



52 Captive Screws

Miniature series · Flare-in style

- Smaller footprint for limited space applications
- Heat treated steel screw for optimum strength

Material and Finish

Screw: Hardened carbon steel, zinc plated, chromate, plus sealer

Spring: 300 series stainless steel, passivated

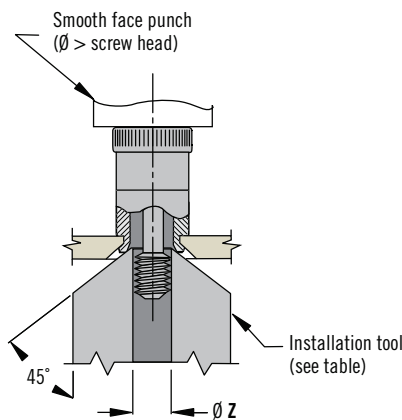
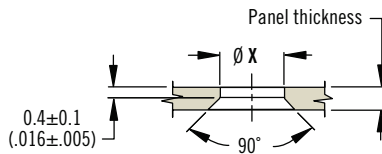
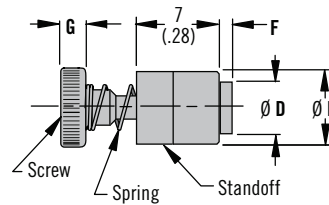
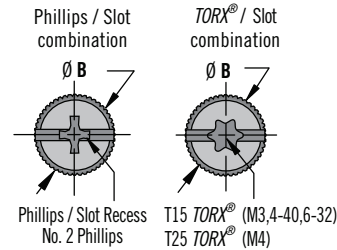
Standoff: Aluminum natural

Installation tool: Hardened carbon steel, zinc plated, chromate, plus sealer

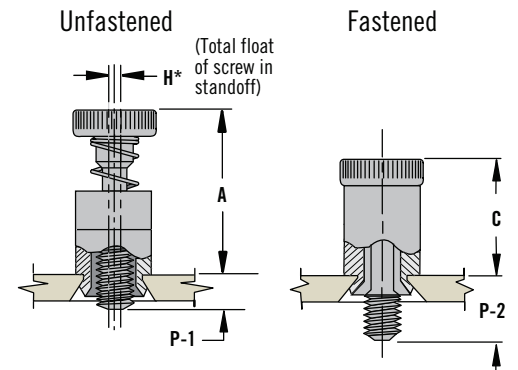
Installation Notes

1. Prepare panel as shown
2. Use light pressure to flare standoff, assuring parallel surfaces on the punch and installation tool

Recess Styles



Knob Height and Screw Projection



H* - Value represents float in unfastened position
 Notes: P-1, P-2 measured from the top side of panel

Part Number

See table

Thread Size	Panel Thickness		Part Number				A	Ø B	C	Ø D	Ø E	F	G	H	P-1	P-2	Panel Preparation		Tool Part No.
			Knurled Head		Smooth Head												Ø X	Ø Z	
	Min.	Max.	Phillips / Slotted	TORX® / Slotted	Phillips / Slotted	TORX® / Slotted													
4-40	0.8 (.031)	2.4 (.094)	52-19-11-4	52-17-11-4	52-1A-11-4	52-18-11-4	14 (.55)	7 (.28)	9.6 (.38)	4.6 (.183)	6.4 (.25)	1 (.041)	2.5 (.1)	0.5 (.018)	0.8 (.031)	5.3 (.21)	4.8 ^{+0.09} _{-.003}	3 (.120)	47-104
6-32	1.5 (.058)	3.2 (.125)	52-29-21-4	52-27-21-4	52-2A-21-4	52-28-21-4	15 (.59)	8 (.31)	9.6 (.38)	5.3 (.209)	7 (.28)	1.8 (.07)	2.5 (.1)	0.7 (.028)	1.8 (.07)	6.8 (.27)	5.4 ^{+0.09} _{-.003}	3.6 (.141)	47-106
M3 x 0.5	0.8 (.031)	2.4 (.094)	52-39-11-4	52-37-11-4	52-3A-11-4	52-38-11-4	14 (.55)	7 (.28)	9.6 (.38)	4.6 (.183)	6.4 (.25)	1 (.041)	2.5 (.1)	0.6 (.023)	0.8 (.031)	5.3 (.21)	4.8 ^{+0.09} _{-.003}	3 (.120)	47-104
M4 x 0.7	1.5 (.058)	3.2 (.125)	52-49-21-4	52-47-21-4	52-4A-21-4	52-48-21-4	15.2 (.60)	9.4 (.37)	10.1 (.40)	6.7 (.26)	8.6 (.34)	1.8 (.07)	3 (.12)	0.7 (.028)	1.8 (.07)	6.8 (.27)	6.8 ^{+0.08} _{-.004}	4.2 (.166)	47-108

