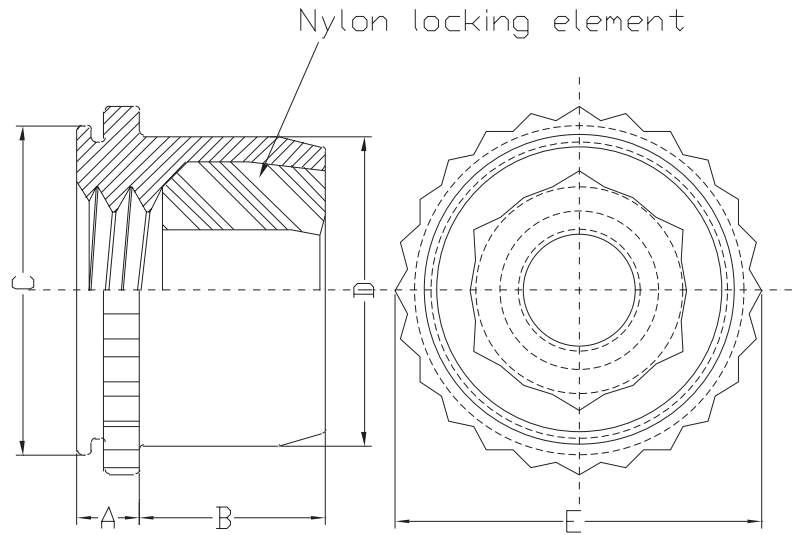
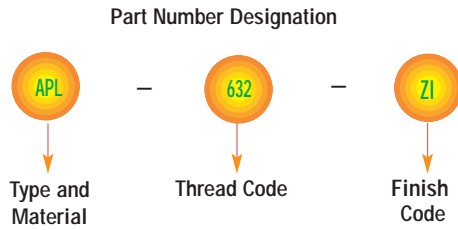


# SELF-LOCKING SELF-CLINCHING FASTENERS



## TYPES APL, APLC



UNIFIED (inch)	Thread Size (#4-40)	Type		Thread Code	A Max.	Sheet Thickness (1)	Hole Size In Sheet +.003 -.000	C Max.	D Max.	E Max.	T Max.	Min. Dist. Hole C/L To Edge	Max. Hole In Attached Parts
		Steel	Stainless Steel										
	.112-40 (#4-40)	APL	APLC	440	.060	.059-.070	.234	.233	.216	.28	.130	.17	.132
	.138-32 (#6-32)	APL	APLC	632	.060	.059-.070	.265	.264	.246	.31	.130	.19	.158
	.164-32 (#8-32)	APL	APLC	832	.060	.059-.070	.297	.296	.278	.34	.155	.22	.184
	.190-32 (#10-32)	APL	APLC	032	.060	.059-.070	.312	.311	.292	.35	.165	.25	.210

METRIC (mm)	Thread Size x Pitch	Type		Thread Code	A Max.	Sheet Thickness (1)	Hole Size In Sheet +0.08	C Max.	D Max.	E Max.	T Max.	Min. Dist. Hole C/L To Edge	Max. Hole In Attached Parts
		Steel	Stainless Steel										
	M3 x0.5	APL	APLC	M3	1.52	1.5-1.78	6	5.97	5.5	7.1	3.6	4.3	3.5
	M4 x0.7	APL	APLC	M4	1.52	1.5-1.78	7.5	7.47	7	8.6	4.2	5.6	4.5
	M5 x0.8	APL	APLC	M5	1.52	1.5-1.78	8	7.97	7.5	8.9	4.5	6.4	5.5

(1) Can be used in panel thickness of .040" to .059" / 1 mm to 1.5 mm provided the fastener is not fully installed. The knurled collar must be left protruding above the sheet to the degree that the sheet thickness is less than .059" / 1.5 mm. Knurled collar may fracture if fastener is used in sheets thicker than .070" / 1.7 mm an screw is tightened beyond maximum tightening torque.

