

Fractional Fasteners

RECOMMENDED TOOL SIZE FOR FASTENERS

THREAD SIZE	SHCS	BHSCS	FBHSCS	FHSCS
8-32	--	3/32"	--	--
10-32	5/32"	1/8"	--	--
1/4-20	3/16"	5/32"	5/32"	5/32"
5/16-18	1/4"	3/16"	3/16"	3/16"
3/8-16	5/16"	N/A	--	7/32"
M5	4mm	3mm	--	3mm
M6	5mm	4mm	--	4mm
M8	6mm	5mm	--	5mm
M10	8mm	6mm	--	6mm

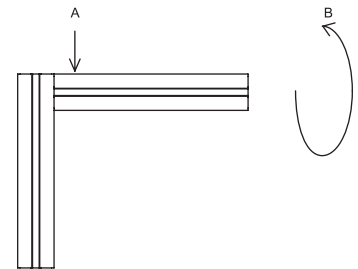
* Numbers in chart reflect hex tool size required.

FASTENER APPLICATION TEST

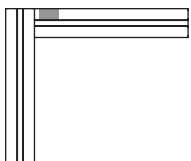
FASTENER	TS10-10		TS15-15L		TS15-15	
	A (lbs)	B	A (lbs)	B	A (lbs)	B
1	500	180 in/lbs	950	540 in/lbs	950	700 in/lbs
2	900	250 in/lbs	1,200	1,150 in/lbs	1,200	2,000 in/lbs
3	450	325 in/lbs	1,000	680 in/lbs	1,000	1,150 in/lbs
4	175	400 in/lbs	225	1,000 in/lbs	225	1,100 in/lbs
5	175	500 in/lbs	250	1,200 in/lbs	250	1,260 in/lbs
6	325	180 in/lbs	375	500 in/lbs	575	500 in/lbs
7	325	260 in/lbs	375	500 in/lbs	575	500 in/lbs

* All forces are approximate.

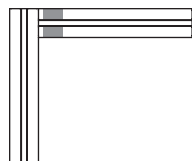
A - DIRECT FORCE
B - TORTIONAL FORCE



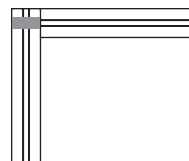
1 - SINGLE ANCHOR



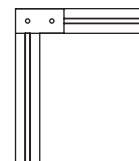
2 - DOUBLE ANCHOR



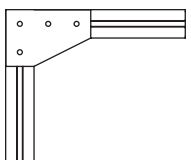
3 - END FASTENER



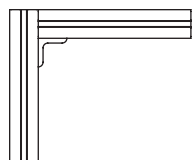
4 - JOINING STRIP



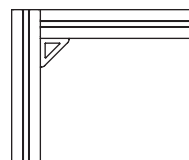
5 - 90° JOINING PLATE



6 - CORNER BRACKET



7 - CORNER GUSSET

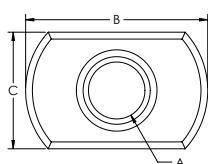


ECONOMY T-NUTS

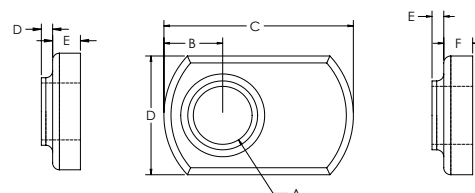


- Economical
- Extrusion end loading

CENTER THREAD



OFFSET THREAD



CENTER THREAD

ITEM#	FINISH	SERIES	A	B	C	D	E
651465	Black Zinc	10	6-32	.866"	.434"	.040"	.094"
651095	Black Zinc	10	8-32	.866"	.434"	.040"	.094"
651096	Black Zinc	10	10-32	.866"	.434"	.040"	.094"
651163	Black Zinc	10	1/4-20	1.000"	.440"	.050"	.090"
651321	Bright Zinc	10	1/4-20	1.000"	.440"	.050"	.090"
651682	Stainless	10	1/4-20	1.000"	.440"	.050"	.090"
651322	Bright Zinc	15	1/4-20	.810"	.510"	.050"	.120"
651294	Stainless	15	1/4-20	.810"	.510"	.050"	.120"
651560	Black Zinc	15	5/16-18	.984"	.638"	.080"	.142"
651386	Bright Zinc	10	M6 x 1.0	.936"	.438"	.050"	.096"
651445	Black Zinc	15	M8 x 1.25	1.500"	.630"	.078"	.142"

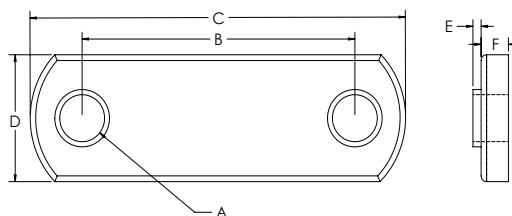
OFFSET THREAD

ITEM#	FINISH	SERIES	A	B	C	D	E	F
651287	Stainless	10	10-32	.240"	.940"	.440"	.050"	.100"
651105	Black Zinc	15	1/4-20	.250"	.810"	.510"	.050"	.120"
651097	Black Zinc	15	5/16-18	.280"	1.000"	.640"	.080"	.140"
651316	Bright Zinc	15	5/16-18	.280"	1.000"	.640"	.080"	.140"
651288	Stainless	15	5/16-18	.280"	1.000"	.640"	.080"	.140"
651366	Bright Zinc	15	M6 x 1.0	.250"	.810"	.510"	.050"	.120"
651367	Bright Zinc	15	M8 x 1.25	.280"	1.000"	.640"	.080"	.140"

DOUBLE ECONOMY T-NUTS



- Economical
- Extrusion end loading
- Convenient and better productivity over single economy T-Nut



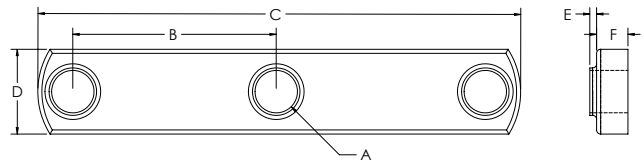
ITEM#	FINISH	SERIES	A	B	C	D	E	F
651100	Black Zinc	10	8-32	1.000"	1.375"	.443"	.030"	.100"
651099	Black Zinc	10	1/4-20	1.000"	1.869"	.443"	.030"	.100"
651331	Bright Zinc	10	M6 x 1.0	1.000"	1.875"	.443"	.030"	.100"
651098	Black Zinc	15	5/16-18	1.500"	2.810"	.625"	.030"	.148"
651406	Bright Zinc	15	M8 x 1.25	1.500"	3.000"	.630"	.030"	.100"

Fractional Fasteners

TRIPLE ECONOMY T-NUTS

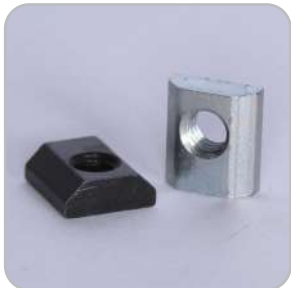


- Economical
- Extrusion end loading
- Convenient and better productivity over single & double economy T-Nut

