

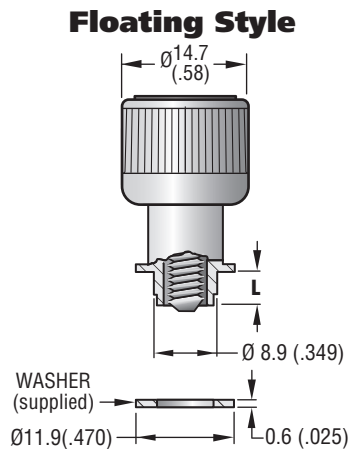
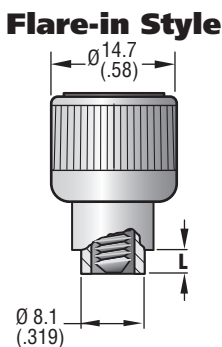
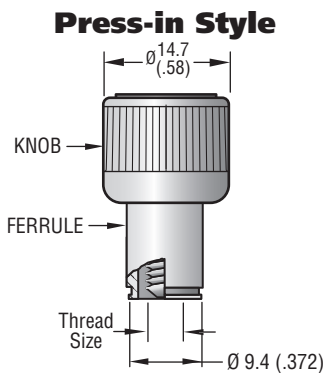
Southco® Captive Fasteners

Styled Knob Series, 1/4-20 Thread Size

- Designed for hand operation
- Spring-ejected
- Wide variety of sizes, recesses and installation options

 To ensure you receive Southco® quality parts, look for the segmented circle.

Installation Styles



Captive Fasteners
Captive Screws

To find the right screw fastener:

1. Turn to the page presenting the thread size you need.
2. Determine which installation style best suits your application.
3. Find the appropriate outer panel dimensions for **A MIN**, **A MAX**, and **B***.
4. Determine the appropriate **P-2** screw projection for your application.
Note that screw projection dimensions are measured from the outer surface of the outer panel.
In some applications the **P-1** dimension may project beyond the outer panel in the unfastened condition.
5. Select the recess, finish and knob style.

Part Numbers in shaded blocks are fully retracting.

1/4-20 Thread Size

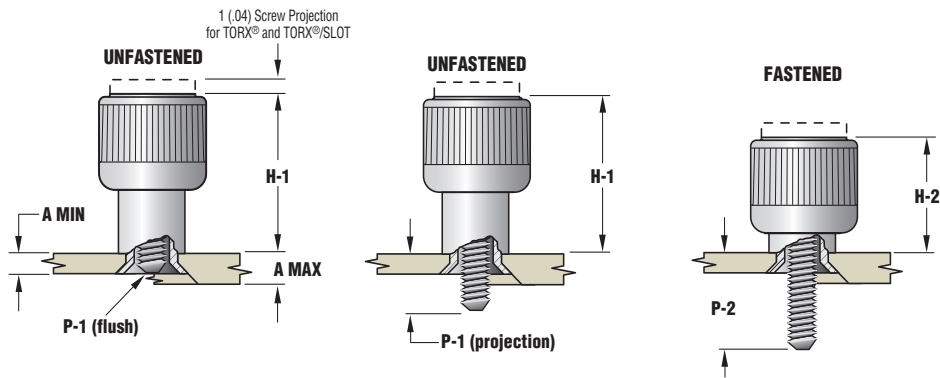
INSTALLATION STYLE	KNOB HEIGHT†		OUTER PANEL DIMENSIONS*		
	H-1	H-2	A MIN	A MAX	B
Press-in Style	20 (.79)	13.4 (.53)	0.9 (.036)	—	—
Flare-in Style	19.3 (.76)	12.7 (.50)	1.5 (.058)	3.2 (.125)	0.4 (.015)
			3.2 (.126)	4.8 (.187)	1.6 (.062)
			4.8 (.188)	6.4 (.250)	3.2 (.125)
			6.4 (.251)	7.9 (.312)	4.8 (.187)
			1.5 (.058)	3.2 (.125)	0.4 (.015)
Floating Style	20 (.79)	13.3 (.52)	—	0.8 (.031)	2.5 (.097)
			0.8 (.031)	1.6 (.063)	3.3 (.128)
			1.6 (.063)	2.4 (.094)	4.1 (.160)

