

# Southco® Quarter-turn Fasteners

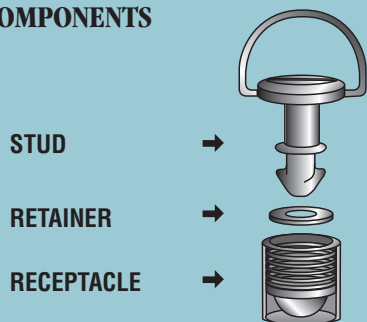
## How to Choose a Quarter-turn Fastener Assembly

### To Select a Quarter-turn Assembly:

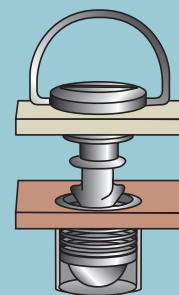
- 1.) Choose your receptacle first
- 2.) Choose your stud
- 3.) Choose your retainer

In a typical application, the stud is installed into the outer panel and held captive with the retainer. The receptacle is permanently secured to the frame or inner panel.

#### ASSEMBLY COMPONENTS



To fasten, turn the stud one quarter-turn. The stud engages with the installed receptacle and efficiently secures the panels together.



#### TYPICAL APPLICATION

Components shown installed. Panel/Frame is unfastened.

A quarter-turn in the opposite direction disengages the assembly. After disengaging from the receptacle, the stud remains captive to the outer panel, ready for use again.

Southco offers three sizes of quarter-turn fasteners with multiple head styles and shank diameters. Stud lengths are available in 0.5 mm increments.

#### Headstyles available



### Available accessories include:

**Wear Washers:** use to protect the panel surface from the turning stud. Cupped style helps align ejector spring.

**Ejector Spring:** use to provide a visual indication of whether or not the stud is fastened or unfastened.

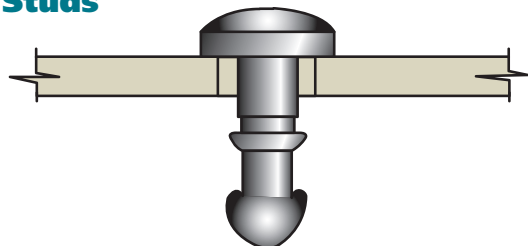
**Sealing Washer:** use to provide a seal under the head of the quarter-turn stud.

# Southco® Quarter-turn Fasteners

## Small Series

- For limited-space applications
- Quick access

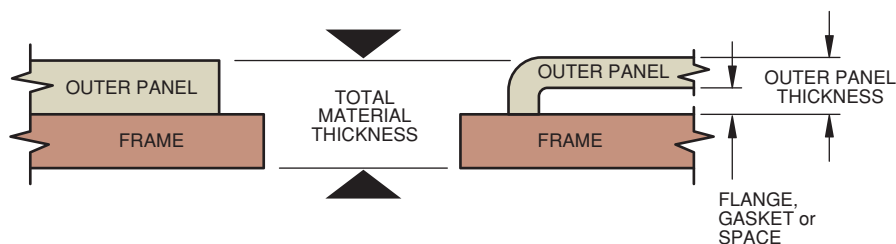
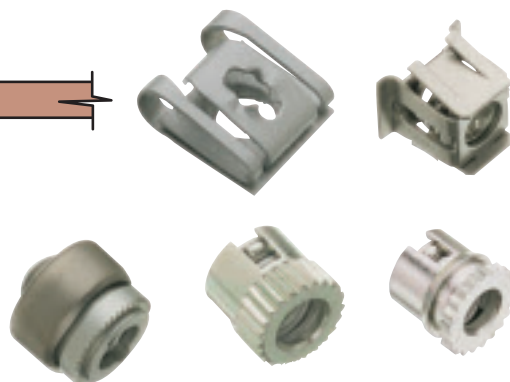
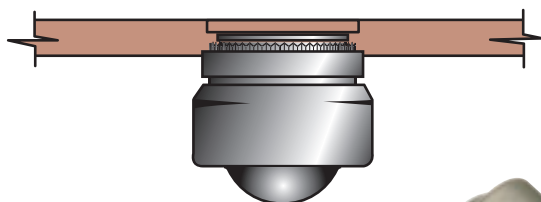
### Studs