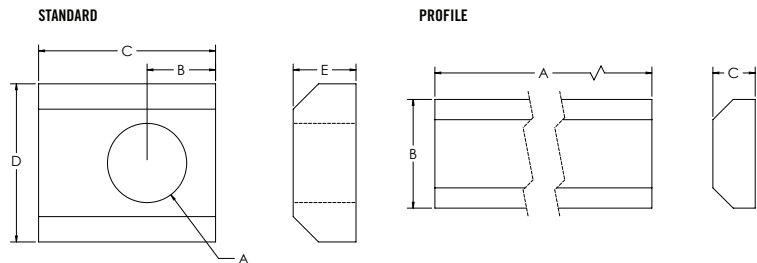


ITEM#	FINISH	SERIES	A	B	C	D	E	F
651106	Black Zinc	10	1/4-20	1.000"	2.450"	.450"	.050"	.225"
651104	Black Zinc	15	5/16-18	1.500"	3.562"	.625"	.050"	.231"
651427	Bright Zinc	10	M6 x 1.0	1.000"	2.450"	.443"	.050"	.144"
651336	Bright Zinc	15	M8 x 1.25	1.500"	3.562"	.638"	.080"	.222"

STANDARD T-NUTS OFFSET



- Economical
- Extrusion end loading



ITEM#	FINISH	SERIES	A	B	C	D	E
651076	Black Zinc	10	10-32	.200"	.477"	.429"	.167"
651075	Black Zinc	10	1/4-20	.230"	.480"	.429"	.167"
651398	Bright Zinc	10	M5 x .8	.230"	.480"	.429"	.167"
651400	Bright Zinc	10	M6 x 1	.230"	.480"	.429"	.167"
651308	Bright Zinc	15	5/16-18	.270"	.698"	.624"	.248"
651072	Black Zinc	15	10-32	.270"	.698"	.624"	.248"
651073	Black Zinc	15	1/4-20	.270"	.698"	.624"	.248"
651074	Black Zinc	15	5/16-18	.270"	.698"	.624"	.248"
651393	Bright Zinc	15	M6 x 1	.270"	.698"	.624"	.248"
651395	Bright Zinc	15	M8 x 1.25	.270"	.698"	.624"	.248"

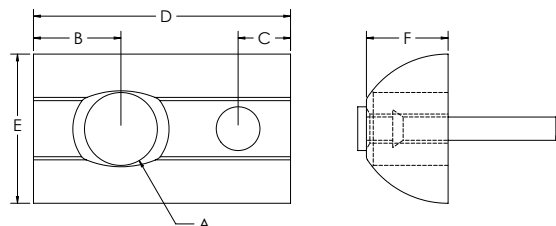
PROFILE

ITEM#	FINISH	SERIES	A	B	C
651477	Mill Finish	10	36.000"	.429"	.167"
651475	Mill Finish	15	36.000"	.624"	.248"

DROP IN T-NUTS WITH RUBBER HANDLE



- Reduces assembly time
- Easy to drop in slot when ends are closed off
- Rubber nub holds T-Nut in vertical

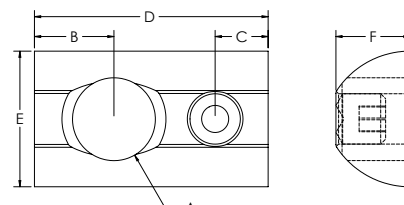


ITEM#	FINISH	SERIES	A	B	C	D	E	F
651157	Black Zinc	10	10-32	.200"	.100"	.630"	.400"	.200"
651325	Bright Zinc	10	10-32	.200"	.100"	.630"	.400"	.200"
651435	Stainless	10	1/4-20	.200"	.100"	.630"	.400"	.200"
651326	Bright Zinc	10	1/4-20	.200"	.100"	.630"	.400"	.200"
651158	Black Zinc	10	1/4-20	.200"	.100"	.630"	.400"	.200"
651402	Bright Zinc	10	M5 x .8	.200"	.100"	.630"	.400"	.200"
651403	Bright Zinc	10	M6 x 1	.200"	.100"	.630"	.400"	.200"
651103	Black Zinc	15	10-32	.300"	.180"	.880"	.510"	.280"
651102	Black Zinc	15	1/4-20	.300"	.180"	.880"	.510"	.280"
651101	Black Zinc	15	5/16-18	.300"	.180"	.880"	.510"	.280"
651318	Bright Zinc	15	5/16-18	.300"	.180"	.880"	.510"	.280"
651245	Stainless Steel	15	5/16-18	.300"	.195"	.880"	.510"	.280"
651246	Stainless Steel	15	1/4-20	.300"	.180"	.880"	.510"	.280"
651373	Bright Zinc	15	M5 x .8	.310"	.195"	.880"	.510"	.280"
651372	Bright Zinc	15	M6 x 1	.300"	.180"	.880"	.510"	.280"
651371	Bright Zinc	15	M8 x 1.25	.300"	.180"	.880"	.510"	.280"

DROP IN T-NUTS WITH SET SCREW



- Reduces assembly time
- Easy to drop in slot when ends are closed off
- Set screw holds T-Nut in vertical



ITEM#	FINISH	SERIES	A	B	C	D	E	F	SET SCREW THREAD
651125	Black Zinc	10	10-32	.200"	.120"	.630"	.400"	.200"	10-32
651317	Bright Zinc	10	10-32	.310"	.195"	.875"	.510"	.285"	10-24
651126	Black Zinc	10	1/4-20	.200"	.120"	.630"	.400"	.200"	10-32
651122	Black Zinc	15	10-32	.300"	.200"	.880"	.510"	.280"	10-32
651123	Black Zinc	15	1/4-20	.300"	.200"	.880"	.510"	.280"	10-32
651247	Stainless	15	1/4-20	.300"	.200"	.880"	.510"	.280"	10-32
651323	Bright Zinc	15	1/4-20	.300"	.200"	.880"	.510"	.280"	10-32
651124	Black Zinc	15	5/16-18	.300"	.200"	.880"	.510"	.280"	10-32
651248	Stainless	15	5/16-18	.300"	.200"	.880"	.510"	.280"	10-32

Fractional Fasteners

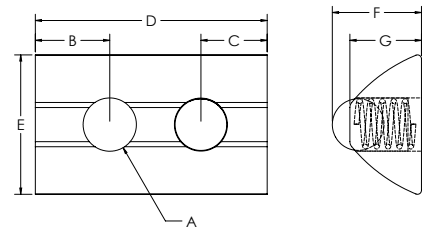
DROP-IN TNUTS CONT.

