



## 82 DZUS® Lion Quarter-Turn Fasteners

### Studs

#### Material and Finish

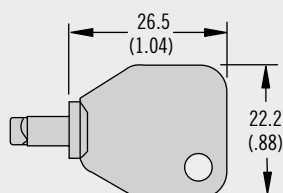
Studs: Steel, zinc plated and chromate or stainless steel

Bail cover: ABS, black

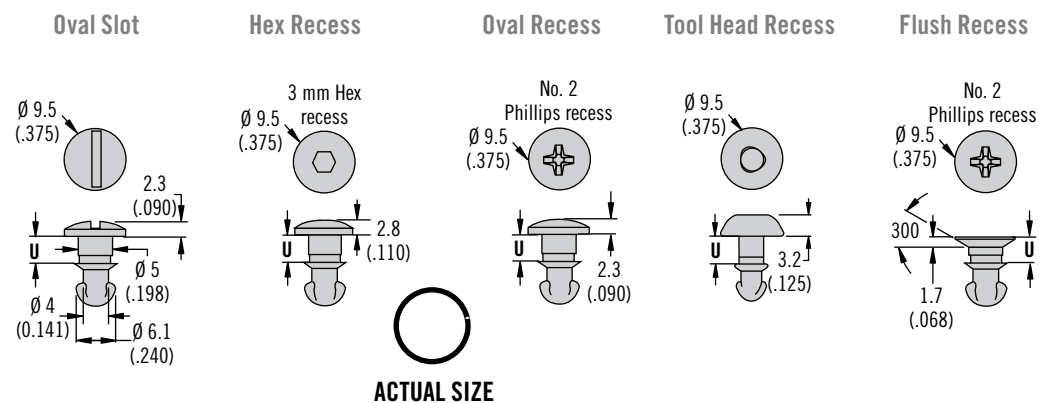
#### Accessories

Tool head recess key:

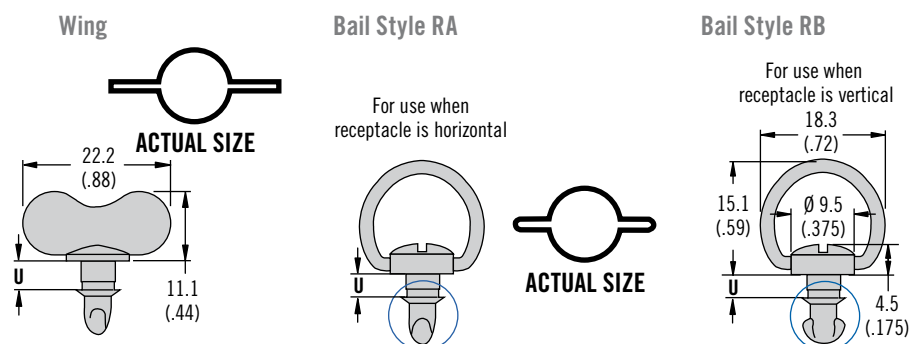
Part number: 29-90-214-10



#### H Head Styles - Tool Actuated



#### H Head Styles - Hand Actuated



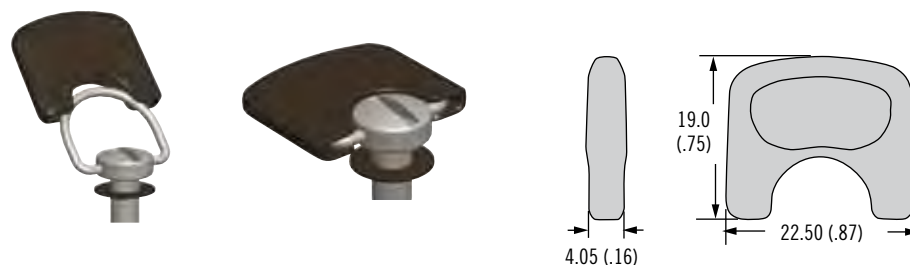
#### Installation Notes

Bail cover:

A retainer must be fitted under the stud head to fit flush with surface

Retainer part number 82-32-301-12 (see page 279)

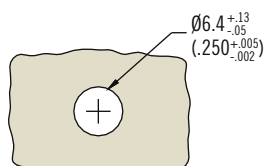
#### Optional Bail Cover



#### Bail Cover Part Number

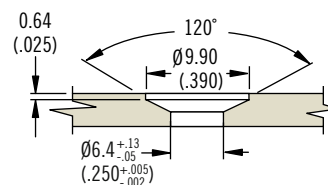
82-2-B-000

#### Stud Panel Preparation



#### Flush Head Styles

(when outer panel is 1.3 (.050) or greater)

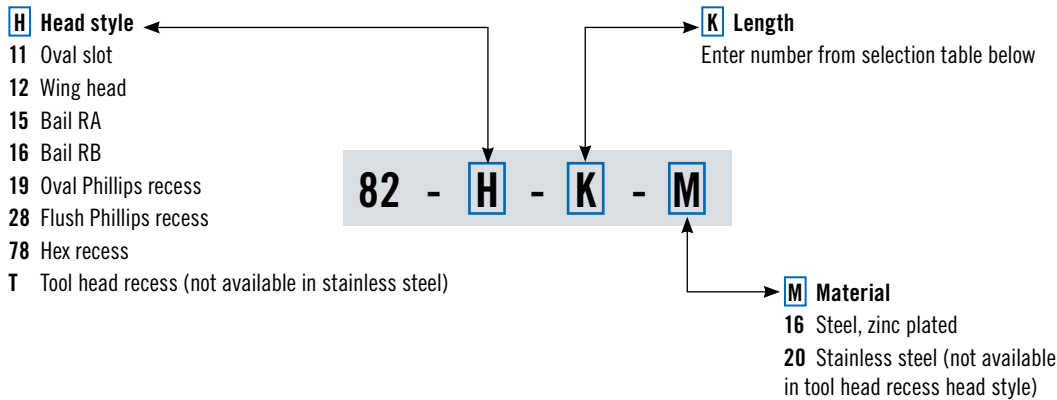


# 82 DZUS® Lion Quarter-Turn Fasteners

## Stud selection



273



| Stud Length Table              |            |                                                |             |                                |             |                                         |             |     |             |
|--------------------------------|------------|------------------------------------------------|-------------|--------------------------------|-------------|-----------------------------------------|-------------|-----|-------------|
| A                              |            | B                                              |             | C                              |             | D                                       |             | K   | U           |
| TMT Range For:<br>82-35-306-10 |            | TMT Range For:<br>82-35-308-55<br>82-35-310-55 |             | TMT Range For:<br>82-35-315-55 |             | TMT Range For:<br>All Other Receptacles |             |     |             |
| Min.                           | Max.       | Min.                                           | Max.        | Min.                           | Max.        | Min.                                    | Max.        |     |             |
| 0.7 (.026)                     | 1.2 (.045) | ~                                              | ~           | ~                              | ~           | 2.3 (.090)                              | 2.8 (.110)  | 100 | 3.2 (.127)  |
| 1.2 (.045)                     | 1.7 (.065) | ~                                              | ~           | ~                              | ~           | 2.8 (.110)                              | 3.3 (.130)  | 120 | 3.7 (.147)  |
| 1.7 (.065)                     | 2.2 (.085) | ~                                              | ~           | ~                              | ~           | 3.3 (.130)                              | 3.8 (.150)  | 140 | 4.2 (.167)  |
| 2.2 (.085)                     | 2.7 (.105) | 0 (0)                                          | 0.5 (.019)  | 1.3 (.050)                     | 1.8 (.070)  | 3.8 (.150)                              | 4.3 (.170)  | 160 | 4.7 (.187)  |
| 2.7 (.105)                     | 3.2 (.125) | 0.5 (.019)                                     | 1 (.039)    | 1.8 (.070)                     | 2.3 (.090)  | 4.3 (.170)                              | 4.8 (.190)  | 180 | 5.3 (.207)  |
| 3.2 (.125)                     | 3.7 (.145) | 1 (.039)                                       | 1.5 (.059)  | 2.3 (.090)                     | 2.8 (.110)  | 4.8 (.190)                              | 5.3 (.210)  | 200 | 5.8 (.227)  |
| 3.7 (.145)                     | 4.2 (.165) | 1.5 (.059)                                     | 2 (.079)    | 2.8 (.110)                     | 3.3 (.130)  | 5.3 (.210)                              | 5.8 (.230)  | 220 | 6.3 (.247)  |
| 4.2 (.165)                     | 4.7 (.185) | 2 (.079)                                       | 2.5 (.099)  | 3.3 (.130)                     | 3.8 (.150)  | 5.8 (.230)                              | 6.3 (.250)  | 240 | 6.8 (.267)  |
| 4.7 (.185)                     | 5.2 (.205) | 2.5 (.099)                                     | 3 (.119)    | 3.8 (.150)                     | 4.3 (.170)  | 6.4 (.250)                              | 6.9 (.270)  | 260 | 7.3 (.287)  |
| 5.2 (.205)                     | 5.7 (.225) | 3 (.119)                                       | 3.5 (.139)  | 4.3 (.170)                     | 4.8 (.190)  | 6.9 (.270)                              | 7.4 (.290)  | 280 | 7.8 (.307)  |
| 5.7 (.225)                     | 6.2 (.245) | 3.5 (.139)                                     | 4.1 (.159)  | 4.8 (.190)                     | 5.3 (.210)  | 7.4 (.290)                              | 7.9 (.310)  | 300 | 8.3 (.327)  |
| ~                              | ~          | 4.1 (.159)                                     | 4.6 (.179)  | 5.3 (.210)                     | 5.8 (.230)  | 7.9 (.310)                              | 8.4 (.330)  | 320 | 8.8 (.347)  |
| ~                              | ~          | 4.6 (.179)                                     | 5.1 (.199)  | 5.8 (.230)                     | 6.3 (.250)  | 8.4 (.330)                              | 8.9 (.350)  | 340 | 9.3 (.367)  |
| ~                              | ~          | 5.1 (.199)                                     | 5.6 (.219)  | 6.3 (.250)                     | 6.8 (.270)  | 8.9 (.350)                              | 9.4 (.370)  | 360 | 9.8 (.387)  |
| ~                              | ~          | 5.6 (.219)                                     | 6.1 (.239)  | 6.8 (.270)                     | 7.3 (.290)  | 9.4 (.370)                              | 9.9 (.390)  | 380 | 10.3 (.407) |
| ~                              | ~          | 6.1 (.239)                                     | 6.6 (.259)  | 7.3 (.290)                     | 7.8 (.310)  | 9.9 (.390)                              | 10.4 (.410) | 400 | 10.8 (.427) |
| ~                              | ~          | 6.6 (.259)                                     | 7.1 (.279)  | 7.8 (.310)                     | 8.3 (.330)  | 10.4 (.410)                             | 10.9 (.430) | 420 | 11.4 (.447) |
| ~                              | ~          | 7.1 (.279)                                     | 7.6 (.299)  | 8.3 (.330)                     | 8.8 (.350)  | 10.9 (.430)                             | 11.4 (.450) | 440 | 11.9 (.467) |
| ~                              | ~          | 7.6 (.299)                                     | 8.1 (.319)  | 8.8 (.350)                     | 9.3 (.370)  | 11.4 (.450)                             | 11.9 (.470) | 460 | 12.4 (.487) |
| ~                              | ~          | 8.1 (.319)                                     | 8.6 (.339)  | 9.3 (.370)                     | 9.8 (.390)  | 11.9 (.470)                             | 12.4 (.490) | 480 | 12.9 (.507) |
| ~                              | ~          | 8.6 (.339)                                     | 9.1 (.359)  | 9.8 (.390)                     | 10.3 (.410) | 12.5 (.490)                             | 12.9 (.510) | 500 | 13.4 (.527) |
| ~                              | ~          | 9.1 (.359)                                     | 9.6 (.379)  | 10.3 (.410)                    | 10.8 (.430) | 13 (.510)                               | 13.5 (.530) | 520 | 13.9 (.547) |
| ~                              | ~          | 9.6 (.379)                                     | 10.1 (.399) | 10.8 (.430)                    | 11.3 (.450) | 13.5 (.530)                             | 14 (.550)   | 540 | 14.4 (.567) |
| ~                              | ~          | 10.1 (.399)                                    | 10.6 (.419) | 11.3 (.450)                    | 11.8 (.470) | 14 (.550)                               | 14.5 (.570) | 560 | 14.9 (.587) |
| ~                              | ~          | 10.6 (.419)                                    | 11.1 (.439) | 11.8 (.470)                    | 12.3 (.490) | 14.5 (.570)                             | 15 (.590)   | 580 | 15.4 (.607) |