† Add 1 (.04) for Torx® and Torx®/Slot

Recess Styles



Knob Height and Screw Projection
(Flare-in Style Shown)



= full retracting in minimum panel thickness

Total Float	FLANGE LENGTH L	Screw projection beyond outer surface of panel		PART NUMBER				
		P-1	P-2	Slotted Recess	Phillips Recess	Torx® Recess	Torx®/Slot Combination	Phillips/Slot Combination
0.8 (.03)		0.5 (.02)	7.1 (.28)	47-60-601-24	47-60-621-24	47-60-641-20	47-60-661-20	47-60-681-20
		2.1 (.08)	8.7 (.34)	47-61-601-24	47-61-621-24	47-61-641-20	47-61-661-20	47-61-681-20
		3.7 (.15)	10.3 (.41)	47-62-601-24	47-62-621-24	47-62-641-20	47-62-661-20	47-62-681-20
		5.3 (.21)	11.9 (.47)	47-63-601-24	47-63-621-24	47-63-641-20	47-63-661-20	47-63-681-20
0.8 (.03)		1.8 (.070)	7.8 (.31)	47-10-602-14	47-10-622-14	47-10-642-10	47-10-662-10	47-10-682-10
		3.4 (.135)	9.4 (.37)	47-10-604-14	47-10-624-14	47-10-644-10	47-10-664-10	47-10-684-10
		5 (.197)	11 (.43)	47-10-606-14	47-10-626-14	47-10-646-10	47-10-666-10	47-10-686-10
		6.6 (.260)	12.6 (.50)	47-10-608-14	47-10-628-14	47-10-648-10	47-10-668-10	47-10-688-10
	1.8 (.070)	2.8 (.11)	9.4 (.37)	47-11-602-14	47-11-622-14	47-11-642-10	47-11-662-10	47-11-682-10
		4.4 (.17)	11 (.43)	47-12-602-14	47-12-622-14	47-12-642-10	47-12-662-10	47-12-682-10
		6 (.24)	12.6 (.50)	47-13-602-14	47-13-622-14	47-13-642-10	47-13-662-10	47-13-682-10
		4.4 (.17)	11 (.43)	47-11-604-14	47-11-624-14	47-11-644-10	47-11-664-10	47-11-684-10
	3.4 (.135)	6 (.24)	12.6 (.50)	47-12-604-14	47-12-624-14	47-12-644-10	47-12-664-10	47-12-684-10
		6 (.24)	12.6 (.50)	47-11-606-14	47-11-626-14	47-11-646-10	47-11-666-10	47-11-686-10
		3.2 (.127)	10.4 (.41)	47-11-610-14	47-11-630-14	47-11-650-10	47-11-670-10	47-11-690-10
		5.3 (.21)	12 (.47)	47-12-610-14	47-12-630-14	47-12-650-10	47-12-670-10	47-12-690-10
2.3 (.09)	4 (.158)	2.1 (.08)	8.8 (.35)	47-10-611-14	47-10-631-14	47-10-651-10	47-10-671-10	47-10-691-10
		3.7 (.15)	10.4 (.41)	47-11-611-14	47-11-631-14	47-11-651-10	47-11-671-10	47-11-691-10
		5.3 (.21)	12 (.47)	47-12-611-14	47-12-631-14	47-12-651-10	47-12-671-10	47-12-691-10
		3.7 (.15)	10.4 (.41)	47-10-612-14	47-10-632-14	47-10-652-10	47-10-672-10	47-10-692-10
	4.8 (.190)	5.3 (.21)	12 (.47)	47-11-612-14	47-11-632-14	47-11-652-10	47-11-672-10	47-11-692-10
		5.3 (.21)	12 (.47)	47-11-612-14	47-11-632-14	47-11-652-10	47-11-672-10	47-11-692-10

Installation for All Styles

*For panel preparation and installation instructions, see pages 238 and 239.



