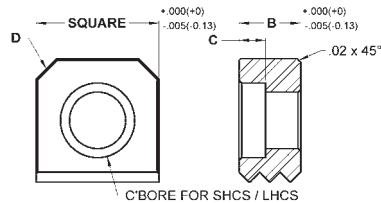
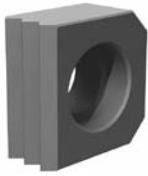
INCH				
Part #	B Height	C C' Bore Depth	D Chamfer	Tooth Pattern
5/8" Square - Counter Bored for 1/4" LHCS				
HSE-962	1/4	.130	1/8 x 45°	Fine
HSE-962-EF	1/4	.130	1/8 x 45°	EF
HSE-963	3/8	.130	1/8 x 45°	Fine
HSE-963-EF	3/8	.130	1/8 x 45°	EF
HSE-965	1/2	.130	1/8 x 45°	Fine
HSE-965-EF	1/2	.130	1/8 x 45°	EF
3/4" Square - Counter Bored for 5/16" LHCS				
HSE-972	1/4	.161	1/8 x 45°	Fine
HSE-972-EF	1/4	.161	1/8 x 45°	EF
HSE-973	3/8	.161	1/8 x 45°	Fine
HSE-973-EF	3/8	.161	1/8 x 45°	EF
HSE-975	1/2	.161	1/8 x 45°	Fine
HSE-975-EF	1/2	.161	1/8 x 45°	EF
1" Square - Counter Bored for 3/8" LHCS				
HSE-102	1/4	.194	1/8 x 45°	Fine
HSE-102-EF	1/4	.194	1/8 x 45°	EF
HSE-103	3/8	.194	1/8 x 45°	Fine
HSE-103-EF	3/8	.194	1/8 x 45°	EF
HSE-105	1/2	.194	1/8 x 45°	Fine
HSE-105-EF	1/2	.194	1/8 x 45°	EF

METRIC				
Part #	B Height	C C' Bore Depth	D Chamfer	Tooth Pattern
10mm Square - Counter Bored for M3 SHCS				
MHSE-9106	6	3.75	1.6 x 45°	EF
MHSE-9100	10	3.75	1.6 x 45°	EF
12mm Square - Counter Bored for M4 SHCS				
MHSE-9126	6	4.06	2.3 x 45°	Fine
MHSE-9120	10	4.06	2.3 x 45°	Fine
MHSE-9122	12	4.06	2.3 x 45°	Fine

METRIC				
Part #	B Height	C C' Bore Depth	D Chamfer	Tooth Pattern
16mm Square - Counter Bored for M6 LHCS				
MHSE-9166	6	4.2	3.2 x 45°	Fine
MHSE-9160	10	4.2	3.2 x 45°	Fine
MHSE-9162	12	4.2	3.2 x 45°	Fine
20mm Square - Counter Bored for M8 LHCS				
MHSE-9206	6	5.08	3.2 x 45°	Fine
MHSE-9200	10	5.08	3.2 x 45°	Fine
MHSE-9202	12	5.08	3.2 x 45°	Fine
25mm Square - Counter Bored for M10 LHCS				
MHSE-9250	10	6.6	3.2 x 45°	Fine
MHSE-9252	12	6.6	3.2 x 45°	Fine

FIXED GRIPPERS

Edge Style | Tool Steel | Straight Serrations | Counter Bored | Inch & Metric



Made from M-2 high speed steel. Hardened to Rc 60/62 with black oxide finish. Square edge grippers have serrations on one side. Counter bored hole for front mounting with a socket head or low head cap screw. See page 90 for tooth pattern specifications. See page 91 for mounting specifications.

INCH

Part #	B Height	C C'Bore Depth	D Chamfer	Tooth Pattern
3/8" Square - Counter Bored for #6 SHCS				
HSE-902-SS	1/4	.200	1/16 x 45°	EF
HSE-902-SS-SF	1/4	.200	1/16 x 45°	SF
HSE-903-SS	3/8	.200	1/16 x 45°	EF
HSE-903-SS-SF	3/8	.200	1/16 x 45°	SF
HSE-905-SS	1/2	.200	1/16 x 45°	EF
HSE-905-SS-SF	1/2	.200	1/16 x 45°	SF
1/2" Square - Counter Bored for #8 SHCS				
HSE-952-SS	1/4	.220	3/32 x 45°	Fine
HSE-952-SS-EF	1/4	.220	3/32 x 45°	EF
HSE-952-SS-SF	1/4	.220	3/32 x 45°	SF
HSE-953-SS	3/8	.220	3/32 x 45°	Fine
HSE-953-SS-EF	3/8	.220	3/32 x 45°	EF
HSE-953-SS-SF	3/8	.220	3/32 x 45°	SF
HSE-955-SS	1/2	.220	3/32 x 45°	Fine
HSE-955-SS-EF	1/2	.220	3/32 x 45°	EF
HSE-955-SS-SF	1/2	.220	3/32 x 45°	SF

Part #	B Height	C C'Bore Depth	D Chamfer	Tooth Pattern
5/8" Square - Counter Bored for 1/4" LHCS				
HSE-962-SS	1/4	.130	1/8 x 45°	Fine
HSE-962-SS-EF	1/4	.130	1/8 x 45°	EF
HSE-963-SS	3/8	.130	1/8 x 45°	Fine
HSE-963-SS-EF	3/8	.130	1/8 x 45°	EF
HSE-965-SS	1/2	.130	1/8 x 45°	Fine
HSE-965-SS-EF	1/2	.130	1/8 x 45°	EF
3/4" Square - Counter Bored for 5/16" LHCS				
HSE-972-SS	1/4	.161	1/8 x 45°	Fine
HSE-972-SS-EF	1/4	.161	1/8 x 45°	EF
HSE-973-SS	3/8	.161	1/8 x 45°	Fine
HSE-973-SS-EF	3/8	.161	1/8 x 45°	EF
HSE-975-SS	1/2	.161	1/8 x 45°	Fine
HSE-975-SS-EF	1/2	.161	1/8 x 45°	EF
1" Square - Counter Bored for 3/8" LHCS				
HSE-102-SS	1/4	.194	1/8 x 45°	Fine
HSE-102-SS-EF	1/4	.194	1/8 x 45°	EF
HSE-103-SS	3/8	.194	1/8 x 45°	Fine
HSE-103-SS-EF	3/8	.194	1/8 x 45°	EF
HSE-105-SS	1/2	.194	1/8 x 45°	Fine
HSE-105-SS-EF	1/2	.194	1/8 x 45°	EF

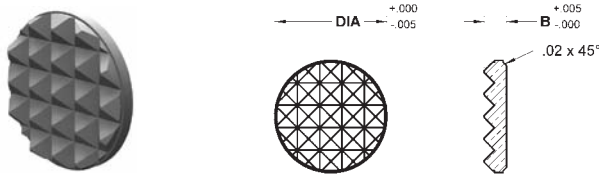
METRIC

Part #	B Height	C C'Bore Depth	D Chamfer	Tooth Pattern
10mm Square - Counter Bored for M3 SHCS				
MHSE-9106-SS	6	3.75	1.6 x 45°	EF
MHSE-9100-SS	10	3.75	1.6 x 45°	EF
12mm Square - Counter Bored for M4 SHCS				
MHSE-9126-SS	6	4.06	2.3 x 45°	Fine
MHSE-9120-SS	10	4.06	2.3 x 45°	Fine
MHSE-9122-SS	12	4.06	2.3 x 45°	Fine
16mm Square - Counter Bored for M6 LHCS				
MHSE-9166-SS	6	4.2	3.2 x 45°	Fine
MHSE-9160-SS	10	4.2	3.2 x 45°	Fine
MHSE-9162-SS	12	4.2	3.2 x 45°	Fine

Part #	B Height	C C'Bore Depth	D Chamfer	Tooth Pattern
20mm Square - Counter Bored for M8 LHCS				
MHSE-9206-SS	6	5.08	3.2 x 45°	Fine
MHSE-9200-SS	10	5.08	3.2 x 45°	Fine
MHSE-9202-SS	12	5.08	3.2 x 45°	Fine
25mm Square - Counter Bored for M10 LHCS				
MHSE-9250-SS	10	6.6	3.2 x 45°	Fine
MHSE-9252-SS	12	6.6	3.2 x 45°	Fine

CARBIDE PADS

Round Style | Solid Carbide Pad | Serrated | No Hole | Inch



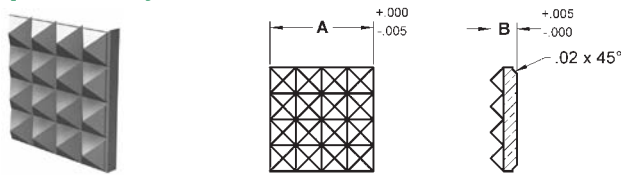
Made from solid carbide for high wear resistance and serrated for additional gripping strength. Can be brazed or bonded in jigs, fixtures, clamps, etc. The bottom is chamfered for clearance in mounting pocket. See page 90 for tooth pattern specifications. See page 91 for mounting specifications.

INCH		
Part #	B Height	Tooth Pattern
1/4" Dia		
CC-1	1/8	EF
CC-1-SF	1/8	SF
5/16" Dia		
CC-2	1/8	EF
CC-2-SF	1/8	SF
CC-2-4	1/8	4 Point
3/8" Dia		
CC-3	1/8	Fine
CC-3-EF	1/8	EF
CC-3-4	1/8	4 Point

Part #	B Height	Tooth Pattern
7/16" Dia		
CC-437	1/8	Fine
CC-437-EF	1/8	EF
CC-437-4	5/32	4 Point
1/2" Dia		
CC-4	1/8	Fine
CC-4-EF	1/8	EF
CC-4-4	5/32	4 Point

Part #	B Height	Tooth Pattern
5/8" Dia		
CC-5	1/8	Fine
CC-5-EF	1/8	EF
3/4" Dia		
CC-6	1/8	Fine
CC-6-EF	1/8	EF
CC-6X156-EF	5/32	EF
1" Dia		
CC-8-EF	5/32	EF

Square Style | Solid Carbide Pad | Serrated | No Hole | Inch



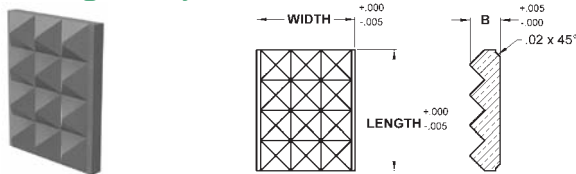
Made from solid carbide for high wear resistance and serrated for additional gripping strength. Can be brazed or bonded in jigs, fixtures, clamps, etc. The bottom is chamfered for clearance in mounting pocket. See page 90 for tooth pattern specifications. See page 91 for mounting specifications.

INCH		
Part #	B Height	Tooth Pattern
3/8" Square		
CS-3	1/8	Fine
CS-3-EF	1/8	EF

Part #	B Height	Tooth Pattern
1/2" Square		
CS-4	1/8	Fine
CS-4-EF	1/8	EF
5/8" Square		
CS-5-EF	1/8	EF

Part #	B Height	Tooth Pattern
3/4" Square		
CS-6X125-EF	1/8	EF
CS-6-EF	5/32	EF
1" Square		
CS-8-EF	5/32	EF

Rectangle Style | Solid Carbide Pad | Serrated | No Hole | Inch



Made from solid carbide for high wear resistance and serrated for additional gripping strength. Can be brazed or bonded in jigs, fixtures, clamps, etc. The bottom is chamfered for clearance in mounting pocket. See page 90 for tooth pattern specifications. See page 91 for mounting specifications.

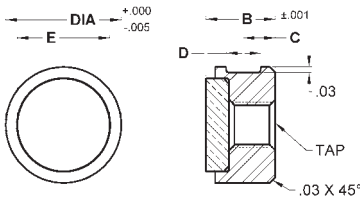
INCH		
Part #	B Height	Tooth Pattern
3/8" x 1/4" Rectangle		
CR-2-EF	1/8	EF
1/2" x 13/32" Rectangle		
CR-870	1/8	Fine
CR-870-EF	1/8	EF
CR-870X156-EF	5/32	EF

Part #	B Height	Tooth Pattern
29/64" x 13/32" Rectangle		
CR-127-4	1/8	4 Point
CR-127-12	1/8	Fine
CR-130-4	1/8	Straight
CR-145-5	1/8	Angular

Part #	B Height	Tooth Pattern
1" x 1/2" Rectangle		
CR-4-EF	3/16	EF
CR-4	3/16	Saw Tooth
1-1/2" x 3/4" Rectangle		
CR-6	1/4	Saw Tooth

REST PADS

Carbide Tipped | Tapped | Inch



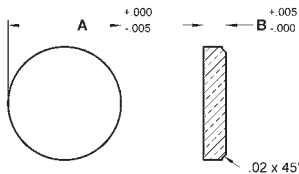
Constructed with a carbide pad brazed to a heat treated alloy steel body for better wear. Black oxide finish. Blind-hole tap for back side mounting. Flat on O.D. for set screw mounting. See page 91 for mounting specifications.

INCH

Part #	B Height	C Flat Pos.	D Flat Width	E Pad Dia.
3/8" Dia - #10-32 Tap				
CRP-40	3/8	11/64	3/16	5/16
CRP-405	1/2	15/64	3/16	5/16
1/2" Dia - #10-32 Tap				
CRP-50	3/8	11/64	3/16	3/8
CRP-53	1/2	15/64	3/16	3/8

Part #	B Height	C Flat Pos.	D Flat Width	E Pad Dia.
5/8" Dia - 1/4-28 Tap				
CRP-62	3/8	11/64	3/16	1/2
CRP-625	1/2	15/64	3/16	1/2
3/4" Dia - 1/4-28 Tap				
CRP-75	3/8	11/64	3/16	5/8
CRP-755	1/2	15/64	3/16	5/8
1" Dia - 1/4-28 Tap				
CRP-81	3/8	11/64	3/16	3/4

Solid Carbide | No Hole | Inch



Made from solid carbide for high wear resistance. Can be brazed or bonded in jigs, fixtures, clamps, etc. The bottom is chamfered for clearance in mounting pocket. See page 91 for mounting specifications.

INCH

Part #	A Dia.	B Height
CC-1F	1/4	1/8
CC-2F	5/16	1/8
CC-3F	3/8	1/8
CC-4F	1/2	1/8

Part #	A Dia.	B Height
CC-5F	5/8	1/8
CC-6F	3/4	1/8
CC-8F	1	5/32



REST PADS



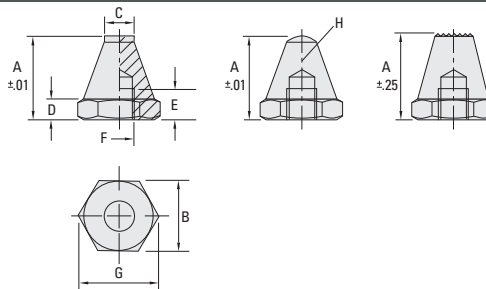
Flat



Radius



Serrated

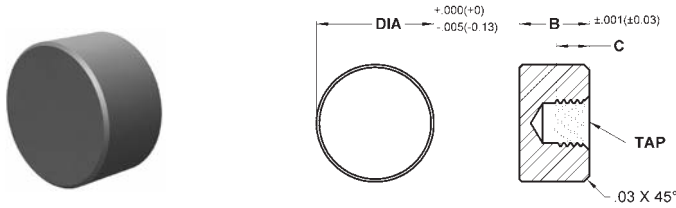


These rest pads provide support or act as stops for both rough and machined parts. To change into a male thread, simply glue in a threaded stud. Body is made from tempered steel, heat treated with black oxide finish.

Flat Part #	Radius Part #	Serrated Part #	A	B	C	D	E	F	G	H
KBJ810-06012-F	KBJ810-06012-R	KBJ810-06012-S	12.5	11	6	3	4	M6	12.7	5.0
KBJ810-06025-F	KBJ810-06025-R	KBJ810-06025-S	25.0	11	6	3	7	M6	12.7	5.0
KBJ810-08015-F	KBJ810-08015-R	KBJ810-08015-S	15.0	13	8	4	6	M8	15.0	8.5
KBJ810-08030-F	KBJ810-08030-R	KBJ810-08030-S	30.0	13	8	4	9	M8	15.0	8.5
KBJ810-10020-F	KBJ810-10020-R	KBJ810-10020-S	20.0	17	10	5	9	M10	19.6	9.0
KBJ810-10040-F	KBJ810-10040-R	KBJ810-10040-S	40.0	17	10	5	13	M10	19.6	9.0
KBJ810-12025-F	KBJ810-12025-R	KBJ810-12025-S	25.0	19	12	6	11	M12	21.9	12.8
KBJ810-12050-F	KBJ810-12050-R	KBJ810-12050-S	50.0	19	12	6	16	M12	21.9	12.8

REST PADS

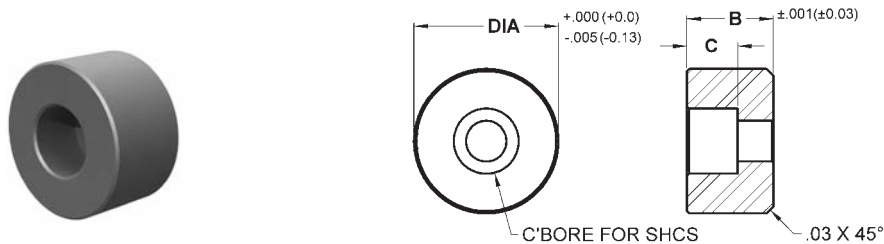
Steel | Tapped | Inch & Metric



Made from 8620 steel, carburized and hardened to Rc 58/60 with .050" case. Black oxide finish. Blind-hole tap for back side mounting. See page 91 for mounting specifications.

INCH			METRIC		
Part #	B Height	C Tap Depth	Part #	B Height	C Tap Depth
5/16" Dia - #8-32 Tap			8mm Dia - M4x0.7 Tap		
SRP-30	3/8	3/16	MSRP-080	10	5
SRP-305	1/2	5/16	MSRP-082	12	6.4
3/8" Dia - #10-32 Tap			10mm Dia - M5x0.8 Tap		
SRP-40	3/8	3/16	MSRP-100	10	5
SRP-405	1/2	5/16	MSRP-102	12	6.4
1/2" Dia - #10-32 Tap			12mm Dia - M5x0.8 Tap		
SRP-50	3/8	3/16	MSRP-120	10	5
SRP-53	1/2	5/16	MSRP-122	12	6.4
5/8" Dia - 1/4-28 Tap			16mm Dia - M6x1.0 Tap		
SRP-62	3/8	3/16	MSRP-160	10	5
SRP-625	1/2	5/16	MSRP-162	12	6.4
3/4" Dia - 1/4-28 Tap			20mm Dia - M6x1.0 Tap		
SRP-75	3/8	3/16	MSRP-200	10	5
SRP-755	1/2	5/16	MSRP-202	12	6.4
1" Dia - 1/4-28 Tap			25mm Dia - M6x1.0 Tap		
SRP-81	3/8	3/16	MSRP-250	10	5
SRP-815	1/2	5/16	MSRP-252	12	6.4

Steel | Counter Bored | Inch & Metric

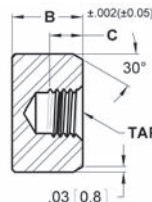
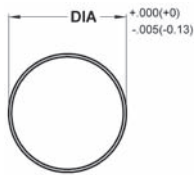
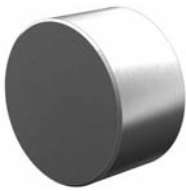


Made from 8620 steel, carburized and hardened to Rc 58/60 with .050" case. Black oxide finish. Counter bored hole for front mounting with a socket head cap screw. See page 91 for mounting specifications.

INCH			METRIC		
Part #	B Height	C C'Bore Depth	Part #	B Height	C C'Bore Depth
3/8" Dia - Counter Bored for #6 SHCS			10mm Dia - Counter Bored for M3 SHCS		
SRP-40-C	3/8	3/16	MSRP-100-C	10	4
SRP-405-C	1/2	3/16	MSRP-102-C	12	4
1/2" Dia - Counter Bored for #8 SHCS			12mm Dia - Counter Bored for M4 SHCS		
SRP-50-C	3/8	7/32	MSRP-120-C	10	5.6
SRP-53-C	1/2	7/32	MSRP-122-C	12	5.6
5/8" Dia - Counter Bored for #8 SHCS			16mm Dia - Counter Bored for M5 SHCS		
SRP-62-C	3/8	7/32	MSRP-160-C	10	6.6
SRP-625-C	1/2	7/32	MSRP-162-C	12	6.6
3/4" Dia - Counter Bored for #10 SHCS			20mm Dia - Counter Bored for M6 SHCS		
SRP-75-C	3/8	1/4	MSRP-200-C	10	7.6
SRP-755-C	1/2	1/4	MSRP-202-C	12	7.6
1" Dia - Counter Bored for 1/4" SHCS			25mm Dia - Counter Bored for M6 SHCS		
SRP-81-C	3/8	9/32	MSRP-250-C	10	7.6
SRP-815-C	1/2	9/32	MSRP-252-C	12	7.6

REST PADS

Stainless Steel | Tapped | Inch & Metric



Made from 17-4 stainless steel which provides high strength as well as protection against chemical and environmental corrosion. Heat treated to Rc 43/46. Blind-hole tap for back side mounting. See page 91 for mounting specifications.

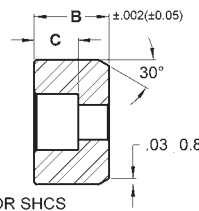
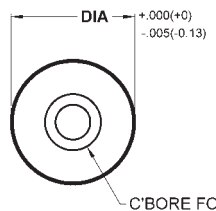
INCH

Part #	B Height	C Tap Depth
5/16" Dia - #8-32 Tap		
CSRP-30	3/8	3/16
CSRP-305	1/2	5/16
3/8" Dia - #10-32 Tap		
CSRP-40	3/8	3/16
CSRP-405	1/2	5/16
1/2" Dia - #10-32 Tap		
CSRP-50	3/8	3/16
CSRP-53	1/2	5/16
5/8" Dia - 1/4-28 Tap		
CSRP-62	3/8	3/16
CSRP-625	1/2	5/16
3/4" Dia - 1/4-28 Tap		
CSRP-75	3/8	3/16
CSRP-755	1/2	5/16
1" Dia - 1/4-28 Tap		
CSRP-81	3/8	3/16
CSRP-815	1/2	5/16

METRIC

Part #	B Height	C Tap Depth
8mm Dia - M4x0.7 Tap		
MCSR-080	10	5
MCSR-082	12	6.4
10mm Dia - M5x0.8 Tap		
MCSR-100	10	5
MCSR-102	12	6.4
12mm Dia - M5x0.8 Tap		
MCSR-120	10	5
MCSR-122	12	6.4
16mm Dia - M6x1.0 Tap		
MCSR-160	10	5
MCSR-162	12	6.4
20mm Dia - M6x1.0 Tap		
MCSR-200	10	5
MCSR-202	12	6.4
25mm Dia - M6x1.0 Tap		
MCSR-250	10	5
MCSR-252	12	6.4

Stainless Steel | Counter Bored | Inch & Metric



Made from 17-4 stainless steel which provides high strength as well as protection against chemical and environmental corrosion. Heat treated to Rc 43/46. Counter bored hole for front mounting with a socket head cap screw. See page 91 for mounting specifications.

INCH

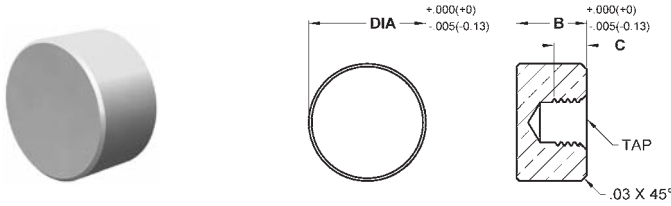
Part #	B Height	C C'Bore Depth
3/8" Dia - Counter Bored for #6 SHCS		
CSRP-40-C	3/8	3/16
CSRP-405-C	1/2	3/16
1/2" Dia - Counter Bored for #8 SHCS		
CSRP-50-C	3/8	7/32
CSRP-53-C	1/2	7/32
5/8" Dia - Counter Bored for #8 SHCS		
CSRP-62-C	3/8	7/32
CSRP-625-C	1/2	7/32
3/4" Dia - Counter Bored for #10 SHCS		
CSRP-75-C	3/8	1/4
CSRP-755-C	1/2	1/4
1" Dia - Counter Bored for 1/4" SHCS		
CSRP-81-C	3/8	9/32
CSRP-815-C	1/2	9/32

METRIC

Part #	B Height	C C'Bore Depth
10mm Dia - Counter Bored for M3 SHCS		
MCSR-100-C	10	4
MCSR-102-C	12	4
12mm Dia - Counter Bored for M4 SHCS		
MCSR-120-C	10	5.6
MCSR-122-C	12	5.6
16mm Dia - Counter Bored for M5 SHCS		
MCSR-160-C	10	6.6
MCSR-162-C	12	6.6
20mm Dia - Counter Bored for M6 SHCS		
MCSR-200-C	10	7.6
MCSR-202-C	12	7.6
25mm Dia - Counter Bored for M6 SHCS		
MCSR-250-C	10	7.6
MCSR-252-C	12	7.6

REST PADS

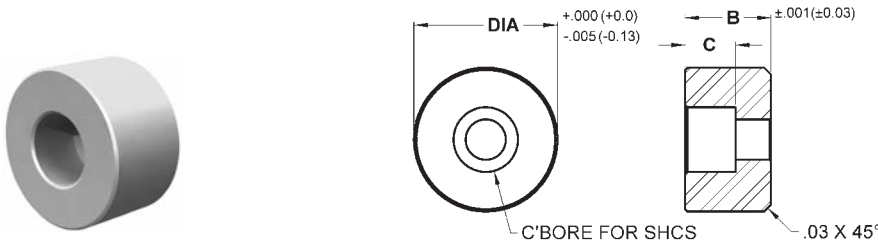
Delrin | Tapped | Inch & Metric



Made from white Delrin. Non-marring and non-absorbing. Blind-hole tap for back side mounting. See page 91 for mounting specifications.

INCH			METRIC		
Part #	B Height	C Tap Depth	Part #	B Height	C Tap Depth
5/16" Dia - #8-32 Tap			8mm Dia - M4x0.7 Tap		
DRP-30	3/8	3/16	MDRP-080	10	5
DRP-305	1/2	5/16	MDRP-082	12	6.4
3/8" Dia - #10-32 Tap			10mm Dia - M5x0.8 Tap		
DRP-40	3/8	3/16	MDRP-100	10	5
DRP-405	1/2	5/16	MDRP-102	12	6.4
1/2" Dia - #10-32 Tap			12mm Dia - M5x0.8 Tap		
DRP-50	3/8	3/16	MDRP-120	10	5
DRP-53	1/2	5/16	MDRP-122	12	6.4
5/8" Dia - 1/4-28 Tap			16mm Dia - M6x1.0 Tap		
DRP-62	3/8	3/16	MDRP-160	10	5
DRP-625	1/2	5/16	MDRP-162	12	6.4
3/4" Dia - 1/4-28 Tap			20mm Dia - M6x1.0 Tap		
DRP-75	3/8	3/16	MDRP-200	10	5
DRP-755	1/2	5/16	MDRP-202	12	6.4
1" Dia - 1/4-28 Tap			25mm Dia - M6x1.0 Tap		
DRP-81	3/8	3/16	MDRP-250	10	5
DRP-815	1/2	5/16	MDRP-252	12	6.4

Delrin | Counter Bored | Inch & Metric

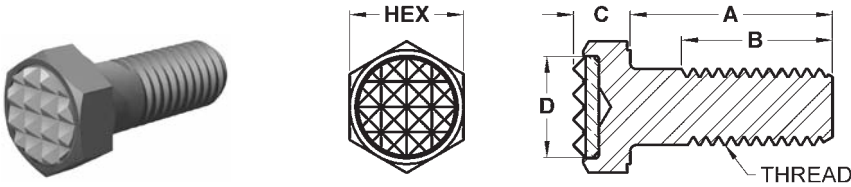


Made from white Delrin. Non-marring and non-absorbing. Counter bored hole for front mounting with a socket head cap screw. See page 91 for mounting specifications.

INCH			METRIC		
Part #	B Height	C C'Bores Depth	Part #	B Height	C C'Bores Depth
3/8" Dia - Counter Bored for #6 SHCS			10mm Dia - Counter Bored for M3 SHCS		
DRP-40-C	3/8	3/16	MDRP-100-C	10	4
DRP-405-C	1/2	3/16	MDRP-102-C	12	4
1/2" Dia - Counter Bored for #8 SHCS			12mm Dia - Counter Bored for M4 SHCS		
DRP-50-C	3/8	7/32	MDRP-120-C	10	5.6
DRP-53-C	1/2	7/32	MDRP-122-C	12	5.6
5/8" Dia - Counter Bored for #8 SHCS			16mm Dia - Counter Bored for M5 SHCS		
DRP-62-C	3/8	7/32	MDRP-160-C	10	6.6
DRP-625-C	1/2	7/32	MDRP-162-C	12	6.6
3/4" Dia - Counter Bored for #10 SHCS			20mm Dia - Counter Bored for M6 SHCS		
DRP-75-C	3/8	1/4	MDRP-200-C	10	7.6
DRP-755-C	1/2	1/4	MDRP-202-C	12	7.6
1" Dia - Counter Bored for 1/4" SHCS			25mm Dia - Counter Bored for M6 SHCS		
DRP-81-C	3/8	9/32	MDRP-250-C	10	7.6
DRP-815-C	1/2	9/32	MDRP-252-C	12	7.6

THREADED ADJUSTABLE GRIPPERS

Hex Head Style | Carbide Tipped | Inch & Metric



The threaded body allows the user to adjust the height of the gripper. The serrated carbide tip provides positive holding and wear resistance. The body is made from a Grade 8 fastener (metric are 10.9) with a black oxide finish. The serrated carbide pad is brazed onto a pocket in the head. See page 90 for tooth pattern specifications.

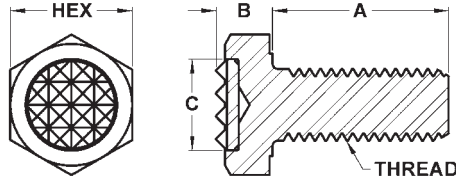
INCH

Part #	A Shank Length	B Thread Length	C Head Height	D Pad Dia.	Tooth Pattern
1/4-20 Threads - 7/16" Hex					
CTH-0200	1/2	1/2	13/64	5/16	EF
CTH-0250	1	7/8	13/64	5/16	EF
CTHF-0250	1	1	13/64	5/16	EF
CTH-0250 X 1.5	1-1/2	7/8	13/64	5/16	EF
CTHF-0250 X 1.5	1-1/2	1-1/2	13/64	5/16	EF
1/4-28 Threads - 7/16" Hex					
CTH-0280	1/2	1/2	13/64	5/16	EF
CTH-0281	1	7/8	13/64	5/16	EF
CTHF-0281	1	1	13/64	5/16	EF
CTH-0281 X 1.5	1-1/2	7/8	13/64	5/16	EF
CTHF-0281 X 1.5	1-1/2	1-1/2	13/64	5/16	EF
5/16-18 Threads - 1/2" Hex					
CTH-0310	1/2	1/2	1/4	3/8	Fine
CTH-0310-EF	1/2	1/2	1/4	3/8	EF
CTH-0312	1	1	1/4	3/8	Fine
CTH-0312-EF	1	1	1/4	3/8	EF
CTH-0312 X 1.5	1-1/2	1	1/4	3/8	Fine
CTHF-0312 X 1.5	1-1/2	1-1/2	1/4	3/8	Fine
CTH-0312 X 1.5-EF	1-1/2	1	1/4	3/8	EF
CTHF-0312 X 1.5-EF	1-1/2	1-1/2	1/4	3/8	EF
5/16-24 Threads - 1/2" Hex					
CTH-0320	1/2	1/2	1/4	3/8	Fine
CTH-0320-EF	1/2	1/2	1/4	3/8	EF
CTH-0321	1	1	1/4	3/8	Fine
CTH-0321-EF	1	1	1/4	3/8	EF
CTH-0321 X 1.5	1-1/2	1	1/4	3/8	Fine
CTHF-0321 X 1.5	1-1/2	1-1/2	1/4	3/8	Fine
CTH-0321 X 1.5-EF	1-1/2	1	1/4	3/8	EF
CTHF-0321 X 1.5-EF	1-1/2	1-1/2	1/4	3/8	EF
3/8-16 Threads - 9/16" Hex					
CTH-0370	1/2	1/2	9/32	1/2	Fine
CTH-0370-EF	1/2	1/2	9/32	1/2	EF
CTH-0375	1	1	9/32	1/2	Fine
CTH-0375-EF	1	1	9/32	1/2	EF
CTH-0375 X 1.5	1-1/2	1-1/8	9/32	1/2	Fine
CTHF-0375 X 1.5	1-1/2	1-1/2	9/32	1/2	Fine
CTH-0375 X 1.5-EF	1-1/2	1-1/8	9/32	1/2	EF
CTHF-0375 X 1.5-EF	1-1/2	1-1/2	9/32	1/2	EF
3/8-24 Threads - 9/16" Hex					
CTH-0230	1/2	1/2	9/32	1/2	Fine
CTH-0230-EF	1/2	1/2	9/32	1/2	EF
CTH-0231	1	1	9/32	1/2	Fine
CTH-0231-EF	1	1	9/32	1/2	EF
CTH-0231 X 1.5	1-1/2	1-1/8	9/32	1/2	Fine
CTHF-0231 X 1.5	1-1/2	1-1/2	9/32	1/2	Fine
CTH-0231 X 1.5-EF	1-1/2	1-1/8	9/32	1/2	EF
CTHF-0231 X 1.5-EF	1-1/2	1-1/2	9/32	1/2	EF

Part #	A Shank Length	B Thread Length	C Head Height	D Pad Dia.	Tooth Pattern
1/2-13 Threads - 3/4" Hex					
CTH-0510	1	1	23/64	5/8	Fine
CTH-0510-EF	1	1	23/64	5/8	EF
CTH-0515	1-1/2	1-1/2	23/64	5/8	Fine
CTH-0515-EF	1-1/2	1-1/2	23/64	5/8	EF
1/2-20 Threads - 3/4" Hex					
CTH-0240	1	1	23/64	5/8	Fine
CTH-0240-EF	1	1	23/64	5/8	EF
CTH-0500	1-1/2	1-1/2	23/64	5/8	Fine
CTH-0500-EF	1-1/2	1-1/2	23/64	5/8	EF
5/8-11 Threads - 15/16" Hex					
CTH-0625	1	1	7/16	3/4	Fine
CTH-0625-EF	1	1	7/16	3/4	EF
CTH-0625 X 2	2	1-1/2	7/16	3/4	Fine
CTHF-0625 X 2	2	2	7/16	3/4	Fine
CTH-0625 X 2-EF	2	1-1/2	7/16	3/4	EF
CTHF-0625 X 2-EF	2	2	7/16	3/4	EF
5/8-18 Threads - 15/16" Hex					
CTH-0620	1	1	7/16	3/4	Fine
CTH-0620-EF	1	1	7/16	3/4	EF
CTH-0620 X 2	2	1-1/2	7/16	3/4	Fine
CTHF-0620 X 2	2	2	7/16	3/4	Fine
CTH-0620 X 2-EF	2	1-1/2	7/16	3/4	EF
CTHF-0620 X 2-EF	2	2	7/16	3/4	EF
3/4-10 Threads - 1-1/8" Hex					
CTH-0755-EF	1	1	1/2	1	EF
CTH-0755 X 2.5-EF	2-1/2	1-3/4	1/2	1	EF
CTHF-0755 X 2.5-EF	2-1/2	2-1/2	1/2	1	EF
3/4-16 Threads - 1-1/8" Hex					
CTH-0750-EF	1	1	1/2	1	EF
CTH-0750 X 2.5-EF	2-1/2	1-3/4	1/2	1	EF
CTHF-0750 X 2.5-EF	2-1/2	2-1/2	1/2	1	EF

THREADED ADJUSTABLE GRIPPERS

Hex Head Style | Carbide Tipped | Inch & Metric (continued)

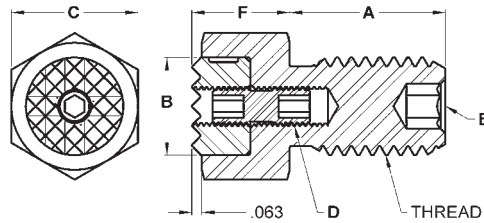


METRIC

Part #	A Shank Length	B Head Height	C Pad Dia.	Tooth Pattern
M6x1.00 Threads - 10mm Hex				
MCTH-06102	12	5	5/16	EF
MCTH-06100	25	5	5/16	EF
M8x1.25 Threads - 13mm Hex				
MCTH-08122	12	6.4	3/8	Fine
MCTH-08125X16	16	6.4	3/8	Fine
MCTH-08125	25	6.4	3/8	Fine
MCTH-08125X35	35	6.4	3/8	Fine
M10x1.25 Threads - 17mm Hex				
MCTH-10125	25	7.5	1/2	Fine
MCTH-10125X40	40	7.5	1/2	Fine

Part #	A Shank Length	B Head Height	C Pad Dia.	Tooth Pattern
M10x1.50 Threads - 17mm Hex				
MCTH-10152	12	7.5	1/2	Fine
MCTH-10150	25	7.5	1/2	Fine
MCTH-10150X40	40	7.5	1/2	Fine
M12x1.75 Threads - 19mm Hex				
MCTH-12175	25	8.7	5/8	Fine
MCTH-12175X40	40	8.7	5/8	Fine
M16x2.00 Threads - 24mm Hex				
MCTH-16200	35	11	3/4	Fine
MCTH-16200X50	50	11	3/4	Fine
M20x2.50 Threads - 30mm Hex				
MCTH-20250	40	13.7	1	EF
MCTH-20250X60	60	13.7	1	EF

AdjustaGrip™ Hex Head | Replaceable Pad | Inch



The replaceable gripper is held in place with a differential lock screw. The gripper can be replaced when worn or a different style gripper is required. The housing is made from alloy steel, heat treated to Rc 43/46 with black oxide finish. The parts listed below are for the housing unit and differential lock screw only and do not include a gripper. Grippers must be ordered separately. Use only with grippers that have a tapped through hole.

INCH

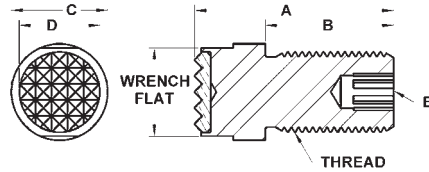
Part #	A Thread Length	B Use With Gripper Dia.	C Hex	D Int. Tap	E Int. Hex	F Head Height
3/8-16 Threads						
AJH-0370	1/2	3/8	9/16	#10-32 L.H.	3/16	1/2
AJH-0375	1	3/8	9/16	#10-32 L.H.	1/8	1/2
AJH-0375 X 1.5	1-1/2	3/8	9/16	#10-32 L.H.	1/8	1/2
3/8-24 Threads						
AJH-0230	1/2	3/8	9/16	#10-32 L.H.	3/16	1/2
AJH-0231	1	3/8	9/16	#10-32 L.H.	1/8	1/2
AJH-0231 X 1.5	1-1/2	3/8	9/16	#10-32 L.H.	1/8	1/2
1/2-13 Threads						
AJH-0510	1	1/2	11/16	#10-32 L.H.	3/16	5/8
AJH-0515	1-1/2	1/2	11/16	#10-32 L.H.	3/16	5/8
1/2-20 Threads						
AJH-0240	1	1/2	11/16	#10-32 L.H.	3/16	5/8
AJH-0500	1-1/2	1/2	11/16	#10-32 L.H.	3/16	5/8

Part #	A Thread Length	B Use With Gripper Dia.	C Hex	D Int. Tap	E Int. Hex	F Head Height
5/8-11 Threads						
AJH-0625 X 1	1	5/8	13/16	1/4-28 L.H.	1/4	5/8
AJH-0625 X 2	2	5/8	13/16	1/4-28 L.H.	1/4	5/8
5/8-18 Threads						
AJH-0620 X 1	1	5/8	13/16	1/4-28 L.H.	1/4	5/8
AJH-0620 X 2	2	5/8	13/16	1/4-28 L.H.	1/4	5/8
3/4-10 Threads						
AJH-0755 X 1	1	3/4	15/16	1/4-28 L.H.	5/16	5/8
AJH-0755 X 2.5	2-1/2	3/4	15/16	1/4-28 L.H.	5/16	5/8
3/4-16 Threads						
AJH-0750 X 1	1	3/4	15/16	1/4-28 L.H.	5/16	5/8
AJH-0750 X 2.5	2-1/2	3/4	15/16	1/4-28 L.H.	5/16	5/8



THREADED ADJUSTABLE GRIPPERS

Round Head Style | Carbide Tipped | Inch



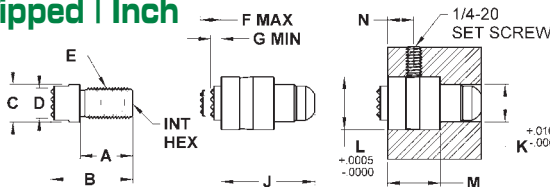
The threaded body allows the user to adjust the height of the gripper. The serrated carbide tip provides positive holding and wear resistance. The round head allows for additional clearance and has wrench flats for easy adjustments. The internal hex allows for adjustment from the backside. The body is made from heat-treated alloy steel with a black oxide finish. The serrated carbide pad is brazed onto a pocket in the head. See page 90 for tooth pattern specifications.

INCH

Part #	A OAL	B Thread Length	C Dia.	D Pad Dia.	E Int. Hex	Tooth Pattern
3/8-16 Threads						
AG-0370	15/16	9/16	1/2	3/8	1/8	Fine
AG-0370-EF	15/16	9/16	1/2	3/8	1/8	EF
AG-0375	1-3/8	1	1/2	3/8	1/8	Fine
AG-0375-EF	1-3/8	1	1/2	3/8	1/8	EF
AG-0375 X 1.5	1-7/8	1-1/2	1/2	3/8	1/8	Fine
AG-0375 X 1.5-EF	1-7/8	1-1/2	1/2	3/8	1/8	EF
3/8-24 Threads						
AG-0230	15/16	9/16	1/2	3/8	1/8	Fine
AG-0230-EF	15/16	9/16	1/2	3/8	1/8	EF
AG-0231	1-3/8	1	1/2	3/8	1/8	Fine
AG-0231-EF	1-3/8	1	1/2	3/8	1/8	EF
AG-0231 X 1.5	1-7/8	1-1/2	1/2	3/8	1/8	Fine
AG-0231 X 1.5-EF	1-7/8	1-1/2	1/2	3/8	1/8	EF
1/2-13 Threads						
AG-0510	1-3/8	7/8	5/8	1/2	3/16	Fine
AG-0510-EF	1-3/8	7/8	5/8	1/2	3/16	EF
AG-0515	2-1/16	1-1/2	5/8	1/2	3/16	Fine
AG-0515-EF	2-1/16	1-1/2	5/8	1/2	3/16	EF
1/2-20 Threads						
AG-0240	1-3/8	7/8	5/8	1/2	3/16	Fine
AG-0240-EF	1-3/8	7/8	5/8	1/2	3/16	EF
AG-0500	2-1/16	1-1/2	5/8	1/2	3/16	Fine
AG-0500-EF	2-1/16	1-1/2	5/8	1/2	3/16	EF

Part #	A OAL	B Thread Length	C Dia.	D Pad Dia.	E Int. Hex	Tooth Pattern
5/8-11 Threads						
AG-0625 X 1	1-9/16	1	3/4	5/8	1/4	Fine
AG-0625 X 1-EF	1-9/16	1	3/4	5/8	1/4	EF
AG-0625 X 2	2-9/16	2	3/4	5/8	1/4	Fine
AG-0625 X 2-EF	2-9/16	2	3/4	5/8	1/4	EF
5/8-18 Threads						
AG-0620 X 1	1-9/16	1	3/4	5/8	1/4	Fine
AG-0620 X 1-EF	1-9/16	1	3/4	5/8	1/4	EF
AG-0620 X 2	2-9/16	2	3/4	5/8	1/4	Fine
AG-0620 X 2-EF	2-9/16	2	3/4	5/8	1/4	EF
3/4-10 Threads						
AG-0755 X 1	1-9/16	1	7/8	3/4	5/16	Fine
AG-0755 X 1-EF	1-9/16	1	7/8	3/4	5/16	EF
AG-0755 X 2.5	3-1/16	2-1/2	7/8	3/4	5/16	Fine
AG-0755 X 2.5-EF	3-1/16	2-1/2	7/8	3/4	5/16	EF
3/4-16 Threads						
AG-0750 X 1	1-9/16	1	7/8	3/4	5/16	Fine
AG-0750 X 1-EF	1-9/16	1	7/8	3/4	5/16	EF
AG-0750 X 2.5	3-1/16	2-1/2	7/8	3/4	5/16	Fine
AG-0750 X 2.5-EF	3-1/16	2-1/2	7/8	3/4	5/16	EF

AccuGrip™ | Carbide Tipped | Inch



The Accugrip grippers are designed to fit into chuck jaws and allow the user to adjust the concentricity within the jaws. The complete Accugrip assembly consists of three components: Adjustable Gripper, Housing and Lock Screw. The housing is installed into the chuck jaws after the gripper assembly has been installed into the housing. The gripper assembly can be replaced when worn. The housing, gripper body and lock screw are made from heat-treated alloy steel. The gripper assembly is available with either a flat or serrated carbide tipped pad. The serrated grippers have fine serrations.

COMPLETE ACCUGRIP ASSEMBLY

Part #	Tooth Pattern	A	B	C	D	E Thread	F Max	G Min	J
ACG-0230-F	Flat	17/32	15/16	.499	3/8	3/8-24	9/32	5/32	1
ACG-0230-S	Serrated	17/32	15/16	.499	3/8	3/8-24	9/32	5/32	1
ACG-0240-F	Flat	7/8	1-3/8	.624	1/2	1/2-20	5/16	3/16	1-9/16
ACG-0240-S	Serrated	7/8	1-3/8	.624	1/2	1/2-20	5/16	3/16	1-9/16

MOUNTING DIMENSIONS

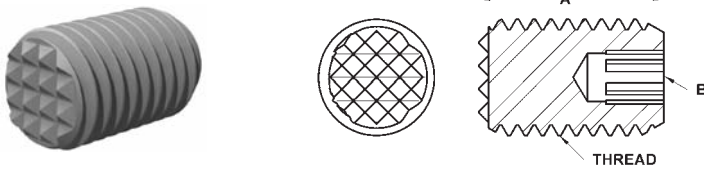
Part #	K	L	M	N
ACG-0230-F	1/2	.625	11/16	13/32
ACG-0230-S	1/2	.625	11/16	13/32
ACG-0240-F	21/32	.875	7/8	7/16
ACG-0240-S	21/32	.875	7/8	7/16

REPLACEMENT PARTS

Gripper Assembly Only	Housing Only	Lockscrew Only
ACG-0230-1S	ACG-0230-2	ACG-0230-3
ACG-0230-1F	ACG-0230-2	ACG-0230-3
ACG-0240-1S	ACG-0240-2	ACG-0240-3
ACG-0240-1F	ACG-0240-2	ACG-0240-3

THREADED ADJUSTABLE GRIPPERS

Threaded Body Style | Tool Steel | Inch & Metric



The threaded body allows the user to adjust the position of the gripper. The internal hex allows for adjustment from the backside. The serrated gripper provides positive holding. Made from M-2 high speed steel and hardened to Rc 55/58 with a black oxide finish. See page 90 for tooth pattern specifications.

INCH			
Part #	A Length	B Int. Hex	Tooth Pattern
3/8-16 Threads			
HS-0370	1/2	1/8	EF
HS-0371	1	1/8	EF
HS-0375	1-1/2	1/8	EF
3/8-24 Threads			
HS-0230	1/2	1/8	EF
HS-0231	1	1/8	EF
HS-0235	1-1/2	1/8	EF
1/2-13 Threads			
HS-0510	1	3/16	Fine
HS-0515	1-1/2	3/16	Fine
1/2-20 Threads			
HS-0240	1	3/16	Fine
HS-0500	1-1/2	3/16	Fine

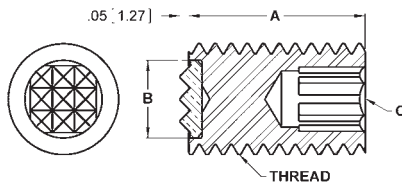
Part #	A Length	B Int. Hex	Tooth Pattern
5/8-11 Threads			
HS-0625 X 1	1	1/4	Fine
HS-0625	1-1/2	1/4	Fine
5/8-18 Threads			
HS-0620 X 1	1	1/4	Fine
HS-0620	1-1/2	1/4	Fine
3/4-10 Threads			
HS-0755 X 1	1	5/16	Fine
HS-0755	1-1/2	5/16	Fine
3/4-16 Threads			
HS-0750 X 1	1	5/16	Fine
HS-0750	1-1/2	5/16	Fine

METRIC			
Part #	A Length	B Int. Hex	Tooth Pattern
M10x1.50 Threads			
MHS-10150 X 25	25	3	EF
MHS-10150 X 40	40	3	EF
M12x1.75 Threads			
MHS-12175 X 25	25	5	Fine
MHS-12175 X 40	40	5	Fine

Part #	A Length	B Int. Hex	Tooth Pattern
M16x2.00 Threads			
MHS-16200 X 25	25	6	Fine
MHS-16200 X 40	40	6	Fine
M20x2.50 Threads			
MHS-20250 X 25	25	8	Fine
MHS-20250 X 40	40	8	Fine

THREADED ADJUSTABLE GRIPPERS

Threaded Body Style | Carbide Tipped | Inch & Metric



The threaded body allows the user to adjust the position of the gripper. The internal hex allows for adjustment from the backside. The serrated carbide tip provides positive holding and wear resistance. The body is made from alloy steel and hardened to Rc 43/46 with a black oxide finish. The serrated carbide pad is brazed onto a pocket in the head. See page 90 for tooth pattern specifications.

INCH

Part #	A Thread Length	B Pad Dia.	C Int. Hex	Tooth Pattern
3/8-16 Threads				
PG-0370	1/2	1/4	3/16	EF
PG-0375	1	1/4	3/16	EF
PG-0375 X 2	2	1/4	3/16	EF
PG-0375 X 3	3	1/4	3/16	EF
3/8-24 Threads				
PG-0230	1/2	1/4	3/16	EF
PG-0231	1	1/4	3/16	EF
PG-0231 X 1.5	1-1/2	1/4	3/16	EF
PG-0231 X 2	2	1/4	3/16	EF
PG-0231 X 3	3	1/4	3/16	EF
1/2-13 Threads				
PG-0513	3/4	3/8	1/4	Fine
PG-0513-4	3/4	3/8	1/4	4 Point
PG-0513-EF	3/4	3/8	1/4	EF
PG-0510	1	3/8	1/4	Fine
PG-0510-EF	1	3/8	1/4	EF
PG-0510-4	1	3/8	1/4	4 Point
PG-0510 X 2	2	3/8	1/4	Fine
PG-0510 X 2-EF	2	3/8	1/4	EF
PG-0510 X 2-4	2	3/8	1/4	4 Point
PG-0510 X 3	3	3/8	1/4	Fine
PG-0510 X 3-EF	3	3/8	1/4	EF
PG-0510 X 3-4	3	3/8	1/4	4 Point

Part #	A Thread Length	B Pad Dia.	C Int. Hex	Tooth Pattern
1/2-20 Threads				
PG-0503	3/4	3/8	1/4	Fine
PG-0503-4	3/4	3/8	1/4	4 Point
PG-0503-EF	3/4	3/8	1/4	EF
PG-0500	1	3/8	1/4	Fine
PG-0500-EF	1	3/8	1/4	EF
PG-0500-4	1	3/8	1/4	4 Point
PG-0500 X 2	2	3/8	1/4	Fine
PG-0500 X 2-EF	2	3/8	1/4	EF
PG-0500 X 2-4	2	3/8	1/4	4 Point
PG-0500 X 3	3	3/8	1/4	Fine
PG-0500 X 3-EF	3	3/8	1/4	EF
PG-0500 X 3-4	3	3/8	1/4	4 Point
5/8-11 Threads				
PG-0625	1	7/16	5/16	Fine
PG-0625-EF	1	7/16	5/16	EF
PG-0625-4	1	7/16	5/16	4 Point
PG-0625 X 2	2	7/16	5/16	Fine
PG-0625 X 2-EF	2	7/16	5/16	EF
PG-0625 X 2-4	2	7/16	5/16	4 Point
PG-0625 X 3	3	7/16	5/16	Fine
PG-0625 X 3-EF	3	7/16	5/16	EF
PG-0625 X 3-4	3	7/16	5/16	4 Point

Part #	A Thread Length	B Pad Dia.	C Int. Hex	Tooth Pattern
5/8-18 Threads				
PG-0620	1	1/2	5/16	Fine
PG-0620-EF	1	1/2	5/16	EF
PG-0620-4	1	1/2	5/16	4 Point
PG-0620 X 1.75	1-3/4	1/2	5/16	Fine
PG-0620 X 1.75-EF	1-3/4	1/2	5/16	EF
PG-0620 X 1.75-4	1-3/4	1/2	5/16	4 Point
PG-0620 X 2	2	1/2	5/16	Fine
PG-0620 X 2-EF	2	1/2	5/16	EF
PG-0620 X 2-4	2	1/2	5/16	4 Point
PG-0620 X 3	3	1/2	5/16	Fine
PG-0620 X 3-EF	3	1/2	5/16	EF
PG-0620 X 3-4	3	1/2	5/16	4 Point
3/4-10 Threads				
PG-0755	1	1/2	3/8	Fine
PG-0755-EF	1	1/2	3/8	EF
PG-0755-4	1	1/2	3/8	4 Point
PG-0755 X 2	2	1/2	3/8	Fine
PG-0755 X 2-EF	2	1/2	3/8	EF
PG-0755 X 2-4	2	1/2	3/8	4 Point
PG-0755 X 3	3	1/2	3/8	Fine
PG-0755 X 3-EF	3	1/2	3/8	EF
PG-0755 X 3-4	3	1/2	3/8	4 Point
3/4-16 Threads				
PG-0750	1	1/2	3/8	Fine
PG-0750-EF	1	1/2	3/8	EF
PG-0750-4	1	1/2	3/8	4 Point
PG-0750 X 2	2	1/2	3/8	Fine
PG-0750 X 2-EF	2	1/2	3/8	EF
PG-0750 X 2-4	2	1/2	3/8	4 Point
PG-0750 X 3	3	1/2	3/8	Fine
PG-0750 X 3-EF	3	1/2	3/8	EF
PG-0750 X 3-4	3	1/2	3/8	4 Point

METRIC

Part #	A Thread Length	B Pad Dia.	C Int. Hex	Tooth Pattern
M10x1.50 Threads				
MPG-10150	25	1/4	5	EF
MPG-10150 X 50	50	1/4	5	EF
M12x1.75 Threads				
MPG-12175-4	25	5/16	6	4 Point
MPG-12175	25	5/16	6	EF
MPG-12175 X 50-4	50	5/16	6	4 Point
MPG-12175 X 50	50	5/16	6	EF

Part #	A Thread Length	B Pad Dia.	C Int. Hex	Tooth Pattern
M16x2.00 Threads				
MPG-16200-4	25	7/16	8	4 Point
MPG-16200	25	7/16	8	Fine
MPG-16200 X 50-4	50	7/16	8	4 Point
MPG-16200 X 50	50	7/16	8	Fine

Part #	A Thread Length	B Pad Dia.	C Int. Hex	Tooth Pattern
M20x2.50 Threads				
MPG-20250-4	25	1/2	10	4 Point
MPG-20250	25	1/2	10	Fine
MPG-20250 X 50-4	50	1/2	10	4 Point
MPG-20250 X 50	50	1/2	10	Fine

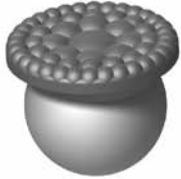
SWIVOTS® - REPLACEABLE SWIVEL BALL

Swivots® Replaceable Swivel Ball Style

These Replaceable Ball Style Swivots® are found on the following pages.

