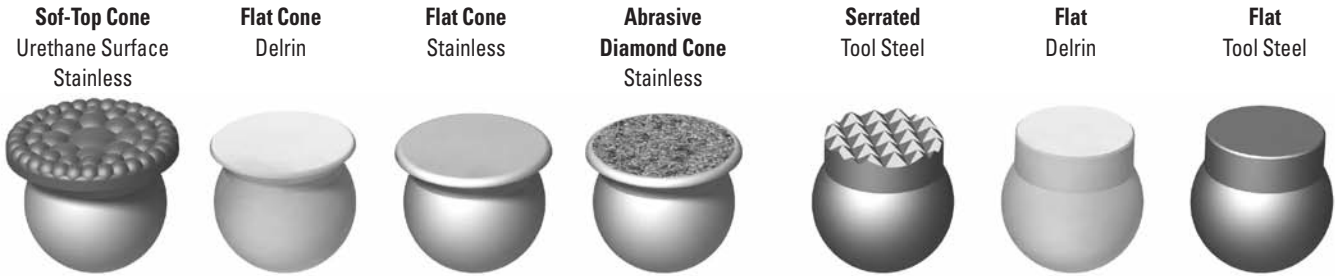


SWIVOTS® - REPLACEABLE SWIVEL BALL

Swivots® Replaceable Swivel Ball Style

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

REPLACEABLE BALLS



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.

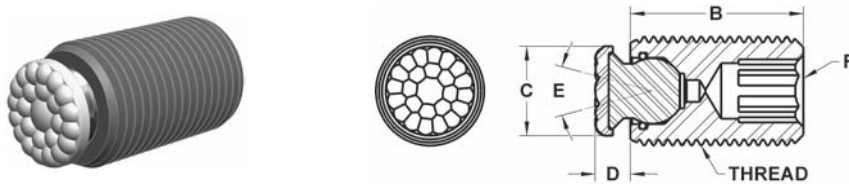
INCH			
Thread	Factor	Thread	Factor
#10-24	0.036	1/2-13	0.093
#10-32	0.035	1/2-20	0.091
1/4-20	0.047	5/8-11	0.116
1/4-28	0.046	5/8-18	0.113
5/16-18	0.059	3/4-10	0.138
5/16-24	0.058	3/4-16	0.135
3/8-16	0.070	1-8	0.183
3/8-24	0.068	1-14	0.180

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

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)

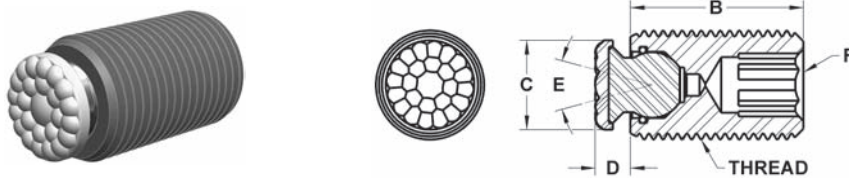


INCH (CONTINUED)

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)

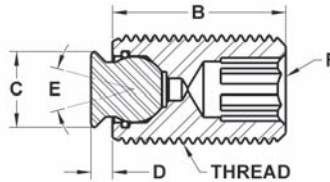


METRIC

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



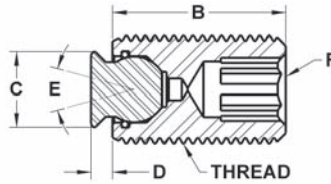
The replaceable ball swivels to allow for self-alignment on uneven surfaces. A Viton O-ring holds the ball in place while keeping contaminants out and providing smooth ball movement. The housing is made from alloy steel, heat treated to Rc 43/46 with black oxide finish. The abrasive surface is permanently 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)

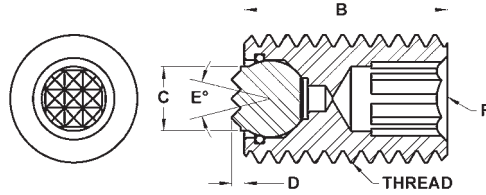


METRIC

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



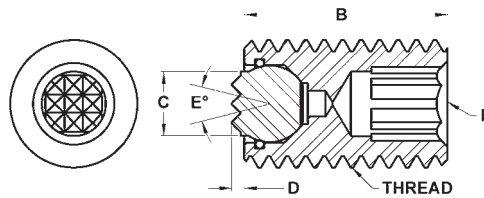
The replaceable serrated ball swivels to allow for self-alignment on uneven surfaces. A Viton O-ring holds the ball in place while keeping contaminants out and providing smooth ball movement. The housing is made from alloy steel, heat treated to Rc 43/46 with black oxide finish. The replaceable ball 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)

