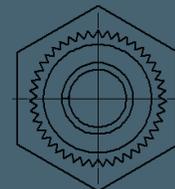
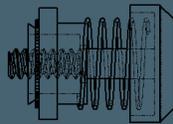
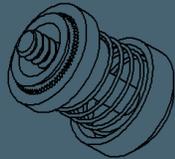
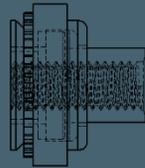
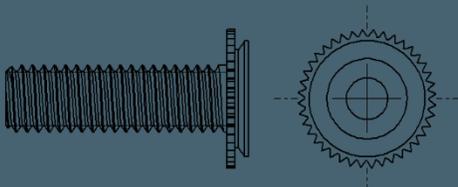


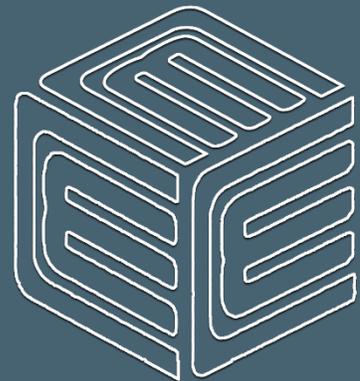
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CLINCH
ENGINEERING



Clinch Engineering Catalog



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Phone: (206) 371-7000 | Email: sales@clinchnorthwest.com

Updated 2/15/24



ABOUT US:

Founded by Mike Wayte with nearly 30 years in the Self-Clinch hardware industry, we saw an opportunity in this new global economy for a streamlined supply operation, where we can offer the same quality and superior service – at a fraction of the price. We have assembled a team of ISO9001:2008 and TS-16949 certified factories to bring high quality, RoHS compliant, ASTM standardized products to the North American market. We operate with the highest level of integrity and honesty and are always customer focused.

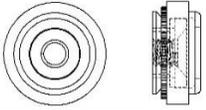
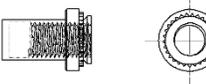
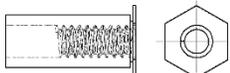
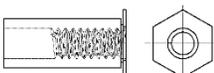
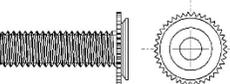
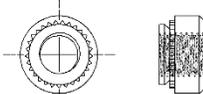
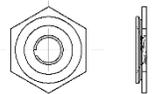
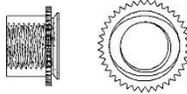
Location

Clinch Northwest office is located at:
4640 Union Bay Place NE, Unit B
Seattle, WA 98105



INDEX

CLINCH ENGINEERING SELF-CLINCHING FASTENERS

	TYPE FL, FLS FLOATING SELF-CLINCHING FASTENERS Floating action compensates for mating hole misalignment. Thread sizes #4 to 1/4" and M3 to M6.	<i>Pg. 7</i>
	TYPE NB, NBS SELF-CLINCHING BLIND FASTENERS Used for applications requiring closed thread ends. Blind end limits screw penetration and excludes foreign matter. Thread sizes #4 to 1/4" and M3 to M6.	<i>Pg. 8</i>
	TYPE STB, STBS, STBA SELF-CLINCHING BLIND STANDOFFS Self-clinching standoffs with blind threads. Thread sizes #4 to #10 and M3 to M5.	<i>Pg. 9</i>
	TYPE ST, STS, STA SELF-CLINCHING STANDOFFS Self-clinching standoffs with thru-hole threads. Thread sizes #4 to #10 and M3 to M5.	<i>Pg. 10</i>
	TYPE STG, STGA GROUNDING STANDOFF Thru-hole standoff, threaded, with grounding teeth. Thread sizes #4 to #6 and M3.	<i>Pg. 11</i>
	TYPE STT, STTS, STTA SELF-CLINCHING STANDOFF FOR THIN SHEETS Standoff for use in steel or aluminum sheets as thin as .025" / 0.63 mm. Thread sizes #2 to #6 and M2.5 to M3.5.	<i>Pg. 12</i>
	TYPE COA1, COS1, COA2, COS2 CONCEALED-HEAD SELF-CLINCHING FASTENERS Installed into a blind milled hole where surface opposite stud must remain unmarred. Thread sizes #4 to #10 and M3 to M5.	<i>Pg. 13</i>
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	TYPE NF FLUSH SELF-CLINCHING FASTENERS Fastener remains flush with both sides in sheets as thin as 0.060" / 1.5 mm. Thread sizes #2 to 1/4" and M2 to M6.	<i>Pg. 16</i>
	TYPE MIN1, MIN2, MIN1L, MIN2L MINIATURE SELF-CLINCHING FASTENERS Strong threads in a minimum of space. Available with locking or non-locking threads. Can be installed into sheets as thin as .020" / 0.76 mm. Thread sizes #0 to 1/4" and M2 to M6.	<i>Pg. 17</i>
	TYPE FS, FSS, FSA SELF-CLINCHING STUDS Flush-head studs for sheet thickness of 0.40" / 1 mm and greater.	<i>Pg. 18</i>
	TYPE STE, STES BROACHING STANDOFFS Standoffs available with or without threads for mounting on P.C. boards, for spacing or stacking. Thread sizes #4, #6, and M3.	<i>Pg. 19</i>





TYPE NE, NES BROACHING NUTS

Internally threaded fasteners for mounting on P.C. boards. Thread sizes #2 to #10 and M2 to M5.

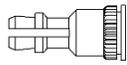
Pg. 20



TYPE FSE BROACHING STUDS 29

Studs for mounting into P.C. boards which can be used as solderable connectors as well as threaded fasteners. Thread sizes #4 to #10 and M3 to M5

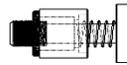
Pg. 21



TYPE STTB BROACHING STANDOFFS

All-metal standoffs with a spring action to hold a P.C. board securely without screws or other threaded hardware.

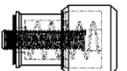
Pg. 22



TYPE BCPS BROACHING PANEL FASTENERS

Panel Fasteners with spring-loaded captive screws for mounting on P.C. boards. Thread sizes #4, #6, and M3.

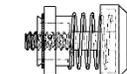
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TYPE PALK, PALS SPRING-LOADED PANEL FASTENER, LARGE KNOB

Spring-loaded self-clinching panel fastener with large knob. Thread sizes #4 to 1/4" and M3 to M6.

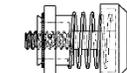
Pg. 24



TYPE PALO, PAL1, PAL2 LOW-PROFILE PANEL FASTENER ASSEMBLIES

Panel fasteners with a low-profile design with a large, knurled head that can be tool or hand actuated. Thread sizes #4 to 1/4" and M3 to M6.

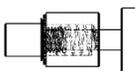
Pg. 26



TYPE PAK, PAS LOW-PROFILE PANEL FASTENER ASSEMBLIES

Low-profile panel fasteners with a large head and Phillips recess for tool or finger operation.

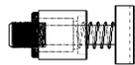
Pg. 28



TYPE SPP1, SPP2 SPRING-LOADED PLUNGER ASSEMBLIES

Used as a retractable drawer-guide stop, indexing pins and latch detents. Can be locked in retracted position. Plunger diameter .250" / 6.4 mm.

Pg. 30



TYPE PPS, PPSS, PPSSP PANEL FASTENER ASSEMBLIES

Completely pre-assembled spring-loaded panel fasteners that meet UL 508 "operator access area" requirements. Thread sizes #4 to 1/4" and M3 to M6.

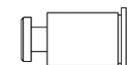
Pg. 31



TYPE PPSSP RECESSED-HEAD PANEL FASTENER ASSEMBLIES

Panel fasteners that are tool-only to meet UL 1950 "service area access" requirements. Thread sizes #4 to 1/4" and M3 to M6.

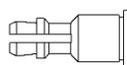
Pg. 32



TYPE STST SLIP-TOP SELF-CLINCHING STANDOFFS

Designed so that a P.C. board or component can be quickly slipped into place and then removed by sliding the board sideways and lifting it off.

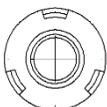
Pg. 33



TYPE STC, STCS, STCA CLICK-TOP FOR CLINCHING INTO METAL SHEETS

Accurately space a P.C. board or panel from a metal chassis simply by snapping on standoff.

Pg. 34



TYPE NPW, NPWS SELF-LOCATING PROJECTION WELD NUTS 48

Prevents burnouts and eliminates the need for indexing and re-tapping to remove weld spatter. Thread sizes #4 to 1/4" and M3 to M6.

Pg. 35

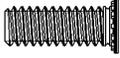




TYPE STCO1, STCO2 CONCEALED-HEAD STANDOFFS

Standoffs allow the back side of sheet to remain smooth.
Thread sizes #4 to #10 and M3 to M5.

Pg. 36



TYPE FSL, FSL LOW DISPLACEMENT STUDS

Studs install close to edge without causing bulging.
Thread sizes #2 to #10 and M2.5 to M5.

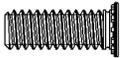
Pg. 37



TYPE FST, FST

Non-flush studs for sheets as thin as .020" / 0.51 mm.
Thread sizes #2 to #10 and M3 to M5.

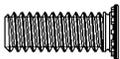
Pg. 38



TYPE FSH, FSHS, FSHB HEAVY DUTY, HIGH STRENGTH STUDS

Studs for high-strength applications. High corrosion resistance.
Thread sizes #10 to 3/8-16 and M5 to M10.

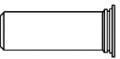
Pg. 39



TYPE FSHT

Heavy duty studs for sheets as thin as .031" / 0.8 mm.
Thread sizes #10 to 5/16-18 and M5 to M8.

Pg. 40



TYPE PINS FLUSH HEAD SELF-CLINCHING PILOT PIN

Flush-head pin for positioning, pivot, or alignment.
Unthreaded.

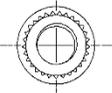
Pg. 41



TYPE FLL, FLLS FLOATING LOCKING FASTENERS

Floating action compensates for mating hole misalignment.
Thread sizes #4 to 1/4" and M3 to M6. Thread locking.

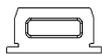
Pg. 42



TYPE NTU SELF-CLINCHING NUT FOR ULTRA THIN SHEETS

Self-clinching nuts install into sheets as thin as .025" / 0.64 mm.
Thread sizes #2 to #6 and M2.5 to M3.5.

Pg. 43



TYPE CAT CABLE TIE

Self-clinching tie-mounts to secure wires.

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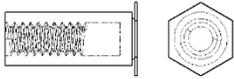
HARDWARE THAT INSTALLS INTO STAINLES STEEL



TYPE FL4, FLL4

Floating action compensates for mating hole misalignment.
Thread sizes #4 to 1/4" and M3 to M6. Thread locking.

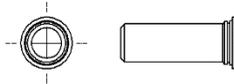
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TYPE STB4 SELF-CLINCHING BLIND STANDOFF

Self-clinching standoffs with blind threads.
Thread sizes #4 to #10 and M3 to M5.

Pg. 47



TYPE PIN4 FLUSH HEAD SELF-CLINCHING PILOT PIN

Flush-head pin for positioning, pivot, or alignment.
Unthreaded.

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TYPE FS4 SELF-CLINCHING FLUSH-HEAD STUDS

Flush-head studs for sheet thickness of 0.40" / 1 mm and greater.

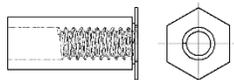
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TYPE FLL4 FLOATING LOCKING FASTENERS

Floating action compensates for mating hole misalignment.
Thread sizes #4 to 1/4" and M3 to M6. Thread locking.

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TYPE ST4 SELF-CLINCHING STANDOFFS

Self-clinching standoffs with thru-hole threads.
Thread sizes #4 to #10 and M3 to M5.

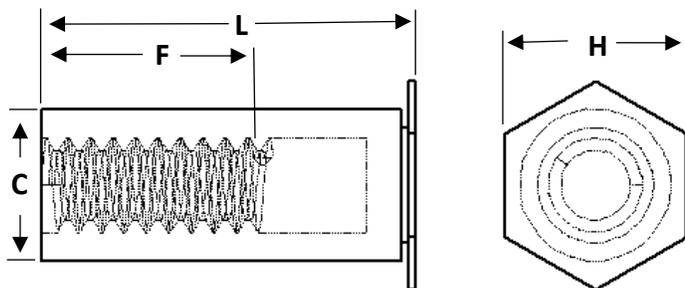
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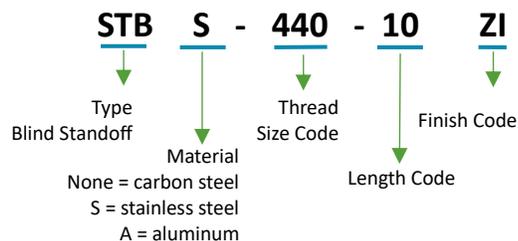


TYPE STB, STBS, STBA SELF-CLINCHING BLIND STANDOFFS

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ENGINEERING



PART NUMBER DESIGNATION



THREADS:

Internal ASME B1.1, 2B/ANSI/ASME B1.13M, 6H

MATERIAL:

STB – Heat-treated Carbon Steel

STBS - 300 Series Stainless

STBA – 7075-T6 Aluminum

FINISH:

STB – Zinc Plated, 5 μm, Colorless

STBS – Passivated and/or Tested per ASTM A380

GENERAL DIMENSION DATA

UNIFIED	Thread Code	Min. Sheet Thickness	Hole Size in Sheet +0.03 -.000	C +.000 -.005	H Nom.	Min. Dist. Hole C/L to Edge
	440	.040	.116	.165	.187	.23
6440	.040	.213	.212	.250	.27	
632	.040	.213	.212	.250	.27	
8632	.050	.281	.280	.312	.31	
832	.050	.281	.280	.312	.31	
032	.050	.281	.280	.312	.31	

METRIC	Thread Code	Min. Sheet Thickness	Hole Size in Sheet +0.08 -.000	C - 0.13	H Nom.	Min. Dist. Hole C/L to Edge
	M3	1.02	4.22	4.2	4.8	6
3.5M3	1.02	5.41	5.39	6.4	6.8	
M3.5	1.02	5.41	5.39	6.4	6.8	
M4	1.27	7.14	7.12	7.9	8	
M5	1.27	7.14	7.12	7.9	8	

THREAD SIZE AND LENGTH SELECTION DATA

All measurements in inches.

UNIFIED	Type					Length "L" +.002 -.005 (Length Code in 32nds of an inch)												
	Steel	Stainless Steel	Aluminum	Thread Size	Thread Code	.312	.375	.437	.500	.562	.625	.687	.750	.812	.875	.937	.100	1.062
STB	STBS	STBA	.112-40 (#4-40)	440	10	12	14	16	18	20	22	24	26	28	30	32	34	
				6440														
STB	STBS	STBA	.138-32 (#6-32)	632	10	12	14	16	18	20	22	24	26	28	30	32	34	
				8632														
STB	STBS	STBA	.164-32 (#8-32)	832	10	12	14	16	18	20	22	24	26	28	30	32	34	
				.190-32 (#10-32)	032													
F Dimension Min.						.156	.187		.250					.375				

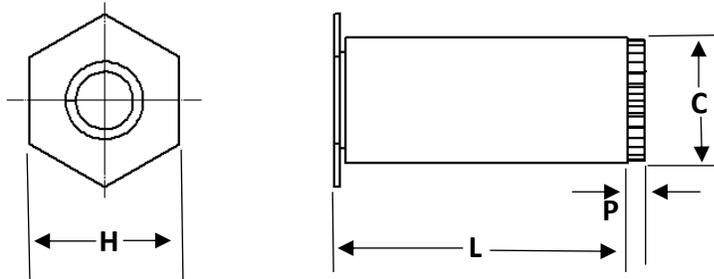
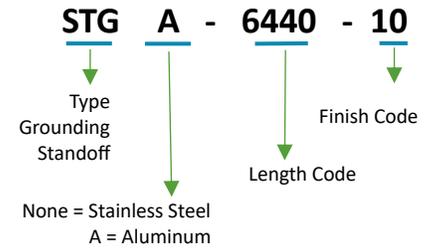
All measurements in millimeters.

METRIC	Type					Length "L" + .05 -.13 (Length Code in millimeters)												
	Steel	Stainless Steel	Aluminum	Thread Size	Thread Code													
STB	STBS	STBA	M3 x 0.5	M3	6	8	10	12	14	16	18	20	22	25				
				3.5M3														
STB	STBS	STBA	M3.5 x 0.6	M3.5	6	8	10	12	14	16	18	20	22	25				
STB	STBS	STBA	M4 x 0.7	M4	6	8	10	12	14	16	18	20	22	25				
STB	STBS	STBA	M5 x 0.8	M5	6	8	10	12	14	16	18	20	22	25				
F Dimension Min.						3.2	4	5	6.5	9.5								





PART NUMBER DESIGNATION



THREADS:

Internal ASME B1.1, 2B/ANSI/ASME B1.13M, 6H

MATERIAL:

STG - 300 Series Stainless
STGA - 7075-T6 Aluminum

FINISH:

STG - Passivated and/or Tested per ASTM A380

All measurements in inches.