REPLACEABLE BALLS

Sof-Top Cone
Urethane Surface
Stainless



Flat Cone
Delrin



Flat Cone
Stainless



Abrasive Diamond Cone
Stainless



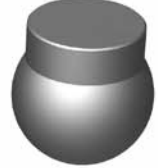
Serrated
Tool Steel



Flat
Delrin



Flat
Tool Steel



VITON O-RING



HOUSINGS



Base Design



Hex Head Design



Threaded Body Design

Load Calculator

To calculate the load on the contact surface, divide the torque applied (in/lbs) by a factor shown below. Assumes no lubrication threaded into steel. Use as a guideline only.

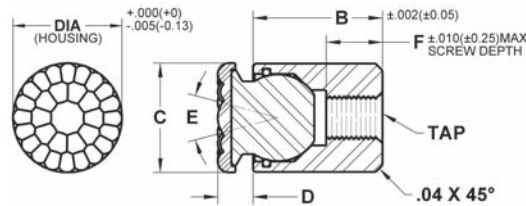
INCH			
Thread	Factor	Thread	Factor
#10-24	0.036	1/2-13	0.093
#10-32	0.035	1/2-20	0.091
1/4-20	0.047	5/8-11	0.116
1/4-28	0.046	5/8-18	0.113
5/16-18	0.059	3/4-10	0.138
5/16-24	0.058	3/4-16	0.135
3/8-16	0.070	1-8	0.183
3/8-24	0.068	1-14	0.180

METRIC			
Thread	Factor	Thread	Factor
M6x1.00	0.044	M16x2.00	0.116
M8x1.25	0.058	M20x2.50	0.144
M10x1.50	0.073	M24x3.00	0.173
M12x1.75	0.087		

- These Replaceable Ball Style Swivots are a modular component system that allows the ball to swivel, tilt, pivot, grip, hold, position or secure work pieces. The ball rotates 360 degrees and tilts at varying degrees in any direction from the centerline.
- The different housing styles allows for a variety of mounting options.
- These Replaceable Ball Style Swivots allow you to easily change the ball when worn or another style is needed for an application.
- Unique design prevents the ball from exceeding the specified degree of swivel - preventing the ball from rolling over in the housing.
- The ball is held in place with a Viton O-ring which allows the ball to be easily changed and keeps out dirt and other contaminants.
- Replacement balls and O-rings can be ordered separately. It is recommended the O-ring be replaced when the ball is replaced. Please call for replacement parts.

SWIVOTS® - REPLACEABLE SWIVEL BALL

Base Design | Stainless Ball | Sof-Top Urethane Surface | Inch & Metric



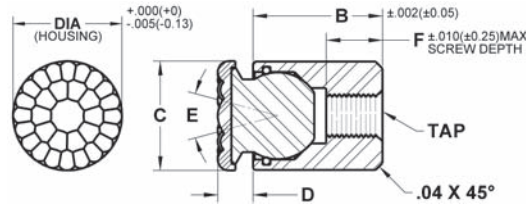
Cylindrical body allows for installation in tight areas. The housing is tapped for backside fastening. The replaceable ball swivels to allow for self-alignment on uneven surfaces. A Viton O-ring holds the ball in place while keeping contaminants out and providing smooth ball movement. The housing is made from alloy steel, heat treated to Rc 43/46 with black oxide finish. The urethane surface is permanently bonded to a 300 series stainless steel ball. The non-marking, non-staining urethane provides excellent protection against damage on delicate work surfaces. The “bubbled” texture of the urethane top offers firm holding and allows air to escape so no suction is created between the contact surface and the top of the rest pad as it is compressed. Because the top is made of urethane it offers superior abrasion and wear resistance. They are available in three durometers to meet a wide variety of application needs. Replacement balls and O-rings can be ordered separately. See page 117 for diagram of components.

INCH

Part #	B Length	C Contact Dia.	D Stand Off	E Degree Swivel	F Thread Depth	Ball Dia.	Durometer	Ball Only Part #
3/8" Dia - #4-40 Tap								
BBU-100-FC-35UR	5/16	.315	.143	28	1/4	3/16	35	BUB-187-FC-35UR
BBU-100-FC-60UR	5/16	.315	.143	28	1/4	3/16	60	BUB-187-FC-60UR
BBU-100-FC-80UR	5/16	.315	.143	28	1/4	3/16	80	BUB-187-FC-80UR
BBU-105-FC-35UR	7/16	.315	.143	28	5/16	3/16	35	BUB-187-FC-35UR
BBU-105-FC-60UR	7/16	.315	.143	28	5/16	3/16	60	BUB-187-FC-60UR
BBU-105-FC-80UR	7/16	.315	.143	28	5/16	3/16	80	BUB-187-FC-80UR
BBU-107-FC-35UR	11/16	.315	.143	28	5/16	3/16	35	BUB-187-FC-35UR
BBU-107-FC-60UR	11/16	.315	.143	28	5/16	3/16	60	BUB-187-FC-60UR
BBU-107-FC-80UR	11/16	.315	.143	28	5/16	3/16	80	BUB-187-FC-80UR
7/16" Dia - 8-32 Tap								
BBU-200-FC-35UR	3/8	.394	.174	28	5/32	9/32	35	BUB-200-FC-35UR
BBU-200-FC-60UR	3/8	.394	.174	28	5/32	9/32	60	BUB-200-FC-60UR
BBU-200-FC-80UR	3/8	.394	.174	28	5/32	9/32	80	BUB-200-FC-80UR
BBU-201-FC-35UR	15/16	.394	.174	28	1/2	9/32	35	BUB-200-FC-35UR
BBU-201-FC-60UR	15/16	.394	.174	28	1/2	9/32	60	BUB-200-FC-60UR
BBU-201-FC-80UR	15/16	.394	.174	28	1/2	9/32	80	BUB-200-FC-80UR
1/2" Dia - 10-32 Tap								
BBU-300-FC-35UR	1/2	.512	.205	28	5/32	3/8	35	BUB-300-FC-35UR
BBU-300-FC-60UR	1/2	.512	.205	28	5/32	3/8	60	BUB-300-FC-60UR
BBU-300-FC-80UR	1/2	.512	.205	28	5/32	3/8	80	BUB-300-FC-80UR
BBU-301-FC-35UR	1	.512	.205	28	5/8	3/8	35	BUB-300-FC-35UR
BBU-301-FC-60UR	1	.512	.205	28	5/8	3/8	60	BUB-300-FC-60UR
BBU-301-FC-80UR	1	.512	.205	28	5/8	3/8	80	BUB-300-FC-80UR
5/8" Dia - 1/4-28 Tap								
BBU-500-FC-35UR	3/4	.630	.205	28	1/4	1/2	35	BUB-500-FC-35UR
BBU-500-FC-60UR	3/4	.630	.205	28	1/4	1/2	60	BUB-500-FC-60UR
BBU-500-FC-80UR	3/4	.630	.205	28	1/4	1/2	80	BUB-500-FC-80UR
13/16" Dia - 5/16-24 Tap								
BBU-600-FC-35UR	7/8	.827	.236	32	11/32	5/8	35	BUB-600-FC-35UR
BBU-600-FC-60UR	7/8	.827	.236	32	11/32	5/8	60	BUB-600-FC-60UR
BBU-600-FC-80UR	7/8	.827	.236	32	11/32	5/8	80	BUB-600-FC-80UR
15/16" Dia - 3/8-24 Tap								
BBU-700-FC-35UR	7/8	.906	.236	32	9/32	3/4	35	BUB-700-FC-35UR
BBU-700-FC-60UR	7/8	.906	.236	32	9/32	3/4	60	BUB-700-FC-60UR
BBU-700-FC-80UR	7/8	.906	.236	32	9/32	3/4	80	BUB-700-FC-80UR

SWIVOTS® - REPLACEABLE SWIVEL BALL

Base Design | Stainless Ball | Sof-Top Urethane Surface | Inch & Metric (continued)

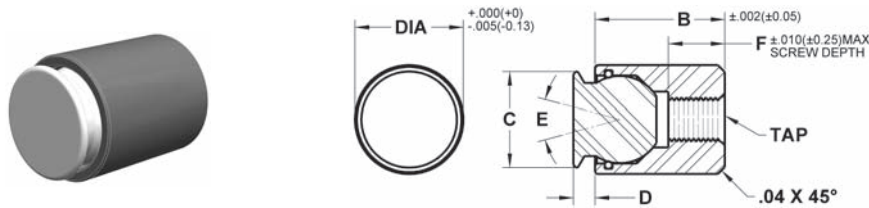


METRIC

Part #	B Length	C Contact Dia.	D Stand Off	E Degree Swivel	F Thread Depth	Ball Dia.	Durometer	Ball Only Part #
10mm Dia - M4x0.7 Tap								
MBBU-1012-FC-35UR	10.5	10	4	28	3.5	7	35	MBUB-070-FC-35UR
MBBU-1012-FC-60UR	10.5	10	4	28	3.5	7	60	MBUB-070-FC-60UR
MBBU-1012-FC-80UR	10.5	10	4	28	3.5	7	80	MBUB-070-FC-80UR
MBBU-1025-FC-35UR	23.5	10	4	28	9	7	35	MBUB-070-FC-35UR
MBBU-1025-FC-60UR	23.5	10	4	28	9	7	60	MBUB-070-FC-60UR
MBBU-1025-FC-80UR	23.5	10	4	28	9	7	80	MBUB-070-FC-80UR
13mm Dia - M5x0.8 Tap								
MBBU-1316-FC-35UR	14.5	13	5	28	6.5	10	35	MBUB-100-FC-35UR
MBBU-1316-FC-60UR	14.5	13	5	28	6.5	10	60	MBUB-100-FC-60UR
MBBU-1316-FC-80UR	14.5	13	5	28	6.5	10	80	MBUB-100-FC-80UR
MBBU-1325-FC-35UR	23.5	13	5	28	9	10	35	MBUB-100-FC-35UR
MBBU-1325-FC-60UR	23.5	13	5	28	9	10	60	MBUB-100-FC-60UR
MBBU-1325-FC-80UR	23.5	13	5	28	9	10	80	MBUB-100-FC-80UR
17mm Dia - M6x1.0 Tap								
MBBU-1722-FC-35UR	18	16	5	28	7.5	13	35	MBUB-130-FC-35UR
MBBU-1722-FC-60UR	18	16	5	28	7.5	13	60	MBUB-130-FC-60UR
MBBU-1722-FC-80UR	18	16	5	28	7.5	13	80	MBUB-130-FC-80UR
19mm Dia - M8x1.25 Tap								
MBBU-1924-FC-35UR	20	21	6	24	8.5	15	35	MBUB-150-FC-35UR
MBBU-1924-FC-60UR	20	21	6	24	8.5	15	60	MBUB-150-FC-60UR
MBBU-1924-FC-80UR	20	21	6	24	8.5	15	80	MBUB-150-FC-80UR
24mm Dia - M10x1.50 Tap								
MBBU-2428-FC-35UR	24	23	6	24	9	20	35	MBUB-200-FC-35UR
MBBU-2428-FC-60UR	24	23	6	24	9	20	60	MBUB-200-FC-60UR
MBBU-2428-FC-80UR	24	23	6	24	9	20	80	MBUB-200-FC-80UR

SWIVOTS® - REPLACEABLE SWIVEL BALL

Base Design | Delrin Ball | Flat Cone | Inch & Metric



Cylindrical body allows for installation in tight areas. The housing is tapped for backside fastening. The replaceable ball swivels to allow for self-alignment on uneven surfaces and is made from non-marring white delrin. The flat cone design provides a large contact surface for greater force distribution. A Viton O-ring holds the ball in place while keeping contaminants out and providing smooth ball movement. The housing is made from alloy steel, heat treated to Rc 43/46 with black oxide finish. Replacement balls and O-rings can be ordered separately. See page 117 for diagram of components.

INCH

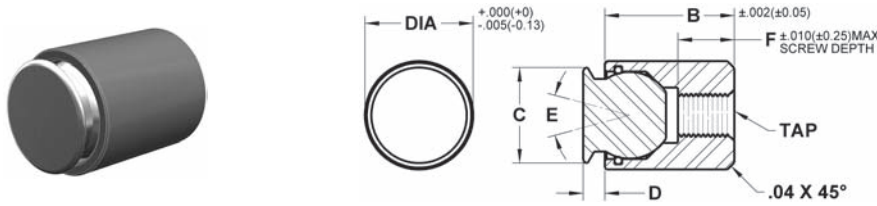
Part #	B Length	C Contact Dia	D Stand Off	E Degree Swivel	F Thread Depth	Ball Dia.	Ball Only Part #
3/8" Dia - #4-40 Tap							
BBU-100-DC	5/16	.236	.063	28	1/4	3/16	BUB-187-DC
BBU-105-DC	7/16	.236	.063	28	5/16	3/16	BUB-187-DC
BBU-107-DC	11/16	.236	.063	28	5/16	3/16	BUB-187-DC
7/16" Dia - #8-32 Tap							
BBU-200-DC	3/8	.315	.094	28	5/32	9/32	BUB-200-DC
BBU-201-DC	15/16	.315	.094	28	1/2	9/32	BUB-200-DC
1/2" Dia - #10-32 Tap							
BBU-300-DC	1/2	.433	.125	28	5/32	3/8	BUB-300-DC
BBU-301-DC	1	.433	.125	28	5/8	3/8	BUB-300-DC
5/8" Dia - 1/4-28 Tap							
BBU-500-DC	3/4	.551	.125	28	1/4	1/2	BUB-500-DC
13/16" Dia - 5/16-24 Tap							
BBU-600-DC	7/8	.748	.156	32	11/32	5/8	BUB-600-DC
15/16" Dia - 3/8-24 Tap							
BBU-700-DC	7/8	.827	.156	32	9/32	3/4	BUB-700-DC

METRIC

Part #	B Length	C Contact Dia	D Stand Off	E Degree Swivel	F Thread Depth	Ball Dia.	Ball Only Part #
10mm Dia - M4x0.7 Tap							
MBBU-1012-DC	10.5	8	2	28	3.5	7	MBUB-070-DC
MBBU-1025-DC	23.5	8	2	28	9	7	MBUB-070-DC
13mm Dia - M5x0.8 Tap							
MBBU-1316-DC	14.5	11	3	28	6.5	10	MBUB-100-DC
MBBU-1325-DC	23.5	11	3	28	9	10	MBUB-100-DC
17mm Dia - M6x1.0 Tap							
MBBU-1722-DC	18	14	3	28	7.5	13	MBUB-130-DC
19mm Dia - M8x1.25 Tap							
MBBU-1924-DC	20	19	4	24	8.5	15	MBUB-150-DC
24mm Dia - M10x1.5 Tap							
MBBU-2428-DC	24	21	4	24	9	20	MBUB-200-DC

SWIVOTS® - REPLACEABLE SWIVEL BALL

Base Design | Stainless Ball | Flat Cone | Inch & Metric



Cylindrical body allows for installation in tight areas. The housing is tapped for backside fastening. The replaceable ball is made from 300 series stainless steel and swivels to allow for self-alignment on uneven surfaces. The flat cone design provides a large contact surface for greater force distribution. A Viton O-ring holds the ball in place while keeping contaminants out and providing smooth ball movement. The housing is made from alloy steel, heat treated to Rc 43/46 with black oxide finish. Replacement balls and O-rings can be ordered separately. See page 117 for diagram of components.

INCH

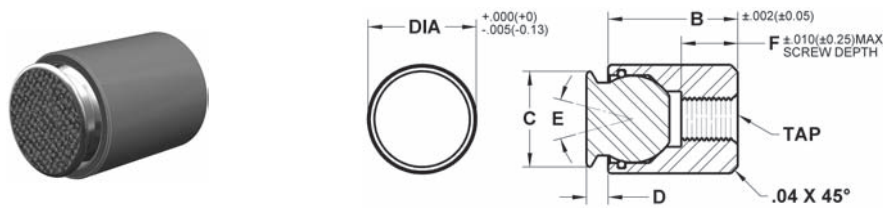
Part #	B Length	C Contact Dia.	D Stand Off	E Degree Swivel	F Thread Depth	Ball Dia.	Ball Only Part #	Load Rating Lbs.
3/8" Dia - #4-40 Tap								
BBU-100-FC	5/16	.236	.063	28	1/4	3/16	BUB-187-FC	1,835
BBU-105-FC	7/16	.236	.063	28	5/16	3/16	BUB-187-FC	1,835
BBU-107-FC	11/16	.236	.063	28	5/16	3/16	BUB-187-FC	1,835
7/16" Dia - #8-32 Tap								
BBU-200-FC	3/8	.315	.094	28	5/32	9/32	BUB-200-FC	3,339
BBU-201-FC	15/16	.315	.094	28	1/2	9/32	BUB-200-FC	3,339
1/2" Dia - #10-32 Tap								
BBU-300-FC	1/2	.433	.125	28	5/32	3/8	BUB-300-FC	4,697
BBU-301-FC	1	.433	.125	28	5/8	3/8	BUB-300-FC	4,697
5/8" Dia - 1/4-28 Tap								
BBU-500-FC	3/4	.551	.125	28	1/4	1/2	BUB-500-FC	5,849
13/16" Dia - 5/16-24 Tap								
BBU-600-FC	7/8	.748	.156	32	11/32	5/8	BUB-600-FC	10,925
15/16" Dia - 3/8-24 Tap								
BBU-700-FC	7/8	.827	.156	32	9/32	3/4	BUB-700-FC	13,325

METRIC

Part #	B Length	C Contact Dia.	D Stand Off	E Degree Swivel	F Thread Depth	Ball Dia.	Ball Only Part #	Load Rating Lbs.
10mm Dia - M4x0.7 Tap								
MBBU-1012-FC	10.5	8	2	28	3.5	7	MBUB-070-FC	2,585
MBBU-1025-FC	23.5	8	2	28	9	7	MBUB-070-FC	2,585
13mm Dia - M5x0.8 Tap								
MBBU-1316-FC	14.5	11	3	28	6.5	10	MBUB-100-FC	4,452
MBBU-1325-FC	23.5	11	3	28	9	10	MBUB-100-FC	4,452
17mm Dia - M6x1.0 Tap								
MBBU-1722-FC	18	14	3	28	7.5	13	MBUB-130-FC	6,170
19mm Dia - M8x1.25 Tap								
MBBU-1924-FC	20	19	4	24	8.5	15	MBUB-150-FC	8,688
24mm Dia - M10x1.5 Tap								
MBBU-2428-FC	24	21	4	24	9	20	MBUB-200-FC	13,117

SWIVOTS® - REPLACEABLE SWIVEL BALL

Base Design | Stainless Ball | Abrasive Diamond Surface | Inch & Metric



Cylindrical body allows for installation in tight areas. The housing is tapped for backside fastening. The replaceable ball swivels to allow for self-alignment on uneven surfaces. A Viton O-ring holds the ball in place while keeping contaminants out and providing smooth ball movement. The housing is made from alloy steel, heat treated to Rc 43/46 with black oxide finish. The abrasive surface is permanently fused to a 300 series stainless steel pad. The surface texture is comparable to a 100 grit abrasive. They are ideal for holding smooth or slippery applications with a minimum of clamping pressure. Individual diamond particles transfer holding pressure to a very small and well distributed area, providing superior holding with minimal surface marking. The diamond surface provides unparalleled wear resistance. Replacement balls and O-rings can be ordered separately. See page 117 for diagram of components.

INCH

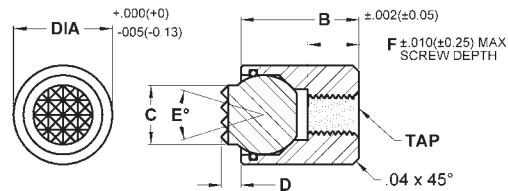
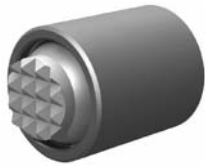
Part #	B Length	C Contact Dia.	D Stand Off	E Degree Swivel	F Thread Depth	Ball Dia.	Ball Only Part #	Load Rating Lbs.
3/8 Dia - #4-40 Tap								
BBU-100-FC-DS	5/16	.236	.063	28	1/4	3/16	BUB-187-FC-DS	1,835
BBU-105-FC-DS	7/16	.236	.063	28	5/16	3/16	BUB-187-FC-DS	1,835
BBU-107-FC-DS	11/16	.236	.063	28	5/16	3/16	BUB-187-FC-DS	1,835
7/16 Dia - #8-32 Tap								
BBU-200-FC-DS	3/8	.315	.094	28	5/32	9/32	BUB-200-FC-DS	3,339
BBU-201-FC-DS	15/16	.315	.094	28	1/2	9/32	BUB-200-FC-DS	3,339
1/2 Dia - #10-32 Tap								
BBU-300-FC-DS	1/2	.433	.125	28	5/32	3/8	BUB-300-FC-DS	4,697
BBU-301-FC-DS	1	.433	.125	28	5/8	3/8	BUB-300-FC-DS	4,697
5/8 Dia - 1/4-28 Tap								
BBU-500-FC-DS	3/4	.551	.125	28	1/4	1/2	BUB-500-FC-DS	5,849
13/16 Dia - 5/16-24 Tap								
BBU-600-FC-DS	7/8	.748	.156	32	11/32	5/8	BUB-600-FC-DS	10,925
15/16 Dia - 3/8-24 Tap								
BBU-700-FC-DS	7/8	.827	.156	32	9/32	3/4	BUB-700-FC-DS	13,325

METRIC

Part #	B Length	C Contact Dia.	D Stand Off	E Degree Swivel	F Thread Depth	Ball Dia.	Ball Only Part #	Load Rating Lbs.
10mm Dia - M4x0.7 Tap								
MBBU-1012-FC-DS	10.5	8	2	28	3.5	7	MBUB-070-FC-DS	2,585
MBBU-1025-FC-DS	23.5	8	2	28	9	7	MBUB-070-FC-DS	2,585
13mm Dia - M5x0.8 Tap								
MBBU-1316-FC-DS	14.5	11	3	28	6.5	10	MBUB-100-FC-DS	4,452
MBBU-1325-FC-DS	23.5	11	3	28	9	10	MBUB-100-FC-DS	4,452
17mm Dia - M6x1.0 Tap								
MBBU-1722-FC-DS	18	14	3	28	7.5	13	MBUB-130-FC-DS	6,170
19mm Dia - M8x1.25 Tap								
MBBU-1924-FC-DS	20	19	4	24	8.5	15	MBUB-150-FC-DS	8,688
24mm Dia - M10x1.5 Tap								
MBBU-2428-FC-DS	24	21	4	24	9	20	MBUB-200-FC-DS	13,117

SWIVOTS® - REPLACEABLE SWIVEL BALL

Base Design | Tool Steel Ball | Serrated | Inch & Metric

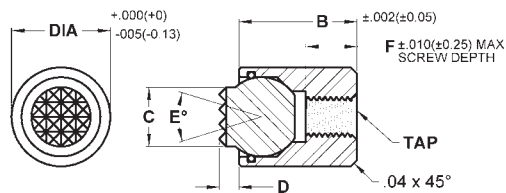
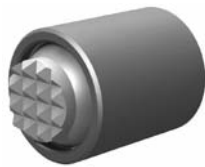


Cylindrical body allows for installation in tight areas. The housing is tapped for backside fastening. The replaceable serrated ball swivels to allow for self-alignment on uneven surfaces. A Viton O-ring holds the ball in place while keeping contaminants out and providing smooth ball movement. The housing is made from alloy steel, heat treated to Rc 43/46 with black oxide finish. The replaceable ball is made from M-2 high speed steel heat treated to Rc 60/62. Replacement balls and O-rings can be ordered separately. See page 117 for diagram of components. See page 90 for tooth pattern specifications.

INCH										
Part #	B Length	C Contact Dia.	D Stand Off	E Degree Swivel	F Thread Depth	Ball Dia.	Ball Only Part #	Tooth Pattern	Load Rating Lbs.	
3/8" Dia - #4-40 Tap										
BBU-100-S	5/16	5/32	1/16	28	1/4	3/16	BUB-187-S	SF	1,835	
BBU-105-S	7/16	5/32	1/16	28	5/16	3/16	BUB-187-S	SF	1,835	
BBU-107-S	11/16	5/32	1/16	28	5/16	3/16	BUB-187-S	SF	1,835	
7/16" Dia - #8-32 Tap										
BBU-200-S	3/8	1/4	1/16	28	5/32	9/32	BUB-200-S	SF	3,339	
BBU-200-S-T	3/8	1/4	1/8	28	5/32	9/32	BUB-200-S-T	SF	3,339	
BBU-201-S	15/16	1/4	1/16	28	1/2	9/32	BUB-200-S	SF	3,339	
BBU-201-S-T	15/16	1/4	1/8	28	1/2	9/32	BUB-200-S-T	SF	3,339	
1/2" Dia - #10-32 Tap										
BBU-300-S	1/2	5/16	1/16	28	5/32	3/8	BUB-300-S	EF	4,697	
BBU-300-S-T	1/2	5/16	1/8	28	5/32	3/8	BUB-300-S-T	EF	4,697	
BBU-300-SF	1/2	5/16	1/16	28	5/32	3/8	BUB-300-SF	SF	4,697	
BBU-300-SF-T	1/2	5/16	1/8	28	5/32	3/8	BUB-300-SF-T	SF	4,697	
BBU-301-S	1	5/16	1/16	28	5/8	3/8	BUB-300-S	EF	4,697	
BBU-301-S-T	1	5/16	1/8	28	5/8	3/8	BUB-300-S-T	EF	4,697	
BBU-301-SF	1	5/16	1/16	28	5/8	3/8	BUB-300-SF	SF	4,697	
BBU-301-SF-T	1	5/16	1/8	28	5/8	3/8	BUB-300-SF-T	SF	4,697	
5/8" Dia - 1/4-28 Tap										
BBU-500-S	3/4	3/8	1/8	40	1/4	1/2	BUB-500-S	EF	5,849	
BBU-500-S-T	3/4	3/8	1/4	40	1/4	1/2	BUB-500-S-T	EF	5,849	
BBU-500-SF	3/4	3/8	1/8	40	1/4	1/2	BUB-500-SF	SF	5,849	
BBU-500-SF-T	3/4	3/8	1/4	40	1/4	1/2	BUB-500-SF-T	SF	5,849	
13/16" Dia - 5/16-24 Tap										
BBU-600-S	7/8	1/2	1/8	40	11/32	5/8	BUB-600-S	Fine	10,925	
BBU-600-S-T	7/8	1/2	1/4	40	11/32	5/8	BUB-600-S-T	Fine	10,925	
BBU-600-EF	7/8	1/2	1/8	40	11/32	5/8	BUB-600-EF	EF	10,925	
BBU-600-EF-T	7/8	1/2	1/4	40	11/32	5/8	BUB-600-EF-T	EF	10,925	
BBU-600-SF	7/8	1/2	1/8	40	11/32	5/8	BUB-600-SF	SF	10,925	
BBU-600-SF-T	7/8	1/2	1/4	40	11/32	5/8	BUB-600-S-T	SF	10,925	
15/16" Dia - 3/8-24 Tap										
BBU-700-S	7/8	5/8	1/8	34	9/32	3/4	BUB-700-S	Fine	13,325	
BBU-700-S-T	7/8	5/8	1/4	34	9/32	3/4	BUB-700-S-T	Fine	13,325	
BBU-700-EF	7/8	5/8	1/8	34	9/32	3/4	BUB-700-EF	EF	13,325	
BBU-700-EF-T	7/8	5/8	1/4	34	9/32	3/4	BUB-700-EF-T	EF	13,325	

SWIVOTS® - REPLACEABLE SWIVEL BALL

Base Design | Tool Steel Ball | Serrated | Inch & Metric (continued)

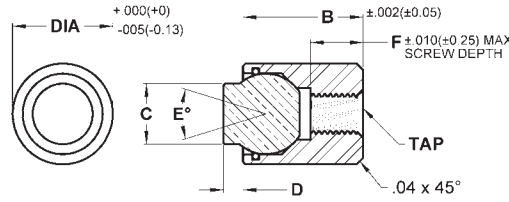


METRIC

Part #	B Length	C Contact Dia.	D Stand Off	E Degree Swivel	F Thread Depth	Ball Dia.	Ball Only Part #	Tooth Pattern	Load Rating Lbs.
10mm Dia - M4x0.7 Tap									
MBBU-1012-S	10.5	6	1.5	28	3.5	7	MBUB-070-S	SF	2,585
MBBU-1012-S-T	10.5	6	3	28	3.5	7	MBUB-070-S-T	SF	2,585
MBBU-1025-S	23.5	6	1.5	28	9	7	MBUB-070-S	SF	2,585
MBBU-1025-S-T	23.5	6	3	28	9	7	MBUB-070-S-T	SF	2,585
13mm Dia - M5x0.8 Tap									
MBBU-1316-S	14.5	8.5	1.5	24	6.5	10	MBUB-100-S	EF	4,452
MBBU-1316-S-T	14.5	8.5	3	24	6.5	10	MBUB-100-S-T	EF	4,452
MBBU-1325-S	23.5	8.5	1.5	24	9	10	MBUB-100-S	EF	4,452
MBBU-1325-S-T	23.5	8.5	3	24	9	10	MBUB-100-S-T	EF	4,452
17mm Dia - M6x1.0 Tap									
MBBU-1722-S	18	10	4	42	7.5	13	MBUB-130-S	EF	6,170
MBBU-1722-S-T	18	10	6	42	7.5	13	MBUB-130-S-T	EF	6,170
19mm Dia - M8x1.25 Tap									
MBBU-1924-S	20	12	4	45	8.5	15	MBUB-150-S	Fine	8,688
MBBU-1924-S-T	20	12	6	45	8.5	15	MBUB-150-S-T	Fine	8,688
24mm Dia - M10x1.5 Tap									
MBBU-2428-S	24	16	4	40	9	20	MBUB-200-S	Fine	13,117
MBBU-2428-S-T	24	16	6	40	9	20	MBUB-200-S-T	Fine	13,117

SWIVOTS® - REPLACEABLE SWIVEL BALL

Base Design | Delrin Ball | Flat | Inch & Metric



Cylindrical body allows for installation in tight areas. The housing is tapped for backside fastening. The replaceable flat ball swivels to allow for self-alignment on uneven surfaces and is made from non-marring white delrin. A Viton O-ring holds the ball in place while keeping contaminants out and providing smooth ball movement. The housing is made from alloy steel, heat treated to Rc 43/46 with black oxide finish. Replacement balls and O-rings can be ordered separately. See page 117 for diagram of components.

INCH

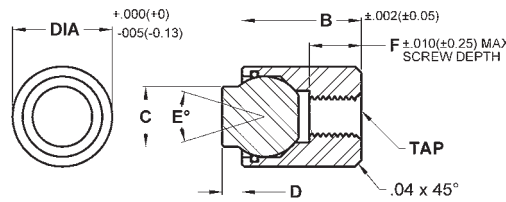
Part #	B Length	C Contact Dia.	D Stand Off	E Degree Swivel	F Thread Depth	Ball Dia.	Ball Only Part #
3/8" Dia - #4-40 Tap							
BBU-100-D	5/16	5/32	1/16	28	1/4	3/16	BUB-187-D
BBU-105-D	7/16	5/32	1/16	28	5/16	3/16	BUB-187-D
BBU-107-D	11/16	5/32	1/16	28	5/16	3/16	BUB-187-D
7/16" Dia - #8-32 Tap							
BBU-200-D	3/8	1/4	1/16	28	5/32	9/32	BUB-200-D
BBU-200-D-T	3/8	1/4	1/8	28	5/32	9/32	BUB-200-D-T
BBU-201-D	15/16	1/4	1/16	28	1/2	9/32	BUB-200-D
BBU-201-D-T	15/16	1/4	1/8	28	1/2	9/32	BUB-200-D-T
1/2" Dia - #10-32 Tap							
BBU-300-D	1/2	5/16	1/16	28	5/32	3/8	BUB-300-D
BBU-300-D-T	1/2	5/16	1/8	28	5/32	3/8	BUB-300-D-T
BBU-301-D	1	5/16	1/16	28	5/8	3/8	BUB-300-D
BBU-301-D-T	1	5/16	1/8	28	5/8	3/8	BUB-300-D-T
5/8" Dia - 1/4-28 Tap							
BBU-500-D	3/4	3/8	1/8	40	1/4	1/2	BUB-500-D
BBU-500-D-T	3/4	3/8	1/4	40	1/4	1/2	BUB-500-D-T
13/16" Dia - 5/16-24 Tap							
BBU-600-D	7/8	1/2	1/8	40	11/32	5/8	BUB-600-D
BBU-600-D-T	7/8	1/2	1/4	40	11/32	5/8	BUB-600-D-T
15/16" Dia - 3/8-24 Tap							
BBU-700-D	7/8	5/8	1/8	34	9/32	3/4	BUB-700-D
BBU-700-D-T	7/8	5/8	1/4	34	9/32	3/4	BUB-700-D-T

METRIC

Part #	B Length	C Contact Dia.	D Stand Off	E Degree Swivel	F Thread Depth	Ball Dia.	Ball Only Part #
10mm Dia - M4x0.7 Tap							
MBBU-1012-D	10.5	6	1.5	28	3.5	7	MBUB-070-D
MBBU-1012-D-T	10.5	6	3	28	3.5	7	MBUB-070-D-T
MBBU-1025-D	23.5	6	1.5	28	9	7	MBUB-070-D
MBBU-1025-D-T	23.5	6	3	28	9	7	MBUB-070-D-T
13mm Dia - M5x0.8 Tap							
MBBU-1316-D	14.5	8.5	1.5	24	6.5	10	MBUB-100-D
MBBU-1316-D-T	14.5	8.5	3	24	6.5	10	MBUB-100-D-T
MBBU-1325-D	23.5	8.5	1.5	24	9	10	MBUB-100-D
MBBU-1325-D-T	23.5	8.5	3	24	9	10	MBUB-100-D-T
17mm Dia - M6x1.0 Tap							
MBBU-1722-D	18	10	4	42	7.5	13	MBUB-130-D
MBBU-1722-D-T	18	10	6	42	7.5	13	MBUB-130-D-T
19mm Dia - M8x1.25 Tap							
MBBU-1924-D	20	12	4	45	8.5	15	MBUB-150-D
MBBU-1924-D-T	20	12	6	45	8.5	15	MBUB-150-D-T
24mm Dia - M10x1.5 Tap							
MBBU-2428-D	24	16	4	40	9	20	MBUB-200-D
MBBU-2428-D-T	24	16	6	40	9	20	MBUB-200-D-T

SWIVOTS® - REPLACEABLE SWIVEL BALL

Base Design | Tool Steel Ball | Flat | Inch & Metric



Cylindrical body allows for installation in tight areas. The housing is tapped for backside fastening. The replaceable flat ball swivels to allow for self-alignment on uneven surfaces. A Viton O-ring holds the ball in place while keeping contaminants out and providing smooth ball movement. The housing is made from alloy steel, heat treated to Rc 43/46 with black oxide finish. The replaceable ball is made from M-2 high speed steel heat treated to Rc 60/62. Replacement balls and O-rings can be ordered separately. See page 117 for diagram of components.

INCH

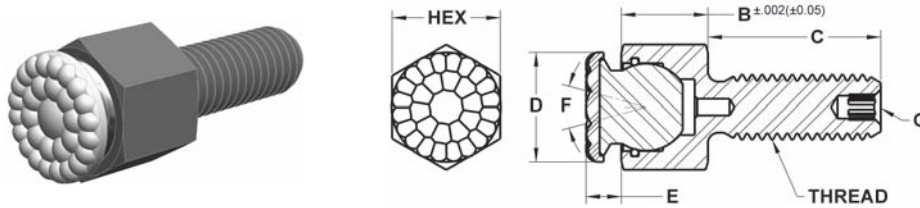
Part #	B Length	C Contact Dia.	D Stand Off	E Degree Swivel	F Thread Depth	Ball Dia.	Ball Only Part #	Load Rating Lbs.
3/8" Dia - #4-40 Tap								
BBU-100-F	5/16	5/32	1/16	28	1/4	3/16	BUB-187-F	1,835
BBU-105-F	7/16	5/32	1/16	28	5/16	3/16	BUB-187-F	1,835
BBU-107-F	11/16	5/32	1/16	28	5/16	3/16	BUB-187-F	1,835
7/16" Dia - #8-32 Tap								
BBU-200-F	3/8	1/4	1/16	28	5/32	9/32	BUB-200-F	3,339
BBU-200-F-T	3/8	1/4	1/8	28	5/32	9/32	BUB-200-F-T	3,339
BBU-201-F	15/16	1/4	1/16	28	1/2	9/32	BUB-200-F	3,339
BBU-201-F-T	15/16	1/4	1/8	28	1/2	9/32	BUB-200-F-T	3,339
1/2" Dia - #10-32 Tap								
BBU-300-F	1/2	5/16	1/16	28	5/32	3/8	BUB-300-F	4,697
BBU-300-F-T	1/2	5/16	1/8	28	5/32	3/8	BUB-300-F-T	4,697
BBU-301-F	1	5/16	1/16	28	5/8	3/8	BUB-300-F	4,697
BBU-301-F-T	1	5/16	1/8	28	5/8	3/8	BUB-300-F-T	4,697
5/8" Dia - 1/4-28 Tap								
BBU-500-F	3/4	3/8	1/8	40	1/4	1/2	BUB-500-F	5,849
BBU-500-F-T	3/4	3/8	1/4	40	1/4	1/2	BUB-500-F-T	5,849
13/16" Dia - 5/16-24 Tap								
BBU-600-F	7/8	1/2	1/8	40	11/32	5/8	BUB-600-F	10,925
BBU-600-F-T	7/8	1/2	1/4	40	11/32	5/8	BUB-600-F-T	10,925
15/16" Dia - 3/8-24 Tap								
BBU-700-F	7/8	5/8	1/8	34	9/32	3/4	BUB-700-F	13,325
BBU-700-F-T	7/8	5/8	1/4	34	9/32	3/4	BUB-700-F-T	13,325

METRIC

Part #	B Length	C Contact Dia.	D Stand Off	E Degree Swivel	F Thread Depth	Ball Dia.	Ball Only Part #	Load Rating Lbs.
10mm Dia - M4x0.7 Tap								
MBBU-1012-F	10.5	6	1.5	28	3.5	7	MBUB-070-F	2,585
MBBU-1012-F-T	10.5	6	3	28	3.5	7	MBUB-070-F-T	2,585
MBBU-1025-F	23.5	6	1.5	28	9	7	MBUB-070-F	2,585
MBBU-1025-F-T	23.5	6	3	28	9	7	MBUB-070-F-T	2,585
13mm Dia - M5x0.8 Tap								
MBBU-1316-F	14.5	8.5	1.5	24	6.5	10	MBUB-100-F	4,452
MBBU-1316-F-T	14.5	8.5	3	24	6.5	10	MBUB-100-F-T	4,452
MBBU-1325-F	23.5	8.5	1.5	24	9	10	MBUB-100-F	4,452
MBBU-1325-F-T	23.5	8.5	3	24	9	10	MBUB-100-F-T	4,452
17mm Dia - M6x1.0 Tap								
MBBU-1722-F	18	10	4	42	7.5	13	MBUB-130-F	6,170
MBBU-1722-F-T	18	10	6	42	7.5	13	MBUB-130-F-T	6,170
19mm Dia - M8x1.25 Tap								
MBBU-1924-F	20	12	4	45	8.5	15	MBUB-150-F	8,688
MBBU-1924-F-T	20	12	6	45	8.5	15	MBUB-150-F-T	8,688
24mm Dia - M10x1.5 Tap								
MBBU-2428-F	24	16	4	40	9	20	MBUB-200-F	13,117
MBBU-2428-F-T	24	16	6	40	9	20	MBUB-200-F-T	13,117

SWIVOTS® - REPLACEABLE SWIVEL BALL

Hex Head | Stainless Ball | Sof-Top Urethane Surface | Inch & Metric



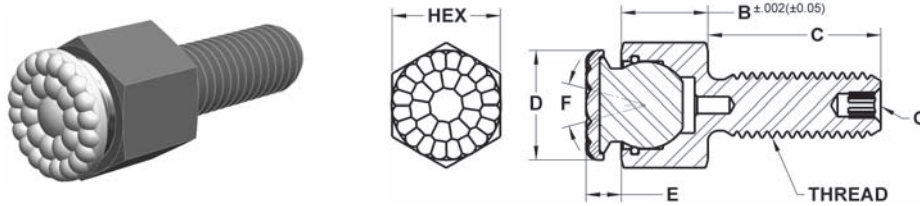
The replaceable ball swivels to allow for self-alignment on uneven surfaces. A Viton O-ring holds the ball in place while keeping contaminants out and providing smooth ball movement. The housing is made from alloy steel, heat treated to Rc 43/46 with black oxide finish. The urethane surface is permanently bonded to a 300 series stainless steel ball. The non-marking, non-staining urethane provides excellent protection against damage on delicate work surfaces. The “bubbled” texture of the urethane top offers firm holding and allows air to escape so no suction is created between the contact surface and the top of the rest pad as it is compressed. Because the top is made of urethane it offers superior abrasion and wear resistance. They are available in three durometers to meet a wide variety of application needs. Replacement balls and O-rings can be ordered separately. See page 117 for diagram of components.

INCH

Part #	B Head Height	C Thread Length	D Contact Dia.	E Stand Off	F Degree Swivel	G Int. Hex	Ball Dia.	Durometer	Ball Only Part #
10-24 Threads - 3/8" Hex Head									
BUH-0124-FC-35UR	1/4	1/2	.315	.143	28	—	3/16	35	BUB-187-FC-35UR
BUH-0124-FC-60UR	1/4	1/2	.315	.143	28	—	3/16	60	BUB-187-FC-60UR
BUH-0124-FC-80UR	1/4	1/2	.315	.143	28	—	3/16	80	BUB-187-FC-80UR
BUH-0124 X 1-FC-35UR	1/4	1	.315	.143	28	—	3/16	35	BUB-187-FC-35UR
BUH-0124 X 1-FC-60UR	1/4	1	.315	.143	28	—	3/16	60	BUB-187-FC-60UR
BUH-0124 X 1-FC-80UR	1/4	1	.315	.143	28	—	3/16	80	BUB-187-FC-80UR
10-32 Threads - 3/8" Hex Head									
BUH-0132-FC-35UR	1/4	1/2	.315	.143	28	—	3/16	35	BUB-187-FC-35UR
BUH-0132-FC-60UR	1/4	1/2	.315	.143	28	—	3/16	60	BUB-187-FC-60UR
BUH-0132-FC-80UR	1/4	1/2	.315	.143	28	—	3/16	80	BUB-187-FC-80UR
BUH-0132 X 1-FC-35UR	1/4	1	.315	.143	28	—	3/16	35	BUB-187-FC-35UR
BUH-0132 X 1-FC-60UR	1/4	1	.315	.143	28	—	3/16	60	BUB-187-FC-60UR
BUH-0132 X 1-FC-80UR	1/4	1	.315	.143	28	—	3/16	80	BUB-187-FC-80UR
1/4-20 Threads - 7/16" Hex Head									
BUH-0250-FC-35UR	5/16	1/2	.394	.174	28	—	9/32	35	BUB-200-FC-35UR
BUH-0250-FC-60UR	5/16	1/2	.394	.174	28	—	9/32	60	BUB-200-FC-60UR
BUH-0250-FC-80UR	5/16	1/2	.394	.174	28	—	9/32	80	BUB-200-FC-80UR
BUH-0251-FC-35UR	5/16	1	.394	.174	28	—	9/32	35	BUB-200-FC-35UR
BUH-0251-FC-60UR	5/16	1	.394	.174	28	—	9/32	60	BUB-200-FC-60UR
BUH-0251-FC-80UR	5/16	1	.394	.174	28	—	9/32	80	BUB-200-FC-80UR
BUH-0251 X 1.5-FC-35UR	5/16	1-1/2	.394	.174	28	—	9/32	35	BUB-200-FC-35UR
BUH-0251 X 1.5-FC-60UR	5/16	1-1/2	.394	.174	28	—	9/32	60	BUB-200-FC-60UR
BUH-0251 X 1.5-FC-80UR	5/16	1-1/2	.394	.174	28	—	9/32	80	BUB-200-FC-80UR
1/4-28 Threads - 7/16" Hex Head									
BUH-0280-FC-35UR	5/16	1/2	.394	.174	28	—	9/32	35	BUB-200-FC-35UR
BUH-0280-FC-60UR	5/16	1/2	.394	.174	28	—	9/32	60	BUB-200-FC-60UR
BUH-0280-FC-80UR	5/16	1/2	.394	.174	28	—	9/32	80	BUB-200-FC-80UR
BUH-0281-FC-35UR	5/16	1	.394	.174	28	—	9/32	35	BUB-200-FC-35UR
BUH-0281-FC-60UR	5/16	1	.394	.174	28	—	9/32	60	BUB-200-FC-60UR
BUH-0281-FC-80UR	5/16	1	.394	.174	28	—	9/32	80	BUB-200-FC-80UR
BUH-0281 X 1.5-FC-35UR	5/16	1-1/2	.394	.174	28	—	9/32	35	BUB-200-FC-35UR
BUH-0281 X 1.5-FC-60UR	5/16	1-1/2	.394	.174	28	—	9/32	60	BUB-200-FC-60UR
BUH-0281 X 1.5-FC-80UR	5/16	1-1/2	.394	.174	28	—	9/32	80	BUB-200-FC-80UR
5/16-18 Threads - 1/2" Hex Head									
BUH-0310-FC-35UR	3/8	1/2	.512	.205	28	—	3/8	35	BUB-300-FC-35UR
BUH-0310-FC-60UR	3/8	1/2	.512	.205	28	—	3/8	60	BUB-300-FC-60UR
BUH-0310-FC-80UR	3/8	1/2	.512	.205	28	—	3/8	80	BUB-300-FC-80UR
BUH-0312-FC-35UR	3/8	1	.512	.205	28	—	3/8	35	BUB-300-FC-35UR
BUH-0312-FC-60UR	3/8	1	.512	.205	28	—	3/8	60	BUB-300-FC-60UR
BUH-0312-FC-80UR	3/8	1	.512	.205	28	—	3/8	80	BUB-300-FC-80UR
BUH-0312 X 1.5-FC-35UR	3/8	1-1/2	.512	.205	28	—	3/8	35	BUB-300-FC-35UR
BUH-0312 X 1.5-FC-60UR	3/8	1-1/2	.512	.205	28	—	3/8	60	BUB-300-FC-60UR
BUH-0312 X 1.5-FC-80UR	3/8	1-1/2	.512	.205	28	—	3/8	80	BUB-300-FC-80UR

SWIVOTS® - REPLACEABLE SWIVEL BALL

Hex Head | Stainless Ball | Sof-Top Urethane Surface | Inch & Metric (continued)

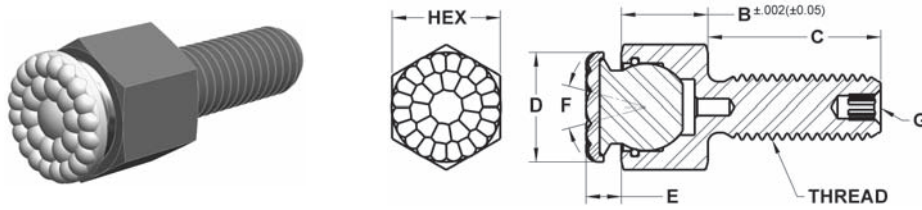


INCH (CONTINUED)

Part #	B Head Height	C Thread Length	D Contact Dia.	E Stand Off	F Degree Swivel	G Int. Hex	Ball Dia.	Durometer	Ball Only Part #
5/16-24 Threads - 1/2" Hex Head									
BUH-0320-FC-35UR	3/8	1/2	.512	.205	28	—	3/8	35	BUB-300-FC-35UR
BUH-0320-FC-60UR	3/8	1/2	.512	.205	28	—	3/8	60	BUB-300-FC-60UR
BUH-0320-FC-80UR	3/8	1/2	.512	.205	28	—	3/8	80	BUB-300-FC-80UR
BUH-0321-FC-35UR	3/8	1	.512	.205	28	—	3/8	35	BUB-300-FC-35UR
BUH-0321-FC-60UR	3/8	1	.512	.205	28	—	3/8	60	BUB-300-FC-60UR
BUH-0321-FC-80UR	3/8	1	.512	.205	28	—	3/8	80	BUB-300-FC-80UR
BUH-0321 X 1.5-FC-35UR	3/8	1-1/2	.512	.205	28	—	3/8	35	BUB-300-FC-35UR
BUH-0321 X 1.5-FC-60UR	3/8	1-1/2	.512	.205	28	—	3/8	60	BUB-300-FC-60UR
BUH-0321 X 1.5-FC-80UR	3/8	1-1/2	.512	.205	28	—	3/8	80	BUB-300-FC-80UR
3/8-16 Threads - 5/8" Hex Head									
BUH-0370-FC-35UR	1/2	1/2	.630	.205	28	1/8	1/2	35	BUB-500-FC-35UR
BUH-0370-FC-60UR	1/2	1/2	.630	.205	28	1/8	1/2	60	BUB-500-FC-60UR
BUH-0370-FC-80UR	1/2	1/2	.630	.205	28	1/8	1/2	80	BUB-500-FC-80UR
BUH-0375-FC-35UR	1/2	1	.630	.205	28	1/8	1/2	35	BUB-500-FC-35UR
BUH-0375-FC-60UR	1/2	1	.630	.205	28	1/8	1/2	60	BUB-500-FC-60UR
BUH-0375-FC-80UR	1/2	1	.630	.205	28	1/8	1/2	80	BUB-500-FC-80UR
BUH-0375 X 1.5-FC-35UR	1/2	1-1/2	.630	.205	28	1/8	1/2	35	BUB-500-FC-35UR
BUH-0375 X 1.5-FC-60UR	1/2	1-1/2	.630	.205	28	1/8	1/2	60	BUB-500-FC-60UR
BUH-0375 X 1.5-FC-80UR	1/2	1-1/2	.630	.205	28	1/8	1/2	80	BUB-500-FC-80UR
3/8-24 Threads - 5/8" Hex Head									
BUH-0230-FC-35UR	1/2	1/2	.630	.205	28	1/8	1/2	35	BUB-500-FC-35UR
BUH-0230-FC-60UR	1/2	1/2	.630	.205	28	1/8	1/2	60	BUB-500-FC-60UR
BUH-0230-FC-80UR	1/2	1/2	.630	.205	28	1/8	1/2	80	BUB-500-FC-80UR
BUH-0231-FC-35UR	1/2	1	.630	.205	28	1/8	1/2	35	BUB-500-FC-35UR
BUH-0231-FC-60UR	1/2	1	.630	.205	28	1/8	1/2	60	BUB-500-FC-60UR
BUH-0231-FC-80UR	1/2	1	.630	.205	28	1/8	1/2	80	BUB-500-FC-80UR
BUH-0231 X 1.5-FC-35UR	1/2	1-1/2	.630	.205	28	1/8	1/2	35	BUB-500-FC-35UR
BUH-0231 X 1.5-FC-60UR	1/2	1-1/2	.630	.205	28	1/8	1/2	60	BUB-500-FC-60UR
BUH-0231 X 1.5-FC-80UR	1/2	1-1/2	.630	.205	28	1/8	1/2	80	BUB-500-FC-80UR
1/2-13 Threads - 13/16" Hex Head									
BUH-0510-FC-35UR	5/8	1	.827	.236	33	3/16	5/8	35	BUB-600-FC-35UR
BUH-0510-FC-60UR	5/8	1	.827	.236	33	3/16	5/8	60	BUB-600-FC-60UR
BUH-0510-FC-80UR	5/8	1	.827	.236	33	3/16	5/8	80	BUB-600-FC-80UR
BUH-0515-FC-35UR	5/8	1-1/2	.827	.236	33	3/16	5/8	35	BUB-600-FC-35UR
BUH-0515-FC-60UR	5/8	1-1/2	.827	.236	33	3/16	5/8	60	BUB-600-FC-60UR
BUH-0515-FC-80UR	5/8	1-1/2	.827	.236	33	3/16	5/8	80	BUB-600-FC-80UR
1/2-20 Threads - 13/16" Hex Head									
BUH-0240-FC-35UR	5/8	1	.827	.236	33	3/16	5/8	35	BUB-600-FC-35UR
BUH-0240-FC-60UR	5/8	1	.827	.236	33	3/16	5/8	60	BUB-600-FC-60UR
BUH-0240-FC-80UR	5/8	1	.827	.236	33	3/16	5/8	80	BUB-600-FC-80UR
BUH-0500-FC-35UR	5/8	1-1/2	.827	.236	33	3/16	5/8	35	BUB-600-FC-35UR
BUH-0500-FC-60UR	5/8	1-1/2	.827	.236	33	3/16	5/8	60	BUB-600-FC-60UR
BUH-0500-FC-80UR	5/8	1-1/2	.827	.236	33	3/16	5/8	80	BUB-600-FC-80UR
5/8-11 Threads - 15/16" Hex Head									
BUH-0625-FC-35UR	11/16	1	.906	.236	33	1/4	3/4	35	BUB-700-FC-35UR
BUH-0625-FC-60UR	11/16	1	.906	.236	33	1/4	3/4	60	BUB-700-FC-60UR
BUH-0625-FC-80UR	11/16	1	.906	.236	33	1/4	3/4	80	BUB-700-FC-80UR
BUH-0625 X 2-FC-35UR	11/16	2	.906	.236	33	1/4	3/4	35	BUB-700-FC-35UR
BUH-0625 X 2-FC-60UR	11/16	2	.906	.236	33	1/4	3/4	60	BUB-700-FC-60UR
BUH-0625 X 2-FC-80UR	11/16	2	.906	.236	33	1/4	3/4	80	BUB-700-FC-80UR

