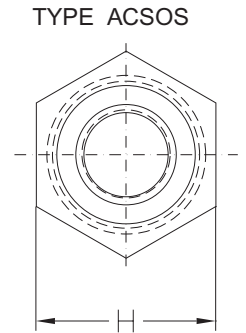
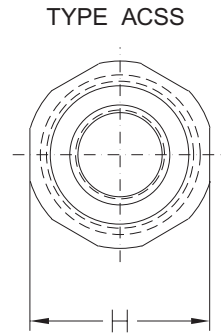
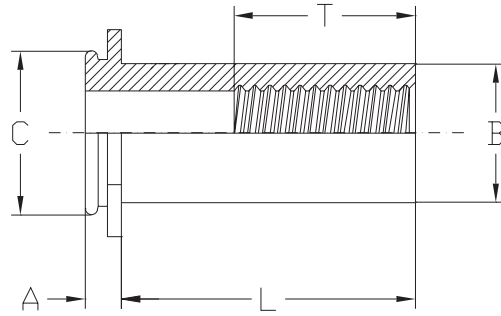
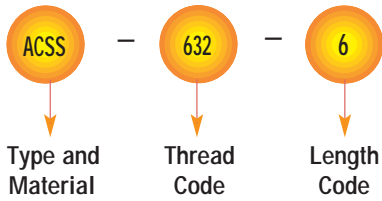


CONCEALED-HEAD SELF-CLINCHING STANDOFFS



Part Number Designation



STAINLESS STEEL STANDOFFS TYPES ACSS, ACSOS

UNIFIED (inch)	Thread Size	Type	Thread Code	Length Code "L" (Length code is in 16ths of an inch) +.002 -.005							Min. Sheet Thickness	Blind Mounting Hole Dia. +.003 -.000	Min. Depth of Blind Hole (1)	Min. Depth Full Thread T (2)	A Max.	B Max. (4)	C Max.	H Nom.	Min. Dist. Hole C/L To Edge
		Stainless Steel																	
				.187	.250	.312	.375	.500	.625	.750	1.00								
.112-40 (#4-40)	ACSS	440	3 ⁽²⁾	4	5	6	8 ⁽³⁾	10 ⁽³⁾	12 ⁽³⁾	16 ⁽³⁾	.062	.213	.043	.188	.043	.165	.212	.250	.188
	ACSOS		.093	.075	.075	.075													
.138-32 (#6-32)	ACSS	632	3 ⁽²⁾	4 ⁽²⁾	5	6	8 ⁽³⁾	10 ⁽³⁾	12 ⁽³⁾	16 ⁽³⁾	.062	.290	.043	.250	.043	.213	.289	.312	.219
	ACSOS		.093	.075	.075	.075													
.164-32 (#8-32)	ACSS	832	3 ⁽²⁾	4 ⁽²⁾	5	6	8 ⁽³⁾	10 ⁽³⁾	12 ⁽³⁾	16 ⁽³⁾	.062	.312	.043	.250	.043	.245	.311	.344	.250
	ACSOS		.093	.075	.075	.075													
.190-32 (#10-32)	ACSS	032	3 ⁽²⁾	4 ⁽²⁾	5 ⁽²⁾	6 ⁽²⁾	8	10 ⁽³⁾	12 ⁽³⁾	16 ⁽³⁾	.062	.344	.043	.375	.043	.290	.343	.375	.281
	ACSOS		.093	.075	.075	.075													
.250-20 (1/4-20)	ACSS	0420	3 ⁽²⁾	4 ⁽²⁾	5 ⁽²⁾	6 ⁽²⁾	8	10	12 ⁽³⁾	16 ⁽³⁾	.062	.390	.043	.375	.043	.354	.389	.438	.375
	ACSOS		.093	.075	.075	.075													