Unified	Type		Thread Code	Thread Size	Min. Sheet Thickness	Hole Size in Sheet +0.003 -0.000	C +0.000 -0.005	H ±0.005	P Nom.	Min. Dist. Hole C/L to Edge	Length "L" +0.010 -0.000 (Length Code is in 32nds of an inch)						
	Stainless Steel	Aluminum									.125	.187	.250	.312	.375	.437	.500
	STG	STGA	6440	.112-40 (#4-40)	.040	.213	.212	.250	.030	.27	4	6	8	10	12	14	16
STG	STGA	8632	.138-32 (#6-32)	.050	.281	.280	.312	.030	.31	4	6	8	10	12	14	16	

All measurements in millimeters.

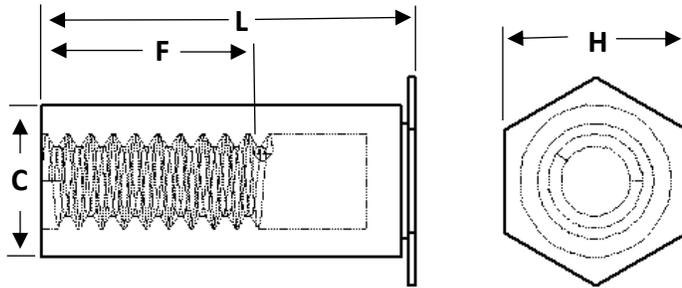
METRIC	Type		Thread Code	Thread Size x Pitch	Min. Sheet Thickness	Hole Size in Sheet +0.08	C -0.13	H ±0.25	P Nom.	Min. Dist. Hole C/L to Edge	Length "L" +0.25 (Length Code is in millimeters)					
	Stainless Steel	Aluminum									3	4	6	8	10	12
	STG	STGA	3.5M3	M3 x 0.5	1	5.4	5.39	6.4	0.76	6.8	3	4	6	8	10	12



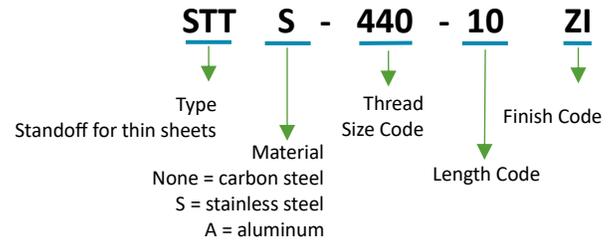


TYPE STT, STTS, STTA SELF-CLINCHING STANDOFFS FOR THIN SHEETS

CLINCH
ENGINEERING



PART NUMBER DESIGNATION



THREADS:

Internal ASME B1.1, 2B/ANSI/ASME B1.13M, 6H

MATERIAL:

STT – Heat-treated Carbon Steel

STTS - 300 Series Stainless

STTA – 7075-T6 Aluminum

FINISH:

STT – Zinc Plated, 5 μm, Colorless

STTS – Passivated and/or Tested per ASTM A380

GENERAL DIMENSION DATA

UNIFIED	Thread Code	Min. Sheet Thickness	Hole Size in Sheet +0.003 - .000	C +.000 - .005	F Min. Thread Depth	H Nom.	Min. Dist. Hole C/L to Edge
	256	.025	.166	.165	.200	.187	.23
6256	.025	.213	.212	.220	.250	.27	
440	.025	.166	.165	.220	.187	.23	
6440	.025	.213	.212	.270	.250	.27	
632	.025	.213	.212	.270	.250	.27	

METRIC	Thread Code	Min. Sheet Thickness	Hole Size in Sheet +0.08	C -0.13	F Min. Thread Depth	H Nom.	Min. Dist. Hole C/L to Edge
	M25	0.63	4.22	4.2	5.2	4.8	5.8
6M25	0.63	5.41	5.39	6.2	6.4	7.1	
M3	0.63	4.22	4.2	6.2	4.8	5.8	
6M3	0.63	5.41	5.39	7	6.4	7.1	
M35	0.63	5.41	5.39	7	6.4	7.1	

THREAD SIZE AND LENGTH SELECTION DATA

All measurements in inches.

UNIFIED	Type				Length "L" ±.003												
	Steel	Stainless Steel	Aluminum	Thread Size	Thread Code	.090	.125	.187	.250	.312	.375	.437	.500	.562	.625	.687	.750
	STT	STTS	STTA	.086-56 (#2-56)	256	090	125	187	250	312	375	437	500	562	625	687	750
STT	STTS	STTA	.112-40 (#4-40)	440	090	125	187	250	312	375	437	500	562	625	687	750	
STT	STTS	STTA	.138-32 (#6-32)	632		125	187	250	312	375	437	500	562	625	687	750	

All measurements in millimeters.

METRIC	Type					Length "L" ± 0.08											
	Steel	Stainless Steel	Aluminum	Thread Size	Thread Code	2.00	3.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00		
	STT	STTS	STTA	M2.5 x 0.45	M25	200	300	400	600	800	1000	1200	1400	1600	1800		
STT	STTS	STTA	M3 x 0.5	M3	200	300	400	600	800	1000	1200	1400	1600	1800			
STT	STTS	STTA	M3.5 x 0.6	M35		300	400	600	800	1000	1200	1400	1600	1800			





TYPE NT, NTS, NA SELF-CLINCHING NUTS

CLINCH
ENGINEERING

UNIFIED	Carbon Steel	Stainless Steel	Aluminum	Thread Size	Thread Code	Shank Code	A (Shank) Max	Min. Sheet Thickness	Hole Size + .003 - .000	C Max.	E ± .010	T ± .010	Min. Dist. Hole C/L To Edge
	NT	NTS	NA	.313-24 (5/16-24)	0524	1	.054	.056	.413	.412	.500	.230	.38
					2	.087	.091						
					3	.120	.125						
NT	NTS	NA	.375-16 (3/8-16)	0616	1	.087	.091	.500	.499	.560	.270	.44	
					2	.120	.125						
					3	.235	.250						
NT	NTS	NA	.375-24 (3/8-24)	0624	1	.087	.091	.500	.499	.560	.270	.44	
					2	.120	.125						
					3	.235	.250						
NT	NTS	NA	.500-133 (1/2-13)	0813	1	.120	.125	.656	.655	.810	.360	.63	
					2	.235	.250						
NT	NTS	NA	.500-20 (1/2-20)	0820	1	.120	.125	.656	.655	.810	.360	.63	
					2	.235	.250						

All measurements in millimeters.

METRIC	Carbon Steel	Stainless Steel	Aluminum	Thread Size x Pitch	Thread Code	Shank Code	A (Shank) Max	Min. Sheet Thickness	Hole Size + .08 - .00	C Max.	E ± .25	T ± .25	Min. Dist. Hole C/L To Edge
	NT	NTS	NA	M2 x 0.4	M2	0	.77	0.8	4.22	4.2	6.3	1.5	4.8
					1	.97	1						
					2	1.38	1.4						
NT	NTS	NA	M2.5 x 0.45	M2.5	0	.77	0.8	4.22	4.2	6.3	1.5	4.8	
					1	.97	1						
					2	1.38	1.4						
NT	NTS	NA	M3 x 0.5	M3	0	.77	0.8	4.22	4.2	6.3	1.5	4.8	
					1	.97	1						
					2	1.38	1.4						
NT	NTS	NA	M3.5 x 0.6	M3.5	0	.77	0.8	4.75	4.73	7.1	1.5	5.6	
					1	.97	1						
					2	1.38	1.4						
NT	NTS	NA	M4 x 0.7	M4	0	.77	0.8	5.41	5.38	7.9	2	6.9	
					1	.97	1						
					2	1.38	1.4						
NT	NTS	NA	M5 x 0.8	M5	0	.77	0.8	6.35	6.33	8.7	2	7.1	
					1	.97	1						
					2	1.38	1.4						
NT	NTS	NA	M6 x 1	M6	00	.89	.92	8.75	8.72	11.05	4.08	8.6	
					0	1.15	1.2						
					1	1.38	1.4						
					2	2.21	2.3						
NT	NTS	NA	M8 x 1.25	M8	1	1.38	1.4	10.5	10.47	12.65	5.47	9.7	
					2	2.21	2.3						
NT	NTS	NA	M10 x 1.5	M10	1	2.21	2.31	14	13.97	17.35	7.48	13.5	
					2	3.05	3.18						

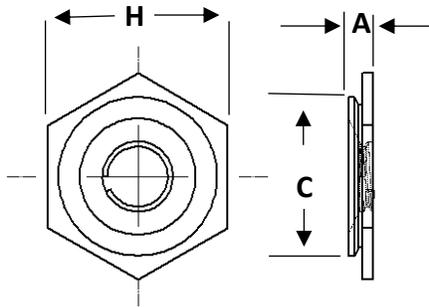
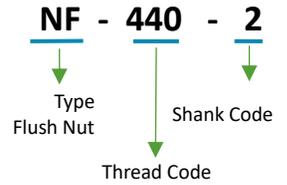




CLINCH
ENGINEERING

TYPE NF FLUSH SELF-CLINCHING FASTENERS

PART NUMBER DESIGNATION



THREADS:
Internal ASME B1.1, 2B/ASME B1.13M, 6H

MATERIAL:
300 Series Stainless

FINISH:
Passivated and/or Tested per ASTM A380

All measurements in inches.

UNIFIED	Type			Shank Code	A Max.	Min. Sheet Thickness	Hole Size + .003 - .003	C Max.	H Nom.	Min. Dist. Hole C/L To Edge
	Stainless Steel	Thread Size	Thread Code							
NF	.086-56 (#2-56)	256	1	.060	.060-.090	.172	.171	.188	.23	
			2	.090	.091					
NF	.112-40 (#4-40)	440	1	.060	.060-.090	.172	.171	.188	.23	
			2	.090	.091					
NF	.138-32 (#6-32)	632	1	.060	.060-.090	.213	.212	.250	.27	
			2	.090	.091					
NF	.164-32 (#8-32)	832	1	.060	.060-.090	.290	.289	.312	.28	
			2	.090	.091					
NF	.190-32 (#10-32)	032	1	.060	.060-.090	.312	.311	.343	.31	
			2	.090	.091					
NF	.250-20 (1/4-20)	0420	3	.120	.125-.155	.344	.343	.375	.34	
			4	.151	.156-.186					
			5	.182	.187					

All measurements in millimeters.

METRIC	Type			Shank Code	A Max.	Min. Sheet Thickness	Hole Size	C Max.	H Nom.	Min. Dist. Hole C/L To Edge
	Stainless Steel	Thread Size x Pitch	Thread Code							
NF	M2 x 0.4	M2	1	1.53	1.53-2.3	4.37	4.35	4.8	6	
			2	2.3	2.32					
NF	M2.5 x 0.45	M2.5	1	1.53	1.53-2.3	4.37	4.35	4.8	6	
			2	2.3	2.32					
NF	M3 x 0.5	M3	1	1.53	1.53-2.3	4.37	4.35	4.8	6	
			2	2.3	2.32					
NF	M4 x 0.7	M4	1	1.53	1.53-2.3	7.37	7.35	7.9	7.2	
			2	2.3	2.32					
NF	M5 x 0.8	M5	1	1.53	1.53-2.3	7.92	7.9	8.7	8	
			2	2.3	2.32					
NF	M6 x 1	M6	3	3.05	3.18-3.94	8.74	8.72	9.5	8.8	
			4	3.84	3.96-4.72					
			5	4.63	4.75					

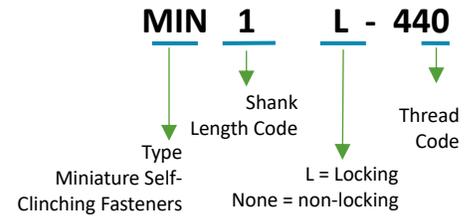




TYPE MIN1, MIN2, MIN1L, MIN2L MINIATURE SELF-CLINCHING FASTENERS

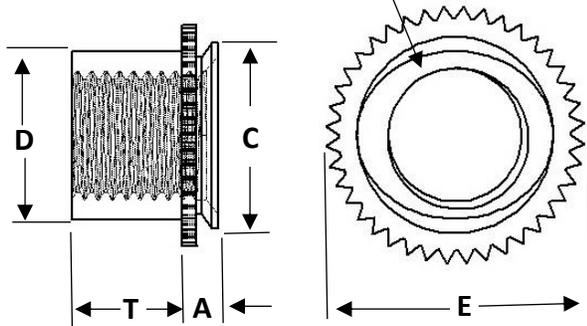
CLINCH
ENGINEERING

PART NUMBER DESIGNATION



Non-locking types MIN1 & MIN2 Round Top

Locking types MIN1L & MIN2L
Elliptically Squeezed Top



THREADS:

Non-Locking: Internal ASME B1.1, 2B/ASME B1.13M, 6H

Locking: Internal, MIL-S-8879, UNJ-3B, ANSI B1.21M

MATERIAL:

300 Series Stainless

FINISH:

Passivated and/or Tested per ASTM A380

All measurements in inches.

UNIFIED	Type		Thread Code	Thread Size	A (Shank) Max.	Sheet Thickness	Hole Size In Sheet +0.03-.000	C +.000 -.005	D Max.	E ±.005	T +.015 -.000	Min. Dist. Hole C/L To Edge	Max. Hole In Attached Parts
	Non-Locking	Self-Locking											
	MIN1	MIN1L	440	.112-40 (#4-40)	.040	.039-.045	.172	.171	.145	.192	.065	.14	.132
MIN2	MIN2L	632	.138-32 (#6-32)	.040	.039-.045	.213	.212	.180	.244	.075	.17	.158	
MIN2	MIN2L		.060	.059-.070									
MIN1	MIN1L	832	.164-32 (#8-32)	.040	.039-.045	.290	.289	.215	.322	.090	.20	.184	
MIN2	MIN2L		.060	.059-.070									
MIN1	MIN1L	032	.190-32 (#10-32)	.040	.039-.045	.290	.289	.245	.322	.110	.20	.210	
MIN2	MIN2L		.060	.059-.070									
MIN2	MIN2L	0420	1/4-20	.060	.059-.070	.344	.343	.318	.384	.120	.28	.270	
		0428	1/4-28										

All measurements in millimeters.

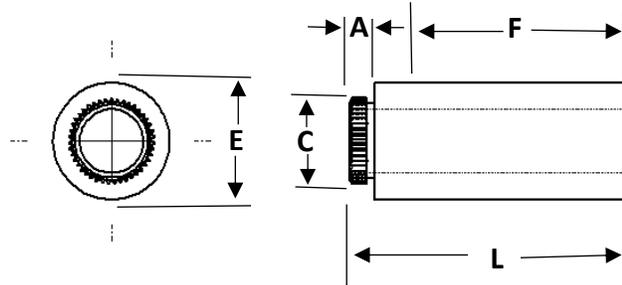
METRIC	Type		Thread Code	Thread Size x Pitch	A (Shank) Max.	Sheet Thickness	Hole Size In Sheet +0.08	C -.13	D Max.	E ±.13	T +0.4	Min. Dist. Hole C/L To Edge	Max. Hole In Attached Parts
	Non-Locking	Self-Locking											
	MIN1	MIN1L	M3	M3 x 0.5	1.02	0.99-1.14	4.39	4.37	3.96	4.88	1.9	3.6	3.5
1.53					1.5-1.78								
MIN2	MIN2L	M4	M4 x 0.7	1.02	0.99-1.14	7.39	7.37	5.23	8.17	2.55	5.2	4.5	
				1.53	1.5-1.78								
MIN1	MIN1L	M5	M5 x 0.8	1.02	0.99-1.14	7.39	7.37	6.48	8.17	3.05	5.2	5.5	
				1.53	1.5-1.78								
MIN2	MIN2L	M6	M6 x 1	1.53	1.5-1.78	8.74	8.72	7.72	9.74	3.3	7.1	6.5	



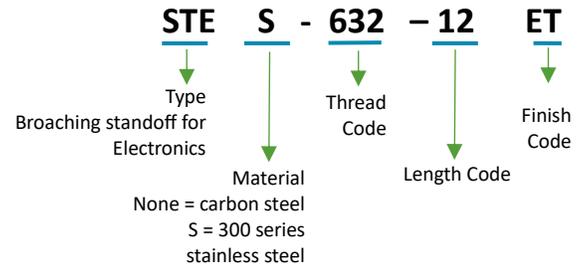


TYPE STE, STES BROACHING STANDOFFS FOR ELECTRONICS

CLINCH
ENGINEERING



PART NUMBER DESIGNATION



THREADS:

Internal ASME B1.1, 2B/ASME B1.13M, 6H

MATERIAL:

STE – Carbon Steel

STES - 300 Series Stainless Steel

FINISH:

STE - Electro-Plated Bright Tin ASTM B 545, Class B With Clear Preservative Coating

STES - Passivated and/or Tested per ASTM A380

All measurements in inches.