Note: Subtract .25 (.01) from Ø B for smooth head style.

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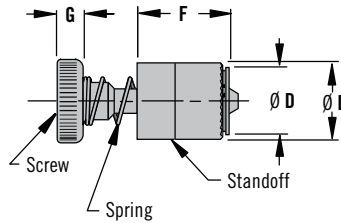
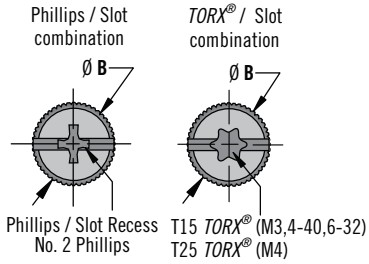
Dimensions in millimeters (inch) unless otherwise stated

52 Captive Screws

Miniature series · Press-in style



Recess Styles



- Smaller footprint for limited space applications
- Heat treated steel screw for optimum strength

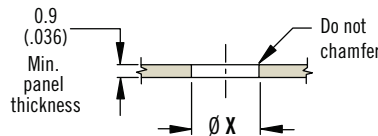
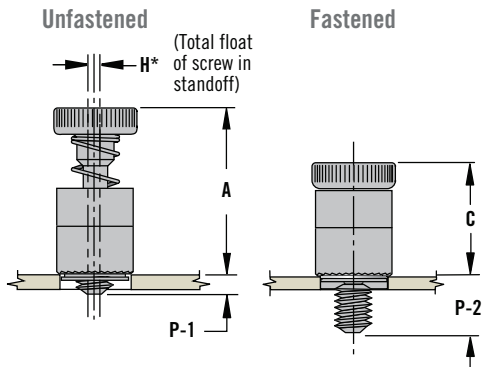
Material and Finish

Screw: Hardened carbon steel, zinc plated, chromate, plus sealer
 Spring: 300 series stainless steel, passivated
 Standoff: Carbon steel, zinc plated, chromate, plus sealer

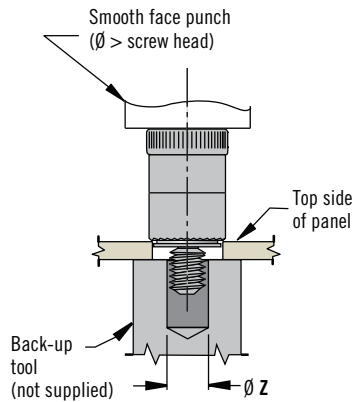
Installation Notes

For use in most aluminum or in low carbon steels that are 1/4 hard or softer

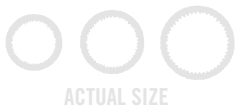
Knob Height and Screw Projection



Notes: Recommended minimum distance from edge of panel to centerline of hole is 1.5 x Ø X for press-in version.



* Value represents float in unfastened position
 Notes: P-1, P-2 measured from the top side of panel