METRIC (mm)	Thread Size x Pitch	Type	Thread Code	Length Code "L" (Length code is in millimeters) +0.05 - 0.13							Min. Sheet Thickness	Blind Mounting Hole Diameter +0.08	Min. Depth of Blind Hole (1)	Min. Depth Full Thread T (2)	A Max.	B Max. (4)	C Max.	H Nom.	Min. Dist. Hole C/L To Edge
		Stainless Steel																	
				4 ⁽²⁾	6 ⁽²⁾	8 ⁽²⁾	10 ⁽³⁾	12 ⁽³⁾	16 ⁽³⁾	20 ⁽³⁾	25 ⁽³⁾								
M3 X 0.5	ACSS	M3	4 ⁽²⁾	6 ⁽²⁾	8 ⁽²⁾	10 ⁽³⁾	12 ⁽³⁾	16 ⁽³⁾	20 ⁽³⁾	25 ⁽³⁾	1.6	5.41	1.09	5	1.09	4.2	5.39	6.35	4.8
	ACSOS		2.4	1.91	1.91	1.91													
M4 X 0.7	ACSS	M4	4 ⁽²⁾	6 ⁽²⁾	8	10 ⁽³⁾	12 ⁽³⁾	16 ⁽³⁾	20 ⁽³⁾	25 ⁽³⁾	1.6	7.92	1.09	6.5	1.09	6.23	7.9	8.74	6.4
	ACSOS		2.4	1.91	1.91	1.91													
M5 X 0.8	ACSS	M5	4 ⁽²⁾	6 ⁽²⁾	8 ⁽²⁾	10	12	16 ⁽³⁾	20 ⁽³⁾	25 ⁽³⁾	1.6	8.74	1.09	9.6	1.09	7.37	8.72	9.53	7.2
	ACSOS		2.4	1.91	1.91	1.91													
M6 X 1	ACSOS	M6	4 ⁽²⁾	6 ⁽²⁾	8 ⁽²⁾	10	12	16 ⁽³⁾	20 ⁽³⁾	25 ⁽³⁾	2.4	9.9	1.91	9.6	1.91	9	9.89	11.11	9.5

- (1) Blind mounting holes may be deeper than minimums except where sheet material is at or near minimum thickness. Fasteners should always be installed so the flange is flush with the surface of the sheet.
- (2) For shorter standoff lengths, when "L" is less than "T", minimum thread depth will be equal to "L". Screws with lengths exceeding "L" should not be used for they may cause "jacking-out" of standoff from the sheet.
- (3) Type ACSS and ACSOS are blind at hex end.
- (4) If standoff is used as a bushing, the hole in attached part must not exceed "B" plus .020" / 0.51 mm.
- (5) Type ACSOS is blind at hex end.

CONCEALED-HEAD SELF-CLINCHING STANDOFFS



PERFORMANCE DATA ⁽¹⁾

Type	Thread Code	Max. Tightening Torque (in. lbs.)	Test Sheet Material			
			Cold-rolled Steel		5052-H34 Aluminum	
			Installation (lbs.)	Pullout (lbs.)	Installation (lbs.)	Pullout (lbs.)
Concealed-head Standoffs						
ACSS	440	4.75	4,000	300	2,800	200
	632	8.75	4,500	350	3,000	240
	832	18	4,800	400	4,000	270
	032	32	5,500	450	5,000	290
ACSOS	440	3.8	4,300	330	2,900	220
	632	7	5,000	360	3,200	240
	832	14.4	5,300	440	4,000	300
	032	25.6	6,000	600	5,000	400
	0420	64	6,500	650	5,500	430
Concealed-head Studs						
ACHC	440	4.75	1,800	240	1,400	130
	632	9	2,500	260	1,800	160
	832	18	4,000	270	2,800	180
	032	32	5,000	290	4,000	210
ACFHC	440	4.75	2,000	240	1,500	200
	632	9	2,700	350	2,500	260
	832	18	3,300	440	3,000	310
	032	32	4,000	680	3,500	360
ACHA	440	2.85	(2)	(2)	1,400	125
	632	5.4	(2)	(2)	1,800	135
	832	10.8	(2)	(2)	2,800	145
	032	19.2	(2)	(2)	4,000	170
ACFHA	440	2.85	(2)	(2)	1,500	190
	632	5.4	(2)	(2)	2,500	220
	832	10.8	(2)	(2)	3,000	240
	032	19.2	(2)	(2)	3,500	300