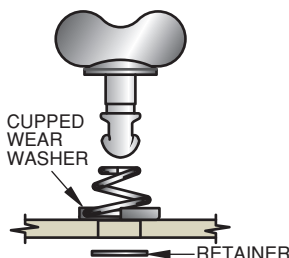
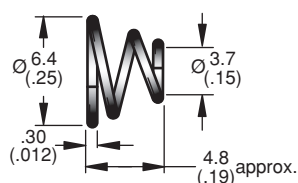
### Retainer



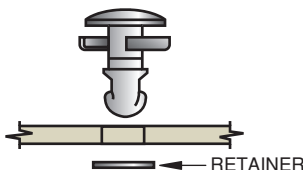
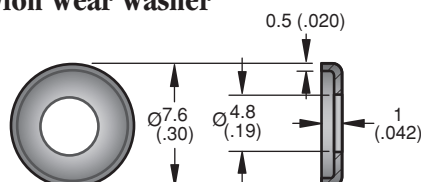
### Receptacles



### Stud Ejector



### Nylon Wear Washer



### To select correct fastener:

1. Choose a receptacle (note any frame thickness limitations).
2. To select a stud,
  - a) measure your Outer Panel Thickness or Total Material Thickness (note under receptacle part number will tell you which to use).
  - b) if adjustment formula is shown under receptacle part number apply this formula to your measurement.
  - c) use measurement (or adjusted measurement) to find part number in table, pg. 273 under stud head style you want.
3. Choose a retainer.
4. Order each component and tool (if required) separately by part number.

### Material and Finish

EJECTOR SPRING: 302 Stainless steel, passivated.

WEAR WASHER: Nylon, black or white (see table).

PART NUMBER		
EJECTOR SPRING	WEAR WASHER	
	Black	White
81-41-102-24 •	81-46-101-41 •	81-46-101-39 •

### NOTE: Adjustment Formula

When using a **stud ejector** (ejector spring and wear washer), add 0.8 (.032) to your Outer Panel Thickness or Total Material Thickness.

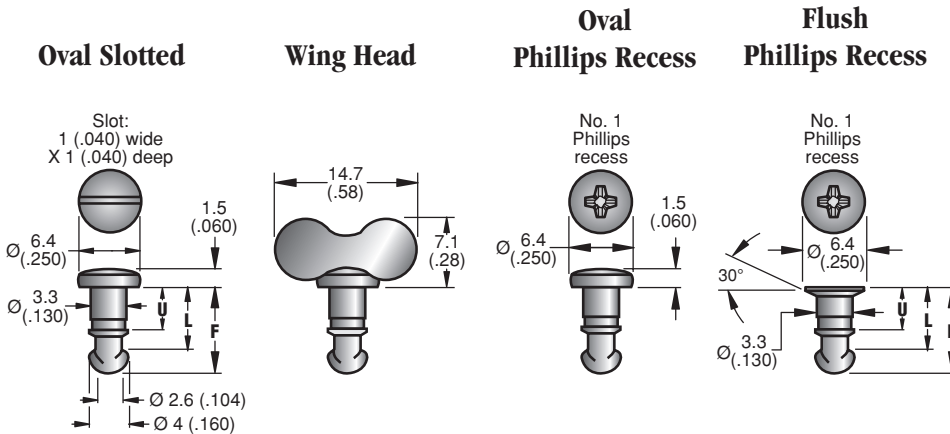
When using a **wear washer**, add 0.5 (.020) to your Outer Panel Thickness or Total Material Thickness.

millimeter (inch)  
millimeter (inch)

Dimensions without tolerances are for reference only.