### Part Number Selection

#### To select correct fastener:

##### 1. Select receptacle

Choose a receptacle from pages 274 - 278

##### 2. Select retainer and accessories

from page 279 and note any adjustment values

##### 3. Specify stud length

Calculate the total material thickness (TMT) using the formula given for the receptacle selected. Find the range of TMT using the stud length selection table (left) using the column (A, B, C, or D) given for the receptacle selected, find **K**

##### 4. Complete the stud part number

by specifying the head style **H**, stud length **K**, and material **M**

Example:

For rivet-on with base receptacle 82-35-302-15 use column D

For TMT value calculated as 5.2 (.206), K = 200

For slotted head style in steel material, completed part number: 82-11-200-16

A complete example can be found on page 271

#### Notes

Stainless steel material may require a higher minimum order quantity. Contact Southco for details.

82

85

D8

D1

D4

D7

NY



## 82 DZUS® Lion Quarter-Turn Fasteners Receptacles

### Material and Finish

Steel, zinc immersion coating

### Installation Notes

Install with  $\varnothing 2.5$  (3/32) rivets, spring plate must float freely after riveting

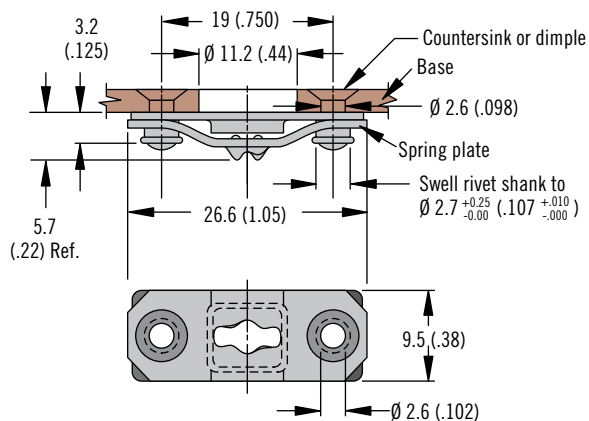
### Part Number

See table

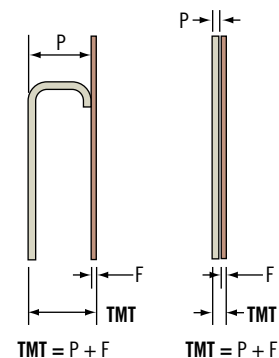
### Notes

Utilize stud selection column indicated when choosing a stud length from the stud length table on page 273

### Rivet-On With Base



ACTUAL SIZE



| Part Number  | Stud Selection Column |
|--------------|-----------------------|
| 82-35-302-15 | D                     |

### Material and Finish

Steel, zinc immersion coating or stainless steel

### Installation Notes

Install with  $\varnothing 2.5$  (3/32) rivets, spring plate must float freely after riveting

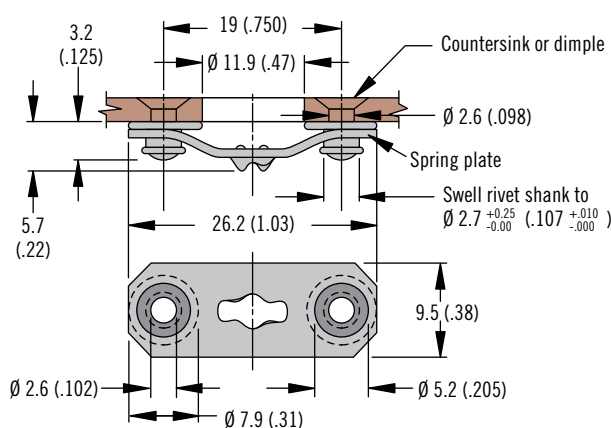
### Part Number

See table

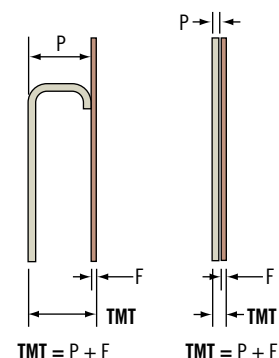
### Notes

Utilize stud selection column indicated when choosing a stud length from the stud length table on page 273

### Rivet-On Without Base



ACTUAL SIZE



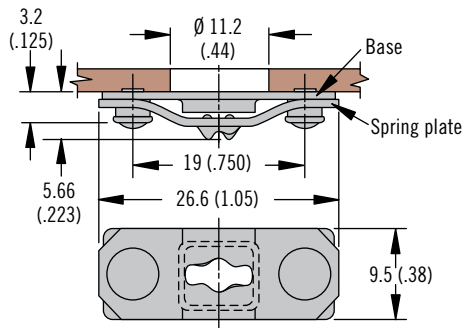
| Material        | Part Number  | Stud Selection Column |
|-----------------|--------------|-----------------------|
| Steel           | 82-35-295-15 | D                     |
| Stainless steel | 82-35-295-20 |                       |

# 82 DZUS® Lion Quarter-Turn Fasteners Receptacles

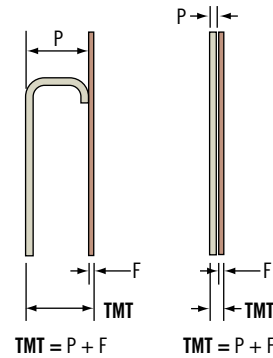


275

## Weld-On



ACTUAL SIZE



## Material and Finish

Steel, zinc immersion coating

## Installation Notes

Spring plate must float freely after welding

82

85

D8

D1

D4

D7

NY

## Part Number

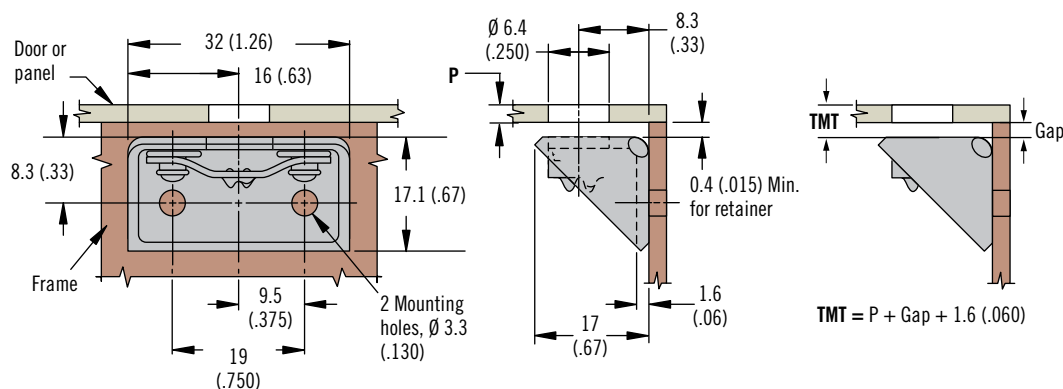
See table

## Notes

Utilize stud selection column indicated when choosing a stud length from the stud length table on page 273

| Part Number  | Stud Selection Column |
|--------------|-----------------------|
| 82-35-303-15 | D                     |