UNIFIED	Type					A (Shank) Max.	Min. Sheet Thick- ness	Hole Size in Sheet +.003 -.000	C ±.003	E ±.005	Min. Dist. Hole C/L To Edge	Length Code "L" ±.005 (Length Code in 32nds of an inch)			
	Carbon Steel	Stainless Steel	Thread Code	Thread Size	Thru Hole +.004 -.003							.125	.250	.375	.500
	STE	STES	440	.112-40 (#4-40)								.060	.060	.166	.184
STE	STES	632	.138-32 (#6-32)		.060	.060	.213	.213	.281	.22	4	8	12	16	
STE	STES	116		.116	.060	.060	.166	.166	.219	.17	4	8	12	16	
STE	STES	143		.143	.060	.060	.213	.213	.281	.22	4	8	12	16	
											"F" Minimum Thread Length (Where Applicable)			Full	.375± .016

All measurements in millimeters.

METRIC	Type					A (Shank) Max.	Min. Sheet Thick- ness	Hole Size in Sheet +0.08	C ±0.08	E ±0.13	Min. Dist. Hole C/L To Edge	Length Code "L" ±.005 (Length Code in 32nds of an inch)				
	Carbon Steel	Stainless Steel	Thread Code	Thread Size x Pitch	Thru Hole +.010 -.08							3	4	6	8	10
	STE	STES	M3	M3 x 0.5								1.53	1.53	4.22	4.68	5.56
STE	STES	3.6		3.6	1.53	1.53	5.41	5.87	7.14	5.5	3	4	6	8	10	
STE	STES	4.2		4.2	1.53	1.53	6.4	6.86	8.74	7.1	3	4	6	8	10	
											"F" Minimum Thread Length (Where Applicable)					Full

- Blind at shank end with .375" minimum thread length from head end.

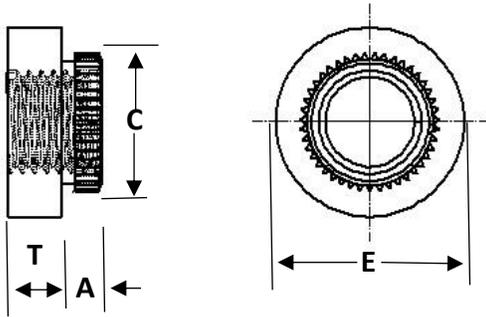
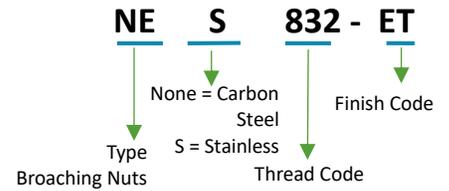




TYPE NE, NES BROACHING NUTS FOR ELECTRONICS

CLINCH
ENGINEERING

PART NUMBER DESIGNATION



THREADS:

Internal, ASME B1.1, 2B/ASME B1.13M, 6H

MATERIAL:

NE – Carbon Steel

NES - 300 Series Stainless Steel

FINISH:

NE - Electro-Plated Bright Tin ASTM B 545,

Class B With Clear Preservative Coating

NES - Passivated and/or Tested per ASTM A380

FOR USE IN SHEET HARDNESS:

NE – HRB 60 / HB107 or less

NES – HRB 70 / HB125 or less

All measurements in inches.

UNIFIED	Type		Thread Code	Thread Size	A (Shank) Max.	Min. Sheet Thickness	Hole Size In Sheet +.003 -.000	C ±.003	E ±.005	T ±.005	Min. Dist. Hole C/L To Edge
	Carbon Steel	Stainless Steel									
	NE	NES	256	.086-56 (#2-56)	.060	.060	.147	.165	.219	.065	0.16
	NE	NES	440	.112-40 (#4-40)	.060	.060	.166	.184	.219	.065	0.17
	NE	NES	632	.138-32 (#6-32)	.060	.060	.213	.231	.281	.065	0.22
	NE	NES	832	.164-32 (#8-32)	.060	.060	.250	.268	.344	.065	0.25
	NE	NES	032	.190-32 (#10-32)	.060	.060	.272	.290	.375	.127	0.28

All measurements in millimeters.

METRIC	Type		Thread Code	Thread Size x Pitch	A (Shank) Max.	Min. Sheet Thickness	Hole Size In Sheet +.08	C ±.08	E ±.13	T ±.13	Min. Dist. Hole C/L To Edge
	Carbon Steel	Stainless Steel									
	NE	NES	M2	M2 x 0.4	1.53	1.53	3.73	4.19	5.56	1.5	4.2
	NE	NES	M2.5	M2.5 x 0.45	1.53	1.53	4.22	4.68	5.56	1.5	4.4
	NE	NES	M3	M3 x 0.5	1.53	1.53	4.22	4.68	5.56	1.5	4.4
	NE	NES	M4	M4 x 0.7	1.53	1.53	6.4	6.86	8.74	2	6.4
	NE	NES	M5	M5 x 0.8	1.53	1.53	6.9	7.37	9.53	3	7.1

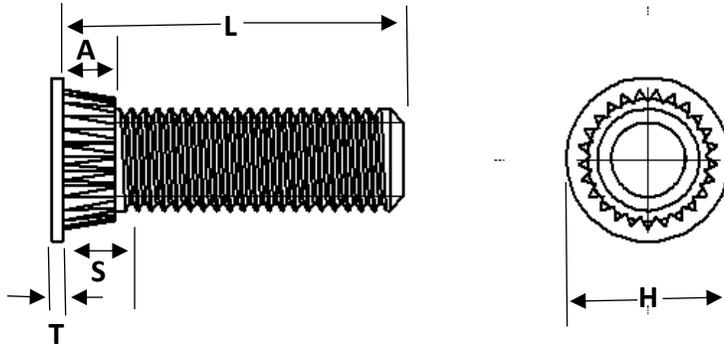
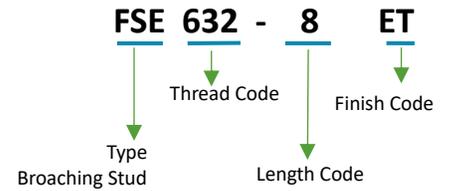




TYPE FSE BROACHING STUDS FOR ELECTRONICS

CLINCH
ENGINEERING

PART NUMBER DESIGNATION



THREADS:
External, ASME B1.1, 2A/ASME B1.13M, 6g

MATERIAL:
CDA-510 Phosphor Bronze

FINISH:
Electro-Plated Bright Tin ASTM B 545,
Class B With Clear Preservative Coating

FOR USE IN SHEET HARDNESS:
HRB 55 / HB83 or less

All measurements in inches.

UNIFIED	Type	Thread Code	Thread Size	A (Shank) Max.	Min. Sheet Thickness	Hole Size +.003 -.000	Max Hole Size in Attached Parts	H ±.010	S Max	T ±.005	Min. Dist. Hole C/L Steel to Edge	Length "L" ± .010 (Length Code in 16ths of an inch)			
												.250	.312	.375	.500
												FSE	440	.112-40 (#4-40)	.065
FSE	632	.138-32 (#6-32)	.065	.060	.140	.170	.200	.09	.020	.19	4	5	6	8	
FSE	832	.164-32 (#8-32)	.065	.060	.166	.195	.225	.09	.020	.20	4	5	6	8	
FSE	032	.190-32 (#10-32)	.065	.060	.189	.220	.250	.09	.020	.20	4	5	6	8	

All measurements in millimeters.

METRIC	Type	Thread Code	Thread Size x Pitch	A (Shank) Max.	Min. Sheet Thickness	Hole Size +.08	Max Hole Size in Attached Parts	H ±0.25	S Max	T ±0.13	Min. Dist. Hole C/L Steel to Edge	Length "L" ± 0.25 (Length Code in millimeters)			
												6	8	10	12
												FSE	M3	M3 x 0.5	1.65
FSE	M4	M4 x 0.7	1.65	1.53	4.2	4.8	5.74	2.3	0.51	5.1	6	8	10	12	
FSE	M5	M5 x 0.8	1.65	1.53	5	5.8	6.6	2.3	0.51	5.3	6	8	10	12	



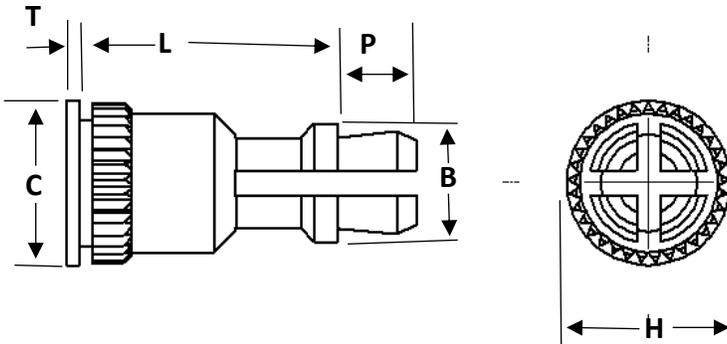
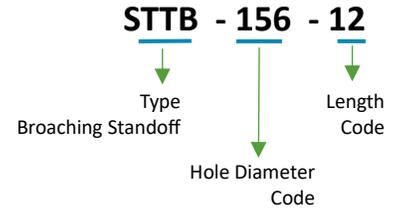


TYPE STTB BROACHING STANDOFFS FOR ELECTRONICS

CLINCH
ENGINEERING

PART NUMBER DESIGNATION

STTB - 156 - 12



MATERIAL:
CDA-353 Brass
FOR USE IN SHEET HARDNESS:
HRB 65 / HB 116 or less

All measurements in inches.

UNIFIED	Type	Top Board Mounting Hole Diameter	Length Code "L" ±.005 (Length Code is in 32nds of an inch)										B ±.005	C ±.003	H ±.005	P ±.005	T ±.005
			.250	.312	.375	.437	.500	.562	.625	.750	.875	1.00					
	STTB	156	8	10	12	14	16	18	20	24	28	32	.188	.226	.250	.141	.020

All measurements in millimeters.

METRIC	Type	Top Board Mounting Hole Diameter	Length Code "L" ±.13 (Length Code is in millimeters)										B ±0.13	C ±0.08	H ±0.13	P ±0.13	T ±0.13
			8	10	12	14	16	18	20	24	28	32					
	STTB	4mm	8	10	12	14	16	18	20	24	28	32	4.8	5.74	6.35	3.58	0.51

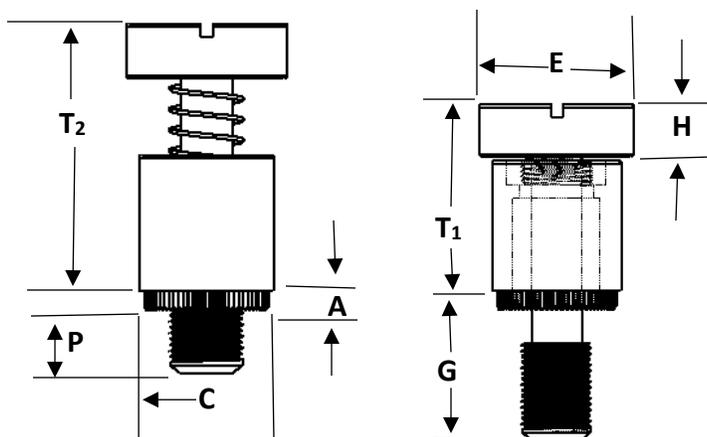
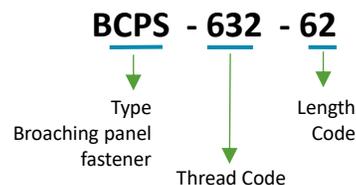




TYPE BCPS BROACHING PANEL FASTENERS FOR ELECTRONICS

CLINCH
ENGINEERING

PART NUMBER DESIGNATION



THREADS:
External, ASME B1.1, 2A / ASME B1.13M, 6g

MATERIAL:
Retainer & Screw & Spring – 300 Series Stainless Steel
Retainer Ring – Nylon, temperature limit 200 ° F / 93 ° C

FINISH:
Retainer & Screw – Passivated and/or tested per ASTM A380

All measurements in inches.

UNIFIED	Type	Thread Code	Thread Size	Screw Length	A (Shank) Max.	Min. Sheet Thickness	Hole Size In Sheet +.003 -.000	C ± .003	E ± .010	G ± .016	H ± .005	P ± .025	T ₁ Max.	T ₂ Nom.	Min. Dist. Hole C/L to Edge
	BCPS	440	#4-40	.112-40	40	.060	.060	.265	.283	.312	.250	.072	.000	.36	.54
62					.125										
84					.250										
BCPS	632	#6-32	.138-32	40	.060	.060	.281	.299	.344	.250	.072	.000	.36	.54	.26
				62						.125					
				84						.250					

All measurements in millimeters.

METRIC	Type	Thread Code	Thread Size	Screw Length	A (Shank) Max.	Min. Sheet Thickness	Hole Size In Sheet +.003 -.000	C ± 0.08	E ± .25	G ± 0.4	H ± 0.13	P ± 0.64	T ₁ Max.	T ₂ Nom.	Min. Dist. Hole C/L to Edge
	BCPS	M3	M3	M3 x 0.5	40	1.53	1.53	6.73	7.19	7.92	6.4	1.83	0	9.14	13.72
62					3.2										
84					12.7										

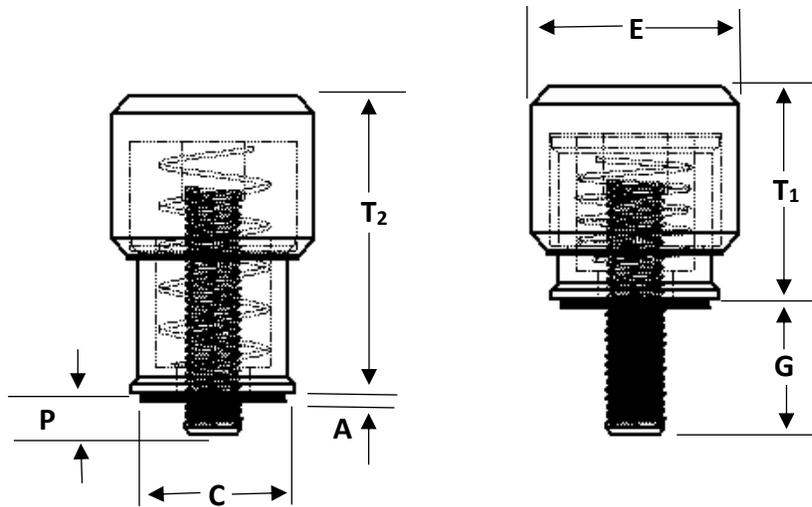
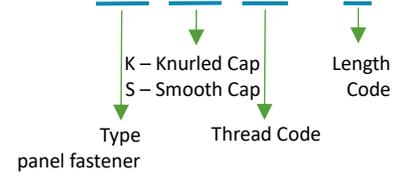




TYPE PALK, PALS SPRING LOADED PANEL FASTENER, LARGE KNOB

PART NUMBER DESIGNATION

PAL K - 632 - 1



THREAD:
External, ASME B1.1, 2A / ASME B1.13M, 6g
MATERIAL:
Knob – Aluminum
Retainer – Hardened Carbon Steel
Screw – 400 Series Stainless Steel
Spring – 300 Series Stainless Steel

FINISH:
Retainer – Bright Nickel Over Copper Flash, per ASTM B689, Type II
Screw – Passivated and/or tested per ASTM A380

FOR USE IN SHEET HARDNESS:
HRB 80 or less / HB 150 or less

All measurements in inches.