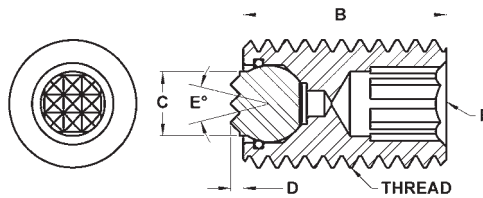


INCH (CONTINUED)

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)

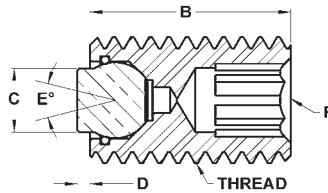
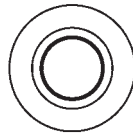
Part #	B Thread Length	C Contact Dia.	D Stand Off	E Degree Swivel	F Hex	Ball Dia.	Ball Only Part #	Tooth Pattern	Load Rating Lbs.
1"-14 Threads									
TBU-1114-S	1	5/8	1/8	34	3/8	3/4	BUB-700-S	Fine	14,757
TBU-1114-S-T	1	5/8	1/4	34	3/8	3/4	BUB-700-S-T	Fine	14,757
TBU-1114-EF	1	5/8	1/8	34	3/8	3/4	BUB-700-EF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



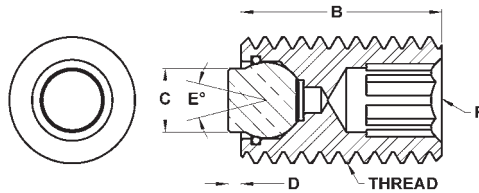
The replaceable flat ball swivels to allow for self-alignment on uneven surfaces. The replaceable ball is made from non-marring white delrin. A Viton O-ring holds the ball in place while keeping contaminants out and providing smooth ball movement. The housing is made from alloy steel, heat treated to 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)

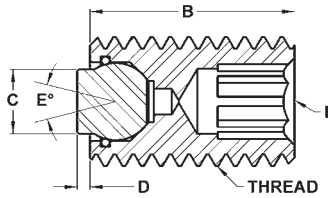
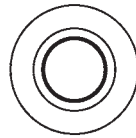
Part #	B Thread Length	C Contact Dia.	D Stand Off	E Degree Swivel	F Int. Hex	Ball Dia.	Ball Only Part #
3/4-16 Threads							
TBU-0750-D	1	3/8	1/8	40	3/8	1/2	BUB-500-D
TBU-0750-D-T	1	3/8	1/4	40	3/8	1/2	BUB-500-D-T
TBU-0750 X 2-D	2	3/8	1/8	40	3/8	1/2	BUB-500-D
TBU-0750 X 2-D-T	2	3/8	1/4	40	3/8	1/2	BUB-500-D-T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



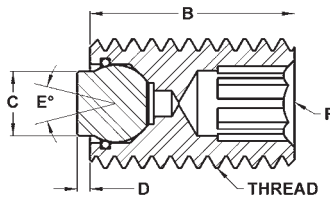
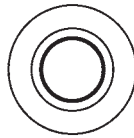
The replaceable flat ball swivels to allow for self-alignment on uneven surfaces. A Viton O-ring holds the ball in place while keeping contaminants out and providing smooth ball movement. The housing is made from alloy steel, heat treated to Rc 43/46 with black oxide finish. The replaceable ball is made 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