## Side Mount



ACTUAL SIZE

## Material and Finish

Steel, zinc immersion coating

## Installation Notes

Install with Ø 2.5 (3/32) rivets

## Part Number

See table

## Notes

Utilize stud selection column indicated when choosing a stud length from the stud length table on page 273

| Part Number  | Stud Selection Column |
|--------------|-----------------------|
| 82-45-101-15 | D                     |



## 82 DZUS® Lion Quarter-Turn Fasteners Receptacles

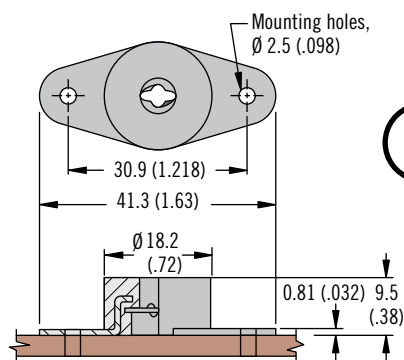
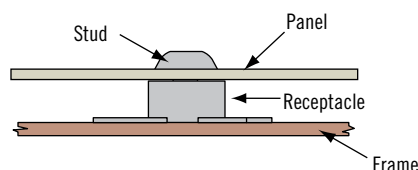
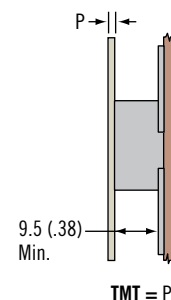
### Material and Finish

Steel, zinc plated and neoprene

### Installation Notes

Install with  $\varnothing 2.5$  (3/32) rivets

### Vibration Isolating



### Part Number

See table

### Notes

Utilize stud selection column indicated when choosing a stud length from the stud length table on page 273

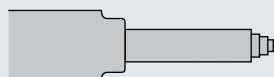
| Part Number  | Stud Selection Column |
|--------------|-----------------------|
| 82-35-306-10 | A                     |

### Material and Finish

Steel, zinc plated and stainless steel

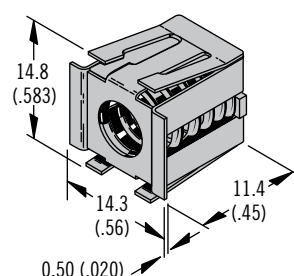
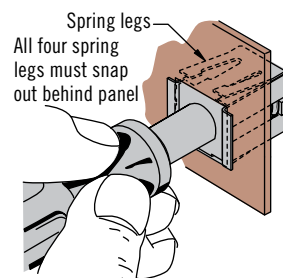
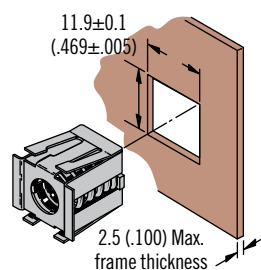
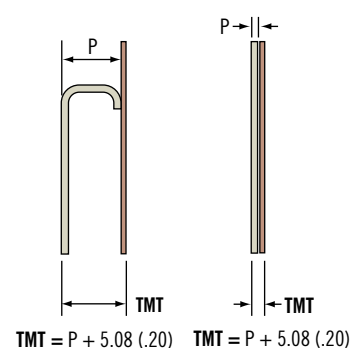
### Installation Notes

Installation Tool



Part Number: 29-8125-309

### Snap-In - Front Mount



### Part Number

See table

### Notes

Utilize stud selection column indicated when choosing a stud length from the stud length table on page 273

| Part Number  | Stud Selection Column |
|--------------|-----------------------|
| 82-35-309-56 | D                     |

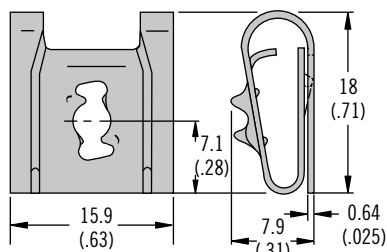
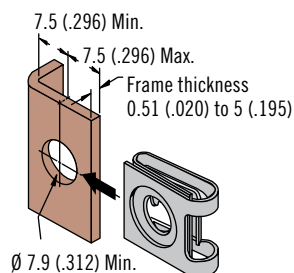
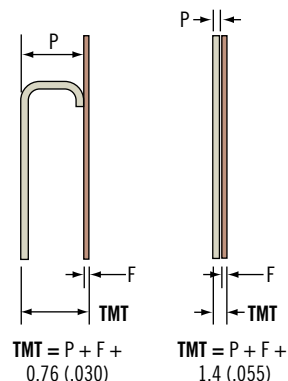
# 82 DZUS® Lion Quarter-Turn Fasteners

## Receptacles

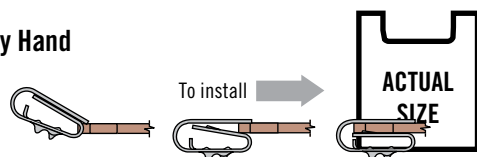


277

### Clip-On



### By Hand



### With Screwdriver



| Material        | Part Number  | Stud Selection Column |
|-----------------|--------------|-----------------------|
| Steel           | 82-47-113-15 | D                     |
| Stainless steel | 82-47-113-20 |                       |

### Material and Finish

Steel, zinc immersion coating or stainless steel

82

85

D8

D1

D4

D7

NY



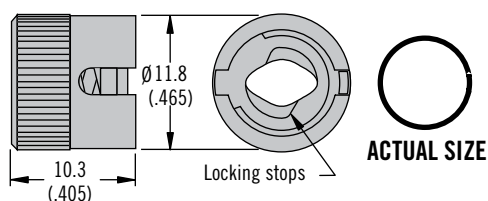
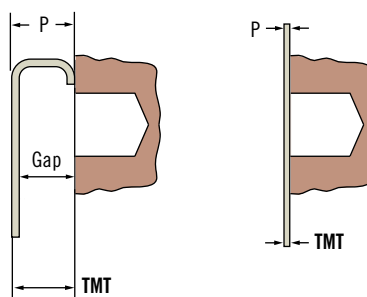
### Part Number

See table

### Notes

Utilize stud selection column indicated when choosing a stud length from the stud length table on page 273

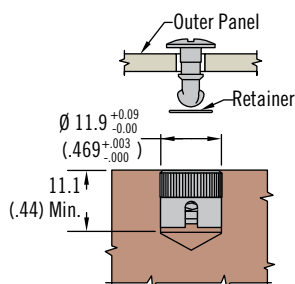
### Press-In



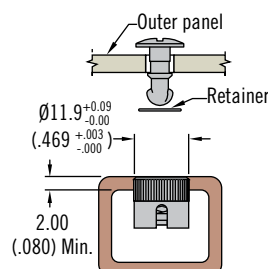
$$TMT = P + \text{Gap} - 0.5 (.020) \text{ (when gap is } > \text{retainer thickness)}$$

$$TMT = P + \text{(Retainer adjustment value)} - 0.5 (.020)$$

### Solid Install



### Blind Install



### Material and Finish

Steel, zinc plated and stainless steel

### Installation Notes

Press receptacle flush to frame

### Notes

Receptacle shown installed flush to the frame. To eliminate the gap between the frame and outer panel, install to a depth  $\geq$  the thickness of the selected retainer. This depth should be added to the TMT.

### Part Number

See table

### Notes

Utilize stud selection column indicated when choosing a stud length from the stud length table on page 273

| Part Number  | Stud Selection Column |
|--------------|-----------------------|
| 82-35-308-55 | B                     |



## 82 DZUS® Lion Quarter-Turn Fasteners Receptacles

### Material and Finish

Steel, zinc plated and stainless steel

### Installation Notes

Press receptacle flush to frame

### Notes

Receptacle shown installed flush to the frame. To eliminate the gap between the frame and outer panel, install to a depth  $\geq$  the thickness of the selected retainer. This depth should be added to the TMT.

### Part Number

See table

### Notes

Utilize stud selection column indicated when choosing a stud length from the stud length table on page 273

### Material and Finish

Steel, zinc plated and stainless steel

### Installation Notes

For use in low carbon steels, aluminum and stainless steels in the annealed condition that are R<sub>85</sub> or softer

See page 497 for installation guidelines

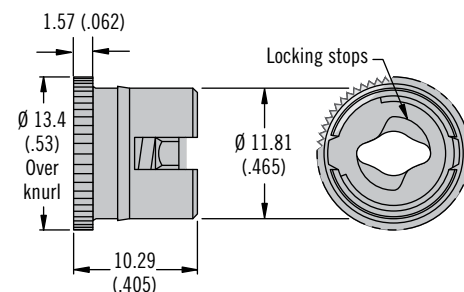
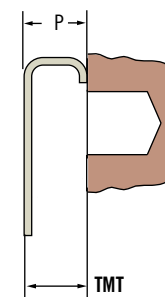
### Part Number

See table

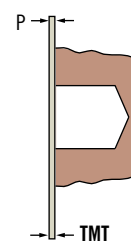
### Notes

Utilize stud selection column indicated when choosing a stud length from the stud length table on page 273

### Ultrasonic For Thermoplastics

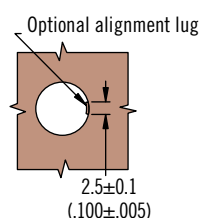


$$TMT = P - 0.5 (.020)$$

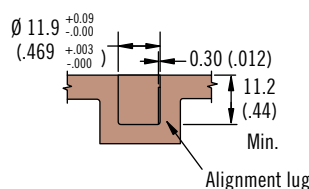


$$TMT = P + \text{(Retainer adjustment value)} - 0.5 (.020)$$

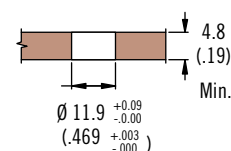
### Installation



### Blind Hole Installation

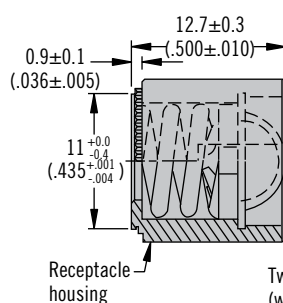


### Thru Hole Installation

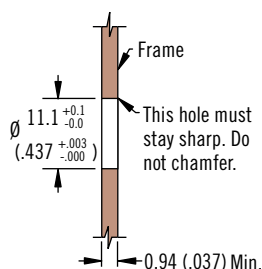
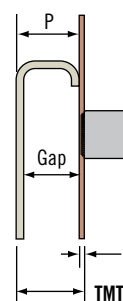


| Part Number  | Stud Selection Column |
|--------------|-----------------------|
| 82-35-310-55 | B                     |