	Type		Thread Code	Thread Size	Screw Length Code	A Max.	Min. Sheet Thickness	Hole Size In Sheet +.003 -.000	C Max	E ± .010	G ± .025	P ± .025	T ₁ Nom.	T ₂ Nom.	Driver Size	Min. Dist. Hole C/L to Edge
	Knurled Cap	Smooth Cap														
UNIFIED	PALK	PALS	440	.112-40 (#4-40)	0	.036	.036	.219	.218	.417	.170	.000	.310	.450	#1	.28
					1						.230	.060				
					2						.290	.120				
	PALK	PALS	632	.138-32 (#6-32)	0	.036	.036	.250	.249	.450	.230	.000	.450	.640	#2	.29
					1						.290	.060				
					2						.350	.120				
	PALK	PALS	832	.164-32 (#8-32)	0	.036	.036	.312	.311	.514	.230	.000	.450	.640	#2	.33
					1						.290	.060				
					2						.350	.120				
	PALK	PALS	032	.190-32 (#10-32)	0	.036	.036	.312	.311	.514	.230	.000	.450	.640	#2	.33
					1						.290	.060				
					2						.350	.120				
PALK	PALS	0420	.250-20 (1/4-20)	0	.036	.036	.375	.374	.575	.290	.000	.530	.790	#3	.46	
				1						.350	.060					
				2						.410	.120					





TYPE PALK, PALS

SPRING LOADED PANEL FASTENER, LARGE KNOB

CLINCH
ENGINEERING

All measurements in millimeters.

METRIC	Type		Thread Code	Thread Size x Pitch	Screw Length Code	A Max.	Min. Sheet Thickness	Hole Size In Sheet +.08	C Max	E ± .25	G ± .64	P ± .64	T ₁ Nom.	T ₂ Nom.	Driver Size	Min. Dist. Hole C/L to Edge
	Knurled Cap	Smooth Cap														
	PALK	PALS	M3	M3 x 0.5	0	0.92	0.92	5.56	5.54	10.59	4.32	0	7.87	11.43	#1	7.11
					1						5.84	1.52				
					2						7.37	3.05				
	PALK	PALS	M3.5	M3.5 x 0.6	0	0.92	0.92	6.35	6.33	11.43	5.84	0	11.43	16.26	#2	7.37
					1						7.37	1.52				
					2						8.89	3.05				
	PALK	PALS	M4	M4 x 0.7	0	0.92	0.92	7.92	7.9	13.06	5.84	0	11.43	16.26	#2	8.38
					1						7.37	1.52				
					2						8.89	3.05				
	PALK	PALS	M5	M5 x 0.8	0	0.92	0.92	7.92	7.9	13.06	5.84	0	11.43	16.26	#2	8.38
					1						7.37	1.52				
					2						8.89	3.05				
PALK	PALS	M6	M6 x 1	0	0.92	0.92	9.53	9.5	14.61	7.37	0	13.46	20.07	#3	11.68	
				1						8.89	1.52					
				2						10.41	3.05					

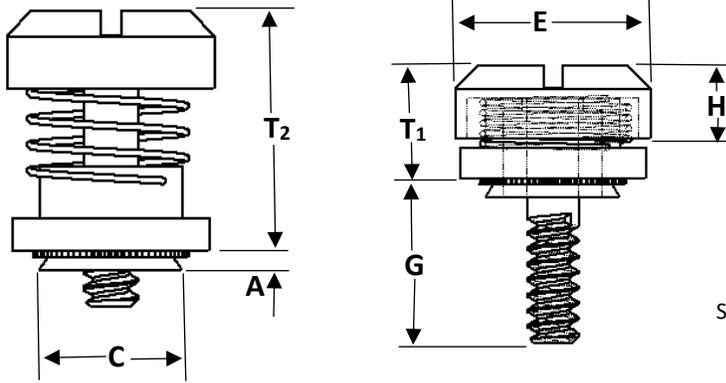
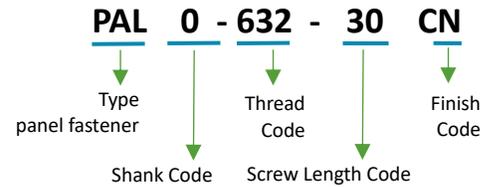




CLINCH
ENGINEERING

TYPE PAL0, PAL1, PAL2 LOW-PROFILE PANEL FASTENER ASSEMBLIES

PART NUMBER DESIGNATION



THREAD:

External, ASME B1.1, 2A / ASME B1.13M, 6g

MATERIAL:

Retainer – Carbon Steel

Screw – Hardened Carbon Steel (#4-40 and M3 sizes only)

Carbon Steel (all other sizes)

Spring – 300 Series Stainless Steel

FINISH:

Retainer – Bright Nickel Over Copper Flash, per ASTM B689, Type II

Screw – Bright Nickel Over Copper Flash, per ASTM B689, Type II

FOR USE IN SHEET HARDNESS:

HRB 60 or less / HB 107 or less

All measurements in inches.

	Type	Thread Code	Thread Size	Screw Length Code	A Max.	Min. Sheet Thickness	Hole Size In Sheet +.003 - .000	C Max	E ± .010	G ± .025	H ± .005	T ₁ Nom.	T ₂ Nom.	Min. Dist. Hole C/L to Edge
	UNIFIED	PAL0	440	.112-40 (#4-40)	30	.030	.030	.203	.202	.406	.300	.202	.325	.595
PAL1		.038				.040								
PAL2		.058				.060								
PAL0		632	.138-32 (#6-32)	30	.030	.030	.219	.218	.438	.300	.202	.325	.595	.28
PAL1					.038	.040								
PAL2					.058	.060								
PAL0		832	.164-32 (#8-32)	30	.030	.030	.250	.249	.468	.300	.207	.330	.600	.29
PAL1					.038	.040								
PAL2					.058	.060								
PAL0		032	.190-32 (#10-32)	30	.030	.030	.312	.311	.530	.300	.220	.335	.605	.33
PAL1					.038	.040								
PAL2					.058	.060								
	PAL2	0420	.250-20 (1/4-20)	35	.056	.060	.375	.374	.625	.350	.242	.385	.675	.38





TYPE PAL0, PAL1, PAL2 LOW-PROFILE PANEL FASTENER ASSEMBLIES

CLINCH
ENGINEERING

All measurements in millimeters.

METRIC	Type	Thread Code	Thread Size X Pitch	Screw Length Code	A Max.	Min. Sheet Thickness	Hole Size In Sheet +.08	C Max	E ± 0.25	G ± 0.4	H ± 0.13	T ₁ Max.	T ₂ Nom.	Min. Dist. Hole C/L to Edge
	PAL1	M3	M3 x 0.5	30	0.97	1	5.5	5.48	10.31	7.62	5.13	826	15.11	6.6
PAL2	1.48				1.5									
PAL1	M4	M4 x 0.7	30	0.97	1	6.4	6.38	11.89	7.62	5.26	8.38	15.24	7.37	
PAL2				1.48	1.5									
PAL1	M5	M5 x 0.8	30	0.97	1	8	7.98	13.46	7.62	5.59	8.51	15.37	8.38	
PAL2				1.48	1.5									
PAL2	M6	M6 x 1	35	1.48	1.5	9.5	9.48	15.88	8.89	6.12	9.78	17.15	9.65	





TYPE PAK0, PAK1, PAK2, PAS0, PAS1, PAS2 LOW-PROFILE PANEL FASTENER ASSEMBLIES

CLINCH
ENGINEERING

All measurements in millimeters.

METRIC	Type		Thread Code	Thread Size	Screw Length Code	A (Shank) Max.	Min. Sheet Thickness	Hole Size In Sheet +.08	C Max.	E ±0.25	G ±0.64	H ±0.2	P ±0.64	T ₁ Max.	T ₂ Nom.	Driver Size	Min. Dist. Hole C/L to Edge			
	Knurled Cap	Smooth Cap																		
	PAK0	PAS0	M3	M3 x 0.5	0	0.77	0.8	5.5	5.48	10.3	5.84	5.26	0	8.64	13.21	#1	6.6			
					1													7.37	1.52	
	PAK1	PAS1			0	0.97	1											5.84	0	
					1															7.37
	PAK2	PAS2			0	1.48	1.5											5.84	0	
					1															7.37
		PAK0	PAS0	M3.5	M3.5 x 0.6	0	0.77	0.8	5.56	5.54	11.1	5.84	5.26	0	8.64	13.21	#2	7.1		
						1													7.37	1.52
		PAK1	PAS1			0	0.97	1											5.84	0
						1														
		PAK2	PAS2			0	1.48	1.5											5.84	0
						1														
		PAK0	PAS0	M4	M4 x 0.7	0	0.77	0.8	6.4	6.38	11.9	5.84	5.51	0	8.64	13.46	#2	7.4		
						1													7.37	1.52
		PAK1	PAS1			0	0.97	1											5.84	0
						1														
		PAK2	PAS2			0	1.48	1.5											5.84	0
						1														
		PAK0	PAS0	M5	M5 x 0.8	0	0.77	0.8	8	7.98	13.5	5.84	5.72	0	8.64	13.46	#2	8.4		
						1													7.37	1.52
		PAK1	PAS1			0	0.97	1											5.84	0
						1														
		PAK2	PAS2			0	1.48	1.5											5.84	0
						1														
		PAK2	PAS2	M6	M6 x 1	0	1.48	1.5	9.5	9.48	15.9	7.11	6.25	0	10.04	15.24	#2	9.7		
						8.64						1.52								

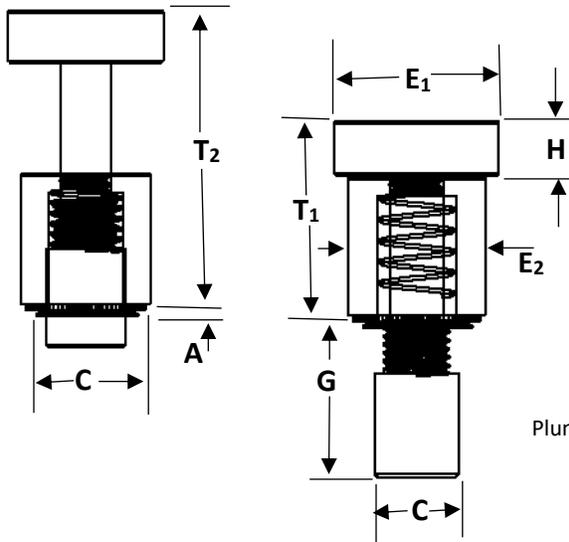
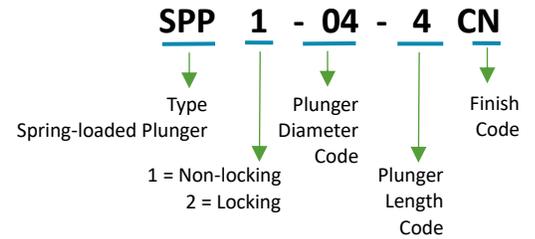




TYPE SPP1, SPP2 SPRING-LOADED PLUNGER

CLINCH
ENGINEERING

PART NUMBER DESIGNATION



MATERIAL:

Plunger & Retainer – Hardened Carbon Steel
Spring – 300 Series Stainless Steel

FINISH:

Plunger & Retainer - Bright Nickel Over Copper Flash, per ASTM B689, Type II

FOR USE IN SHEET HARDNESS:

HRB 80 or less / HB 150 or less

All measurements in inches.

UNIFIED	Type		Plunger Diameter Code	Plunger Length Code	A (Shank) Max.	Min. Sheet Thickness	Hole Size in Sheet +.003 -.000	C Max.	D +.000 -.005	E ₁ ±.010	E ₂ ±.010	G ±.010	H ±.010	T ₁ ±.010	T ₂ Nom.	Min. Dist. Hole C/L to Edge
	Locking	SPP2	04	4	.058	.060	.328	.327	.250	.50	.406	.310	.17	.595	.895	.34
Non-Locking	SPP1	04	4	.058	.060	.328	.327	.250	.50	.406	.310	.17	.510	.780	.34	

All measurements in millimeters.

METRIC	Type		Plunger Diameter Code	Plunger Length Code	A (Shank) Max.	Min. Sheet Thickness	Hole Size in Sheet +.08	C Max.	D +.013	E ₁ ±0.25	E ₂ ±0.25	G ±0.25	H ±0.25	T ₁ ±0.25	T ₂ Nom.	Min. Dist. Hole C/L to Edge
	Locking	SPP2	04	4	1.47	1.53	8.33	8.31	6.35	12.7	10.3	7.87	4.32	15.11	22.73	8.64
Non-Locking	SPP1	04	4	1.47	1.53	8.33	8.31	6.35	12.7	10.3	7.87	4.32	12.95	19.81	8.64	

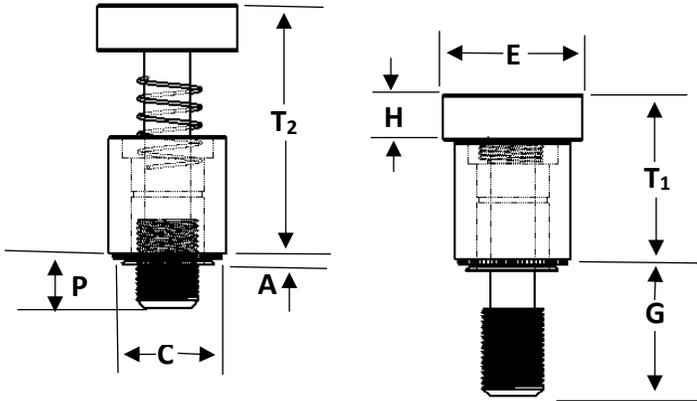
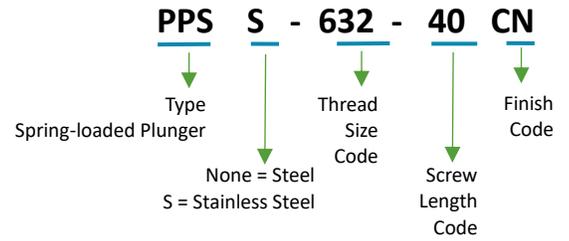




CLINCH
ENGINEERING

TYPE PPS, PPSS PANEL FASTENER ASSEMBLIES

PART NUMBER DESIGNATION



THREADS:

External, ASME B1.1, 2A / ASME B1.13M, 6g

MATERIAL:

Retainer, Screw, Spring – 300 Series Stainless Steel
 Retaining Ring – Nylon, temperature limit 200° F / 93 ° C

FINISH:

Retainer & Screw – Passivated and/or tested per ASTM A380

FOR USE IN SHEET HARDNESS:

HRB 70 or less / HB 125 or less

All measurements in inches.

UNIFIED	Type		Thread Code	Thread Size	Screw Length Code	A (Shank) Max.	Min. Sheet Thickness	Hole Size in Sheet +.003 -.000	C Max.	E ±.010	G ±.016	H ±.005	P ±.025	T ₁ Max.	T ₁ Nom.	Min. Dist. To Edge	
	Stainless Steel	Steel															
PPSS	PPS	440	.112-40 (#4-40)	40	.060	.060	.265	.264	.312	.250	.072	.000	.360	.540	.25		
				62												.375	.125
				62													
PPSS	PPS	632	.138-32 (#6-32)	40	.060	.060	.281	.280	.344	.250	.072	.000	.360	.540	.28		
				62												.375	.125
				84													
PPSS	PPS	832	.164-32 (#8-32)	50	.060	.060	.312	.311	.375	.312	.082	.000	.450	.690	.31		
				72												.437	.125
				94													
PPSS	PPS	032	.190-32 (#10-32)	50	.060	.060	.344	.343	.406	.312	.082	.000	.450	.690	.34		
				72												.437	.125
				94													
PPSS	PPS	0420	.250-20 (1/4-20)	60	.060	.060	.413	.412	.468	.375	.097	.000	.580	.880	.38		
				82												.500	.125
				04													

All measurements in millimeters.