Contact Southco or an Authorized Southco Distributor for current availability and delivery information.



Material and Finish

FERRULE:
Press-in: Hardened carbon steel, zinc plate, chromate plus sealer.
Flare-in and Floating: Aluminum, natural.

SPRING (internal component, not shown): 300 Series stainless steel, passivated.

KNOB: Aluminum, natural or black powder coated.

SCREW: Hardened carbon steel, zinc plate, chromate plus sealer or zinc plate, chromate plus black powder coating (screw head only).

WASHER (Floating Style): 300 Series stainless steel, passivated.

A Floating assembly consists of one screw sub assembly and one washer, shipped separately.

NOTE: For black finish, change the 8th digit of your part number from “1” to “5”, or “2” to “6”.
Example: 47-60-621-**6**4

NOTE: For Screws with the smooth knob style, change the last digit of your part number from “4” to “5” or “0” to “1”.
Example: 47-60-621-6**5**

Torx® is a registered trademark of the Camcar Division of Textron Inc.

millimeter (inch)
millimeter (inch)

Dimensions without tolerances are for reference only.

Captive Fasteners
Captive Screws

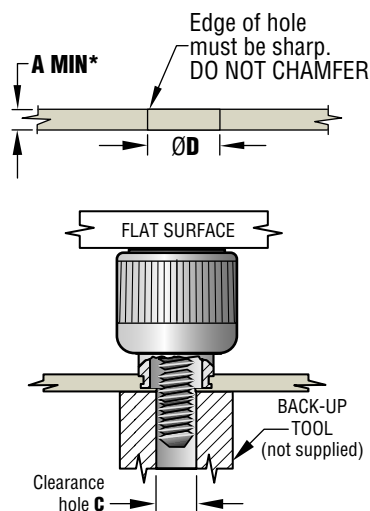
Southco® Captive Fasteners

Styled Knob Series Panel Preparation and Installation

Press-in Style

1. Prepare panel as shown. Top edge of hole should be sharp.
2. Press captive screw into panel until ferrule is installed as shown.

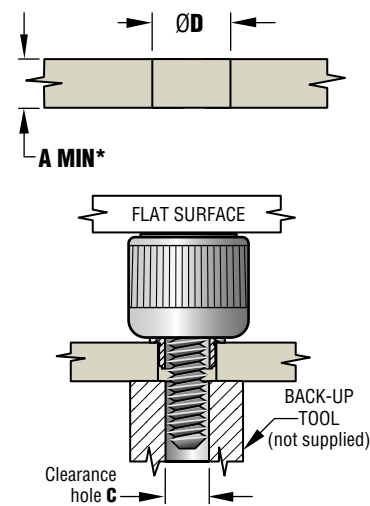
NOTE: Recommended minimum distance from edge of panel to centerline of hole is $1.5 \times \text{ØD}$.



For Thread Size	ØD	Clearance Hole C
M3 or 4-40	$5.6^{+0.03}_{-0.05} (.219^{+.003}_{-.000})$	$3.2 (.125)^{+0.2}_{-0.1} (^{+.008}_{-.004})$
M3.5 or 6-32	$6.4^{+0.03}_{-0.05} (.250^{+.003}_{-.000})$	3.7 (.146)
M4 or 8-32	$8^{+0.00}_{-0.08} (.315^{+.000}_{-.003})$	4.4 (.173)
M5 or 10-32	$8^{+0.00}_{-0.08} (.315^{+.000}_{-.003})$	5.2 (.205)
M6 or 1/4-20	$9.5^{+0.1}_{-0.0} (.375^{+.003}_{-.000})$	6.2 (.260)

P.C. Board Style

1. Prepare panel as shown.
2. Use pilot lead-in to guide assembly into hole and press knurl into panel until ferrule shoulder contacts surface.