# Southco® Quarter-turn Fasteners

## Small Series, Stud Selection



FOR:		FOR:		STUD PART NUMBER				DIMENSIONS		
Press-in Part No. 81-35-308-55 and Ultrasonic Part No. 81-35-310-55		ALL OTHER RECEPTACLES*		Zinc plate, chromate plus sealer		Case hardened and zinc plate chromate plus sealer.		U	L	F
Outer Panel Thickness ‡		Total Material Thickness ‡		OVAL SLOTTED	WING HEAD	OVAL PHILLIPS RECESS	FLUSH PHILLIPS RECESS			
MIN.	MAX.	MIN.	MAX.							
1 (.040)	1.5 (.059)	2.3 (.090)	2.8 (.109)	81-11-100-16 •	81-12-100-16 •	81-18-100-16 •	81-19-100-16 •	4.9 (.193)	7.2 (.285)	9.8 (.385)
1.5 (.060)	2 (.079)	2.8 (.110)	3.3 (.129)	81-11-120-16 •	81-12-120-16 •	81-18-120-16 •	81-19-120-16 •	5.4 (.213)	7.8 (.305)	10.3 (.405)
2 (.080)	2.5 (.099)	3.3 (.130)	3.8 (.149)	81-11-140-16 •	81-12-140-16 •	81-18-140-16 •	81-19-140-16 •	5.9 (.233)	8.3 (.325)	10.8 (.425)
2.5 (.100)	3 (.119)	3.8 (.150)	4.3 (.169)	81-11-160-16 •	81-12-160-16 •	81-18-160-16 •	81-19-160-16 •	6.4 (.253)	8.8 (.345)	11.3 (.445)
3 (.120)	3.5 (.139)	4.3 (.170)	4.8 (.189)	81-11-180-16 •	81-12-180-16 •	81-18-180-16 •	81-19-180-16 •	6.9 (.273)	9.3 (.365)	11.8 (.465)
3.6 (.140)	4.1 (.159)	4.8 (.190)	5.3 (.209)	81-11-200-16 •	81-12-200-16 •	81-18-200-16 •	81-19-200-16 •	7.4 (.293)	9.8 (.385)	12.3 (.485)
4.1 (.160)	4.6 (.179)	5.3 (.210)	5.8 (.229)	81-11-220-16 •	81-12-220-16 •	81-18-220-16 •	81-19-220-16 •	8 (.313)	10.3 (.405)	12.8 (.505)
4.6 (.180)	5.1 (.199)	5.8 (.230)	6.3 (.249)	81-11-240-16 •	81-12-240-16 •	81-18-240-16 •	81-19-240-16 •	8.5 (.333)	10.8 (.425)	13.3 (.525)
5.1 (.200)	5.6 (.219)	6.4 (.250)	6.9 (.269)	81-11-260-16 •	81-12-260-16 •	81-18-260-16 •	81-19-260-16 •	9 (.353)	11.0 (.445)	13.8 (.545)
5.6 (.220)	6.1 (.239)	6.9 (.270)	7.4 (.289)	81-11-280-16 •	81-12-280-16 •	81-18-280-16 •	81-19-280-16 •	9.5 (.373)	11.8 (.465)	14.4 (.565)
6.1 (.240)	6.6 (.259)	7.4 (.290)	7.9 (.309)	81-11-300-16 •	81-12-300-16 •	81-18-300-16 •	81-19-300-16 •	10 (.393)	12.3 (.485)	14.9 (.585)
6.6 (.260)	7.1 (.279)	7.9 (.310)	8.4 (.329)	81-11-320-16 •	81-12-320-16 •	81-18-320-16 •	81-19-320-16 •	10.5 (.413)	12.8 (.505)	15.4 (.605)

### Material and Finish

WING HEAD STUD: 1008 Steel.

WING: 1010 Steel.

OTHERS: 1008 Steel (see table for finishes).

\*Please check for any special conditions or constant required by your specific receptacle on the receptacle description pages.

‡ If using ejector spring or nylon wear washers, see bottom of page 269.

millimeter (inch)  
 millimeter  
 (inch)

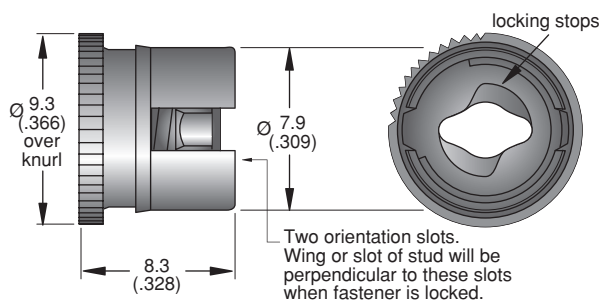
Dimensions without tolerances are for reference only.