SWIVOTS® - REPLACEABLE SWIVEL BALL

Hex Head | Stainless Ball | Sof-Top Urethane Surface | Inch & Metric (continued)



INCH (CONTINUED)

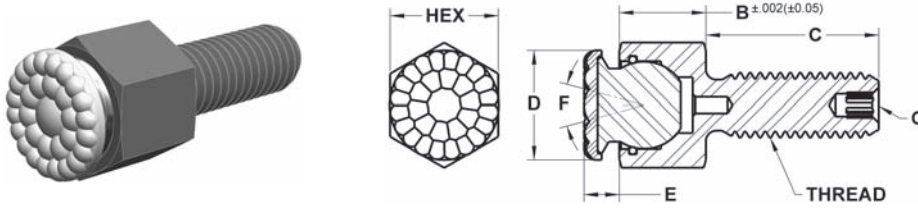
Part #	B Head Height	C Thread Length	D Contact Dia.	E Stand Off	F Degree Swivel	G Int. Hex	Ball Dia.	Durometer	Ball Only Part #
5/8-18 Threads - 15/16" Hex Head									
BUH-0620-FC-35UR	11/16	1	.906	.236	33	1/4	3/4	35	BUB-700-FC-35UR
BUH-0620-FC-60UR	11/16	1	.906	.236	33	1/4	3/4	60	BUB-700-FC-60UR
BUH-0620-FC-80UR	11/16	1	.906	.236	33	1/4	3/4	80	BUB-700-FC-80UR
BUH-0620 X 2-FC-35UR	11/16	2	.906	.236	33	1/4	3/4	35	BUB-700-FC-35UR
BUH-0620 X 2-FC-60UR	11/16	2	.906	.236	33	1/4	3/4	60	BUB-700-FC-60UR
BUH-0620 X 2-FC-80UR	11/16	2	.906	.236	33	1/4	3/4	80	BUB-700-FC-80UR

METRIC

Part #	B Head Height	C Thread Length	D Contact Dia.	E Stand Off	F Degree Swivel	G Int. Hex	Ball Dia.	Durometer	Ball Only Part #
M6x1.0 Threads - 10mm Hex Head									
MBUH-06012-FC-35UR	8	12	10	4	28	—	7	35	MBUB-070-FC-35UR
MBUH-06012-FC-60UR	8	12	10	4	28	—	7	60	MBUB-070-FC-60UR
MBUH-06012-FC-80UR	8	12	10	4	28	—	7	80	MBUB-070-FC-80UR
MBUH-06025-FC-35UR	8	25	10	4	28	—	7	35	MBUB-070-FC-35UR
MBUH-06025-FC-60UR	8	25	10	4	28	—	7	60	MBUB-070-FC-60UR
MBUH-06025-FC-80UR	8	25	10	4	28	—	7	80	MBUB-070-FC-80UR
MBUH-06040-FC-35UR	8	40	10	4	28	—	7	35	MBUB-070-FC-35UR
MBUH-06040-FC-60UR	8	40	10	4	28	—	7	60	MBUB-070-FC-60UR
MBUH-06040-FC-80UR	8	40	10	4	28	—	7	80	MBUB-070-FC-80UR
M8x1.25 Threads - 13mm Hex Head									
MBUH-08012-FC-35UR	11.5	12	13	5	28	—	10	35	MBUB-100-FC-35UR
MBUH-08012-FC-60UR	11.5	12	13	5	28	—	10	60	MBUB-100-FC-60UR
MBUH-08012-FC-80UR	11.5	12	13	5	28	—	10	80	MBUB-100-FC-80UR
MBUH-08025-FC-35UR	11.5	25	13	5	28	—	10	35	MBUB-100-FC-35UR
MBUH-08025-FC-60UR	11.5	25	13	5	28	—	10	60	MBUB-100-FC-60UR
MBUH-08025-FC-80UR	11.5	25	13	5	28	—	10	80	MBUB-100-FC-80UR
MBUH-08040-FC-35UR	11.5	40	13	5	28	—	10	35	MBUB-100-FC-35UR
MBUH-08040-FC-60UR	11.5	40	13	5	28	—	10	60	MBUB-100-FC-60UR
MBUH-08040-FC-80UR	11.5	40	13	5	28	—	10	80	MBUB-100-FC-80UR
M10x1.5 Threads - 17mm Hex Head									
MBUH-10015-FC-35UR	13	15	16	5	28	3	13	35	MBUB-130-FC-35UR
MBUH-10015-FC-60UR	13	15	16	5	28	3	13	60	MBUB-130-FC-60UR
MBUH-10015-FC-80UR	13	15	16	5	28	3	13	80	MBUB-130-FC-80UR
MBUH-10030-FC-35UR	13	30	16	5	28	3	13	35	MBUB-130-FC-35UR
MBUH-10030-FC-60UR	13	30	16	5	28	3	13	60	MBUB-130-FC-60UR
MBUH-10030-FC-80UR	13	30	16	5	28	3	13	80	MBUB-130-FC-80UR
MBUH-10050-FC-35UR	13	50	16	5	28	3	13	35	MBUB-130-FC-35UR
MBUH-10050-FC-60UR	13	50	16	5	28	3	13	60	MBUB-130-FC-60UR
MBUH-10050-FC-80UR	13	50	16	5	28	3	13	80	MBUB-130-FC-80UR
MBUH-12060-FC-80UR	15	60	21	6	24	5	15	80	MBUB-150-FC-80UR

SWIVOTS® - REPLACEABLE SWIVEL BALL

Hex Head | Stainless Ball | Sof-Top Urethane Surface | Inch & Metric (continued)

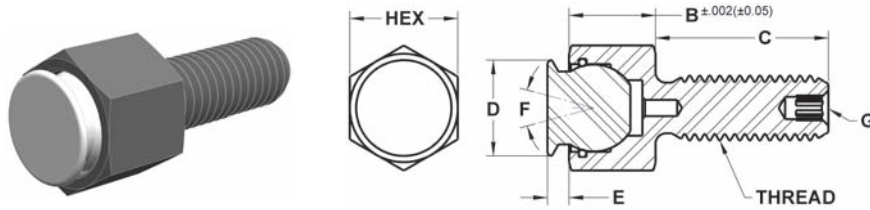


METRIC (CONTINUED)

Part #	B Head Height	C Thread Length	D Contact Dia.	E Stand Off	F Degree Swivel	G Int. Hex	Ball Dia.	Durometer	Ball Only Part #
M12x1.75 Threads - 19mm Hex Head									
MBUH-12020-FC-35UR	15	20	21	6	24	5	15	35	MBUB-150-FC-35UR
MBUH-12020-FC-60UR	15	20	21	6	24	5	15	60	MBUB-150-FC-60UR
MBUH-12020-FC-80UR	15	20	21	6	24	5	15	80	MBUB-150-FC-80UR
MBUH-12040-FC-35UR	15	40	21	6	24	5	15	35	MBUB-150-FC-35UR
MBUH-12040-FC-60UR	15	40	21	6	24	5	15	60	MBUB-150-FC-60UR
MBUH-12040-FC-80UR	15	40	21	6	24	5	15	80	MBUB-150-FC-80UR
MBUH-12060-FC-35UR	15	60	21	6	24	5	15	35	MBUB-150-FC-35UR
MBUH-12060-FC-60UR	15	60	21	6	24	5	15	60	MBUB-150-FC-60UR
M16x2.0 Threads - 24mm Hex Head									
MBUH-16025-FC-35UR	19	25	23	6	24	6	20	35	MBUB-200-FC-35UR
MBUH-16025-FC-60UR	19	25	23	6	24	6	20	60	MBUB-200-FC-60UR
MBUH-16025-FC-80UR	19	25	23	6	24	6	20	80	MBUB-200-FC-80UR
MBUH-16050-FC-35UR	19	50	23	6	24	6	20	35	MBUB-200-FC-35UR
MBUH-16050-FC-60UR	19	50	23	6	24	6	20	60	MBUB-200-FC-60UR
MBUH-16050-FC-80UR	19	50	23	6	24	6	20	80	MBUB-200-FC-80UR
MBUH-16080-FC-35UR	19	80	23	6	24	6	20	35	MBUB-200-FC-35UR
MBUH-16080-FC-60UR	19	80	23	6	24	6	20	60	MBUB-200-FC-60UR
MBUH-16080-FC-80UR	19	80	23	6	24	6	20	80	MBUB-200-FC-80UR

SWIVOTS® - REPLACEABLE SWIVEL BALL

Hex Head | Delrin Ball | Flat Cone | Inch & Metric



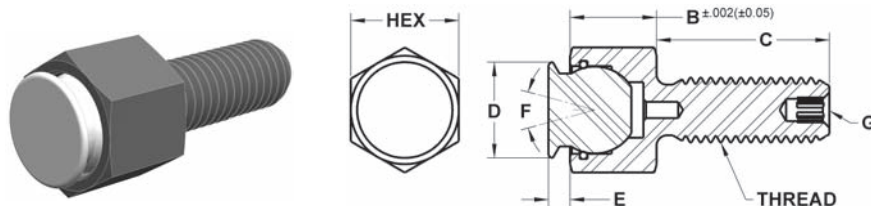
The replaceable ball swivels to allow for self-alignment on uneven surfaces. The flat cone design provides a large contact surface for greater force distribution. The replaceable ball is made from non-marring white delrin. A Viton O-ring holds the ball in place while keeping contaminants out and providing smooth ball movement. The housing is made from alloy steel, heat treated to Rc 43/46 with black oxide finish. Replacement balls and O-rings can be ordered separately. See page 117 for diagram of components.

INCH

Part #	B Head Height	C Thread Length	D Contact Dia.	E Stand Off	F Degree Swivel	G Int Hex	Ball Dia.	Ball Only Part #
#10-24 Threads - 3/8" Hex Head								
BUH-0124-DC	1/4	1/2	.236	.063	28	—	3/16	BUB-187-DC
BUH-0124 X 1-DC	1/4	1	.236	.063	28	—	3/16	BUB-187-DC
#10-32 Threads - 3/8" Hex Head								
BUH-0132-DC	1/4	1/2	.236	.063	28	—	3/16	BUB-187-DC
BUH-0132 X 1-DC	1/4	1	.236	.063	28	—	3/16	BUB-187-DC
1/4-20 Threads - 7/16" Hex Head								
BUH-0250-DC	5/16	1/2	.315	.094	28	—	9/32	BUB-200-DC
BUH-0251-DC	5/16	1	.315	.094	28	—	9/32	BUB-200-DC
BUH-0251 X 1.5-DC	5/16	1-1/2	.315	.094	28	—	9/32	BUB-200-DC
1/4-28 Threads - 7/16" Hex Head								
BUH-0280-DC	5/16	1/2	.315	.094	28	—	9/32	BUB-200-DC
BUH-0281-DC	5/16	1	.315	.094	28	—	9/32	BUB-200-DC
BUH-0281 X 1.5-DC	5/16	1-1/2	.315	.094	28	—	9/32	BUB-200-DC
5/16-18 Threads - 1/2" Hex Head								
BUH-0310-DC	3/8	1/2	.433	.125	28	—	3/8	BUB-300-DC
BUH-0312-DC	3/8	1	.433	.125	28	—	3/8	BUB-300-DC
BUH-0312 X 1.5-DC	3/8	1-1/2	.433	.125	28	—	3/8	BUB-300-DC
5/16-24 Threads - 1/2" Hex Head								
BUH-0320-DC	3/8	1/2	.433	.125	28	—	3/8	BUB-300-DC
BUH-0321-DC	3/8	1	.433	.125	28	—	3/8	BUB-300-DC
BUH-0321 X 1.5-DC	3/8	1-1/2	.433	.125	28	—	3/8	BUB-300-DC
3/8-16 Threads - 5/8" Hex Head								
BUH-0370-DC	1/2	1/2	.551	.125	28	1/8	1/2	BUB-500-DC
BUH-0375-DC	1/2	1	.551	.125	28	1/8	1/2	BUB-500-DC
BUH-0375 X 1.5-DC	1/2	1-1/2	.551	.125	28	1/8	1/2	BUB-500-DC
3/8-24 Threads - 5/8" Hex Head								
BUH-0230-DC	1/2	1/2	.551	.125	28	1/8	1/2	BUB-500-DC
BUH-0231-DC	1/2	1	.551	.125	28	1/8	1/2	BUB-500-DC
BUH-0231 X 1.5-DC	1/2	1-1/2	.551	.125	28	1/8	1/2	BUB-500-DC
1/2-13 Threads - 13/16" Hex Head								
BUH-0510-DC	5/8	1	.748	.156	32	3/16	5/8	BUB-600-DC
BUH-0515-DC	5/8	1-1/2	.748	.156	32	3/16	5/8	BUB-600-DC
1/2-20 Threads - 13/16" Hex Head								
BUH-0240-DC	5/8	1	.748	.156	32	3/16	5/8	BUB-600-DC
BUH-0500-DC	5/8	1-1/2	.748	.156	32	3/16	5/8	BUB-600-DC
5/8-11 Threads - 15/16" Hex Head								
BUH-0625-DC	11/16	1	.827	.156	32	1/4	3/4	BUB-700-DC
BUH-0625 X 2-DC	11/16	2	.827	.156	32	1/4	3/4	BUB-700-DC
5/8-18 Threads - 15/16" Hex Head								
BUH-0620-DC	11/16	1	.827	.156	32	1/4	3/4	BUB-700-DC
BUH-0620 X 2-DC	11/16	2	.827	.156	32	1/4	3/4	BUB-700-DC

SWIVOTS® - REPLACEABLE SWIVEL BALL

Hex Head | Delrin Ball | Flat Cone | Inch & Metric (continued)

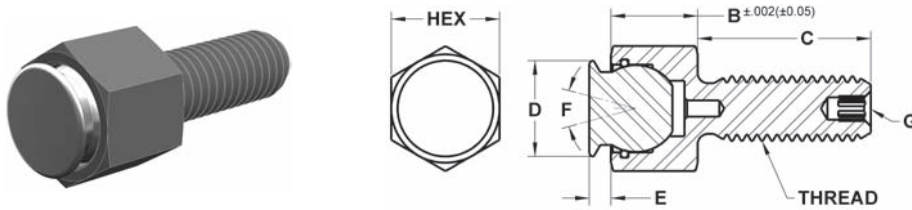


METRIC

Part #	B Head Height	C Thread Length	D Contact Dia.	E Stand Off	F Degree Swivel	G Int Hex	Ball Dia.	Ball Only Part #
M6x1.0 Threads - 10mm Hex Head								
MBUH-06012-DC	8	12	8	2	28	—	7	MBUB-070-DC
MBUH-06025-DC	8	25	8	2	28	—	7	MBUB-070-DC
MBUH-06040-DC	8	40	8	2	28	—	7	MBUB-070-DC
M8x1.25 Threads - 13mm Hex Head								
MBUH-08012-DC	11.5	12	11	3	28	—	10	MBUB-100-DC
MBUH-08025-DC	11.5	25	11	3	28	—	10	MBUB-100-DC
MBUH-08040-DC	11.5	40	11	3	28	—	10	MBUB-100-DC
M10x1.5 Threads - 17mm Hex Head								
MBUH-10015-DC	13	15	14	3	28	3	13	MBUB-130-DC
MBUH-10030-DC	13	30	14	3	28	3	13	MBUB-130-DC
MBUH-10050-DC	13	50	14	3	28	3	13	MBUB-130-DC
M12x1.75 Threads - 19mm Hex Head								
MBUH-12020-DC	15	20	19	4	24	5	15	MBUB-150-DC
MBUH-12040-DC	15	40	19	4	24	5	15	MBUB-150-DC
MBUH-12060-DC	15	60	19	4	24	5	15	MBUB-150-DC
M16x2.0 Threads - 24mm Hex Head								
MBUH-16025-DC	19	25	21	4	24	6	20	MBUB-200-DC
MBUH-16050-DC	19	50	21	4	24	6	20	MBUB-200-DC
MBUH-16080-DC	19	80	21	4	24	6	20	MBUB-200-DC

SWIVOTS® - REPLACEABLE SWIVEL BALL

Hex Head | Stainless Ball | Flat Cone | Inch & Metric



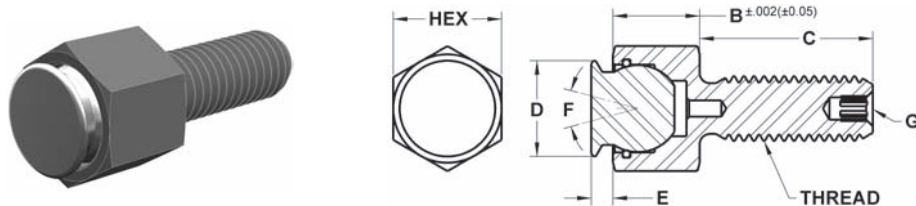
The replaceable ball swivels to allow for self-alignment on uneven surfaces. The flat cone design provides a large contact surface for greater force distribution. A Viton O-ring holds the ball in place while keeping contaminants out and providing smooth ball movement. The housing is made from alloy steel, heat treated to Rc 43/46 with black oxide finish. The replaceable ball is made from 300 series stainless steel. Replacement balls and O-rings can be ordered separately. See page 117 for diagram of components.

INCH

Part #	B Head Height	C Thread Length	D Contact Dia.	E Stand Off	F Degree Swivel	G Int Hex	Ball Dia.	Ball Only Part #	Load Rating Lbs
#10-24 Threads - 3/8" Hex Head									
BUH-0124-FC	1/4	1/2	.236	.063	28	—	3/16	BUB-187-FC	1,176
BUH-0124 X 1-FC	1/4	1	.236	.063	28	—	3/16	BUB-187-FC	1,176
#10-32 Threads - 3/8" Hex Head									
BUH-0132-FC	1/4	1/2	.236	.063	28	—	3/16	BUB-187-FC	1,176
BUH-0132 X 1-FC	1/4	1	.236	.063	28	—	3/16	BUB-187-FC	1,176
1/4-20 Threads - 7/16" Hex Head									
BUH-0250-FC	5/16	1/2	.315	.094	28	—	9/32	BUB-200-FC	2,441
BUH-0251-FC	5/16	1	.315	.094	28	—	9/32	BUB-200-FC	2,441
BUH-0251 X 1.5-FC	5/16	1-1/2	.315	.094	28	—	9/32	BUB-200-FC	2,441
1/4-28 Threads - 7/16" Hex Head									
BUH-0280-FC	5/16	1/2	.315	.094	28	—	9/32	BUB-200-FC	2,441
BUH-0281-FC	5/16	1	.315	.094	28	—	9/32	BUB-200-FC	2,441
BUH-0281 X 1.5-FC	5/16	1-1/2	.315	.094	28	—	9/32	BUB-200-FC	2,441
5/16-18 Threads - 1/2" Hex Head									
BUH-0310-FC	3/8	1/2	.433	.125	28	—	3/8	BUB-300-FC	2,792
BUH-0312-FC	3/8	1	.433	.125	28	—	3/8	BUB-300-FC	2,792
BUH-0312 X 1.5-FC	3/8	1-1/2	.433	.125	28	—	3/8	BUB-300-FC	2,792
5/16-24 Threads - 1/2" Hex Head									
BUH-0320-FC	3/8	1/2	.433	.125	28	—	3/8	BUB-300-FC	2,792
BUH-0321-FC	3/8	1	.433	.125	28	—	3/8	BUB-300-FC	2,792
BUH-0321 X 1.5-FC	3/8	1-1/2	.433	.125	28	—	3/8	BUB-300-FC	2,792
3/8-16 Threads - 5/8" Hex Head									
BUH-0370-FC	1/2	1/2	.551	.125	28	1/8	1/2	BUB-500-FC	3,446
BUH-0375-FC	1/2	1	.551	.125	28	1/8	1/2	BUB-500-FC	3,446
BUH-0375 X 1.5-FC	1/2	1-1/2	.551	.125	28	1/8	1/2	BUB-500-FC	3,446
3/8-24 Threads - 5/8" Hex Head									
BUH-0230-FC	1/2	1/2	.551	.125	28	1/8	1/2	BUB-500-FC	3,446
BUH-0231-FC	1/2	1	.551	.125	28	1/8	1/2	BUB-500-FC	3,446
BUH-0231 X 1.5-FC	1/2	1-1/2	.551	.125	28	1/8	1/2	BUB-500-FC	3,446
1/2-13 Threads - 13/16" Hex Head									
BUH-0510-FC	5/8	1	.748	.156	32	3/16	5/8	BUB-600-FC	5,937
BUH-0515-FC	5/8	1-1/2	.748	.156	32	3/16	5/8	BUB-600-FC	5,937
1/2-20 Threads - 13/16" Hex Head									
BUH-0240-FC	5/8	1	.748	.156	32	3/16	5/8	BUB-600-FC	7,178
BUH-0500-FC	5/8	1-1/2	.748	.156	32	3/16	5/8	BUB-600-FC	7,178
5/8-11 Threads - 15/16" Hex Head									
BUH-0625-FC	11/16	1	.827	.156	32	1/4	3/4	BUB-700-FC	9,932
BUH-0625 X 2-FC	11/16	2	.827	.156	32	1/4	3/4	BUB-700-FC	9,932
5/8-18 Threads - 15/16" Hex Head									
BUH-0620-FC	11/16	1	.827	.156	32	1/4	3/4	BUB-700-FC	11,874
BUH-0620 X 2-FC	11/16	2	.827	.156	32	1/4	3/4	BUB-700-FC	11,874

SWIVOTS® - REPLACEABLE SWIVEL BALL

Hex Head | Stainless Ball | Flat Cone | Inch & Metric (continued)

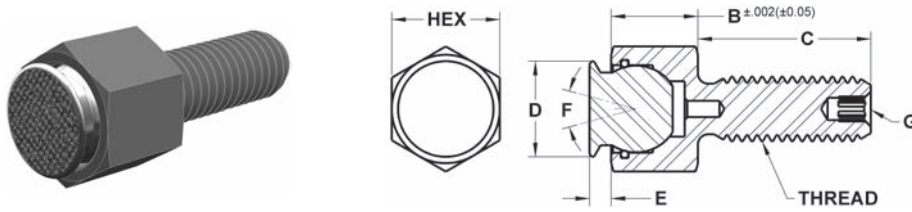


METRIC

Part #	B Head Height	C Thread Length	D Contact Dia.	E Stand Off	F Degree Swivel	G Int Hex	Ball Dia.	Ball Only Part #	Load Rating Lbs
M6x1.0 Threads - 10mm Hex Head									
MBUH-06012-FC	8	12	8	2	28	—	7	MBUB-070-FC	2,061
MBUH-06025-FC	8	25	8	2	28	—	7	MBUB-070-FC	2,061
MBUH-06040-FC	8	40	8	2	28	—	7	MBUB-070-FC	2,061
M8x1.25 Threads - 13mm Hex Head									
MBUH-08012-FC	11.5	12	11	3	28	—	10	MBUB-100-FC	3,450
MBUH-08025-FC	11.5	25	11	3	28	—	10	MBUB-100-FC	3,450
MBUH-08040-FC	11.5	40	11	3	28	—	10	MBUB-100-FC	3,450
M10x1.5 Threads - 17mm Hex Head									
MBUH-10015-FC	13	15	14	3	28	3	13	MBUB-130-FC	4,194
MBUH-10030-FC	13	30	14	3	28	3	13	MBUB-130-FC	4,194
MBUH-10050-FC	13	50	14	3	28	3	13	MBUB-130-FC	4,194
M12x1.75 Threads - 19mm Hex Head									
MBUH-12020-FC	15	20	19	4	24	5	15	MBUB-150-FC	6,627
MBUH-12040-FC	15	40	19	4	24	5	15	MBUB-150-FC	6,627
MBUH-12060-FC	15	60	19	4	24	5	15	MBUB-150-FC	6,627
M16x2.0 Threads - 24mm Hex Head									
MBUH-16025-FC	19	25	21	4	24	6	20	MBUB-200-FC	11,183
MBUH-16050-FC	19	50	21	4	24	6	20	MBUB-200-FC	11,183
MBUH-16080-FC	19	80	21	4	24	6	20	MBUB-200-FC	11,183

SWIVOTS® - REPLACEABLE SWIVEL BALL

Hex Head | Stainless Ball | Abrasive Diamond Surface | Inch & Metric



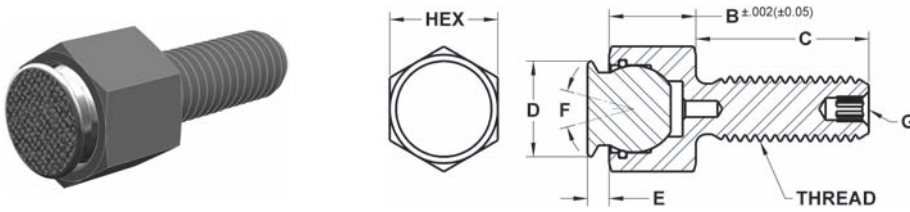
The replaceable ball swivels to allow for self-alignment on uneven surfaces. A Viton O-ring holds the ball in place while keeping contaminants out and providing smooth ball movement. The housing is made from alloy steel, heat treated to Rc 43/46 with black oxide finish. The abrasive surface is permanently fused to a 300 series stainless steel pad. The surface texture is comparable to a 100 grit abrasive. They are ideal for holding smooth or slippery applications with a minimum of clamping pressure. Individual diamond particles transfer holding pressure to a very small and well distributed area, providing superior holding with minimal surface marking. The diamond surface provides unparalleled wear resistance. Replacement balls and O-rings can be ordered separately. See page 117 for diagram of components.

INCH

Part #	B Head Height	C Thread Length	D Contact Dia.	E Stand Off	F Degree Swivel	G Int Hex	Ball Dia.	Ball Only Part #	Load Rating Lbs
#10-24 Threads - 3/8" Hex Head									
BUH-0124-FC-DS	1/4	1/2	.236	.063	28	—	3/16	BUB-187-FC-DS	1,176
BUH-0124 X 1-FC-DS	1/4	1	.236	.063	28	—	3/16	BUB-187-FC-DS	1,176
#10-32 Threads - 3/8" Hex Head									
BUH-0132-FC-DS	1/4	1/2	.236	.063	28	—	3/16	BUB-187-FC-DS	1,176
BUH-0132 X 1-FC-DS	1/4	1	.236	.063	28	—	3/16	BUB-187-FC-DS	1,176
1/4-20 Threads - 7/16" Hex Head									
BUH-0250-FC-DS	5/16	1/2	.315	.094	28	—	9/32	BUB-200-FC-DS	2,441
BUH-0251-FC-DS	5/16	1	.315	.094	28	—	9/32	BUB-200-FC-DS	2,441
BUH-0251 X 1.5-FC-DS	5/16	1-1/2	.315	.094	28	—	9/32	BUB-200-FC-DS	2,441
1/4-28 Threads - 7/16" Hex Head									
BUH-0280-FC-DS	5/16	1/2	.315	.094	28	—	9/32	BUB-200-FC-DS	2,441
BUH-0281-FC-DS	5/16	1	.315	.094	28	—	9/32	BUB-200-FC-DS	2,441
BUH-0281 X 1.5-FC-DS	5/16	1-1/2	.315	.094	28	—	9/32	BUB-200-FC-DS	2,441
5/16-18 Threads - 1/2" Hex Head									
BUH-0310-FC-DS	3/8	1/2	.433	.125	28	—	3/8	BUB-300-FC-DS	2,792
BUH-0312-FC-DS	3/8	1	.433	.125	28	—	3/8	BUB-300-FC-DS	2,792
BUH-0312 X 1.5-FC-DS	3/8	1-1/2	.433	.125	28	—	3/8	BUB-300-FC-DS	2,792
5/16-24 Threads - 1/2" Hex Head									
BUH-0320-FC-DS	3/8	1/2	.433	.125	28	—	3/8	BUB-300-FC-DS	2,792
BUH-0321-FC-DS	3/8	1	.433	.125	28	—	3/8	BUB-300-FC-DS	2,792
BUH-0321 X 1.5-FC-DS	3/8	1-1/2	.433	.125	28	—	3/8	BUB-300-FC-DS	2,792
3/8-16 Threads - 5/8" Hex Head									
BUH-0370-FC-DS	1/2	1/2	.551	.125	28	1/8	1/2	BUB-500-FC-DS	3,446
BUH-0375-FC-DS	1/2	1	.551	.125	28	1/8	1/2	BUB-500-FC-DS	3,446
BUH-0375 X 1.5-FC-DS	1/2	1-1/2	.551	.125	28	1/8	1/2	BUB-500-FC-DS	3,446
3/8-24 Threads - 5/8" Hex Head									
BUH-0230-FC-DS	1/2	1/2	.551	.125	28	1/8	1/2	BUB-500-FC-DS	3,446
BUH-0231-FC-DS	1/2	1	.551	.125	28	1/8	1/2	BUB-500-FC-DS	3,446
BUH-0231 X 1.5-FC-DS	1/2	1-1/2	.551	.125	28	1/8	1/2	BUB-500-FC-DS	3,446
1/2-13 Threads - 13/16" Hex Head									
BUH-0510-FC-DS	5/8	1	.748	.156	32	3/16	5/8	BUB-600-FC-DS	5,937
BUH-0515-FC-DS	5/8	1-1/2	.748	.156	32	3/16	5/8	BUB-600-FC-DS	5,937
1/2-20 Threads - 13/16" Hex Head									
BUH-0240-FC-DS	5/8	1	.748	.156	32	3/16	5/8	BUB-600-FC-DS	7,178
BUH-0500-FC-DS	5/8	1-1/2	.748	.156	32	3/16	5/8	BUB-600-FC-DS	7,178
5/8-11 Threads - 15/16" Hex Head									
BUH-0625-FC-DS	11/16	1	.827	.156	32	1/4	3/4	BUB-700-FC-DS	9,932
BUH-0625 X 2-FC-DS	11/16	2	.827	.156	32	1/4	3/4	BUB-700-FC-DS	9,932
5/8-18 Threads - 15/16" Hex Head									
BUH-0620-FC-DS	11/16	1	.827	.156	32	1/4	3/4	BUB-700-FC-DS	11,874
BUH-0620 X 2-FC-DS	11/16	2	.827	.156	32	1/4	3/4	BUB-700-FC-DS	11,874

SWIVOTS® - REPLACEABLE SWIVEL BALL

Hex Head | Stainless Ball | Abrasive Diamond Surface | Inch & Metric (continued)

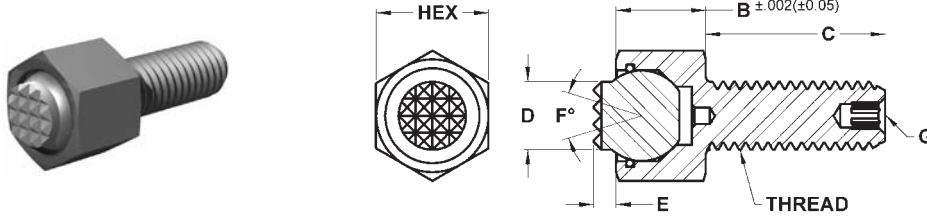


METRIC

Part #	B Head Height	C Thread Length	D Contact Dia.	E Stand Off	F Degree Swivel	G Int Hex	Ball Dia.	Ball Only Part #	Load Rating Lbs
M6x1.0 Threads - 10mm Hex Head									
MBUH-06012-FC-DS	8	12	8	2	28	—	7	MBUB-070-FC-DS	2,061
MBUH-06025-FC-DS	8	25	8	2	28	—	7	MBUB-070-FC-DS	2,061
MBUH-06040-FC-DS	8	40	8	2	28	—	7	MBUB-070-FC-DS	2,061
M8x1.25 Threads - 13mm Hex Head									
MBUH-08012-FC-DS	11.5	12	11	3	28	—	10	MBUB-100-FC-DS	3,450
MBUH-08025-FC-DS	11.5	25	11	3	28	—	10	MBUB-100-FC-DS	3,450
MBUH-08040-FC-DS	11.5	40	11	3	28	—	10	MBUB-100-FC-DS	3,450
M10x1.5 Threads - 17mm Hex Head									
MBUH-10015-FC-DS	13	15	14	3	28	3	13	MBUB-130-FC-DS	4,194
MBUH-10030-FC-DS	13	30	14	3	28	3	13	MBUB-130-FC-DS	4,194
MBUH-10050-FC-DS	13	50	14	3	28	3	13	MBUB-130-FC-DS	4,194
M12x1.5 Threads - 19mm Hex Head									
MBUH-12020-FC-DS	15	20	19	4	24	5	15	MBUB-150-FC-DS	6,627
MBUH-12040-FC-DS	15	40	19	4	24	5	15	MBUB-150-FC-DS	6,627
MBUH-12060-FC-DS	15	60	19	4	24	5	15	MBUB-150-FC-DS	6,627
M16x2.0 Threads - 24mm Hex Head									
MBUH-16025-FC-DS	19	25	21	4	24	6	20	MBUB-200-FC-DS	11,183
MBUH-16050-FC-DS	19	50	21	4	24	6	20	MBUB-200-FC-DS	11,183
MBUH-16080-FC-DS	19	80	21	4	24	6	20	MBUB-200-FC-DS	11,183

SWIVOTS® - REPLACEABLE SWIVEL BALL

Hex Head | Tool Steel Ball | Serrated | Inch & Metric

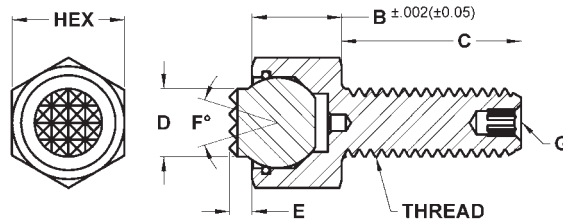


The replaceable serrated ball swivels to allow for self-alignment on uneven surfaces. A Viton O-ring holds the ball in place while keeping contaminants out and providing smooth ball movement. The housing is made from alloy steel, heat treated to Rc 43/46 with black oxide finish. The replaceable ball is made from M-2 high speed steel, heat treated to Rc 60/62. Replacement balls and O-rings can be ordered separately. See page 117 for diagram of components. See page 90 for tooth pattern specifications.

Part #	B Head Height	C Thread Length	D Contact Dia.	E Stand Off	F Degree Swivel	G Int. Hex	Ball Dia.	Ball Only Part #	Tooth Pattern	Load Rating Lbs.
#10-24 Threads - 3/8" Hex Head										
BUH-0124-S	1/4	1/2	5/32	1/16	28	—	3/16	BUB-187-S	SF	1,176
BUH-0124 X 1-S	1/4	1	5/32	1/16	28	—	3/16	BUB-187-S	SF	1,176
#10-32 Threads - 3/8" Hex Head										
BUH-0132-S	1/4	1/2	5/32	1/16	28	—	3/16	BUB-187-S	SF	1,176
BUH-0132 X 1-S	1/4	1	5/32	1/16	28	—	3/16	BUB-187-S	SF	1,176
1/4-20 Threads - 7/16" Hex Head										
BUH-0250-S	5/16	1/2	1/4	1/16	28	—	9/32	BUB-200-S	SF	2,441
BUH-0250-S-T	5/16	1/2	1/4	1/8	28	—	9/32	BUB-200-S-T	SF	2,441
BUH-0251-S	5/16	1	1/4	1/16	28	—	9/32	BUB-200-S	SF	2,441
BUH-0251-S-T	5/16	1	1/4	1/8	28	—	9/32	BUB-200-S-T	SF	2,441
BUH-0251 X 1.5-S	5/16	1-1/2	1/4	1/16	28	—	9/32	BUB-200-S	SF	2,441
BUH-0251 X 1.5-S-T	5/16	1-1/2	1/4	1/8	28	—	9/32	BUB-200-S-T	SF	2,441
1/4-28 Threads - 7/16" Hex Head										
BUH-0280-S	5/16	1/2	1/4	1/16	28	—	9/32	BUB-200-S	SF	2,441
BUH-0280-S-T	5/16	1/2	1/4	1/8	28	—	9/32	BUB-200-S-T	SF	2,441
BUH-0281-S	5/16	1	1/4	1/16	28	—	9/32	BUB-200-S	SF	2,441
BUH-0281-S-T	5/16	1	1/4	1/8	28	—	9/32	BUB-200-S-T	SF	2,441
BUH-0281 X 1.5-S	5/16	1-1/2	1/4	1/16	28	—	9/32	BUB-200-S	SF	2,441
BUH-0281 X 1.5-S-T	5/16	1-1/2	1/4	1/8	28	—	9/32	BUB-200-S-T	SF	2,441
5/16-18 Threads - 1/2" Hex Head										
BUH-0310-S	3/8	1/2	5/16	1/16	28	—	3/8	BUB-300-S	EF	2,792
BUH-0310-S-T	3/8	1/2	5/16	1/8	28	—	3/8	BUB-300-S-T	EF	2,792
BUH-0310-SF	3/8	1/2	5/16	1/16	28	—	3/8	BUB-300-SF	SF	2,792
BUH-0310-SF-T	3/8	1/2	5/16	1/8	28	—	3/8	BUB-300-SF-T	SF	2,792
BUH-0312-S	3/8	1	5/16	1/16	28	—	3/8	BUB-300-S	EF	2,792
BUH-0312-S-T	3/8	1	5/16	1/8	28	—	3/8	BUB-300-S-T	EF	2,792
BUH-0312-SF	3/8	1	5/16	1/16	28	—	3/8	BUB-300-SF	SF	2,792
BUH-0312-SF-T	3/8	1	5/16	1/8	28	—	3/8	BUB-300-SF-T	SF	2,792
BUH-0312 X 1.5-S	3/8	1-1/2	5/16	1/16	28	—	3/8	BUB-300-S	EF	2,792
BUH-0312 X 1.5-S-T	3/8	1-1/2	5/16	1/8	28	—	3/8	BUB-300-S-T	EF	2,792
BUH-0312 X 1.5-SF	3/8	1-1/2	5/16	1/16	28	—	3/8	BUB-300-SF	SF	2,792
BUH-0312 X 1.5-SF-T	3/8	1-1/2	5/16	1/8	28	—	3/8	BUB-300-SF-T	SF	2,792
5/16-24 Threads - 1/2" Hex Head										
BUH-0320-S	3/8	1/2	5/16	1/16	28	—	3/8	BUB-300-S	EF	2,792
BUH-0320-S-T	3/8	1/2	5/16	1/8	28	—	3/8	BUB-300-S-T	EF	2,792
BUH-0320-SF	3/8	1/2	5/16	1/16	28	—	3/8	BUB-300-SF	SF	2,792
BUH-0320-SF-T	3/8	1/2	5/16	1/8	28	—	3/8	BUB-300-SF-T	SF	2,792
BUH-0321-S	3/8	1	5/16	1/16	28	—	3/8	BUB-300-S	EF	2,792
BUH-0321-S-T	3/8	1	5/16	1/8	28	—	3/8	BUB-300-S-T	EF	2,792
BUH-0321-SF	3/8	1	5/16	1/16	28	—	3/8	BUB-300-SF	SF	2,792
BUH-0321-SF-T	3/8	1	5/16	1/8	28	—	3/8	BUB-300-SF-T	SF	2,792
BUH-0321 X 1.5-S	3/8	1-1/2	5/16	1/16	28	—	3/8	BUB-300-S	EF	2,792
BUH-0321 X 1.5-S-T	3/8	1-1/2	5/16	1/8	28	—	3/8	BUB-300-S-T	EF	2,792
BUH-0321 X 1.5-SF	3/8	1-1/2	5/16	1/16	28	—	3/8	BUB-300-SF	SF	2,792
BUH-0321 X 1.5-SF-T	3/8	1-1/2	5/16	1/8	28	—	3/8	BUB-300-SF-T	SF	2,792

SWIVOTS® - REPLACEABLE SWIVEL BALL

Hex Head | Tool Steel Ball | Serrated | Inch & Metric (continued)



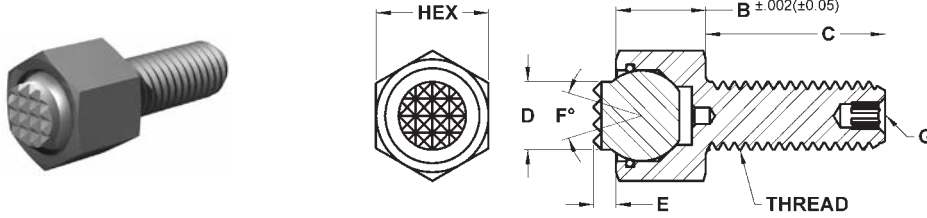
INCH (CONTINUED)

Part #	B Head Height	C Thread Length	D Contact Dia.	E Stand Off	F Degree Swivel	G Int. Hex	Ball Dia.	Ball Only Part #	Tooth Pattern	Load Rating Lbs.
3/8-16 Threads - 5/8" Hex Head										
BUH-0370-S	1/2	1/2	3/8	1/8	40	1/8	1/2	BUB-500-S	EF	3,446
BUH-0370-S-T	1/2	1/2	3/8	1/4	40	1/8	1/2	BUB-500-S-T	EF	3,446
BUH-0370-SF	1/2	1/2	3/8	1/8	40	1/8	1/2	BUB-500-SF	SF	3,446
BUH-0370-SF-T	1/2	1/2	3/8	1/4	40	1/8	1/2	BUB-500-SF-T	SF	3,446
BUH-0375-S	1/2	1	3/8	1/8	40	1/8	1/2	BUB-500-S	EF	3,446
BUH-0375-S-T	1/2	1	3/8	1/4	40	1/8	1/2	BUB-500-S-T	EF	3,446
BUH-0375-SF	1/2	1	3/8	1/8	40	1/8	1/2	BUB-500-SF	SF	3,446
BUH-0375-SF-T	1/2	1	3/8	1/4	40	1/8	1/2	BUB-500-SF-T	SF	3,446
BUH-0375 X 1.5-S	1/2	1-1/2	3/8	1/8	40	1/8	1/2	BUB-500-S	EF	3,446
BUH-0375 X 1.5-S-T	1/2	1-1/2	3/8	1/4	40	1/8	1/2	BUB-500-S-T	EF	3,446
BUH-0375 X 1.5-SF	1/2	1-1/2	3/8	1/8	40	1/8	1/2	BUB-500-SF	SF	3,446
BUH-0375 X 1.5-SF-T	1/2	1-1/2	3/8	1/4	40	1/8	1/2	BUB-500-SF-T	SF	3,446
3/8-24 Threads - 5/8" Hex Head										
BUH-0230-S	1/2	1/2	3/8	1/8	40	1/8	1/2	BUB-500-S	EF	3,446
BUH-0230-S-T	1/2	1/2	3/8	1/4	40	1/8	1/2	BUB-500-S-T	EF	3,446
BUH-0230-SF	1/2	1/2	3/8	1/8	40	1/8	1/2	BUB-500-SF	SF	3,446
BUH-0230-SF-T	1/2	1/2	3/8	1/4	40	1/8	1/2	BUB-500-SF-T	SF	3,446
BUH-0231-S	1/2	1	3/8	1/8	40	1/8	1/2	BUB-500-S	EF	3,446
BUH-0231-S-T	1/2	1	3/8	1/4	40	1/8	1/2	BUB-500-S-T	EF	3,446
BUH-0231-SF	1/2	1	3/8	1/8	40	1/8	1/2	BUB-500-SF	SF	3,446
BUH-0231-SF-T	1/2	1	3/8	1/4	40	1/8	1/2	BUB-500-SF-T	SF	3,446
BUH-0231 X 1.5-S	1/2	1-1/2	3/8	1/8	40	1/8	1/2	BUB-500-S	EF	3,446
BUH-0231 X 1.5-S-T	1/2	1-1/2	3/8	1/4	40	1/8	1/2	BUB-500-S-T	EF	3,446
BUH-0231 X 1.5-SF	1/2	1-1/2	3/8	1/8	40	1/8	1/2	BUB-500-SF	SF	3,446
BUH-0231 X 1.5-SF-T	1/2	1-1/2	3/8	1/4	40	1/8	1/2	BUB-500-SF-T	SF	3,446
1/2-13 Threads - 13/16" Hex Head										
BUH-0510-S	5/8	1	1/2	1/8	40	3/16	5/8	BUB-600-S	Fine	5,937
BUH-0510-S-T	5/8	1	1/2	1/4	40	3/16	5/8	BUB-600-S-T	Fine	5,937
BUH-0510-EF	5/8	1	1/2	1/8	40	3/16	5/8	BUB-600-EF	EF	5,937
BUH-0510-EF-T	5/8	1	1/2	1/4	40	3/16	5/8	BUB-600-EF-T	EF	5,937
BUH-0510-SF	5/8	1	1/2	1/8	40	3/16	5/8	BUB-600-SF	SF	5,937
BUH-0510-SF-T	5/8	1	1/2	1/4	40	3/16	5/8	BUB-600-SF-T	SF	5,937
BUH-0515-S	5/8	1-1/2	1/2	1/8	40	3/16	5/8	BUB-600-S	Fine	5,937
BUH-0515-S-T	5/8	1-1/2	1/2	1/4	40	3/16	5/8	BUB-600-S-T	Fine	5,937
BUH-0515-EF	5/8	1-1/2	1/2	1/8	40	3/16	5/8	BUB-600-EF	EF	5,937
BUH-0515-EF-T	5/8	1-1/2	1/2	1/4	40	3/16	5/8	BUB-600-EF-T	EF	5,937
BUH-0515-SF	5/8	1-1/2	1/2	1/8	40	3/16	5/8	BUB-600-SF	SF	5,937
BUH-0515-SF-T	5/8	1-1/2	1/2	1/4	40	3/16	5/8	BUB-600-SF-T	SF	5,937
1/2-20 Threads - 13/16" Hex Head										
BUH-0240-S	5/8	1	1/2	1/8	40	3/16	5/8	BUB-600-S	Fine	7,178
BUH-0240-S-T	5/8	1	1/2	1/4	40	3/16	5/8	BUB-600-S-T	Fine	7,178
BUH-0240-EF	5/8	1	1/2	1/8	40	3/16	5/8	BUB-600-EF	EF	7,178
BUH-0240-EF-T	5/8	1	1/2	1/4	40	3/16	5/8	BUB-600-EF-T	EF	7,178
BUH-0240-SF	5/8	1	1/2	1/8	40	3/16	5/8	BUB-600-SF	SF	7,178
BUH-0240-SF-T	5/8	1	1/2	1/4	40	3/16	5/8	BUB-600-SF-T	SF	7,178
BUH-0500-S	5/8	1-1/2	1/2	1/8	40	3/16	5/8	BUB-600-S	Fine	7,178
BUH-0500-S-T	5/8	1-1/2	1/2	1/4	40	3/16	5/8	BUB-600-S-T	Fine	7,178
BUH-0500-EF	5/8	1-1/2	1/2	1/8	40	3/16	5/8	BUB-600-EF	EF	7,178
BUH-0500-EF-T	5/8	1-1/2	1/2	1/4	40	3/16	5/8	BUB-600-EF-T	EF	7,178
BUH-0500-SF	5/8	1-1/2	1/2	1/8	40	3/16	5/8	BUB-600-SF	SF	7,178
BUH-0500-SF-T	5/8	1-1/2	1/2	1/4	40	3/16	5/8	BUB-600-SF-T	SF	7,178



SWIVOTS® - REPLACEABLE SWIVEL BALL

Hex Head | Tool Steel Ball | Serrated | Inch & Metric (continued)



INCH (CONTINUED)

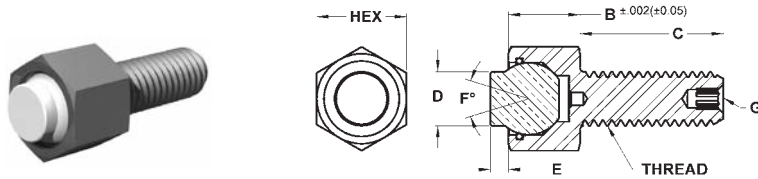
Part #	B Head Height	C Thread Length	D Contact Dia.	E Stand Off	F Degree Swivel	G Int. Hex	Ball Dia.	Ball Only Part #	Tooth Pattern	Load Rating Lbs.
5/8-11 Threads - 15/16" Hex Head										
BUH-0625-S	11/16	1	5/8	1/8	34	1/4	3/4	BUB-700-S	Fine	9,932
BUH-0625-S-T	11/16	1	5/8	1/4	34	1/4	3/4	BUB-700-S-T	Fine	9,932
BUH-0625-EF	11/16	1	5/8	1/8	34	1/4	3/4	BUB-700-EF	EF	9,932
BUH-0625-EF-T	11/16	1	5/8	1/4	34	1/4	3/4	BUB-700-EF-T	EF	9,932
BUH-0625 X 2-S	11/16	2	5/8	1/8	34	1/4	3/4	BUB-700-S	Fine	9,932
BUH-0625 X 2-S-T	11/16	2	5/8	1/4	34	1/4	3/4	BUB-700-S-T	Fine	9,932
BUH-0625 X 2-EF	11/16	2	5/8	1/8	34	1/4	3/4	BUB-700-EF	EF	9,932
BUH-0625 X 2-EF-T	11/16	2	5/8	1/4	34	3/4	3/4	BUB-700-EF-T	EF	9,932
5/8-18 Threads - 15/16" Hex Head										
BUH-0620-S	11/16	1	5/8	1/8	34	1/4	3/4	BUB-700-S	Fine	11,874
BUH-0620-S-T	11/16	1	5/8	1/4	34	1/4	3/4	BUB-700-S-T	Fine	11,874
BUH-0620-EF	11/16	1	5/8	1/8	34	1/4	3/4	BUB-700-EF	EF	11,874
BUH-0620-EF-T	11/16	1	5/8	1/4	34	1/4	3/4	BUB-700-EF-T	EF	11,874
BUH-0620 X 2-S	11/16	2	5/8	1/8	34	1/4	3/4	BUB-700-S	Fine	11,874
BUH-0620 X 2-S-T	11/16	2	5/8	1/4	34	1/4	3/4	BUB-700-S-T	Fine	11,874
BUH-0620 X 2-EF	11/16	2	5/8	1/8	34	1/4	3/4	BUB-700-EF	EF	11,874
BUH-0620 X 2-EF-T	11/16	2	5/8	1/4	34	1/4	3/4	BUB-700-EF-T	EF	11,874

METRIC

Part #	B Head Height	C Thread Length	D Contact Dia.	E Stand Off	F Degree Swivel	G Int. Hex	Ball Dia.	Ball Only Part #	Tooth Pattern	Load Rating Lbs.
M6x1.0 Threads - 10mm Hex Head										
MBUH-06012-S	8	12	6	1.5	28	—	7	MBUB-070-S	SF	2,061
MBUH-06012-S-T	8	12	6	3	28	—	7	MBUB-070-S-T	SF	2,061
MBUH-06025-S	8	25	6	1.5	28	—	7	MBUB-070-S	SF	2,061
MBUH-06025-S-T	8	25	6	3	28	—	7	MBUB-070-S-T	SF	2,061
MBUH-06040-S	8	40	6	1.5	28	—	7	MBUB-070-S	SF	2,061
MBUH-06040-S-T	8	40	6	3	28	—	7	MBUB-070-S-T	SF	2,061
M8x1.25 Threads - 13mm Hex Head										
MBUH-08012-S	11.5	12	8.5	1.5	24	—	10	MBUB-100-S	EF	3,450
MBUH-08012-S-T	11.5	12	8.5	3	24	—	10	MBUB-100-S-T	EF	3,450
MBUH-08025-S	11.5	25	8.5	1.5	24	—	10	MBUB-100-S	EF	3,450
MBUH-08025-S-T	11.5	25	8.5	3	24	—	10	MBUB-100-S-T	EF	3,450
MBUH-08040-S	11.5	40	8.5	1.5	24	—	10	MBUB-100-S	EF	3,450
MBUH-08040-S-T	11.5	40	8.5	3	24	—	10	MBUB-100-S-T	EF	3,450
M10x1.5 Threads - 17mm Hex Head										
MBUH-10015-S	13	15	10	4	42	3	13	MBUB-130-S	EF	4,194
MBUH-10015-S-T	13	15	10	6	42	3	13	MBUB-130-S-T	EF	4,194
MBUH-10030-S	13	30	10	4	42	3	13	MBUB-130-S	EF	4,194
MBUH-10030-S-T	13	30	10	6	42	3	13	MBUB-130-S-T	EF	4,194
MBUH-10050-S	13	50	10	4	42	3	13	MBUB-130-S	EF	4,194
MBUH-10050-S-T	13	50	10	6	42	3	13	MBUB-130-S-T	EF	4,194
M12x1.75 Threads - 19mm Hex Head										
MBUH-12020-S	15	20	12	4	45	5	15	MBUB-150-S	Fine	6,627
MBUH-12020-S-T	15	20	12	6	45	5	15	MBUB-150-S-T	Fine	6,627
MBUH-12040-S	15	40	12	4	45	5	15	MBUB-150-S	Fine	6,627
MBUH-12040-S-T	15	40	12	6	45	5	15	MBUB-150-S-T	Fine	6,627
MBUH-12060-S	15	60	12	4	45	5	15	MBUB-150-S	Fine	6,627
MBUH-12060-S-T	15	60	12	6	45	5	15	MBUB-150-S-T	Fine	6,627
M16x2.0 Threads - 24mm Hex Head										
MBUH-16025-S	19	25	16	4	40	6	20	MBUB-200-S	Fine	11,183
MBUH-16025-S-T	19	25	16	6	40	6	20	MBUB-200-S-T	Fine	11,183
MBUH-16050-S	19	50	16	4	40	6	20	MBUB-200-S	Fine	11,183
MBUH-16050-S-T	19	50	16	6	40	6	20	MBUB-200-S-T	Fine	11,183
MBUH-16080-S	19	80	16	4	40	6	20	MBUB-200-S	Fine	11,183
MBUH-16080-S-T	19	80	16	6	40	6	20	MBUB-200-S-T	Fine	11,183

SWIVOTS® - REPLACEABLE SWIVEL BALL

Hex Head | Delrin Ball | Flat | Inch & Metric



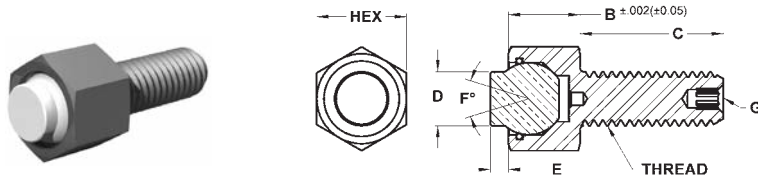
The replaceable flat ball swivels to allow for self-alignment on uneven surfaces. The replaceable ball is made from non-marring white delrin. A Viton O-ring holds the ball in place while keeping contaminants out and providing smooth ball movement. The housing is made from alloy steel, heat treated to Rc 43/46 with black oxide finish. Replacement balls and O-rings can be ordered separately. See page 117 for diagram of components.