METRIC	Type		Thread Code	Thread Size x Pitch	Screw Length Code	A (Shank) Max.	Min. Sheet Thickness	Hole Size in Sheet +0.08	C Max.	E ±0.25	G ±0.4	H ±0.13	P ±0.64	T ₁ Max.	T ₁ Nom.	Min. Dist. To Edge	
	Stainless Steel	Steel															
PPSS	PPS	M3	M3 x 0.5	40	1.53	1.53	6.73	6.71	7.92	6.4	1.83	0	9.14	13.72	6.35		
				62												9.5	3.2
				50													
PPSS	PPS	M4	M4 x 0.7	72	1.53	1.53	7.92	7.9	9.53	11.1	2.08	3.2	11.43	17.53	7.87		
				94												14.3	6.4
				50													
PPSS	PPS	M5	M5 x 0.8	72	1.53	1.53	8.74	8.72	10.31	11.1	2.08	3.2	11.47	17.53	8.63		
				94												14.3	6.4
				50													
PPSS	PPS	M6	M6 x 1	60	1.53	1.53	10.49	10.47	11.89	9.5	2.46	0	14.73	22.35	9.65		
				82												12.7	3.2
				04													

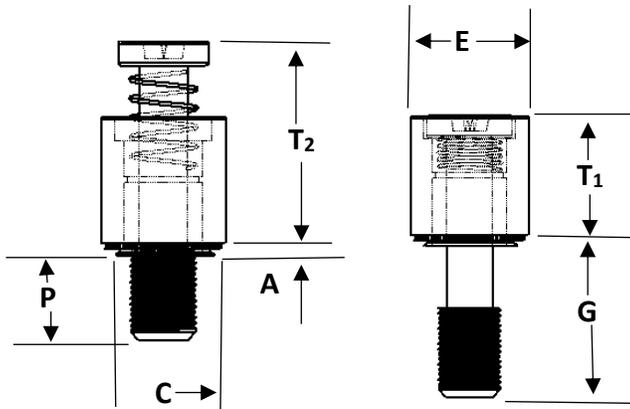
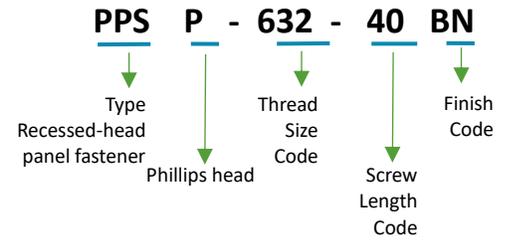




CLINCH
ENGINEERING

TYPE PPSP RECESSED-HEAD PANEL FASTENER

PART NUMBER DESIGNATION



THREADS:

External, ASME B1.1, 2A / ASME B1.13M, 6g

MATERIAL:

Retainer & Spring – 300 Series Stainless Steel

Screw – 400 Series Stainless Steel

Retaining Ring – Nylon, temperature limit 200° F / 93 ° C

FINISH:

Retainer & Screw – Passivated and/or tested per ASTM A380

FOR USE IN SHEET HARDNESS:

HRB 70 or less / HB 125 or less

All measurements in inches.

UNIFIED	Type	Thread Code	Thread Size	Screw Length Code	A (Shank) Max.	Min. Sheet Thickness	Hole Size in Sheet +.003 -.000	C Max.	E ±.010	G ±.016	P ±.025	T ₁ Max.	T ₁ Nom.	Driver Size	Min. Dist. To Edge
	PPSSP	440	.112-40 (#4-40)	40 62	.060	.060	.265	.264	.312	.250 .375	.000 .125	.370	.540	#1	.25
PPSSP	632	.138-32 (#6-32)	40	.060	.060	.281	.280	.344	.250	.000	.380	.540	#2	.28	
			62						.375	.125					
			84						.500	.250					
PPSSP	832	.164-32 (#8-32)	50	.060	.060	.312	.311	.375	.312	.000	.480	.705	#2	.31	
			72						.437	.125					
			94						.562	.250					
PPSSP	032	.190-32 (#10-32)	50	.060	.060	.344	.343	.406	.312	.000	.490	.705	#2	.34	
			72						.437	.125					
			94						.562	.250					
PPSSP	0420	.250-20 (1/4-20)	60	.060	.060	.413	.412	.468	.375	.000	.620	.905	#3	.38	
			82						.500	.125					
			04						.625	.250					

All measurements in millimeters.

METRIC	Type	Thread Code	Thread Size x Pitch	Screw Length Code	A (Shank) Max.	Min. Sheet Thickness	Hole Size in Sheet +0.08	C Max.	E ±0.25	G ±0.4	P ±0.64	T ₁ Max.	T ₁ Nom.	Driver Size	Min. Dist. To Edge
	PPSS	M3	M3 x 0.5	40	1.53	1.53	6.73	6.71	7.92	6.4	0	9.4	13.72	#1	6.35
62				9.5						3.2					
PPSS	M4	M4 x 0.7	50	1.53	1.53	7.92	7.9	9.53	7.9	0	12.19	17.91	#2	7.87	
			72						11.1	3.2					
			94						14.3	6.4					
PPSS	M5	M5 x 0.8	50	1.53	1.53	8.74	8.72	10.31	7.9	0	12.45	17.91	#2	8.63	
			72						11.1	3.2					
			94						14.3	6.4					
PPSS	M6	M6 x 1	60	1.53	1.53	10.49	10.47	11.89	9.5	0	15.75	22.99	#3	9.65	
			82						12.7	3.2					
			04						15.9	6.4					



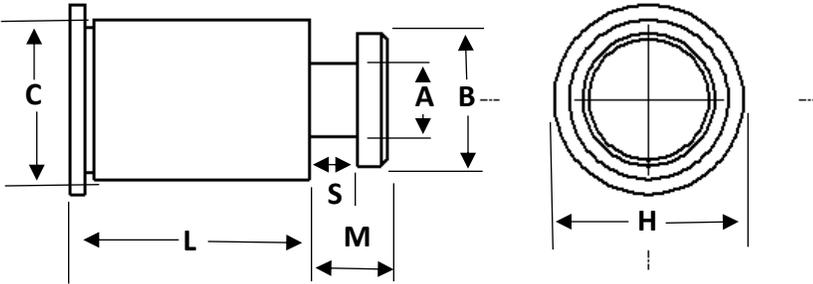
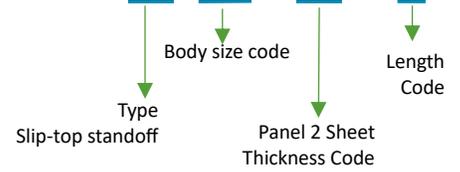


TYPE STST SLIP-TOP SELF-CLINCHING STANDOFFS

CLINCH
ENGINEERING

PART NUMBER DESIGNATION

STST - 6 060 - 12



MATERIAL:

300 Series Stainless Steel

FINISH:

Passivated and/or Tested per ASTM A380

TYPE STST DIMENSION DATA

All measurements in inches.

UNIFIED	Type	Body Size-Sheet Code	Length "L" ±.005 (Length Code in 32nds of an inch)								A	B	C	S	M	H	D Anvil Hole
	Stainless Steel		.063	.125	.188	.250	.312	.375	.437	.500	±.003	±.003	Max.	±.003	Max.	Nom.	+ .003 - .000
	STST	6060	2	4	6	8	10	12	14	16	.009	.177	.212	.068	.108	.250	.216

All measurements in millimeters.

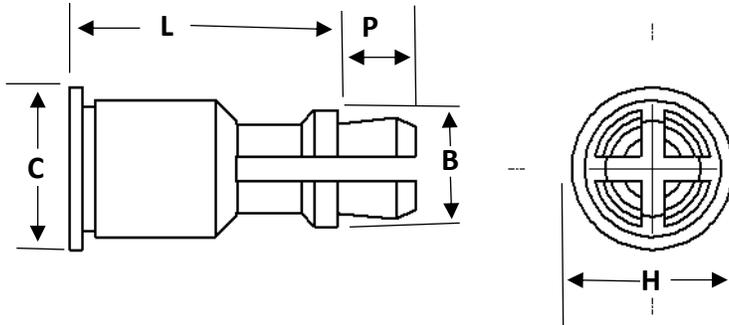
UNIFIED	Type	Body Size-Sheet Code	Length "L" ±.13 (Length Code in millimeters)								A	B	C	S	M	H	D Anvil Hole
	Stainless Steel										±.08	±.08	Max.	±.08	Max.	Nom.	+ .08
	STST	61.5	2	4	6	8	10	12	14	16	2.51	4.5	5.39	1.72	2.75	6.35	5.49



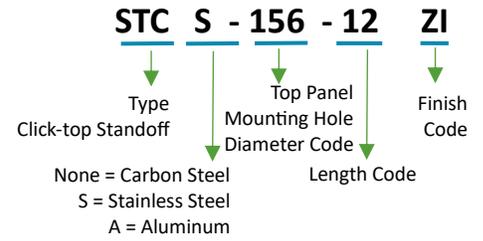


TYPE STC, STCS, STCA CLICK-TOP FOR CLINCHING INTO METAL SHEETS

CLINCH
ENGINEERING



PART NUMBER DESIGNATION



MATERIAL:

STC – Carbon Steel
STCS – 400 Series Stainless Steel
STCA - Aluminum

FINISH:

STC - Zinc Plated, 5 μm, Colorless, plus clear chromate
STCS - Passivated and/or tested per ASTM A380

All measurements in inches.

UNIFIED	Type			Top Board Mounting Hole Diameter	Length Code "L" ±.005 (Length Code is in 32nds of an inch)										B ±.005	C Max.	H ±.005	P ±.005
	Fastener Material																	
	Carbon Steel	Stainless Steel	Aluminum															
	STC	STCS	STCA	156	.250	.312	.375	.437	.500	.562	.625	.750	.875	1.00				

All measurements in millimeters.

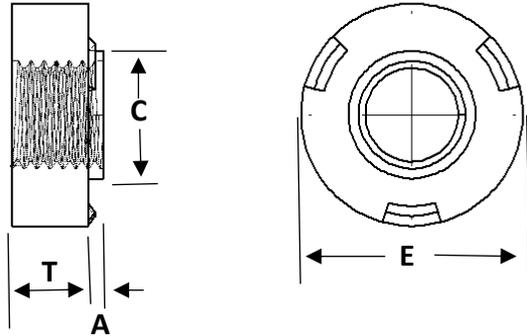
METRIC	Type			Top Board Mounting Hole Diameter	Length Code "L" ±.013 (Length Code is in millimeter)										B ±0.13	C Max.	H ±0.13	P ±0.13
	Fastener Material																	
	Carbon Steel	Stainless Steel	Aluminum															
	STC	STCS	STCA	4 mm	8	10	12	14	16	18	20	22	25	30	4.78	5.39	6.35	3.58



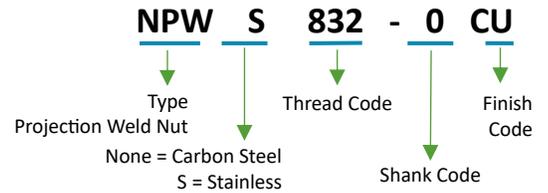


TYPE NPW, NPWS SELF-LOCATING PROJECTION WELD NUTS

CLINCH
ENGINEERING



PART NUMBER DESIGNATION



THREADS:

Internal, ANSI B1.1, 2B/ASME B1.13M, 6H

MATERIAL:

NPW – Carbon Steel
NPWS - 300 Series Stainless Steel

FINISH:

NPW – Copper Flash
NPWS - Passivated and/or Tested per ASTM A380

All measurements in inches.

	Type		Thread Size	Thread Code	Shank Code	A (Shank) Max.	Min. Sheet Thickness	Hole Size In Sheet +0.04- .000	C Max.	E +.000 -0.010	T ± .004	Min. Dist. Hole C/L To Edge
	Carbon Steel	Stainless Steel										
UNIFIED	NPW	NPWS	.112-40 (#4-40)	440	0	.030	.030	.173	.172	.308	.063	.154
	NPW	NPWS	.138-32 (#6-32)	632	0	.030	.030	.193	.192	.341	.093	.171
	NPW	NPWS	.164-32 (#8-32)	832	0	.030	.030	.218	.217	.371	.107	.186
	NPW	NPWS	.190-24 (#10-24)	024	0	.030	.030	.250	.249	.44	.155	.22
	NPW	NPWS	.190-32 (#10-32)	032	0	.030	.030	.250	.249	.44	.155	.22
	NPW	NPWS	.250-20 (1/4-20)	0420	0	.048	.048	.316	.315	.522	.185	.261

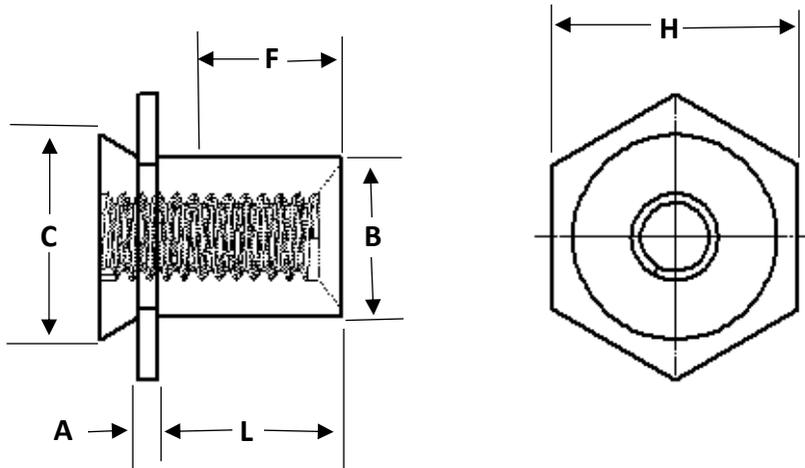
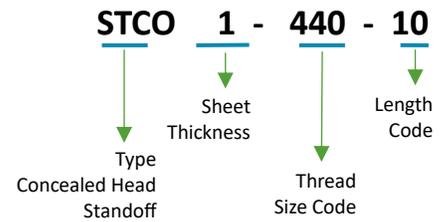
All measurements in millimeters.

	Type		Thread Size x Pitch	Thread Code	Shank Code	A (Shank) Max.	Min. Sheet Thickness	Hole Size In Sheet +0.1	C Max.	E -0.25	T ±0.1	Min. Dist. Hole C/L To Edge
	Carbon Steel	Stainless Steel										
METRIC	NPW	NPWS	M3 x 0.5	M3	0	0.77	0.77	4.4	4.37	7.82	1.48	3.91
	NPW	NPWS	M4 x 0.7	M4	0	0.77	0.77	5.54	5.51	9.42	2.58	4.71
	NPW	NPWS	M5 x 0.8	M5	0	0.77	0.77	6.35	6.32	11.18	3.77	5.59
	NPW	NPWS	M6 x 1	M6	0	1.22	1.22	8.03	8	13.26	4.56	6.63





PART NUMBER DESIGNATION



THREADS:
Internal ASME B1.1, 2B/ASME B1.13M, 6H

MATERIAL:
300 Series Stainless

FINISH:
Passivated and/or Tested per ASTM A380

FOR USE IN SHEET HARDNESS:
HRB 70 / HB 125 or less

All measurements in inches.

UNIFIED	Type	Thread Code	Thread Size	Min. Sheet Thickness	Blind Mounting Hole Dia. +.003 - .000	Min. Depth of Blind Hole	Min. Depth Full Thread F	A (Shank) Max.	B Max.	C Max.	H Nom.	Min. Dist. Hole C/L to Edge	Length Code "L" +.002 - .005 (Length code is in 16ths of an inch)				
													.187	.250	.312	.375	.500
STCO1	STCO2	440	.112-40 (#4-40)	.062	.213	.043	.188	.041	.165	.212	.250	.188	3	4	5	6	8
			.093	.075		.072											
STCO1	STCO2	632	.138-32 (#6-32)	.062	.290	.043	.250	.041	.213	.289	.312	.219	3	4	5	6	8
			.093	.075		.072											
STCO1	STCO2	832	.164-32 (#8-32)	.062	.312	.043	.250	.041	.245	.311	.344	.250	3	4	5	6	8
			.093	.075		.072											
STCO1	STCO2	032	.190-32 (#10-32)	.062	.344	.043	.375	.041	.290	.343	.375	.281	3	4	5	6	8
			.093	.075		.072											
STCO1	STCO2	0420	.250-20 (1/4-20)	.063	.309	.043	.375	.041	.354	.389	.438	.375	3	4	5	6	8
			.093	.075		.072											

All measurements in millimeters.