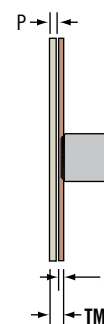
### Shielded – Self-Clinching



Two orientation marks (wing or slot) of stud will be 90° from these marks when fastened



$$TMT = P + F \text{ (when gap is } > \text{ retainer thickness)}$$



$$\text{Frame thickness (F) } > 0.9 (.036) + \text{ Retainer thickness: } TMT = P + F$$

$$\text{Frame thickness (F) } \geq 0.9 (.036) + \text{ Retainer thickness: } TMT = P + 0.9 (.036) + \text{ Retainer thickness}$$

| Part Number  | Stud Selection Column |
|--------------|-----------------------|
| 82-35-315-55 | C                     |

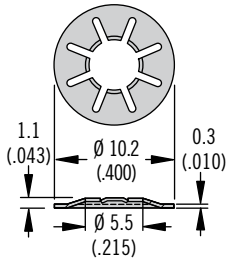
# 82 DZUS® Lion Quarter-Turn Fasteners

## Retainers · Accessories

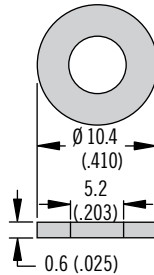


279

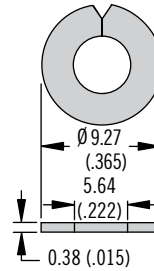
### Retainer Push-On



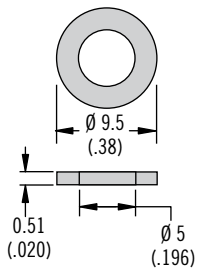
### Retainer Push-On Plastic



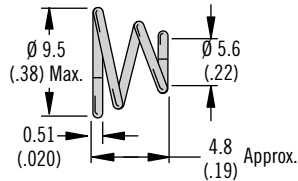
### Retainer Split



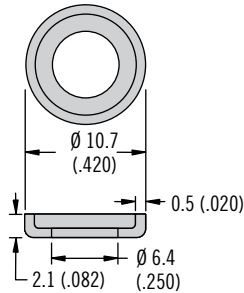
### Sealing Washer



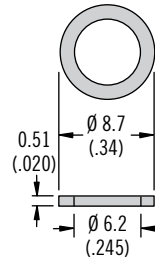
### Ejector Spring



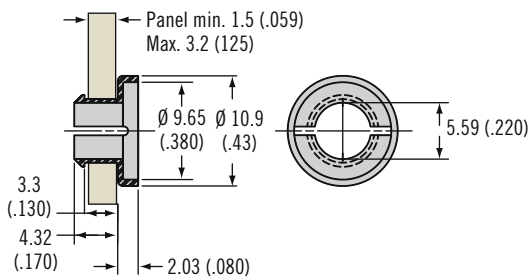
### Cupped Washer



### Flat Wear Washer



### Snap-In Retainer

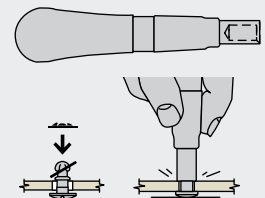


### Material and Finish

See table

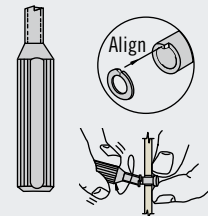
### Installation Notes

For standard retainers:



Part Number: 82-0-22542-11

For split retainers:



Part Number: 82-0-7595-11

### Notes

For snap-in retainer:

Min. stud **K** = 180 when using snap-in retainer (see page 273 for **K** reference).

Install stud into retainer before inserting into panel

| Type                     | Part Number  | Material                       | Adjustment Value |
|--------------------------|--------------|--------------------------------|------------------|
| Push-on retainer         | 82-32-201-20 | Stainless steel                | Add 0.25 (.010)  |
| Push-on plastic retainer | 82-32-301-12 | Nylon, black                   | Add 0.64 (.025)  |
| Split retainer           | 82-32-101-20 | Stainless steel                | Add 0.38 (.015)  |
| Sealing washer           | 82-43-201-38 | Neoprene nitrile rubber, black | Add 0.51 (.020)  |
| Ejector spring           | 43-13-1-24   | Stainless steel                | Add 0.51 (.020)  |
| Cupped washer            | 82-46-101-39 | Nylon, white                   | Add 0.51 (.020)  |
|                          | 82-46-101-41 | Nylon, black                   |                  |
| Flat wear washer         | 82-46-103-39 | Nylon, white                   | Add 0.51 (.020)  |
| Snap-in retainer         | 82-32-401-41 | Nylon, black                   | Add 0.51 (.020)  |

### Part Number

See table

### Notes

#### Adjustment value:

When using accessories the components increase TMT

Add the adjustment value to your outer panel thickness (P) when calculating TMT (see page 271 for example)



## 85 DZUS® Lion Quarter-Turn Fasteners Studs

### Material and Finish

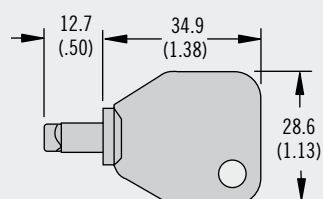
Studs: Steel, zinc plated  
or stainless steel

Bail cover: ABS, black

### Accessories

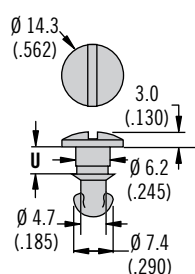
Tool head recess key:

Part number: 29-90-215-10

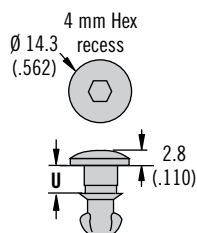


### H Head Styles - Tool Actuated

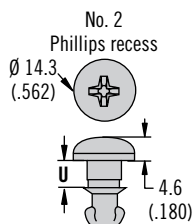
#### Oval Slot



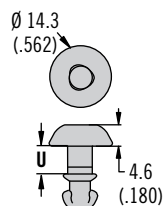
#### Hex Recess



#### Phillips Recess

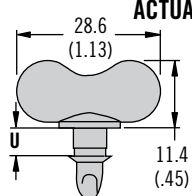


#### Tool Head Recess



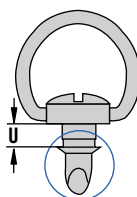
### H Head Styles - Hand Actuated

#### Wing



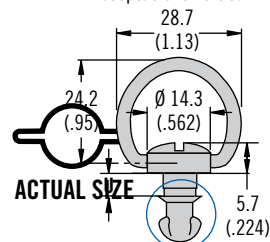
#### Bail Style RA

For use when  
receptacle is horizontal



#### Bail Style RB

For use when  
receptacle is vertical



### Installation Notes

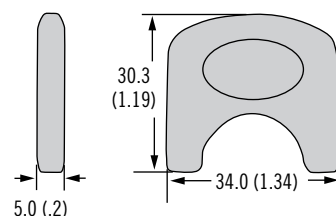
Bail cover:

A wear washer must be fitted under  
the stud head to fit flush with  
surface

Wear washer part number

85-34-301-12 (see page 285)

### Optional Bail Cover

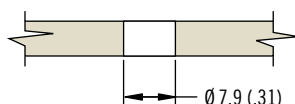


#### Bail Cover Part Number

85-5-B-000

### Stud Panel Preparation

Prepare Hole



# 85 DZUS® Lion Quarter-Turn Fasteners

## Stud selection



281

### H Head style

- 11 Oval slot
- 12 Wing head
- 15 Bail RA
- 16 Bail RB
- 78 Hex recess

P Oval Phillips recess

T Tool head recess (not available in stainless steel)

### K Length

Enter number from selection table below

85 - H - K - M

### M Material

- 16 Steel, zinc plated
- 20 Stainless steel (not available in tool head recess head style)