ITEM#	FINISH	SERIES	A	B	C	D	E	F	SET SCREW THREAD
651324	Bright Zinc	15	5/16-18	.300"	.200"	.880"	.510"	.280"	10-32
651425	Bright Zinc	15	M6 x 1	.300"	.200"	.880"	.510"	.280"	10-32
651421	Bright Zinc	15	M8 x 1.25	.300"	.200"	.880"	.510"	.280"	M5 x .8

DROP IN T-NUTS WITH BALL BEARING



- Reduces assembly time
- Easy to drop in slot when ends are closed off
- Ball bearing holds T-Nut in vertical

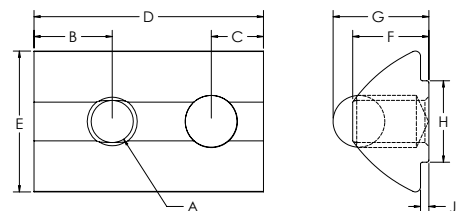


ITEM#	FINISH	SERIES	A	B	C	D	E	F	G
651467	Bright Zinc	10	8-32	.190"	.190"	.630"	.370"	.250"	.200"
651468	Bright Zinc	10	10-32	.190"	.190"	.630"	.390"	.250"	.200"
651469	Bright Zinc	10	1/4-20	.190"	.190"	.630"	.390"	.250"	.200"
651689	Stainless Steel	10	1/4-20	.190"	.190"	.630"	.390"	.250"	.200"
651471	Bright Zinc	10	M5 x .8	.190"	.190"	.630"	.390"	.250"	.200"
651472	Bright Zinc	10	M6 x 1	.190"	.190"	.630"	.390"	.250"	.200"
651642	Bright Zinc	15	8-32	.280"	.250"	.880"	.520"	.330"	.270"
651643	Bright Zinc	15	10-32	.280"	.250"	.880"	.520"	.330"	.270"
651644	Bright Zinc	15	1/4-20	.280"	.250"	.880"	.520"	.350"	.270"
651645	Bright Zinc	15	5/16-18	.280"	.250"	.880"	.520"	.340"	.270"
651646	Bright Zinc	15	M5 x .8	.280"	.250"	.880"	.520"	.330"	.270"
651647	Bright Zinc	15	M6 x 1	.280"	.250"	.880"	.520"	.350"	.270"
651648	Bright Zinc	15	M8 x 1.25	.280"	.250"	.880"	.520"	.330"	.270"

STEPPED DROP IN T-NUT WITH BALL BEARING



- Reduces assembly time
- Easy to drop in slot when ends are closed off
- Self aligning roll in slot nut with spring ball

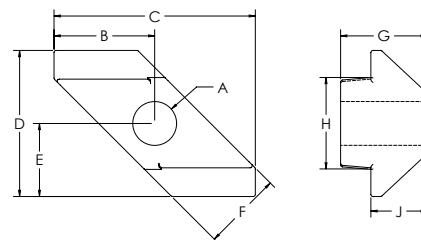


ITEM#	FINISH	SERIES	A	B	C	D	E	F	G	H	J
664114	Bright Zinc	15	1/4-20	.300"	.200"	.870"	.530"	.290"	.350"	.290"	.031"
664115	Bright Zinc	15	10-32	.300"	.200"	.870"	.530"	.290"	.350"	.290"	.031"
664116	Bright Zinc	15	5/16-18	.300"	.200"	.870"	.530"	.290"	.350"	.290"	.031"
664111	Bright Zinc	15	M5	.300"	.200"	.870"	.530"	.290"	.350"	.290"	.031"
664112	Bright Zinc	15	M6	.300"	.200"	.870"	.530"	.290"	.350"	.290"	.031"
664113	Bright Zinc	15	M8	.300"	.200"	.870"	.530"	.290"	.350"	.290"	.031"

Z-NUTS



- Design allows for easy loading from extrusion slot
- Metric thread size only

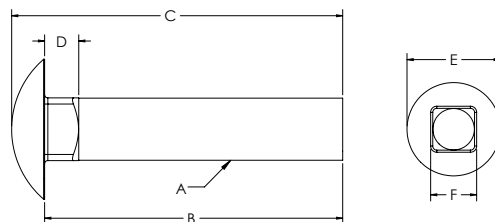


ITEM#	FINISH	SERIES	A	B	C	D	E	F	G	H	I
662002	Bright Zinc	15	M5	.380"	.760"	.551"	.276"	.299"	.327"	.345"	.213"
662001	Bright Zinc	15	M6	.380"	.760"	.551"	.276"	.299"	.327"	.345"	.213"

ECONOMY T SLOT STUDS



- Extrusion end loading only

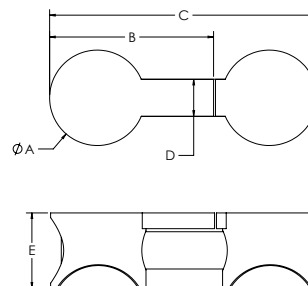


ITEM#	FINISH	A	B	C	D	E	F
651054	Bright Zinc	5/16-18	.750"	.916"	.172"	.704"	.316"
651058	Bright Zinc	5/16-18	1.000"	1.166"	.172"	.704"	.316"
651063	Bright Zinc	5/16-18	1.250"	1.416"	.172"	.704"	.316"
651066	Bright Zinc	5/16-18	1.500"	1.666"	.172"	.704"	.316"
651107	Bright Zinc	5/16-18	1.750"	1.916"	.172"	.704"	.316"
651255	Stainless	5/16-18	.750"	.916"	.172"	.704"	.316"
651261	Stainless	5/16-18	1.000"	1.166"	.172"	.704"	.316"

BUTT FASTENERS



- Allows you to butt two extrusions end to end for maximum strength and alignment
- See page 466 for machining



ITEM#	FINISH	SERIES	A	B	C	D	E
651153	Bright Zinc	10	.560"	.730"	1.370"	.250"	.410"
651154	Bright Zinc	15	.800"	1.380"	2.240"	.310"	.630"
651633	Black	15	.800"	1.380"	2.240"	.310"	.630"

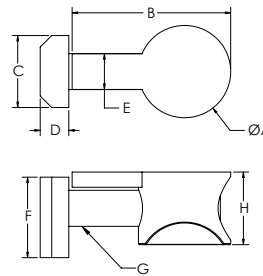
Fractional Fasteners

ANCHOR FASTENERS

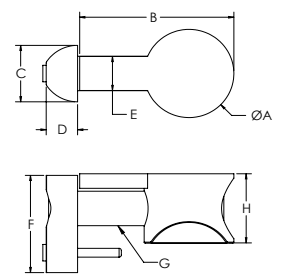


- Strongest of available fasteners
- Creates 90 degree Tslot connections
- All T-Nuts are offset
- See page 466 for machining services

STANDARD TNUT



DROP-IN TNUT



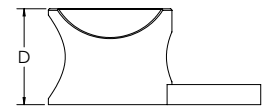
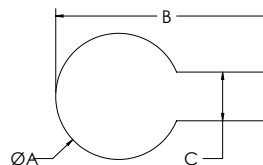
WITH STANDARD T-NUT

ITEM#	FINISH	SERIES	A	B	C	D	E	F	G	H
651173	Bright Zinc	10	.562"	.755"	.429"	.167"	.250"	.477"	10-32 x 3/4 SHCS	.415"
651500	Bright Zinc	10	.562"	.755"	.429"	.170"	.250"	.480"	M5 x 18mm SHCS	.415"
651170	Black	10	.562"	.755"	.429"	.167"	.250"	.477"	10-32 x 3/4 SHCS	.415"
651281	Bright Zinc	15	.800"	1.380"	.624"	.250"	.310"	.700"	SS 5/16-18 x 1.25 SHCS	.630"
651146	Bright Zinc	15	.800"	1.380"	.624"	.250"	.310"	.700"	5/16-18 x 1.25 SHCS	.630"
651145	Black	15	.800"	1.380"	.624"	.250"	.310"	.700"	5/16-18 x 1.25 SHCS	.630"
651424	Bright Zinc	15	.800"	1.380"	.624"	.250"	.310"	.700"	M8 x 30mm SHCS	.630"