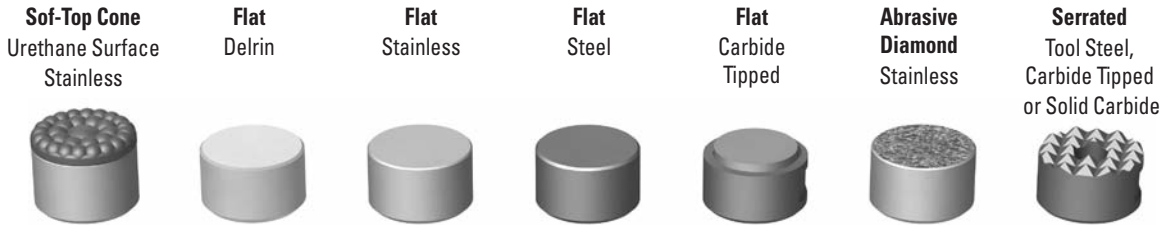
Part #	B Thread Length	C Contact Dia.	D Stand Off	E Degree Swivel	F Int. Hex	Ball Dia.	Ball Only Part #	Load Rating Lbs.
M12x1.75 Threads								
MTBU-12025-F	25	6	1.5	28	6	7	MBUB-070-F	3,440
MTBU-12025-F-T	25	6	3	28	6	7	MBUB-070-F-T	3,440
MTBU-12035-F	35	6	1.5	28	6	7	MBUB-070-F	3,440
MTBU-12035-F-T	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

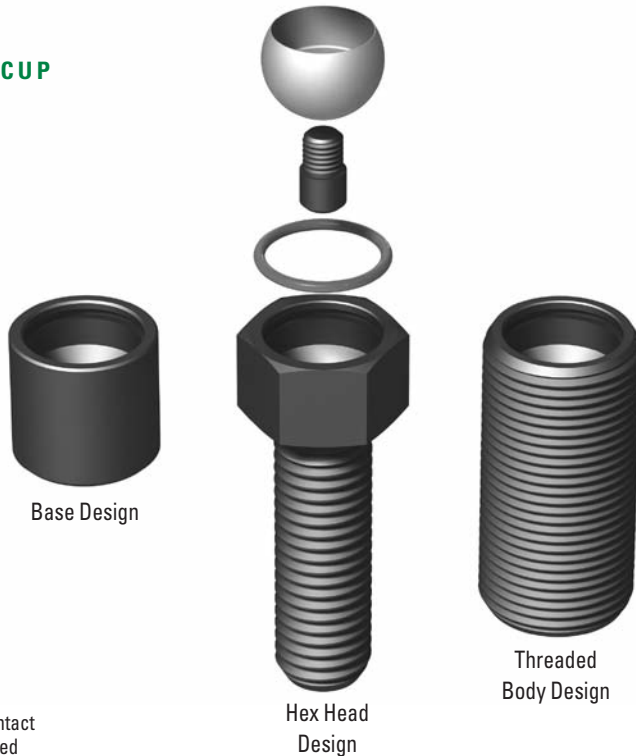


STAINLESS BALL CUP

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.

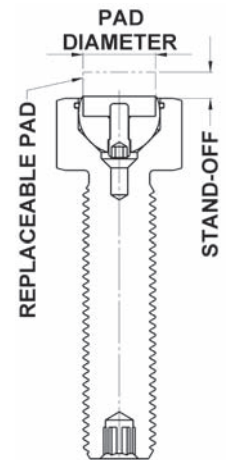
INCH			
Thread	Factor	Thread	Factor
#10-24	0.036	1/2-13	0.093
#10-32	0.035	1/2-20	0.091
1/4-20	0.047	5/8-11	0.116
1/4-28	0.046	5/8-18	0.113
5/16-18	0.059	3/4-10	0.138
5/16-24	0.058	3/4-16	0.135
3/8-16	0.070	1-8	0.183
3/8-24	0.068	1-14	0.180

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:



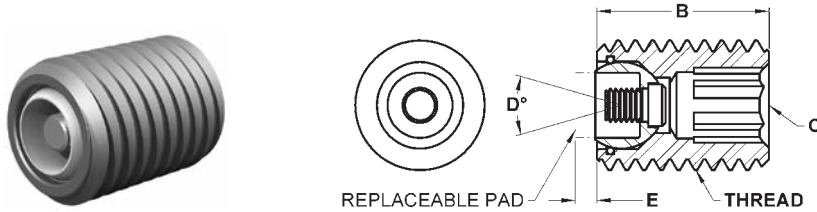
- 3/8" Pad Height provides 1/8" Stand Off
- 1/2" Pad Height provides 1/4" Stand Off
- 10mm Pad Height provides 4mm Stand Off
- 12mm Pad Height provides 6mm Stand Off

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

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.