# Southco® Quarter-turn Fasteners

## Small Series, Receptacles

### For ultrasonic installation in thermoplastics

- Minimize residual stress
- Increased pull-out resistance
- Increased torque-out resistance

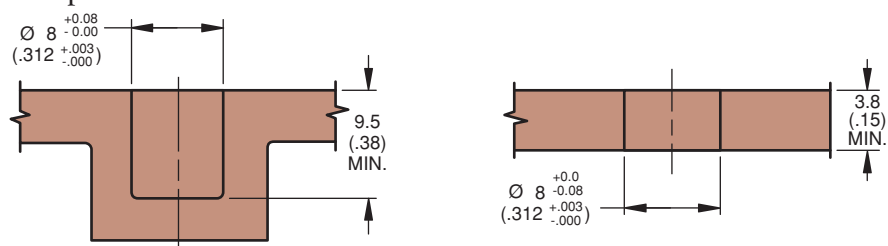


#### PART NUMBER

81-35-310-55 •

### Installation

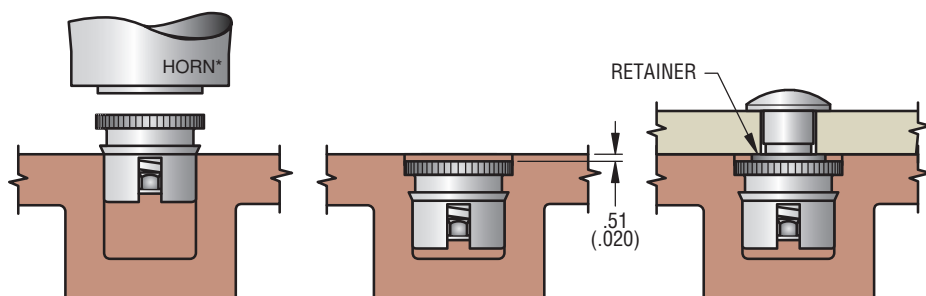
#### 1. Prepare hole.



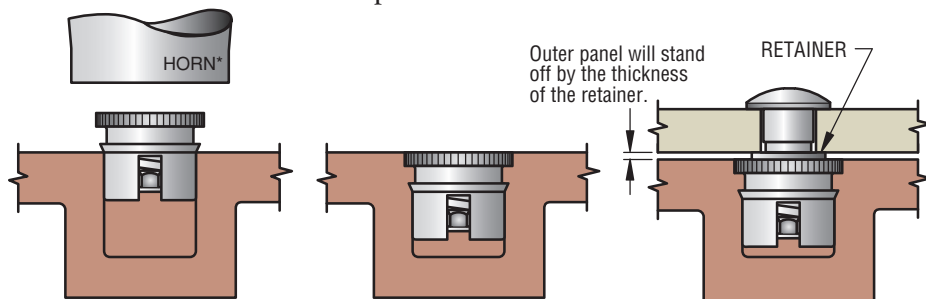
#### 2. Use one of the methods shown.

Enter the No. 81 Stud Selection Table on pg. 273 with your Outer Panel Thickness using column for Part Number 81-35-310-55.

#### METHOD A—Horn recesses receptacle to a 0.5 (.020) depth.



#### METHOD B—Horn installs receptacle flush with surface.



\*Horn design may vary with material and applications.

### Material and Finish

RECEPTACLE: 1010 Steel, case hardened and zinc plate, chromate plus sealer.

SHELL: Low carbon steel, zinc plate, chromate plus sealer.

SPRING: 302 Stainless steel, DACROTIZED†.

†Registered trademark of Metal Coatings International, Inc.

### Product Strength Guidelines

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

Maximum working load: 440 N (100 lbs.)

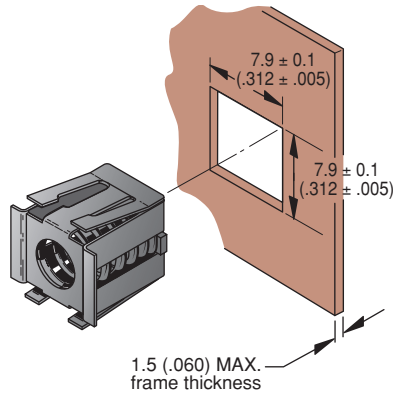
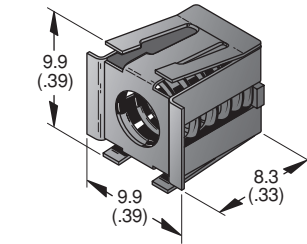
millimeter (inch)  
millimeter  
(inch)

Dimensions without tolerances are for reference only.