WITH DROP-IN T-NUT

ITEM#	FINISH	SERIES	A	B	C	D	E	F	G	H
651149	Bright Zinc	10	.560"	.730"	.400"	.200"	.250"	.630"	10-32 x 3/4 SHCS	.410"
651148	Bright Zinc	15	.800"	1.380"	.510"	.280"	.310"	.880"	5/16-18 x 1.25 SHCS	.630"

ANCHOR FASTENER CAMS

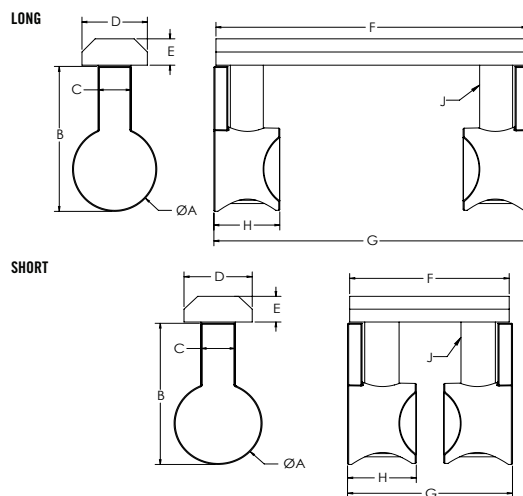


ITEM#	FINISH	SERIES	A	B	C	D
651174	Bright Zinc	10	.562"	.755"	.250"	.415"
651147	Bright Zinc	15	.800"	1.380"	.310"	.630"
651566	Black	10	.562"	.755"	.250"	.415"
651565	Black	15	.800"	1.380"	.310"	.630"

DOUBLE ANCHOR FASTENERS



- Reduces assembly time when mating extrusions have opposing anchor fastener counterbores
- Strongest of available fasteners
- Creates 90 degree Tslot connections
- See page 466 for machining services



SHORT WITH STANDARD T-NUT

ITEM#	FINISH	SERIES	A	B	C	D	E	F	G	H	J
651036	Bright Zinc	10	.560"	.730"	.250"	.436"	.177"	.950"	0.989"	.410"	10-32 x 3/4 SHCS
651037	Black	10	.560"	.730"	.250"	.436"	.177"	.950"	0.989"	.410"	10-32 x 3/4 SHCS
651044	Bright Zinc	15	.800"	1.380"	.310"	.630"	.250"	1.450"	1.500"	.630"	5/16-18 x 1.25 SHCS
651041	Black	15	.800"	1.380"	.310"	.630"	.250"	1.450"	1.500"	.630"	5/16-18 x 1.25 SHCS

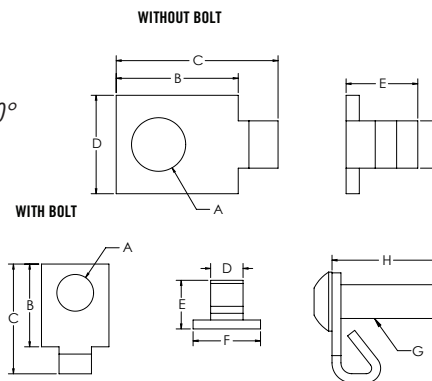
LONG WITH STANDARD T-NUT

ITEM#	FINISH	SERIES	A	B	C	D	E	F	G	H	J
651038	Bright Zinc	10	.560"	.730"	.250"	.440"	.180"	1.970"	1.975"	.410"	10-32 x 3/4 SHCS
651039	Black	10	.560"	.730"	.250"	.440"	.180"	1.970"	1.975"	.410"	10-32 x 3/4 SHCS
651045	Bright Zinc	15	.800"	1.380"	.310"	.620"	.250"	2.950"	2.989"	.630"	5/16-18 x 1.25 SHCS
651043	Black	15	.800"	1.380"	.310"	.620"	.250"	2.950"	2.989"	.630"	5/16-18 x 1.25 SHCS

SINGLE TAB END FASTENERS



- Allows for panels to mate in slots without having to notch panels
- Provides hidden fastener when connecting extrusions at 90°
- Mating extrusions glide over end fastener
- Tapping service required in the extrusion base end and access hole in the mating extrusions
- Prevents mating extrusion from rotating



WITHOUT BOLTS

ITEM#	FINISH	SERIES	A	B	C	D	E	F
651568	Bright Zinc	10	.275"	.489"	.645"	.431"	.293"	.240"
651495	Black Zinc	15	.340"	.770"	1.020"	.300"	.450"	.620"

WITH BOLTS

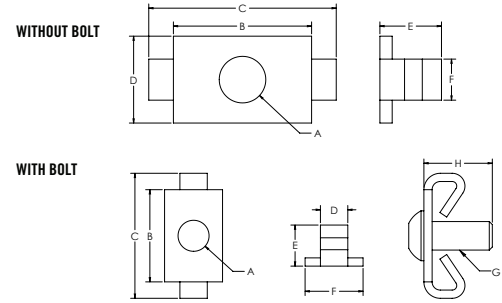
ITEM#	FINISH	SERIES	A	B	C	D	E	F	G	H
651501	Bright Zinc	15	.340"	.770"	1.020"	.300"	.450"	.620"	5/16-18 X 3/4 SHCS	1.000"

Fractional Fasteners

END FASTENERS



- Provides a hidden fastener when connecting extrusions at 90 degrees
- Mating extrusions glide over end fastener
- Tapping service required in the extrusion base end and access hole in the mating extrusion
- Prevents mating extrusion from rotating



WITHOUT BOLT

ITEM#	FINISH	SERIES	A	B	C	D	E	F
651291	Bright Zinc	10	.280"	.630"	.890"	.430"	.340"	.250"
651159	Black Zinc	10	.280"	.630"	.890"	.430"	.340"	.250"
651289	Bright Zinc	15	.340"	1.010"	1.370"	.640"	.450"	.300"
651160	Black Zinc	15	.340"	1.010"	1.370"	.640"	.450"	.300"

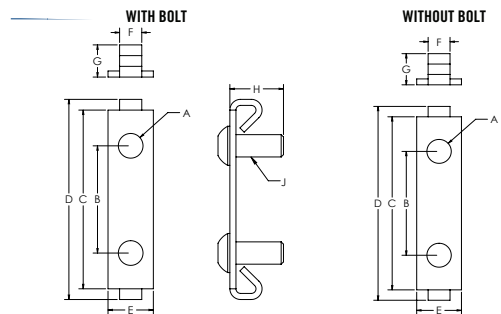
WITH BOLT

ITEM#	FINISH	SERIES	A	B	C	D	E	F	G	H
651162	Black Zinc	10	.280"	.630"	.890"	.250"	.340"	.430"	1/4-20 x 3/4 BHSCS	.750"
651292	Stainless	10	.280"	.630"	.890"	.250"	.340"	.430"	SS 1/4-20 x 3/4 BHSCS	.750"
651422	Bright Zinc	10	.280"	.630"	.890"	.250"	.340"	.430"	M6 x 20mm BHSCS	.790"
651161	Black Zinc	15	.340"	1.010"	1.370"	.300"	.450"	.640"	5/16-18 x 3/4 BHSCS	.750"
651290	Stainless	15	.340"	1.010"	1.370"	.300"	.450"	.640"	SS 5/16-18 x 3/4 BHSCS	.750"
651418	Bright Zinc	15	.340"	1.010"	1.370"	.300"	.450"	.640"	M8 x 20mm BHSCS	.790"