INCH

Part #	B Head Height	C Thread Length	D Contact Dia.	E Stand Off	F Degree Swivel	G Int. Hex	Ball Dia.	Ball Only Part #
#10-24 Threads - 3/8" Hex Head								
BUH-0124-D	1/4	1/2	5/32	1/16	28	—	3/16	BUB-187-D
BUH-0124 X 1-D	1/4	1	5/32	1/16	28	—	3/16	BUB-187-D
#10-32 Threads - 3/8" Hex Head								
BUH-0132-D	1/4	1/2	5/32	1/16	28	—	3/16	BUB-187-D
BUH-0132 X 1-D	1/4	1	5/32	1/16	28	—	3/16	BUB-187-D
1/4-20 Threads - 7/16" Hex Head								
BUH-0250-D	5/16	1/2	1/4	1/16	28	—	9/32	BUB-200-D
BUH-0250-D-T	5/16	1/2	1/4	1/8	28	—	9/32	BUB-200-D-T
BUH-0251-D	5/16	1	1/4	1/16	28	—	9/32	BUB-200-D
BUH-0251-D-T	5/16	1	1/4	1/8	28	—	9/32	BUB-200-D-T
BUH-0251 X 1.5-D	5/16	1-1/2	1/4	1/16	28	—	9/32	BUB-200-D
BUH-0251 X 1.5-D-T	5/16	1-1/2	1/4	1/8	28	—	9/32	BUB-200-D-T
1/4-28 Threads - 7/16" Hex Head								
BUH-0280-D	5/16	1/2	1/4	1/16	28	—	9/32	BUB-200-D
BUH-0280-D-T	5/16	1/2	1/4	1/8	28	—	9/32	BUB-200-D-T
BUH-0281-D	5/16	1	1/4	1/16	28	—	9/32	BUB-200-D
BUH-0281-D-T	5/16	1	1/4	1/8	28	—	9/32	BUB-200-D-T
BUH-0281 X 1.5-D	5/16	1-1/2	1/4	1/16	28	—	9/32	BUB-200-D
BUH-0281 X 1.5-D-T	5/16	1-1/2	1/4	1/8	28	—	9/32	BUB-200-D-T
5/16-18 Threads - 1/2" Hex Head								
BUH-0310-D	3/8	1/2	5/16	1/16	28	—	3/8	BUB-300-D
BUH-0310-D-T	3/8	1/2	5/16	1/8	28	—	3/8	BUB-300-D-T
BUH-0312-D	3/8	1	5/16	1/16	28	—	3/8	BUB-300-D
BUH-0312-D-T	3/8	1	5/16	1/8	28	—	3/8	BUB-300-D-T
BUH-0312 X 1.5-D	3/8	1-1/2	5/16	1/16	28	—	3/8	BUB-300-D
BUH-0312 X 1.5-D-T	3/8	1-1/2	5/16	1/8	28	—	3/8	BUB-300-D-T
5/16-24 Threads - 1/2" Hex Head								
BUH-0320-D	3/8	1/2	5/16	1/16	28	—	3/8	BUB-300-D
BUH-0320-D-T	3/8	1/2	5/16	1/8	28	—	3/8	BUB-300-D-T
BUH-0321-D	3/8	1	5/16	1/16	28	—	3/8	BUB-300-D
BUH-0321-D-T	3/8	1	5/16	1/8	28	—	3/8	BUB-300-D-T
BUH-0321 X 1.5-D	3/8	1-1/2	5/16	1/16	28	—	3/8	BUB-300-D
BUH-0321 X 1.5-D-T	3/8	1-1/2	5/16	1/8	28	—	3/8	BUB-300-D-T
3/8-16 Threads - 5/8" Hex Head								
BUH-0370-D	1/2	1/2	3/8	1/8	40	1/8	1/2	BUB-500-D
BUH-0370-D-T	1/2	1/2	3/8	1/4	40	1/8	1/2	BUB-500-D-T
BUH-0375-D	1/2	1	3/8	1/8	40	1/8	1/2	BUB-500-D
BUH-0375-D-T	1/2	1	3/8	1/4	40	1/8	1/2	BUB-500-D-T
BUH-0375 X 1.5-D	1/2	1-1/2	3/8	1/8	40	1/8	1/2	BUB-500-D
BUH-0375 X 1.5-D-T	1/2	1-1/2	3/8	1/4	40	1/8	1/2	BUB-500-D-T
3/8-24 Threads - 5/8" Hex Head								
BUH-0230-D	1/2	1/2	3/8	1/8	40	1/8	1/2	BUB-500-D
BUH-0230-D-T	1/2	1/2	3/8	1/4	40	1/8	1/2	BUB-500-D-T
BUH-0231-D	1/2	1	3/8	1/8	40	1/8	1/2	BUB-500-D
BUH-0231-D-T	1/2	1	3/8	1/4	40	1/8	1/2	BUB-500-D-T
BUH-0231 X 1.5-D	1/2	1-1/2	3/8	1/8	40	1/8	1/2	BUB-500-D
BUH-0231 X 1.5-D-T	1/2	1-1/2	3/8	1/4	40	1/8	1/2	BUB-500-D-T

SWIVOTS® - REPLACEABLE SWIVEL BALL

Hex Head | Delrin Ball | Flat | Inch & Metric (continued)



INCH (CONTINUED)

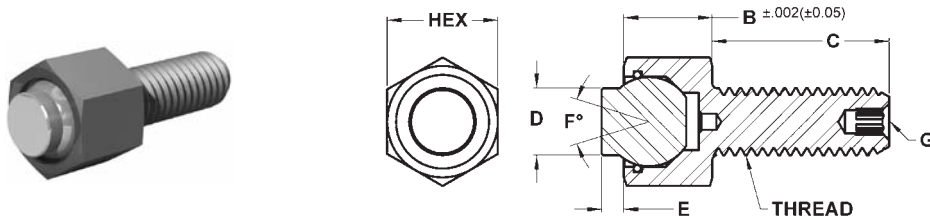
Part #	B Head Height	C Thread Length	D Contact Dia.	E Stand Off	F Degree Swivel	G Int. Hex	Ball Dia.	Ball Only Part #
1/2-13 Threads - 13/16" Hex Head								
BUH-0510-D	5/8	1	1/2	1/8	40	3/16	5/8	BUB-600-D
BUH-0510-D-T	5/8	1	1/2	1/4	40	3/16	5/8	BUB-600-D-T
BUH-0515-D	5/8	1-1/2	1/2	1/8	40	3/16	5/8	BUB-600-D
BUH-0515-D-T	5/8	1-1/2	1/2	1/4	40	3/16	5/8	BUB-600-D-T
1/2-20 Threads - 13/16" Hex Head								
BUH-0240-D	5/8	1	1/2	1/8	40	3/16	5/8	BUB-600-D
BUH-0240-D-T	5/8	1	1/2	1/4	40	3/16	5/8	BUB-600-D-T
BUH-0500-D	5/8	1-1/2	1/2	1/8	40	3/16	5/8	BUB-600-D
BUH-0500-D-T	5/8	1-1/2	1/2	1/4	40	3/16	5/8	BUB-600-D-T
5/8-11 Threads - 15/16" Hex Head								
BUH-0625-D	11/16	1	5/8	1/8	34	1/4	3/4	BUB-700-D
BUH-0625-D-T	11/16	1	5/8	1/4	34	1/4	3/4	BUB-700-D-T
BUH-0625 X 2-D	11/16	2	5/8	1/8	34	1/4	3/4	BUB-700-D
BUH-0625 X 2-D-T	11/16	2	5/8	1/4	34	1/4	3/4	BUB-700-D-T
5/8-18 Threads - 15/16" Hex Head								
BUH-0620-D	11/16	1	5/8	1/8	34	1/4	3/4	BUB-700-D
BUH-0620-D-T	11/16	1	5/8	1/4	34	1/4	3/4	BUB-700-D-T
BUH-0620 X 2-D	11/16	2	5/8	1/8	34	1/4	3/4	BUB-700-D
BUH-0620 X 2-D-T	11/16	2	5/8	1/4	34	1/4	3/4	BUB-700-D-T

METRIC

Part #	B Head Height	C Thread Length	D Contact Dia.	E Stand Off	F Degree Swivel	G Int. Hex	Ball Dia.	Ball Only Part #
M6x1.0 Threads - 10mm Hex Head								
MBUH-06012-D	8	12	6	1.5	28	—	7	MBUB-070-D
MBUH-06012-D-T	8	12	6	3	28	—	7	MBUB-070-D-T
MBUH-06025-D	8	25	6	1.5	28	—	7	MBUB-070-D
MBUH-06025-D-T	8	25	6	3	28	—	7	MBUB-070-D-T
MBUH-06040-D	8	40	6	1.5	28	—	7	MBUB-070-D
MBUH-06040-D-T	8	40	6	3	28	—	7	MBUB-070-D-T
M8x1.25 Threads - 13mm Hex Head								
MBUH-08012-D	11.5	12	8.5	1.5	24	—	10	MBUB-100-D
MBUH-08012-D-T	11.5	12	8.5	3	24	—	10	MBUB-100-D-T
MBUH-08025-D	11.5	25	8.5	1.5	24	—	10	MBUB-100-D
MBUH-08025-D-T	11.5	25	8.5	3	24	—	10	MBUB-100-D-T
MBUH-08040-D	11.5	40	8.5	1.5	24	—	10	MBUB-100-D
MBUH-08040-D-T	11.5	40	8.5	3	24	—	10	MBUB-100-D-T
M10x1.5 Threads - 17mm Hex Head								
MBUH-10015-D	13	15	10	4	42	3	13	MBUB-130-D
MBUH-10015-D-T	13	15	10	6	42	3	13	MBUB-130-D-T
MBUH-10030-D	13	30	10	4	42	3	13	MBUB-130-D
MBUH-10030-D-T	13	30	10	6	42	3	13	MBUB-130-D-T
MBUH-10050-D	13	50	10	4	42	3	13	MBUB-130-D
MBUH-10050-D-T	13	50	10	6	42	3	13	MBUB-130-D-T
M12x1.75 Threads - 19mm Hex Head								
MBUH-12020-D	15	20	12	4	45	5	15	MBUB-150-D
MBUH-12020-D-T	15	20	12	6	45	5	15	MBUB-150-D-T
MBUH-12040-D	15	40	12	4	45	5	15	MBUB-150-D
MBUH-12040-D-T	15	40	12	6	45	5	15	MBUB-150-D-T
MBUH-12060-D	15	60	12	4	45	5	15	MBUB-150-D
MBUH-12060-D-T	15	60	12	6	45	5	15	MBUB-150-D-T
M16x2.0 Threads - 24mm Hex Head								
MBUH-16025-D	19	25	16	4	40	6	20	MBUB-200-D
MBUH-16025-D-T	19	25	16	6	40	6	20	MBUB-200-D-T
MBUH-16050-D	19	50	16	4	40	6	20	MBUB-200-D
MBUH-16050-D-T	19	50	16	6	40	6	20	MBUB-200-D-T
MBUH-16080-D	19	80	16	4	40	6	20	MBUB-200-D
MBUH-16080-D-T	19	80	16	6	40	6	20	MBUB-200-D-T

SWIVOTS® - REPLACEABLE SWIVEL BALL

Hex Head | Tool Steel Ball | Flat | Inch & Metric



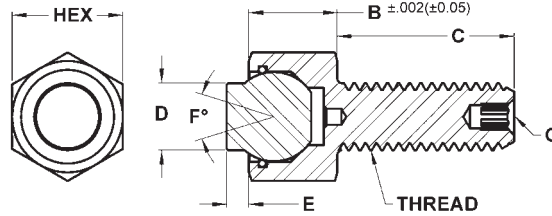
The replaceable flat ball swivels to allow for self-alignment on uneven surfaces. A Viton O-ring holds the ball in place while keeping contaminants out and providing smooth ball movement. The housing is made from alloy steel, heat treated to Rc 43/46 with black oxide finish. The replaceable ball is made from M-2 high speed steel heat treated to Rc 60/62. Replacement balls and O-rings can be ordered separately. See page 117 for diagram of components.

INCH

Part #	B Head Height	C Thread Length	D Contact Dia.	E Stand Off	F Degree Swivel	G Int. Hex	Ball Dia.	Ball Only Part #	Load Rating Lbs.
#10-24 Threads - 3/8" Hex Head									
BUH-0124-F	1/4	1/2	5/32	1/16	28	—	3/16	BUB-187-F	1,176
BUH-0124 X 1-F	1/4	1	5/32	1/16	28	—	3/16	BUB-187-F	1,176
#10-32 Threads - 3/8" Hex Head									
BUH-0132-F	1/4	1/2	5/32	1/16	28	—	3/16	BUB-187-F	1,176
BUH-0132 X 1-F	1/4	1	5/32	1/16	28	—	3/16	BUB-187-F	1,176
1/4-20 Threads - 7/16" Hex Head									
BUH-0250-F	5/16	1/2	1/4	1/16	28	—	9/32	BUB-200-F	2,441
BUH-0250-F-T	5/16	1/2	1/4	1/8	28	—	9/32	BUB-200-F-T	2,441
BUH-0251-F	5/16	1	1/4	1/16	28	—	9/32	BUB-200-F	2,441
BUH-0251-F-T	5/16	1	1/4	1/8	28	—	9/32	BUB-200-F-T	2,441
BUH-0251 X 1.5-F	5/16	1-1/2	1/4	1/16	28	—	9/32	BUB-200-F	2,441
BUH-0251 X 1.5-F-T	5/16	1-1/2	1/4	1/8	28	—	9/32	BUB-200-F-T	2,441
1/4-28 Threads - 7/16" Hex Head									
BUH-0280-F	5/16	1/2	1/4	1/16	28	—	9/32	BUB-200-F	2,441
BUH-0280-F-T	5/16	1/2	1/4	1/8	28	—	9/32	BUB-200-F-T	2,441
BUH-0281-F	5/16	1	1/4	1/16	28	—	9/32	BUB-200-F	2,441
BUH-0281-F-T	5/16	1	1/4	1/8	28	—	9/32	BUB-200-F-T	2,441
BUH-0281 X 1.5-F	5/16	1-1/2	1/4	1/16	28	—	9/32	BUB-200-F	2,441
BUH-0281 X 1.5-F-T	5/16	1-1/2	1/4	1/8	28	—	9/32	BUB-200-F-T	2,441
5/16-18 Threads - 1/2" Hex Head									
BUH-0310-F	3/8	1/2	5/16	1/16	28	—	3/8	BUB-300-F	2,792
BUH-0310-F-T	3/8	1/2	5/16	1/8	28	—	3/8	BUB-300-F-T	2,792
BUH-0312-F	3/8	1	5/16	1/16	28	—	3/8	BUB-300-F	2,792
BUH-0312-F-T	3/8	1	5/16	1/8	28	—	3/8	BUB-300-F-T	2,792
BUH-0312 X 1.5-F	3/8	1-1/2	5/16	1/16	28	—	3/8	BUB-300-F	2,792
BUH-0312 X 1.5-F-T	3/8	1-1/2	5/16	1/8	28	—	3/8	BUB-300-F-T	2,792
5/16-24 Threads - 1/2" Hex Head									
BUH-0320-F	3/8	1/2	5/16	1/16	28	—	3/8	BUB-300-F	2,792
BUH-0320-F-T	3/8	1/2	5/16	1/8	28	—	3/8	BUB-300-F-T	2,792
BUH-0321-F	3/8	1	5/16	1/16	28	—	3/8	BUB-300-F	2,792
BUH-0321-F-T	3/8	1	5/16	1/8	28	—	3/8	BUB-300-F-T	2,792
BUH-0321 X 1.5-F	3/8	1-1/2	5/16	1/16	28	—	3/8	BUB-300-F	2,792
BUH-0321 X 1.5-F-T	3/8	1-1/2	5/16	1/8	28	—	3/8	BUB-300-F-T	2,792
3/8-16 Threads - 5/8" Hex Head									
BUH-0370-F	1/2	1/2	3/8	1/8	40	1/8	1/2	BUB-500-F	3,446
BUH-0370-F-T	1/2	1/2	3/8	1/4	40	1/8	1/2	BUB-500-F-T	3,446
BUH-0375-F	1/2	1	3/8	1/8	40	1/8	1/2	BUB-500-F	3,446
BUH-0375-F-T	1/2	1	3/8	1/4	40	1/8	1/2	BUB-500-F-T	3,446
BUH-0375 X 1.5-F	1/2	1-1/2	3/8	1/8	40	1/8	1/2	BUB-500-F	3,446
BUH-0375 X 1.5-F-T	1/2	1-1/2	3/8	1/4	40	1/8	1/2	BUB-500-F-T	3,446
3/8-24 Threads - 5/8" Hex Head									
BUH-0230-F	1/2	1/2	3/8	1/8	40	1/8	1/2	BUB-500-F	3,446
BUH-0230-F-T	1/2	1/2	3/8	1/4	40	1/8	1/2	BUB-500-F-T	3,446
BUH-0231-F	1/2	1	3/8	1/8	40	1/8	1/2	BUB-500-F	3,446
BUH-0231-F-T	1/2	1	3/8	1/4	40	1/8	1/2	BUB-500-F-T	3,446
BUH-0231 X 1.5-F	1/2	1-1/2	3/8	1/8	40	1/8	1/2	BUB-500-F	3,446
BUH-0231 X 1.5-F-T	1/2	1-1/2	3/8	1/4	40	1/8	1/2	BUB-500-F-T	3,446
1/2-13 Threads - 13/16" Hex Head									
BUH-0510-F	5/8	1	1/2	1/8	40	3/16	5/8	BUB-600-F	5,937
BUH-0510-F-T	5/8	1	1/2	1/4	40	3/16	5/8	BUB-600-F-T	5,937
BUH-0515-F	5/8	1-1/2	1/2	1/8	40	3/16	5/8	BUB-600-F	5,937
BUH-0515-F-T	5/8	1-1/2	1/2	1/4	40	3/16	5/8	BUB-600-F-T	5,937

SWIVOTS® - REPLACEABLE SWIVEL BALL

Hex Head | Tool Steel Ball | Flat | Inch & Metric (continued)



INCH (CONTINUED)

Part #	B Head Height	C Thread Length	D Contact Dia.	E Stand Off	F Degree Swivel	G Int. Hex	Ball Dia.	Ball Only Part #	Load Rating Lbs.
1/2-20 Threads - 13/16" Hex Head									
BUH-0240-F	5/8	1	1/2	1/8	40	3/16	5/8	BUB-600-F	7,178
BUH-0240-F-T	5/8	1	1/2	1/4	40	3/16	5/8	BUB-600-F-T	7,178
BUH-0500-F	5/8	1-1/2	1/2	1/8	40	3/16	5/8	BUB-600-F	7,178
BUH-0500-F-T	5/8	1-1/2	1/2	1/4	40	3/16	5/8	BUB-600-F-T	7,178
5/8-11 Threads - 15/16" Hex Head									
BUH-0625-F	11/16	1	5/8	1/8	34	1/4	3/4	BUB-700-F	9,932
BUH-0625-F-T	11/16	1	5/8	1/4	34	1/4	3/4	BUB-700-F-T	9,932
BUH-0625 X 2-F	11/16	2	5/8	1/8	34	1/4	3/4	BUB-700-F	9,932
BUH-0625 X 2-F-T	11/16	2	5/8	1/4	34	1/4	3/4	BUB-700-F-T	9,932
5/8-18 Threads - 15/16" Hex Head									
BUH-0620-F	11/16	1	5/8	1/8	34	1/4	3/4	BUB-700-F	11,874
BUH-0620-F-T	11/16	1	5/8	1/4	34	1/4	3/4	BUB-700-F-T	11,874
BUH-0620 X 2-F	11/16	2	5/8	1/8	34	1/4	3/4	BUB-700-F	11,874
BUH-0620 X 2-F-T	11/16	2	5/8	1/4	34	1/4	3/4	BUB-700-F-T	11,874

METRIC

Part #	B Head Height	C Thread Length	D Contact Dia.	E Stand Off	F Degree Swivel	G Int. Hex	Ball Dia.	Ball Only Part #	Load Rating Lbs.
M6x1.0 Threads - 10mm Hex Head									
MBUH-06012-F	8	12	6	1.5	28	—	7	MBUB-070-F	2,061
MBUH-06012-F-T	8	12	6	3	28	—	7	MBUB-070-F-T	2,061
MBUH-06025-F	8	25	6	1.5	28	—	7	MBUB-070-F	2,061
MBUH-06025-F-T	8	25	6	3	28	—	7	MBUB-070-F-T	2,061
MBUH-06040-F	8	40	6	1.5	28	—	7	MBUB-070-F	2,061
MBUH-06040-F-T	8	40	6	3	28	—	7	MBUB-070-F-T	2,061
M8x1.25 Threads - 13mm Hex Head									
MBUH-08012-F	11.5	12	8.5	1.5	24	—	10	MBUB-100-F	3,450
MBUH-08012-F-T	11.5	12	8.5	3	24	—	10	MBUB-100-F-T	3,450
MBUH-08025-F	11.5	25	8.5	1.5	24	—	10	MBUB-100-F	3,450
MBUH-08025-F-T	11.5	25	8.5	3	24	—	10	MBUB-100-F-T	3,450
MBUH-08040-F	11.5	40	8.5	1.5	24	—	10	MBUB-100-F	3,450
MBUH-08040-F-T	11.5	40	8.5	3	24	—	10	MBUB-100-F-T	3,450
M10x1.5 Threads - 17mm Hex Head									
MBUH-10015-F	13	15	10	4	42	3	13	MBUB-130-F	4,194
MBUH-10015-F-T	13	15	10	6	42	3	13	MBUB-130-F-T	4,194
MBUH-10030-F	13	30	10	4	42	3	13	MBUB-130-F	4,194
MBUH-10030-F-T	13	30	10	6	42	3	13	MBUB-130-F-T	4,194
MBUH-10050-F	13	50	10	4	42	3	13	MBUB-130-F	4,194
MBUH-10050-F-T	13	50	10	6	42	3	13	MBUB-130-F-T	4,194
M12x1.75 Threads - 19mm Hex Head									
MBUH-12020-F	15	20	12	4	45	5	15	MBUB-150-F	6,627
MBUH-12020-F-T	15	20	12	6	45	5	15	MBUB-150-F-T	6,627
MBUH-12040-F	15	40	12	4	45	5	15	MBUB-150-F	6,627
MBUH-12040-F-T	15	40	12	6	45	5	15	MBUB-150-F-T	6,627
MBUH-12060-F	15	60	12	4	45	5	15	MBUB-150-F	6,627
MBUH-12060-F-T	15	60	12	6	45	5	15	MBUB-150-F-T	6,627
M16x2.0 Threads - 24mm Hex Head									
MBUH-16025-F	19	25	16	4	40	6	20	MBUB-200-F	11,183
MBUH-16025-F-T	19	25	16	6	40	6	20	MBUB-200-F-T	11,183
MBUH-16050-F	19	50	16	4	40	6	20	MBUB-200-F	11,183
MBUH-16050-F-T	19	50	16	6	40	6	20	MBUB-200-F-T	11,183
MBUH-16080-F	19	80	16	4	40	6	20	MBUB-200-F	11,183
MBUH-16080-F-T	19	80	16	6	40	6	20	MBUB-200-F-T	11,183

SWIVOTS® - REPLACEABLE SWIVEL BALL

Threaded Body | Stainless Ball | Sof-Top Urethane Surface | Inch & Metric



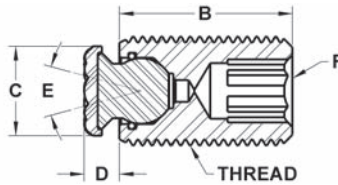
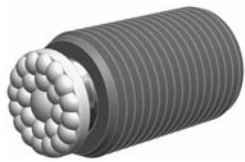
The replaceable ball swivels to allow for better self-alignment on uneven surfaces. A Viton O-ring holds the ball in place while keeping contaminants out and providing smooth ball movement. The housing is made from alloy steel, heat treated to Rc 43/46 with black oxide finish. The urethane surface is permanently bonded to a 300 series stainless steel ball. The non-marking, non-staining urethane provides excellent protection against damage on delicate work surfaces. The "bubbled" texture of the urethane top offers firm holding and allows air to escape so no suction is created between the contact surface and the top of the rest pad as it is compressed. Because the top is made of urethane it offers superior abrasion and wear resistance. They are available in three durometers to meet a wide variety of application needs. Replacement balls and O-rings can be ordered separately. See page 117 for diagram of components.

INCH

Part #	B Thread Length	C Contact Dia.	D Stand Off	E Degree Swivel	F Int. Hex	Ball Dia.	Durometer	Ball Only Part #
3/8-16 Threads								
TBU-0370-FC-35UR	1/2	.315	.143	28	3/16	3/16	35	BUB-187-FC-35UR
TBU-0370-FC-60UR	1/2	.315	.143	28	3/16	3/16	60	BUB-187-FC-60UR
TBU-0370-FC-80UR	1/2	.315	.143	28	3/16	3/16	80	BUB-187-FC-80UR
TBU-0375-FC-35UR	1	.315	.143	28	3/16	3/16	35	BUB-187-FC-35UR
TBU-0375-FC-60UR	1	.315	.143	28	3/16	3/16	60	BUB-187-FC-60UR
TBU-0375-FC-80UR	1	.315	.143	28	3/16	3/16	80	BUB-187-FC-80UR
TBU-0375 X 2-FC-35UR	2	.315	.143	28	3/16	3/16	35	BUB-187-FC-35UR
TBU-0375 X 2-FC-60UR	2	.315	.143	28	3/16	3/16	60	BUB-187-FC-60UR
TBU-0375 X 2-FC-80UR	2	.315	.143	28	3/16	3/16	80	BUB-187-FC-80UR
TBU-0375 X 3-FC-35UR	3	.315	.143	28	3/16	3/16	35	BUB-187-FC-35UR
TBU-0375 X 3-FC-60UR	3	.315	.143	28	3/16	3/16	60	BUB-187-FC-60UR
TBU-0375 X 3-FC-80UR	3	.315	.143	28	3/16	3/16	80	BUB-187-FC-80UR
3/8-24 Threads								
TBU-0230-FC-35UR	1/2	.315	.143	28	3/16	3/16	35	BUB-187-FC-35UR
TBU-0230-FC-60UR	1/2	.315	.143	28	3/16	3/16	60	BUB-187-FC-60UR
TBU-0230-FC-80UR	1/2	.315	.143	28	3/16	3/16	80	BUB-187-FC-80UR
TBU-0231-FC-35UR	1	.315	.143	28	3/16	3/16	35	BUB-187-FC-35UR
TBU-0231-FC-60UR	1	.315	.143	28	3/16	3/16	60	BUB-187-FC-60UR
TBU-0231-FC-80UR	1	.315	.143	28	3/16	3/16	80	BUB-187-FC-80UR
TBU-0231 X 2-FC-35UR	2	.315	.143	28	3/16	3/16	35	BUB-187-FC-35UR
TBU-0231 X 2-FC-60UR	2	.315	.143	28	3/16	3/16	60	BUB-187-FC-60UR
TBU-0231 X 2-FC-80UR	2	.315	.143	28	3/16	3/16	80	BUB-187-FC-80UR
TBU-0231 X 3-FC-35UR	3	.315	.143	28	3/16	3/16	35	BUB-187-FC-35UR
TBU-0231 X 3-FC-60UR	3	.315	.143	28	3/16	3/16	60	BUB-187-FC-60UR
TBU-0231 X 3-FC-80UR	3	.315	.143	28	3/16	3/16	80	BUB-187-FC-80UR
1/2-13 Threads								
TBU-0513-FC-35UR	3/4	.394	.174	28	1/4	9/32	35	BUB-200-FC-35UR
TBU-0513-FC-60UR	3/4	.394	.174	28	1/4	9/32	60	BUB-200-FC-60UR
TBU-0513-FC-80UR	3/4	.394	.174	28	1/4	9/32	80	BUB-200-FC-80UR
TBU-0510-FC-35UR	1	.394	.174	28	1/4	9/32	35	BUB-200-FC-35UR
TBU-0510-FC-60UR	1	.394	.174	28	1/4	9/32	60	BUB-200-FC-60UR
TBU-0510-FC-80UR	1	.394	.174	28	1/4	9/32	80	BUB-200-FC-80UR
TBU-0510 X 2-FC-35UR	2	.394	.174	28	1/4	9/32	35	BUB-200-FC-35UR
TBU-0510 X 2-FC-60UR	2	.394	.174	28	1/4	9/32	60	BUB-200-FC-60UR
TBU-0510 X 2-FC-80UR	2	.394	.174	28	1/4	9/32	80	BUB-200-FC-80UR
TBU-0510 X 3-FC-35UR	3	.394	.174	28	1/4	9/32	35	BUB-200-FC-35UR
TBU-0510 X 3-FC-60UR	3	.394	.174	28	1/4	9/32	60	BUB-200-FC-60UR
TBU-0510 X 3-FC-80UR	3	.394	.174	28	1/4	9/32	80	BUB-200-FC-80UR

SWIVOTS® - REPLACEABLE SWIVEL BALL

Threaded Body | Stainless Ball | Sof-Top Urethane Surface | Inch & Metric (continued)



INCH (CONTINUED)

Part #	B Thread Length	C Contact Dia.	D Stand Off	E Degree Swivel	F Int. Hex	Ball Dia.	Durometer	Ball Only Part #
1/2-20 Threads								
TBU-0503-FC-35UR	3/4	.394	.174	28	1/4	9/32	35	BUB-200-FC-35UR
TBU-0503-FC-60UR	3/4	.394	.174	28	1/4	9/32	60	BUB-200-FC-60UR
TBU-0503-FC-80UR	3/4	.394	.174	28	1/4	9/32	80	BUB-200-FC-80UR
TBU-0500-FC-35UR	1	.394	.174	28	1/4	9/32	35	BUB-200-FC-35UR
TBU-0500-FC-60UR	1	.394	.174	28	1/4	9/32	60	BUB-200-FC-60UR
TBU-0500-FC-80UR	1	.394	.174	28	1/4	9/32	80	BUB-200-FC-80UR
TBU-0500 X 2-FC-35UR	2	.394	.174	28	1/4	9/32	35	BUB-200-FC-35UR
TBU-0500 X 2-FC-60UR	2	.394	.174	28	1/4	9/32	60	BUB-200-FC-60UR
TBU-0500 X 2-FC-80UR	2	.394	.174	28	1/4	9/32	80	BUB-200-FC-80UR
TBU-0500 X 3-FC-35UR	3	.394	.174	28	1/4	9/32	35	BUB-200-FC-35UR
TBU-0500 X 3-FC-60UR	3	.394	.174	28	1/4	9/32	60	BUB-200-FC-60UR
TBU-0500 X 3-FC-80UR	3	.394	.174	28	1/4	9/32	80	BUB-200-FC-80UR
5/8-11 Threads								
TBU-0625-FC-35UR	1	.512	.205	28	5/16	3/8	35	BUB-300-FC-35UR
TBU-0625-FC-60UR	1	.512	.205	28	5/16	3/8	60	BUB-300-FC-60UR
TBU-0625-FC-80UR	1	.512	.205	28	5/16	3/8	80	BUB-300-FC-80UR
TBU-0625 X 2-FC-35UR	2	.512	.205	28	5/16	3/8	35	BUB-300-FC-35UR
TBU-0625 X 2-FC-60UR	2	.512	.205	28	5/16	3/8	60	BUB-300-FC-60UR
TBU-0625 X 2-FC-80UR	2	.512	.205	28	5/16	3/8	80	BUB-300-FC-80UR
TBU-0625 X 3-FC-35UR	3	.512	.205	28	5/16	3/8	35	BUB-300-FC-35UR
TBU-0625 X 3-FC-60UR	3	.512	.205	28	5/16	3/8	60	BUB-300-FC-60UR
TBU-0625 X 3-FC-80UR	3	.512	.205	28	5/16	3/8	80	BUB-300-FC-80UR
5/8-18 Threads								
TBU-0620-FC-35UR	1	.512	.205	28	5/16	3/8	35	BUB-300-FC-35UR
TBU-0620-FC-60UR	1	.512	.205	28	5/16	3/8	60	BUB-300-FC-60UR
TBU-0620-FC-80UR	1	.512	.205	28	5/16	3/8	80	BUB-300-FC-80UR
TBU-0620 X 2-FC-35UR	2	.512	.205	28	5/16	3/8	35	BUB-300-FC-35UR
TBU-0620 X 2-FC-60UR	2	.512	.205	28	5/16	3/8	60	BUB-300-FC-60UR
TBU-0620 X 2-FC-80UR	2	.512	.205	28	5/16	3/8	80	BUB-300-FC-80UR
TBU-0620 X 3-FC-35UR	3	.512	.205	28	5/16	3/8	35	BUB-300-FC-35UR
TBU-0620 X 3-FC-60UR	3	.512	.205	28	5/16	3/8	60	BUB-300-FC-60UR
TBU-0620 X 3-FC-80UR	3	.512	.205	28	5/16	3/8	80	BUB-300-FC-80UR
3/4-10 Threads								
TBU-0755-FC-35UR	1	.630	.205	28	3/8	1/2	35	BUB-500-FC-35UR
TBU-0755-FC-60UR	1	.630	.205	28	3/8	1/2	60	BUB-500-FC-60UR
TBU-0755-FC-80UR	1	.630	.205	28	3/8	1/2	80	BUB-500-FC-80UR
TBU-0755 X 2-FC-35UR	2	.630	.205	28	3/8	1/2	35	BUB-500-FC-35UR
TBU-0755 X 2-FC-60UR	2	.630	.205	28	3/8	1/2	60	BUB-500-FC-60UR
TBU-0755 X 2-FC-80UR	2	.630	.205	28	3/8	1/2	80	BUB-500-FC-80UR
TBU-0755 X 3-FC-35UR	3	.630	.205	28	3/8	1/2	35	BUB-500-FC-35UR
TBU-0755 X 3-FC-60UR	3	.630	.205	28	3/8	1/2	60	BUB-500-FC-60UR
TBU-0755 X 3-FC-80UR	3	.630	.205	28	3/8	1/2	80	BUB-500-FC-80UR
3/4-16 Threads								
TBU-0750-FC-35UR	1	.630	.205	28	3/8	1/2	35	BUB-500-FC-35UR
TBU-0750-FC-60UR	1	.630	.205	28	3/8	1/2	60	BUB-500-FC-60UR
TBU-0750-FC-80UR	1	.630	.205	28	3/8	1/2	80	BUB-500-FC-80UR
TBU-0750 X 2-FC-35UR	2	.630	.205	28	3/8	1/2	35	BUB-500-FC-35UR
TBU-0750 X 2-FC-60UR	2	.630	.205	28	3/8	1/2	60	BUB-500-FC-60UR
TBU-0750 X 2-FC-80UR	2	.630	.205	28	3/8	1/2	80	BUB-500-FC-80UR
TBU-0750 X 3-FC-35UR	3	.630	.205	28	3/8	1/2	35	BUB-500-FC-35UR
TBU-0750 X 3-FC-60UR	3	.630	.205	28	3/8	1/2	60	BUB-500-FC-60UR
TBU-0750 X 3-FC-80UR	3	.630	.205	28	3/8	1/2	80	BUB-500-FC-80UR

SWIVOTS® - REPLACEABLE SWIVEL BALL

Threaded Body | Stainless Ball | Sof-Top Urethane Surface | Inch & Metric (continued)



INCH (CONTINUED)

Part #	B Thread Length	C Contact Dia.	D Stand Off	E Degree Swivel	F Int. Hex	Ball Dia.	Durometer	Ball Only Part #
1"-8 Threads								
TBU-1108-FC-35UR	1	.827	.236	32	3/8	5/8	35	BUB-600-FC-35UR
TBU-1108-FC-60UR	1	.827	.236	32	3/8	5/8	60	BUB-600-FC-60UR
TBU-1108-FC-80UR	1	.827	.236	32	3/8	5/8	80	BUB-600-FC-80UR
TBU-1108 X 2-FC-35UR	2	.827	.236	32	3/8	5/8	35	BUB-600-FC-35UR
TBU-1108 X 2-FC-60UR	2	.827	.236	32	3/8	5/8	60	BUB-600-FC-60UR
TBU-1108 X 2-FC-80UR	2	.827	.236	32	3/8	5/8	80	BUB-600-FC-80UR
TBU-1108 X 3-FC-35UR	3	.827	.236	32	3/8	5/8	35	BUB-600-FC-35UR
TBU-1108 X 3-FC-60UR	3	.827	.236	32	3/8	5/8	60	BUB-600-FC-60UR
TBU-1108 X 3-FC-80UR	3	.827	.236	32	3/8	5/8	80	BUB-600-FC-80UR
1"-14 Threads								
TBU-1114-FC-35UR	1	.906	.236	32	3/8	3/4	35	BUB-700-FC-35UR
TBU-1114-FC-60UR	1	.906	.236	32	3/8	3/4	60	BUB-700-FC-60UR
TBU-1114-FC-80UR	1	.906	.236	32	3/8	3/4	80	BUB-700-FC-80UR
TBU-1114 X 2-FC-35UR	2	.906	.236	32	3/8	3/4	35	BUB-700-FC-35UR
TBU-1114 X 2-FC-60UR	2	.906	.236	32	3/8	3/4	60	BUB-700-FC-60UR
TBU-1114 X 2-FC-80UR	2	.906	.236	32	3/8	3/4	80	BUB-700-FC-80UR
TBU-1114 X 3-FC-35UR	3	.906	.236	32	3/8	3/4	35	BUB-700-FC-35UR
TBU-1114 X 3-FC-60UR	3	.906	.236	32	3/8	3/4	60	BUB-700-FC-60UR
TBU-1114 X 3-FC-80UR	3	.906	.236	32	3/8	3/4	80	BUB-700-FC-80UR

METRIC

Part #	B Thread Length	C Contact Dia.	D Stand Off	E Degree Swivel	F Int. Hex	Ball Dia.	Durometer	Ball Only Part #
M10x1.5 Threads								
MTBU-10025-FC-35UR	25	8	3.5	28	5	5	35	MBUB-050-FC-35UR
MTBU-10025-FC-60UR	25	8	3.5	28	5	5	60	MBUB-050-FC-60UR
MTBU-10025-FC-80UR	25	8	3.5	28	5	5	80	MBUB-050-FC-80UR
MTBU-10035-FC-35UR	35	8	3.5	28	5	5	35	MBUB-050-FC-35UR
MTBU-10035-FC-60UR	35	8	3.5	28	5	5	60	MBUB-050-FC-60UR
MTBU-10035-FC-80UR	35	8	3.5	28	5	5	80	MBUB-050-FC-80UR
MTBU-10050-FC-35UR	50	8	3.5	28	5	5	35	MBUB-050-FC-35UR
MTBU-10050-FC-60UR	50	8	3.5	28	5	5	60	MBUB-050-FC-60UR
MTBU-10050-FC-80UR	50	8	3.5	28	5	5	80	MBUB-050-FC-80UR
M12x1.75 Threads								
MTBU-12025-FC-35UR	25	10	4	28	6	7	35	MBUB-070-FC-35UR
MTBU-12025-FC-60UR	25	10	4	28	6	7	60	MBUB-070-FC-60UR
MTBU-12025-FC-80UR	25	10	4	28	6	7	80	MBUB-070-FC-80UR
MTBU-12035-FC-35UR	35	10	4	28	6	7	35	MBUB-070-FC-35UR
MTBU-12035-FC-60UR	35	10	4	28	6	7	60	MBUB-070-FC-60UR
MTBU-12035-FC-80UR	35	10	4	28	6	7	80	MBUB-070-FC-80UR
MTBU-12050-FC-35UR	50	10	4	28	6	7	35	MBUB-070-FC-35UR
MTBU-12050-FC-60UR	50	10	4	28	6	7	60	MBUB-070-FC-60UR
MTBU-12050-FC-80UR	50	10	4	28	6	7	80	MBUB-070-FC-80UR

SWIVOTS® - REPLACEABLE SWIVEL BALL

Threaded Body | Stainless Ball | Sof-Top Urethane Surface | Inch & Metric (continued)



METRIC (CONTINUED)

Part #	B Thread Length	C Contact Dia.	D Stand Off	E Degree Swivel	F Int. Hex	Ball Dia.	Durometer	Ball Only Part #
M16x2.0 Threads								
MTBU-16025-FC-35UR	25	13	5	28	8	10	35	MBUB-100-FC-35UR
MTBU-16025-FC-60UR	25	13	5	28	8	10	60	MBUB-100-FC-60UR
MTBU-16025-FC-80UR	25	13	5	28	8	10	80	MBUB-100-FC-80UR
MTBU-16035-FC-35UR	35	13	5	28	8	10	35	MBUB-100-FC-35UR
MTBU-16035-FC-60UR	35	13	5	28	8	10	60	MBUB-100-FC-60UR
MTBU-16035-FC-80UR	35	13	5	28	8	10	80	MBUB-100-FC-80UR
MTBU-16050-FC-35UR	50	13	5	28	8	10	35	MBUB-100-FC-35UR
MTBU-16050-FC-60UR	50	13	5	28	8	10	60	MBUB-100-FC-60UR
MTBU-16050-FC-80UR	50	13	5	28	8	10	80	MBUB-100-FC-80UR
M20x2.5 Threads								
MTBU-20030-FC-35UR	30	16	5	28	10	13	35	MBUB-130-FC-35UR
MTBU-20030-FC-60UR	30	16	5	28	10	13	60	MBUB-130-FC-60UR
MTBU-20030-FC-80UR	30	16	5	28	10	13	80	MBUB-130-FC-80UR
MTBU-20050-FC-35UR	50	16	5	28	10	13	35	MBUB-130-FC-35UR
MTBU-20050-FC-60UR	50	16	5	28	10	13	60	MBUB-130-FC-60UR
MTBU-20050-FC-80UR	50	16	5	28	10	13	80	MBUB-130-FC-80UR
MTBU-20070-FC-35UR	70	16	5	28	10	13	35	MBUB-130-FC-35UR
MTBU-20070-FC-60UR	70	16	5	28	10	13	60	MBUB-130-FC-60UR
MTBU-20070-FC-80UR	70	16	5	28	10	13	80	MBUB-130-FC-80UR
M24x3.0 Threads								
MTBU-24040-FC-35UR	40	21	6	24	10	15	35	MBUB-150-FC-35UR
MTBU-24040-FC-60UR	40	21	6	24	10	15	60	MBUB-150-FC-60UR
MTBU-24040-FC-80UR	40	21	6	24	10	15	80	MBUB-150-FC-80UR
MTBU-24080-FC-35UR	80	21	6	24	10	15	35	MBUB-150-FC-35UR
MTBU-24080-FC-60UR	80	21	6	24	10	15	60	MBUB-150-FC-60UR
MTBU-24080-FC-80UR	80	21	6	24	10	15	80	MBUB-150-FC-80UR

SWIVOTS® - REPLACEABLE SWIVEL BALL

Threaded Body | Delrin Ball | Flat Cone | Inch & Metric



The replaceable ball swivels to allow for self-alignment on uneven surfaces. The flat cone design provides a large contact surface for greater force distribution. The replaceable ball is made from non-marring white delrin. A Viton O-ring holds the ball in place while keeping contaminants out and providing smooth ball movement. The housing is made from alloy steel, heat treated to Rc 43/46 with black oxide finish. Replacement balls and O-rings can be ordered separately. See page 117 for diagram of components.

INCH

Part #	B Thread Length	C Contact Dia.	D Stand Off	E Degree Swivel	F Int. Hex	Ball Dia.	Ball Only Part #
3/8-16 Threads							
TBU-0370-DC	1/2	.236	.063	28	3/16	3/16	BUB-187-DC
TBU-0375-DC	1	.236	.063	28	3/16	3/16	BUB-187-DC
TBU-0375 X 2-DC	2	.236	.063	28	3/16	3/16	BUB-187-DC
TBU-0375 X 3-DC	3	.236	.063	28	3/16	3/16	BUB-187-DC
3/8-24 Threads							
TBU-0230-DC	1/2	.236	.063	28	3/16	3/16	BUB-187-DC
TBU-0231-DC	1	.236	.063	28	3/16	3/16	BUB-187-DC
TBU-0231 X 2-DC	2	.236	.063	28	3/16	3/16	BUB-187-DC
TBU-0231 X 3-DC	3	.236	.063	28	3/16	3/16	BUB-187-DC
1/2-13 Threads							
TBU-0513-DC	3/4	.315	.094	28	1/4	9/32	BUB-200-DC
TBU-0510-DC	1	.315	.094	28	1/4	9/32	BUB-200-DC
TBU-0510 X 2-DC	2	.315	.094	28	1/4	9/32	BUB-200-DC
TBU-0510 X 3-DC	3	.315	.094	28	1/4	9/32	BUB-200-DC
1/2-20 Threads							
TBU-0503-DC	3/4	.315	.094	28	1/4	9/32	BUB-200-DC
TBU-0500-DC	1	.315	.094	28	1/4	9/32	BUB-200-DC
TBU-0500 X 2-DC	2	.315	.094	28	1/4	9/32	BUB-200-DC
TBU-0500 X 3-DC	3	.315	.094	28	1/4	9/32	BUB-200-DC
5/8-11 Threads							
TBU-0625-DC	1	.433	.125	28	5/16	3/8	BUB-300-DC
TBU-0625 X 2-DC	2	.433	.125	28	5/16	3/8	BUB-300-DC
TBU-0625 X 3-DC	3	.433	.125	28	5/16	3/8	BUB-300-DC
5/8-18 Threads							
TBU-0620-DC	1	.433	.125	28	5/16	3/8	BUB-300-DC
TBU-0620 X 2-DC	2	.433	.125	28	5/16	3/8	BUB-300-DC
TBU-0620 X 3-DC	3	.433	.125	28	5/16	3/8	BUB-300-DC
3/4-10 Threads							
TBU-0755-DC	1	.551	.125	28	3/8	1/2	BUB-500-DC
TBU-0755 X 2-DC	2	.551	.125	28	3/8	1/2	BUB-500-DC
TBU-0755 X 3-DC	3	.551	.125	28	3/8	1/2	BUB-500-DC
3/4-16 Threads							
TBU-0750-DC	1	.551	.125	28	3/8	1/2	BUB-500-DC
TBU-0750 X 2-DC	2	.551	.125	28	3/8	1/2	BUB-500-DC
TBU-0750 X 3-DC	3	.551	.125	28	3/8	1/2	BUB-500-DC
1"-8 Threads							
TBU-1108-DC	1	.748	.156	32	3/8	5/8	BUB-600-DC
TBU-1108 X 2-DC	2	.748	.156	32	3/8	5/8	BUB-600-DC
TBU-1108 X 3-DC	3	.748	.156	32	3/8	5/8	BUB-600-DC
1"-14 Threads							
TBU-1114-DC	1	.827	.156	32	3/8	3/4	BUB-700-DC
TBU-1114 X 2-DC	2	.827	.156	32	3/8	3/4	BUB-700-DC
TBU-1114 X 3-DC	3	.827	.156	32	3/8	3/4	BUB-700-DC

SWIVOTS® - REPLACEABLE SWIVEL BALL

Threaded Body | Delrin Ball | Flat Cone | Inch & Metric (continued)



METRIC

Part #	B Thread Length	C Contact Dia.	D Stand Off	E Degree Swivel	F Int. Hex	Ball Dia.	Ball Only Part #
M10x1.5 Threads							
MTBU-10025-DC	25	6	1.5	28	5	5	MBUB-050-DC
MTBU-10035-DC	35	6	1.5	28	5	5	MBUB-050-DC
MTBU-10050-DC	50	6	1.5	28	5	5	MBUB-050-DC
M12x1.75 Threads							
MTBU-12025-DC	25	8	2	28	6	7	MBUB-070-DC
MTBU-12035-DC	35	8	2	28	6	7	MBUB-070-DC
MTBU-12050-DC	50	8	2	28	6	7	MBUB-070-DC
M16x2.0 Threads							
MTBU-16025-DC	25	11	3	28	8	10	MBUB-100-DC
MTBU-16035-DC	35	11	3	28	8	10	MBUB-100-DC
MTBU-16050-DC	50	11	3	28	8	10	MBUB-100-DC
M20x2.5 Threads							
MTBU-20030-DC	30	14	3	28	10	13	MBUB-130-DC
MTBU-20050-DC	50	14	3	28	10	13	MBUB-130-DC
MTBU-20070-DC	70	14	3	28	10	13	MBUB-130-DC
M24x3.0 Threads							
MTBU-24040-DC	40	19	4	24	10	15	MBUB-150-DC
MTBU-24080-DC	80	19	4	24	10	15	MBUB-150-DC

SWIVOTS® - REPLACEABLE SWIVEL BALL

Threaded Body | Stainless Ball | Flat Cone | Inch & Metric



The replaceable ball swivels to allow for self-alignment on uneven surfaces. The flat cone design provides a large contact surface for greater force distribution. A Viton O-ring holds the ball in place while keeping contaminants out and providing smooth ball movement. The housing is made from alloy steel, heat treated to Rc 43/46 with black oxide finish. The replaceable ball is made from 300 series stainless steel. Replacement balls and O-rings can be ordered separately. See page 117 for diagram of components.