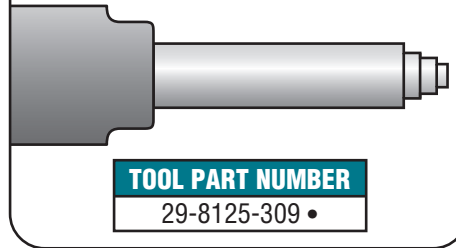
# Southco® Quarter-turn Fasteners

## Small Series, Receptacles

### Snap-in



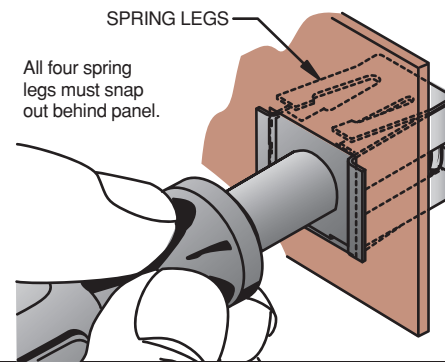
### Installation Tool



#### TOOL PART NUMBER

29-8125-309 •

Push only on the center area of the receptacle as shown until all four spring legs snap out behind your panel.



### Material and Finish

HOUSING and RETAINER: 301 Stainless steel, natural.

RECEPTACLE: 1010 Steel, zinc plate, chromate plus sealer.

SPRING: 302 Stainless steel, passivated.

TOOL: 12L14 Steel, zinc plated, plus bright chromate dip.

#### PART NUMBER

81-35-309-56 •

### Adjustment Formula

To use Stud Selection Table on pg. 273 calculate:

Outer Panel Thickness + 1.5 (.060) but use Total Material Thickness column.

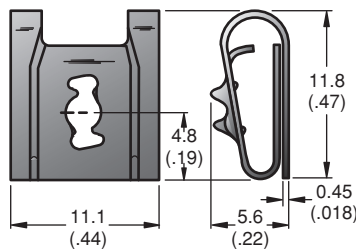
**NOTE:** This tool will bear against the top surface of the receptacle, it will not enter the top opening.

### Product Strength Guidelines

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

Maximum working load: 440 N (100 lbs.)

### Clip-on

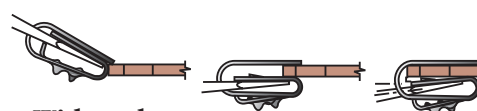


### To Install

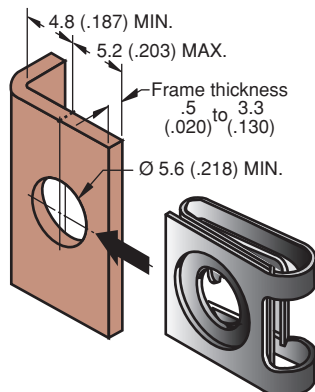
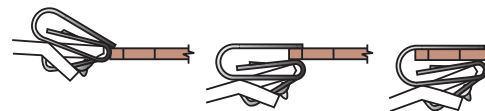
#### By hand



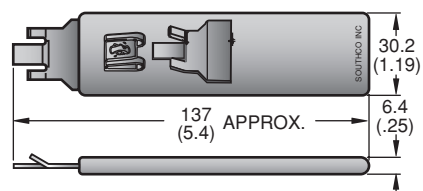
#### With screwdriver



#### With tool



### Installation Tool



#### TOOL PART NUMBER

29-81-101-10 •

### Material and Finish

RECEPTACLE: 1064 Steel, DACROTIZED† or 17-7 PH stainless steel, passivated (see table).

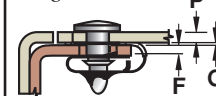
†Registered trademark of Metal Coatings International, Inc.

Part Description	PART NUMBER
1064 steel, DACROTIZED†	81-47-101-15 •
17-7 PH stainless steel	81-47-101-20 •

### Adjustment Formula

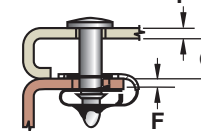
To use Stud Selection Table on pg. 273 determine your Total Material Thickness by calculating:

Figure I



$P + F - 1.07 (.042)$  (constant) when G is 0.45 (.018).

Figure II



$P + F + G - 1.5 (.060)$  (constant) when G is 0.46 (.019) or greater.

### Product Strength Guidelines

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

Maximum working load: 440 N (100 lbs.)

millimeter (inch)

millimeter (inch)

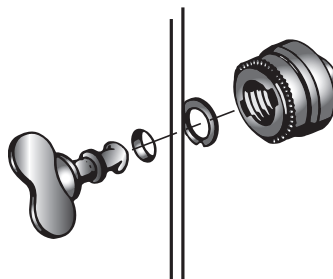
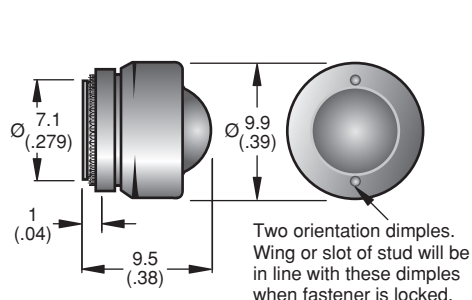
Dimensions without tolerances are for reference only.

