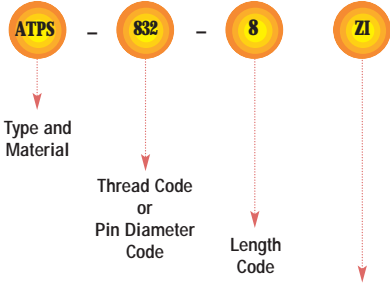


# SELF-CLINCHING STUDS AND PINS

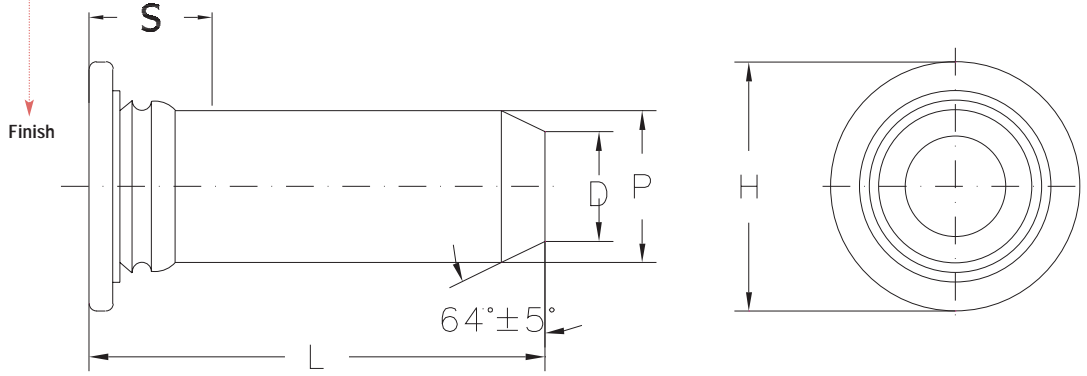


## TYPE ATPS

### Part Number Designation



Flush-mounted, self-clinching pilot pins. Satisfies a wide range of positioning, pivot, and alignment applications. Chamfered end makes mating hole location easy.



UNIFIED (inch)	Pin Diameter P ±.002	Type	Pin Diameter Code	Length Code "L" ±015 (Length Code in 16ths of an inch)					Min. Sheet Thickness	Hole Size in Sheet +.003 -.000	D ±.006	H ±.015	S Max. (1)	Min. Distance Hole C/L to Edge
				.375	.500	.625	.750	1.00						
	.125	ATPS	125	6	8	10	12	NA	.040	.144	.090	.205	.090	.250
	.187	ATPS	187	6	8	10	12	16	.040	.205	.132	.270	.090	.280
	.250	ATPS	250	NA	8	10	12	16	.040	.272	.177	.335	.090	.310

METRIC (mm)	Pin Diameter P ±0.05	Type	Pin Diameter Code	Length Code "L" ±0.4 (Length Code in millimeters)					Min. Sheet Thickness	Hole Size in Sheet +0.08	D ±0.15	H ±0.4	S Max. (1)	Min. Distance Hole C/L to Edge
				3	4	5	6	NA						
	3	ATPS	3mm	8	10	12	16	NA	1	3.5	2.05	5.2	2.29	6.4
	4	ATPS	4mm	8	10	12	16	NA	1	4.5	2.82	6.12	2.29	7.1
	5	ATPS	5mm	NA	10	12	16	20	1	5.5	3.53	7.19	2.29	7.6
	6	ATPS	6mm	NA	NA	12	16	20	1	6.5	4.24	8.13	2.29	7.9

(1) Pin diameter may exceed max. in this region.

NA Not Available.

## MATERIAL & FINISH SPECIFICATIONS

Type	Threads*	Fastener Materials					Standard Finishes			Optional Finish <sup>(1)</sup>	For use in Sheet Hardness:					
		Heat-Treated Carbon Steel	300 Series Stainless Steel	2024-T4 Aluminum (Plain Finish)	CDA #510 Phosphor Bronze (2)	400 Series Stainless Steel	No Finish (3) (4)	Zinc Per ASTM B 633 SC1 (5µm), Type III, Colorless	Passivated and/or Tested Per ASTM A380		Zinc Per ASTM B 633 SC1 (5µm), Type II, Yellow	50 or less on the Rockwell "B" Scale	55 or less on the Rockwell "B" Scale	70 or less on the Rockwell "B" Scale	80 or less on the Rockwell "B" Scale	85 or less on the Rockwell "B" Scale
ATPS			•						•				•			

(1) Special order with additional charge.

(2) Material properties – yield strength: 50,000 psi (345 MPa), tensile strength: 63,000 psi (434 MPa).