Type	Thread Code	Max. Tightening Torque (N•m)	Test Sheet Material			
			Cold-rolled steel		5052-H34 Aluminum	
			Installation (kN)	Pullout (N)	Installation (kN)	Pullout (N)
Concealed-head Standoffs						
ACSS	M3	.55	17.8	1330	12.5	890
	M4	2	21.3	1775	17.8	1200
	M5	3.6	24.5	2000	22.2	1290
ACSOS	M3	.44	19.2	1465	12.9	975
	M4	1.6	23.6	1955	17.8	1335
	M5	2.9	26.7	2665	22.2	1775
	M6	7.2	28.9	2860	24.4	1915
Concealed-head Studs						
ACHC	M3	0.5	8	1065	6.2	575
	M4	2	17.8	1200	12.5	800
	M5	3.6	22.2	1290	17.8	930
ACFHC	M3	0.5	8.9	1065	6.7	890
	M4	2	14.7	1955	13.3	1375
	M5	3.6	17.8	3020	15.6	1600
ACHA	M3	0.3	(2)	(2)	6.2	555
	M4	1.2	(2)	(2)	12.5	645
	M5	2.16	(2)	(2)	17.8	755
ACFHA	M3	0.3	(2)	(2)	6.7	845
	M4	1.2	(2)	(2)	13.3	1065
	M5	2.16	(2)	(2)	15.6	1330

(1) The installation and pullout values reported are averages when all installation specifications and procedures are followed. Variations in mounting hole size, sheet material and installation procedure will affect this data. Performance testing of this product in your application is recommended. We will be happy to provide samples for this purpose.

(2) Not applicable.

MATERIAL & FINISH SPECIFICATIONS

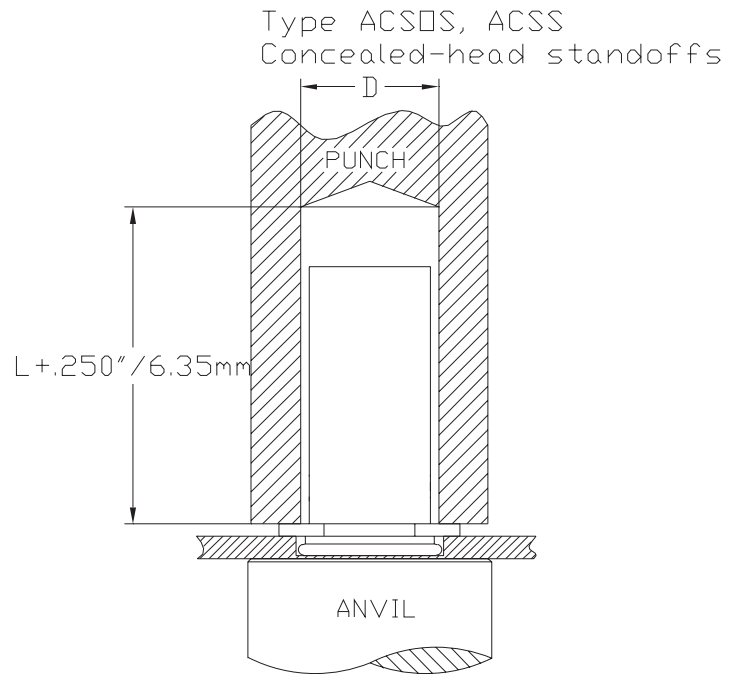
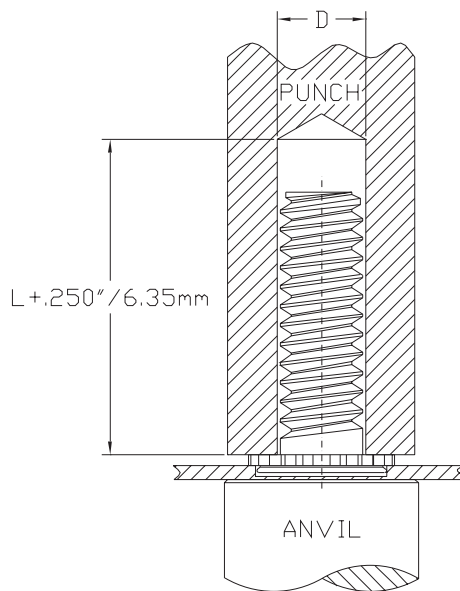
Type	Threads		Fastener Materials		Finish		For Use in Sheet Hardness of:	
	External, ANSI B1.1, 2A / ANSI / ASME B1.13M, 6g	Internal, ANSI B1.1, 2B / ANSI / ASME B1.13M, 6H	2024-T4 Aluminum	300 Series Stainless Steel	No Finish	Passivated and/or tested per ASTM A380	HRB 70 or less	HRB 50 or less
ACHA	•		•		•			•
ACFHA	•		•		•			•
ACHC	•			•		•	•	
ACFHA	•			•		•	•	
ACSS		•		•		•	•	
ACSOS		•		•		•	•	