DOUBLE END FASTENERS



- Provides a hidden fastener when connecting extrusions at 90 degrees
- Mating extrusions glide over end fastener
- Tapping service required in the extrusion base end and access hole in the mating extrusion
- Prevents mating extrusion from rotating



WITHOUT BOLT

ITEM#	FINISH	SERIES	A	B	C	D	E	F	G
651329	Bright Zinc	10	.280"	1.000"	1.630"	1.880"	.430"	.250"	.340"
651139	Black Zinc	10	.280"	1.000"	1.630"	1.880"	.430"	.250"	.340"
651330	Bright Zinc	15	.350"	1.500"	2.500"	2.800"	.640"	.310"	.450"
651140	Black Zinc	15	.350"	1.500"	2.500"	2.800"	.640"	.310"	.450"

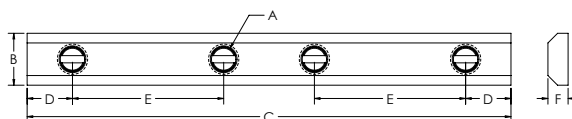
WITH BOLTS

ITEM#	FINISH	SERIES	A	B	C	D	E	F	G	H	J
651137	Black Zinc	10	.280"	1.000"	1.630"	1.880"	.430"	.250"	.340"	.750"	1/4-20 x 3/4 BHSCS
651327	Bright Zinc	10	.280"	1.000"	1.630"	1.880"	.430"	.250"	.340"	.750"	SS 1/4-20 x 3/4 BHSCS
651428	Bright Zinc	10	.280"	1.000"	1.630"	1.880"	.430"	.250"	.340"	.790"	M6 x 25mm BHSCS
651138	Black Zinc	15	.350"	1.500"	2.500"	2.800"	.640"	.310"	.450"	.750"	5/16-18 x 3/4 BHSCS
651328	Bright Zinc	15	.350"	1.500"	2.500"	2.800"	.640"	.310"	.450"	.750"	SS 5/16-18 x 3/4 BHSCS
651429	Bright Zinc	15	.350"	1.500"	2.500"	2.800"	.640"	.310"	.450"	.980"	M8 x 25mm BHSCS

CONNECTOR LINK



- Fastening link to connect similar series profiles together
- Requires no machining

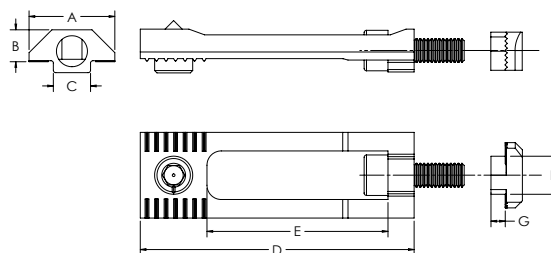


ITEM#	FINISH	SERIES	A	B	C	D	E	F
662005	Black Zinc	10	1/4-20	.430"	4.000"	.380"	1.250"	.170"
662075	Black Zinc	15	5/16-18	.620"	6.000"	.500"	2.000"	.250"

MILLING CONNECTOR



- For fast connection of two slot profiles, zinc plated
- Requires no machining



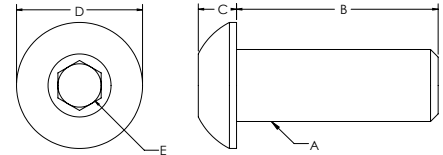
ITEM#	FINISH	SERIES	A	B	C	D	E	F
655815	Bright Zinc	15	.709"	.264"	.307"	2.264"	1.496"	.315"

Fractional Fasteners

BUTTON HEAD SOCKET CAP SCREWS



- Grade 8 or stronger
- Alloy steel
- ANSI B18.3 rating



ITEM#	FINISH	A	B	C	D	E
651020	Black Phosphate	6-32	3/8"	0.068"	0.256"	5/64
651006	Black Phosphate	8-32	1/2"	0.082"	0.305"	3/32
651007	Black Phosphate	8-32	7/8"	0.082"	0.305"	3/32
651008	Black Phosphate	10-32	3/8"	0.096"	0.354"	1/8
651011	Black Phosphate	10-32	1/2"	0.096"	0.354"	1/8
651012	Black Phosphate	10-32	5/8"	0.096"	0.354"	1/8
651015	Black Phosphate	10-32	3/4"	0.096"	0.354"	1/8
651302	Stainless	10-32	3/8"	0.096"	0.354"	1/8
651304	Stainless	10-32	1/2"	0.096"	0.354"	1/8
651306	Stainless	10-32	5/8"	0.096"	0.354"	1/8
651019	Black Phosphate	1/4-20	3/8"	0.127"	0.428"	5/32
651021	Black Phosphate	1/4-20	1/2"	0.127"	0.428"	5/32
651023	Black Phosphate	1/4-20	5/8"	0.127"	0.428"	5/32
651025	Black Phosphate	1/4-20	3/4"	0.127"	0.428"	5/32
651462	Black Phosphate	1/4-20	1"	0.127"	0.428"	5/32
651463	Black Phosphate	1/4-20	1-1/4"	0.127"	0.428"	5/32
651296	Stainless	1/4-20	3/8"	0.127"	0.428"	5/32
651298	Stainless	1/4-20	1/2"	0.127"	0.428"	5/32
651284	Stainless	1/4-20	5/8"	0.127"	0.428"	5/32
651300	Stainless	1/4-20	3/4"	0.127"	0.428"	5/32
651048	Black Phosphate	5/16-18	1/2"	0.159"	0.537"	3/16
651051	Black Phosphate	5/16-18	5/8"	0.159"	0.537"	3/16
651053	Black Phosphate	5/16-18	3/4"	0.159"	0.537"	3/16
651055	Black Phosphate	5/16-18	7/8"	0.159"	0.537"	3/16
651056	Black Phosphate	5/16-18	1"	0.159"	0.537"	3/16
651249	Stainless	5/16-18	1/2"	0.159"	0.537"	3/16
651251	Stainless	5/16-18	5/8"	0.159"	0.537"	3/16
651253	Stainless	5/16-18	3/4"	0.159"	0.537"	3/16
651256	Stainless	5/16-18	7/8"	0.159"	0.537"	3/16
651259	Stainless	5/16-18	1"	0.159"	0.537"	3/16