## MATERIAL & FINISH SPECIFICATIONS

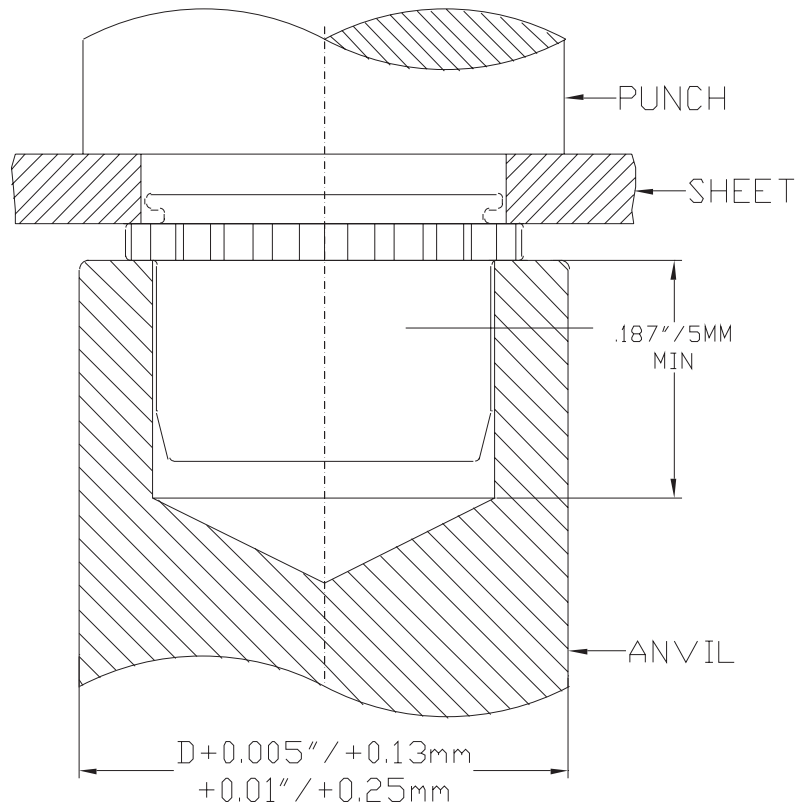
Type	Threads	Thread Locking Performance	Fastener Material			Standard Finishes		Temperature Limit	For Use in Sheet Hardness:
	Internal, ANSI B1.1 2B / ANSI / ASME B1.13M 6H	NASM25027 (As Applicable)	Heat-treated Carbon Steel	300 Series Stainless Steel	Locking Element: Blue or Black Nylon-heat Stabilized	Zinc Per ASTM B 633 SC1 (5µm), Type III Colorless	Passivated and / or Tested Per ASTM A380	250F / 120C	70 or Less on the Rockwell "B" Scale
APL	.	.	.	.	.	.	.	.	.
APLC	.	.	.	.	.	.	.	.	.
Part Number Code For Finishes						ZI	None		

# SELF-LOCKING SELF-CLINCHING FASTENERS



## INSTALLATION

1. Punch or drill the properly sized mounting hole in the sheet. Do not perform any secondary operations such as deburring.
2. Insert fastener into the anvil hole and place the mounting hole over the shank of fastener as shown in drawing to the right.
3. With the punch and anvil surfaces parallel, apply a squeezing force until the knurled collar is flush with the top sheet for sheets .060" / 1.5 mm thick and up, or until the shank is flush with the bottom of the sheet for sheets .040" / 1 mm to .060" / 1.5 mm thick.



When it is necessary to install a fastener in a sheet whose thickness is less than the "A" dimension of the fastener, instead of flushing off the top of the knurled collar and the top surface of the sheet, bring the bottom of the fastener shank smooth with the underside of the sheet. When this method is used, care must be taken to protect the fastener against crushing which would damage the threads. This method will also result in reduced pushout and torque-out values.

## PERFORMANCE DATA<sup>(1)</sup>

UNIFIED (inch)	Thread Code	Maximum Tightening Torque (in. lbs.)	TestSheet Material											
			.060" 5052-H34 Aluminum			.040" 5052-H34 Aluminum			.060" Cold-rolled Steel			.048" Cold-rolled Steel		
			Installation (lbs.)	Pushout (lbs.)	Torque-out (in. lbs.)	Installation (lbs.)	Pushout (lbs.)	Torque-out (in. lbs.)	Installation (lbs.)	Pushout (lbs.)	Torque-out (in. lbs.)	Installation (lbs.)	Pushout (lbs.)	Torque-out (in. lbs.)
440	9.3	2000	225	20	1500	160	20	3000	260	20	3000	225	20	
632	12.9	2000	285	30	1500	180	25	3000	290	30	3000	270	30	
832	19.1	2000	290	60	1500	180	28	3000	290	60	3000	270	60	
032	26.0	2000	300	70	1500	180	40	3000	350	70	3000	310	70	

METRIC (mm)	Thread Code	Maximum Tightening Torque (N•m)	TestSheet Material											
			1.5mm 5052-H34 Aluminum			1 mm 5052-H34 Aluminum			1.5mm Cold-rolled Steel			1.2mm Cold-rolled Steel		
			Installation (kN)	Pushout (N)	Torque-out (N•m)	Installation (kN)	Pushout (N)	Torque-out (N•m)	Installation (kN)	Pushout (N)	Torque-out (N•m)	Installation (kN)	Pushout (N)	Torque-out (N•m)
M3	1.13	8.9	1000	2.25	6.67	710	2.25	13.34	1156	2.25	13.34	1000	2.25	
M4	2.3	8.9	1290	6.77	6.67	800	3.16	13.34	1290	6.77	13.34	1200	6.77	
M5	3.12	8.9	1330	7.9	6.67	800	4.51	13.34	1557	7.9	13.34	1380	7.9	

<sup>(1)</sup> The installation, pushout and torque-out 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.