INCH

Part #	B Thread Length	C Contact Dia.	D Stand Off	E Degree Swivel	F Int. Hex	Ball Dia.	Ball Only Part #	Load Rating Lbs.
3/8-16 Threads								
TBU-0370-FC	1/2	.236	.063	28	3/16	3/16	BUB-187-FC	1,763
TBU-0375-FC	1	.236	.063	28	3/16	3/16	BUB-187-FC	1,763
TBU-0375 X 2-FC	2	.236	.063	28	3/16	3/16	BUB-187-FC	1,763
TBU-0375 X 3-FC	3	.236	.063	28	3/16	3/16	BUB-187-FC	1,763
3/8-24 Threads								
TBU-0230-FC	1/2	.236	.063	28	3/16	3/16	BUB-187-FC	1,763
TBU-0231-FC	1	.236	.063	28	3/16	3/16	BUB-187-FC	1,763
TBU-0231 X 2-FC	2	.236	.063	28	3/16	3/16	BUB-187-FC	1,763
TBU-0231 X 3-FC	3	.236	.063	28	3/16	3/16	BUB-187-FC	1,763
1/2-13 Threads								
TBU-0513-FC	3/4	.315	.094	28	1/4	9/32	BUB-200-FC	4,527
TBU-0510-FC	1	.315	.094	28	1/4	9/32	BUB-200-FC	4,527
TBU-0510 X 2-FC	2	.315	.094	28	1/4	9/32	BUB-200-FC	4,527
TBU-0510 X 3-FC	3	.315	.094	28	1/4	9/32	BUB-200-FC	4,527
1/2-20 Threads								
TBU-0503-FC	3/4	.315	.094	28	1/4	9/32	BUB-200-FC	4,527
TBU-0500-FC	1	.315	.094	28	1/4	9/32	BUB-200-FC	4,527
TBU-0500 X 2-FC	2	.315	.094	28	1/4	9/32	BUB-200-FC	4,527
TBU-0500 X 3-FC	3	.315	.094	28	1/4	9/32	BUB-200-FC	4,527
5/8-11 Threads								
TBU-0625-FC	1	.433	.125	28	5/16	3/8	BUB-300-FC	6,131
TBU-0625 X 2-FC	2	.433	.125	28	5/16	3/8	BUB-300-FC	6,131
TBU-0625 X 3-FC	3	.433	.125	28	5/16	3/8	BUB-300-FC	6,131
5/8-18 Threads								
TBU-0620-FC	1	.433	.125	28	5/16	3/8	BUB-300-FC	6,131
TBU-0620 X 2-FC	2	.433	.125	28	5/16	3/8	BUB-300-FC	6,131
TBU-0620 X 3-FC	3	.433	.125	28	5/16	3/8	BUB-300-FC	6,131
3/4-10 Threads								
TBU-0755-FC	1	.551	.125	28	3/8	1/2	BUB-500-FC	8,150
TBU-0755 X 2-FC	2	.551	.125	28	3/8	1/2	BUB-500-FC	8,150
TBU-0755 X 3-FC	3	.551	.125	28	3/8	1/2	BUB-500-FC	8,150
3/4-16 Threads								
TBU-0750-FC	1	.551	.125	28	3/8	1/2	BUB-500-FC	8,150
TBU-0750 X 2-FC	2	.551	.125	28	3/8	1/2	BUB-500-FC	8,150
TBU-0750 X 3-FC	3	.551	.125	28	3/8	1/2	BUB-500-FC	8,150
1"-8 Threads								
TBU-1108-FC	1	.748	.156	32	3/8	5/8	BUB-600-FC	14,757
TBU-1108 X 2-FC	2	.748	.156	32	3/8	5/8	BUB-600-FC	14,757
TBU-1108 X 3-FC	3	.748	.156	32	3/8	5/8	BUB-600-FC	14,757
1"-14 Threads								
TBU-1114-FC	1	.827	.156	32	3/8	3/4	BUB-700-FC	17,210
TBU-1114 X 2-FC	2	.827	.156	32	3/8	3/4	BUB-700-FC	17,210
TBU-1114 X 3-FC	3	.827	.156	32	3/8	3/4	BUB-700-FC	17,210

SWIVOTS® - REPLACEABLE SWIVEL BALL

Threaded Body | Stainless Ball | Flat Cone | Inch & Metric (continued)

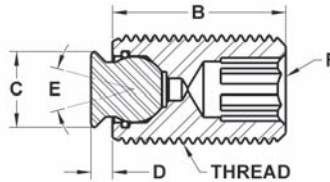


METRIC

Part #	B Thread Length	C Contact Dia.	D Stand Off	E Degree Swivel	F Int. Hex	Ball Dia.	Ball Only Part #	Load Rating Lbs.
M10x1.5 Threads								
MTBU-10025-FC	25	6	1.5	28	5	5	MBUB-050-FC	—
MTBU-10035-FC	35	6	1.5	28	5	5	MBUB-050-FC	—
MTBU-10050-FC	50	6	1.5	28	5	5	MBUB-050-FC	—
M12x1.75 Threads								
MTBU-12025-FC	25	8	2	28	6	7	MBUB-070-FC	3,440
MTBU-12035-FC	35	8	2	28	6	7	MBUB-070-FC	3,440
MTBU-12050-FC	50	8	2	28	6	7	MBUB-070-FC	3,440
M16x2.0 Threads								
MTBU-16025-FC	25	11	3	28	8	10	MBUB-100-FC	5,190
MTBU-16035-FC	35	11	3	28	8	10	MBUB-100-FC	5,190
MTBU-16050-FC	50	11	3	28	8	10	MBUB-100-FC	5,190
M20x2.5 Threads								
MTBU-20030-FC	30	14	3	28	10	13	MBUB-130-FC	8,379
MTBU-20050-FC	50	14	3	28	10	13	MBUB-130-FC	8,379
MTBU-20070-FC	70	14	3	28	10	13	MBUB-130-FC	8,379
M24x3.0 Threads								
MTBU-24040-FC	40	19	4	24	10	15	MBUB-150-FC	12,233
MTBU-24080-FC	80	19	4	24	10	15	MBUB-150-FC	12,233

SWIVOTS® - REPLACEABLE SWIVEL BALL

Threaded Body | Stainless Ball | Abrasive Diamond Surface | Inch & Metric



The replaceable ball swivels to allow for self-alignment on uneven surfaces. A Viton O-ring holds the ball in place while keeping contaminants out and providing smooth ball movement. The housing is made from alloy steel, heat treated to Rc 43/46 with black oxide finish. The abrasive surface is permanently fused to a 300 series stainless steel pad. The surface texture is comparable to a 100 grit abrasive. They are ideal for holding smooth or slippery applications with a minimum of clamping pressure. Individual diamond particles transfer holding pressure to a very small and well distributed area, providing superior holding with minimal surface marking. The diamond surface provides unparalleled wear resistance. Replacement balls and O-rings can be ordered separately. See page 117 for diagram of components.

INCH

Part #	B Thread Length	C Contact Dia.	D Stand Off	E Degree Swivel	F Int. Hex	Ball Dia.	Ball Only Part #	Load Rating Lbs.
3/8-16 Threads								
TBU-0370-FC-DS	1/2	.236	.063	28	3/16	3/16	BUB-187-FC-DS	1,763
TBU-0375-FC-DS	1	.236	.063	28	3/16	3/16	BUB-187-FC-DS	1,763
TBU-0375 X 2-FC-DS	2	.236	.063	28	3/16	3/16	BUB-187-FC-DS	1,763
TBU-0375 X 3-FC-DS	3	.236	.063	28	3/16	3/16	BUB-187-FC-DS	1,763
3/8-24 Threads								
TBU-0230-FC-DS	1/2	.236	.063	28	3/16	3/16	BUB-187-FC-DS	1,763
TBU-0231-FC-DS	1	.236	.063	28	3/16	3/16	BUB-187-FC-DS	1,763
TBU-0231 X 2-FC-DS	2	.236	.063	28	3/16	3/16	BUB-187-FC-DS	1,763
TBU-0231 X 3-FC-DS	3	.236	.063	28	3/16	3/16	BUB-187-FC-DS	1,763
1/2-13 Threads								
TBU-0513-FC-DS	3/4	.315	.094	28	1/4	9/32	BUB-200-FC-DS	4,527
TBU-0510-FC-DS	1	.315	.094	28	1/4	9/32	BUB-200-FC-DS	4,527
TBU-0510 X 2-FC-DS	2	.315	.094	28	1/4	9/32	BUB-200-FC-DS	4,527
TBU-0510 X 3-FC-DS	3	.315	.094	28	1/4	9/32	BUB-200-FC-DS	4,527
1/2-20 Threads								
TBU-0503-FC-DS	3/4	.315	.094	28	1/4	9/32	BUB-200-FC-DS	4,527
TBU-0500-FC-DS	1	.315	.094	28	1/4	9/32	BUB-200-FC-DS	4,527
TBU-0500 X 2-FC-DS	2	.315	.094	28	1/4	9/32	BUB-200-FC-DS	4,527
TBU-0500 X 3-FC-DS	3	.315	.094	28	1/4	9/32	BUB-200-FC-DS	4,527
5/8-11 Threads								
TBU-0625-FC-DS	1	.433	.125	28	5/16	3/8	BUB-300-FC-DS	6,131
TBU-0625 X 2-FC-DS	2	.433	.125	28	5/16	3/8	BUB-300-FC-DS	6,131
TBU-0625 X 3-FC-DS	3	.433	.125	28	5/16	3/8	BUB-300-FC-DS	6,131
5/8-18 Threads								
TBU-0620-FC-DS	1	.433	.125	28	5/16	3/8	BUB-300-FC-DS	6,131
TBU-0620 X 2-FC-DS	2	.433	.125	28	5/16	3/8	BUB-300-FC-DS	6,131
TBU-0620 X 3-FC-DS	3	.433	.125	28	5/16	3/8	BUB-300-FC-DS	6,131
3/4-10 Threads								
TBU-0755-FC-DS	1	.551	.125	28	3/8	1/2	BUB-500-FC-DS	8,150
TBU-0755 X 2-FC-DS	2	.551	.125	28	3/8	1/2	BUB-500-FC-DS	8,150
TBU-0755 X 3-FC-DS	3	.551	.125	28	3/8	1/2	BUB-500-FC-DS	8,150
3/4-16 Threads								
TBU-0750-FC-DS	1	.551	.125	28	3/8	1/2	BUB-500-FC-DS	8,150
TBU-0750 X 2-FC-DS	2	.551	.125	28	3/8	1/2	BUB-500-FC-DS	8,150
TBU-0750 X 3-FC-DS	3	.551	.125	28	3/8	1/2	BUB-500-FC-DS	8,150
1"-8 Threads								
TBU-1108-FC-DS	1	.748	.156	32	3/8	5/8	BUB-600-FC-DS	14,757
TBU-1108 X 2-FC-DS	2	.748	.156	32	3/8	5/8	BUB-600-FC-DS	14,757
TBU-1108 X 3-FC-DS	3	.748	.156	32	3/8	5/8	BUB-600-FC-DS	14,757
1"-14 Threads								
TBU-1114-FC-DS	1	.827	.156	32	3/8	3/4	BUB-700-FC-DS	17,210
TBU-1114 X 2-FC-DS	2	.827	.156	32	3/8	3/4	BUB-700-FC-DS	17,210
TBU-1114 X 3-FC-DS	3	.827	.156	32	3/8	3/4	BUB-700-FC-DS	17,210

SWIVOTS® - REPLACEABLE SWIVEL BALL

Threaded Body | Stainless Ball | Abrasive Diamond Surface | Inch & Metric (continued)

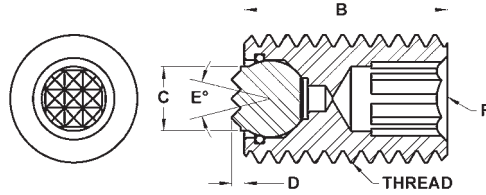


METRIC

Part #	B Thread Length	C Contact Dia.	D Stand Off	E Degree Swivel	F Int. Hex	Ball Dia.	Ball Only Part #	Load Rating Lbs.
M10x1.5 Threads								
MTBU-10025-FC-DS	25	6	1.5	28	5	5	MBUB-050-FC-DS	—
MTBU-10035-FC-DS	35	6	1.5	28	5	5	MBUB-050-FC-DS	—
MTBU-10050-FC-DS	50	6	1.5	28	5	5	MBUB-050-FC-DS	—
M12x1.75 Threads								
MTBU-12025-FC-DS	25	8	2	28	6	7	MBUB-070-FC-DS	3,440
MTBU-12035-FC-DS	35	8	2	28	6	7	MBUB-070-FC-DS	3,440
MTBU-12050-FC-DS	50	8	2	28	6	7	MBUB-070-FC-DS	3,440
M16x2.0 Threads								
MTBU-16025-FC-DS	25	11	3	28	8	10	MBUB-100-FC-DS	5,190
MTBU-16035-FC-DS	35	11	3	28	8	10	MBUB-100-FC-DS	5,190
MTBU-16050-FC-DS	50	11	3	28	8	10	MBUB-100-FC-DS	5,190
M20x2.5 Threads								
MTBU-20030-FC-DS	30	14	3	28	10	13	MBUB-130-FC-DS	8,379
MTBU-20050-FC-DS	50	14	3	28	10	13	MBUB-130-FC-DS	8,379
MTBU-20070-FC-DS	70	14	3	28	10	13	MBUB-130-FC-DS	8,379
M24x3.0 Threads								
MTBU-24040-FC-DS	40	19	4	24	10	15	MBUB-150-FC-DS	12,233
MTBU-24080-FC-DS	80	19	4	24	10	15	MBUB-150-FC-DS	12,233

SWIVOTS® - REPLACEABLE SWIVEL BALL

Threaded Body | Tool Steel Ball | Serrated | Inch & Metric



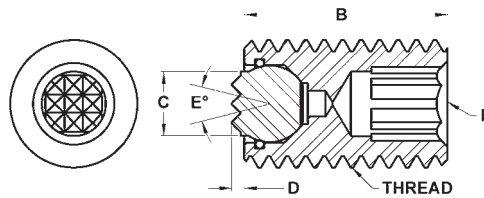
The replaceable serrated ball swivels to allow for self-alignment on uneven surfaces. A Viton O-ring holds the ball in place while keeping contaminants out and providing smooth ball movement. The housing is made from alloy steel, heat treated to Rc 43/46 with black oxide finish. The replaceable ball is made from M-2 high speed steel heat treated to Rc 60/62. Replacement balls and O-rings can be ordered separately. See page 117 for diagram of components. See page 90 for tooth pattern specifications.

INCH

Part #	B Thread Length	C Contact Dia.	D Stand Off	E Degree Swivel	F Hex	Ball Dia.	Ball Only Part #	Tooth Pattern	Load Rating Lbs.
3/8-16 Threads									
TBU-0370-S	1/2	5/32	1/16	28	3/16	3/16	BUB-187-S	SF	1,763
TBU-0375-S	1	5/32	1/16	28	3/16	3/16	BUB-187-S	SF	1,763
TBU-0375 X 2-S	2	5/32	1/16	28	3/16	3/16	BUB-187-S	SF	1,763
TBU-0375 X 3-S	3	5/32	1/16	28	3/16	3/16	BUB-187-S	SF	1,763
3/8-24 Threads									
TBU-0230-S	1/2	5/32	1/16	28	3/16	3/16	BUB-187-S	SF	1,763
TBU-0231-S	1	5/32	1/16	28	3/16	3/16	BUB-187-S	SF	1,763
TBU-0231 X 2-S	2	5/32	1/16	28	3/16	3/16	BUB-187-S	SF	1,763
TBU-0231 X 3-S	3	5/32	1/16	28	3/16	3/16	BUB-187-S	SF	1,763
1/2-13 Threads									
TBU-0513-S	3/4	1/4	1/16	28	1/4	9/32	BUB-200-S	SF	4,527
TBU-0513-S-T	3/4	1/4	1/8	28	1/4	9/32	BUB-200-S-T	SF	4,527
TBU-0510-S	1	1/4	1/16	28	1/4	9/32	BUB-200-S	SF	4,527
TBU-0510-S-T	1	1/4	1/8	28	1/4	9/32	BUB-200-S-T	SF	4,527
TBU-0510 X 2-S	2	1/4	1/16	28	1/4	9/32	BUB-200-S	SF	4,527
TBU-0510 X 2-S-T	2	1/4	1/8	28	1/4	9/32	BUB-200-S-T	SF	4,527
TBU-0510 X 3-S	3	1/4	1/16	28	1/4	9/32	BUB-200-S	SF	4,527
TBU-0510 X 3-S-T	3	1/4	1/8	28	1/4	9/32	BUB-200-S-T	SF	4,527
1/2-20 Threads									
TBU-0503-S	3/4	1/4	1/16	28	1/4	9/32	BUB-200-S	SF	4,527
TBU-0503-S-T	3/4	1/4	1/8	28	1/4	9/32	BUB-200-S-T	SF	4,527
TBU-0500-S	1	1/4	1/16	28	1/4	9/32	BUB-200-S	SF	4,527
TBU-0500-S-T	1	1/4	1/8	28	1/4	9/32	BUB-200-S-T	SF	4,527
TBU-0500 X 2-S	2	1/4	1/16	28	1/4	9/32	BUB-200-S	SF	4,527
TBU-0500 X 2-S-T	2	1/4	1/8	28	1/4	9/32	BUB-200-S-T	SF	4,527
TBU-0500 X 3-S	3	1/4	1/16	28	1/4	9/32	BUB-200-S	SF	4,527
TBU-0500 X 3-S-T	3	1/4	1/8	28	1/4	9/32	BUB-200-S-T	SF	4,527
5/8-11 Threads									
TBU-0625-S	1	5/16	1/16	28	5/16	3/8	BUB-300-S	EF	6,131
TBU-0625-S-T	1	5/16	1/8	28	5/16	3/8	BUB-300-S-T	EF	6,131
TBU-0625-SF	1	5/16	1/16	28	5/16	3/8	BUB-300-SF	SF	6,131
TBU-0625-SF-T	1	5/16	1/8	28	5/16	3/8	BUB-300-SF-T	SF	6,131
TBU-0625 X 2-S	2	5/16	1/16	28	5/16	3/8	BUB-300-S	EF	6,131
TBU-0625 X 2-S-T	2	5/16	1/8	28	5/16	3/8	BUB-300-S-T	EF	6,131
TBU-0625 X 2-SF	2	5/16	1/16	28	5/16	3/8	BUB-300-SF	SF	6,131
TBU-0625 X 2-SF-T	2	5/16	1/8	28	5/16	3/8	BUB-300-SF-T	SF	6,131
TBU-0625 X 3-S	3	5/16	1/16	28	5/16	3/8	BUB-300-S	EF	6,131
TBU-0625 X 3-S-T	3	5/16	1/8	28	5/16	3/8	BUB-300-S-T	EF	6,131
TBU-0625 X 3-SF	3	5/16	1/16	28	5/16	3/8	BUB-300-SF	SF	6,131
TBU-0625 X 3-SF-T	3	5/16	1/8	28	5/16	3/8	BUB-300-SF-T	SF	6,131

SWIVOTS® - REPLACEABLE SWIVEL BALL

Threaded Body | Tool Steel Ball | Serrated | Inch & Metric (continued)

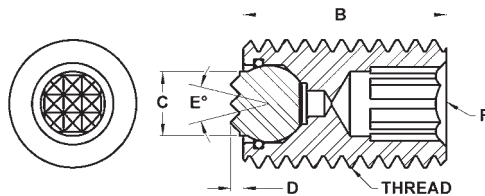


INCH (CONTINUED)

Part #	B Thread Length	C Contact Dia.	D Stand Off	E Degree Swivel	F Hex	Ball Dia.	Ball Only Part #	Tooth Pattern	Load Rating Lbs.
5/8-18 Threads									
TBU-0620-S	1	5/16	1/16	28	5/16	3/8	BUB-300-S	EF	6,131
TBU-0620-S-T	1	5/16	1/8	28	5/16	3/8	BUB-300-S-T	EF	6,131
TBU-0620-SF	1	5/16	1/16	28	5/16	3/8	BUB-300-SF	SF	6,131
TBU-0620-SF-T	1	5/16	1/8	28	5/16	3/8	BUB-300-SF-T	SF	6,131
TBU-0620 X 2-S	2	5/16	1/16	28	5/16	3/8	BUB-300-S	EF	6,131
TBU-0620 X 2-S-T	2	5/16	1/8	28	5/16	3/8	BUB-300-S-T	EF	6,131
TBU-0620 X 2-SF	2	5/16	1/16	28	5/16	3/8	BUB-300-SF	SF	6,131
TBU-0620 X 2-SF-T	2	5/16	1/8	28	5/16	3/8	BUB-300-SF-T	SF	6,131
TBU-0620 X 3-S	3	5/16	1/16	28	5/16	3/8	BUB-300-S	EF	6,131
TBU-0620 X 3-S-T	3	5/16	1/8	28	5/16	3/8	BUB-300-S-T	EF	6,131
TBU-0620 X 3-SF	3	5/16	1/16	28	5/16	3/8	BUB-300-SF	SF	6,131
TBU-0620 X 3-SF-T	3	5/16	1/8	28	5/16	3/8	BUB-300-SF-T	SF	6,131
3/4-10 Threads									
TBU-0755-S	1	3/8	1/8	40	3/8	1/2	BUB-500-S	EF	8,150
TBU-0755-S-T	1	3/8	1/4	40	3/8	1/2	BUB-500-S-T	EF	8,150
TBU-0755-SF	1	3/8	1/8	40	3/8	1/2	BUB-500-SF	SF	8,150
TBU-0755-SF-T	1	3/8	1/4	40	3/8	1/2	BUB-500-SF-T	SF	8,150
TBU-0755 X 2-S	2	3/8	1/8	40	3/8	1/2	BUB-500-S	EF	8,150
TBU-0755 X 2-S-T	2	3/8	1/4	40	3/8	1/2	BUB-500-S-T	EF	8,150
TBU-0755 X 2-SF	2	3/8	1/8	40	3/8	1/2	BUB-500-SF	SF	8,150
TBU-0755 X 2-SF-T	2	3/8	1/4	40	3/8	1/2	BUB-500-SF-T	SF	8,150
TBU-0755 X 3-S	3	3/8	1/8	40	3/8	1/2	BUB-500-S	EF	8,150
TBU-0755 X 3-S-T	3	3/8	1/4	40	3/8	1/2	BUB-500-S-T	EF	8,150
TBU-0755 X 3-SF	3	3/8	1/8	40	3/8	1/2	BUB-500-SF	SF	8,150
TBU-0755 X 3-SF-T	3	3/8	1/4	40	3/8	1/2	BUB-500-SF-T	SF	8,150
3/4-16 Threads									
TBU-0750-S	1	3/8	1/8	40	3/8	1/2	BUB-500-S	EF	8,150
TBU-0750-S-T	1	3/8	1/4	40	3/8	1/2	BUB-500-S-T	EF	8,150
TBU-0750-SF	1	3/8	1/8	40	3/8	1/2	BUB-500-SF	SF	8,150
TBU-0750-SF-T	1	3/8	1/4	40	3/8	1/2	BUB-500-SF-T	SF	8,150
TBU-0750 X 2-S	2	3/8	1/8	40	3/8	1/2	BUB-500-S	EF	8,150
TBU-0750 X 2-S-T	2	3/8	1/4	40	3/8	1/2	BUB-500-S-T	EF	8,150
TBU-0750 X 2-SF	2	3/8	1/8	40	3/8	1/2	BUB-500-SF	SF	8,150
TBU-0750 X 2-SF-T	2	3/8	1/4	40	3/8	1/2	BUB-500-SF-T	SF	8,150
TBU-0750 X 3-S	3	3/8	1/8	40	3/8	1/2	BUB-500-S	EF	8,150
TBU-0750 X 3-S-T	3	3/8	1/4	40	3/8	1/2	BUB-500-S-T	EF	8,150
TBU-0750 X 3-SF	3	3/8	1/8	40	3/8	1/2	BUB-500-SF	SF	8,150
TBU-0750 X 3-SF-T	3	3/8	1/4	40	3/8	1/2	BUB-500-SF-T	SF	8,150
1"-8 Threads									
TBU-1108-S	1	1/2	1/8	40	3/8	5/8	BUB-600-S	Fine	14,757
TBU-1108-S-T	1	1/2	1/4	40	3/8	5/8	BUB-600-S-T	Fine	14,757
TBU-1108-EF	1	1/2	1/8	40	3/8	5/8	BUB-600-EF	EF	14,757
TBU-1108-EF-T	1	1/2	1/4	40	3/8	5/8	BUB-600-EF-T	EF	14,757
TBU-1108-SF	1	1/2	1/8	40	3/8	5/8	BUB-600-SF	SF	14,757
TBU-1108-SF-T	1	1/2	1/4	40	3/8	5/8	BUB-600-SF-T	SF	14,757
TBU-1108 X 2-S	2	1/2	1/8	40	3/8	5/8	BUB-600-S	Fine	14,757
TBU-1108 X 2-S-T	2	1/2	1/4	40	3/8	5/8	BUB-600-S-T	Fine	14,757
TBU-1108 X 2-EF	2	1/2	1/8	40	3/8	5/8	BUB-600-EF	EF	14,757
TBU-1108 X 2-EF-T	2	1/2	1/4	40	3/8	5/8	BUB-600-EF-T	EF	14,757
TBU-1108 X 2-SF	2	1/2	1/8	40	3/8	5/8	BUB-600-SF	SF	14,757
TBU-1108 X 2-SF-T	2	1/2	1/4	40	3/8	5/8	BUB-600-SF-T	SF	14,757
TBU-1108 X 3-S	3	1/2	1/8	40	3/8	5/8	BUB-600-S	Fine	14,757
TBU-1108 X 3-S-T	3	1/2	1/4	40	3/8	5/8	BUB-600-S-T	Fine	14,757
TBU-1108 X 3-EF	3	1/2	1/8	40	3/8	5/8	BUB-600-EF	EF	14,757
TBU-1108 X 3-EF-T	3	1/2	1/4	40	3/8	5/8	BUB-600-EF-T	EF	14,757
TBU-1108 X 3-SF	3	1/2	1/8	40	3/8	5/8	BUB-600-SF	SF	14,757
TBU-1108 X 3-SF-T	3	1/2	1/4	40	3/8	5/8	BUB-600-SF-T	SF	14,757

SWIVOTS® - REPLACEABLE SWIVEL BALL

Threaded Body | Tool Steel Ball | Serrated | Inch & Metric (continued)



INCH (CONTINUED)

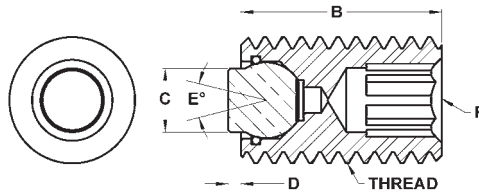
Part #	B Thread Length	C Contact Dia.	D Stand Off	E Degree Swivel	F Hex	Ball Dia.	Ball Only Part #	Tooth Pattern	Load Rating Lbs.
1"-14 Threads									
TBU-1114-S	1	5/8	1/8	34	3/8	3/4	BUB-700-S	Fine	14,757
TBU-1114-S-T	1	5/8	1/4	34	3/8	3/4	BUB-700-S-T	Fine	14,757
TBU-1114-EF	1	5/8	1/8	34	3/8	3/4	BUB-700-EF	EF	14,757
TBU-1114-EF-T	1	5/8	1/4	34	3/8	3/4	BUB-700-EF-T	EF	14,757
TBU-1114 X 2-S	2	5/8	1/8	34	3/8	3/4	BUB-700-S	Fine	14,757
TBU-1114 X 2-S-T	2	5/8	1/4	34	3/8	3/4	BUB-700-S-T	Fine	14,757
TBU-1114 X 2-EF	2	5/8	1/8	34	3/8	3/4	BUB-700-EF	EF	14,757
TBU-1114 X 2-EF-T	2	5/8	1/4	34	3/8	3/4	BUB-700-EF-T	EF	14,757
TBU-1114 X 3-S	3	5/8	1/8	34	3/8	3/4	BUB-700-S	Fine	14,757
TBU-1114 X 3-S-T	3	5/8	1/4	34	3/8	3/4	BUB-700-S-T	Fine	14,757
TBU-1114 X 3-EF	3	5/8	1/8	34	3/8	3/4	BUB-700-EF	EF	14,757
TBU-1114 X 3-EF-T	3	5/8	1/4	34	3/8	3/4	BUB-700-EF-T	EF	14,757

METRIC

Part #	B Thread Length	C Contact Dia.	D Stand Off	E Degree Swivel	F Hex	Ball Dia.	Ball Only Part #	Tooth Pattern	Load Rating Lbs.
M10x1.50 Threads									
MTBU-10025-S	25	4	1.5	30	5	5	MBUB-050-S	SF	—
MTBU-10035-S	35	4	1.5	30	5	5	MBUB-050-S	SF	—
MTBU-10050-S	50	4	1.5	30	5	5	MBUB-050-S	SF	—
M12x1.75 Threads									
MTBU-12025-S	25	6	1.5	28	6	7	MBUB-070-S	SF	3,440
MTBU-12025-S-T	25	6	3	28	6	7	MBUB-070-S-T	SF	3,440
MTBU-12035-S	35	6	1.5	28	6	7	MBUB-070-S	SF	3,440
MTBU-12035-S-T	35	6	3	28	6	7	MBUB-070-S-T	SF	3,440
MTBU-12050-S	50	6	1.5	28	6	7	MBUB-070-S	SF	3,440
MTBU-12050-S-T	50	6	3	28	6	7	MBUB-070-S-T	SF	3,440
M16x2.0 Threads									
MTBU-16025-S	25	8.5	1.5	24	8	10	MBUB-100-S	EF	5,190
MTBU-16025-S-T	25	8.5	3	24	8	10	MBUB-100-S-T	EF	5,190
MTBU-16035-S	35	8.5	1.5	24	8	10	MBUB-100-S	EF	5,190
MTBU-16035-S-T	35	8.5	3	24	8	10	MBUB-100-S-T	EF	5,190
MTBU-16050-S	50	8.5	1.5	24	8	10	MBUB-100-S	EF	5,190
MTBU-16050-S-T	50	8.5	3	24	8	10	MBUB-100-S-T	EF	5,190
M20x2.5 Threads									
MTBU-20030-S	30	10	4	42	10	13	MBUB-130-S	EF	8,379
MTBU-20030-S-T	30	10	6	42	10	13	MBUB-130-S-T	EF	8,379
MTBU-20050-S	50	10	4	42	10	13	MBUB-130-S	EF	8,379
MTBU-20050-S-T	50	10	6	42	10	13	MBUB-130-S-T	EF	8,379
MTBU-20070-S	70	10	4	42	10	13	MBUB-130-S	EF	8,379
MTBU-20070-S-T	70	10	6	42	10	13	MBUB-130-S-T	EF	8,379
M24x3.0 Threads									
MTBU-24040-S	40	12	4	45	10	15	MBUB-150-S	Fine	12,233
MTBU-24040-S-T	40	12	6	45	10	15	MBUB-150-S-T	Fine	12,233
MTBU-24080-S	80	12	4	45	10	15	MBUB-150-S	Fine	12,233
MTBU-24080-S-T	80	12	6	45	10	15	MBUB-150-S-T	Fine	12,233

SWIVOTS® - REPLACEABLE SWIVEL BALL

Threaded Body | Delrin Ball | Flat | Inch & Metric



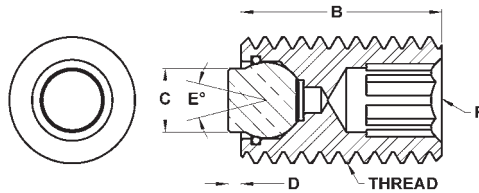
The replaceable flat ball swivels to allow for self-alignment on uneven surfaces. The replaceable ball is made from non-marring white delrin. A Viton O-ring holds the ball in place while keeping contaminants out and providing smooth ball movement. The housing is made from alloy steel, heat treated to Rc 43/46 with black oxide finish. Replacement balls and O-rings can be ordered separately. See page 117 for diagram of components.

INCH

Part #	B Thread Length	C Contact Dia.	D Stand Off	E Degree Swivel	F Int. Hex	Ball Dia.	Ball Only Part #
3/8-16 Threads							
TBU-0370-D	1/2	5/32	1/16	28	3/16	3/16	BUB-187-D
TBU-0375-D	1	5/32	1/16	28	3/16	3/16	BUB-187-D
TBU-0375 X 2-D	2	5/32	1/16	28	3/16	3/16	BUB-187-D
TBU-0375 X 3-D	3	5/32	1/16	28	3/16	3/16	BUB-187-D
3/8-24 Threads							
TBU-0230-D	1/2	5/32	1/16	28	3/16	3/16	BUB-187-D
TBU-0231-D	1	5/32	1/16	28	3/16	3/16	BUB-187-D
TBU-0231 X 2-D	2	5/32	1/16	28	3/16	3/16	BUB-187-D
TBU-0231 X 3-D	3	5/32	1/16	28	3/16	3/16	BUB-187-D
1/2-13 Threads							
TBU-0513-D	3/4	1/4	1/16	28	1/4	9/32	BUB-200-D
TBU-0513-D-T	3/4	1/4	1/8	28	1/4	9/32	BUB-200-D-T
TBU-0510-D	1	1/4	1/16	28	1/4	9/32	BUB-200-D
TBU-0510-D-T	1	1/4	1/8	28	1/4	9/32	BUB-200-D-T
TBU-0510 X 2-D	2	1/4	1/16	28	1/4	9/32	BUB-200-D
TBU-0510 X 2-D-T	2	1/4	1/8	28	1/4	9/32	BUB-200-D-T
TBU-0510 X 3-D	3	1/4	1/16	28	1/4	9/32	BUB-200-D
TBU-0510 X 3-D-T	3	1/4	1/8	28	1/4	9/32	BUB-200-D-T
1/2-20 Threads							
TBU-0503-D	3/4	1/4	1/16	28	1/4	9/32	BUB-200-D
TBU-0503-D-T	3/4	1/4	1/8	28	1/4	9/32	BUB-200-D-T
TBU-0500-D	1	1/4	1/16	28	1/4	9/32	BUB-200-D
TBU-0500-D-T	1	1/4	1/8	28	1/4	9/32	BUB-200-D-T
TBU-0500 X 2-D	2	1/4	1/16	28	1/4	9/32	BUB-200-D
TBU-0500 X 2-D-T	2	1/4	1/8	28	1/4	9/32	BUB-200-D-T
TBU-0500 X 3-D	3	1/4	1/16	28	1/4	9/32	BUB-200-D
TBU-0500 X 3-D-T	3	1/4	1/8	28	1/4	9/32	BUB-200-D-T
5/8-11 Threads							
TBU-0625-D	1	5/16	1/16	28	5/16	3/8	BUB-300-D
TBU-0625-D-T	1	5/16	1/8	28	5/16	3/8	BUB-300-D-T
TBU-0625 X 2-D	2	5/16	1/16	28	5/16	3/8	BUB-300-D
TBU-0625 X 2-D-T	2	5/16	1/8	28	5/16	3/8	BUB-300-D-T
TBU-0625 X 3-D	3	5/16	1/16	28	5/16	3/8	BUB-300-D
TBU-0625 X 3-D-T	3	5/16	1/8	28	5/16	3/8	BUB-300-D-T
5/8-18 Threads							
TBU-0620-D	1	5/16	1/16	28	5/16	3/8	BUB-300-D
TBU-0620-D-T	1	5/16	1/8	28	5/16	3/8	BUB-300-D-T
TBU-0620 X 2-D	2	5/16	1/16	28	5/16	3/8	BUB-300-D
TBU-0620 X 2-D-T	2	5/16	1/8	28	5/16	3/8	BUB-300-D-T
TBU-0620 X 3-D	3	5/16	1/16	28	5/16	3/8	BUB-300-D
TBU-0620 X 3-D-T	3	5/16	1/8	28	5/16	3/8	BUB-300-D-T
3/4-10 Threads							
TBU-0755-D	1	3/8	1/8	40	3/8	1/2	BUB-500-D
TBU-0755-D-T	1	3/8	1/4	40	3/8	1/2	BUB-500-D-T
TBU-0755 X 2-D	2	3/8	1/8	40	3/8	1/2	BUB-500-D
TBU-0755 X 2-D-T	2	3/8	1/4	40	3/8	1/2	BUB-500-D-T
TBU-0755 X 3-D	3	3/8	1/8	40	3/8	1/2	BUB-500-D
TBU-0755 X 3-D-T	3	3/8	1/4	40	3/8	1/2	BUB-500-D-T

SWIVOTS® - REPLACEABLE SWIVEL BALL

Threaded Body | Delrin Ball | Flat | Inch & Metric (continued)



INCH (CONTINUED)

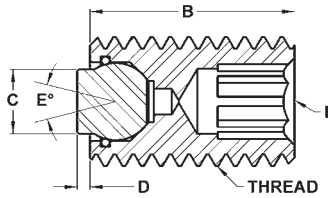
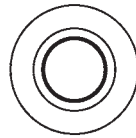
Part #	B Thread Length	C Contact Dia.	D Stand Off	E Degree Swivel	F Int. Hex	Ball Dia.	Ball Only Part #
3/4-16 Threads							
TBU-0750-D	1	3/8	1/8	40	3/8	1/2	BUB-500-D
TBU-0750-D-T	1	3/8	1/4	40	3/8	1/2	BUB-500-D-T
TBU-0750 X 2-D	2	3/8	1/8	40	3/8	1/2	BUB-500-D
TBU-0750 X 2-D-T	2	3/8	1/4	40	3/8	1/2	BUB-500-D-T
TBU-0750 X 3-D	3	3/8	1/8	40	3/8	1/2	BUB-500-D
TBU-0750 X 3-D-T	3	3/8	1/4	40	3/8	1/2	BUB-500-D-T
1"-8 Threads							
TBU-1108-D	1	1/2	1/8	40	3/8	5/8	BUB-600-D
TBU-1108-D-T	1	1/2	1/4	40	3/8	5/8	BUB-600-D-T
TBU-1108 X 2-D	2	1/2	1/8	40	3/8	5/8	BUB-600-D
TBU-1108 X 2-D-T	2	1/2	1/4	40	3/8	5/8	BUB-600-D-T
TBU-1108 X 3-D	3	1/2	1/8	40	3/8	5/8	BUB-600-D
TBU-1108 X 3-D-T	3	1/2	1/4	40	3/8	5/8	BUB-600-D-T
1"-14 Threads							
TBU-1114-D	1	5/8	1/8	34	3/8	3/4	BUB-700-D
TBU-1114-D-T	1	5/8	1/4	34	3/8	3/4	BUB-700-D-T
TBU-1114 X 2-D	2	5/8	1/8	34	3/8	3/4	BUB-700-D
TBU-1114 X 2-D-T	2	5/8	1/4	34	3/8	3/4	BUB-700-D-T
TBU-1114 X 3-D	3	5/8	1/8	34	3/8	3/4	BUB-700-D
TBU-1114 X 3-D-T	3	5/8	1/4	34	3/8	3/4	BUB-700-D-T

METRIC

Part #	B Thread Length	C Contact Dia.	D Stand Off	E Degree Swivel	F Int. Hex	Ball Dia.	Ball Only Part #
M10x1.5 Threads							
MTBU-10025-D	25	4	1.5	30	5	5	MBUB-050-D
MTBU-10035-D	35	4	1.5	30	5	5	MBUB-050-D
MTBU-10050-D	50	4	1.5	30	5	5	MBUB-050-D
M12x1.75 Threads							
MTBU-12025-D	25	6	1.5	28	6	7	MBUB-070-D
MTBU-12025-D-T	25	6	3	28	6	7	MBUB-070-D-T
MTBU-12035-D	35	6	1.5	28	6	7	MBUB-070-D
MTBU-12035-D-T	35	6	3	28	6	7	MBUB-070-D-T
MTBU-12050-D	50	6	1.5	28	6	7	MBUB-070-D
MTBU-12050-D-T	50	6	3	28	6	7	MBUB-070-D-T
M16x2.0 Threads							
MTBU-16025-D	25	8.5	1.5	24	8	10	MBUB-100-D
MTBU-16025-D-T	25	8.5	3	24	8	10	MBUB-100-D-T
MTBU-16035-D	35	8.5	1.5	24	8	10	MBUB-100-D
MTBU-16035-D-T	35	8.5	3	24	8	10	MBUB-100-D-T
MTBU-16050-D	50	8.5	1.5	24	8	10	MBUB-100-D
MTBU-16050-D-T	50	8.5	3	24	8	10	MBUB-100-D-T
M20x2.5 Threads							
MTBU-20030-D	30	10	4	42	10	13	MBUB-130-D
MTBU-20030-D-T	30	10	6	42	10	13	MBUB-130-D-T
MTBU-20050-D	50	10	4	42	10	13	MBUB-130-D
MTBU-20050-D-T	50	10	6	42	10	13	MBUB-130-D-T
MTBU-20070-D	70	10	4	42	10	13	MBUB-130-D
MTBU-20070-D-T	70	10	6	42	10	13	MBUB-130-D-T
M24x3.0 Threads							
MTBU-24040-D	40	12	4	45	10	15	MBUB-150-D
MTBU-24040-D-T	40	12	6	45	10	15	MBUB-150-D-T
MTBU-24080-D	80	12	4	45	10	15	MBUB-150-D
MTBU-24080-D-T	80	12	6	45	10	15	MBUB-150-D-T

SWIVOTS® - REPLACEABLE SWIVEL BALL

Threaded Body | Tool Steel Ball | Flat | Inch & Metric



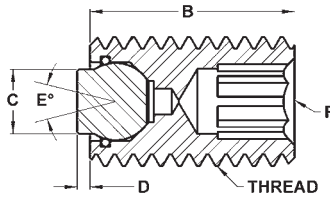
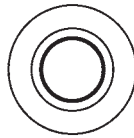
The replaceable flat ball swivels to allow for self-alignment on uneven surfaces. A Viton O-ring holds the ball in place while keeping contaminants out and providing smooth ball movement. The housing is made from alloy steel, heat treated to Rc 43/46 with black oxide finish. The replaceable ball is made from M-2 high speed steel heat treated to Rc 60/62. Replacement balls and O-rings can be ordered separately. See page 117 for diagram of components.

INCH

Part #	B Thread Length	C Contact Dia.	D Stand Off	E Degree Swivel	F Int. Hex	Ball Dia.	Ball Only Part #	Load Rating Lbs.
3/8-16 Threads								
TBU-0370-F	1/2	5/32	1/16	28	3/16	3/16	BUB-187-F	1,763
TBU-0375-F	1	5/32	1/16	28	3/16	3/16	BUB-187-F	1,763
TBU-0375 X 2-F	2	5/32	1/16	28	3/16	3/16	BUB-187-F	1,763
TBU-0375 X 3-F	3	5/32	1/16	28	3/16	3/16	BUB-187-F	1,763
3/8-24 Threads								
TBU-0230-F	1/2	5/32	1/16	28	3/16	3/16	BUB-187-F	1,763
TBU-0231-F	1	5/32	1/16	28	3/16	3/16	BUB-187-F	1,763
TBU-0231 X 2-F	2	5/32	1/16	28	3/16	3/16	BUB-187-F	1,763
TBU-0231 X 3-F	3	5/32	1/16	28	3/16	3/16	BUB-187-F	1,763
1/2-13 Threads								
TBU-0513-F	3/4	1/4	1/16	28	1/4	9/32	BUB-200-F	4,527
TBU-0513-F-T	3/4	1/4	1/8	28	1/4	9/32	BUB-200-F-T	4,527
TBU-0510-F	1	1/4	1/16	28	1/4	9/32	BUB-200-F	4,527
TBU-0510-F-T	1	1/4	1/8	28	1/4	9/32	BUB-200-F-T	4,527
TBU-0510 X 2-F	2	1/4	1/16	28	1/4	9/32	BUB-200-F	4,527
TBU-0510 X 2-F-T	2	1/4	1/8	28	1/4	9/32	BUB-200-F-T	4,527
TBU-0510 X 3-F	3	1/4	1/16	28	1/4	9/32	BUB-200-F	4,527
TBU-0510 X 3-F-T	3	1/4	1/8	28	1/4	9/32	BUB-200-F-T	4,527
1/2-20 Threads								
TBU-0503-F	3/4	1/4	1/16	28	1/4	9/32	BUB-200-F	4,527
TBU-0503-F-T	3/4	1/4	1/8	28	1/4	9/32	BUB-200-F-T	4,527
TBU-0500-F	1	1/4	1/16	28	1/4	9/32	BUB-200-F	4,527
TBU-0500-F-T	1	1/4	1/8	28	1/4	9/32	BUB-200-F-T	4,527
TBU-0500 X 2-F	2	1/4	1/16	28	1/4	9/32	BUB-200-F	4,527
TBU-0500 X 2-F-T	2	1/4	1/8	28	1/4	9/32	BUB-200-F-T	4,527
TBU-0500 X 3-F	3	1/4	1/16	28	1/4	9/32	BUB-200-F	4,527
TBU-0500 X 3-F-T	3	1/4	1/8	28	1/4	9/32	BUB-200-F-T	4,527
5/8-11 Threads								
TBU-0625-F	1	5/16	1/16	28	5/16	3/8	BUB-300-F	6,131
TBU-0625-F-T	1	5/16	1/8	28	5/16	3/8	BUB-300-F-T	6,131
TBU-0625 X 2-F	2	5/16	1/16	28	5/16	3/8	BUB-300-F	6,131
TBU-0625 X 2-F-T	2	5/16	1/8	28	5/16	3/8	BUB-300-F-T	6,131
TBU-0625 X 3-F	3	5/16	1/16	28	5/16	3/8	BUB-300-F	6,131
TBU-0625 X 3-F-T	3	5/16	1/8	28	5/16	3/8	BUB-300-F-T	6,131
5/8-18 Threads								
TBU-0620-F	1	5/16	1/16	28	5/16	3/8	BUB-300-F	6,131
TBU-0620-F-T	1	5/16	1/8	28	5/16	3/8	BUB-300-F-T	6,131
TBU-0620 X 2-F	2	5/16	1/16	28	5/16	3/8	BUB-300-F	6,131
TBU-0620 X 2-F-T	2	5/16	1/8	28	5/16	3/8	BUB-300-F-T	6,131
TBU-0620 X 3-F	3	5/16	1/16	28	5/16	3/8	BUB-300-F	6,131
TBU-0620 X 3-F-T	3	5/16	1/8	28	5/16	3/8	BUB-300-F-T	6,131
3/4-10 Threads								
TBU-0755-F	1	3/8	1/8	40	3/8	1/2	BUB-500-F	8,150
TBU-0755-F-T	1	3/8	1/4	40	3/8	1/2	BUB-500-F-T	8,150
TBU-0755 X 2-F	2	3/8	1/8	40	3/8	1/2	BUB-500-F	8,150
TBU-0755 X 2-F-T	2	3/8	1/4	40	3/8	1/2	BUB-500-F-T	8,150
TBU-0755 X 3-F	3	3/8	1/8	40	3/8	1/2	BUB-500-F	8,150
TBU-0755 X 3-F-T	3	3/8	1/4	40	3/8	1/2	BUB-500-F-T	8,150

SWIVOTS® - REPLACEABLE SWIVEL BALL

Threaded Body | Tool Steel Ball | Flat | Inch & Metric (continued)



INCH (CONTINUED)

Part #	B Thread Length	C Contact Dia.	D Stand Off	E Degree Swivel	F Int. Hex	Ball Dia.	Ball Only Part #	Load Rating Lbs.
3/4-16 Threads								
TBU-0750-F	1	3/8	1/8	40	3/8	1/2	BUB-500-F	8,150
TBU-0750-F-T	1	3/8	1/4	40	3/8	1/2	BUB-500-F-T	8,150
TBU-0750 X 2-F	2	3/8	1/8	40	3/8	1/2	BUB-500-F	8,150
TBU-0750 X 2-F-T	2	3/8	1/4	40	3/8	1/2	BUB-500-F-T	8,150
TBU-0750 X 3-F	3	3/8	1/8	40	3/8	1/2	BUB-500-F	8,150
TBU-0750 X 3-F-T	3	3/8	1/4	40	3/8	1/2	BUB-500-F-T	8,150
1"-8 Threads								
TBU-1108-F	1	1/2	1/8	40	3/8	5/8	BUB-600-F	14,757
TBU-1108-F-T	1	1/2	1/4	40	3/8	5/8	BUB-600-F-T	14,757
TBU-1108 X 2-F	2	1/2	1/8	40	3/8	5/8	BUB-600-F	14,757
TBU-1108 X 2-F-T	2	1/2	1/4	40	3/8	5/8	BUB-600-F-T	14,757
TBU-1108 X 3-F	3	1/2	1/8	40	3/8	5/8	BUB-600-F	14,757
TBU-1108 X 3-F-T	3	1/2	1/4	40	3/8	5/8	BUB-600-F-T	14,757
1"-14 Threads								
TBU-1114-F	1	5/8	1/8	34	3/8	3/4	BUB-700-F	17,210
TBU-1114-F-T	1	5/8	1/4	34	3/8	3/4	BUB-700-F-T	17,210
TBU-1114 X 2-F	2	5/8	1/8	34	3/8	3/4	BUB-700-F	17,210
TBU-1114 X 2-F-T	2	5/8	1/4	34	3/8	3/4	BUB-700-F-T	17,210
TBU-1114 X 3-F	3	5/8	1/8	34	3/8	3/4	BUB-700-F	17,210
TBU-1114 X 3-F-T	3	5/8	1/4	34	3/8	3/4	BUB-700-F-T	17,210

METRIC

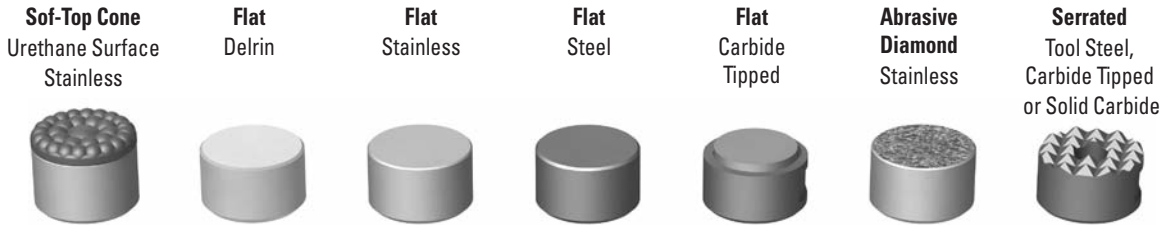
Part #	B Thread Length	C Contact Dia.	D Stand Off	E Degree Swivel	F Int. Hex	Ball Dia.	Ball Only Part #	Load Rating Lbs.
M12x1.75 Threads								
MTBU-12025-F	25	6	1.5	28	6	7	MBUB-070-F	3,440
MTBU-12025-F-T	25	6	3	28	6	7	MBUB-070-F-T	3,440
MTBU-12035-F	35	6	1.5	28	6	7	MBUB-070-F	3,440
MTBU-12035-F-T	35	6	3	28	6	7	MBUB-070-F-T	3,440
MTBU-12050-F	50	6	1.5	28	6	7	MBUB-070-F	3,440
MTBU-12050-F-T	50	6	3	28	6	7	MBUB-070-F-T	3,440
M16x2.0 Threads								
MTBU-16025-F	25	8.5	1.5	24	8	10	MBUB-100-F	5,190
MTBU-16025-F-T	25	8.5	3	24	8	10	MBUB-100-F-T	5,190
MTBU-16035-F	35	8.5	1.5	24	8	10	MBUB-100-F	5,190
MTBU-16035-F-T	35	8.5	3	24	8	10	MBUB-100-F-T	5,190
MTBU-16050-F	50	8.5	1.5	24	8	10	MBUB-100-F	5,190
MTBU-16050-F-T	50	8.5	3	24	8	10	MBUB-100-F-T	5,190
M20x2.5 Threads								
MTBU-20030-F	30	10	4	42	10	13	MBUB-130-F	8,379
MTBU-20030-F-T	30	10	6	42	10	13	MBUB-130-F-T	8,379
MTBU-20050-F	50	10	4	42	10	13	MBUB-130-F	8,379
MTBU-20050-F-T	50	10	6	42	10	13	MBUB-130-F-T	8,379
MTBU-20070-F	70	10	4	42	10	13	MBUB-130-F	8,379
MTBU-20070-F-T	70	10	6	42	10	13	MBUB-130-F-T	8,379
M24x3.0 Threads								
MTBU-24040-F	40	12	4	45	10	15	MBUB-150-F	12,233
MTBU-24040-F-T	40	12	6	45	10	15	MBUB-150-F-T	12,233
MTBU-24080-F	80	12	4	45	10	15	MBUB-150-F	12,233
MTBU-24080-F-T	80	12	6	45	10	15	MBUB-150-F-T	12,233

SWIVOTS® - REPLACEABLE SWIVEL PAD

Swivots® Replaceable Swivel Pad Style

These Replaceable Pad Style Swivots® are found on the following pages.

REPLACEABLE PADS

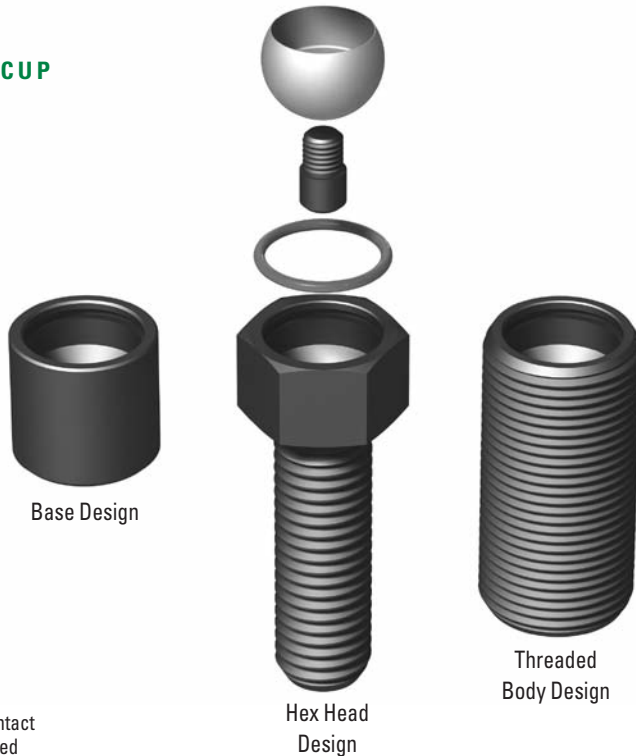


STAINLESS BALL CUP

LOCK SCREW

VITON O-RING

HOUSINGS



Load Calculator

To calculate the load on the contact surface, divide the torque applied (in/lbs) by a factor shown below. Assumes no lubrication threaded into steel. Use as a guideline only.

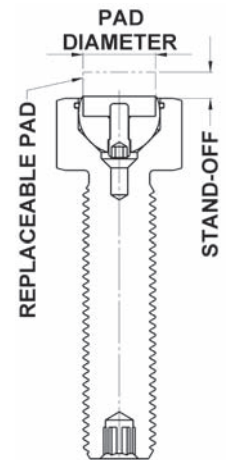
INCH			
Thread	Factor	Thread	Factor
#10-24	0.036	1/2-13	0.093
#10-32	0.035	1/2-20	0.091
1/4-20	0.047	5/8-11	0.116
1/4-28	0.046	5/8-18	0.113
5/16-18	0.059	3/4-10	0.138
5/16-24	0.058	3/4-16	0.135
3/8-16	0.070	1-8	0.183
3/8-24	0.068	1-14	0.180

METRIC			
Thread	Factor	Thread	Factor
M6x1.00	0.044	M16x2.00	0.116
M8x1.25	0.058	M20x2.50	0.144
M10x1.50	0.073	M24x3.00	0.173
M12x1.75	0.087		

- These Replaceable Pad Style Swivots are a modular component system that allows the pad and ball cup to swivel, tilt, clamp, grip, hold, position or secure work pieces. The internal ball cup allows the pad to rotate 360 degrees and tilt at varying degrees in any direction from the centerline.
- The interchangeable parts help to speed set ups and changeovers. The Replaceable Pads allow you to easily change the pad when worn or another style is needed for an application. The swivel assemblies include the housing, O-ring, lock screw and ball cup. Pads must be ordered separately.
- The ball cup is held in place with an O-ring which allows the pad to swivel and keeps out dirt and other contaminants.
- The pad can easily be replaced by pulling the ball cup out of the housing and unscrewing the lock screw which holds the pad into the ball cup.