See page 497 for additional installation guidelines

Part Number

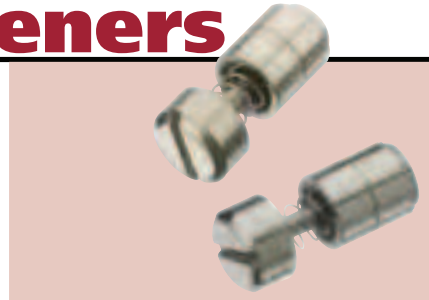
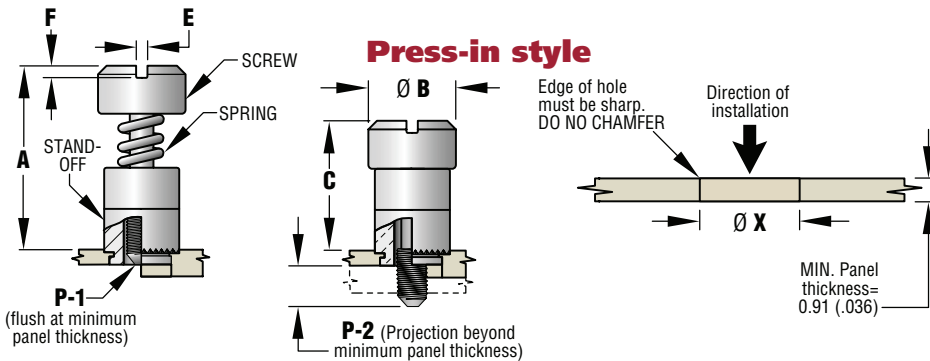
See table

Thread Size	Part Number				A	Ø B	C	Ø D	Ø E	F	G	H*	P-1	P-2	Panel Preparation	
	Knurled Head		Smooth Head												Ø X	Ø Z
	Phillips / Slotted	TORX® / Slotted	Phillips / Slotted	TORX® / Slotted												
4-40	52-19-51-4	52-17-51-4	52-1A-51-4	52-18-51-4	14 (.55)	7 (.28)	9.6 (.38)	5.5 (.217)	6.4 (.25)	7.9 (.31)	2.5 (.1)	0.5 (.018)	0.9 (.036) 2.5 (.1)	5.3 (.21) 6.8 (.27)	5.6 ± 0.04 (.219 ± 0.02)	3 (.120)
	52-19-53-4	52-17-53-4	52-1A-53-4	52-18-53-4												
6-32	52-29-51-4	52-27-51-4	52-2A-51-4	52-28-51-4	15.5 (.61)	8 (.31)	10.4 (.41)	6.3 (.247)	7 (.28)	8.6 (.34)	2.5 (.1)	0.7 (.028)	0.9 (.036) 2.5 (.1)	6.1 (.24) 7.6 (.30)	6.4 ± 0.04 (.250 ± 0.02)	3.7 (.144)
	52-29-53-4	52-27-53-4	52-2A-53-4	52-28-53-4												
M3 X 0.5	52-39-51-4	52-37-51-4	52-3A-51-4	52-38-51-4	14 (.55)	7 (.28)	9.6 (.38)	5.5 (.217)	6.4 (.25)	7.9 (.31)	2.5 (.1)	0.6 (.023)	0.9 (.036) 2.5 (.1)	5.3 (.21) 6.8 (.27)	5.6 ± 0.04 (.219 ± 0.02)	3.2 (.126)
	52-39-53-4	52-37-53-4	52-3A-53-4	52-38-53-4												
M4 X 0.7	52-49-51-4	52-47-51-4	52-4A-51-4	52-48-51-4	16 (.63)	9.4 (.37)	10.8 (.43)	7.9 (.31)	8.7 (.34)	8.6 (.34)	3 (.12)	0.7 (.028)	0.9 (.036) 2.5 (.1)	6.1 (.24) 7.6 (.30)	8 ⁺⁰ _{-.003} (.315 ⁺⁰ _{-.003})	4.4 (.173)
	52-49-53-4	52-47-53-4	52-4A-53-4	52-48-53-4												

Southco® Captive Fasteners

Miniature Polished Series

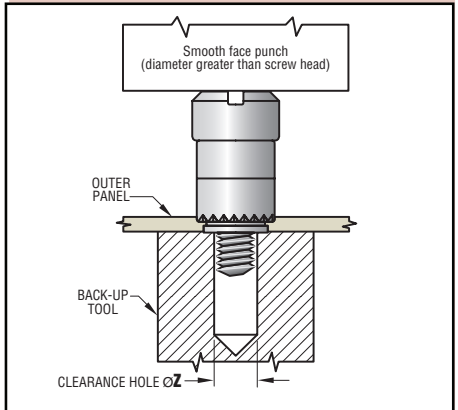
- Smaller footprint for limited space applications