Stud Length Table

| Stud Length Table              |            |                                |             |                                         |             |     |             |
|--------------------------------|------------|--------------------------------|-------------|-----------------------------------------|-------------|-----|-------------|
| A                              |            | B                              |             | C                                       |             | K   | U           |
| TMT Range For:<br>85-35-308-55 |            | TMT Range For:<br>85-35-311-55 |             | TMT Range For:<br>All other receptacles |             |     |             |
| Min.                           | Max.       | Min.                           | Max.        | Min.                                    | Max.        |     |             |
| ~                              | ~          | ~                              | ~           | 2.3 (.090)                              | 2.8 (.110)  | 100 | 5.2 (.205)  |
| ~                              | ~          | ~                              | ~           | 2.8 (.110)                              | 3.3 (.130)  | 120 | 5.7 (.225)  |
| ~                              | ~          | ~                              | ~           | 3.3 (.130)                              | 3.8 (.150)  | 140 | 6.2 (.245)  |
| ~                              | ~          | ~                              | ~           | 3.8 (.150)                              | 4.3 (.170)  | 160 | 6.7 (.265)  |
| ~                              | ~          | ~                              | ~           | 4.3 (.170)                              | 4.8 (.190)  | 180 | 7.2 (.285)  |
| ~                              | ~          | ~                              | ~           | 4.8 (.190)                              | 5.3 (.210)  | 200 | 7.7 (.305)  |
| ~                              | ~          | ~                              | ~           | 5.3 (.210)                              | 5.8 (.230)  | 220 | 8.3 (.325)  |
| ~                              | ~          | 1.3 (.050)                     | 1.8 (.070)  | 5.8 (.230)                              | 6.3 (.250)  | 240 | 8.8 (.345)  |
| 0.4 (.015)                     | 0.9 (.035) | 1.8 (.070)                     | 2.3 (.090)  | 6.4 (.250)                              | 6.9 (.270)  | 260 | 9.3 (.365)  |
| 0.9 (.035)                     | 1.4 (.055) | 2.3 (.090)                     | 2.8 (.110)  | 6.9 (.270)                              | 7.4 (.290)  | 280 | 9.8 (.385)  |
| 1.4 (.055)                     | 1.9 (.075) | 2.8 (.110)                     | 3.3 (.130)  | 7.4 (.290)                              | 7.9 (.310)  | 300 | 10.3 (.405) |
| 1.9 (.075)                     | 2.4 (.095) | 3.3 (.130)                     | 3.8 (.150)  | 7.9 (.310)                              | 8.4 (.330)  | 320 | 10.8 (.425) |
| 2.4 (.095)                     | 2.9 (.115) | 3.8 (.150)                     | 4.3 (.170)  | 8.4 (.330)                              | 8.9 (.350)  | 340 | 11.3 (.445) |
| 2.9 (.115)                     | 3.4 (.135) | 4.3 (.170)                     | 4.8 (.190)  | 8.9 (.350)                              | 9.4 (.370)  | 360 | 11.8 (.465) |
| 3.4 (.135)                     | 3.9 (.155) | 4.8 (.190)                     | 5.3 (.210)  | 9.4 (.370)                              | 9.9 (.390)  | 380 | 12.3 (.485) |
| 3.9 (.155)                     | 4.4 (.175) | 5.3 (.210)                     | 5.8 (.230)  | 9.9 (.390)                              | 10.4 (.410) | 400 | 12.8 (.505) |
| 4.4 (.175)                     | 4.9 (.195) | 5.8 (.230)                     | 6.3 (.250)  | 10.4 (.410)                             | 10.9 (.430) | 420 | 13.3 (.525) |
| 5 (.195)                       | 5.5 (.215) | 6.4 (.250)                     | 6.9 (.270)  | 10.9 (.430)                             | 11.4 (.450) | 440 | 13.8 (.545) |
| 5.5 (.215)                     | 6 (.235)   | 6.9 (.270)                     | 7.4 (.290)  | 11.4 (.450)                             | 11.9 (.470) | 460 | 14.4 (.565) |
| 6 (.235)                       | 6.5 (.255) | 7.4 (.290)                     | 7.9 (.310)  | 11.9 (.470)                             | 12.4 (.490) | 480 | 14.9 (.585) |
| 6.5 (.255)                     | 7 (.275)   | 7.9 (.310)                     | 8.4 (.330)  | 12.5 (.490)                             | 12.9 (.510) | 500 | 15.4 (.605) |
| 7 (.275)                       | 7.5 (.295) | 8.4 (.330)                     | 8.9 (.350)  | 13 (.510)                               | 13.5 (.530) | 520 | 15.9 (.625) |
| 7.5 (.295)                     | 8 (.315)   | 8.9 (.350)                     | 9.4 (.370)  | 13.5 (.530)                             | 14 (.550)   | 540 | 16.4 (.645) |
| 8 (.315)                       | 8.5 (.335) | 9.4 (.370)                     | 9.9 (.390)  | 14 (.550)                               | 14.5 (.570) | 560 | 16.9 (.665) |
| 8.5 (.335)                     | 9 (.355)   | 9.9 (.390)                     | 10.4 (.410) | 14.5 (.570)                             | 15 (.590)   | 580 | 17.4 (.685) |

## Part Number Selection

### To select correct fastener:

#### 1. Select receptacle

Choose a receptacle from pages 282 - 284

#### 2. Select retainer and accessories

from page 285 and note any adjustment values

#### 3. Specify stud length

Calculate the total material thickness (TMT) using the formula given for the receptacle selected. Find the range of TMT using the stud length selection table (left) using the column (A, B or C) given for the receptacle selected, find **K**

#### 4. Complete the stud part number

by specifying the head style **H**, stud length **K**, and material **M**

Example:

For rivet-on with base receptacle

85-35-295-15 use column C

For TMT value calculated as 5.2 (.206), K = 200

For slotted head style in steel material, completed part number: 85-11-200-16

A complete example can be found on page 271

### Notes

Stainless steel material may require a higher minimum order quantity. Contact Southco for details.

82

85

D8

D1

D4

D7

NY





## 85 DZUS® Lion Quarter-Turn Fasteners

### Receptacles

#### Material and Finish

Steel, zinc immersion coating or stainless steel

82

85

D8

D1

D4

D7

NY

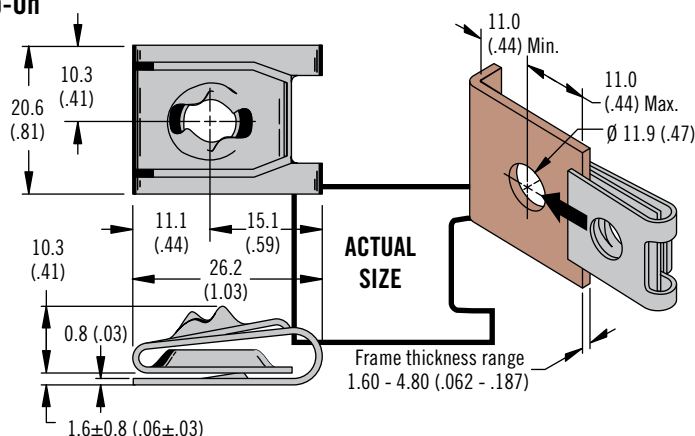
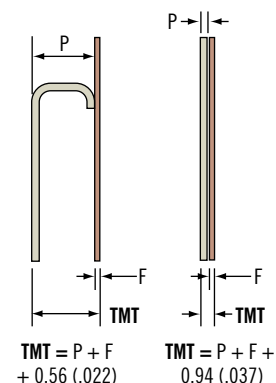
#### Part Number

See table

#### Notes

Utilize stud selection column indicated when choosing a stud length from the stud length table on page 281

#### Clip-On



#### By Hand



#### With Screwdriver

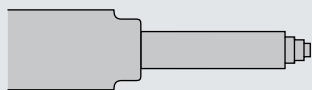


| Material        | Part Number  | Stud Selection Column |
|-----------------|--------------|-----------------------|
| Steel           | 85-47-101-15 | C                     |
| Stainless steel | 85-47-101-20 |                       |

#### Material and Finish

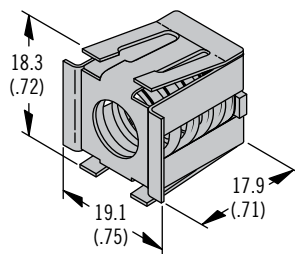
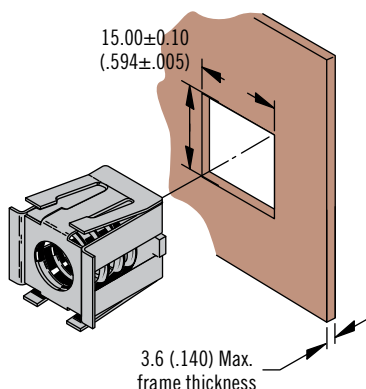
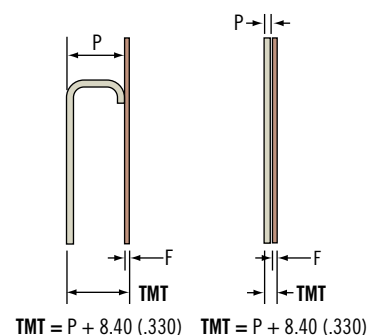
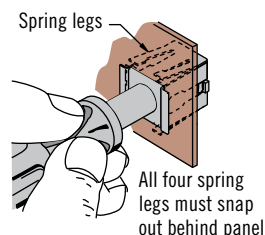
Steel, zinc plated and stainless steel

#### Installation Tool



Part Number: 29-8125-309

#### Snap-In – Front Mount



#### Part Number

See table

#### Notes

Utilize stud selection column indicated when choosing a stud length from the stud length table on page 281

| Part Number  | Stud Selection Column |
|--------------|-----------------------|
| 85-35-309-56 | C                     |

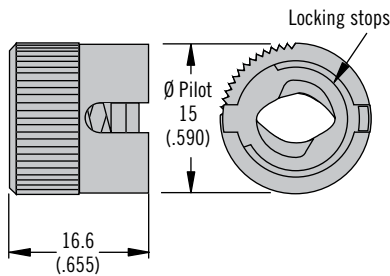
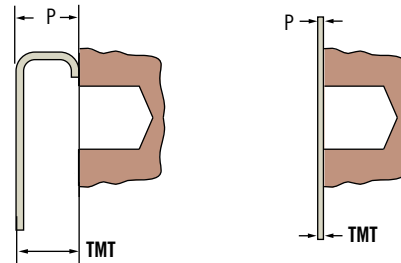
# 85 DZUS® Lion Quarter-Turn Fasteners

## Receptacles



283

### Press-In

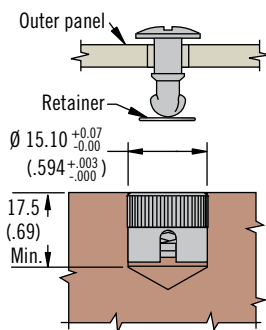


$$TMT = P + \text{Gap} - 0.6 (.025)$$

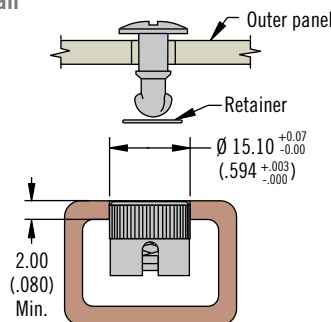
(when gap is > retainer thickness)

$$TMT = P + \text{Retainer adjustment value} - 0.6 (0.25)$$

### Solid Install



### Blind Install



| Part Number  | Stud Selection Column |
|--------------|-----------------------|
| 85-35-308-55 | A                     |

### Material and Finish

Steel, zinc plated and stainless steel

### Installation Notes

Press receptacle flush to frame

### Notes

Receptacle shown installed flush to the frame. To eliminate the gap between the frame and outer panel, install to a depth  $\geq$  the thickness of the selected retainer. This depth should be added to the TMT.