To select the proper pad:

1. Determine the diameter of the pad for the housing assembly. This can be found on the following pages under "Replaceable Pad Dia."
2. Determine the "Stand Off" dimension required using the information below:



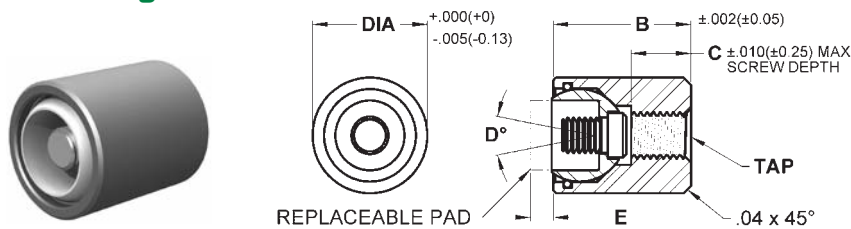
- 3/8" Pad Height provides 1/8" Stand Off
- 1/2" Pad Height provides 1/4" Stand Off
- 10mm Pad Height provides 4mm Stand Off
- 12mm Pad Height provides 6mm Stand Off

3. Select any Round Fixed Gripper or Rest Pad with the proper diameter and stand off that has a tapped hole.

If you need additional assistance selecting the proper pad or ordering replacement parts, please contact us.

SWIVOTS® - REPLACEABLE SWIVEL PAD

Base Design | Inch & Metric



The replaceable pad swivels to allow for self-alignment on uneven surfaces. Cylindrical body allows for installation in tight areas. The housing is tapped for backside fastening. The replaceable pad fits in a hardened (Rc 58/60) 440c stainless ball cup and is held in place with a lock screw. The pad can be replaced when worn or a different style pad is required. The housing is made from alloy steel, heat treated to Rc 43/46 with black oxide finish. The parts below are for the Swivot assembly only and do not include a pad. Pads must be ordered separately. See page 161 for diagram of components.

INCH

Part #	B Length	C Screw Depth	D Degree Swivel	E* Stand Off 1	E* Stand Off 2	Ball Dia.	Replaceable Pad Dia.**	Load Rating Lbs.
5/8" Dia - 1/4-28 Tap								
BBU-500	3/4	15/64	20	1/8	1/4	1/2	3/8	5,849
13/16" Dia - 5/16-24 Tap								
BBU-600	7/8	11/32	24	1/8	1/4	5/8	1/2	10,925
15/16" Dia - 3/8-24 Tap								
BBU-700	7/8	9/32	22	1/8	1/4	3/4	5/8	13,325
1-1/8" Dia - 1/2-20 Tap								
BBU-800	15/16	17/64	20	1/8	1/4	7/8	3/4	18,863
1-1/2" Dia - 1/2-20 Tap								
BBU-1100	1-1/4	7/16	20	1/8	1/4	1-1/8	1	34,619

*E1 – Stand off with 3/8" height pad; E2 – Stand off with 1/2" height pad.

** Select any fixed gripper or rest pad with the proper diameter and tapped hole.

METRIC

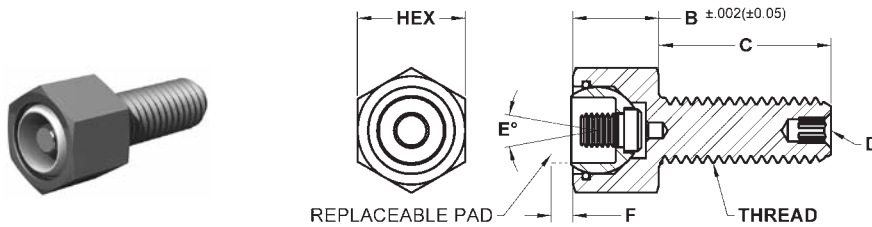
Part #	B Length	C Screw Depth	D Degree Swivel	E* Stand Off 1	E* Stand Off 2	Ball Dia.	Replaceable Pad Dia.**	Load Rating Lbs.
17mm Dia - M6x1.0 Tap								
MBBU-1722	18	7.5	20	4	6	13	10	6,170
19mm Dia - M8x1.25 Tap								
MBBU-1924	20	8.5	20	4	6	15	12	8,688
24mm Dia - M10x1.50 Tap								
MBBU-2428	24	9	20	4	6	20	16	13,122
30mm Dia - M12x1.75 Tap								
MBBU-3030	26	8.5	20	4	6	23	20	21,348
36mm Dia - M12x1.75 Tap								
MBBU-3636	32	12	20	4	6	28	25	30,558

*E1 – Stand off with 10mm height pad; E2 – Stand off with 12mm height pad.

** Select any fixed gripper or rest pad with the proper diameter and tapped hole.

SWIVOTS® - REPLACEABLE SWIVEL PAD

Hex Head | Inch & Metric



The replaceable pad swivels to allow for self-alignment on uneven surfaces. The replaceable pad fits in a hardened (Rc 58/60) 440c stainless ball cup and is held in place with a lock screw. The pad can be replaced when worn or a different style pad is required. The housing is made from alloy steel, heat treated to Rc 43/46 with black oxide finish. The parts below are for the Swivot assembly only and do not include a pad. Pads must be ordered separately. See page 161 for diagram of components.

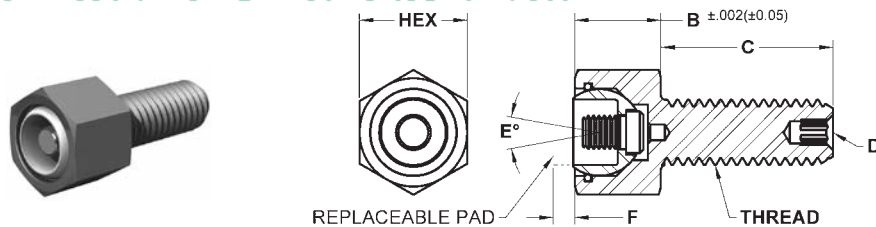
INCH

Part #	B Head Height	C Thread Length	D Int. Hex	E Degree Swivel	F* Stand Off 1	F* Stand Off 2	Ball Dia.	Replaceable Pad Dia.**	Load Rating Lbs.
3/8-16 Threads - 5/8" Hex Head									
BUH-0370	1/2	1/2	1/8	20	1/8	1/4	1/2	3/8	3,446
BUH-0375	1/2	1	1/8	20	1/8	1/4	1/2	3/8	3,446
BUH-0375 X 1.5	1/2	1-1/2	1/8	20	1/8	1/4	1/2	3/8	3,446
3/8-24 Threads - 5/8" Hex Head									
BUH-0230	1/2	1/2	1/8	20	1/8	1/4	1/2	3/8	3,446
BUH-0231	1/2	1	1/8	20	1/8	1/4	1/2	3/8	3,446
BUH-0231 X 1.5	1/2	1-1/2	1/8	20	1/8	1/4	1/2	3/8	3,446
1/2-13 Threads - 13/16" Hex Head									
BUH-0510	5/8	1	3/16	24	1/8	1/4	5/8	1/2	5,937
BUH-0515	5/8	1-1/2	3/16	24	1/8	1/4	5/8	1/2	5,937
1/2-20 Threads - 13/16" Hex Head									
BUH-0240	5/8	1	3/16	24	1/8	1/4	5/8	1/2	7,178
BUH-0500	5/8	1-1/2	3/16	24	1/8	1/4	5/8	1/2	7,178
5/8-11 Threads - 15/16" Hex Head									
BUH-0625	11/16	1	1/4	22	1/8	1/4	3/4	5/8	9,932
BUH-0625 X 2	11/16	2	1/4	22	1/8	1/4	3/4	5/8	9,932
5/8-18 Threads - 15/16" Hex Head									
BUH-0620	11/16	1	1/4	22	1/8	1/4	3/4	5/8	11,874
BUH-0620 X 2	11/16	2	1/4	22	1/8	1/4	3/4	5/8	11,874
3/4-10 Threads - 1-1/8" Hex Head									
BUH-0755	3/4	1	5/16	20	1/8	1/4	7/8	3/4	14,862
BUH-0755 X 2.5	3/4	2-1/2	5/16	20	1/8	1/4	7/8	3/4	14,862
3/4-16 Threads - 1-1/8" Hex Head									
BUH-0750	3/4	1	5/16	20	1/8	1/4	7/8	3/4	13,565
BUH-0750 X 2.5	3/4	2-1/2	5/16	20	1/8	1/4	7/8	3/4	13,565
1"-8 Threads - 1-1/2" Hex Head									
BUH-1108 X 2	1	2	3/8	20	1/8	1/4	1 1/8	1	28,158
BUH-1108 X 4	1	4	3/8	20	1/8	1/4	1 1/8	1	28,158
1"-14 Threads - 1-1/2" Hex Head									
BUH-1114 X 2	1	2	3/8	20	1/8	1/4	1 1/8	1	26,234
BUH-1114 X 4	1	4	3/8	20	1/8	1/4	1 1/8	1	26,234

* F1 – Stand off with 3/8" height pad; F2 – Stand off with 1/2" height pad.
 ** Select any fixed gripper or rest pad with the proper diameter and tapped hole.

SWIVOTS® - REPLACEABLE SWIVEL PAD

Hex Head | Inch & Metric (continued)



METRIC

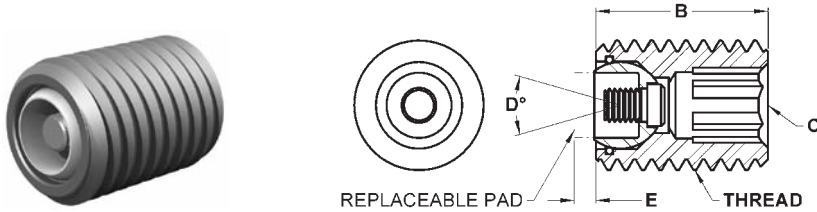
Part #	B Head Height	C Thread Length	D Int. Hex	E Degree Swivel	F* Stand Off 1	F* Stand Off 2	Ball Dia.	Replaceable Pad Dia.**	Load Rating Lbs.
M10x1.5 Threads - 17mm Hex Head									
MBUH-10015	13	15	3	20	4	6	13	10	4,194
MBUH-10030	13	30	3	20	4	6	13	10	4,194
MBUH-10050	13	50	3	20	4	6	13	10	4,194
M12x1.75 Threads - 19mm Hex Head									
MBUH-12020	15	20	5	20	4	6	15	12	6,627
MBUH-12040	15	40	5	20	4	6	15	12	6,627
MBUH-12060	15	60	5	20	4	6	15	12	6,627
M16x2 Threads - 24mm Hex Head									
MBUH-16025	19	25	6	20	4	6	20	16	11,193
MBUH-16050	19	50	6	20	4	6	20	16	11,193
MBUH-16080	19	80	6	20	4	6	20	16	11,193
M20x2.5 Threads - 30mm Hex Head									
MBUH-20030	20	30	8	20	4	6	23	20	19,136
MBUH-20060	20	60	8	20	4	6	23	20	19,136
MBUH-20100	20	100	8	20	4	6	23	20	19,136
M24x3.0 Threads - 36mm Hex Head									
MBUH-24040	26	40	10	20	4	6	28	25	27,239
MBUH-24100	26	100	10	20	4	6	28	25	27,239

* F1 – Stand off with 10mm height pad; F2 – Stand off with 12mm height pad.

** Select any fixed gripper or rest pad with the proper diameter and tapped hole.

SWIVOTS® - REPLACEABLE SWIVEL PAD

Threaded Body | Inch & Metric



The replaceable pad swivels to allow for self-alignment on uneven surfaces. The replaceable pad fits in a hardened (Rc 58/60) 440c stainless ball cup and is held in place with a lock screw. The pad can be replaced when worn or a different style pad is required. The housing is made from alloy steel, heat treated to Rc 43/46 with black oxide finish. The parts below are for the Swivot assembly only and do not include a pad. Pads must be ordered separately. See page 161 for diagram of components.

INCH								
Part #	B Length	C Int. Hex	D Degree Swivel	E* Stand Off 1	E* Stand Off 2	Ball Dia.	Replaceable Pad Dia.**	Load Rating Lbs.
3/4-10 Threads								
TBU-0755	1	3/8	20	1/8	1/4	1/2	3/8	8,150
TBU-0755 X 2	2	3/8	20	1/8	1/4	1/2	3/8	8,150
TBU-0755 X 3	3	3/8	20	1/8	1/4	1/2	3/8	8,150
3/4-16 Threads								
TBU-0750	1	3/8	20	1/8	1/4	1/2	3/8	8,150
TBU-0750 X 2	2	3/8	20	1/8	1/4	1/2	3/8	8,150
TBU-0750 X 3	3	3/8	20	1/8	1/4	1/2	3/8	8,150
1"-8 Threads								
TBU-1108 X 2	2	3/8	24	1/8	1/4	5/8	1/2	14,757
TBU-1108 X 3	3	3/8	24	1/8	1/4	5/8	1/2	14,757
1"-14 Threads								
TBU-1114 X 2	2	3/8	34	1/8	1/4	3/4	5/8	17,210
TBU-1114 X 3	3	3/8	34	1/8	1/4	3/4	5/8	17,210

* E1 – Stand off with 3/8" height pad; E2 – Stand off with 1/2" height pad.
 ** Select any fixed gripper or rest pad with the proper diameter and tapped hole.

METRIC								
Part #	B Length	C Int. Hex	D Degree Swivel	E* Stand Off 1	E* Stand Off 2	Ball Dia.	Replaceable Pad Dia.**	Load Rating Lbs.
M20x2.5 Threads								
MTBU-20030	30	10	20	4	6	13	10	8,379
MTBU-20050	50	10	20	4	6	13	10	8,379
MTBU-20070	70	10	20	4	6	13	10	8,379
M24x3.0 Threads								
MTBU-24040	40	10	20	4	6	15	12	12,233
MTBU-24080	80	10	20	4	6	15	12	12,233

*E1 – Stand off with 10mm height pad; E2 – Stand off with 12mm height pad.
 ** Select any fixed gripper or rest pad with the proper diameter and tapped hole.

THRUST SCREW ASSEMBLIES

Replaceable Ball Thrust Screw Assemblies

These Replaceable Ball Thrust Screw Assemblies are found on the following pages.

REPLACEABLE BALLS

Sof-Top Cone
Urethane Surface
Stainless



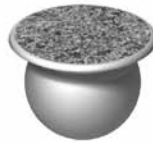
Flat Cone
Delrin



Flat Cone
Stainless



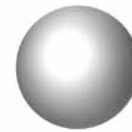
**Abrasive
Diamond Cone**
Stainless



Serrated
Tool Steel



Round Ball
Stainless



Round Ball
Delrin



VITON O-RING



HOUSINGS



Threaded Body Design



Socket Head Design

Tightening Torque Calculator

To calculate the approximate tightening torque (in/lb) required to achieve a required force, multiply the force by the appropriate factor listed below. Assumes no lubrication threaded into steel. Use as a guideline only.

INCH

Thread	Factor	Thread	Factor
#10-24	0.036	1/2-13	0.093
#10-32	0.035	1/2-20	0.091
1/4-20	0.047	5/8-11	0.116
1/4-28	0.046	5/8-18	0.113
5/16-18	0.059	3/4-10	0.138
5/16-24	0.058	3/4-16	0.135
3/8-16	0.070	1-8	0.183
3/8-24	0.068	1-14	0.180

METRIC

Thread	Factor	Thread	Factor
M6x1.00	0.044	M16x2.00	0.116
M8x1.25	0.058	M20x2.50	0.144
M10x1.50	0.073	M24x3.00	0.173
M12x1.75	0.087		

- These Replaceable Ball Thrust Screw Assemblies are a modular component system that allows the ball to swivel, tilt, pivot, grip, hold, position or secure work pieces.
- The different housing styles allows for a variety of mounting options.
- Unique design prevents the ball from exceeding the specified degree of swivel -preventing the ball from rolling over in the housing.
- The replaceable ball can be changed when it is worn or another style is needed for a job.
- The ball is held in place with a Viton O-ring which allows for smooth movement and keeps out dirt and other contaminants.
- Replacement balls and o-rings can be ordered separately. It is recommended the o-ring be replaced when the ball is replaced.

THRUST SCREW ASSEMBLIES

Threaded Body | Stainless Ball | Sof-Top Urethane Surface | Inch



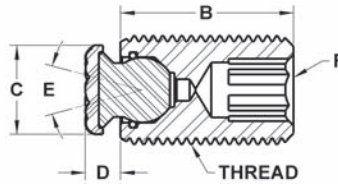
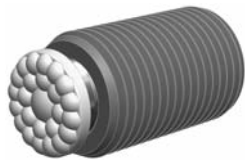
These thrust screw assemblies allow straight line static load thrust without transmitting torsional or radial force on to the contact area. The free floating ball design allows the thrust screw to continue to rotate while the ball remains stationary against the contact surface. Ideal for irregular shaped or contoured applications. The housing is made from alloy steel, heat treated to Rc 43/46 with a black oxide finish. The replaceable ball is held in place with a viton O-ring which keeps contaminants out and allows the ball to swivel. The urethane surface is permanently bonded to a 300 series stainless steel ball. The non-marking, non-staining urethane provides excellent protection against damage on delicate work surfaces. The "bubbled" texture of the urethane top offers firm holding and allows air to escape so no suction is created between the contact surface and the top of the rest pad as it is compressed. Because the top is made of urethane it offers superior abrasion and wear resistance. They are available in three durometers to meet a wide variety of application needs. Replacement balls and O-rings can be ordered separately. See page 166 for diagram of components.

INCH

Part #	B Thread Length	C Contact Dia.	D Stand Off	E Degree Swivel	F Int. Hex	Ball Dia.	Durometer	Ball Only Part #
3/8-16 Threads								
TST-0370-FC-35UR	1/2	.315	.143	28	3/16	3/16	35	BUB-187-FC-35UR
TST-0370-FC-60UR	1/2	.315	.143	28	3/16	3/16	60	BUB-187-FC-60UR
TST-0370-FC-80UR	1/2	.315	.143	28	3/16	3/16	80	BUB-187-FC-80UR
TST-0375 X .75-FC-35UR	3/4	.315	.143	28	3/16	3/16	35	BUB-187-FC-35UR
TST-0375 X .75-FC-60UR	3/4	.315	.143	28	3/16	3/16	60	BUB-187-FC-60UR
TST-0375 X .75-FC-80UR	3/4	.315	.143	28	3/16	3/16	80	BUB-187-FC-80UR
TST-0375-FC-35UR	1	.315	.143	28	3/16	3/16	35	BUB-187-FC-35UR
TST-0375-FC-60UR	1	.315	.143	28	3/16	3/16	60	BUB-187-FC-60UR
TST-0375-FC-80UR	1	.315	.143	28	3/16	3/16	80	BUB-187-FC-80UR
TST-0375 X 1.5-FC-35UR	1-1/2	.315	.143	28	3/16	3/16	35	BUB-187-FC-35UR
TST-0375 X 1.5-FC-60UR	1-1/2	.315	.143	28	3/16	3/16	60	BUB-187-FC-60UR
TST-0375 X 1.5-FC-80UR	1-1/2	.315	.143	28	3/16	3/16	80	BUB-187-FC-80UR
TST-0375 X 2-FC-35UR	2	.315	.143	28	3/16	3/16	35	BUB-187-FC-35UR
TST-0375 X 2-FC-60UR	2	.315	.143	28	3/16	3/16	60	BUB-187-FC-60UR
TST-0375 X 2-FC-80UR	2	.315	.143	28	3/16	3/16	80	BUB-187-FC-80UR
TST-0375 X 3-FC-35UR	3	.315	.143	28	3/16	3/16	35	BUB-187-FC-35UR
TST-0375 X 3-FC-60UR	3	.315	.143	28	3/16	3/16	60	BUB-187-FC-60UR
TST-0375 X 3-FC-80UR	3	.315	.143	28	3/16	3/16	80	BUB-187-FC-80UR
3/8-24 Threads								
TST-0230-FC-35UR	1/2	.315	.143	28	3/16	3/16	35	BUB-187-FC-35UR
TST-0230-FC-60UR	1/2	.315	.143	28	3/16	3/16	60	BUB-187-FC-60UR
TST-0230-FC-80UR	1/2	.315	.143	28	3/16	3/16	80	BUB-187-FC-80UR
TST-0230 X .75-FC-35UR	3/4	.315	.143	28	3/16	3/16	35	BUB-187-FC-35UR
TST-0230 X .75-FC-60UR	3/4	.315	.143	28	3/16	3/16	60	BUB-187-FC-60UR
TST-0230 X .75-FC-80UR	3/4	.315	.143	28	3/16	3/16	80	BUB-187-FC-80UR
TST-0231-FC-35UR	1	.315	.143	28	3/16	3/16	35	BUB-187-FC-35UR
TST-0231-FC-60UR	1	.315	.143	28	3/16	3/16	60	BUB-187-FC-60UR
TST-0231-FC-80UR	1	.315	.143	28	3/16	3/16	80	BUB-187-FC-80UR
TST-0231 X 1.5-FC-35UR	1-1/2	.315	.143	28	3/16	3/16	35	BUB-187-FC-35UR
TST-0231 X 1.5-FC-60UR	1-1/2	.315	.143	28	3/16	3/16	60	BUB-187-FC-60UR
TST-0231 X 1.5-FC-80UR	1-1/2	.315	.143	28	3/16	3/16	80	BUB-187-FC-80UR
TST-0231 X 2-FC-35UR	2	.315	.143	28	3/16	3/16	35	BUB-187-FC-35UR
TST-0231 X 2-FC-60UR	2	.315	.143	28	3/16	3/16	60	BUB-187-FC-60UR
TST-0231 X 2-FC-80UR	2	.315	.143	28	3/16	3/16	80	BUB-187-FC-80UR
TST-0231 X 3-FC-35UR	3	.315	.143	28	3/16	3/16	35	BUB-187-FC-35UR
TST-0231 X 3-FC-60UR	3	.315	.143	28	3/16	3/16	60	BUB-187-FC-60UR
TST-0231 X 3-FC-80UR	3	.315	.143	28	3/16	3/16	80	BUB-187-FC-80UR
TST-0510 X 3-FC-80UR	3	.394	.174	28	1/4	9/32	80	BUB-200-FC-80UR

THRUST SCREW ASSEMBLIES

Threaded Body | Stainless Ball | Sof-Top Urethane Surface | Inch (continued)

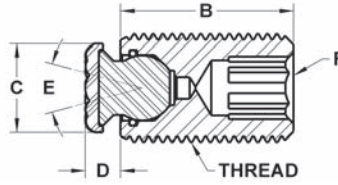
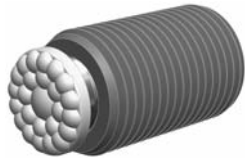


INCH (CONTINUED)

Part #	B Thread Length	C Contact Dia.	D Stand Off	E Degree Swivel	F Int. Hex	Ball Dia.	Durometer	Ball Only Part #
1/2-13 Threads								
TST-0513-FC-35UR	3/4	.394	.174	28	1/4	9/32	35	BUB-200-FC-35UR
TST-0513-FC-60UR	3/4	.394	.174	28	1/4	9/32	60	BUB-200-FC-60UR
TST-0513-FC-80UR	3/4	.394	.174	28	1/4	9/32	80	BUB-200-FC-80UR
TST-0510-FC-35UR	1	.394	.174	28	1/4	9/32	35	BUB-200-FC-35UR
TST-0510-FC-60UR	1	.394	.174	28	1/4	9/32	60	BUB-200-FC-60UR
TST-0510-FC-80UR	1	.394	.174	28	1/4	9/32	80	BUB-200-FC-80UR
TST-0510 X 1.5-FC-35UR	1-1/2	.394	.174	28	1/4	9/32	35	BUB-200-FC-35UR
TST-0510 X 1.5-FC-60UR	1-1/2	.394	.174	28	1/4	9/32	60	BUB-200-FC-60UR
TST-0510 X 1.5-FC-80UR	1-1/2	.394	.174	28	1/4	9/32	80	BUB-200-FC-80UR
TST-0510 X 2-FC-35UR	2	.394	.174	28	1/4	9/32	35	BUB-200-FC-35UR
TST-0510 X 2-FC-60UR	2	.394	.174	28	1/4	9/32	60	BUB-200-FC-60UR
TST-0510 X 2-FC-80UR	2	.394	.174	28	1/4	9/32	80	BUB-200-FC-80UR
TST-0510 X 3-FC-35UR	3	.394	.174	28	1/4	9/32	35	BUB-200-FC-35UR
TST-0510 X 3-FC-60UR	3	.394	.174	28	1/4	9/32	60	BUB-200-FC-60UR
1/2-20 Threads								
TST-0503-FC-35UR	3/4	.394	.174	28	1/4	9/32	35	BUB-200-FC-35UR
TST-0503-FC-60UR	3/4	.394	.174	28	1/4	9/32	60	BUB-200-FC-60UR
TST-0503-FC-80UR	3/4	.394	.174	28	1/4	9/32	80	BUB-200-FC-80UR
TST-0500-FC-35UR	1	.394	.174	28	1/4	9/32	35	BUB-200-FC-35UR
TST-0500-FC-60UR	1	.394	.174	28	1/4	9/32	60	BUB-200-FC-60UR
TST-0500-FC-80UR	1	.394	.174	28	1/4	9/32	80	BUB-200-FC-80UR
TST-0500 X 1.5-FC-35UR	1-1/2	.394	.174	28	1/4	9/32	35	BUB-200-FC-35UR
TST-0500 X 1.5-FC-60UR	1-1/2	.394	.174	28	1/4	9/32	60	BUB-200-FC-60UR
TST-0500 X 1.5-FC-80UR	1-1/2	.394	.174	28	1/4	9/32	80	BUB-200-FC-80UR
TST-0500 X 2-FC-35UR	2	.394	.174	28	1/4	9/32	35	BUB-200-FC-35UR
TST-0500 X 2-FC-60UR	2	.394	.174	28	1/4	9/32	60	BUB-200-FC-60UR
TST-0500 X 2-FC-80UR	2	.394	.174	28	1/4	9/32	80	BUB-200-FC-80UR
TST-0500 X 3-FC-35UR	3	.394	.174	28	1/4	9/32	35	BUB-200-FC-35UR
TST-0500 X 3-FC-60UR	3	.394	.174	28	1/4	9/32	60	BUB-200-FC-60UR
TST-0500 X 3-FC-80UR	3	.394	.174	28	1/4	9/32	80	BUB-200-FC-80UR
5/8-11 Threads								
TST-0625-FC-35UR	1	.512	.205	28	5/16	3/8	35	BUB-300-FC-35UR
TST-0625-FC-60UR	1	.512	.205	28	5/16	3/8	60	BUB-300-FC-60UR
TST-0625-FC-80UR	1	.512	.205	28	5/16	3/8	80	BUB-300-FC-80UR
TST-0625 X 2-FC-35UR	2	.512	.205	28	5/16	3/8	35	BUB-300-FC-35UR
TST-0625 X 2-FC-60UR	2	.512	.205	28	5/16	3/8	60	BUB-300-FC-60UR
TST-0625 X 2-FC-80UR	2	.512	.205	28	5/16	3/8	80	BUB-300-FC-80UR
TST-0625 X 3-FC-35UR	3	.512	.205	28	5/16	3/8	35	BUB-300-FC-35UR
TST-0625 X 3-FC-60UR	3	.512	.205	28	5/16	3/8	60	BUB-300-FC-60UR
TST-0625 X 3-FC-80UR	3	.512	.205	28	5/16	3/8	80	BUB-300-FC-80UR
5/8-18 Threads								
TST-0620-FC-35UR	1	.512	.205	28	5/16	3/8	35	BUB-300-FC-35UR
TST-0620-FC-60UR	1	.512	.205	28	5/16	3/8	60	BUB-300-FC-60UR
TST-0620-FC-80UR	1	.512	.205	28	5/16	3/8	80	BUB-300-FC-80UR
TST-0620 X 2-FC-35UR	2	.512	.205	28	5/16	3/8	35	BUB-300-FC-35UR
TST-0620 X 2-FC-60UR	2	.512	.205	28	5/16	3/8	60	BUB-300-FC-60UR
TST-0620 X 2-FC-80UR	2	.512	.205	28	5/16	3/8	80	BUB-300-FC-80UR
TST-0620 X 3-FC-35UR	3	.512	.205	28	5/16	3/8	35	BUB-300-FC-35UR
TST-0620 X 3-FC-60UR	3	.512	.205	28	5/16	3/8	60	BUB-300-FC-60UR
TST-0620 X 3-FC-80UR	3	.512	.205	28	5/16	3/8	80	BUB-300-FC-80UR

THRUST SCREW ASSEMBLIES

Threaded Body | Stainless Ball | Sof-Top Urethane Surface | Inch (continued)

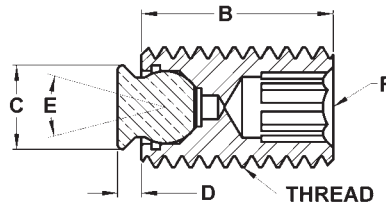
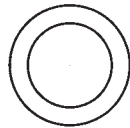


INCH (CONTINUED)

Part #	B Thread Length	C Contact Dia.	D Stand Off	E Degree Swivel	F Int. Hex	Ball Dia.	Durometer	Ball Only Part #
3/4-10 Threads								
TST-0755-FC-35UR	1	.630	.205	28	3/8	1/2	35	BUB-500-FC-35UR
TST-0755-FC-60UR	1	.630	.205	28	3/8	1/2	60	BUB-500-FC-60UR
TST-0755-FC-80UR	1	.630	.205	28	3/8	1/2	80	BUB-500-FC-80UR
TST-0755 X 2-FC-35UR	2	.630	.205	28	3/8	1/2	35	BUB-500-FC-35UR
TST-0755 X 2-FC-60UR	2	.630	.205	28	3/8	1/2	60	BUB-500-FC-60UR
TST-0755 X 2-FC-80UR	2	.630	.205	28	3/8	1/2	80	BUB-500-FC-80UR
TST-0755 X 3-FC-35UR	3	.630	.205	28	3/8	1/2	35	BUB-500-FC-35UR
TST-0755 X 3-FC-60UR	3	.630	.205	28	3/8	1/2	60	BUB-500-FC-60UR
TST-0755 X 3-FC-80UR	3	.630	.205	28	3/8	1/2	80	BUB-500-FC-80UR
3/4-16 Threads								
TST-0750-FC-35UR	1	.630	.205	28	3/8	1/2	35	BUB-500-FC-35UR
TST-0750-FC-60UR	1	.630	.205	28	3/8	1/2	60	BUB-500-FC-60UR
TST-0750-FC-80UR	1	.630	.205	28	3/8	1/2	80	BUB-500-FC-80UR
TST-0750 X 2-FC-35UR	2	.630	.205	28	3/8	1/2	35	BUB-500-FC-35UR
TST-0750 X 2-FC-60UR	2	.630	.205	28	3/8	1/2	60	BUB-500-FC-60UR
TST-0750 X 2-FC-80UR	2	.630	.205	28	3/8	1/2	80	BUB-500-FC-80UR
TST-0750 X 3-FC-35UR	3	.630	.205	28	3/8	1/2	35	BUB-500-FC-35UR
TST-0750 X 3-FC-60UR	3	.630	.205	28	3/8	1/2	60	BUB-500-FC-60UR
TST-0750 X 3-FC-80UR	3	.630	.205	28	3/8	1/2	80	BUB-500-FC-80UR
1"-8 Threads								
TST-1108-FC-35UR	1	.827	.236	32	3/8	5/8	35	BUB-600-FC-35UR
TST-1108-FC-60UR	1	.827	.236	32	3/8	5/8	60	BUB-600-FC-60UR
TST-1108-FC-80UR	1	.827	.236	32	3/8	5/8	80	BUB-600-FC-80UR
TST-1108 X 2-FC-35UR	2	.827	.236	32	3/8	5/8	35	BUB-600-FC-35UR
TST-1108 X 2-FC-60UR	2	.827	.236	32	3/8	5/8	60	BUB-600-FC-60UR
TST-1108 X 2-FC-80UR	2	.827	.236	32	3/8	5/8	80	BUB-600-FC-80UR
TST-1108 X 3-FC-35UR	3	.827	.236	32	3/8	5/8	35	BUB-600-FC-35UR
TST-1108 X 3-FC-60UR	3	.827	.236	32	3/8	5/8	60	BUB-600-FC-60UR
TST-1108 X 3-FC-80UR	3	.827	.236	32	3/8	5/8	80	BUB-600-FC-80UR
1"-14 Threads								
TST-1114-FC-35UR	1	.906	.236	32	3/8	3/4	35	BUB-700-FC-35UR
TST-1114-FC-60UR	1	.906	.236	32	3/8	3/4	60	BUB-700-FC-60UR
TST-1114-FC-80UR	1	.906	.236	32	3/8	3/4	80	BUB-700-FC-80UR
TST-1114 X 2-FC-35UR	2	.906	.236	32	3/8	3/4	35	BUB-700-FC-35UR
TST-1114 X 2-FC-60UR	2	.906	.236	32	3/8	3/4	60	BUB-700-FC-60UR
TST-1114 X 2-FC-80UR	2	.906	.236	32	3/8	3/4	80	BUB-700-FC-80UR
TST-1114 X 3-FC-35UR	3	.906	.236	32	3/8	3/4	35	BUB-700-FC-35UR
TST-1114 X 3-FC-60UR	3	.906	.236	32	3/8	3/4	60	BUB-700-FC-60UR
TST-1114 X 3-FC-80UR	3	.906	.236	32	3/8	3/4	80	BUB-700-FC-80UR

THRUST SCREW ASSEMBLIES

Threaded Body | Delrin Ball | Flat Cone | Inch



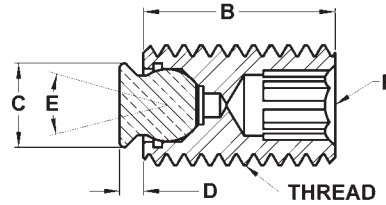
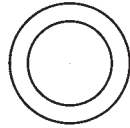
These thrust screw assemblies allow straight line static load thrust without transmitting torsional or radial force on to the contact area. The free floating ball design allows the thrust screw to continue to rotate while the ball remains stationary against the contact surface. Ideal for irregular shaped or contoured applications. The housing is made from alloy steel, heat treated to Rc 43/46 with a black oxide finish. The replaceable ball is held in place with a viton O-ring which keeps contaminants out and allows the ball to swivel. The ball is made from non-marring white delrin and ground flat. Replacement balls and O-rings can be ordered separately. See page 166 for diagram of components.

INCH

Part #	B Thread Length	C Contact Dia.	D Stand Off	E Degree Swivel	F Int. Hex	Ball Dia.	Ball Only Part #
1/4-20 Threads							
TST-0250-DC	1/2	9/64	1/16	30	1/8	1/8	BUB-125-DC
TST-0251-DC	3/4	9/64	1/16	30	1/8	1/8	BUB-125-DC
TST-0251 X 1-DC	1	9/64	1/16	30	1/8	1/8	BUB-125-DC
1/4-28 Threads							
TST-0280-DC	1/2	9/64	1/16	30	1/8	1/8	BUB-125-DC
TST-0281-DC	3/4	9/64	1/16	30	1/8	1/8	BUB-125-DC
TST-0281 X 1-DC	1	9/64	1/16	30	1/8	1/8	BUB-125-DC
5/16-18 Threads							
TST-0310-DC	1/2	13/64	1/16	30	5/32	5/32	BUB-156-DC
TST-0312-DC	3/4	13/64	1/16	30	5/32	5/32	BUB-156-DC
TST-0312 X 1-DC	1	13/64	1/16	30	5/32	5/32	BUB-156-DC
TST-0312 X 1.5-DC	1-1/2	13/64	1/16	30	5/32	5/32	BUB-156-DC
5/16-24 Threads							
TST-0320-DC	1/2	13/64	1/16	30	5/32	5/32	BUB-156-DC
TST-0321-DC	3/4	13/64	1/16	30	5/32	5/32	BUB-156-DC
TST-0321 X 1-DC	1	13/64	1/16	30	5/32	5/32	BUB-156-DC
TST-0321 X 1.5-DC	1-1/2	13/64	1/16	30	5/32	5/32	BUB-156-DC
3/8-16 Threads							
TST-0370-DC	1/2	1/4	3/32	28	3/16	3/16	BUB-187-DC
TST-0370 X .75-DC	3/4	1/4	3/32	28	3/16	3/16	BUB-187-DC
TST-0375-DC	1	1/4	3/32	28	3/16	3/16	BUB-187-DC
TST-0375 X 1.5-DC	1-1/2	1/4	3/32	28	3/16	3/16	BUB-187-DC
TST-0375 X 2-DC	2	1/4	3/32	28	3/16	3/16	BUB-187-DC
TST-0375 X 3-DC	3	1/4	3/32	28	3/16	3/16	BUB-187-DC
3/8-24 Threads							
TST-0230-DC	1/2	1/4	3/32	28	3/16	3/16	BUB-187-DC
TST-0230 X .75-DC	3/4	1/4	3/32	28	3/16	3/16	BUB-187-DC
TST-0231-DC	1	1/4	3/32	28	3/16	3/16	BUB-187-DC
TST-0231 X 1.5-DC	1-1/2	1/4	3/32	28	3/16	3/16	BUB-187-DC
TST-0231 X 2-DC	2	1/4	3/32	28	3/16	3/16	BUB-187-DC
TST-0231 X 3-DC	3	1/4	3/32	28	3/16	3/16	BUB-187-DC
1/2-13 Threads							
TST-0513-DC	3/4	11/32	3/32	28	1/4	9/32	BUB-200-DC
TST-0510-DC	1	11/32	3/32	28	1/4	9/32	BUB-200-DC
TST-0510 X 1.5-DC	1-1/2	11/32	3/32	28	1/4	9/32	BUB-200-DC
TST-0510 X 2-DC	2	11/32	3/32	28	1/4	9/32	BUB-200-DC
TST-0510 X 3-DC	3	11/32	3/32	28	1/4	9/32	BUB-200-DC
1/2-20 Threads							
TST-0503-DC	3/4	11/32	3/32	28	1/4	9/32	BUB-200-DC
TST-0500-DC	1	11/32	3/32	28	1/4	9/32	BUB-200-DC
TST-0500 X 1.5-DC	1-1/2	11/32	3/32	28	1/4	9/32	BUB-200-DC
TST-0500 X 2-DC	2	11/32	3/32	28	1/4	9/32	BUB-200-DC
TST-0500 X 3-DC	3	11/32	3/32	28	1/4	9/32	BUB-200-DC

THRUST SCREW ASSEMBLIES

Threaded Body | Delrin Ball | Flat Cone | Inch (continued)

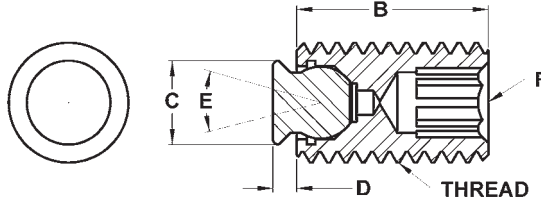


INCH (CONTINUED)

Part #	B Thread Length	C Contact Dia.	D Stand Off	E Degree Swivel	F Int. Hex	Ball Dia.	Ball Only Part #
5/8-11 Threads							
TST-0625-DC	1	7/16	1/8	28	5/16	3/8	BUB-300-DC
TST-0625 X 2-DC	2	7/16	1/8	28	5/16	3/8	BUB-300-DC
TST-0625 X 3-DC	3	7/16	1/8	28	5/16	3/8	BUB-300-DC
5/8-18 Threads							
TST-0620-DC	1	7/16	1/8	28	5/16	3/8	BUB-300-DC
TST-0620 X 2-DC	2	7/16	1/8	28	5/16	3/8	BUB-300-DC
TST-0620 X 3-DC	3	7/16	1/8	28	5/16	3/8	BUB-300-DC
3/4-10 Threads							
TST-0755-DC	1	33/64	1/8	28	3/8	1/2	BUB-500-DC
TST-0755 X 2-DC	2	33/64	1/8	28	3/8	1/2	BUB-500-DC
TST-0755 X 3-DC	3	33/64	1/8	28	3/8	1/2	BUB-500-DC
3/4-16 Threads							
TST-0750-DC	1	33/64	1/8	28	3/8	1/2	BUB-500-DC
TST-0750 X 2-DC	2	33/64	1/8	28	3/8	1/2	BUB-500-DC
TST-0750 X 3-DC	3	33/64	1/8	28	3/8	1/2	BUB-500-DC
1"-8 Threads							
TST-1108-DC	1	11/16	5/32	32	3/8	5/8	BUB-600-DC
TST-1108 X 2-DC	2	11/16	5/32	32	3/8	5/8	BUB-600-DC
TST-1108 X 3-DC	3	11/16	5/32	32	3/8	5/8	BUB-600-DC
1"-14 Threads							
TST-1114-DC	1	49/64	5/32	32	3/8	3/4	BUB-700-DC
TST-1114 X 2-DC	2	49/64	5/32	32	3/8	3/4	BUB-700-DC
TST-1114 X 3-DC	3	49/64	5/32	32	3/8	3/4	BUB-700-DC

THRUST SCREW ASSEMBLIES

Threaded Body | Stainless Ball | Flat Cone | Inch

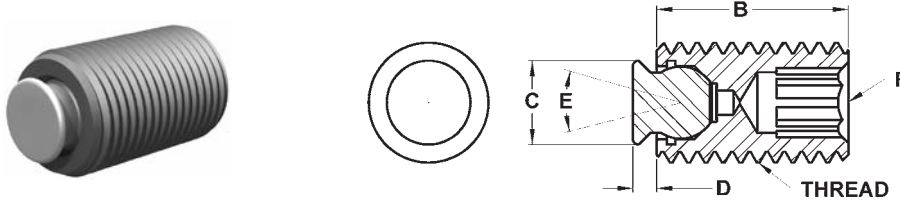


These thrust screw assemblies allow straight line static load thrust without transmitting torsional or radial force on to the contact area. The free floating ball design allows the thrust screw to continue to rotate while the ball remains stationary against the contact surface. Ideal for irregular shaped or contoured applications. The housing is made from alloy steel, heat treated to Rc 43/46 with a black oxide finish. The replaceable ball is held in place with a viton O-ring which keeps contaminants out and allows the ball to swivel. The flat ball is made from 303 stainless steel. Replacement balls and O-rings can be ordered separately. See page 166 for diagram of components.

INCH									
Part #	B Thread Length	C Contact Dia.	D Stand Off	E Degree Swivel	F Int. Hex	Ball Dia.	Ball Only Part #	Load Rating Lbs.	
1/4-20 Threads									
TST-0250-FC	1/2	9/64	1/16	30	1/8	1/8	BUB-125-FC	—	
TST-0251-FC	3/4	9/64	1/16	30	1/8	1/8	BUB-125-FC	—	
TST-0251 X 1-FC	1	9/64	1/16	30	1/8	1/8	BUB-125-FC	—	
1/4-28 Threads									
TST-0280-FC	1/2	9/64	1/16	30	1/8	1/8	BUB-125-FC	—	
TST-0281-FC	3/4	9/64	1/16	30	1/8	1/8	BUB-125-FC	—	
TST-0281 X 1-FC	1	9/64	1/16	30	1/8	1/8	BUB-125-FC	—	
5/16-18 Threads									
TST-0310-FC	1/2	13/64	1/16	30	5/32	5/32	BUB-156-FC	—	
TST-0312-FC	3/4	13/64	1/16	30	5/32	5/32	BUB-156-FC	—	
TST-0312 X 1-FC	1	13/64	1/16	30	5/32	5/32	BUB-156-FC	—	
TST-0312 X 1.5-FC	1-1/2	13/64	1/16	30	5/32	5/32	BUB-156-FC	—	
5/16-24 Threads									
TST-0320-FC	1/2	13/64	1/16	30	5/32	5/32	BUB-156-FC	—	
TST-0321-FC	3/4	13/64	1/16	30	5/32	5/32	BUB-156-FC	—	
TST-0321 X 1-FC	1	13/64	1/16	30	5/32	5/32	BUB-156-FC	—	
TST-0321 X 1.5-FC	1-1/2	13/64	1/16	30	5/32	5/32	BUB-156-FC	—	
3/8-16 Threads									
TST-0370-FC	1/2	1/4	3/32	28	3/16	3/16	BUB-187-FC	1,763	
TST-0370 X .75-FC	3/4	1/4	3/32	28	3/16	3/16	BUB-187-FC	1,763	
TST-0375-FC	1	1/4	3/32	28	3/16	3/16	BUB-187-FC	1,763	
TST-0375 X 1.5-FC	1-1/2	1/4	3/32	28	3/16	3/16	BUB-187-FC	1,763	
TST-0375 X 2-FC	2	1/4	3/32	28	3/16	3/16	BUB-187-FC	1,763	
TST-0375 X 3-FC	3	1/4	3/32	28	3/16	3/16	BUB-187-FC	1,763	
3/8-24 Threads									
TST-0230-FC	1/2	1/4	3/32	28	3/16	3/16	BUB-187-FC	1,763	
TST-0230 X .75-FC	3/4	1/4	3/32	28	3/16	3/16	BUB-187-FC	1,763	
TST-0231-FC	1	1/4	3/32	28	3/16	3/16	BUB-187-FC	1,763	
TST-0231 X 1.5-FC	1-1/2	1/4	3/32	28	3/16	3/16	BUB-187-FC	1,763	
TST-0231 X 2-FC	2	1/4	3/32	28	3/16	3/16	BUB-187-FC	1,763	
TST-0231 X 3-FC	3	1/4	3/32	28	3/16	3/16	BUB-187-FC	1,763	
1/2-13 Threads									
TST-0513-FC	3/4	11/32	3/32	28	1/4	9/32	BUB-200-FC	4,527	
TST-0510-FC	1	11/32	3/32	28	1/4	9/32	BUB-200-FC	4,527	
TST-0510 X 1.5-FC	1-1/2	11/32	3/32	28	1/4	9/32	BUB-200-FC	4,527	
TST-0510 X 2-FC	2	11/32	3/32	28	1/4	9/32	BUB-200-FC	4,527	
TST-0510 X 3-FC	3	11/32	3/32	28	1/4	9/32	BUB-200-FC	4,527	
1/2-20 Threads									
TST-0503-FC	3/4	11/32	3/32	28	1/4	9/32	BUB-200-FC	4,527	
TST-0500-FC	1	11/32	3/32	28	1/4	9/32	BUB-200-FC	4,527	
TST-0500 X 1.5-FC	1-1/2	11/32	3/32	28	1/4	9/32	BUB-200-FC	4,527	
TST-0500 X 2-FC	2	11/32	3/32	28	1/4	9/32	BUB-200-FC	4,527	
TST-0500 X 3-FC	3	11/32	3/32	28	1/4	9/32	BUB-200-FC	4,527	

THRUST SCREW ASSEMBLIES

Threaded Body | Stainless Ball | Flat Cone | Inch (continued)



INCH (CONTINUED)

Part #	B Thread Length	C Contact Dia.	D Stand Off	E Degree Swivel	F Int. Hex	Ball Dia.	Ball Only Part #	Load Rating Lbs.
5/8-11 Threads								
TST-0625-FC	1	7/16	1/8	28	5/16	3/8	BUB-300-FC	6,131
TST-0625 X 2-FC	2	7/16	1/8	28	5/16	3/8	BUB-300-FC	6,131
TST-0625 X 3-FC	3	7/16	1/8	28	5/16	3/8	BUB-300-FC	6,131
5/8-18 Threads								
TST-0620-FC	1	7/16	1/8	28	5/16	3/8	BUB-300-FC	6,131
TST-0620 X 2-FC	2	7/16	1/8	28	5/16	3/8	BUB-300-FC	6,131
TST-0620 X 3-FC	3	7/16	1/8	28	5/16	3/8	BUB-300-FC	6,131
3/4-10 Threads								
TST-0755-FC	1	33/64	1/8	28	3/8	1/2	BUB-500-FC	8,150
TST-0755 X 2-FC	2	33/64	1/8	28	3/8	1/2	BUB-500-FC	8,150
TST-0755 X 3-FC	3	33/64	1/8	28	3/8	1/2	BUB-500-FC	8,150
3/4-16 Threads								
TST-0750-FC	1	33/64	1/8	28	3/8	1/2	BUB-500-FC	8,150
TST-0750 X 2-FC	2	33/64	1/8	28	3/8	1/2	BUB-500-FC	8,150
TST-0750 X 3-FC	3	33/64	1/8	28	3/8	1/2	BUB-500-FC	8,150
1"-8 Threads								
TST-1108-FC	1	11/16	5/32	32	3/8	5/8	BUB-600-FC	14,757
TST-1108 X 2-FC	2	11/16	5/32	32	3/8	5/8	BUB-600-FC	14,757
TST-1108 X 3-FC	3	11/16	5/32	32	3/8	5/8	BUB-600-FC	14,757
1"-14 Threads								
TST-1114-FC	1	49/64	5/32	32	3/8	3/4	BUB-700-FC	17,210
TST-1114 X 2-FC	2	49/64	5/32	32	3/8	3/4	BUB-700-FC	17,210
TST-1114 X 3-FC	3	49/64	5/32	32	3/8	3/4	BUB-700-FC	17,210

THRUST SCREW ASSEMBLIES

Threaded Body | Stainless Ball | Abrasive Diamond Surface | Inch



These thrust screw assemblies allow straight line static load thrust without transmitting torsional or radial force on to the contact area. The free floating ball design allows the thrust screw to continue to rotate while the ball remains stationary against the contact surface. Ideal for irregular haped or contoured applications. The housing is made from alloy steel, heat treated to Rc 43/46 with a black oxide finish. The replaceable ball is held in place with a viton O-ring which keeps contaminants out and allows the ball to swivel. The abrasive surface is permanently fused to a 300 series stainless steel pad. The surface texture is comparable to a 100 grit abrasive. They are ideal for holding smooth or slippery applications with a minimum of clamping pressure. Individual diamond particles transfer holding pressure to a very small and well distributed area, providing superior holding with minimal surface marking. The diamond surface provides unparalleled wear resistance. Replacement balls and O-rings can be ordered separately. See page 166 for diagram of components.

INCH

Part #	B Thread Length	C Contact Dia.	D Stand Off	E Degree Swivel	F Int. Hex	Ball Dia.	Ball Only Part #	Load Rating Lbs.
3/8-16 Threads								
TST-0370-FC-DS	1/2	.236	.063	28	3/16	3/16	BUB-187-FC-DS	1,763
TST-0370 X .75-FC-DS	3/4	.236	.063	28	3/16	3/16	BUB-187-FC-DS	1,763
TST-0375-FC-DS	1	.236	.063	28	3/16	3/16	BUB-187-FC-DS	1,763
TST-0375 X 1.5-FC-DS	1-1/2	.236	.063	28	3/16	3/16	BUB-187-FC-DS	1,763
TST-0375 X 2-FC-DS	2	.236	.063	28	3/16	3/16	BUB-187-FC-DS	1,763
TST-0375 X 3-FC-DS	3	.236	.063	28	3/16	3/16	BUB-187-FC-DS	1,763
3/8-24 Threads								
TST-0230-FC-DS	1/2	.236	.063	28	3/16	3/16	BUB-187-FC-DS	1,763
TST-0230 X .75-FC-DS	3/4	.236	.063	28	3/16	3/16	BUB-187-FC-DS	1,763
TST-0231-FC-DS	1	.236	.063	28	3/16	3/16	BUB-187-FC-DS	1,763
TST-0231 X 1.5-FC-DS	1-1/2	.236	.063	28	3/16	3/16	BUB-187-FC-DS	1,763
TST-0231 X 2-FC-DS	2	.236	.063	28	3/16	3/16	BUB-187-FC-DS	1,763
TST-0231 X 3-FC-DS	3	.236	.063	28	3/16	3/16	BUB-187-FC-DS	1,763
1/2-13 Threads								
TST-0513-FC-DS	3/4	.315	.094	28	1/4	9/32	BUB-200-FC-DS	4,527
TST-0510-FC-DS	1	.315	.094	28	1/4	9/32	BUB-200-FC-DS	4,527
TST-0510 X 1.5-FC-DS	1-1/2	.315	.094	28	1/4	9/32	BUB-200-FC-DS	4,527
TST-0510 X 2-FC-DS	2	.315	.094	28	1/4	9/32	BUB-200-FC-DS	4,527
TST-0510 X 3-FC-DS	3	.315	.094	28	1/4	9/32	BUB-200-FC-DS	4,527
1/2-20 Threads								
TST-0503-FC-DS	3/4	.315	.094	28	1/4	9/32	BUB-200-FC-DS	4,527
TST-0500-FC-DS	1	.315	.094	28	1/4	9/32	BUB-200-FC-DS	4,527
TST-0500 X 1.5-FC-DS	1-1/2	.315	.094	28	1/4	9/32	BUB-200-FC-DS	4,527
TST-0500 X 2-FC-DS	2	.315	.094	28	1/4	9/32	BUB-200-FC-DS	4,527
TST-0500 X 3-FC-DS	3	.315	.094	28	1/4	9/32	BUB-200-FC-DS	4,527
5/8-11 Threads								
TST-0625-FC-DS	1	.433	.125	28	5/16	3/8	BUB-300-FC-DS	6,131
TST-0625 X 2-FC-DS	2	.433	.125	28	5/16	3/8	BUB-300-FC-DS	6,131
TST-0625 X 3-FC-DS	3	.433	.125	28	5/16	3/8	BUB-300-FC-DS	6,131
5/8-18 Threads								
TST-0620-FC-DS	1	.433	.125	28	5/16	3/8	BUB-300-FC-DS	6,131
TST-0620 X 2-FC-DS	2	.433	.125	28	5/16	3/8	BUB-300-FC-DS	6,131
TST-0620 X 3-FC-DS	3	.433	.125	28	5/16	3/8	BUB-300-FC-DS	6,131

THRUST SCREW ASSEMBLIES

Threaded Body | Stainless Ball | Abrasive Diamond Surface | Inch (continued)

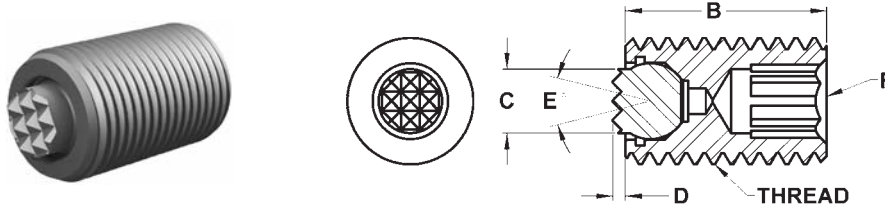


INCH (CONTINUED)

Part #	B Thread Length	C Contact Dia.	D Stand Off	E Degree Swivel	F Int. Hex	Ball Dia.	Ball Only Part #	Load Rating Lbs.
3/4-10 Threads								
TST-0755-FC-DS	1	.551	.125	28	3/8	1/2	BUB-500-FC-DS	8,150
TST-0755 X 2-FC-DS	2	.551	.125	28	3/8	1/2	BUB-500-FC-DS	8,150
TST-0755 X 3-FC-DS	3	.551	.125	28	3/8	1/2	BUB-500-FC-DS	8,150
3/4-16 Threads								
TST-0750-FC-DS	1	.551	.125	28	3/8	1/2	BUB-500-FC-DS	8,150
TST-0750 X 2-FC-DS	2	.551	.125	28	3/8	1/2	BUB-500-FC-DS	8,150
TST-0750 X 3-FC-DS	3	.551	.125	28	3/8	1/2	BUB-500-FC-DS	8,150
1"-8 Threads								
TST-1108-FC-DS	1	.748	.156	32	3/8	5/8	BUB-600-FC-DS	14,757
TST-1108 X 2-FC-DS	2	.748	.156	32	3/8	5/8	BUB-600-FC-DS	14,757
TST-1108 X 3-FC-DS	3	.748	.156	32	3/8	5/8	BUB-600-FC-DS	14,757
1"-14 Threads								
TST-1114-FC-DS	1	.827	.156	32	3/8	3/4	BUB-700-FC-DS	17,210
TST-1114 X 2-FC-DS	2	.827	.156	32	3/8	3/4	BUB-700-FC-DS	17,210
TST-1114 X 3-FC-DS	3	.827	.156	32	3/8	3/4	BUB-700-FC-DS	17,210

THRUST SCREW ASSEMBLIES

Threaded Body | Tool Steel Ball | Serrated | Inch



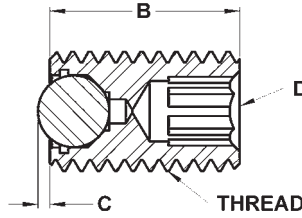
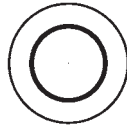
These thrust screw assemblies allow straight line static load thrust without transmitting torsional or radial force on to the contact area. The free floating ball design allows the thrust screw to continue to rotate while the ball remains stationary against the contact surface. Ideal for irregular shaped or contoured applications. The housing is made from alloy steel, heat treated to Rc 43/46 with a black oxide finish. The replaceable ball is held in place with a viton O-ring which keeps contaminants out and allows the ball to swivel. The ball is made from M-2 high speed steel and heat treated to Rc 60/62. Replacement balls and O-rings can be ordered separately. See page 90 for tooth pattern specifications. See page 166 for diagram of components.