Installation

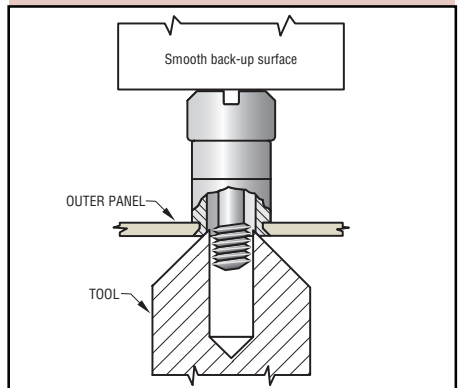
Press knurl into panel until only top of knurl is visible.

To insure proper installation, punch surface and back-up tool surface must remain parallel during installation. A hardened steel back-up tool is recommended.



Material and Finish

SCREW: 300 Stainless steel, passivated.
 SPRING: 300 Stainless steel, passivated.
 STANDOFF: (Press-in) 300 Stainless steel, passivated. (Flare-in) 300 Stainless steel, passivated.



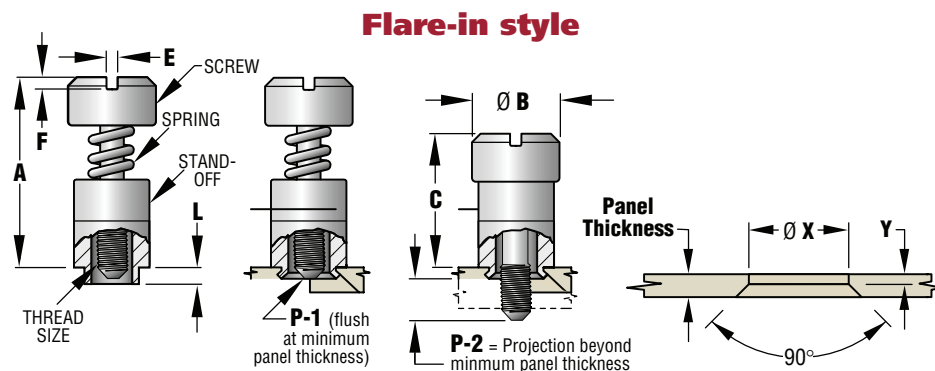
For Thread size	USE TOOL PART NUMBER
4-4 UNC	47-104
6-32 UNC	47-106
M3X0.5	47-104

millimeter (inch)
 millimeter (inch)
 Dimensions without tolerances are for reference only.

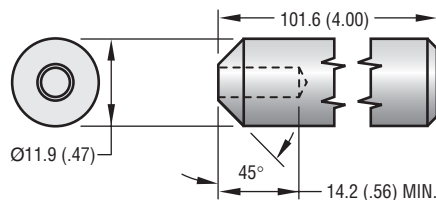
THREAD SIZE	A	Ø B	C	E&F	P-2	PART NUMBERS	Ø X ^{+0.04} / _(-.003)	Ø Z	Float of screw in standoff Total Movement
4-40 UNC	15.5 (.61)	7 (.276)	11.1 (.43)	0.9 (.036)	4.6 (.18)	52-50-301-24 •	5.6 (.219)	3.1 (.120)	0.5 (.018)
6-32 UNC	17.3 (.68)	8 (.307)	11.9 (.47)	1.1 (.045)	5.3 (.21)	52-50-401-24 •	6.4 (.250)	3.7 (.144)	0.7 (.028)
M3X0.5	15.8 (.62)	7 (.276)	11.2 (.44)	0.9 (.036)	4.6 (.18)	52-50-601-24 •	5.6 (.219)	3.2 (.126)	0.6 (.023)

For use in most aluminum or in low carbon steels that are 1/4 hard or softer.

Captive Screws



NOTE: Recommended minimum distance from edge of panel to centerline of hole is 1.5 x ØX.