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BUTTON HEAD SOCKET CAP SCREW COMBINATION PARTS

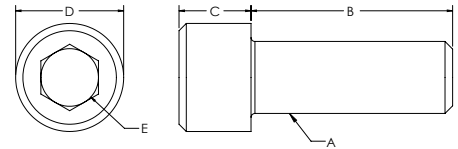
ITEM#	SERIES	BOLT ITEM	FINISH	THREAD	LENGTH	TNUT ITEM	TNUT TYPE	FINISH	WASHER ITEM
651679	10	651019	Black Phosphate	1/4-20	3/8"	651163	Economy	Black Zinc	--
651799	10	651296	Stainless Steel	1/4-20	3/8"	651435	Drop-In	Stainless Steel	--
651798	10	651296	Stainless Steel	1/4-20	3/8"	651682	Economy	Stainless Steel	--
651176	10	651021	Black Phosphate	1/4-20	1/2"	651163	Economy	Black Zinc	651080
651177	10	651021	Black Phosphate	1/4-20	1/2"	651126	Drop-In	Black Zinc	651080
651171	10	651021	Black Phosphate	1/4-20	1/2"	651163	Economy	Black Zinc	--
651172	10	651021	Black Phosphate	1/4-20	1/2"	651326	Drop-In	Bright Zinc	--
651490	10	651021	Black Phosphate	1/4-20	1/2"	651099	DBL Economy	Black Zinc	--
651795	10	651298	Stainless Steel	1/4-20	1/2"	651435	Drop-In	Stainless Steel	--
651794	10	651298	Stainless Steel	1/4-20	1/2"	651682	Economy	Stainless Steel	--
651152	10	651023	Black Phosphate	1/4-20	5/8"	--	--	--	651080
651274	10	651284	Stainless Steel	1/4-20	5/8"	651294	Economy	Stainless Steel	651279
651216	10	651025	Black Phosphate	1/4-20	3/4"	651077	Hex Nut	Black Zinc	651080
651155	10	651025	Black Phosphate	1/4-20	3/4"	651163	Economy	Black Zinc	651080
651156	10	651025	Black Phosphate	1/4-20	3/4"	651326	Drop-In	Black Zinc	651080
651726	10	651025	Black Phosphate	1/4-20	3/4"	651644	Drop-In	Bright Zinc	--
651727	10	651025	Black Phosphate	1/4-20	3/4"	651105	Economy	Black Zinc	--
651722	15	651023	Black Phosphate	1/4-20	5/8"	651105	Economy	Black Zinc	--
651191	15	651048	Black Phosphate	5/16-18	1/2"	651097	Economy	Black Zinc	--
651800	15	651048	Black Phosphate	5/16-18	1/2"	651645	Drop-In	Bright Zinc	--
651802	15	651249	Stainless Steel	5/16-18	1/2"	651245	Drop-In	Stainless Steel	--
651801	15	651249	Stainless Steel	5/16-18	1/2"	651288	Economy	Stainless Steel	--
651797	15	651251	Stainless Steel	5/16-18	5/8"	651245	Drop-In	Stainless Steel	--
651796	15	651251	Stainless Steel	5/16-18	5/8"	651288	Economy	Stainless Steel	--
651806	15	651051	Black Phosphate	5/16-18	5/8"	651645	Drop-In	Bright Zinc	--
651190	15	651051	Black Phosphate	5/16-18	5/8"	651097	Economy	Black Zinc	651081
651192	15	651051	Black Phosphate	5/16-18	5/8"	651645	Drop-In	Bright Zinc	651081
651150	15	651051	Black Phosphate	5/16-18	5/8"	651097	Economy	Black Zinc	--
651258	15	651251	Stainless Steel	5/16-18	5/8"	651288	Economy	Stainless Steel	651280
651193	15	651053	Black Phosphate	5/16-18	3/4"	651097	Economy	Black Zinc	651081
651194	15	651053	Black Phosphate	5/16-18	3/4"	651645	Drop-In	Bright Zinc	651081
651195	15	651053	Black Phosphate	5/16-18	3/4"	651078	Hex Nut	Black Zinc	651081
651151	15	651053	Black Phosphate	5/16-18	3/4"	--	--	--	651081
651265	15	651253	Stainless Steel	5/16-18	3/4"	651288	Economy	Stainless Steel	651280
651197	15	651056	Black Phosphate	5/16-18	1"	651645	Drop-In	Bright Zinc	651081
651266	15	651259	Stainless Steel	5/16-18	1"	651288	Economy	Stainless Steel	651280

Fractional Fasteners

SOCKET HEAD CAP SCREWS



- Grade 8 or stronger
- Alloy steel
- ANSI B18.3 rating



ITEM#	FINISH	A	B	C	D	E
651479	Black Phosphate	6-32	3/8"	.138"	.226"	7/64
658590	Black Phosphate	8-32	7/16"	0.162"	0.266"	9/64
658591	Black Phosphate	8-32	5/8"	0.162"	0.266"	9/64
658588	Black Phosphate	8-32	3/4"	0.162"	0.266"	9/64
658589	Black Phosphate	8-32	1"	0.162"	0.266"	9/64
651009	Black Phosphate	10-32	3/8"	0.188"	0.305"	5/32
651010	Black Phosphate	10-32	1/2"	0.188"	0.305"	5/32
651013	Black Phosphate	10-32	5/8"	0.188"	0.305"	5/32
651293	Stainless	10-32	3/4"	0.188"	0.305"	5/32
651301	Stainless	10-32	3/8"	0.188"	0.305"	5/32
651303	Stainless	10-32	1/2"	0.188"	0.305"	5/32
651305	Stainless	10-32	5/8"	0.188"	0.305"	5/32
651017	Black Phosphate	10-32	3/4"	0.188"	0.305"	5/32
651018	Black Phosphate	1/4 20	3/8"	0.247"	0.366"	3/16
651022	Black Phosphate	1/4 20	1/2"	0.247"	0.366"	3/16
651024	Black Phosphate	1/4 20	5/8"	0.247"	0.366"	3/16
651027	Black Phosphate	1/4 20	3/4"	0.247"	0.366"	3/16
651028	Black Phosphate	1/4 20	7/8"	0.247"	0.366"	3/16
651029	Black Phosphate	1/4 20	1"	0.247"	0.366"	3/16
651030	Black Phosphate	1/4 20	1-1/4"	0.247"	0.366"	3/16
651031	Black Phosphate	1/4 20	1-1/2"	0.247"	0.366"	3/16
651494	Black Phosphate	1/4 20	2"	0.247"	0.366"	3/16
651489	Black Phosphate	1/4 20	2-1/2"	0.247"	0.366"	3/16
651295	Stainless	1/4 20	3/8"	0.247"	0.366"	3/16
651297	Stainless	1/4 20	1/2"	0.247"	0.366"	3/16
651299	Stainless	1/4 20	3/4"	0.247"	0.366"	3/16
651286	Stainless	1/4 20	1"	0.247"	0.366"	3/16
651250	Stainless	5/16 18	1/2"	0.309"	0.463"	1/4
651252	Stainless	5/16 18	5/8"	0.309"	0.463"	1/4
651254	Stainless	5/16 18	3/4"	0.309"	0.463"	1/4
651257	Stainless	5/16 18	7/8"	0.309"	0.463"	1/4
651260	Stainless	5/16 18	1"	0.309"	0.463"	1/4
651262	Stainless	5/16 18	1-1/4"	0.309"	0.463"	1/4
651049	Black Phosphate	5/16 18	1/2"	0.309"	0.463"	1/4
651050	Black Phosphate	5/16 18	5/8"	0.309"	0.463"	1/4
651052	Black Phosphate	5/16 18	3/4"	0.309"	0.463"	1/4
651057	Black Phosphate	5/16 18	7/8"	0.309"	0.463"	1/4