# Southco® Quarter-turn Fasteners

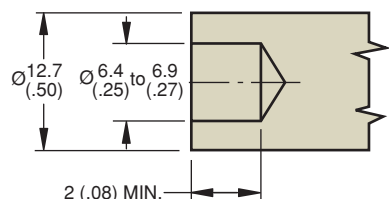
## Small Series, Receptacles

### Shielded press-in for sheet metal

- Provides RFI-EMI shielding

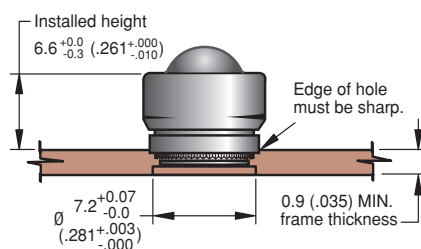


### Installation Tool



#### TOOL PART NUMBER

54-0-5466-11 •



NOTE: For use in low carbon steels, aluminum and stainless steels in the annealed condition that are R<sub>e</sub>85 or less.

### Material and Finish

RECEPTACLE: 1010 Steel, zinc plate, chromate plus sealer.

SHELL: Low carbon steel, zinc plate, chromate plus sealer.

SPRING: 302 Stainless steel,

DACROTIZED†. CAP: 305 Stainless steel, DACROTIZED†.

†Registered trademark of Metal Coatings International, Inc.

#### PART NUMBER

81-35-311-55 •

### Adjustment Formula

To enter Stud Selection Table determine your Total Material Thickness.

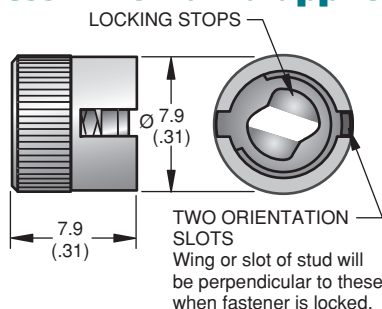
Substitute 1.3 (.050) (constant) for frame thickness if frame thickness is less than 1.27 (.050).

### Product Strength Guidelines

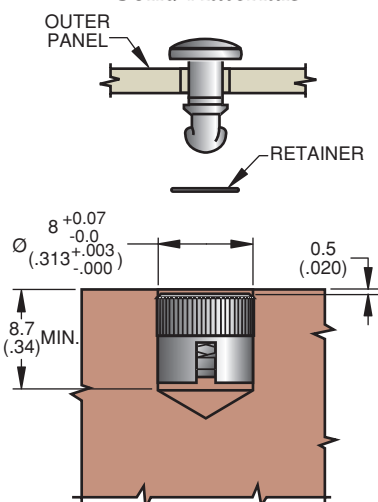
(To assist in your product selection; samples are available for your evaluation.)

Maximum working load: 440 N (100 lbs.)

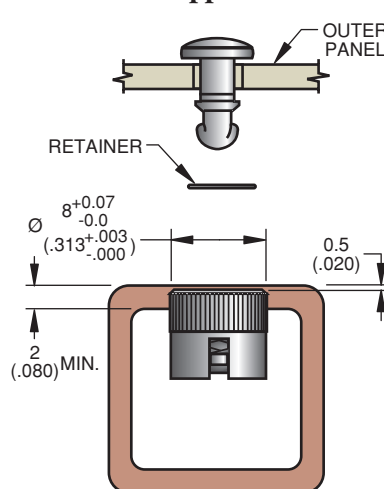
## Press-in for blind applications and solid materials



### Solid Materials



### Blind Applications



### Material and Finish

RECEPTACLE: 1010 Steel hardened and zinc plate, chromate plus sealer.

SHELL: Low carbon steel hardened and zinc plate, chromate plus sealer.

RETAINER and SPRING: 302 Stainless steel, DACROTIZED†.

†Registered trademark of Metal Coatings International, Inc.