CONCEALED-HEAD SELF-CLINCHING STANDOFFS



INSTALLATION

1. Mill a blind hole to the correct minimum depth.
2. Place shank of fastener into mounting hole.
3. Place the hardened punch, as shown in the drawing over the fastener with the anvil under the fastener.
4. With punch and anvil surfaces parallel, apply squeezing force until flange is flush with mounting sheet.



PUNCH "D" DIMENSIONS

UNIFIED (Inch + .003 - .000)	Type	THREAD CODE				
		440	632	832	032	0420
	ACHA	.127	.152	.179	.205	-
	ACHC	.127	.152	.179	.205	-
	ACFHA	.127	.152	.179	.205	-
	ACFHC	.127	.152	.179	.205	-
	ACSS	.170	.218	.250	.295	.358
	ACSOS	.170	.218	.250	.295	.358

METRIC (MM + 0.08)	Type	THREAD CODE			
		M3	M4	M5	M6
	ACHA	3.4	4.4	5.4	-
	ACHC	3.4	4.4	5.4	-
	ACFHA	3.4	4.4	5.4	-
	ACFHC	3.4	4.4	5.4	-
	ACSS	4.33	6.36	7.5	9.13
	ACSOS	4.33	6.36	7.5	9.13

END MILL DESIGNATIONS

Double-ended, two-flute H.S.S. center-cutting end mills are available from stock.

PennEngineering does not manufacture center-cutting end mills, but we do keep a supply in stock for your convenience.

Thread Code	Fastener Type	Required Size End Mill	PEM Part No.
440, M3	ACFHC, ACHC, ACFHA, ACHA Studs	.172"	CHM-172
	ACSOS, ACSS Standoffs	.213"	CHM-213
632	ACFHC, ACHC, ACFHA, ACHA Studs	.213"	CHM-213
	ACSOS, ACSS Standoffs	.290"	CHM-290
832, M4	ACFHC, ACHC, ACFHA, ACHA Studs	.290"	CHM-290
	ACSOS, ACSS Standoffs	.312"	CHM-312
032, M5	ACFHC, ACHC, ACFHA, ACHA Studs	.312"	CHM-312
	ACSOS, ACSS Standoffs	.344"	CHM-344
0420, M6	ACSOS Standoffs	.390"	CHM-390

Specifications subject to change without notice.