For Thread Size	ØD	Clearance Hole C
M3 or 4-40	$5.6^{+0.1}_{-0.05} (.219^{+.004}_{-.002})$	3.2 (.120)
M3.5 or 6-32	$6.4 \pm 0.1 (.252 \pm .004)$	3.7 (.144)

Product Strength Guidelines

(To assist in your product selection; samples are available for your evaluation.)

Pullout force: 360N (80 lbs.)

Side load against unfastened knob:
200N (45 lbs.)

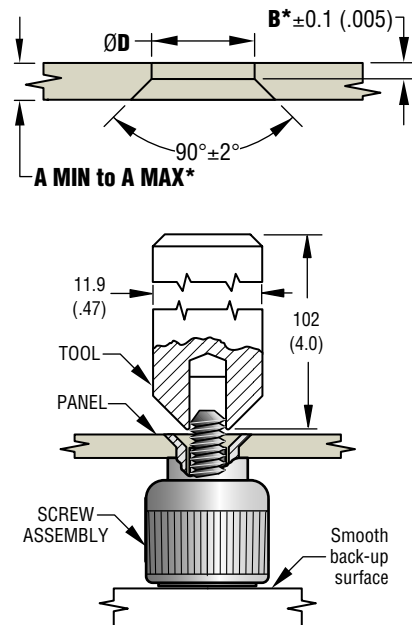
NOTE: Strength data based on drilled holes in G-10 P.C. Board.

Flare-in Style

1. Prepare panel as shown.
2. Install tool in suitable press. Only LIGHT pressure will be required.
3. Insert screw assembly into prepared hole in panel.
4. Place work under press, center tool over screw thread and flare ferrule into counter-sink in panel. Use LIGHT pressure.

Installation Force: 1600 N (350 lbs.) to 2500 N (550 lbs.)

Installation force depends on thread size.



For Thread Size	ØD	Tool Part Number
M3 or 4-40	$4.8^{+0.08}_{-0.05} (.187^{+.005}_{-.000})$	47-104
M3.5 or 6-32	$5.4^{+0.1}_{-0.0} (.213^{+.005}_{-.000})$	47-106
M4 or 8-32	$6.8^{+0.08}_{-0.04} (.266^{+.005}_{-.000})$	47-108
10-32	$6.8^{+0.08}_{-0.04} (.266^{+.005}_{-.000})$	47-110
M5	$6.8^{+0.08}_{-0.04} (.266^{+.005}_{-.000})$	47-115
M6 or 1/4-20	$8.2^{+0.1}_{-0.0} (.323^{+.005}_{-.000})$	47-125

millimeter (inch)
millimeter (inch)

Dimensions without tolerances are for reference only.

*Refer to the corresponding thread size page for dimensions.

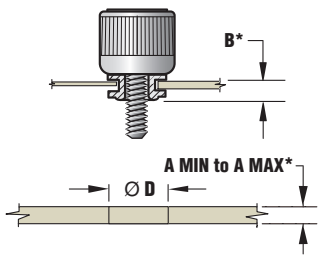
Southco® Captive Fasteners

Styled Knob Series Panel Preparation and Installation

Floating Style

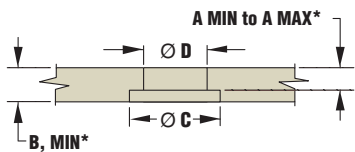
Panel Preparation I - Requires space between inner and outer panels.

For outer panel thicknesses within the range of “A”, as specified on the corresponding thread size page, space between panels must be at least “B” minus your outer panel thickness.



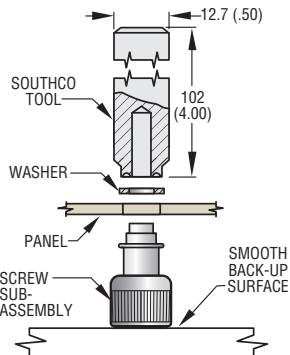
Panel Preparation II - Provides a flush panel-to-panel condition when fastened.