#### PART NUMBER

81-35-308-55 •

### Adjustment Formula

To enter Stud Selection Table determine your Outer Panel Thickness.

### Product Strength Guidelines

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

Maximum working load: 440 N (100 lbs.)

millimeter (inch)  
millimeter  
(inch)

Dimensions without tolerances are for reference only.



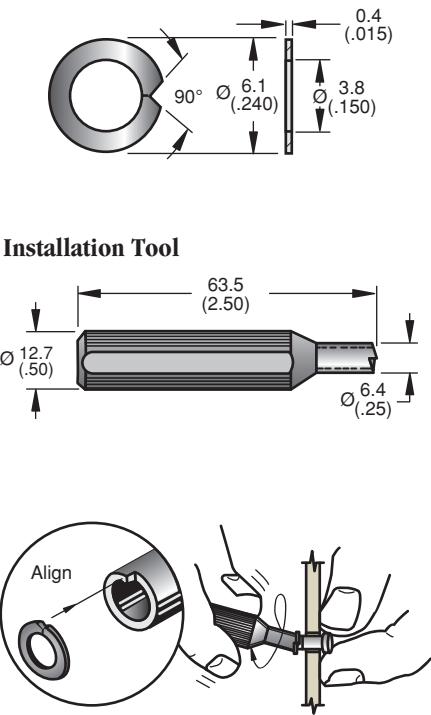
# Southco® Quarter-turn Fasteners

## Small Series

### Retainers

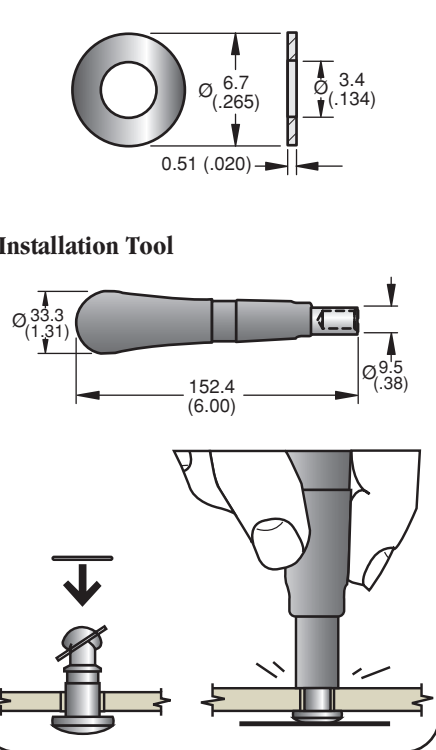
#### Split-Ring Retainer

Hand or tool installation



#### Push-On Retainer

Tool installation



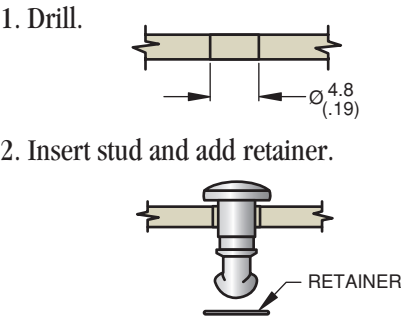
### Material and Finish

SPLIT-RING RETAINER: 302  
Stainless steel, passivated.  
PUSH-ON RETAINER: Nylon, black.  
SPLIT-RING TOOL: Steel, zinc  
plated.  
PUSH-ON TOOL: Hardened low  
carbon steel, zinc plated.

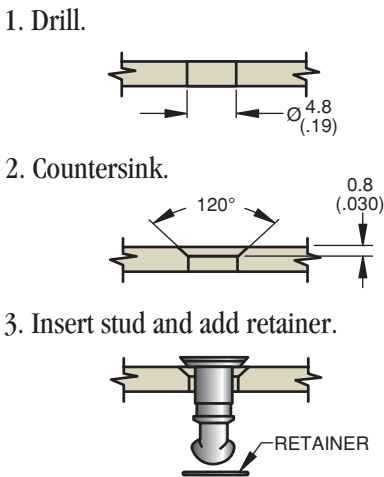
RETAINER/TOOL	PART NUMBERS
Split-Ring Retainer	81-32-101-20 •
Split-Ring Tool	81-0-15129-11 •
Push-On Retainer	81-32-301-12 •
Push-On Tool	81-0-18173-11 •

### Installation

#### For Above-surface styles



#### For Flush-head style



millimeter (inch)  
millimeter  
(inch)

Dimensions without tolerances are for reference only.