(3) Part numbers for aluminum studs have no plating suffix.

(4) "X" suffix studs may have pitch diameters and major diameters below 2A "Basic", per ANSI B1.1, Section 7, and B1.13M, Section 8 to allow for minimum of 0.0002" of plating.

\* For plated studs, Class 2A/6g, the maximum major and pitch diameter, after plating, may equal basic sizes and be gauged to Class 3A/4h. Per ANSI B1.1, Section 8, Table 3A and ANSI B1.13M, Section 8, paragraph 8.2.

# SELF-CLINCHING STUDS AND PINS



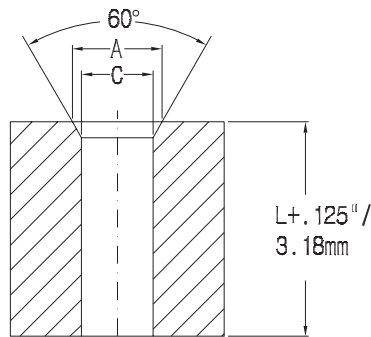
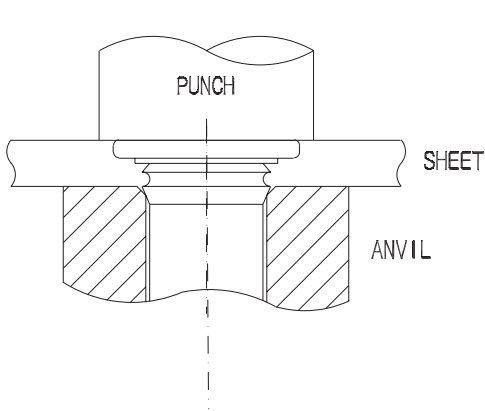
## TYPE ATPS

### INSTALLATION

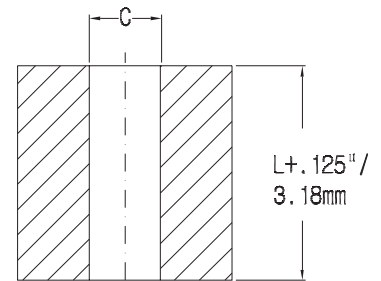
#### Type ATPS Flush-Mounted, Self-Clinching Pilot Pins

UNIFIED (inch)	Pin Dia. Code	Test Sheet Material	Sheet Hardness HRB	Installation (lbs.)	Pushout (lbs.)
	125	Aluminum	20	4500	150
Steel		62	6500	250	
187	Aluminum	18	6500	230	
	Steel	60	8000	400	
250	Aluminum	18	7000	270	
	Steel	62	9000	500	

METRIC (mm)	Pin Dia. Code	Test Sheet Material	Sheet Hardness HRB	Installation (kN)	Pushout (kN)
	3mm	Aluminum	22	12	0.56
Steel		65	22	0.98	
4mm	Aluminum	19	22	0.89	
	Steel	66	26.4	1.54	
5mm	Aluminum	18	28.6	1.01	
	Steel	60	35.2	1.76	
6mm	Aluminum	18	30.8	1.1	
	Steel	62	39.6	2.1	



Recommended tooling when a chamfered anvil is not required



Recommended tooling when a chamfered anvil is not required

### SELF-CLINCHING STUD SELECTOR GUIDE

Self-Clinching Stud Type	Application Requires:									
	Flush-head	High-strength	Sheet thickness as thin as .020" / 0.51mm	High electrical conductivity	Mounting into stainless steel sheets	Compatibility with aluminum anodizing	High corrosion resistance	Reduced centerline-to-edge distance	Unthreaded	Lead-in for assembly ease
ATPS	•						•		•	•

### PERFORMANCE DATA (1)

#### Type ATPS Flush-Mounted, Self-Clinching Pilot Pins

UNIFIED (inch)	Pin Dia. Code	Test Sheet Thickness	Anvil Dimensions	
			A ±.002	C ±.002
125		.040 - .060	.160	.130
		Over .060	(1)	
187		.040 - .065	.220	.192
		Over .065	(1)	
250		.040 - .075	.285	.255
		Over .075	(1)	

METRIC (mm)	Pin Dia. Code	Test Sheet Thickness	Anvil Dimensions	
			A ±0.05	C ±0.05
3mm		1 - 1.7	3.88	3.11
		Over 1.7	(1)	
4mm		1 - 1.7	4.88	4.11
		Over 1.7	(1)	
5mm		1 - 1.8	5.89	5.13
		Over 1.8	(1)	
6mm		1 - 1.9	6.89	6.12
		Over 1.9	(1)	

(1) Maximum recommended tightening torques for aluminum studs are 60 percent of these values.