METRIC	Type	Thread Code	Thread Size x Pitch	Min. Sheet Thickness	Blind Mounting Hole Dia. +0.08	Min. Depth of Blind Hole	Min. Depth Full Thread F	A (Shank) Max.	B Max.	C Max.	H Nom.	Min. Dist. Hole C/L to Edge	Length Code "L" +0.05 -0.13 (Length code is in millimeters)				
													4	6	8	10	12
STCO1	STCO2	M3	M3 x 0.5	1.6	5.41	1.1	5	1.04	4.2	5.39	6.35	4.8	4	6	8	10	12
				2.4		1.91		1.83									
STCO1	STCO2	M4	M4 x 0.7	1.6	7.92	1.1	6.5	1.04	6.23	7.9	8.74	6.4	4	6	8	10	12
				2.4		1.91		1.83									
STCO1	STCO2	M5	M5 x 0.8	1.6	8.74	1.1	9.6	1.04	7.37	8.72	9.53	7.2	4	6	8	10	12
				2.4		1.91		1.83									
STCO1	STCO2	M6	M6 x 1	1.6	9.9	1.1	9.6	1.04	9	9.89	11.11	7.2	4	6	8	10	12
				2.4		1.91		1.83									

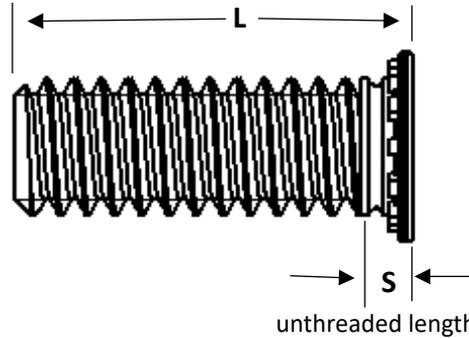
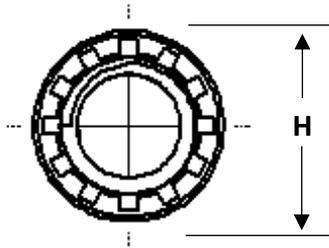
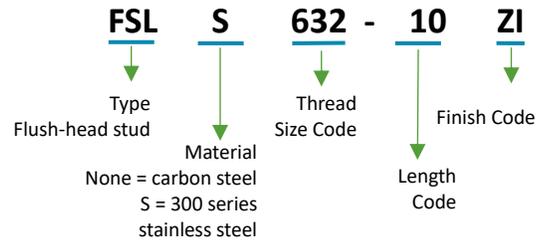




CLINCH
ENGINEERING

TYPE FSL, FSLs LOW DISPLACEMENT STUDS

PART NUMBER DESIGNATION



THREADS:
External, ASME B1.1, 2A/ASME B1.13M, 6g

MATERIAL:
FSL – Heat-treated Carbon Steel
FSLs – 300 Series Stainless Steel

FINISH:
FSL – Zinc Plated, 5 µm, Colorless
FSLs – Passivated and/or Tested per ASTM A380

All measurements in inches.

UNIFIED	Type				Min. Sheet Thickness	Hole Size +.003 -.000	Max Hole in Attach. Parts	H ±.015	S Max	Min. Dist. Hole C/L Steel to Edge	Length "L" ± .015 (Length Code in 16ths of an inch)					
	Steel	Stainless Steel	Thread Code	Thread Size							.250	.312	.375	.500	.625	.750
	FSL	FSLs	256	.086-56 (#2-56)							.040	.085	.100	.112	.080	.098
FSL	FSLs	440	.112-40 (#4-40)	.040	.111	.126	.138	.085	.124	4	5	6	8	10	12	
FSL	FSLs	632	.138-32 (#6-32)	.040	.137	.152	.164	.090	.150	4	5	6	8	10	12	
FSL	FSLs	832	.164-32 (#8-32)	.040	.163	.178	.190	.090	.176	4	5	6	8	10	12	
FSL	FSLs	032	.190-32 (#10-32)	.040	.189	.204	.225	.100	.210		5	6	8	10	12	

All measurements in millimeters.

METRIC	Type				Min. Sheet Thickness	Hole Size ± .08	Max Hole in Attach. Parts	H ±.4	S Max	Min. Dist. Hole C/L Steel to Edge	Length "L" ± .4 (Length Code in millimeters)							
	Steel	Stainless Steel	Thread Code	Thread Size x Pitch							6	8	10	12	15	18	20	25
	FSL	FSLs	M2.5	M2.5 x 0.45							1	2.5	2.9	3.15	2.1	2.8	6	8
FSL	FSLs	M3	M3 x 0.5	1	3	3.2	3.65	2.1	3.3	6	8	10	12	15	18	20	25	
FSL	FSLs	M3.5	M3.5 x 0.6	1	3.5	3.9	4.15	2.3	3.8	6	8	10	12	15	18	20	25	
FSL	FSLs	M4	M4 x 0.7	1	4	4.5	4.65	2.4	4.3	6	8	10	12	15	18	20	25	
FSL	FSLs	M5	M5 x 0.8	1	5	5.2	5.9	2.7	5.6		8	10	12	15	18	20	25	





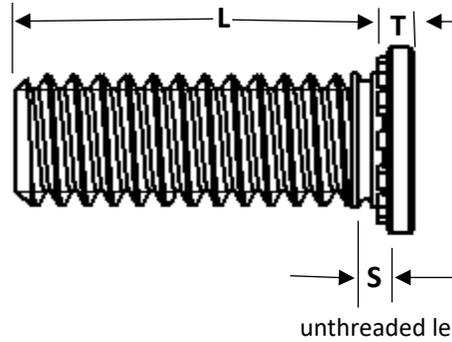
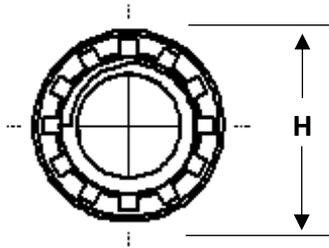
TYPE FSH, FSHS, FSHB HEAVY DUTY, HIGH STRENGTH STUDS

CLINCH
ENGINEERING

PART NUMBER DESIGNATION

FSH **S** **632** - **10** **ZI**

↓ Type: High Strength Stud
 ↓ Material: None = carbon steel, S = 300 series stainless steel, B = Phosphor Bronze
 ↓ Thread Size Code: 632
 ↓ Length Code: 10
 ↓ Finish Code: ZI



THREADS:

External, ASME B1.1, 2A/ASME B1.13M, 6g

MATERIAL:

FSH – Heat-treated Carbon Steel
 FSHS – 300 Series Stainless Steel
 FSHB – Phosphor Bronze

FINISH:

FSH – Zinc Plated, 5 µm, Colorless
 FSHS – Passivated and/or Tested per ASTM A380

All measurements in inches.

UNIFIED	Type					Min. Sheet Thickness	Hole Size +.005 -.000	Max Hole in Attach. Parts	H ±.01	S Max	Min. Dist. Hole C/L Steel to Edge	Length "L" ± .015 (Length Code in 16ths of an inch)				
	Steel	Stainless Steel	Phosphor Bronze	Thread Code	Thread Size							.500	.750	1.00	1.25	1.50
	FSH	FSHS	FSHB	032	.190-32 (#10-32)							.05	.190	.252	.300	.105
FSH	FSHS	FSHB	0420	.250-20 (#1/4-20)	.06	.250	.312	.380	.125	.460	8	12	16	20	24	
FSH	FSHS	FSHB	0518	.313-18 (#5/16-18)	.075	.312	.374	.480	.140	.500	8	12	16	20	24	
FSH	FSHS	FSHB	0616	.375-16 (3/8-16)	.090	.375	.437	.580	.155	.530		12	16	20	24	

All measurements in millimeters.

METRIC	Type					Min. Sheet Thickness	Hole Size ±0.13	Max Hole in Attach. Parts	H ±0.25	S Max	Min. Dist. Hole C/L Steel to Edge	Length "L" ±0.4 (Length Code in millimeters)				
	Steel	Stainless Steel	Phosphor Bronze	Thread Code	Thread Size x Pitch							15	20	25	30	35
	FSH	FSHS	FSHB	M5	M5 x 0.8							1.3	5	6.4	7.8	2.7
FSH	FSHS	FSHB	M6	M6 x 1	1.5	6	7.5	9.4	2.8	11.5	15	20	25	30	35	
FSH	FSHS	FSHB	M8	M8 x 1.25	2	8	9.5	12.5	3.5	12.7	15	20	25	30	35	
FSH	FSHS	FSHB	M10	M10 x 1.5	2.3	10	11.5	15.7	4.1	13.7	15	20	25	30	35	





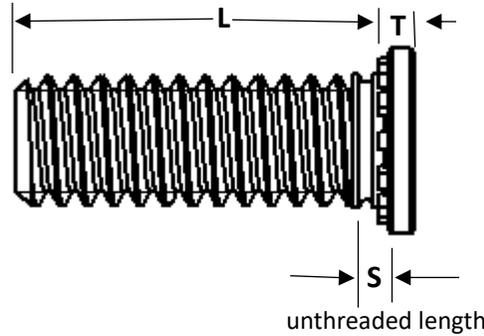
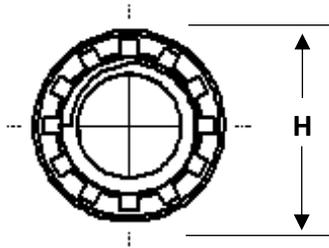
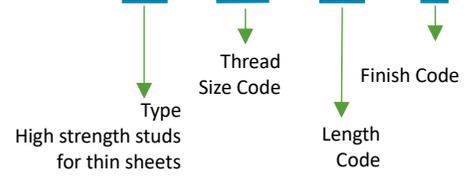
HEAVY DUTY, HIGH STRENGTH STUDS FOR THIN SHEETS

TYPE FSHT

CLINCH
ENGINEERING

PART NUMBER DESIGNATION

FSHT - 632 - 10 ZI



THREADS:
External, ASME B1.1, 2A/ASME B1.13M, 6g

MATERIAL:
Heat-treated Carbon Steel

FINISH:
Zinc Plated, 5 µm, Colorless

All measurements in inches.

UNIFIED	Type			Min. Sheet Thickness	Hole Size +.005 -.000	Max Hole in Attach. Parts	H ±.01	S Max	Min. Dist. Hole C/L Steel to Edge	Length "L" ± .015 (Length Code in 16ths of an inch)						
	Steel	Thread Code	Thread Size							.500	.750	1.00	1.25	1.50	1.75	2.00
	FSHT	032	.190-32 (#10-32)							8	12	16	20	24	28	32
	FSHT	0420	.250-20 (#1/4-20)	.040	.250	.340	.462	.118	.470	8	12	16	20	24	28	32
	FSHT	0518	.313-18 (#5/16-18)	.060	.312	.402	.312	.133	.560	8	12	16	20	24	28	32

All measurements in millimeters.

METRIC	Type			Min. Sheet Thickness s	Hole Size ±0.13	Max Hole in Attach. Parts	H ±0.25	S Max	Min. Dist. Hole C/L Steel to Edge	Length "L" ±0.4 (Length Code in millimeters)						
	Steel	Thread Code	Thread Size x Pitch							15	20	25	30	35	40	50
	FSHT	M5	M5 x 0.8							15	20	25	30	35	40	50
	FSHT	M6	M6 x 1	1	6	8.3	11.35	2.8	11.5	15	20	25	30	35	40	50
	FSHT	M8	M8 x 1.25	1	8	10.3	15.3	3.3	14.5	15	20	25	30	35	40	50

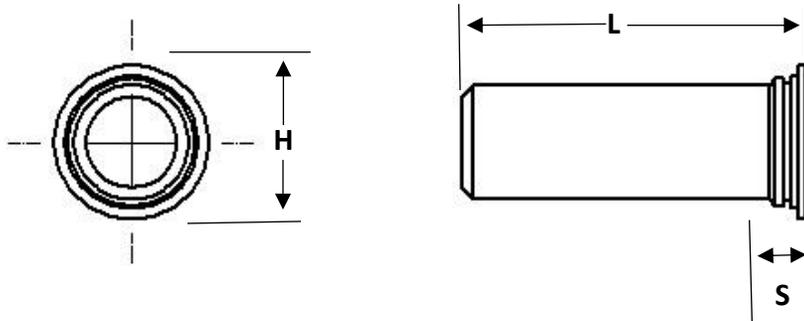
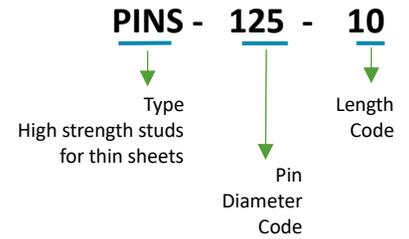




TYPE PINS FLUSH HEAD SELF-CLINCHING PILOT PIN

CLINCH
ENGINEERING

PART NUMBER DESIGNATION



MATERIAL:
300 Series Stainless steel

FINISH:
Passivated and/or Tested Per ASTM A380

All measurements in inches.

UNIFIED	Type	Pin Diameter Code	Pin Diameter $P \pm .002$	Min. Sheet Thickness	Hole Size in Sheet $+.003$ $-.000$	D $\pm .006$	H $\pm .015$	S Max.	Min. Dist. Hole C/L to Edge	Length Code "L" $\pm .015$ (Length Code in 16ths of an inch)				
	300 Series Stainless Steel									.375	.500	.625	.750	1.00
	PINS													
	PINS	125	.125	.040	.144	.090	.205	.090	.250	6	8	10	12	
	PINS	187	.187	.040	.205	.132	.270	.090	.280	6	8	10	12	16
	PINS	250	.250	.040	.272	.177	.335	.090	.310	6	8	10	12	16

All measurements in millimeters.

METRIC	Type	Pin Diameter Code	Pin Diameter $P \pm .05$	Min. Sheet Thickness	Hole Size in Sheet $+.08$	D $\pm .15$	H $\pm .4$	S Max.	Min. Dist. Hole C/L to Edge	Length Code "L" $\pm .4$ (Length Code in millimeters)				
	300 Series Stainless Steel									6	8	10	12	16
	PINS													
	PINS	3MM	3	1	3.5	2.11	5.2	2.29	6.4	6	8	10	12	16
	PINS	4MM	4	1	4.5	2.82	6.12	2.29	7.1	6	8	10	12	16
	PINS	5MM	5	1	5.5	3.53	7.19	2.29	7.6			10	12	16
	PINS	6MM	6	1	6.5	4.24	8.13	2.29	7.9				12	16

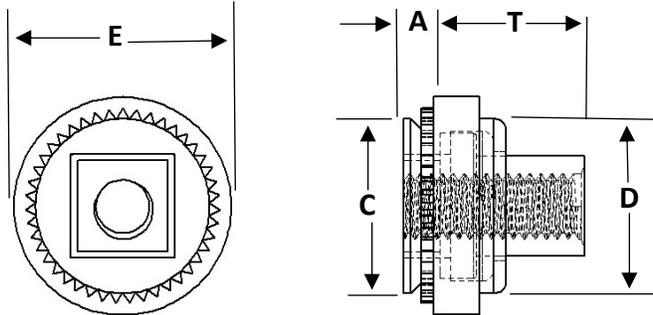
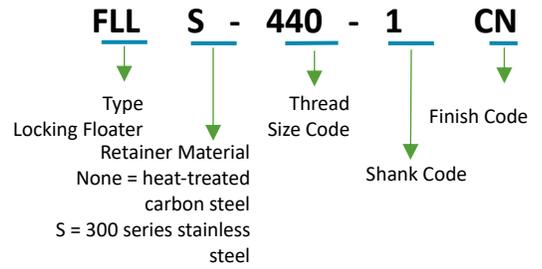




CLINCH
ENGINEERING

TYPE FLL, FLLS FLOATING LOCKING FASTENERS

PART NUMBER DESIGNATION



THREADS:

Internal ASME B1.1, 2B/ANSI/ASME B1.13M, 6H

MATERIAL:

Retainer: FL – Heat-treated Carbon Steel
 FLS – 300 Series Stainless Steel
 Nut: FL – Carbon Steel
 FLS - 300 Series Stainless

FINISH:

FL – Zinc Plated, 5 µm, Colorless
 FLS – Passivated and/or Tested per ASTM A380

All measurements in inches.

UNIFIED	Type		Thread Size	Thread Code	Shank Code	A (Shank) Max.	Min. Sheet Thickness	Hole Size in Sheet +0.03 -0.000	C Max.	D Max.	E ± 0.15	T Max.	Min. Dist. Hole C/L to Edge
	Locking												
	Fastener Material												
	Steel	300 Series Stainless Steel											
FLL	FLLS	.112-40 (#4-40)	440	1	.038	.038	.290	.289	.290	.360	.190	.30	
					2	.054							.054
FLL	FLLS	.138-32 (#6-32)	632	1	.038	.038	.328	.327	.335	.390	.200	.32	
					2	.054							.054
FLL	FLLS	.164-32 (#8-32)	832	1	.038	.038	.368	.367	.365	.440	.210	.34	
					2	.054							.054
FLL	FLLS	.190-24 (#10-24)	024	1	.038	.038	.406	.405	.405	.470	.270	.36	
					2	.054							.054
FLL	FLLS	.190-32 (#10-32)	032	1	.038	.038	.406	.405	.405	.470	.270	.36	
					2	.054							.054
FLL	FLLS	.250-20 (1/4-20)	0420	2	.054	.054	.515	.514	.510	.600	.310	.42	
FLL	FLLS	.250-28 (1/4-28)	0428	2	.054	.054	.515	.514	.510	.600	.310	.42	

All measurements in millimeters.