Installation Tool

1095 Steel, hardened.

Thread size	A	Ø B	C	E&F	P-2	L	PANEL THICKNESS		PART NUMBERS	Ø X ^{+0.09} / _(-.003)	Y
							MIN.	MAX.			
4-40 UNC	15.8 (.62)	7 (.276)	11.2 (.44)	0.9 (.036)	4.6 (.18)	1 (.041)	.8 (.031)	2.4 (.094)	52-10-301-24 •	4.8 (.187)	0.4 (.016)
6-32 UNC	17.3 (.68)	8 (.307)	11.9 (.47)	1.1 (.045)	5.3 (.21)	1.8 (.070)	1.5 (.058)	3.2 (.125)	52-10-402-24 •	5.4 (.213)	0.4 (.016)
M3X0.5	15.8 (.62)	7 (.276)	11.2 (.44)	0.9 (.036)	4.6 (.18)	1 (.041)	0.8 (.031)	2.3 (.094)	52-10-601-24 •	4.8 (.187)	0.4 (.016)

Assemblies to accommodate thicker panels are available. Contact Southco for details.

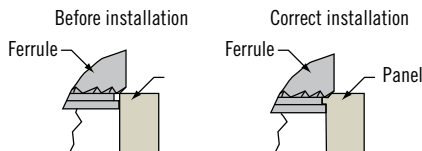
Installation Guidelines

for *SOUTHCO*® Self-Clinching products

Self-clinching product installation is offered on these *SOUTHCO*® products, making them easy-to-use captive panel fasteners:

- Captive Screws
- Receptacles for Quarter-turn Fasteners
- Receptacles for Fast-lead Thread Screws

When pressed into a properly prepared hole, self-clinching captive fasteners cold-flow (move) the panel material into the retaining groove of the fastener. This material then retains the fastener in the panel.



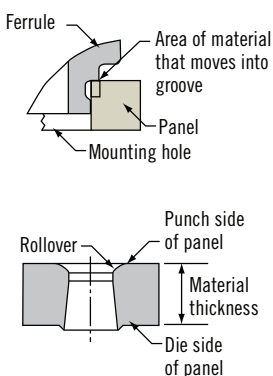
Successful press-in installations depend on:

Material:

The hardness of the panel material must not exceed *SOUTHCO*® recommendations. If the panel is too hard, the fastener will not install correctly.

Installation Holes:

Mounting holes may be drilled, punched, or cast.

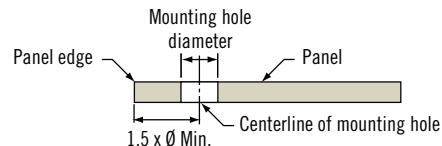


- Hole edge: the top hole edge must be sharp but with no broken edges. Do not chamfer or debur edge.
- Punched holes: use a punch and die with a small clearance to minimize the rollover and fracture angle.
- Hole diameter: measure the hole diameter at the panel surface on the side on which the fastener will be installed. The diameter must be within *SOUTHCO*® specifications for that product.

- If the hole is too large, not enough material will flow into the retaining groove and the fastener may not be retained adequately.
- If the hole is too small, the fastener will not fit and installation may become difficult and unsafe.
- Hole distance from the edge of panel: the minimum recommended distance is 1.5 x the diameter of the mounting hole, unless otherwise indicated.

- Spring-loaded Plungers
- Captive Nuts
- Threaded Inserts

- Installing too close to the edge will cause the material to flow in the opposite direction, deforming the edge of the panel. To install closer to the edge, you may need to restrain the panel edge.



Panel Thickness:

The thickness of the panel at the mounting hole location must meet or exceed Southco's stated minimum recommendations.

If the material is too thin, panel deformation and/or damage to the fastener may result.

Installation is fast and easy if you follow these tips:

How to install: Use the recommended force where noted and a proper back-up tool.

- use any parallel-acting press
- use a punch whose diameter is larger than the head of the fastener

Installation Force: Proper installation requires an even distribution of adequate force. It does not depend on the distance the fastener is pressed into the panel.

- Southco does not recommend using a hammer. The impact force does not provide an even distribution of force to allow the panel material to completely flow into the fastener's retaining groove.
- Installation force varies from application to application, depending on the criteria noted above.
- On parts without a collar to provide a hard stop, press-in until the edge of the knurl is just barely visible.

When to Install:

Installation is recommended after plating or finishing has been applied to the panel.

The hole diameter must meet specifications before finish or plating is applied.

- Do not over-install parts. This interrupts the material and will reduce the retention strength.