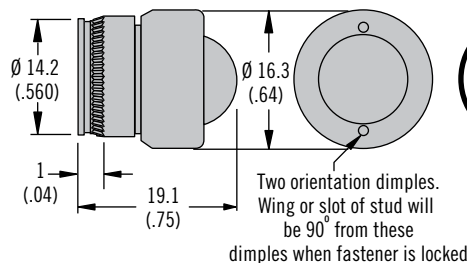
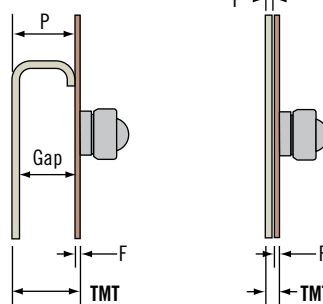
### Part Number

See table

### Notes

Utilize stud selection column indicated when choosing a stud length from the stud length table on page 281

### Shielded – Self-Clinching

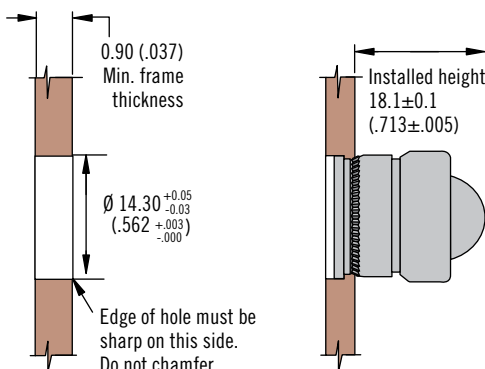


$$TMT = P + F$$

(when gap is > retainer thickness)

$$\text{Frame thickness (F) > 0.9 (.036) + Retainer thickness: } TMT = P + F$$

$$\text{Frame thickness (F) } \geq 0.9 (.036) + \text{Retainer thickness: } TMT = P + 0.9 (.036) + \text{Retainer thickness}$$



| Part Number  | Stud Selection Column |
|--------------|-----------------------|
| 85-35-311-55 | B                     |

### Material and Finish

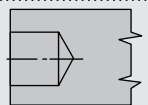
Steel, zinc plated and stainless steel

### Installation Notes

For use in low carbon steels, aluminum and stainless steels in the annealed condition that are R<sub>B</sub> 85 or softer.

See page 497 for installation guidelines

### Installation Tool



Part number: 90-2825-11

### Part Number

See table

### Notes

Utilize stud selection column indicated when choosing a stud length from the stud length table on page 281



# 85 *DZUS*<sup>®</sup> Lion Quarter-Turn Fasteners

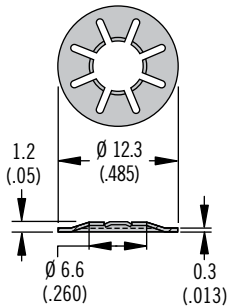
## Retainers · Accessories



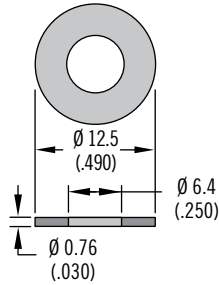
285

### Retainers

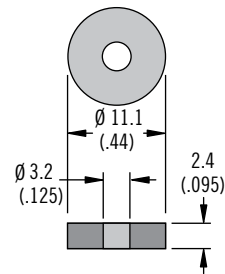
#### Push-On - Stainless Steel



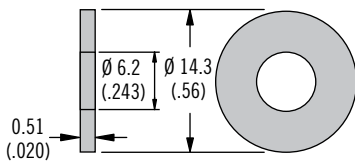
#### Push-On - Plastic



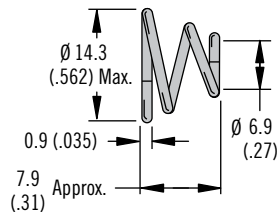
#### Push-On - Neoprene



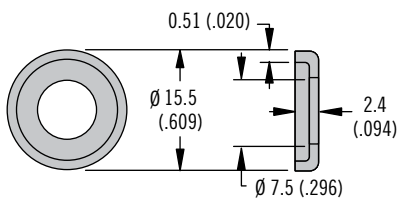
### Sealing Washer



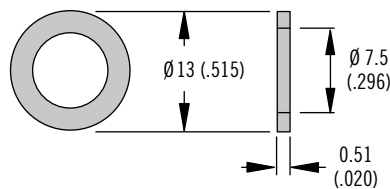
### Ejector Spring



### Cupped Washer



### Flat Wear Washer

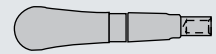


### Material and Finish

See table

### Installation Notes

For standard retainers use tool



Part number 85-0-22543-11

82

85

D8

D1

D4

D7

NY



| Type                      | Part Number  | Material                       | Adjustment Value |
|---------------------------|--------------|--------------------------------|------------------|
| Push-on - Stainless steel | 85-34-201-20 | Stainless steel                | Add 0.33 (.013)  |
| Push-on - Plastic         | 85-34-301-12 | Nylon, black                   | Add 0.76 (.030)  |
| Push-on - Neoprene        | 85-33-101-27 | Neoprene, black                | Add 1.22 (.048)  |
| Sealing washer            | 85-43-201-38 | Neoprene nitrile rubber, black | Add 0.51 (.020)  |
| Ejector spring            | 14-18-150-24 | Stainless steel                | Add 1.00 (.039)  |
| Cupped washer             | 85-46-101-39 | Nylon, white                   | Add 0.51 (.020)  |
|                           | 85-46-101-41 | Nylon, black                   |                  |
| Flat wear washer          | 85-46-103-39 | Nylon, white                   | Add 0.51 (.020)  |

### Part Number

See table

### Adjustment value:

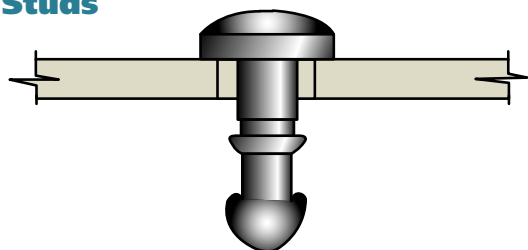
When using accessories the components add thickness

Add the adjustment value to your outer panel thickness (P) when calculating TMT (see page 271 for example)

## Small Series

- For limited-space applications
- Quick access

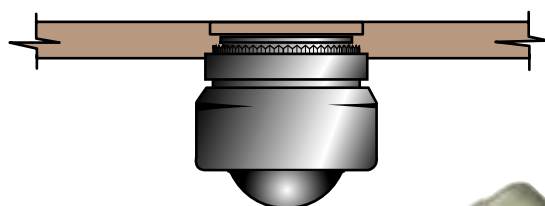
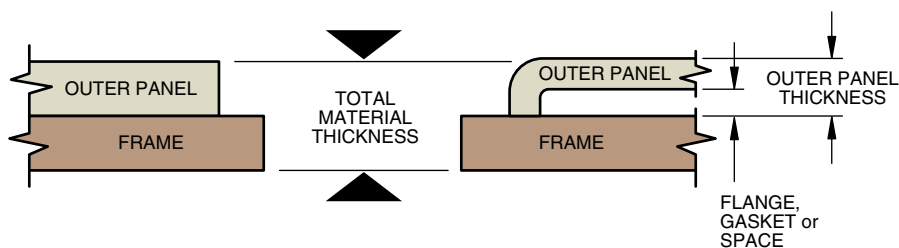
### Studs



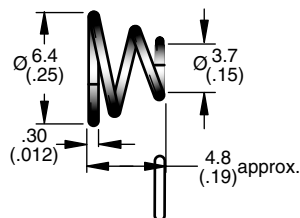
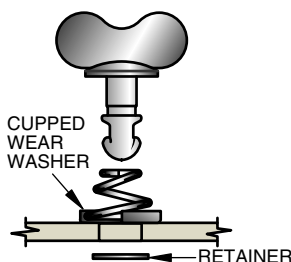
### Retainer



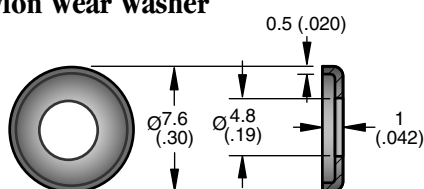
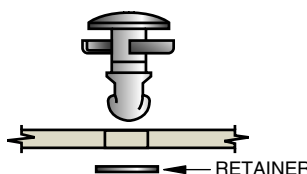
### Receptacles



### 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.

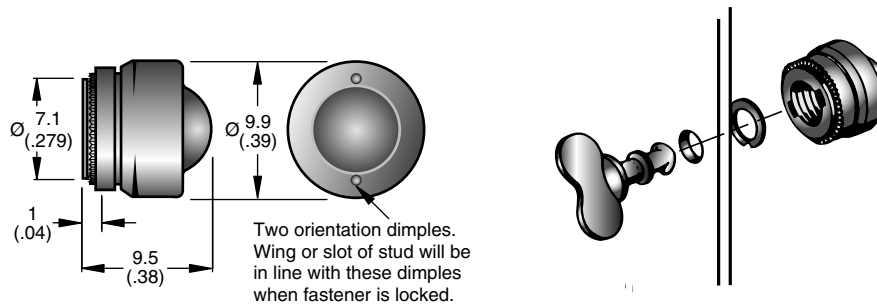
millimeter (inch)  
millimeter (inch)

Dimensions without tolerances are for reference only.