INCH

Part #	B Thread Length	C Contact Dia.	D Stand Off	E Degree Swivel	F Int. Hex	Ball Dia.	Ball Only Part #	Tooth Pattern	Load Rating Lbs.
3/8-16 Threads									
TST-0370-S	1/2	5/32	1/16	28	3/16	3/16	BUB-187-S	SF	1,763
TST-0370 X .75-S	3/4	5/32	1/16	28	3/16	3/16	BUB-187-S	SF	1,763
TST-0375-S	1	5/32	1/16	28	3/16	3/16	BUB-187-S	SF	1,763
TST-0375 X 1.5-S	1-1/2	5/32	1/16	28	3/16	3/16	BUB-187-S	SF	1,763
TST-0375 X 2-S	2	5/32	1/16	28	3/16	3/16	BUB-187-S	SF	1,763
TST-0375 X 3-S	3	5/32	1/16	28	3/16	3/16	BUB-187-S	SF	1,763
3/8-24 Threads									
TST-0230-S	1/2	5/32	1/16	28	3/16	3/16	BUB-187-S	SF	1,763
TST-0230 X .75-S	3/4	5/32	1/16	28	3/16	3/16	BUB-187-S	SF	1,763
TST-0231-S	1	5/32	1/16	28	3/16	3/16	BUB-187-S	SF	1,763
TST-0231 X 1.5-S	1-1/2	5/32	1/16	28	3/16	3/16	BUB-187-S	SF	1,763
TST-0231 X 2-S	2	5/32	1/16	28	3/16	3/16	BUB-187-S	SF	1,763
TST-0231 X 3-S	3	5/32	1/16	28	3/16	3/16	BUB-187-S	SF	1,763
1/2-13 Threads									
TST-0513-S	3/4	1/4	1/16	28	1/4	9/32	BUB-200-S	SF	4,527
TST-0510-S	1	1/4	1/16	28	1/4	9/32	BUB-200-S	SF	4,527
TST-0510 X 1.5-S	1-1/2	1/4	1/16	28	1/4	9/32	BUB-200-S	SF	4,527
TST-0510 X 2-S	2	1/4	1/16	28	1/4	9/32	BUB-200-S	SF	4,527
TST-0510 X 3-S	3	1/4	1/16	28	1/4	9/32	BUB-200-S	SF	4,527
1/2-20 Threads									
TST-0503-S	3/4	1/4	1/16	28	1/4	9/32	BUB-200-S	SF	4,527
TST-0500-S	1	1/4	1/16	28	1/4	9/32	BUB-200-S	SF	4,527
TST-0500 X 1.5-S	1-1/2	1/4	1/16	28	1/4	9/32	BUB-200-S	SF	4,527
TST-0500 X 2-S	2	1/4	1/16	28	1/4	9/32	BUB-200-S	SF	4,527
TST-0500 X 3-S	3	1/4	1/16	28	1/4	9/32	BUB-200-S	SF	4,527
5/8-11 Threads									
TST-0625-S	1	5/16	1/16	28	5/16	3/8	BUB-300-S	EF	6,131
TST-0625 X 2-S	2	5/16	1/16	28	5/16	3/8	BUB-300-S	EF	6,131
TST-0625 X 3-S	3	5/16	1/16	28	5/16	3/8	BUB-300-S	EF	6,131
5/8-18 Threads									
TST-0620-S	1	5/16	1/16	28	5/16	3/8	BUB-300-S	EF	6,131
TST-0620 X 2-S	2	5/16	1/16	28	5/16	3/8	BUB-300-S	EF	6,131
TST-0620 X 3-S	3	5/16	1/16	28	5/16	3/8	BUB-300-S	EF	6,131
3/4-10 Threads									
TST-0755-S	1	3/8	1/8	40	3/8	1/2	BUB-500-S	EF	8,150
TST-0755 X 2-S	2	3/8	1/8	40	3/8	1/2	BUB-500-S	EF	8,150
TST-0755 X 3-S	3	3/8	1/8	40	3/8	1/2	BUB-500-S	EF	8,150
3/4-16 Threads									
TST-0750-S	1	3/8	1/8	40	3/8	1/2	BUB-500-S	EF	8,150
TST-0750 X 2-S	2	3/8	1/8	40	3/8	1/2	BUB-500-S	EF	8,150
TST-0750 X 3-S	3	3/8	1/8	40	3/8	1/2	BUB-500-S	EF	8,150
1"-8 Threads									
TST-1108-S	1	1/2	1/8	40	3/8	5/8	BUB-600-S	FINE	14,757
TST-1108 X 2-S	2	1/2	1/8	40	3/8	5/8	BUB-600-S	FINE	14,757
TST-1108 X 3-S	3	1/2	1/8	40	3/8	5/8	BUB-600-S	FINE	14,757
1"-14 Threads									
TST-1114-S	1	5/8	1/8	34	3/8	3/4	BUB-700-S	FINE	17,210
TST-1114 X 2-S	2	5/8	1/8	34	3/8	3/4	BUB-700-S	FINE	17,210
TST-1114 X 3-S	3	5/8	1/8	34	3/8	3/4	BUB-700-S	FINE	17,210

THRUST SCREW ASSEMBLIES

Threaded Body | Stainless Ball | Round | Inch

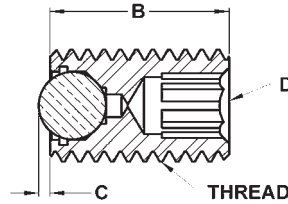
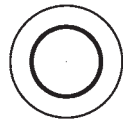


These thrust screw assemblies allow straight line static load thrust without transmitting torsional or radial force on to the contact area. The free floating ball design allows the thrust screw to continue to rotate while the ball remains stationary against the contact surface. Ideal for irregular shaped or contoured applications. The housing is made from alloy steel, heat treated to Rc 43/46 with a black oxide finish. The replaceable ball is held in place with a viton O-ring which keeps contaminants out and allows the ball to swivel. The ball is made from 440c stainless steel and heat treated to Rc 58/62. Replacement balls and O-rings can be ordered separately. See page 166 for diagram of components.

INCH						
Part #	B Thread Length	C Stand Off	Ball Dia.	Ball Only Part #	D Int. Hex	Load Rating Lbs.
5/16-18 Threads						
TST-0310-SB	1/2	.026	5/32	BUB-156-SB	5/32	—
TST-0312-SB	3/4	.026	5/32	BUB-156-SB	5/32	—
TST-0312 X 1-SB	1	.026	5/32	BUB-156-SB	5/32	—
TST-0312 X 1.5-SB	1-1/2	.026	5/32	BUB-156-SB	5/32	—
5/16-24 Threads						
TST-0320-SB	1/2	.026	5/32	BUB-156-SB	5/32	—
TST-0321-SB	3/4	.026	5/32	BUB-156-SB	5/32	—
TST-0321 X 1-SB	1	.026	5/32	BUB-156-SB	5/32	—
TST-0321 X 1.5-SB	1-1/2	.026	5/32	BUB-156-SB	5/32	—
3/8-16 Threads						
TST-0370-SB	1/2	.024	3/16	BUB-187-SB	3/16	1,763
TST-0370 X .75-SB	3/4	.024	3/16	BUB-187-SB	3/16	1,763
TST-0375-SB	1	.024	3/16	BUB-187-SB	3/16	1,763
TST-0375 X 1.5-SB	1-1/2	.024	3/16	BUB-187-SB	3/16	1,763
TST-0375 X 2-SB	2	.024	3/16	BUB-187-SB	3/16	1,763
TST-0375 X 3-SB	3	.024	3/16	BUB-187-SB	3/16	1,763
3/8-24 Threads						
TST-0230-SB	1/2	.024	3/16	BUB-187-SB	3/16	1,763
TST-0230 X .75-SB	3/4	.024	3/16	BUB-187-SB	3/16	1,763
TST-0231-SB	1	.024	3/16	BUB-187-SB	3/16	1,763
TST-0231 X 1.5-SB	1-1/2	.024	3/16	BUB-187-SB	3/16	1,763
TST-0231 X 2-SB	2	.024	3/16	BUB-187-SB	3/16	1,763
TST-0231 X 3-SB	3	.024	3/16	BUB-187-SB	3/16	1,763
1/2-13 Threads						
TST-0513-SB	3/4	.063	9/32	BUB-200-SB	1/4	4,527
TST-0510-SB	1	.063	9/32	BUB-200-SB	1/4	4,527
TST-0510 X 1.5-SB	1-1/2	.063	9/32	BUB-200-SB	1/4	4,527
TST-0510 X 2-SB	2	.063	9/32	BUB-200-SB	1/4	4,527
TST-0510 X 3-SB	3	.063	9/32	BUB-200-SB	1/4	4,527
1/2-20 Threads						
TST-0503-SB	3/4	.063	9/32	BUB-200-SB	1/4	4,527
TST-0500-SB	1	.063	9/32	BUB-200-SB	1/4	4,527
TST-0500 X 1.5-SB	1-1/2	.063	9/32	BUB-200-SB	1/4	4,527
TST-0500 X 2-SB	2	.063	9/32	BUB-200-SB	1/4	4,527
TST-0500 X 3-SB	3	.063	9/32	BUB-200-SB	1/4	4,527
Part #	B Thread Length	C Stand Off	Ball Dia.	Ball Only Part #	D Int. Hex	Load Rating Lbs.
5/8-11 Threads						
TST-0625-SB	1	.063	3/8	BUB-300-SB	5/16	6,131
TST-0625 X 2-SB	2	.063	3/8	BUB-300-SB	5/16	6,131
TST-0625 X 3-SB	3	.063	3/8	BUB-300-SB	5/16	6,131
5/8-18 Threads						
TST-0620-SB	1	.063	3/8	BUB-300-SB	5/16	6,131
TST-0620 X 2-SB	2	.063	3/8	BUB-300-SB	5/16	6,131
TST-0620 X 3-SB	3	.063	3/8	BUB-300-SB	5/16	6,131
3/4-10 Threads						
TST-0755-SB	1	.107	1/2	BUB-500-SB	3/8	8,150
TST-0755 X 2-SB	2	.107	1/2	BUB-500-SB	3/8	8,150
TST-0755 X 3-SB	3	.107	1/2	BUB-500-SB	3/8	8,150
3/4-16 Threads						
TST-0750-SB	1	.107	1/2	BUB-500-SB	3/8	8,150
TST-0750 X 2-SB	2	.107	1/2	BUB-500-SB	3/8	8,150
TST-0750 X 3-SB	3	.107	1/2	BUB-500-SB	3/8	8,150
1"-8 Threads						
TST-1108-SB	1	.175	5/8	BUB-600-SB	3/8	14,757
TST-1108 X 2-SB	2	.175	5/8	BUB-600-SB	3/8	14,757
TST-1108 X 3-SB	3	.175	5/8	BUB-600-SB	3/8	14,757
1"-14 Threads						
TST-1114-SB	1	.208	3/4	BUB-700-SB	3/8	17,210
TST-1114 X 2-SB	2	.208	3/4	BUB-700-SB	3/8	17,210
TST-1114 X 3-SB	3	.208	3/4	BUB-700-SB	3/8	17,210

THRUST SCREW ASSEMBLIES

Threaded Body | Delrin Ball | Round | Inch



These thrust screw assemblies allow straight line static load thrust without transmitting torsional or radial force on to the contact area. The free floating ball design allows the thrust screw to continue to rotate while the ball remains stationary against the contact surface. Ideal for irregular shaped or contoured applications. The housing is made from alloy steel, heat treated to Rc 43/46 with a black oxide finish. The replaceable ball is held in place with a viton O-ring which keeps contaminants out and allows the ball to swivel. The ball is made from non-marring white delrin. Replacement balls and O-rings can be ordered separately. The ball is made from non-marring white Delrin. See page 166 for diagram of components.

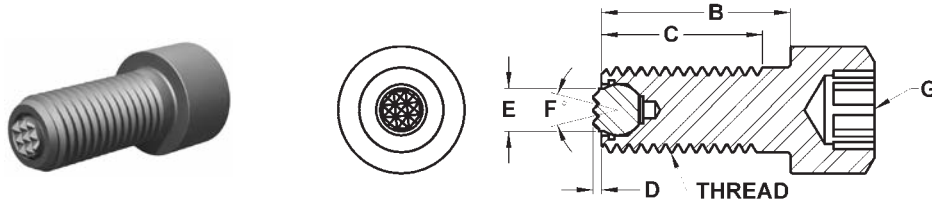
INCH

Part #	B Thread Length	C Stand Off	Ball Dia.	Ball Only Part #	D Int. Hex
5/16-18 Threads					
TST-0310-DB	1/2	.026	5/32	BUB-156-DB	5/32
TST-0312-DB	3/4	.026	5/32	BUB-156-DB	5/32
TST-0312 X 1-DB	1	.026	5/32	BUB-156-DB	5/32
TST-0312 X 1.5-DB	1-1/2	.026	5/32	BUB-156-DB	5/32
5/16-24 Threads					
TST-0320-DB	1/2	.026	5/32	BUB-156-DB	5/32
TST-0321-DB	3/4	.026	5/32	BUB-156-DB	5/32
TST-0321 X 1-DB	1	.026	5/32	BUB-156-DB	5/32
TST-0321 X 1.5-DB	1-1/2	.026	5/32	BUB-156-DB	5/32
3/8-16 Threads					
TST-0370-DB	1/2	.024	3/16	BUB-187-DB	3/16
TST-0370 X .75-DB	3/4	.024	3/16	BUB-187-DB	3/16
TST-0375-DB	1	.024	3/16	BUB-187-DB	3/16
TST-0375 X 1.5-DB	1-1/2	.024	3/16	BUB-187-DB	3/16
TST-0375 X 2-DB	2	.024	3/16	BUB-187-DB	3/16
TST-0375 X 3-DB	3	.024	3/16	BUB-187-DB	3/16
3/8-24 Threads					
TST-0230-DB	1/2	.024	3/16	BUB-187-DB	3/16
TST-0230 X .75-DB	3/4	.024	3/16	BUB-187-DB	3/16
TST-0231-DB	1	.024	3/16	BUB-187-DB	3/16
TST-0231 X 1.5-DB	1-1/2	.024	3/16	BUB-187-DB	3/16
TST-0231 X 2-DB	2	.024	3/16	BUB-187-DB	3/16
TST-0231 X 3-DB	3	.024	3/16	BUB-187-DB	3/16
1/2-13 Threads					
TST-0513-DB	3/4	.063	9/32	BUB-200-DB	1/4
TST-0510-DB	1	.063	9/32	BUB-200-DB	1/4
TST-0510 X 1.5-DB	1-1/2	.063	9/32	BUB-200-DB	1/4
TST-0510 X 2-DB	2	.063	9/32	BUB-200-DB	1/4
TST-0510 X 3-DB	3	.063	9/32	BUB-200-DB	1/4
1/2-20 Threads					
TST-0503-DB	3/4	.063	9/32	BUB-200-DB	1/4
TST-0500-DB	1	.063	9/32	BUB-200-DB	1/4
TST-0500 X 1.5-DB	1-1/2	.063	9/32	BUB-200-DB	1/4
TST-0500 X 2-DB	2	.063	9/32	BUB-200-DB	1/4
TST-0500 X 3-DB	3	.063	9/32	BUB-200-DB	1/4

Part #	B Thread Length	C Stand Off	Ball Dia.	Ball Only Part #	D Int. Hex
5/8-11 Threads					
TST-0625-DB	1	.063	3/8	BUB-300-DB	5/16
TST-0625 X 2-DB	2	.063	3/8	BUB-300-DB	5/16
TST-0625 X 3-DB	3	.063	3/8	BUB-300-DB	5/16
5/8-18 Threads					
TST-0620-DB	1	.063	3/8	BUB-300-DB	5/16
TST-0620 X 2-DB	2	.063	3/8	BUB-300-DB	5/16
TST-0620 X 3-DB	3	.063	3/8	BUB-300-DB	5/16
3/4-10 Threads					
TST-0755-DB	1	.107	1/2	BUB-500-DB	3/8
TST-0755 X 2-DB	2	.107	1/2	BUB-500-DB	3/8
TST-0755 X 3-DB	3	.107	1/2	BUB-500-DB	3/8
3/4-16 Threads					
TST-0750-DB	1	.107	1/2	BUB-500-DB	3/8
TST-0750 X 2-DB	2	.107	1/2	BUB-500-DB	3/8
TST-0750 X 3-DB	3	.107	1/2	BUB-500-DB	3/8
1"-8 Threads					
TST-1108-DB	1	.175	5/8	BUB-600-DB	3/8
TST-1108 X 2-DB	2	.175	5/8	BUB-600-DB	3/8
TST-1108 X 3-DB	3	.175	5/8	BUB-600-DB	3/8
1"-14 Threads					
TST-1114-DB	1	.208	3/4	BUB-700-DB	3/8
TST-1114 X 2-DB	2	.208	3/4	BUB-700-DB	3/8
TST-1114 X 3-DB	3	.208	3/4	BUB-700-DB	3/8

THRUST SCREW ASSEMBLIES

Socket Head | Tool Steel Ball | Serrated | Inch



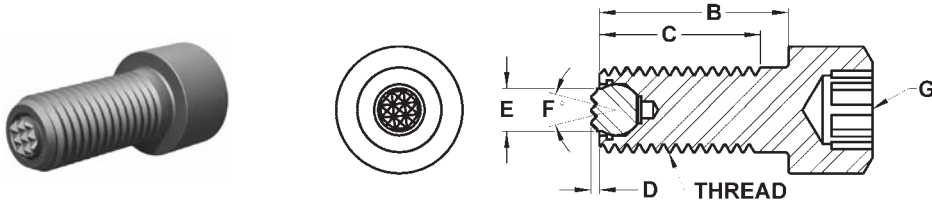
These thrust screw assemblies allow straight line static load thrust without transmitting torsional or radial force on to the contact area. The free floating ball design allows the thrust screw to continue to rotate while the ball remains stationary against the contact surface. Ideal for irregular shaped or contoured applications. The housing is made from alloy steel, heat treated to Rc 43/46 with a black oxide finish. The replaceable ball is held in place with a viton O-ring which keeps contaminants out and allows the ball to swivel. The ball is made from M-2 high speed steel and heat treated to Rc 60/62. Replacement balls and O-rings can be ordered separately. See page 90 for tooth pattern specifications. See page 166 for diagram of components.

INCH

Part #	B Shank Length	C Thread Length	D Stand Off	E Contact Dia.	F Degree Swivel	G Int Hex	Ball Dia.	Ball Only Part #	Tooth Pattern	Load Rating Lbs.
3/8-16 Threads										
TSH-0375-S	1	1	1/16	5/32	28	5/16	3/16	BUB-187-S	SF	1,763
TSH-0375 X 1.5-S	1-1/2	1-1/2	1/16	5/32	28	5/16	3/16	BUB-187-S	SF	1,763
TSH-0375 X 2-S	2	1-1/4	1/16	5/32	28	5/16	3/16	BUB-187-S	SF	1,763
TSHF-0375 X 2-S	2	2	1/16	5/32	28	5/16	3/16	BUB-187-S	SF	1,763
TSH-0375 X 2.5-S	2-1/2	1-1/4	1/16	5/32	28	3/16	3/16	BUB-187-S	SF	1,763
TSHF-0375 X 2.5-S	2-1/2	2-1/2	1/16	5/32	28	3/16	3/16	BUB-187-S	SF	1,763
3/8-24 Threads										
TSH-0231-S	1	1	1/16	5/32	28	5/16	3/16	BUB-187-S	SF	1,763
TSH-0231 X 1.5-S	1-1/2	1-1/2	1/16	5/32	28	5/16	3/16	BUB-187-S	SF	1,763
TSH-0231 X 2-S	2	1-1/4	1/16	5/32	28	5/16	3/16	BUB-187-S	SF	1,763
TSHF-0231 X 2-S	2	2	1/16	5/32	28	5/16	3/16	BUB-187-S	SF	1,763
TSH-0231 X 2.5-S	2-1/2	1-1/4	1/16	5/32	28	5/16	3/16	BUB-187-S	SF	1,763
TSHF-0231 X 2.5-S	2-1/2	2-1/2	1/16	5/32	28	5/16	3/16	BUB-187-S	SF	1,763
1/2-13 Threads										
TSH-0510 X 1.25-S	1-1/4	1-1/4	1/16	1/4	28	3/8	9/32	BUB-200-S	SF	4,575
TSH-0510 X 1.5-S	1-1/2	1-1/2	1/16	1/4	28	3/8	9/32	BUB-200-S	SF	4,575
TSH-0510 X 2-S	2	2	1/16	1/4	28	3/8	9/32	BUB-200-S	SF	4,575
TSH-0510 X 2.5-S	2-1/2	1-1/2	1/16	1/4	28	3/8	9/32	BUB-200-S	SF	4,575
TSHF-0510 X 2.5-S	2-1/2	2-1/2	1/16	1/4	28	3/8	9/32	BUB-200-S	SF	4,575
TSH-0510 X 3-S	3	1-1/2	1/16	1/4	28	3/8	9/32	BUB-200-S	SF	4,575
TSHF-0510 X 3-S	3	3	1/16	1/4	28	3/8	9/32	BUB-200-S	SF	4,575
1/2-20 Threads										
TSH-0500 X 1.25-S	1-1/4	1-1/4	1/16	1/4	28	3/8	9/32	BUB-200-S	SF	4,575
TSH-0500 X 1.5-S	1-1/2	1-1/2	1/16	1/4	28	3/8	9/32	BUB-200-S	SF	4,575
TSH-0500 X 2-S	2	2	1/16	1/4	28	3/8	9/32	BUB-200-S	SF	4,575
TSH-0500 X 2.5-S	2-1/2	1-1/2	1/16	1/4	28	3/8	9/32	BUB-200-S	SF	4,575
TSHF-0500 X 2.5-S	2-1/2	2-1/2	1/16	1/4	28	3/8	9/32	BUB-200-S	SF	4,575
TSH-0500 X 3-S	3	1-1/2	1/16	1/4	28	3/8	9/32	BUB-200-S	SF	4,575
TSHF-0500 X 3-S	3	3	1/16	1/4	28	3/8	9/32	BUB-200-S	SF	4,575
5/8-11 Threads										
TSH-0625-S	1-1/2	1-3/4	1/16	5/16	28	1/2	3/8	BUB-300-S	EF	6,131
TSH-0625 X 2-S	2	2	1/16	5/16	28	1/2	3/8	BUB-300-S	EF	6,131
TSH-0625 X 2.5-S	2-1/2	1-3/4	1/16	5/16	28	1/2	3/8	BUB-300-S	EF	6,131
TSHF-0625 X 2.5-S	2-1/2	2-1/2	1/16	5/16	28	1/2	3/8	BUB-300-S	EF	6,131
TSH-0625 X 3-S	3	1-3/4	1/16	5/16	28	1/2	3/8	BUB-300-S	EF	6,131
TSHF-0625 X 3-S	3	3	1/16	5/16	28	1/2	3/8	BUB-300-S	EF	6,131
5/8-18 Threads										
TSH-0620-S	1-1/2	1-1/2	1/16	5/16	28	1/2	3/8	BUB-300-S	EF	6,131
TSH-0620 X 2-S	2	2	1/16	5/16	28	1/2	3/8	BUB-300-S	EF	6,131
TSH-0620 X 2.5-S	2-1/2	1-3/4	1/16	5/16	28	1/2	3/8	BUB-300-S	EF	6,131
TSHF-0620 X 2.5-S	2-1/2	2-1/2	1/16	5/16	28	1/2	3/8	BUB-300-S	EF	6,131
TSH-0620 X 3-S	3	1-3/4	1/16	5/16	28	1/2	3/8	BUB-300-S	EF	6,131
TSHF-0620 X 3-S	3	3	1/16	5/16	28	1/2	3/8	BUB-300-S	EF	6,131

THRUST SCREW ASSEMBLIES

Socket Head | Tool Steel Ball | Serrated | Inch (continued)

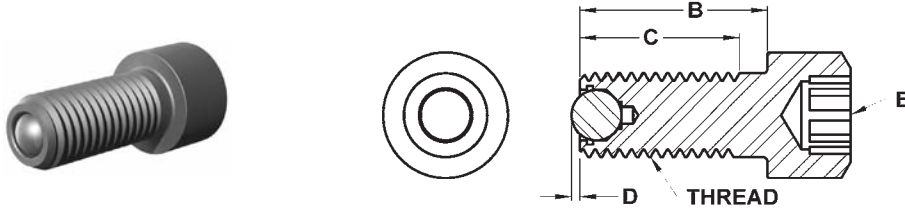


INCH (CONTINUED)

Part #	B Shank Length	C Thread Length	D Stand Off	E Contact Dia.	F Degree Swivel	G Int Hex	Ball Dia.	Ball Only Part #	Tooth Pattern	Load Rating Lbs.
3/4-10 Threads										
TSH-0755 X 2-S	2	2	1/8	3/8	40	5/8	1/2	BUB-500-S	EF	8,150
TSH-0755 X 2.5-S	2-1/2	2-1/2	1/8	3/8	40	5/8	1/2	BUB-500-S	EF	8,150
TSH-0755 X 3-S	3	2-1/2	1/8	3/8	40	5/8	1/2	BUB-500-S	EF	8,150
TSHF-0755 X 3-S	3	3	1/8	3/8	40	5/8	1/2	BUB-500-S	EF	8,150
3/4-16 Threads										
TSH-0750 X 2-S	2	2	1/8	3/8	40	5/8	1/2	BUB-500-S	EF	8,150
TSH-0750 X 2.5-S	2-1/2	2-1/2	1/8	3/8	40	5/8	1/2	BUB-500-S	EF	8,150
TSH-0750 X 3-S	3	2	1/8	3/8	40	5/8	1/2	BUB-500-S	EF	8,150
TSHF-0750 X 3-S	3	3	1/8	3/8	40	5/8	1/2	BUB-500-S	EF	8,150
1"-8 Threads										
TSH-1108 X 2-S	2	2	1/8	1/2	40	3/4	5/8	BUB-600-S	FINE	14,757
TSH-1108 X 3-S	3	3	1/8	1/2	40	3/4	5/8	BUB-600-S	FINE	14,757
TSH-1108 X 4-S	4	2-1/2	1/8	1/2	40	3/4	5/8	BUB-600-S	FINE	14,757
TSHF-1108 X 4-S	4	4	1/8	1/2	40	3/4	5/8	BUB-600-S	FINE	14,757
1"-14 Threads										
TSH-1114 X 2-S	2	2	1/8	5/8	34	3/4	3/4	BUB-700-S	FINE	17,210
TSH-1114 X 3-S	3	3	1/8	5/8	34	3/4	3/4	BUB-700-S	FINE	17,210
TSH-1114 X 4-S	4	2-1/2	1/8	5/8	34	3/4	3/4	BUB-700-S	FINE	17,210
TSHF-1114 X 4-S	4	4	1/8	5/8	34	3/4	3/4	BUB-700-S	FINE	17,210

THRUST SCREW ASSEMBLIES

Socket Head | Stainless Ball | Round | Inch



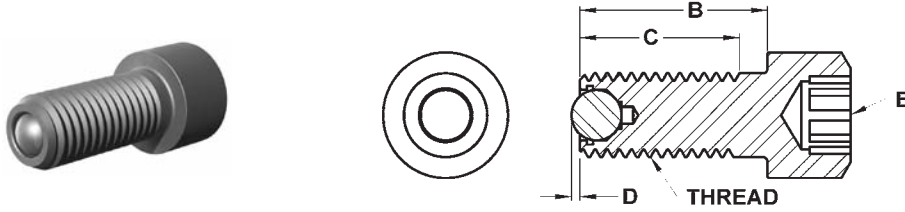
These thrust screw assemblies allow straight line static load thrust without transmitting torsional or radial force on to the contact area. The free floating ball design allows the thrust screw to continue to rotate while the ball remains stationary against the contact surface. Ideal for irregular shaped or contoured applications. The housing is made from alloy steel, heat treated to Rc 43/46 with a black oxide finish. The replaceable ball is held in place with a viton O-ring which keeps contaminants out and allows the ball to swivel. The ball is made from 440c stainless steel and heat treated to Rc 58/62. Replacement balls and O-rings can be ordered separately. See page 166 for diagram of components.

INCH

Part #	B Shank Length	C Thread Length	D Stand Off	E Int. Hex	Ball Dia.	Ball Only Part #	Load Rating Lbs.
5/16-18 Threads							
TSH-0310-SB	3/4	3/4	.026	1/4	5/32	BUB-156-SB	—
TSH-0312-SB	1	1	.026	1/4	5/32	BUB-156-SB	—
TSH-0312 X 1.25-SB	1-1/4	1-1/4	.026	1/4	5/32	BUB-156-SB	—
TSH-0312 X 1.75-SB	1-3/4	1-1/8	.026	1/4	5/32	BUB-156-SB	—
TSHF-0312 X 1.75-SB	1-3/4	1-3/4	.026	1/4	5/32	BUB-156-SB	—
TSH-0312 X 2-SB	2	1-1/8	.026	1/4	5/32	BUB-156-SB	—
TSHF-0312 X 2-SB	2	2	.026	1/4	5/32	BUB-156-SB	—
5/16-24 Threads							
TSH-0320-SB	3/4	3/4	.026	1/4	5/32	BUB-156-SB	—
TSH-0321-SB	1	1	.026	1/4	5/32	BUB-156-SB	—
TSH-0321 X 1.25-SB	1-1/4	1-1/4	.026	1/4	5/32	BUB-156-SB	—
TSH-0321 X 1.75-SB	1-3/4	1-1/8	.026	1/4	5/32	BUB-156-SB	—
TSHF-0321 X 1.75-SB	1-3/4	1-3/4	.026	1/4	5/32	BUB-156-SB	—
TSH-0321 X 2-SB	2	1-1/8	.026	1/4	5/32	BUB-156-SB	—
TSHF-0321 X 2-SB	2	2	.026	1/4	5/32	BUB-156-SB	—
3/8-16 Threads							
TSH-0375-SB	1	1	.024	5/16	3/16	BUB-187-SB	1,763
TSH-0375 X 1.5-SB	1-1/2	1-1/2	.024	5/16	3/16	BUB-187-SB	1,763
TSH-0375 X 2-SB	2	1-1/2	.024	5/16	3/16	BUB-187-SB	1,763
TSHF-0375 X 2-SB	2	2	.024	5/16	3/16	BUB-187-SB	1,763
TSH-0375 X 2.5-SB	2-1/2	1-1/2	.024	5/16	3/16	BUB-187-SB	1,763
TSHF-0375 X 2.5-SB	2-1/2	2-1/2	.024	5/16	3/16	BUB-187-SB	1,763
3/8-24 Threads							
TSH-0231-SB	1	1	.024	5/16	3/16	BUB-187-SB	1,763
TSH-0231 X 1.5-SB	1-1/2	1-1/2	.024	5/16	3/16	BUB-187-SB	1,763
TSH-0231 X 2-SB	2	1-3/8	.024	5/16	3/16	BUB-187-SB	1,763
TSHF-0231 X 2-SB	2	2	.024	5/16	3/16	BUB-187-SB	1,763
TSH-0231 X 2.5-SB	2-1/2	1-3/8	.024	5/16	3/16	BUB-187-SB	1,763
TSHF-0231 X 2.5-SB	2-1/2	2-1/2	.024	5/16	3/16	BUB-187-SB	1,763
1/2-13 Threads							
TSH-0510 X 1.25-SB	1-1/4	1-1/4	.063	3/8	9/32	BUB-200-SB	4,527
TSH-0510 X 1.5-SB	1-1/2	1-1/2	.063	3/8	9/32	BUB-200-SB	4,527
TSH-0510 X 2-SB	2	2	.063	3/8	9/32	BUB-200-SB	4,527
TSH-0510 X 2.5-SB	2-1/2	1-1/2	.063	3/8	9/32	BUB-200-SB	4,527
TSHF-0510 X 2.5-SB	2-1/2	2-1/2	.063	3/8	9/32	BUB-200-SB	4,527
TSH-0510 X 3-SB	3	1-1/2	.063	3/8	9/32	BUB-200-SB	4,527
TSHF-0510 X 3-SB	3	3	.063	3/8	9/32	BUB-200-SB	4,527
1/2-20 Threads							
TSH-0500 X 1.25-SB	1-1/4	1-1/4	.063	3/8	9/32	BUB-200-SB	4,527
TSH-0500 X 1.5-SB	1-1/2	1-1/2	.063	3/8	9/32	BUB-200-SB	4,527
TSH-0500 X 2-SB	2	2	.063	3/8	9/32	BUB-200-SB	4,527
TSH-0500 X 2.5-SB	2-1/2	1-1/2	.063	3/8	9/32	BUB-200-SB	4,527
TSHF-0500 X 2.5-SB	2-1/2	2-1/2	.063	3/8	9/32	BUB-200-SB	4,527
TSH-0500 X 3-SB	3	1-1/2	.063	3/8	9/32	BUB-200-SB	4,527
TSHF-0500 X 3-SB	3	3	.063	3/8	9/32	BUB-200-SB	4,527

THRUST SCREW ASSEMBLIES

Socket Head | Stainless Ball | Round | Inch (continued)

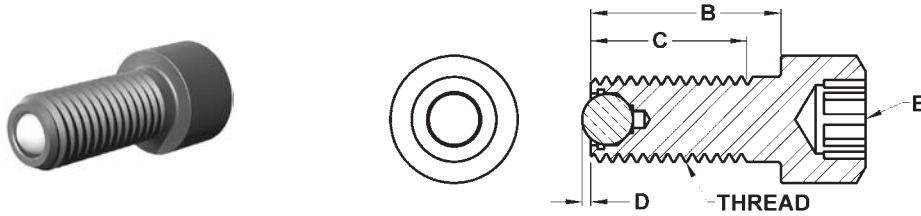


INCH (CONTINUED)

Part #	B Shank Length	C Thread Length	D Stand Off	E Int. Hex	Ball Dia.	Ball Only Part #	Load Rating Lbs.
5/8-11 Threads							
TSH-0625-SB	1-1/2	1-1/2	.063	1/2	3/8	BUB-300-SB	6,131
TSH-0625 X 2-SB	2	2	.063	1/2	3/8	BUB-300-SB	6,131
TSH-0625 X 2.5-SB	2-1/2	1-3/4	.063	1/2	3/8	BUB-300-SB	6,131
TSHF-0625 X 2.5-SB	2-1/2	2-1/2	.063	1/2	3/8	BUB-300-SB	6,131
TSH-0625 X 3-SB	3	1-3/4	.063	1/2	3/8	BUB-300-SB	6,131
TSHF-0625 X 3-SB	3	3	.063	1/2	3/8	BUB-300-SB	6,131
5/8-18 Threads							
TSH-0620-SB	1-1/2	1-1/2	.063	1/2	3/8	BUB-300-SB	6,131
TSH-0620 X 2-SB	2	2	.063	1/2	3/8	BUB-300-SB	6,131
TSH-0620 X 2.5-SB	2-1/2	1-3/4	.063	1/2	3/8	BUB-300-SB	6,131
TSHF-0620 X 2.5-SB	2-1/2	2-1/2	.063	1/2	3/8	BUB-300-SB	6,131
TSH-0620 X 3-SB	3	1-3/4	.063	1/2	3/8	BUB-300-SB	6,131
TSHF-0620 X 3-SB	3	3	.063	1/2	3/8	BUB-300-SB	6,131
3/4-10 Threads							
TSH-0755 X 2-SB	2	2	.107	5/8	1/2	BUB-500-SB	8,150
TSH-0755 X 2.5-SB	2-1/2	2-1/2	.107	5/8	1/2	BUB-500-SB	8,150
TSH-0755 X 3-SB	3	2	.107	5/8	1/2	BUB-500-SB	8,150
TSHF-0755 X 3-SB	3	3	.107	5/8	1/2	BUB-500-SB	8,150
3/4-16 Threads							
TSH-0750 X 2-SB	2	2	.107	5/8	1/2	BUB-500-SB	8,150
TSH-0750 X 2.5-SB	2-1/2	2-1/2	.107	5/8	1/2	BUB-500-SB	8,150
TSH-0750 X 3-SB	3	2	.107	5/8	1/2	BUB-500-SB	8,150
TSHF-0750 X 3-SB	3	3	.107	5/8	1/2	BUB-500-SB	8,150
1"-8 Threads							
TSH-1108 X 2-SB	2	2	.175	3/4	5/8	BUB-600-SB	14,757
TSH-1108 X 3-SB	3	3	.175	3/4	5/8	BUB-600-SB	14,757
TSH-1108 X 4-SB	4	2-1/2	.175	3/4	5/8	BUB-600-SB	14,757
TSHF-1108 X 4-SB	4	4	.175	3/4	5/8	BUB-600-SB	14,757
1"-14 Threads							
TSH-1114 X 2-SB	2	2	.208	3/4	3/4	BUB-700-SB	17,210
TSH-1114 X 3-SB	3	3	.208	3/4	3/4	BUB-700-SB	17,210
TSH-1114 X 4-SB	4	2-1/2	.208	3/4	3/4	BUB-700-SB	17,210
TSHF-1114 X 4-SB	4	4	.208	3/4	3/4	BUB-700-SB	17,210

THRUST SCREW ASSEMBLIES

Socket Head | Delrin Ball | Round | Inch

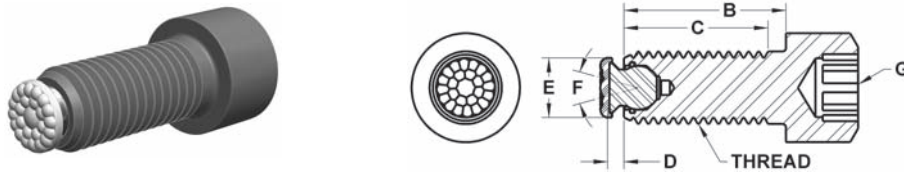


These thrust screw assemblies allow straight line static load thrust without transmitting torsional or radial force on to the contact area. The free floating ball design allows the thrust screw to continue to rotate while the ball remains stationary against the contact surface. Ideal for irregular shaped or contoured applications. The housing is made from alloy steel, heat treated to Rc 43/46 with a black oxide finish. The replaceable ball is held in place with a viton O-ring which keeps contaminants out and allows the ball to swivel. The ball is made from non-marring white delrin. Replacement balls and O-rings can be ordered separately. See page 166 for diagram of components.

INCH													
Part #	B Shank Length	C Thread Length	D Stand Off	E Int. Hex	Ball Dia.	Ball Only Part #	Part #	B Shank Length	C Thread Length	D Stand Off	E Int. Hex	Ball Dia.	Ball Only Part #
5/16-18 Threads							5/8-11 Threads						
TSH-0310-DB	3/4	3/4	.026	1/4	5/32	BUB-156-DB	TSH-0625-DB	1-1/2	1-1/2	.063	1/2	3/8	BUB-300-DB
TSH-0312-DB	1	1	.026	1/4	5/32	BUB-156-DB	TSH-0625 X 2-DB	2	2	.063	1/2	3/8	BUB-300-DB
TSH-0312 X 1.25-DB	1-1/4	1-1/4	.026	1/4	5/32	BUB-156-DB	TSH-0625 X 2.5-DB	2-1/2	1-3/4	.063	1/2	3/8	BUB-300-DB
TSH-0312 X 1.75-DB	1-3/4	1-1/8	.026	1/4	5/32	BUB-156-DB	TSHF-0625 X 2.5-DB	2-1/2	2-1/2	.063	1/2	3/8	BUB-300-DB
TSHF-0312 X 1.75-DB	1-3/4	1-3/4	.026	1/4	5/32	BUB-156-DB	TSH-0625 X 3-DB	3	1-3/4	.063	1/2	3/8	BUB-300-DB
TSH-0312 X 2-DB	2	1-1/8	.026	1/4	5/32	BUB-156-DB	TSHF-0625 X 3-DB	3	3	.063	1/2	3/8	BUB-300-DB
TSHF-0312 X 2-DB	2	2	.026	1/4	5/32	BUB-156-DB	5/8-18 Threads						
5/16-24 Threads							TSH-0620-DB	1-1/2	1-1/2	.063	1/2	3/8	BUB-300-DB
TSH-0320-DB	3/4	3/4	.026	1/4	5/32	BUB-156-DB	TSH-0620 X 2-DB	2	2	.063	1/2	3/8	BUB-300-DB
TSH-0321-DB	1	1	.026	1/4	5/32	BUB-156-DB	TSH-0620 X 2.5-DB	2-1/2	1-3/4	.063	1/2	3/8	BUB-300-DB
TSH-0321 X 1.25-DB	1-1/4	1-1/4	.026	1/4	5/32	BUB-156-DB	TSHF-0620 X 2.5-DB	2-1/2	2-1/2	.063	1/2	3/8	BUB-300-DB
TSH-0321 X 1.75-DB	1-3/4	1-1/8	.026	1/4	5/32	BUB-156-DB	TSH-0620 X 3-DB	3	1-3/4	.063	1/2	3/8	BUB-300-DB
TSHF-0321 X 1.75-DB	1-3/4	1-3/4	.026	1/4	5/32	BUB-156-DB	TSHF-0620 X 3-DB	3	3	.063	1/2	3/8	BUB-300-DB
TSH-0321 X 2-DB	2	1-1/8	.026	1/4	5/32	BUB-156-DB	3/4-10 Threads						
TSHF-0321 X 2-DB	2	2	.026	1/4	5/32	BUB-156-DB	TSH-0755 X 2-DB	2	2	.107	5/8	1/2	BUB-500-DB
3/8-16 Threads							TSH-0755 X 2.5-DB	2-1/2	2-1/2	.107	5/8	1/2	BUB-500-DB
TSH-0375-DB	1	1	.024	5/16	3/16	BUB-187-DB	TSH-0755 X 3-DB	3	2	.107	5/8	1/2	BUB-500-DB
TSH-0375 X 1.5-DB	1-1/2	1-1/2	.024	5/16	3/16	BUB-187-DB	TSHF-0755 X 3-DB	3	3	.107	5/8	1/2	BUB-500-DB
TSH-0375 X 2-DB	2	1-1/2	.024	5/16	3/16	BUB-187-DB	3/4-16 Threads						
TSHF-0375 X 2-DB	2	2	.024	5/16	3/16	BUB-187-DB	TSH-0750 X 2-DB	2	2	.107	5/8	1/2	BUB-500-DB
TSH-0375 X 2.5-DB	2-1/2	1-1/2	.024	5/16	3/16	BUB-187-DB	TSH-0750 X 2.5-DB	2-1/2	2-1/2	.107	5/8	1/2	BUB-500-DB
TSHF-0375 X 2.5-DB	2-1/2	2-1/2	.024	5/16	3/16	BUB-187-DB	TSH-0750 X 3-DB	3	2	.107	5/8	1/2	BUB-500-DB
3/8-24 Threads							TSHF-0750 X 3-DB	3	3	.107	5/8	1/2	BUB-500-DB
TSH-0231-DB	1	1	.024	5/16	3/16	BUB-187-DB	1"-8 Threads						
TSH-0231 X 1.5-DB	1-1/2	1-1/2	.024	5/16	3/16	BUB-187-DB	TSH-1108 X 2-DB	2	2	.175	3/4	5/8	BUB-600-DB
TSH-0231 X 2-DB	2	1-3/8	.024	5/16	3/16	BUB-187-DB	TSH-1108 X 3-DB	3	3	.175	3/4	5/8	BUB-600-DB
TSHF-0231 X 2-DB	2	2	.024	5/16	3/16	BUB-187-DB	TSH-1108 X 4-DB	4	2-1/2	.175	3/4	5/8	BUB-600-DB
TSH-0231 X 2.5-DB	2-1/2	1-3/8	.024	5/16	3/16	BUB-187-DB	TSHF-1108 X 4-DB	4	4	.175	3/4	5/8	BUB-600-DB
TSHF-0231 X 2.5-DB	2-1/2	2-1/2	.024	5/16	3/16	BUB-187-DB	1"-14 Threads						
1/2-13 Threads							TSH-1114 X 2-DB	2	2	.208	3/4	3/4	BUB-700-DB
TSH-0510 X 1.25-DB	1-1/4	1-1/4	.063	3/8	9/32	BUB-200-DB	TSH-1114 X 3-DB	3	3	.208	3/4	3/4	BUB-700-DB
TSH-0510 X 1.5-DB	1-1/2	1-1/2	.063	3/8	9/32	BUB-200-DB	TSH-1114 X 4-DB	4	2-1/2	.208	3/4	3/4	BUB-700-DB
TSH-0510 X 2-DB	2	2	.063	3/8	9/32	BUB-200-DB	TSHF-1114 X 4-DB	4	4	.208	3/4	3/4	BUB-700-DB
TSH-0510 X 2.5-DB	2-1/2	1-1/2	.063	3/8	9/32	BUB-200-DB							
TSHF-0510 X 2.5-DB	2-1/2	2-1/2	.063	3/8	9/32	BUB-200-DB							
TSH-0510 X 3-DB	3	1-1/2	.063	3/8	9/32	BUB-200-DB							
TSHF-0510 X 3-DB	3	3	.063	3/8	9/32	BUB-200-DB							
1/2-20 Threads													
TSH-0500 X 1.25-DB	1-1/4	1-1/4	.063	3/8	9/32	BUB-200-DB							
TSH-0500 X 1.5-DB	1-1/2	1-1/2	.063	3/8	9/32	BUB-200-DB							
TSH-0500 X 2-DB	2	2	.063	3/8	9/32	BUB-200-DB							
TSH-0500 X 2.5-DB	2-1/2	1-1/2	.063	3/8	9/32	BUB-200-DB							
TSHF-0500 X 2.5-DB	2-1/2	2-1/2	.063	3/8	9/32	BUB-200-DB							
TSH-0500 X 3-DB	3	1-1/2	.063	3/8	9/32	BUB-200-DB							
TSHF-0500 X 3-DB	3	3	.063	3/8	9/32	BUB-200-DB							

THRUST SCREW ASSEMBLIES

Socket Head | Stainless Ball | Sof-Top Urethane Surface | Inch



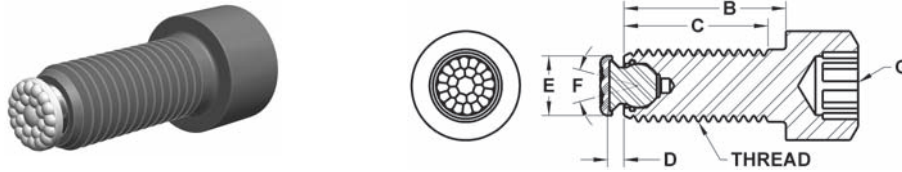
These thrust screw assemblies allow straight line static load thrust without transmitting torsional or radial force on to the contact area. The free floating ball design allows the thrust screw to continue to rotate while the ball remains stationary against the contact surface. Ideal for irregular shaped or contoured applications. The housing is made from alloy steel, heat treated to Rc 43/46 with a black oxide finish. The replaceable ball is held in place with a viton O-ring which keeps contaminants out and allows the ball to swivel. The urethane surface is permanently bonded to a 300 series stainless steel ball. The non-marking, non-staining urethane provides excellent protection against damage on delicate work surfaces. The "bubbled" texture of the urethane top offers firm holding and allows air to escape so no suction is created between the contact surface and the top of the rest pad as it is compressed. Because the top is made of urethane it offers superior abrasion and wear resistance. They are available in three durometers to meet a wide variety of application needs. Replacement balls and O-rings can be ordered separately. See page 166 for diagram of components.