METRIC	Type		Thread Size x Pitch	Thread Code	Shank Code	A (Shank) Max.	Min. Sheet Thickness	Hole Size in Sheet +0.08	C Max.	D Max.	E ± 0.38	T Max.	Min. Dist. Hole C/L to Edge
	Non-Locking												
	Fastener Material												
	Steel	300 Series Stainless Steel											
FLL	FLLS	M3 x 0.5	M3	1	0.97	0.97	7.37	7.35	7.37	9.14	4.83	7.62	
					2	1.38							1.38
FLL	FLLS	M4 x 0.7	M4	1	0.97	0.97	9.35	9.33	9.28	11.18	5.34	8.64	
					2	1.38							1.38
FLL	FLLS	M5 x 0.8	M5	1	0.97	0.97	10.31	10.29	10.29	11.94	6.86	9.14	
					2	1.38							1.38
FLL	FLLS	M6 x 1	M6	2	1.38	1.38	13.08	13.06	12.96	15.24	7.88	10.67	





TYPE NTU SELF-CLINCHING NUTS FOR ULTRA THIN SHEETS

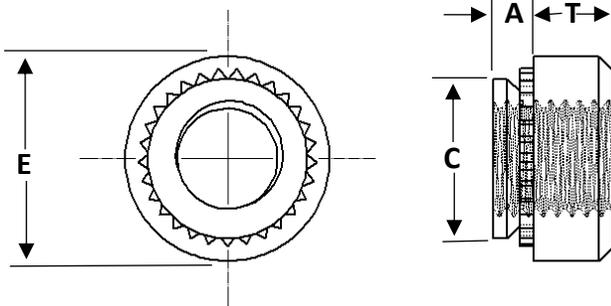
CLINCH
ENGINEERING

PART NUMBER DESIGNATION

NTU - 440

↓
Type
Self-clinching nut

↓
Thread Size
Code



THREADS:

Internal ASME B1.1, 2B/ASME B1.13M, 6H

MATERIAL:

300 Series Stainless

FINISH:

Passivated and/or Tested per ASTM A380

All measurements in inches.

UNIFIED	Type	Thread Code	Thread Size	A (Shank) Max.	Min. Sheet Thickness	Hole Size In Sheet +.003 -.000	C Max.	E ±.010	T ±.010	Min. Dist. Hole C/L to Edge
	NTU	256	.086-56 (#2-56)	.024	.025	.136	.135	.220	.065	.15
	NTU	440	.112-40 (#4-40)	.024	.025	.166	.165	.220	.065	.17
	NTU	632	.138-32 (#6-32)	.024	.025	.187	.186	.252	.065	.20

All measurements in millimeters.

METRIC	Type	Thread Code	Thread Size	A (Shank) Max.	Min. Sheet Thickness	Hole Size In Sheet +.08	C Max.	E ±.25	T ±.25	Min. Dist. Hole C/L to Edge
	NTU	M2.5	M2.5 x 0.45	0.61	0.64	3.8	3.79	5.6	1.4	3.7
	NTU	M3	M3 x 0.5	0.61	0.64	4.24	4.22	5.6	1.4	4.3
	NTU	M3.5	M3.5 x 0.6	0.61	0.64	4.75	4.73	6.4	1.4	5.1





HARDWARE THAT INSTALLS INTO STAINLES STEEL

The “magic” of self-clinching is the fastener must have a harder Rockwell Hardness than the parent material to ensure proper and permanent installation. Installing self-clinching fasteners into stainless steel is challenging due to the fundamental hardness of the material. In this catalog section we have developed fasteners specifically for installation into stainless steel. Critical to this process is sharpening punches for a clean hole. A dull punch will work-harden the hole, creating difficult conditions to install in a stainless-steel sheet.

Type **FL4** non-locking and **FLL4** self-locking self-clinching floating nuts will permit up to .030”/0.76mm total adjustment for mating hole misalignment in stainless steel sheets.

Type **STB4** AND **ST4** standoffs provide a permanently mounted fastener that can be used for stacking or spacing components to or from stainless steel panels.

Type **FS4** AND **FSP** self-clinching, flush-head studs can be mounted in stainless steel sheets as thin as .040”/1mm.

Type **PPS4** panel fasteners provide “tool only” access to your stainless-steel assemblies.

Type **PIN4** self-clinching pins are specifically designed for installation into stainless steel sheets as thin as .040”/1 mm.

Type **N400** nuts provide strong load-bearing threads in stainless steel sheets as thin as .030”/0.8mm.

Fasteners made from precipitation hardened grade stainless and A286 stainless are particularly useful in applications such as outdoor equipment, medical devices, and chemical and food processing equipment or anywhere corrosive element exposure is possible.

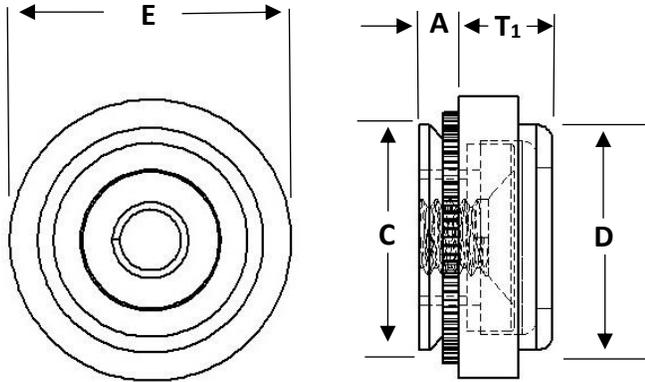
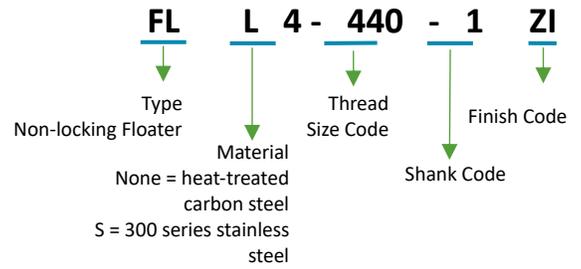




TYPE FL4, FLL4 FLOATING SELF-CLINCHING FASTENERS

CLINCH
ENGINEERING

PART NUMBER DESIGNATION



THREADS:

Internal ASME B1.1, 2B/ANSI/ASME B1.13M, 6H

MATERIAL:

Retainer: FL – Heat-treated Carbon Steel

FLL4 – 300 Series Stainless Steel

Nut: FL – Carbon Steel

FLL4 – 300 Series Stainless Steel

FINISH:

FL – Zinc Plated, 5 μm, Colorless

FLL4 – Passivated and/or Tested per ASTM A380

All measurements in inches.

UNIFIED	Type		Thread Size	Thread Code	Shank Code	A (Shank) Max.	Min. Sheet Thickness	Hole Size in Sheet +0.03 -0.000	C Max.	D Max.	E ± 0.15	T ₁ Max.	T ₂ Max.	Min. Dist. Hole C/L to Edge
	Non-Locking	Self-Locking												
	FL4	FLL4	.112-40 (#4-40)	440	1	.038	.038	.290	.289	.290	.360	.130	.190	.30
	FL4	FLL4	.138-32 (#6-32)	632	1	.038	.038	.328	.327	.335	.390	.130	.200	.32
	FL4	FLL4	.164-32 (#8-32)	832	1	.038	.038	.368	.367	.365	.440	.130	.210	.34
	FL4	FLL4	.190-32 (#10-32)	032	1	.038	.038	.406	.405	.405	.470	.170	.270	.36

All measurements in millimeters.

METRIC	Type		Thread Size x Pitch	Thread Code	Shank Code	A (Shank) Max.	Min. Sheet Thickness	Hole Size in Sheet +0.08	C Max.	D Max.	E ± 0.38	T ₁ Max.	T ₂ Max.	Min. Dist. Hole C/L to Edge
	Non-Locking	Self-Locking												
	FL4	FLL4	M3 x 0.5	M3	1	0.97	0.97	7.37	7.35	7.37	9.14	3.31	4.83	7.62
	FL4	FLL4	M4 x 0.7	M4	1	0.97	0.97	9.35	9.33	9.28	11.18	3.31	5.34	8.64
	FL4	FLL4	M5 x 0.8	M5	1	0.97	0.97	10.31	10.29	10.29	11.94	4.32	6.86	9.14

– The increased hardness of stainless-steel panels requires careful consideration when installing self-clinching fasteners.



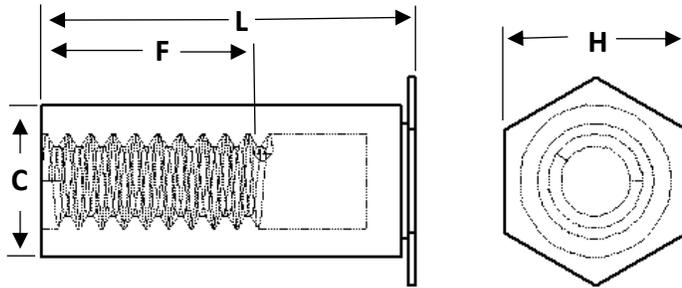
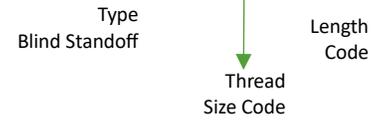


TYPE STB4 SELF-CLINCHING BLIND STANDOFFS

CLINCH
ENGINEERING

PART NUMBER DESIGNATION

STB4 - 440 - 10



THREADS:
Internal ASME B1.1, 2B/ASME B1.13M, 6H

MATERIAL:
400 Series Stainless Steel

FINISH:
Passivated and/or Tested per ASTM A380

SHEET HARDNESS:
HRB 88 / HB 183 or less

GENERAL DIMENSION DATA

All measurements in inches.

UNIFIED	Thread Code	Min. Sheet Thickness	Hole Size in Sheet +0.03 -.000	C +.000 -.005	H Nom.	Min. Dist. Hole C/L to Edge
	440	.040	.116	.165	.187	.23
6440	.040	.213	.212	.250	.27	
632	.040	.213	.212	.250	.27	
8632	.050	.281	.280	.312	.31	
832	.050	.281	.280	.312	.31	
032	.050	.281	.280	.312	.31	

All measurements in millimeters.

METRIC	Thread Code	Min. Sheet Thickness	Hole Size in Sheet +0.08 -.000	C - 0.13	H Nom.	Min. Dist. Hole C/L to Edge
	M3	1.02	4.22	4.2	4.8	6
3.5M3	1.02	5.41	5.39	6.4	6.8	
M3.5	1.02	5.41	5.39	6.4	6.8	
M4	1.27	7.14	7.12	7.9	8	
M5	1.27	7.14	7.12	7.9	8	

THREAD SIZE AND LENGTH SELECTION DATA

All measurements in inches.

UNIFIED	Type	Thread Size	Thread Code	Length "L" + .002 -.005 (Length Code in 32nds of an inch)												
				.312	.375	.437	.500	.562	.625	.687	.750	.812	.875	.937	.100	1.062
UNIFIED	STB4	.112-40 (#4-40)	440	10	12	14	16	18	20	22	24	26	28	30	32	34
			6440													
	STB4	.138-32 (#6-32)	632	10	12	14	16	18	20	22	24	26	28	30	32	34
			8632													
STB4	.164-32 (#8-32)	832	10	12	14	16	18	20	22	24	26	28	30	32	34	
			.190-32 (#10-32)	032	10	12	14	16	18	20	22	24	26	28	30	32
F Dimension Min.					.156		.187		.250			.375				

All measurements in millimeters.

METRIC	Type	Thread Size	Thread Code	Length "L" + .05 -.13 (Length Code in millimeters)										
				6	8	10	12	14	16	18	20	22	25	
METRIC	STB4	M3 x 0.5	M3	6	8	10	12	14	16	18	20	22	25	
			3.5M3											
	STB4	M3.5 x 0.6	M3.5	6	8	10	12	14	16	18	20	22	25	
	STB4	M4 x 0.7	M4	6	8	10	12	14	16	18	20	22	25	
STB4	M5 x 0.8	M5	6	8	10	12	14	16	18	20	22	25		
F Dimension Min.				3.2	4		5	6.5			9.5			

- To minimize sheet distortion and maximize product performance, use a centerline-to-edge value greater or equal to the value specified.
- The increased hardness of stainless steel panels requires careful consideration when installing self-clinching fasteners.

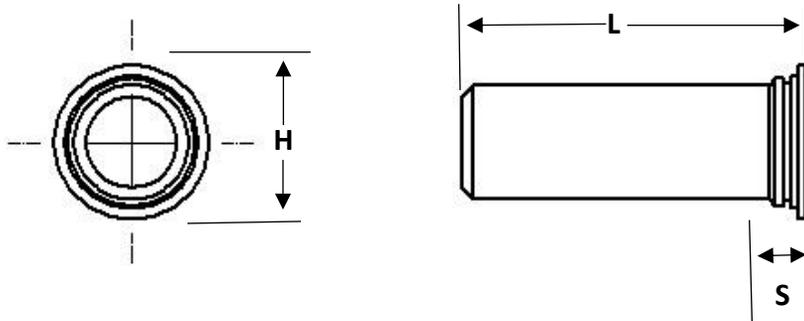
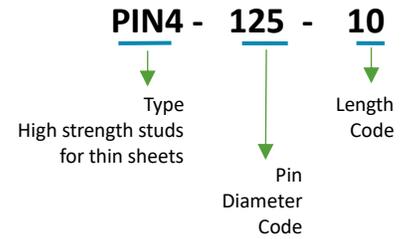




TYPE PIN4 FLUSH HEAD SELF-CLINCHING PILOT PIN

CLINCH
ENGINEERING

PART NUMBER DESIGNATION



MATERIAL:

400 Series Stainless steel

FINISH:

Passivated and/or Tested Per ASTM A380

All measurements in inches.

UNIFIED	Type	Pin Diameter Code	Pin Diameter P ±.002	Min. Sheet Thickness	Hole Size in Sheet +.003 - .000	D ±.006	H ±.015	S Max.	Min. Dist. Hole C/L to Edge	Length Code "L" ±.015 (Length Code in 16ths of an inch)				
	400 Series Stainless Steel									.375	.500	.625	.750	1.00
	PIN4													
	PIN4	125	.125	.040	.144	.090	.205	.090	.250	6	8	10	12	
	PIN4	187	.187	.040	.205	.132	.270	.090	.280	6	8	10	12	16
	PIN4	250	.250	.040	.272	.177	.335	.090	.310		8	10	12	16

All measurements in millimeters.

METRIC	Type	Pin Diameter Code	Pin Diameter P ±.05	Min. Sheet Thickness	Hole Size in Sheet +.08	D ±.15	H ±.4	S Max.	Min. Dist. Hole C/L to Edge	Length Code "L" ±.4 (Length Code in millimeters)				
	400 Series Stainless Steel									6	8	10	12	16
	PIN4													
	PIN4	3MM	3	1	3.5	2.11	5.2	2.29	6.4	6	8	10	12	16
	PIN4	4MM	4	1	4.5	2.82	6.12	2.29	7.1	6	8	10	12	16
	PIN4	5MM	5	1	5.5	3.53	7.19	2.29	7.6			10	12	16
	PIN4	6MM	6	1	6.5	4.24	8.13	2.29	7.9				12	16

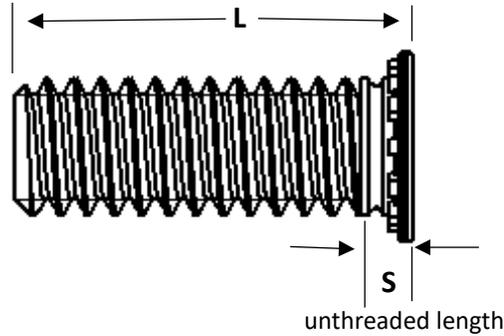
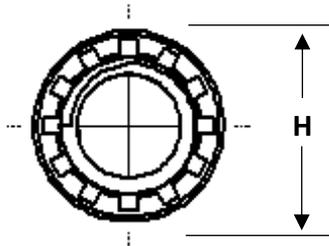
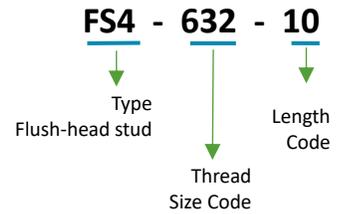




TYPE FS4 SELF-CLINCHING FLUSH-HEAD STUDS

CLINCH
ENGINEERING

PART NUMBER DESIGNATION



THREADS:
External, ASME B1.1, 2A/ASME B1.13M, 6g

MATERIAL:
400 Series Stainless Steel

FINISH:
Passivated and/or Tested per ASTM A380

All measurements in inches.