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ITEM#	FINISH	A	B	C	D	E
651059	Black Phosphate	5/16 18	1"	0.309"	0.463"	1/4
651060	Black Phosphate	5/16 18	1-1/4"	0.309"	0.463"	1/4
651064	Black Phosphate	5/16 18	1-1/2"	0.309"	0.463"	1/4
651650	Black Phosphate	5/16 18	1-3/4"	0.309"	0.463"	1/4
651651	Black Phosphate	5/16 18	2"	0.309"	0.463"	1/4
651652	Black Phosphate	5/16 18	2-1/4"	0.309"	0.463"	1/4
651653	Black Phosphate	5/16 18	2-1/2"	0.309"	0.463"	1/4
651654	Black Phosphate	5/16 18	3"	0.309"	0.463"	1/4
651488	Black Phosphate	5/16 18	3-1/2"	0.309"	0.463"	1/4
651061	Black Phosphate	3/8 16	1"	0.372"	0.558"	5/16
651062	Black Phosphate	3/8 16	3/4"	0.372"	0.558"	5/16

SOCKET HEAD CAP SCREWS COMBINATION PARTS

ITEM#	SERIES	BOLT ITEM	FINISH	THREAD	LENGTH	TNUT ITEM	TNUT TYPE	FINISH	WASHER ITEM
651721	10	699885	Black Phosphate	8-32	3/8"	651095	Economy	Black Zinc	--
651732	10	658591	Black Phosphate	8-32	5/8"	651642	Drop-In	Bright Zinc	--
651723	10	683703	Black Phosphate	8-32	5/8"	651449	Hex Nut	Bright Zinc	683704
651730	10	658588	Black Phosphate	8-32	3/4"	651467	Drop-In	Bright Zinc	--
651731	10	658589	Black Phosphate	8-32	1"	651642	Drop-In	Bright Zinc	--
651781	10	651010	Black Phosphate	10-32	1/2"	651468	Drop-In	Bright Zinc	--
651782	10	651013	Black Phosphate	10-32	5/8"	651643	Drop-In	Bright Zinc	--
651206	10	651013	Black Phosphate	10-32	5/8"	651014	Hex Nut	Black Zinc	651016
651234	10	651022	Black Phosphate	1/4-20	1/2"	651163	Economy	Black Zinc	--
651235	10	651022	Black Phosphate	1/4-20	1/2"	651469	Drop-In	Bright Zinc	--
651733	10	651022	Black Phosphate	1/4-20	1/2"	651075	Standard	Black Zinc	--
651236	10	651024	Black Phosphate	1/4-20	5/8"	651163	Economy	Black Zinc	--
651240	10	651024	Black Phosphate	1/4-20	5/8"	651163	Economy	Black Zinc	651080
651241	10	651024	Black Phosphate	1/4-20	5/8"	651158	Drop-In	Black Zinc	651080
651117	10	651027	Black Phosphate	1/4-20	3/4"	651163	Economy	Black Zinc	--
651175	10	651027	Black Phosphate	1/4-20	3/4"	651158	Drop-In	Black Zinc	--
651118	10	651028	Black Phosphate	1/4-20	7/8"	651163	Economy	Black Zinc	--
651735	10	651028	Black Phosphate	1/4-20	7/8"	651105	Economy Offset	Black Zinc	--
651736	10	651029	Black Phosphate	1/4-20	1"	651105	Economy Offset	Black Zinc	--
651119	10	651029	Black Phosphate	1/4-20	1"	651163	Economy	Black Zinc	--
651120	10	651030	Black Phosphate	1/4-20	1-1/4"	651163	Economy	Black Zinc	--
651737	10	651030	Black Phosphate	1/4-20	1-1/4"	651105	Economy Offset	Black Zinc	--
651121	10	651031	Black Phosphate	1/4-20	1-1/2"	651163	Economy	Black Zinc	--
651738	10	651031	Black Phosphate	1/4-20	1-1/2"	651105	Economy Offset	Black Zinc	--
651483	10	651489	Black Phosphate	1/4-20	2-1/2"	651163	Economy	Black Zinc	--
651199	15	651049	Black Phosphate	5/16-18	1/2"	651097	Economy	Black Zinc	--
651267	15	651250	Stainless Steel	5/16-18	1/2"	651288	Economy	Stainless Steel	--
651201	15	651050	Black Phosphate	5/16-18	5/8"	651097	Economy	Black Zinc	--
651209	15	651050	Black Phosphate	5/16-18	5/8"	651097	Economy	Black Zinc	651081
651268	15	651252	Stainless Steel	5/16-18	5/8"	651288	Economy	Stainless Steel	--
651202	15	651052	Black Phosphate	5/16-18	3/4"	651097	Economy	Black Zinc	--
651213	15	651052	Black Phosphate	5/16-18	3/4"	651097	Economy	Black Zinc	651081

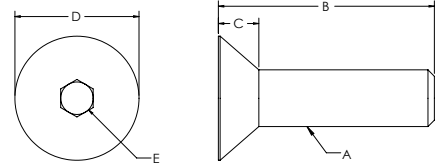
Fractional Fasteners

651215	15	651052	Black Phosphate	5/16-18	3/4"	651645	Drop-In	Bright Zinc	651081
651205	15	651057	Black Phosphate	5/16-18	7/8"	651097	Economy	Black Zinc	--
651207	15	651057	Black Phosphate	5/16-18	7/8"	651645	Drop-In	Bright Zinc	--
651198	15	651057	Black Phosphate	5/16-18	7/8"	651078	Hex Nut	Black Zinc	651081
651217	15	651059	Black Phosphate	5/16-18	1"	651097	Economy	Black Zinc	651081
651482	15	651060	Black Phosphate	5/16-18	1-1/4"	651097	Economy	Black Zinc	--
651487	15	651064	Black Phosphate	5/16-18	1-1/2"	651097	Economy	Black Zinc	--
651485	15	651654	Black Phosphate	5/16-18	3"	651097	Economy	Black Zinc	--
651486	15	651488	Black Phosphate	5/16-18	3-1/2"	651097	Economy	Black Zinc	--

FLATHEAD SOCKET CAP SCREWS



- Grade 8 or stronger
- Alloy steel
- ANSI B18.3 rating



ITEM#	FINISH	A	B	C	D	E
651466	Black Phosphate	6-32	1/2"	0.097"	0.285"	5/64
651188	Black Phosphate	6-32	3/8"	0.097"	0.285"	5/64
651005	Black Zinc	10-32	1/2"	0.127"	0.385"	1/8
651179	Black Phosphate	10-32	1/2"	0.127"	0.385"	1/8
651178	Black Phosphate	1/4-20	1/2"	0.161"	0.505"	5/32
651180	Black Phosphate	1/4-20	5/8"	0.161"	0.505"	5/32
651540	Black Phosphate	1/4-20	3/4"	0.161"	.505"	5/32
651181	Black Phosphate	5/16-18	5/8"	0.198"	0.628"	3/16
651182	Black Phosphate	5/16-18	3/4"	0.198"	0.628"	3/16
658017	Black Phosphate	5/16-18	1"	0.198"	0.628"	3/16
651187	Black Phosphate	3/8-16	3/4"	0.234"	0.751"	7/32