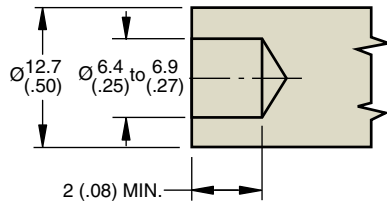
## Small Series, Receptacles

### Shielded press-in for sheet metal

#### • Provides RFI-EMI shielding

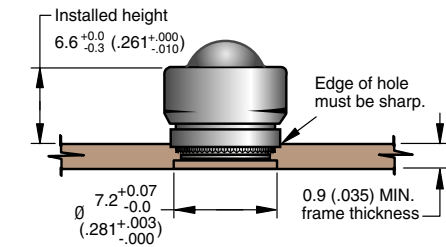


#### Installation Tool



#### 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>B</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, zinc immersion coating.

CAP: 305 Stainless steel, zinc immersion coating.

#### PART NUMBER

81-35-311-55 •

#### Adjustment Formula

To enter Stud Selection Table determine your Total Material Thickness.

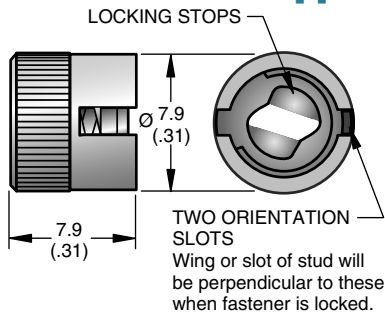
Substitute 1.3 (.050) (constant) for frame thickness if frame thickness is less than 1.27 (.050).

#### Product Strength Guidelines

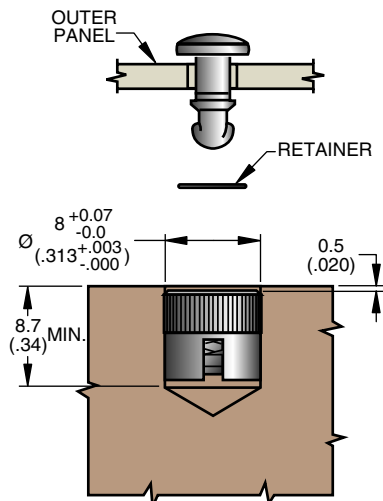
(To assist in your product selection; samples are available for your evaluation.)

Maximum static load: 440 N (100 lbs.)

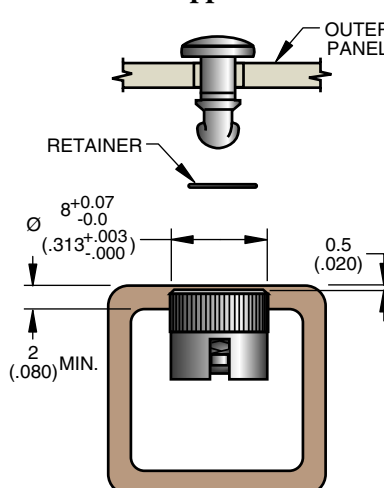
### Press-in for blind applications and solid materials



#### 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, zinc immersion coating.

#### PART NUMBER

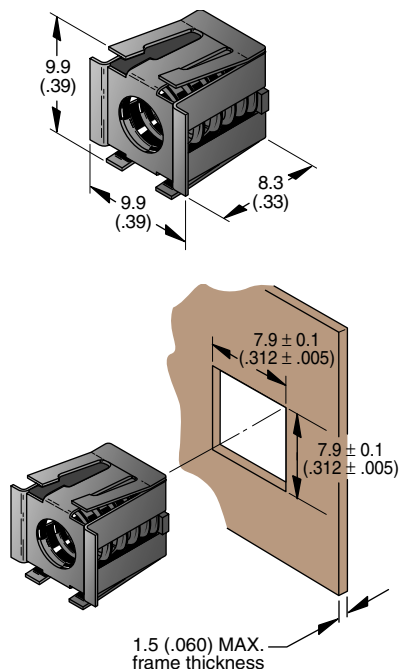
81-35-308-55 •

#### Adjustment Formula

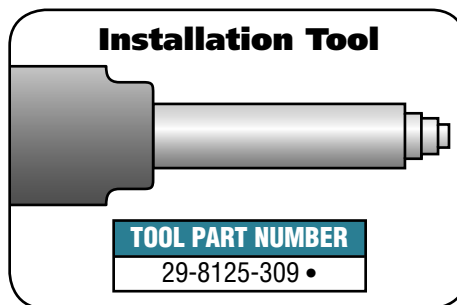
To enter Stud Selection Table determine your Outer Panel Thickness.

## Small Series, Receptacles

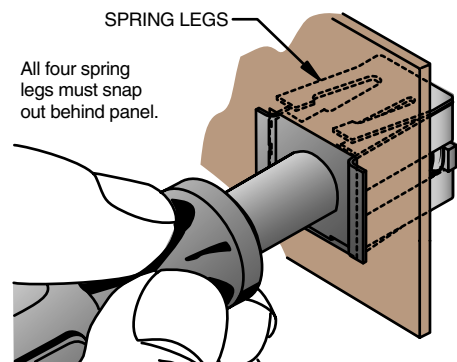
### Snap-in



### Installation Tool



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:

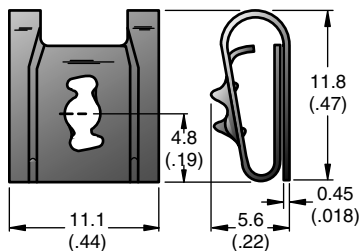
Outer Panel Thickness + 1.5 (.060) but use Total Material Thickness column.

**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 static load: 440 N (100 lbs.)

### Clip-on

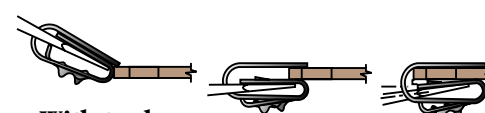


### To Install

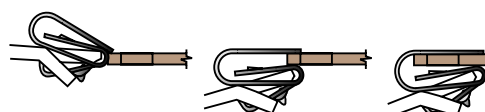
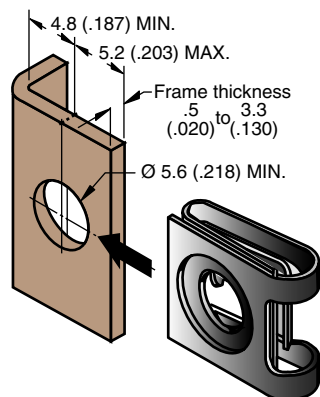
#### By hand



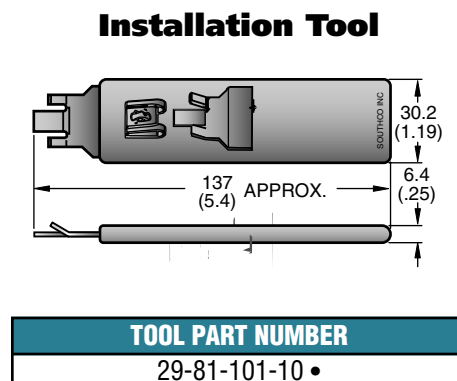
#### With screwdriver



#### With tool



### Installation Tool



### Material and Finish

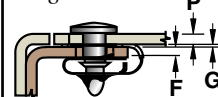
RECEPTACLE: 1064 Steel, zinc immersion coating or 17-7PH stainless steel, passivated (see table).

| Part Description | PART NUMBER    |
|------------------|----------------|
| Steel            | 81-47-101-15 • |
| Stainless steel  | 81-47-101-20 • |

### Adjustment Formula

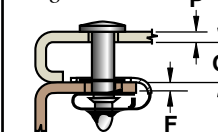
To use Stud Selection Table on pg. 273 determine your Total Material Thickness by calculating:

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 static load: 440 N (100 lbs.)

millimeter (inch)

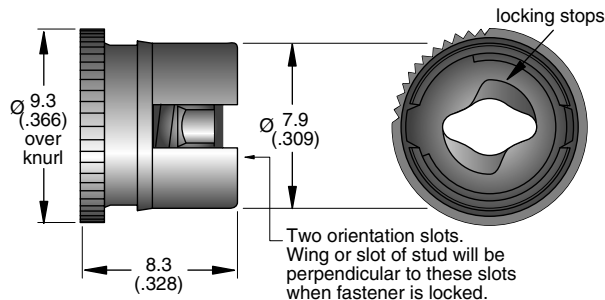
millimeter (inch)

Dimensions without tolerances are for reference only.

## Small Series, Receptacles

### For ultrasonic installation in thermoplastics

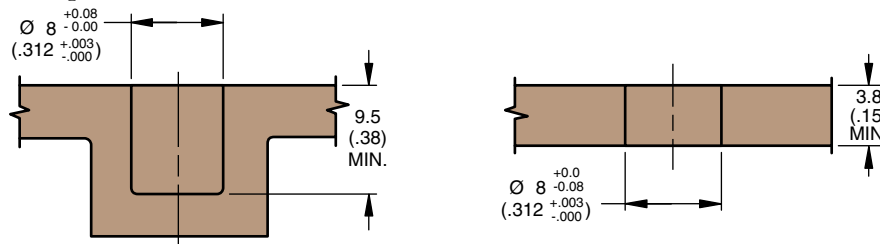
- Minimize residual stress
- Increased pull-out resistance
- Increased torque-out resistance



**PART NUMBER**  
81-35-310-55 •

### Installation

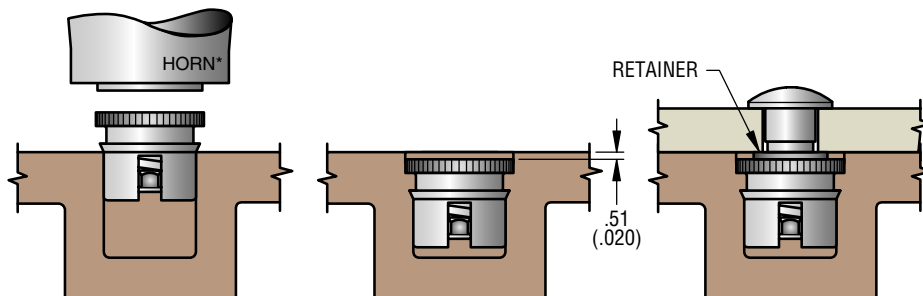
#### 1. Prepare hole.