UNIFIED	Type			Sheet Thickness	Hole Size +.003 -.000	Max Hole in Attach. Parts	H ±.015	S Max	Min. Dist. Hole C/L Steel to Edge	Length "L" ± .015 (Length Code in 16ths of an inch)						
	Stainless Steel	Thread Code	Thread Size							.250	.312	.375	.500	.625	.750	.875
	FS4	440	.112-40 (#4-40)							.040-.095	.111	.131	.176	.085	.219	4
FS4	632	.138-32 (#6-32)	.040-.095	.137	.157	.206	.090	.250	4	5	6	8	10	12	14	
FS4	832	.164-32 (#8-32)	.040-.095	.163	.183	.237	.090	.281	4	5	6	8	10	12	14	
FS4	032	.190-32 (#10-32)	.040-.095	.189	.209	.256	.100	.281		5	6	8	10	12	14	
FS4	0420	.250-20 (#1/4-20)	.062-.117	.249	.269	.337	.135	.312			6	8	10	12	14	

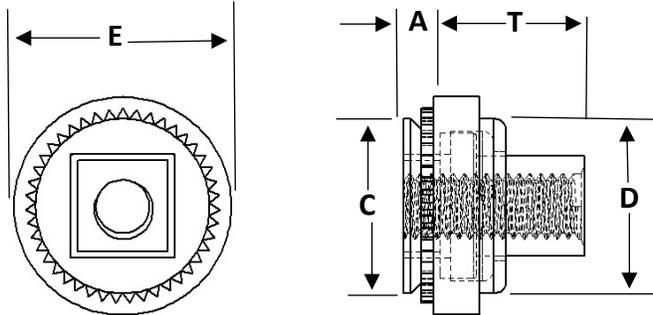
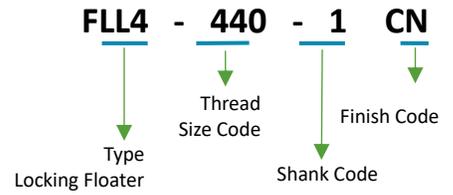
All measurements in millimeters.

METRIC	Type			Sheet Thickness	Hole Size ± .08	Max Hole in Attach. Parts	H ±.4	S Max	Min. Dist. Hole C/L Steel to Edge	Length "L" ± .4 (Length Code in millimeters)								
	Stainless Steel	Thread Code	Thread Size x Pitch							6	8	10	12	15	18	20	25	30
	FS4	M3	M3 x 0.5							1-2.4	3	3.3	4.6	2.1	5.6	6	8	10
FS4	M4	M4 x 0.7	1-2.4	4	4.7	5.9	2.4	7.2	6	8	10	12	15	18	20	25	30	
FS4	M5	M5 x 0.8	1-2.4	5	5.3	6.5	2.7	7.2		8	10	12	15	18	20	25	30	
FS4	M6	M6 x 1	1.6-3	6	6.8	8.2	3	7.9			10	12	15	18	20	25	30	





PART NUMBER DESIGNATION



THREADS:
Internal ASME B1.1, 2B/ANSI/ASME B1.13M, 6H

MATERIAL:
Retainer: 400 Series Stainless Steel
Nut: 400 Series Stainless

FINISH:
Passivated and/or Tested per ASTM A380

All measurements in inches.

UNIFIED	Type	Thread Size	Thread Code	Shank Code	A (Shank) Max.	Min. Sheet Thickness	Hole Size in Sheet +0.03 -0.000	C Max.	D Max.	E ± 0.15	T Max.	Min. Dist. Hole C/L to Edge
	Locking											
	Fastener Material											
	400 Series Stainless Steel											
FLLS	.112-40 (#4-40)	440	1	.038	.038	.290	.289	.290	.360	.190	.30	
				2	.054							.054
FLLS	.138-32 (#6-32)	632	1	.038	.038	.328	.327	.335	.390	.200	.32	
				2	.054							.054
FLLS	.164-32 (#8-32)	832	1	.038	.038	.368	.367	.365	.440	.210	.34	
				2	.054							.054
FLLS	.190-24 (#10-24)	024	1	.038	.038	.406	.405	.405	.470	.270	.36	
				2	.054							.054
FLLS	.190-32 (#10-32)	032	1	.038	.038	.406	.405	.405	.470	.270	.36	
				2	.054							.054

All measurements in millimeters.

METRIC	Type	Thread Size x Pitch	Thread Code	Shank Code	A (Shank) Max.	Min. Sheet Thickness	Hole Size in Sheet +0.08	C Max.	D Max.	E ± 0.38	T Max.	Min. Dist. Hole C/L to Edge
	Non-Locking											
	Fastener Material											
	400 Series Stainless Steel											
FLLS	M3 x 0.5	M3	1	0.97	0.97	7.37	7.35	7.37	9.14	4.83	7.62	
				2	1.38							1.38
FLLS	M4 x 0.7	M4	1	0.97	0.97	9.35	9.33	9.28	11.18	5.34	8.64	
				2	1.38							1.38
FLLS	M5 x 0.8	M5	1	0.97	0.97	10.31	10.29	10.29	11.94	6.86	9.14	
				2	1.38							1.38



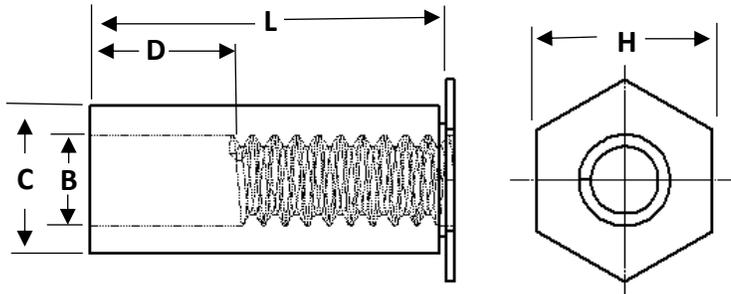
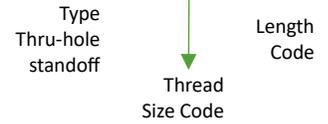


CLINCH
ENGINEERING

TYPE ST4 SELF-CLINCHING STANDOFFS

PART NUMBER DESIGNATION

ST4 - 440 - 10



THREADS:
Internal ASME B1.1, 2B/ASME B1.13M, 6H

MATERIAL:
400 Series Stainless

FINISH:
Passivated and/or Tested per ASTM A380

SHEET HARDNESS:
HRB 88 / HB 183 or less

GENERAL DIMENSION DATA

UNIFIED	Thread Code	Min. Sheet Thickness	Hole Size in Sheet +0.03 -.000	C +.000 -.005	H Nom.	Min. Dist. Hole C/L to Edge
	440	.040	.116	.165	.187	.23
6440	.040	.213	.212	.250	.27	
632	.040	.213	.212	.250	.27	
8632	.050	.281	.280	.312	.31	
832	.050	.281	.280	.312	.31	
032	.050	.281	.280	.312	.31	

METRIC	Thread Code	Min. Sheet Thickness	Hole Size in Sheet +0.08 -.000	C - 0.13	H Nom.	B ± 0.13	Min. Dist. Hole C/L to Edge
	M3	1.02	4.22	4.2	4.8	3.2	6
3.5M3	1.02	5.41	5.39	6.4	3.2	6.8	
M3.5	1.02	5.41	5.39	6.4	3.9	6.8	
M4	1.27	7.14	7.12	7.9	4.8	8	
M5	1.27	7.14	7.12	7.9	5.35	8	

THREAD SIZE AND LENGTH SELECTION DATA

All measurements in inches.

UNIFIED	Type			Length "L" +.002 -.005 (Length Code in 32nds of an inch)													
	Stainless Steel	Thread Size	Thread Code	.125	.187	.250	.312	.375	.437	.500	.562	.625	.687	.750	.812	.875	.937
	ST4	.112-40 (#4-40)	440 6440	4	6	8	10	12	14	16	18	20	22	24			
ST4	.138-32 (#6-32)	632 8632	4	6	8	10	12	14	16	18	20	22	24	26	28	30	
ST4	.164-32 (#8-32)	832	4	6	8	10	12	14	16	18	20	22	24	26	28	30	
ST4	.190-32 (#10-32)	032															
D Dimension Min. ± 0.010				None			.187			.312			.437				

All measurements in millimeters.

METRIC	Type			Length "L" + .05 -.13 (Length Code in millimeters)													
	Stainless Steel	Thread Size	Thread Code	3	4	6	8	10	12	14	16	18					
	ST4	M3 x 0.5	M3 3.5M3	3	4	6	8	10	12	14	16	18					
ST4	M3.5 x 0.6	M3.5	3	4	6	8	10	12	14	16	18	20	22	25			
ST4	M4 x 0.7	M4	3	4	6	8	10	12	14	16	18	20	22	25			
ST4	M5 x 0.8	M5	3	4	6	8	10	12	14	16	18	20	22	25			
D Dimension Min. ± 0.25				None			4			8			11				



DECIMAL EQUIVALENTS & DRILL SIZE CHART

DRILL SIZE	UNIFIED (Inches)	METRIC (mm)	DRILL SIZE	UNIFIED (Inches)	METRIC (mm)	DRILL SIZE	UNIFIED (Inches)	METRIC (mm)	DRILL SIZE	UNIFIED (Inches)	METRIC (mm)	DRILL SIZE	UNIFIED (Inches)	METRIC (mm)
80	.0135	.343	50	.0700	1.778	22	.1570	3.988	G	.2610	6.630	31/64	.4844	12.304
79	.0145	.368	49	.0730	1.854	21	.1590	4.039	17/64	.2656	6.746	1/2	.5000	12.700
1/64	.0156	.396	48	.0760	1.930	20	.1610	4.089	H	.2660	6.756	33/64	.5156	13.096
78	.0160	.406	5/64	.0781	1.984	19	.1660	4.216	I	.2720	6.909	17/32	.5312	13.492
77	.0180	.457	47	.0785	1.994	18	.1695	4.305	J	.2770	7.036	35/64	.5469	13.891
76	.0200	.508	46	.0810	2.057	11/64	.1719	4.366	K	.2810	7.137	9/16	.5625	14.288
75	.0210	.533	45	.0820	2.083	17	.1730	4.394	9/32	.2812	7.142	37/64	.5781	14.684
74	.0225	.572	44	.0860	2.184	16	.1770	4.496	L	.2900	7.366	19/32	.5938	15.083
73	.0240	.619	43	.0890	2.261	15	.1800	4.572	M	.2950	7.493	39/64	.6094	15.479
72	.0250	.635	42	.0935	2.375	14	.1820	4.623	19/64	.2969	7.541	5/8	.6250	15.875
71	.0260	.660	3/32	.0938	2.383	13	.1850	4.700	N	.3020	7.671	41/64	.6406	16.271
70	.0280	.711	41	.0960	2.438	3/16	.1875	4.763	5/16	.3125	7.938	21/32	.6462	16.667
69	.0292	.742	40	.0980	2.489	12	.1890	4.801	O	.3160	8.026	43/64	.6719	17.066
68	.0310	.787	39	.0995	2.527	11	.1910	4.851	P	.3230	8.204	11/16	.6875	17.463
1/32	.0312	.792	38	.1015	2.578	10	.1935	4.915	21/64	.3281	8.334	45/64	.7031	17.859
67	.0320	.813	37	.1040	2.642	9	.1960	4.978	Q	.3320	8.433	23/32	.7188	18.258
66	.0330	.838	36	.1065	2.705	8	.1990	5.055	R	.3390	8.611	47/64	.7344	18.654
65	.0350	.889	7/64	.1094	2.779	7	.2010	5.105	11/32	.3438	8.733	3/4	.7500	19.050
64	.0360	.914	35	.1100	2.794	13/64	.2031	5.159	S	.3480	8.839	49/64	.7656	19.446
63	.0370	.940	34	.1110	2.819	6	.2040	5.182	T	.3580	9.093	25/32	.7812	19.842
62	.0380	.965	33	.1130	2.870	5	.2055	5.220	23/64	.3594	9.129	51/64	.7969	20.241
61	.0390	.991	32	.1160	2.946	4	.2090	5.309	U	.3680	9.347	13/16	.8125	20.638
60	.0400	1.016	31	.1200	3.048	3	.2130	5.410	3/8	.3750	9.525	53/64	.8281	21.034
59	.0410	1.041	1/8	.1250	3.175	7/32	.2188	5.558	V	.3770	9.576	27/32	.8438	21.433
58	.0420	1.067	30	.1285	3.264	2	.2210	5.613	W	.3860	9.804	55/64	.8594	21.829
57	.0430	1.092	29	.1360	3.454	1	.2280	5.791	25/64	.3906	9.921	7/8	.8750	22.225
56	.0465	1.181	28	.1405	3.569	A	.2340	5.944	X	.3970	10.084	57/64	.8906	22.621
3/64	.0469	1.191	9/63	.1406	3.571	13-64	.2344	5.954	Y	.4040	10.262	29/32	.9062	23.017
55	.0520	1.321	27	.1440	3.658	B	.2380	6.045	13/32	.4062	10.317	59/64	.9219	23.416
54	.0550	1.397	26	.1470	3.734	C	.2420	6.147	Z	.4130	10.490	15/16	.9375	23.813
53	.0595	1.511	25	.1495	3.797	D	.2460	6.248	27/64	.4219	10.716	61/64	.9531	24.209
1/16	.0625	1.588	24	.1520	3.861	1-4	.2500	6.350	7/16	.4375	11.113	31/32	.9688	24.608
52	.0635	1.613	23	.1540	3.912	E	.2500	6.350	29/64	.4531	11.509	63/64	.9844	25.004
51	.0670	1.702	5/32	.1562	3.967	F	.2570	6.528	15/32	.4688	11.908	1	1.000	25.400



DECIMAL EQUIVALENT OF STANDARD GAUGE SHEET ALUMINUM & SHEET METAL

NO. OF GAUGE	GAUGE		NO. OF GAUGE	GAUGE		NO. OF GAUGE	GAUGE	
	ALUM (B&S)	STEEL (U.S. Std.)		ALUM (B&S)	STEEL (U.S. Std.)		ALUM (B&S)	STEEL (U.S. Std.)
10	.1019	.1345	17	.0453	.0538	24	.0201	.0239
11	.0907	.1196	18	.0403	.0478	25	.0179	.0209
12	.0808	.1046	19	.0359	.0418	26	.0159	.0179
13	.0720	.0897	20	.0320	.0359	27	.0142	.0164
14	.0641	.0747	21	.0285	.0329	28	.0126	.0149
15	.0571	.0673	22	.0253	.0299	29	.0113	.0135
16	.0508	.0598	23	.0226	.0269	30	.0100	.0120

SUGGESTED ASSEMBLY TORQUE VALUES TO PRODUCE CORRESPONDING BOLT LOADS

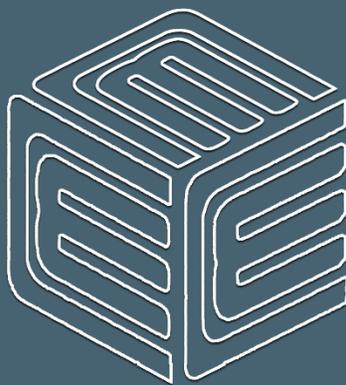
THREAD SIZE	SAE GRADE 5 BOLTS		
	CLAMP LOAD (LBS.)	ASSEMBLY TORQUE	
		DRY	PLATED
#4-40	380	8	6
#6-32	580	16	12
#8-32	900	30	22
#10-24	1120	43	32
#10-32	1285	49	36
¼-20	2000	96	75
¼-28	2300	120	86
5/16-18	3350	204	156
5/16-24	3700	228	168
3/8-16	4950	360	276
3/8-24	5600	420	300

METRIC CONVERSIONS

LEANER	Multiply INCHES	By 25.4	To get MILLIMETERS (MM)	Multiply MILLIMETERS (MM)	By .03937	To get INCHES
	Multiply FEET	By 0.3048	To get METERS (M)	Multiply METERS (M)	By 3.281	To get FEET
	Multiply INCHES	By 2.54	To get CENTIMETERS (CM)	Multiply CENTIMETERS (CM)	by .3937	To get INCHES
TORQUE	Multiply INCH-POUNDS	By 0.11298	To get NEWTON-METERS (Nm)	Multiply NEWTON-METERS (Nm)	By 8.851	To get INCH-POUNDS
	Multiply FOOT-POUNDS	By 1.3558	To get NEWTON-METERS (Nm)	Multiply NEWTON-METERS (Nm)	By 0.7376	To get FOOT-POUNDS
FORCE	Multiply POUNDS	By .00445	To get KILO-NEWTONS (kN)	Multiply KILO-NEWTONS (kN)	By 224.72	To get POUNDS







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