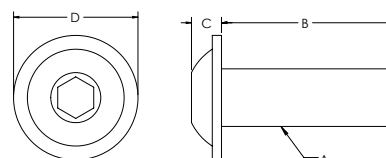
FLATHEAD SOCKET CAP SCREW COMBINATION PARTS

ITEM#	SERIES	BOLT ITEM	FINISH	THREAD	LENGTH	TNUT ITEM	TNUT TYPE	FINISH
651185	10	651178	Black Phosphate	1/4-20	1/2"	651163	Economy	Black Zinc
651186	10	651178	Black Phosphate	1/4-20	1/2"	651158	Drop-In	Black Zinc
651545	10	651180	Black Phosphate	1/4-20	5/8"	651105	Economy	Black Zinc
651183	15	651181	Black Phosphate	5/16-18	5/8"	651097	Economy	Black Zinc
651184	15	651181	Black Phosphate	5/16-18	5/8"	651645	Drop-In	Bright Zinc

FLANGED BUTTON HEAD SOCKET CAP SCREWS



- Grade 8 or stronger
- Alloy steel
- ANSI B18.3 rating



ITEM#	FINISH	A	B	C	D	E
651169	Black Phosphate	1/4 20	3/8"	.130"	.540"	3/16
651136	Black Phosphate	1/4 20	1/2"	.130"	.540"	3/16
651026	Black Phosphate	1/4 20	3/4"	.130"	.540"	3/16
651135	Black Phosphate	5/16 18	1/2"	.174"	.675"	1/4
651134	Black Phosphate	5/16 18	11/16"	.174"	.675"	1/4
651634*	Black Phosphate	5/16 18	11/16"	.174"	.675"	1/4

* 651634 comes with Loctite

FLANGED BUTTON HEAD SOCKET CAP SCREW COMBINATION PARTS

ITEM#	SERIES	BOLT ITEM	FINISH	THREAD	LENGTH	TNUT ITEM	TNUT TYPE	FINISH	WASHER ITEM
651166	10	651169	Black Phosphate	1/4-20	3/8"	651163	Economy	Black Zinc	--
651130	10	651136	Black Phosphate	1/4-20	1/2"	651163	Economy	Black Zinc	--
651224	10	651136	Black Phosphate	1/4-20	1/2"	651326	Drop-In	Bright Zinc	--
651142	10	651136	Black Phosphate	1/4-20	1/2"	651099	DBL Economy	Black Zinc	--
651144	10	651136	Black Phosphate	1/4-20	1/2"	651106	TRPL Economy	Black Zinc	--
651164	10	651026	Black Phosphate	1/4-20	3/4"	651163	Economy	Black Zinc	--
651228	10	651026	Black Phosphate	1/4-20	3/4"	651326	Drop-In	Black Zinc	--
651002	10	651026	Black Phosphate	1/4-20	3/4"	651077	Hex Nut	Black Zinc	651080
651127	15	651135	Black Phosphate	5/16-18	1/2"	651645	Drop-In	Bright Zinc	--
651128	15	651135	Black Phosphate	5/16-18	1/2"	651097	Economy	Black Zinc	--
651000	15	651135	Black Phosphate	5/16-18	1/2"	651098	DBL Economy	Black Zinc	--
651132	15	651134	Black Phosphate	5/16-18	11/16"	651645	Drop In	Bright Zinc	--
651210	15	651134	Black Phosphate	5/16-18	11/16"	651078	Hex Nut	Black Zinc	651081
651129	15	651134	Black Phosphate	5/16-18	11/16"	651097	Economy	Black Zinc	--
651141	15	651134	Black Phosphate	5/16-18	11/16"	651098	DBL Economy	Black Zinc	--
651143	15	651134	Black Phosphate	5/16-18	11/16"	651104	TRPL Economy	Black Zinc	--
651635*	15	651634	Black Phosphate	5/16-18	11/16"	651097	Economy	Black Zinc	--
651636*	15	651634	Black Phosphate	5/16-18	11/16"	651098	DBL Economy	Black Zinc	--
651637*	15	651634	Black Phosphate	5/16-18	11/16"	651104	TRPL Economy	Black Zinc	--

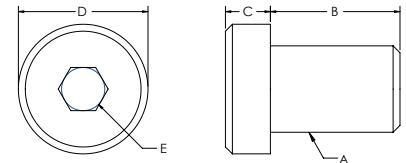
* Comes with Loctite bolts

Fractional Fasteners

LOWHEAD SOCKET CAP SCREWS

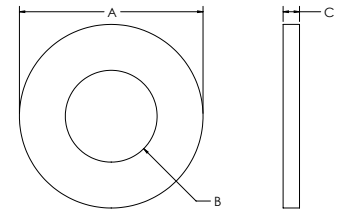


- Grade 8 or stronger
- Alloy steel
- ANSI B18.3 rating



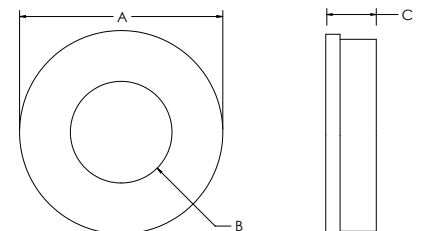
ITEM#	FINISH	A	B	C	D	E
651474	Black Phosphate	1/4-20	3/8"	.123"	0.372"	.125"
651003	Black Phosphate	1/4-20	1"	.123"	0.372"	.125"
651004	Black Phosphate	5/16-18	1-1/4"	.154"	0.434"	.156"

WASHERS



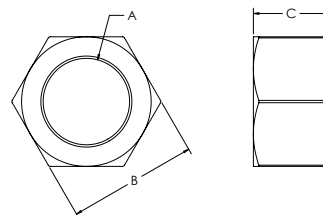
ITEM#	FINISH	TYPE	A	B	C
651016	Black Zinc	10-32	.500"	.219"	.050"
651080	Black Zinc	1/4"	.625"	.291"	.060"
651559	Black Zinc	1/4"	.625"	.291"	.125"
651081	Black Zinc	5/16"	.688"	.354"	.069"
651082	Black Zinc	3/8"	.813"	.415"	.069"
651083	Black Zinc	1/2"	1.063"	.531"	.095"
651279	Stainless	1/4"	.625"	.281"	.048"
651280	Stainless	5/16"	.745"	.344"	.048"

WASHERS WITH RUBBER SEAL



ITEM#	FINISH	TYPE	A	B	C
683422	Stainless Steel	1/4"	.500"	.260"	.100"
683139	Stainless Steel	5/16"	.625"	.330"	.100"

HEX NUTS



ITEM#	FINISH	A	B	C
651014	Black Zinc	10-32	.375"	.125"
651077	Black Zinc	1/4-20	.438"	.215"
651277	Stainless Steel	1/4-20	.433"	.219"
651078	Black Zinc	5/16-18	.500"	.261"
651310	Bright Zinc	5/16-18	.500"	.328"
651278	Stainless Steel	5/16-18	.494"	.265"
651079	Black Zinc	3/8	.553"	.328"