For outer panel thicknesses of at least “B” a counterbore of ØC is required to leave a remaining thickness within the range of “A”. “A” and “B” are specified on the corresponding thread size pages.



Installation

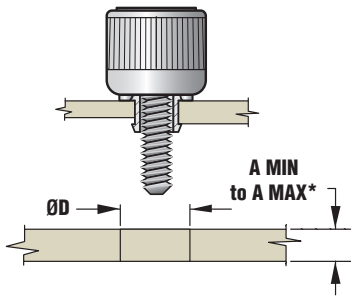
1. Place Southco® installation tool in a press capable of providing 890 N (200 lbs.) to 3115 N (700 lbs.) of force. Installation force depends on thread size.
2. Center the tool on the screw thread, then roll the ferrule over the washer to captivate the assembly. (Caution: Excessive force will damage the screw assembly).



Snap-in Style

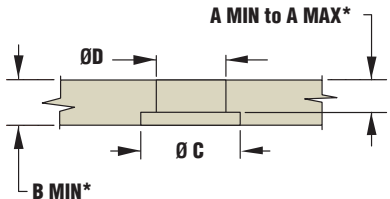
Panel Preparation I - Requires space between inner and outer panels.

For outer panel thicknesses within the range of “A”, as specified on the corresponding thread size page, space between panels must be at least “B” minimum, minus your outer panel thickness.



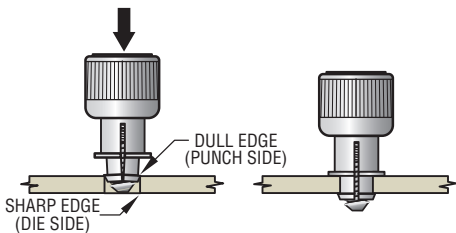
Panel Preparation II - Provides a flush panel-to-panel condition when fastened.

For outer panel thicknesses of at least “B” a counterbore of ØC is required to leave a remaining thickness within the range of “A”. “A” and “B” are specified on the corresponding thread size pages.



Installation

1. Prepare panel as shown. NOTE: If holes are drilled, top edge of hole should be chamfered.
2. Screw assembly can be installed with finger pressure from punch side of panel (see illustrations).
NOTE: Assembly must be kept perpendicular to panel while snapping into hole.



*Refer to the corresponding thread size page for dimensions.

southco®

Contact Southco or an Authorized Southco Distributor for current availability and delivery information.

For Thread Size	ØD +0.08 -0.03 (+.003 -.001)	Counter-bore MIN ØC
M3 or 4-40	6.4 (.250)	9.4 (.375)
M3.5 or 6-32	7.2 (.283)	10.5 (.413)
M4 or 8-32	8.8 (.346)	12 (.469)
M5 or 10-32	8.8 (.346)	12 (.469)
M6 or 1/4-20	10.5 (.413)	13.5 (.531)

For Thread Size	Tool Part Number
M3 or 4-40	47-04
M3.5 or 6-32	47-06
M4 or 8-32	47-08
M5 or 10-32	47-05
M6 or 1/4-20	47-25

Product Strength Guidelines

(To assist in your product selection; samples are available for your evaluation.)

Pullout force: 290N (65 lbs.)

Side load against unfastened knob:
180N (40 lbs.)

For Thread Size	ØD +0.0 -0.1 (±.002)	ØC MIN
M3.5 or 6-32	6.4 (.250)	7.5 (.295)
M4 or 8-32	6.4 (.250)	7.5 (.295)
M5 or 10-32	6.4 (.250)	7.5 (.295)

NOTE: For installation near MAX panel thickness, deburr hole.

millimeter (inch)
millimeter (inch)

Dimensions without tolerances are for reference only.

Captive Fasteners
Captive Screws