INCH

Part #	B Shank Length	C Thread Length	D Stand Off	E Contact Dia.	F Degree Swivel	G Int. Hex	Ball Dia.	Durometer	Ball Only Part #
3/8-16 Threads									
TSH-0375-FC-35UR	1	1	.143	.315	28	5/16	3/16	35	BUB-187-FC-35UR
TSH-0375-FC-60UR	1	1	.143	.315	28	5/16	3/16	60	BUB-187-FC-60UR
TSH-0375-FC-80UR	1	1	.143	.315	28	5/16	3/16	80	BUB-187-FC-80UR
TSH-0375 X 1.5-FC-35UR	1-1/2	1-1/2	.143	.315	28	5/16	3/16	35	BUB-187-FC-35UR
TSH-0375 X 1.5-FC-60UR	1-1/2	1-1/2	.143	.315	28	5/16	3/16	60	BUB-187-FC-60UR
TSH-0375 X 1.5-FC-80UR	1-1/2	1-1/2	.143	.315	28	5/16	3/16	80	BUB-187-FC-80UR
TSH-0375 X 2-FC-35UR	2	1-1/2	.143	.315	28	5/16	3/16	35	BUB-187-FC-35UR
TSH-0375 X 2-FC-60UR	2	1-1/2	.143	.315	28	5/16	3/16	60	BUB-187-FC-60UR
TSH-0375 X 2-FC-80UR	2	1-1/2	.143	.315	28	5/16	3/16	80	BUB-187-FC-80UR
TSHF-0375 X 2-FC-35UR	2	2	.143	.315	28	5/16	3/16	35	BUB-187-FC-35UR
TSHF-0375 X 2-FC-60UR	2	2	.143	.315	28	5/16	3/16	60	BUB-187-FC-60UR
TSHF-0375 X 2-FC-80UR	2	2	.143	.315	28	5/16	3/16	80	BUB-187-FC-80UR
TSH-0375 X 2.5-FC-35UR	2-1/2	1-1/2	.143	.315	28	5/16	3/16	35	BUB-187-FC-35UR
TSH-0375 X 2.5-FC-60UR	2-1/2	1-1/2	.143	.315	28	5/16	3/16	60	BUB-187-FC-60UR
TSH-0375 X 2.5-FC-80UR	2-1/2	1-1/2	.143	.315	28	5/16	3/16	80	BUB-187-FC-80UR
TSHF-0375 X 2.5-FC-35UR	2-1/2	2-1/2	.143	.315	28	5/16	3/16	35	BUB-187-FC-35UR
TSHF-0375 X 2.5-FC-60UR	2-1/2	2-1/2	.143	.315	28	5/16	3/16	60	BUB-187-FC-60UR
TSHF-0375 X 2.5-FC-80UR	2-1/2	2-1/2	.143	.315	28	5/16	3/16	80	BUB-187-FC-80UR
3/8-24 Threads									
TSH-0231-FC-35UR	1	1	.143	.315	28	5/16	3/16	35	BUB-187-FC-35UR
TSH-0231-FC-60UR	1	1	.143	.315	28	5/16	3/16	60	BUB-187-FC-60UR
TSH-0231-FC-80UR	1	1	.143	.315	28	5/16	3/16	80	BUB-187-FC-80UR
TSH-0231 X 1.5-FC-35UR	1-1/2	1-1/2	.143	.315	28	5/16	3/16	35	BUB-187-FC-35UR
TSH-0231 X 1.5-FC-60UR	1-1/2	1-1/2	.143	.315	28	5/16	3/16	60	BUB-187-FC-60UR
TSH-0231 X 1.5-FC-80UR	1-1/2	1-1/2	.143	.315	28	5/16	3/16	80	BUB-187-FC-80UR
TSH-0231 X 2-FC-35UR	2	1-3/8	.143	.315	28	5/16	3/16	35	BUB-187-FC-35UR
TSH-0231 X 2-FC-60UR	2	1-3/8	.143	.315	28	5/16	3/16	60	BUB-187-FC-60UR
TSH-0231 X 2-FC-80UR	2	1-3/8	.143	.315	28	5/16	3/16	80	BUB-187-FC-80UR
TSHF-0231 X 2-FC-35UR	2	2	.143	.315	28	5/16	3/16	35	BUB-187-FC-35UR
TSHF-0231 X 2-FC-60UR	2	2	.143	.315	28	5/16	3/16	60	BUB-187-FC-60UR
TSHF-0231 X 2-FC-80UR	2	2	.143	.315	28	5/16	3/16	80	BUB-187-FC-80UR
TSH-0231 X 2.5-FC-35UR	2-1/2	1-3/8	.143	.315	28	5/16	3/16	35	BUB-187-FC-35UR
TSH-0231 X 2.5-FC-60UR	2-1/2	1-3/8	.143	.315	28	5/16	3/16	60	BUB-187-FC-60UR
TSH-0231 X 2.5-FC-80UR	2-1/2	1-3/8	.143	.315	28	5/16	3/16	80	BUB-187-FC-80UR
TSHF-0231 X 2.5-FC-35UR	2-1/2	2-1/2	.143	.315	28	5/16	3/16	35	BUB-187-FC-35UR
TSHF-0231 X 2.5-FC-60UR	2-1/2	2-1/2	.143	.315	28	5/16	3/16	60	BUB-187-FC-60UR
TSHF-0231 X 2.5-FC-80UR	2-1/2	2-1/2	.143	.315	28	5/16	3/16	80	BUB-187-FC-80UR

THRUST SCREW ASSEMBLIES

Socket Head | Stainless Ball | Sof-Top Urethane Surface | Inch (continued)

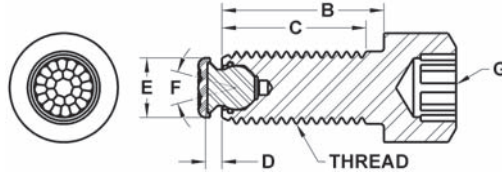


INCH (CONTINUED)

Part #	B Shank Length	C Thread Length	D Stand Off	E Contact Dia.	F Degree Swivel	G Int. Hex	Ball Dia.	Durometer	Ball Only Part #
1/2-13 Threads									
TSH-0510 X 1.25-FC-35UR	1-1/4	1-1/4	.174	.394	28	3/8	9/32	35	BUB-200-FC-35UR
TSH-0510 X 1.25-FC-60UR	1-1/4	1-1/4	.174	.394	28	3/8	9/32	60	BUB-200-FC-60UR
TSH-0510 X 1.25-FC-80UR	1-1/4	1-1/4	.174	.394	28	3/8	9/32	80	BUB-200-FC-80UR
TSH-0510 X 1.5-FC-35UR	1-1/2	1-1/2	.174	.394	28	3/8	9/32	35	BUB-200-FC-35UR
TSH-0510 X 1.5-FC-60UR	1-1/2	1-1/2	.174	.394	28	3/8	9/32	60	BUB-200-FC-60UR
TSH-0510 X 1.5-FC-80UR	1-1/2	1-1/2	.174	.394	28	3/8	9/32	80	BUB-200-FC-80UR
TSH-0510 X 2-FC-35UR	2	2	.174	.394	28	3/8	9/32	35	BUB-200-FC-35UR
TSH-0510 X 2-FC-60UR	2	2	.174	.394	28	3/8	9/32	60	BUB-200-FC-60UR
TSH-0510 X 2-FC-80UR	2	2	.174	.394	28	3/8	9/32	80	BUB-200-FC-80UR
TSH-0510 X 2.5-FC-35UR	2-1/2	1-1/2	.174	.394	28	3/8	9/32	35	BUB-200-FC-35UR
TSH-0510 X 2.5-FC-60UR	2-1/2	1-1/2	.174	.394	28	3/8	9/32	60	BUB-200-FC-60UR
TSH-0510 X 2.5-FC-80UR	2-1/2	1-1/2	.174	.394	28	3/8	9/32	80	BUB-200-FC-80UR
TSHF-0510 X 2.5-FC-35UR	2-1/2	2-1/2	.174	.394	28	3/8	9/32	35	BUB-200-FC-35UR
TSHF-0510 X 2.5-FC-60UR	2-1/2	2-1/2	.174	.394	28	3/8	9/32	60	BUB-200-FC-60UR
TSHF-0510 X 2.5-FC-80UR	2-1/2	2-1/2	.174	.394	28	3/8	9/32	80	BUB-200-FC-80UR
TSH-0510 X 3-FC-35UR	3	1-1/2	.174	.394	28	3/8	9/32	35	BUB-200-FC-35UR
TSH-0510 X 3-FC-60UR	3	1-1/2	.174	.394	28	3/8	9/32	60	BUB-200-FC-60UR
TSH-0510 X 3-FC-80UR	3	1-1/2	.174	.394	28	3/8	9/32	80	BUB-200-FC-80UR
TSHF-0510 X 3-FC-35UR	3	3	.174	.394	28	3/8	9/32	35	BUB-200-FC-35UR
TSHF-0510 X 3-FC-60UR	3	3	.174	.394	28	3/8	9/32	60	BUB-200-FC-60UR
TSHF-0510 X 3-FC-80UR	3	3	.174	.394	28	3/8	9/32	80	BUB-200-FC-80UR
1/2-20 Threads									
TSH-0500 X 1.25-FC-35UR	1-1/4	1-1/4	.174	.394	28	3/8	9/32	35	BUB-200-FC-35UR
TSH-0500 X 1.25-FC-60UR	1-1/4	1-1/4	.174	.394	28	3/8	9/32	60	BUB-200-FC-60UR
TSH-0500 X 1.25-FC-80UR	1-1/4	1-1/4	.174	.394	28	3/8	9/32	80	BUB-200-FC-80UR
TSH-0500 X 1.5-FC-35UR	1-1/2	1-1/2	.174	.394	28	3/8	9/32	35	BUB-200-FC-35UR
TSH-0500 X 1.5-FC-60UR	1-1/2	1-1/2	.174	.394	28	3/8	9/32	60	BUB-200-FC-60UR
TSH-0500 X 1.5-FC-80UR	1-1/2	1-1/2	.174	.394	28	3/8	9/32	80	BUB-200-FC-80UR
TSH-0500 X 2-FC-35UR	2	2	.174	.394	28	3/8	9/32	35	BUB-200-FC-35UR
TSH-0500 X 2-FC-60UR	2	2	.174	.394	28	3/8	9/32	60	BUB-200-FC-60UR
TSH-0500 X 2-FC-80UR	2	2	.174	.394	28	3/8	9/32	80	BUB-200-FC-80UR
TSH-0500 X 2.5-FC-35UR	2-1/2	1-1/2	.174	.394	28	3/8	9/32	35	BUB-200-FC-35UR
TSH-0500 X 2.5-FC-60UR	2-1/2	1-1/2	.174	.394	28	3/8	9/32	60	BUB-200-FC-60UR
TSH-0500 X 2.5-FC-80UR	2-1/2	1-1/2	.174	.394	28	3/8	9/32	80	BUB-200-FC-80UR
TSHF-0500 X 2.5-FC-35UR	2-1/2	2-1/2	.174	.394	28	3/8	9/32	35	BUB-200-FC-35UR
TSHF-0500 X 2.5-FC-60UR	2-1/2	2-1/2	.174	.394	28	3/8	9/32	60	BUB-200-FC-60UR
TSHF-0500 X 2.5-FC-80UR	2-1/2	2-1/2	.174	.394	28	3/8	9/32	80	BUB-200-FC-80UR
TSH-0500 X 3-FC-35UR	3	1-1/2	.174	.394	28	3/8	9/32	35	BUB-200-FC-35UR
TSH-0500 X 3-FC-60UR	3	1-1/2	.174	.394	28	3/8	9/32	60	BUB-200-FC-60UR
TSH-0500 X 3-FC-80UR	3	1-1/2	.174	.394	28	3/8	9/32	80	BUB-200-FC-80UR
TSHF-0500 X 3-FC-35UR	3	3	.174	.394	28	3/8	9/32	35	BUB-200-FC-35UR
TSHF-0500 X 3-FC-60UR	3	3	.174	.394	28	3/8	9/32	60	BUB-200-FC-60UR
TSHF-0500 X 3-FC-80UR	3	3	.174	.394	28	3/8	9/32	80	BUB-200-FC-80UR

THRUST SCREW ASSEMBLIES

Socket Head | Stainless Ball | Sof-Top Urethane Surface | Inch (continued)

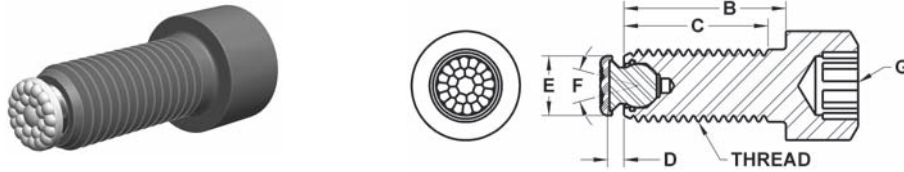


INCH (CONTINUED)

Part #	B Shank Length	C Thread Length	D Stand Off	E Contact Dia.	F Degree Swivel	G Int. Hex	Ball Dia.	Durometer	Ball Only Part #
5/8-11 Threads									
TSH-0625-FC-35UR	1-1/2	1-1/2	.205	.512	28	1/2	3/8	35	BUB-300-FC-35UR
TSH-0625-FC-60UR	1-1/2	1-1/2	.205	.512	28	1/2	3/8	60	BUB-300-FC-60UR
TSH-0625-FC-80UR	1-1/2	1-1/2	.205	.512	28	1/2	3/8	80	BUB-300-FC-80UR
TSH-0625 X 2-FC-35UR	2	2	.205	.512	28	1/2	3/8	35	BUB-300-FC-35UR
TSH-0625 X 2-FC-60UR	2	2	.205	.512	28	1/2	3/8	60	BUB-300-FC-60UR
TSH-0625 X 2-FC-80UR	2	2	.205	.512	28	1/2	3/8	80	BUB-300-FC-80UR
TSH-0625 X 2.5-FC-35UR	2-1/2	1-3/4	.205	.512	28	1/2	3/8	35	BUB-300-FC-35UR
TSH-0625 X 2.5-FC-60UR	2-1/2	1-3/4	.205	.512	28	1/2	3/8	60	BUB-300-FC-60UR
TSH-0625 X 2.5-FC-80UR	2-1/2	1-3/4	.205	.512	28	1/2	3/8	80	BUB-300-FC-80UR
TSHF-0625 X 2.5-FC-35UR	2-1/2	2-1/2	.205	.512	28	1/2	3/8	35	BUB-300-FC-35UR
TSHF-0625 X 2.5-FC-60UR	2-1/2	2-1/2	.205	.512	28	1/2	3/8	60	BUB-300-FC-60UR
TSHF-0625 X 2.5-FC-80UR	2-1/2	2-1/2	.205	.512	28	1/2	3/8	80	BUB-300-FC-80UR
TSH-0625 X 3-FC-35UR	3	1-3/4	.205	.512	28	1/2	3/8	35	BUB-300-FC-35UR
TSH-0625 X 3-FC-60UR	3	1-3/4	.205	.512	28	1/2	3/8	60	BUB-300-FC-60UR
TSH-0625 X 3-FC-80UR	3	1-3/4	.205	.512	28	1/2	3/8	80	BUB-300-FC-80UR
TSHF-0625 X 3-FC-35UR	3	3	.205	.512	28	1/2	3/8	35	BUB-300-FC-35UR
TSHF-0625 X 3-FC-60UR	3	3	.205	.512	28	1/2	3/8	60	BUB-300-FC-60UR
TSHF-0625 X 3-FC-80UR	3	3	.205	.512	28	1/2	3/8	80	BUB-300-FC-80UR
5/8-18 Threads									
TSH-0620-FC-35UR	1-1/2	1-1/2	.205	.512	28	1/2	3/8	35	BUB-300-FC-35UR
TSH-0620-FC-60UR	1-1/2	1-1/2	.205	.512	28	1/2	3/8	60	BUB-300-FC-60UR
TSH-0620-FC-80UR	1-1/2	1-1/2	.205	.512	28	1/2	3/8	80	BUB-300-FC-80UR
TSH-0620 X 2-FC-35UR	2	2	.205	.512	28	1/2	3/8	35	BUB-300-FC-35UR
TSH-0620 X 2-FC-60UR	2	2	.205	.512	28	1/2	3/8	60	BUB-300-FC-60UR
TSH-0620 X 2-FC-80UR	2	2	.205	.512	28	1/2	3/8	80	BUB-300-FC-80UR
TSH-0620 X 2.5-FC-35UR	2-1/2	1-3/4	.205	.512	28	1/2	3/8	35	BUB-300-FC-35UR
TSH-0620 X 2.5-FC-60UR	2-1/2	1-3/4	.205	.512	28	1/2	3/8	60	BUB-300-FC-60UR
TSH-0620 X 2.5-FC-80UR	2-1/2	1-3/4	.205	.512	28	1/2	3/8	80	BUB-300-FC-80UR
TSHF-0620 X 2.5-FC-35UR	2-1/2	2-1/2	.205	.512	28	1/2	3/8	35	BUB-300-FC-35UR
TSHF-0620 X 2.5-FC-60UR	2-1/2	2-1/2	.205	.512	28	1/2	3/8	60	BUB-300-FC-60UR
TSHF-0620 X 2.5-FC-80UR	2-1/2	2-1/2	.205	.512	28	1/2	3/8	80	BUB-300-FC-80UR
TSH-0620 X 3-FC-35UR	3	1-3/4	.205	.512	28	1/2	3/8	35	BUB-300-FC-35UR
TSH-0620 X 3-FC-60UR	3	1-3/4	.205	.512	28	1/2	3/8	60	BUB-300-FC-60UR
TSH-0620 X 3-FC-80UR	3	1-3/4	.205	.512	28	1/2	3/8	80	BUB-300-FC-80UR
TSHF-0620 X 3-FC-35UR	3	3	.205	.512	28	1/2	3/8	35	BUB-300-FC-35UR
TSHF-0620 X 3-FC-60UR	3	3	.205	.512	28	1/2	3/8	60	BUB-300-FC-60UR
TSHF-0620 X 3-FC-80UR	3	3	.205	.512	28	1/2	3/8	80	BUB-300-FC-80UR
3/4-10 Threads									
TSH-0755 X 2-FC-35UR	2	2	.205	.630	28	5/8	1/2	35	BUB-500-FC-35UR
TSH-0755 X 2-FC-60UR	2	2	.205	.630	28	5/8	1/2	60	BUB-500-FC-60UR
TSH-0755 X 2-FC-80UR	2	2	.205	.630	28	5/8	1/2	80	BUB-500-FC-80UR
TSH-0755 X 2.5-FC-35UR	2-1/2	2-1/2	.205	.630	28	5/8	1/2	35	BUB-500-FC-35UR
TSH-0755 X 2.5-FC-60UR	2-1/2	2-1/2	.205	.630	28	5/8	1/2	60	BUB-500-FC-60UR
TSH-0755 X 2.5-FC-80UR	2-1/2	2-1/2	.205	.630	28	5/8	1/2	80	BUB-500-FC-80UR
TSH-0755 X 3-FC-35UR	3	2	.205	.630	28	5/8	1/2	35	BUB-500-FC-35UR
TSH-0755 X 3-FC-60UR	3	2	.205	.630	28	5/8	1/2	60	BUB-500-FC-60UR
TSH-0755 X 3-FC-80UR	3	2	.205	.630	28	5/8	1/2	80	BUB-500-FC-80UR
TSHF-0755 X 3-FC-35UR	3	3	.205	.630	28	5/8	1/2	35	BUB-500-FC-35UR
TSHF-0755 X 3-FC-60UR	3	3	.205	.630	28	5/8	1/2	60	BUB-500-FC-60UR
TSHF-0755 X 3-FC-80UR	3	3	.205	.630	28	5/8	1/2	80	BUB-500-FC-80UR

THRUST SCREW ASSEMBLIES

Socket Head | Stainless Ball | Sof-Top Urethane Surface | Inch (continued)

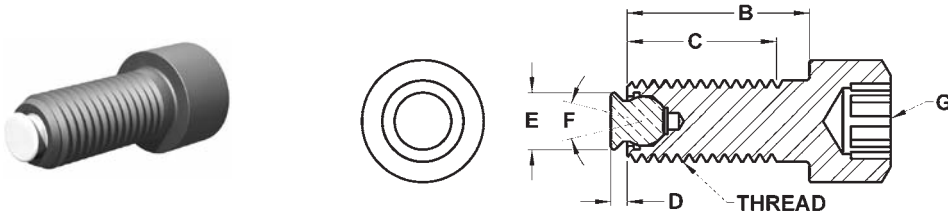


INCH (CONTINUED)

Part #	B Shank Length	C Thread Length	D Stand Off	E Contact Dia.	F Degree Swivel	G Int. Hex	Ball Dia.	Durometer	Ball Only Part #
3/4-16 Threads									
TSH-0750 X 2-FC-35UR	2	2	.205	.630	28	5/8	1/2	35	BUB-500-FC-35UR
TSH-0750 X 2-FC-60UR	2	2	.205	.630	28	5/8	1/2	60	BUB-500-FC-60UR
TSH-0750 X 2-FC-80UR	2	2	.205	.630	28	5/8	1/2	80	BUB-500-FC-80UR
TSH-0750 X 2.5-FC-35UR	2-1/2	2-1/2	.205	.630	28	5/8	1/2	35	BUB-500-FC-35UR
TSH-0750 X 2.5-FC-60UR	2-1/2	2-1/2	.205	.630	28	5/8	1/2	60	BUB-500-FC-60UR
TSH-0750 X 2.5-FC-80UR	2-1/2	2-1/2	.205	.630	28	5/8	1/2	80	BUB-500-FC-80UR
TSH-0750 X 3-FC-35UR	3	2	.205	.630	28	5/8	1/2	35	BUB-500-FC-35UR
TSH-0750 X 3-FC-60UR	3	2	.205	.630	28	5/8	1/2	60	BUB-500-FC-60UR
TSH-0750 X 3-FC-80UR	3	2	.205	.630	28	5/8	1/2	80	BUB-500-FC-80UR
TSHF-0750 X 3-FC-35UR	3	3	.205	.630	28	5/8	1/2	35	BUB-500-FC-35UR
TSHF-0750 X 3-FC-60UR	3	3	.205	.630	28	5/8	1/2	60	BUB-500-FC-60UR
TSHF-0750 X 3-FC-80UR	3	3	.205	.630	28	5/8	1/2	80	BUB-500-FC-80UR
1"-8 Threads									
TSH-1108 X 2-FC-35UR	2	2	.236	.827	32	3/4	5/8	35	BUB-600-FC-35UR
TSH-1108 X 2-FC-60UR	2	2	.236	.827	32	3/4	5/8	60	BUB-600-FC-60UR
TSH-1108 X 2-FC-80UR	2	2	.236	.827	32	3/4	5/8	80	BUB-600-FC-80UR
TSH-1108 X 3-FC-35UR	3	3	.236	.827	32	3/4	5/8	35	BUB-600-FC-35UR
TSH-1108 X 3-FC-60UR	3	3	.236	.827	32	3/4	5/8	60	BUB-600-FC-60UR
TSH-1108 X 3-FC-80UR	3	3	.236	.827	32	3/4	5/8	80	BUB-600-FC-80UR
TSH-1108 X 4-FC-35UR	4	2-1/2	.236	.827	32	3/4	5/8	35	BUB-600-FC-35UR
TSH-1108 X 4-FC-60UR	4	2-1/2	.236	.827	32	3/4	5/8	60	BUB-600-FC-60UR
TSH-1108 X 4-FC-80UR	4	2-1/2	.236	.827	32	3/4	5/8	80	BUB-600-FC-80UR
TSHF-1108 X 4-FC-35UR	4	4	.236	.827	32	3/4	5/8	35	BUB-600-FC-35UR
TSHF-1108 X 4-FC-60UR	4	4	.236	.827	32	3/4	5/8	60	BUB-600-FC-60UR
TSHF-1108 X 4-FC-80UR	4	4	.236	.827	32	3/4	5/8	80	BUB-600-FC-80UR
1"-14 Threads									
TSH-1114 X 2-FC-35UR	2	2	.236	.906	32	3/4	3/4	35	BUB-700-FC-35UR
TSH-1114 X 2-FC-60UR	2	2	.236	.906	32	3/4	3/4	60	BUB-700-FC-60UR
TSH-1114 X 2-FC-80UR	2	2	.236	.906	32	3/4	3/4	80	BUB-700-FC-80UR
TSH-1114 X 3-FC-35UR	3	3	.236	.906	32	3/4	3/4	35	BUB-700-FC-35UR
TSH-1114 X 3-FC-60UR	3	3	.236	.906	32	3/4	3/4	60	BUB-700-FC-60UR
TSH-1114 X 3-FC-80UR	3	3	.236	.906	32	3/4	3/4	80	BUB-700-FC-80UR
TSH-1114 X 4-FC-35UR	4	2-1/2	.236	.906	32	3/4	3/4	35	BUB-700-FC-35UR
TSH-1114 X 4-FC-60UR	4	2-1/2	.236	.906	32	3/4	3/4	60	BUB-700-FC-60UR
TSH-1114 X 4-FC-80UR	4	2-1/2	.236	.906	32	3/4	3/4	80	BUB-700-FC-80UR
TSHF-1114 X 4-FC-35UR	4	4	.236	.906	32	3/4	3/4	35	BUB-700-FC-35UR
TSHF-1114 X 4-FC-60UR	4	4	.236	.906	32	3/4	3/4	60	BUB-700-FC-60UR
TSHF-1114 X 4-FC-80UR	4	4	.236	.906	32	3/4	3/4	80	BUB-700-FC-80UR

THRUST SCREW ASSEMBLIES

Socket Head | Delrin Ball | Flat Cone | Inch



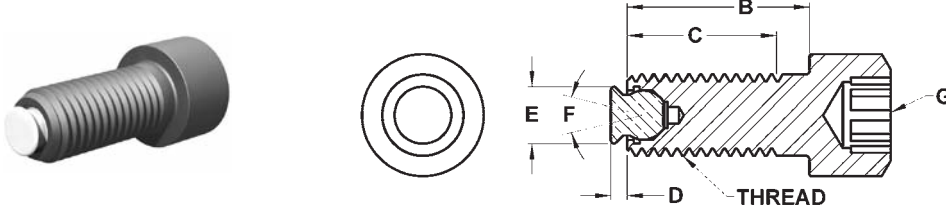
These thrust screw assemblies allow straight line static load thrust without transmitting torsional or radial force on to the contact area. The free floating ball design allows the thrust screw to continue to rotate while the ball remains stationary against the contact surface. Ideal for irregular shaped or contoured applications. The housing is made from alloy steel, heat treated to Rc 43/46 with a black oxide finish. The replaceable ball is held in place with a viton O-ring which keeps contaminants out and allows the ball to swivel. The flat ball is made from non-marring white delrin and ground flat. Replacement balls and O-rings can be ordered separately. See page 166 for diagram of components.

INCH

Part #	B Shank Length	C Thread Length	D Stand Off	E Contact Dia.	F Degree Swivel	G Int. Hex	Ball Dia.	Ball Only Part #
1/4-20 Threads								
TSH-0250-DC	3/4	3/4	1/16	9/64	30	3/16	1/8	BUB-125-DC
TSH-0251-DC	1	1	1/16	9/64	30	3/16	1/8	BUB-125-DC
TSH-0251 X 1.5-DC	1-1/2	1	1/16	9/64	30	3/16	1/8	BUB-125-DC
TSHF-0251 X 1.5-DC	1-1/2	1-1/2	1/16	9/64	30	3/16	1/8	BUB-125-DC
1/4-28 Threads								
TSH-0280-DC	3/4	3/4	1/16	9/64	30	3/16	1/8	BUB-125-DC
TSH-0281-DC	1	1	1/16	9/64	30	3/16	1/8	BUB-125-DC
TSH-0281 X 1.5-DC	1-1/2	1	1/16	9/64	30	3/16	1/8	BUB-125-DC
TSHF-0281 X 1.5-DC	1-1/2	1-1/2	1/16	9/64	30	3/16	1/8	BUB-125-DC
5/16-18 Threads								
TSH-0310-DC	3/4	3/4	1/16	13/64	30	1/4	5/32	BUB-156-DC
TSH-0312-DC	1	1	1/16	13/64	30	1/4	5/32	BUB-156-DC
TSH-0312 X 1.25-DC	1-1/4	1-1/4	1/16	13/64	30	1/4	5/32	BUB-156-DC
TSH-0312 X 1.75-DC	1-3/4	1-1/8	1/16	13/64	30	1/4	5/32	BUB-156-DC
TSHF-0312 X 1.75-DC	1-3/4	1-3/4	1/16	13/64	30	1/4	5/32	BUB-156-DC
TSH-0312 X 2-DC	2	1-1/8	1/16	13/64	30	1/4	5/32	BUB-156-DC
TSHF-0312 X 2-DC	2	2	1/16	13/64	30	1/4	5/32	BUB-156-DC
5/16-24 Threads								
TSH-0320-DC	3/4	3/4	1/16	13/64	30	1/4	5/32	BUB-156-DC
TSH-0321-DC	1	1	1/16	13/64	30	1/4	5/32	BUB-156-DC
TSH-0321 X 1.25-DC	1-1/4	1-1/4	1/16	13/64	30	1/4	5/32	BUB-156-DC
TSH-0321 X 1.75-DC	1-3/4	1-1/8	1/16	13/64	30	1/4	5/32	BUB-156-DC
TSHF-0321 X 1.75-DC	1-3/4	1-3/4	1/16	13/64	30	1/4	5/32	BUB-156-DC
TSH-0321 X 2-DC	2	1-1/8	1/16	13/64	30	1/4	5/32	BUB-156-DC
TSHF-0321 X 2-DC	2	2	1/16	13/64	30	1/4	5/32	BUB-156-DC
3/8-16 Threads								
TSH-0375-DC	1	1	3/32	1/4	28	5/16	3/16	BUB-187-DC
TSH-0375 X 1.5-DC	1-1/2	1-1/2	3/32	1/4	28	5/16	3/16	BUB-187-DC
TSH-0375 X 2-DC	2	1-1/2	3/32	1/4	28	5/16	3/16	BUB-187-DC
TSHF-0375 X 2-DC	2	2	3/32	1/4	28	5/16	3/16	BUB-187-DC
TSH-0375 X 2.5-DC	2-1/2	1-1/2	3/32	1/4	28	5/16	3/16	BUB-187-DC
TSHF-0375 X 2.5-DC	2-1/2	2-1/2	3/32	1/4	28	5/16	3/16	BUB-187-DC
3/8-24 Threads								
TSH-0231-DC	1	1	3/32	1/4	28	5/16	3/16	BUB-187-DC
TSH-0231 X 1.5-DC	1-1/2	1-1/2	3/32	1/4	28	5/16	3/16	BUB-187-DC
TSH-0231 X 2-DC	2	1-3/8	3/32	1/4	28	5/16	3/16	BUB-187-DC
TSHF-0231 X 2-DC	2	2	3/32	1/4	28	5/16	3/16	BUB-187-DC
TSH-0231 X 2.5-DC	2-1/2	1-3/8	3/32	1/4	28	5/16	3/16	BUB-187-DC
TSHF-0231 X 2.5-DC	2-1/2	2-1/2	3/32	1/4	28	5/16	3/16	BUB-187-DC

THRUST SCREW ASSEMBLIES

Socket Head | Delrin Ball | Flat Cone | Inch (continued)

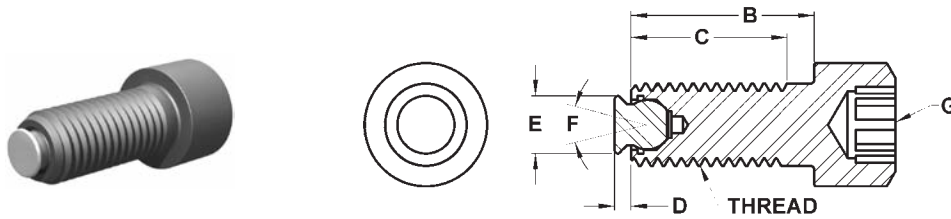


INCH (CONTINUED)

Part #	B Shank Length	C Thread Length	D Stand Off	E Contact Dia.	F Degree Swivel	G Int. Hex	Ball Dia.	Ball Only Part #
1/2-13 Threads								
TSH-0510 X 1.25-DC	1-1/4	1-1/4	3/32	11/32	28	3/8	9/32	BUB-200-DC
TSH-0510 X 1.5-DC	1-1/2	1-1/2	3/32	11/32	28	3/8	9/32	BUB-200-DC
TSH-0510 X 2-DC	2	2	3/32	11/32	28	3/8	9/32	BUB-200-DC
TSH-0510 X 2.5-DC	2-1/2	1-1/2	3/32	11/32	28	3/8	9/32	BUB-200-DC
TSHF-0510 X 2.5-DC	2-1/2	2-1/2	3/32	11/32	28	3/8	9/32	BUB-200-DC
TSH-0510 X 3-DC	3	1-1/2	3/32	11/32	28	3/8	9/32	BUB-200-DC
TSHF-0510 X 3-DC	3	3	3/32	11/32	28	3/8	9/32	BUB-200-DC
1/2-20 Threads								
TSH-0500 X 1.25-DC	1-1/4	1-1/4	3/32	11/32	28	3/8	9/32	BUB-200-DC
TSH-0500 X 1.5-DC	1-1/2	1-1/2	3/32	11/32	28	3/8	9/32	BUB-200-DC
TSH-0500 X 2-DC	2	2	3/32	11/32	28	3/8	9/32	BUB-200-DC
TSH-0500 X 2.5-DC	2-1/2	1-1/2	3/32	11/32	28	3/8	9/32	BUB-200-DC
TSHF-0500 X 2.5-DC	2-1/2	2-1/2	3/32	11/32	28	3/8	9/32	BUB-200-DC
TSH-0500 X 3-DC	3	1-1/2	3/32	11/32	28	3/8	9/32	BUB-200-DC
TSHF-0500 X 3-DC	3	3	3/32	11/32	28	3/8	9/32	BUB-200-DC
5/8-11 Threads								
TSH-0625-DC	1-1/2	1-1/2	1/8	7/16	28	1/2	3/8	BUB-300-DC
TSH-0625 X 2-DC	2	1-3/4	1/8	7/16	28	1/2	3/8	BUB-300-DC
TSH-0625 X 2.5-DC	2-1/2	1-3/4	1/8	7/16	28	1/2	3/8	BUB-300-DC
TSHF-0625 X 2.5-DC	2-1/2	2-1/2	1/8	7/16	28	1/2	3/8	BUB-300-DC
TSH-0625 X 3-DC	3	1-3/4	1/8	7/16	28	1/2	3/8	BUB-300-DC
TSHF-0625 X 3-DC	3	3	1/8	7/16	28	1/2	3/8	BUB-300-DC
5/8-18 Threads								
TSH-0620-DC	1-1/2	1-1/2	1/8	7/16	28	1/2	3/8	BUB-300-DC
TSH-0620 X 2-DC	2	2	1/8	7/16	28	1/2	3/8	BUB-300-DC
TSH-0620 X 2.5-DC	2-1/2	1-3/4	1/8	7/16	28	1/2	3/8	BUB-300-DC
TSHF-0620 X 2.5-DC	2-1/2	2-1/2	1/8	7/16	28	1/2	3/8	BUB-300-DC
TSH-0620 X 3-DC	3	1-3/4	1/8	7/16	28	1/2	3/8	BUB-300-DC
TSHF-0620 X 3-DC	3	3	1/8	7/16	28	1/2	3/8	BUB-300-DC
3/4-10 Threads								
TSH-0755 X 2-DC	2	2	1/8	33/64	28	5/8	1/2	BUB-500-DC
TSH-0755 X 2.5-DC	2-1/2	2-1/2	1/8	33/64	28	5/8	1/2	BUB-500-DC
TSH-0755 X 3-DC	3	2	1/8	33/64	28	5/8	1/2	BUB-500-DC
TSHF-0755 X 3-DC	3	3	1/8	33/64	28	5/8	1/2	BUB-500-DC
3/4-16 Threads								
TSH-0750 X 2-DC	2	2	1/8	33/64	28	5/8	1/2	BUB-500-DC
TSH-0750 X 2.5-DC	2-1/2	2-1/2	1/8	33/64	28	5/8	1/2	BUB-500-DC
TSH-0750 X 3-DC	3	2	1/8	33/64	28	5/8	1/2	BUB-500-DC
TSHF-0750 X 3-DC	3	3	1/8	33/64	28	5/8	1/2	BUB-500-DC
1"-8 Threads								
TSH-1108 X 2-DC	2	2	5/32	11/16	24	3/4	5/8	BUB-600-DC
TSH-1108 X 3-DC	3	3	5/32	11/16	24	3/4	5/8	BUB-600-DC
TSH-1108 X 4-DC	4	2-1/2	5/32	11/16	24	3/4	5/8	BUB-600-DC
TSHF-1108 X 4-DC	4	4	5/32	11/16	24	3/4	5/8	BUB-600-DC
1"-14 Threads								
TSH-1114 X 2-DC	2	2	5/32	49/64	32	3/4	3/4	BUB-700-DC
TSH-1114 X 3-DC	3	3	5/32	49/64	32	3/4	3/4	BUB-700-DC
TSH-1114 X 4-DC	4	2-1/2	5/32	49/64	32	3/4	3/4	BUB-700-DC
TSHF-1114 X 4-DC	4	4	5/32	49/64	32	3/4	3/4	BUB-700-DC

THRUST SCREW ASSEMBLIES

Socket Head | Stainless Ball | Flat Cone | Inch



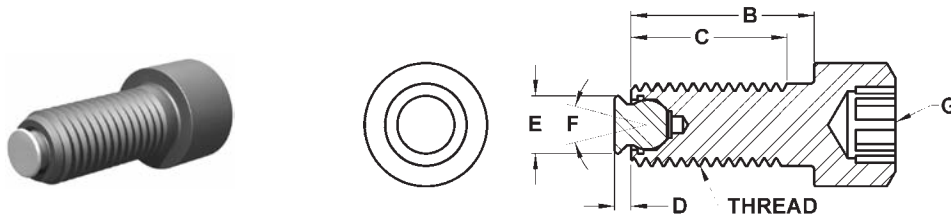
These thrust screw assemblies allow straight line static load thrust without transmitting torsional or radial force on to the contact area. The free floating ball design allows the thrust screw to continue to rotate while the ball remains stationary against the contact surface. Ideal for irregular shaped or contoured applications. The housing is made from alloy steel, heat treated to Rc 43/46 with a black oxide finish. The replaceable ball is held in place with a viton O-ring which keeps contaminants out and allows the ball to swivel. The flat ball is made from 303 stainless steel. Replacement balls and O-rings can be ordered separately. See page 166 for diagram of components.

INCH

Part #	B Shank Length	C Thread Length	D Stand Off	E Contact Dia.	F Degree Swivel	G Int. Hex	Ball Dia.	Ball Only Part #	Load Rating Lbs.
1/4-20 Threads									
TSH-0250-FC	3/4	3/4	1/16	9/64	30	3/16	1/8	BUB-125-FC	—
TSH-0251-FC	1	1	1/16	9/64	30	3/16	1/8	BUB-125-FC	—
TSH-0251 X 1.5-FC	1-1/2	1	1/16	9/64	30	3/16	1/8	BUB-125-FC	—
TSHF-0251 X 1.5-FC	1-1/2	1-1/2	1/16	9/64	30	3/16	1/8	BUB-125-FC	—
1/4-28 Threads									
TSH-0280-FC	3/4	3/4	1/16	9/64	30	3/16	1/8	BUB-125-FC	—
TSH-0281-FC	1	1	1/16	9/64	30	3/16	1/8	BUB-125-FC	—
TSH-0281 X 1.5-FC	1-1/2	1	1/16	9/64	30	3/16	1/8	BUB-125-FC	—
TSHF-0281 X 1.5-FC	1-1/2	1-1/2	1/16	9/64	30	3/16	1/8	BUB-125-FC	—
5/16-18 Threads									
TSH-0310-FC	3/4	3/4	1/16	13/64	30	1/4	5/32	BUB-156-FC	—
TSH-0312-FC	1	1	1/16	13/64	30	1/4	5/32	BUB-156-FC	—
TSH-0312 X 1.25-FC	1-1/4	1-1/4	1/16	13/64	30	1/4	5/32	BUB-156-FC	—
TSH-0312 X 1.75-FC	1-3/4	1-1/8	1/16	13/64	30	1/4	5/32	BUB-156-FC	—
TSHF-0312 X 1.75-FC	1-3/4	1-3/4	1/16	13/64	30	1/4	5/32	BUB-156-FC	—
TSH-0312 X 2-FC	2	1-1/8	1/16	13/64	30	1/4	5/32	BUB-156-FC	—
TSHF-0312 X 2-FC	2	2	1/16	13/64	30	1/4	5/32	BUB-156-FC	—
5/16-24 Threads									
TSH-0320-FC	3/4	3/4	1/16	13/64	30	1/4	5/32	BUB-156-FC	—
TSH-0321-FC	1	1	1/16	13/64	30	1/4	5/32	BUB-156-FC	—
TSH-0321 X 1.25-FC	1-1/4	1-1/4	1/16	13/64	30	1/4	5/32	BUB-156-FC	—
TSH-0321 X 1.75-FC	1-3/4	1-1/8	1/16	13/64	30	1/4	5/32	BUB-156-FC	—
TSHF-0321 X 1.75-FC	1-3/4	1-3/4	1/16	13/64	30	1/4	5/32	BUB-156-FC	—
TSH-0321 X 2-FC	2	1-1/8	1/16	13/64	30	1/4	5/32	BUB-156-FC	—
TSHF-0321 X 2-FC	2	2	1/16	13/64	30	1/4	5/32	BUB-156-FC	—
3/8-16 Threads									
TSH-0375-FC	1	1	3/32	1/4	28	5/16	3/16	BUB-187-FC	1,763
TSH-0375 X 1.5-FC	1-1/2	1-1/2	3/32	1/4	28	5/16	3/16	BUB-187-FC	1,763
TSH-0375 X 2-FC	2	1-1/2	3/32	1/4	28	5/16	3/16	BUB-187-FC	1,763
TSHF-0375 X 2-FC	2	2	3/32	1/4	28	5/16	3/16	BUB-187-FC	1,763
TSH-0375 X 2.5-FC	2-1/2	1-1/2	3/32	1/4	28	5/16	3/16	BUB-187-FC	1,763
TSHF-0375 X 2.5-FC	2-1/2	2-1/2	3/32	1/4	28	5/16	3/16	BUB-187-FC	1,763
3/8-24 Threads									
TSH-0231-FC	1	1	3/32	1/4	28	5/16	3/16	BUB-187-FC	1,763
TSH-0231 X 1.5-FC	1-1/2	1-1/2	3/32	1/4	28	5/16	3/16	BUB-187-FC	1,763
TSH-0231 X 2-FC	2	1-3/8	3/32	1/4	28	5/16	3/16	BUB-187-FC	1,763
TSHF-0231 X 2-FC	2	2	3/32	1/4	28	5/16	3/16	BUB-187-FC	1,763
TSH-0231 X 2.5-FC	2-1/2	1-3/8	3/32	1/4	28	5/16	3/16	BUB-187-FC	1,763
TSHF-0231 X 2.5-FC	2-1/2	2-1/2	3/32	1/4	28	5/16	3/16	BUB-187-FC	1,763

THRUST SCREW ASSEMBLIES

Socket Head | Stainless Ball | Flat Cone | Inch (continued)



INCH (CONTINUED)

Part #	B Shank Length	C Thread Length	D Stand Off	E Contact Dia.	F Degree Swivel	G Int. Hex	Ball Dia.	Ball Only Part #	Load Rating Lbs.
1/2-13 Threads									
TSH-0510 X 1.25-FC	1-1/4	1-1/4	3/32	11/32	28	3/8	9/32	BUB-200-FC	4,527
TSH-0510 X 1.5-FC	1-1/2	1-1/2	3/32	11/32	28	3/8	9/32	BUB-200-FC	4,527
TSH-0510 X 2-FC	2	2	3/32	11/32	28	3/8	9/32	BUB-200-FC	4,527
TSH-0510 X 2.5-FC	2-1/2	1-1/2	3/32	11/32	28	3/8	9/32	BUB-200-FC	4,527
TSHF-0510 X 2.5-FC	2-1/2	2-1/2	3/32	11/32	28	3/8	9/32	BUB-200-FC	4,527
TSH-0510 X 3-FC	3	1-1/2	3/32	11/32	28	3/8	9/32	BUB-200-FC	4,527
TSHF-0510 X 3-FC	3	3	3/32	11/32	28	3/8	9/32	BUB-200-FC	4,527
1/2-20 Threads									
TSH-0500 X 1.25-FC	1-1/4	1-1/4	3/32	11/32	28	3/8	9/32	BUB-200-FC	4,527
TSH-0500 X 1.5-FC	1-1/2	1-1/2	3/32	11/32	28	3/8	9/32	BUB-200-FC	4,527
TSH-0500 X 2-FC	2	2	3/32	11/32	28	3/8	9/32	BUB-200-FC	4,527
TSH-0500 X 2.5-FC	2-1/2	1-1/2	3/32	11/32	28	3/8	9/32	BUB-200-FC	4,527
TSHF-0500 X 2.5-FC	2-1/2	2-1/2	3/32	11/32	28	3/8	9/32	BUB-200-FC	4,527
TSH-0500 X 3-FC	3	1-1/2	3/32	11/32	28	3/8	9/32	BUB-200-FC	4,527
TSHF-0500 X 3-FC	3	3	3/32	11/32	28	3/8	9/32	BUB-200-FC	4,527
5/8-11 Threads									
TSH-0625-FC	1-1/2	1-1/2	1/8	7/16	28	1/2	3/8	BUB-300-FC	6,131
TSH-0625 X 2-FC	2	2	1/8	7/16	28	1/2	3/8	BUB-300-FC	6,131
TSH-0625 X 2.5-FC	2-1/2	1-3/4	1/8	7/16	28	1/2	3/8	BUB-300-FC	6,131
TSHF-0625 X 2.5-FC	2-1/2	2-1/2	1/8	7/16	28	1/2	3/8	BUB-300-FC	6,131
TSH-0625 X 3-FC	3	1-3/4	1/8	7/16	28	1/2	3/8	BUB-300-FC	6,131
TSHF-0625 X 3-FC	3	3	1/8	7/16	28	1/2	3/8	BUB-300-FC	6,131
5/8-18 Threads									
TSH-0620-FC	1 1/2	1-1/2	1/8	7/16	28	1/2	3/8	BUB-300-FC	6,131
TSH-0620 X 2-FC	2	2	1/8	7/16	28	1/2	3/8	BUB-300-FC	6,131
TSH-0620 X 2.5-FC	2-1/2	1-3/4	1/8	7/16	28	1/2	3/8	BUB-300-FC	6,131
TSHF-0620 X 2.5-FC	2-1/2	2-1/2	1/8	7/16	28	1/2	3/8	BUB-300-FC	6,131
TSH-0620 X 3-FC	3	1-3/4	1/8	7/16	28	1/2	3/8	BUB-300-FC	6,131
TSHF-0620 X 3-FC	3	3	1/8	7/16	28	1/2	3/8	BUB-300-FC	6,131
3/4-10 Threads									
TSH-0755 X 2-FC	2	2	1/8	33/64	28	5/8	1/2	BUB-500-FC	8,150
TSH-0755 X 2.5-FC	2-1/2	2-1/2	1/8	33/64	28	5/8	1/2	BUB-500-FC	8,150
TSH-0755 X 3-FC	3	2	1/8	33/64	28	5/8	1/2	BUB-500-FC	8,150
TSHF-0755 X 3-FC	3	3	1/8	33/64	28	5/8	1/2	BUB-500-FC	8,150
3/4-16 Threads									
TSH-0750 X 2-FC	2	2	1/8	33/64	28	5/8	1/2	BUB-500-FC	8,150
TSH-0750 X 2.5-FC	2-1/2	2-1/2	1/8	33/64	28	5/8	1/2	BUB-500-FC	8,150
TSH-0750 X 3-FC	3	2	1/8	33/64	28	5/8	1/2	BUB-500-FC	8,150
TSHF-0750 X 3-FC	3	3	1/8	33/64	28	5/8	1/2	BUB-500-FC	8,150
1"-8 Threads									
TSH-1108 X 2-FC	2	2	5/32	11/16	32	3/4	5/8	BUB-600-FC	14,757
TSH-1108 X 3-FC	3	3	5/32	11/16	32	3/4	5/8	BUB-600-FC	14,757
TSH-1108 X 4-FC	4	2-1/2	5/32	11/16	32	3/4	5/8	BUB-600-FC	14,757
TSHF-1108 X 4-FC	4	4	5/32	11/16	32	3/4	5/8	BUB-600-FC	14,757
1"-14 Threads									
TSH-1114 X 2-FC	2	2	5/32	49/64	32	3/4	3/4	BUB-700-FC	17,210
TSH-1114 X 3-FC	3	3	5/32	49/64	32	3/4	3/4	BUB-700-FC	17,210
TSH-1114 X 4-FC	4	2-1/2	5/32	49/64	32	3/4	3/4	BUB-700-FC	17,210
TSHF-1114 X 4-FC	4	4	5/32	49/64	32	3/4	3/4	BUB-700-FC	17,210

THRUST SCREW ASSEMBLIES

Socket Head | Stainless Ball | Abrasive Diamond Surface | Inch



These thrust screw assemblies allow straight line static load thrust without transmitting torsional or radial force on to the contact area. The free floating ball design allows the thrust screw to continue to rotate while the ball remains stationary against the contact surface. Ideal for irregular shaped or contoured applications. The housing is made from alloy steel, heat treated to Rc 43/46 with a black oxide finish. The replaceable ball is held in place with a viton O-ring which keeps contaminants out and allows the ball to swivel. The abrasive surface is permanently fused to a 300 series stainless steel pad. The surface texture is comparable to a 100 grit abrasive. They are ideal for holding smooth or slippery applications with a minimum of clamping pressure. Individual diamond particles transfer holding pressure to a very small and well distributed area, providing superior holding with minimal surface marking. The diamond surface provides unparalleled wear resistance. Replacement balls and O-rings can be ordered separately. See page 166 for diagram of components.

INCH

Part #	B Shank Length	C Thread Length	D Stand Off	E Contact Dia.	F Degree Swivel	G Int. Hex	Ball Dia.	Ball Only Part #	Load Rating Lbs.
3/8-16 Threads									
TSH-0375-FC-DS	1	1	.063	.236	28	5/16	3/16	BUB-187-FC-DS	1,763
TSH-0375 X 1.5-FC-DS	1-1/2	1-1/2	.063	.236	28	5/16	3/16	BUB-187-FC-DS	1,763
TSH-0375 X 2-FC-DS	2	1-1/2	.063	.236	28	5/16	3/16	BUB-187-FC-DS	1,763
TSHF-0375 X 2-FC-DS	2	2	.063	.236	28	5/16	3/16	BUB-187-FC-DS	1,763
TSH-0375 X 2.5-FC-DS	2-1/2	1-1/2	.063	.236	28	5/16	3/16	BUB-187-FC-DS	1,763
TSHF-0375 X 2.5-FC-DS	2-1/2	2-1/2	.063	.236	28	5/16	3/16	BUB-187-FC-DS	1,763
3/8-24 Threads									
TSH-0231-FC-DS	1	1	.063	.236	28	5/16	3/16	BUB-187-FC-DS	1,763
TSH-0231 X 1.5-FC-DS	1-1/2	1-1/2	.063	.236	28	5/16	3/16	BUB-187-FC-DS	1,763
TSH-0231 X 2-FC-DS	2	1-3/8	.063	.236	28	5/16	3/16	BUB-187-FC-DS	1,763
TSHF-0231 X 2-FC-DS	2	2	.063	.236	28	5/16	3/16	BUB-187-FC-DS	1,763
TSH-0231 X 2.5-FC-DS	2-1/2	1-3/8	.063	.236	28	5/16	3/16	BUB-187-FC-DS	1,763
TSHF-0231 X 2.5-FC-DS	2-1/2	2-1/2	.063	.236	28	5/16	3/16	BUB-187-FC-DS	1,763
1/2-13 Threads									
TSH-0510 X 1.25-FC-DS	1-1/4	1-1/4	.094	.315	28	3/8	9/32	BUB-200-FC-DS	4,527
TSH-0510 X 1.5-FC-DS	1-1/2	1-1/2	.094	.315	28	3/8	9/32	BUB-200-FC-DS	4,527
TSH-0510 X 2-FC-DS	2	2	.094	.315	28	3/8	9/32	BUB-200-FC-DS	4,527
TSH-0510 X 2.5-FC-DS	2-1/2	1-1/2	.094	.315	28	3/8	9/32	BUB-200-FC-DS	4,527
TSHF-0510 X 2.5-FC-DS	2-1/2	2-1/2	.094	.315	28	3/8	9/32	BUB-200-FC-DS	4,527
TSH-0510 X 3-FC-DS	3	1-1/2	.094	.315	28	3/8	9/32	BUB-200-FC-DS	4,527
TSHF-0510 X 3-FC-DS	3	3	.094	.315	28	3/8	9/32	BUB-200-FC-DS	4,527
1/2-20 Threads									
TSH-0500 X 1.25-FC-DS	1-1/4	1-1/4	.094	.315	28	3/8	9/32	BUB-200-FC-DS	4,527
TSH-0500 X 1.5-FC-DS	1-1/2	1-1/2	.094	.315	28	3/8	9/32	BUB-200-FC-DS	4,527
TSH-0500 X 2-FC-DS	2	2	.094	.315	28	3/8	9/32	BUB-200-FC-DS	4,527
TSH-0500 X 2.5-FC-DS	2-1/2	1-1/2	.094	.315	28	3/8	9/32	BUB-200-FC-DS	4,527
TSHF-0500 X 2.5-FC-DS	2-1/2	2-1/2	.094	.315	28	3/8	9/32	BUB-200-FC-DS	4,527
TSH-0500 X 3-FC-DS	3	1-1/2	.094	.315	28	3/8	9/32	BUB-200-FC-DS	4,527
TSHF-0500 X 3-FC-DS	3	3	.094	.315	28	3/8	9/32	BUB-200-FC-DS	4,527
5/8-11 Threads									
TSH-0625-FC-DS	1-1/2	1-1/2	.125	.433	28	1/2	3/8	BUB-300-FC-DS	6,131
TSH-0625 X 2-FC-DS	2	2	.125	.433	28	1/2	3/8	BUB-300-FC-DS	6,131
TSH-0625 X 2.5-FC-DS	2-1/2	1-3/4	.125	.433	28	1/2	3/8	BUB-300-FC-DS	6,131
TSHF-0625 X 2.5-FC-DS	2-1/2	2-1/2	.125	.433	28	1/2	3/8	BUB-300-FC-DS	6,131
TSH-0625 X 3-FC-DS	3	1-3/4	.125	.433	28	1/2	3/8	BUB-300-FC-DS	6,131
TSHF-0625 X 3-FC-DS	3	3	.125	.433	28	1/2	3/8	BUB-300-FC-DS	6,131
5/8-18 Threads									
TSH-0620-FC-DS	1-1/2	1-1/2	.125	.433	28	1/2	3/8	BUB-300-FC-DS	6,131
TSH-0620 X 2-FC-DS	2	2	.125	.433	28	1/2	3/8	BUB-300-FC-DS	6,131
TSH-0620 X 2.5-FC-DS	2-1/2	1-3/4	.125	.433	28	1/2	3/8	BUB-300-FC-DS	6,131
TSHF-0620 X 2.5-FC-DS	2-1/2	2-1/2	.125	.433	28	1/2	3/8	BUB-300-FC-DS	6,131
TSH-0620 X 3-FC-DS	3	1-3/4	.125	.433	28	1/2	3/8	BUB-300-FC-DS	6,131
TSHF-0620 X 3-FC-DS	3	3	.125	.433	28	1/2	3/8	BUB-300-FC-DS	6,131

THRUST SCREW ASSEMBLIES

Socket Head | Stainless Ball | Abrasive Diamond Surface | Inch (continued)



INCH (CONTINUED)

Part #	B Shank Length	C Thread Length	D Stand Off	E Contact Dia.	F Degree Swivel	G Int. Hex	Ball Dia.	Ball Only Part #	Load Rating Lbs.
3/4-10 Threads									
TSH-0755 X 2-FC-DS	2	2	.125	.551	28	5/8	1/2	BUB-500-FC-DS	8,150
TSH-0755 X 2.5-FC-DS	2-1/2	2-1/2	.125	.551	28	5/8	1/2	BUB-500-FC-DS	8,150
TSH-0755 X 3-FC-DS	3	2	.125	.551	28	5/8	1/2	BUB-500-FC-DS	8,150
TSHF-0755 X 3-FC-DS	3	3	.125	.551	28	5/8	1/2	BUB-500-FC-DS	8,150
3/4-16 Threads									
TSH-0750 X 2-FC-DS	2	2	.125	.551	28	5/8	1/2	BUB-500-FC-DS	8,150
TSH-0750 X 2.5-FC-DS	2-1/2	2-1/2	.125	.551	28	5/8	1/2	BUB-500-FC-DS	8,150
TSH-0750 X 3-FC-DS	3	2	.125	.551	28	5/8	1/2	BUB-500-FC-DS	8,150
TSHF-0750 X 3-FC-DS	3	3	.125	.551	28	5/8	1/2	BUB-500-FC-DS	8,150
1"-8 Threads									
TSH-1108 X 2-FC-DS	2	2	.156	.748	32	3/4	5/8	BUB-600-FC-DS	14,757
TSH-1108 X 3-FC-DS	3	3	.156	.748	32	3/4	5/8	BUB-600-FC-DS	14,757
TSH-1108 X 4-FC-DS	4	2-1/2	.156	.748	32	3/4	5/8	BUB-600-FC-DS	14,757
TSHF-1108 X 4-FC-DS	4	4	.156	.748	32	3/4	5/8	BUB-600-FC-DS	14,757
1"-14 Threads									
TSH-1114 X 2-FC-DS	2	2	.156	.827	32	3/4	3/4	BUB-700-FC-DS	17,210
TSH-1114 X 3-FC-DS	3	3	.156	.827	32	3/4	3/4	BUB-700-FC-DS	17,210
TSH-1114 X 4-FC-DS	4	2-1/2	.156	.827	32	3/4	3/4	BUB-700-FC-DS	17,210
TSHF-1114 X 4-FC-DS	4	4	.156	.827	32	3/4	3/4	BUB-700-FC-DS	17,210