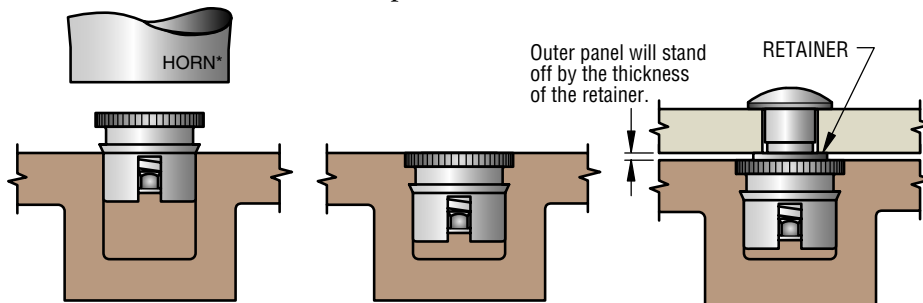
#### 2. Use one of the methods shown.

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, zinc immersion coating.

### Product Strength Guidelines

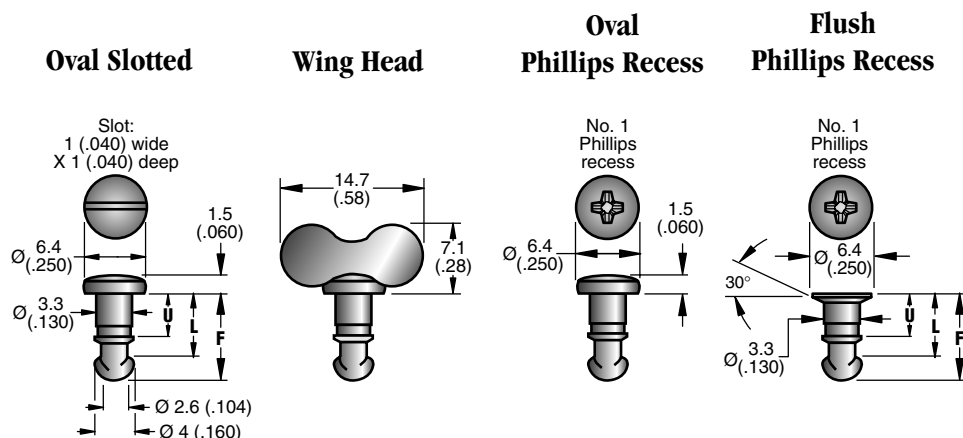
(To assist in your product selection; samples are available for your evaluation.)

Maximum static load: 440 N (100 lbs.)

millimeter (inch)  
millimeter  
(inch)

Dimensions without tolerances are for reference only.

## Small Series, Stud Selection



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

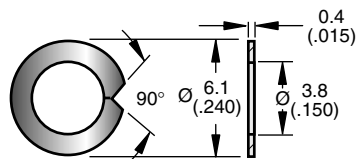
‡ If using ejector spring or nylon wear washers, see bottom of page 269.

## Small Series

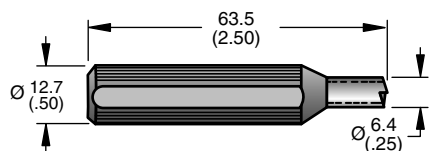
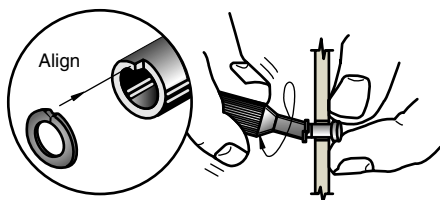
### Retainers

#### Split-Ring Retainer

Hand or tool installation

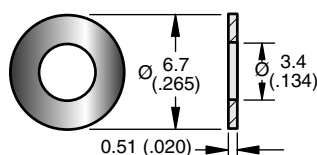


#### Installation Tool

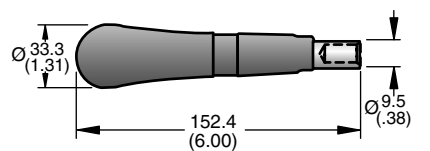
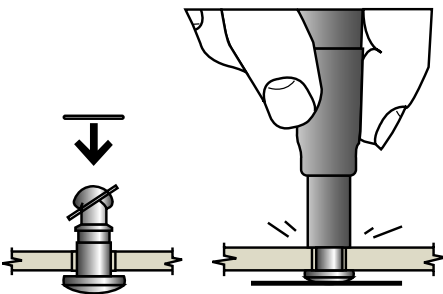


#### Push-On Retainer

Tool installation



#### Installation Tool



### 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.

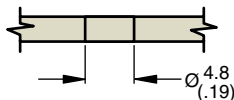
| RETAINER/TOOL       | PART NUMBERS    |
|---------------------|-----------------|
| Split-Ring Retainer | 81-32-101-20 •  |
| Split-Ring Tool     | 81-0-15129-11 • |
| Push-On Retainer    | 81-32-301-12 •  |
| Push-On Tool        | 81-0-18173-11 • |

### Installation

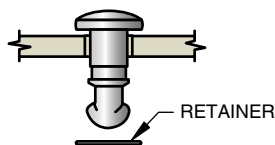
#### For Above-surface styles



1. Drill.



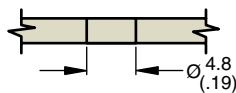
2. Insert stud and add retainer.



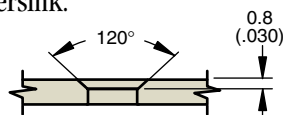
#### For Flush-head style



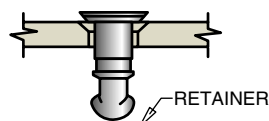
1. Drill.



2. Countersink.



3. Insert stud and add retainer.



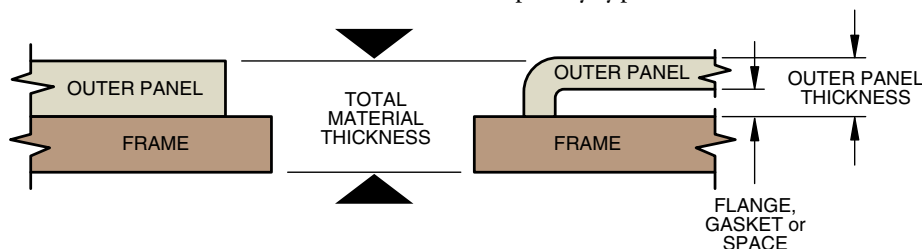
# Medium Series, 1/4-turn Studs, Snap-in Studs and Fully Retracting Stud Assemblies

## 1/4-turn and Snap-in Studs

### 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 measure).
  - b) if adjustment formula is shown under receptacle part number, apply this formula to your measurement.
  - c) if sealing washers, stud ejector springs or wear washers will be used, apply proper adjustment formulas to your measurement.
  - d) when using snap-in studs, add an additional 0.5 (.020) to the Total Material Thickness or Outer Panel Thickness, as required by your choice of receptacle.
  - e) use measurement (or adjusted measurement) to find part number in table (see pages 282 and 283) under stud head style you want. For snap-in studs, add a -1 suffix, ie. 82-11-180-16-1.
3. Choose a retainer.
 

**NOTE:** Snap-in stud assemblies do not require a separate retainer.
4. Review the stud installation procedure.
5. Order each component and tool (if required) separately by part number.



## Fully-retracting

- Permits sliding applications
- Full stud retraction assists in panel-to-frame alignment
- Pre-assembled to speed installation
- Installation options—Press-in or Flare-in
- Black or bright finish
- Tool operated

### To select correct fastener

1. Choose a receptacle (note any panel or frame thickness limitations).
2. Select one of the following stud assemblies:

#### Press-in

- a) Use your Outer Panel Thickness or measure your Total Material Thickness, as required by your choice of receptacle.
- b) If an adjustment formula is shown under the receptacle part number, apply this formula to your measurement.
- c) Use measurement (or adjusted measurement) to find stud part number in the table on page 282.

#### Flare-in

Measure your Outer Panel Thickness and use Table located at bottom of page 284 to determine which column (I or II) you will need in table on page 283.

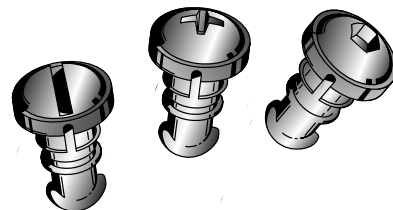
Follow steps a) and b) at left and use your measurement (or adjusted measurement) to find stud part number in table on page 282.

3. Review the stud installation procedure. Order each fastener component and installation tool (if required) separately by part number.



### No. 82 Snap-in Stud Assemblies

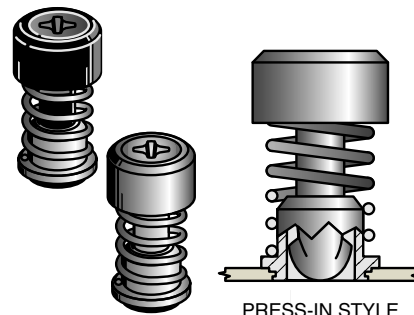
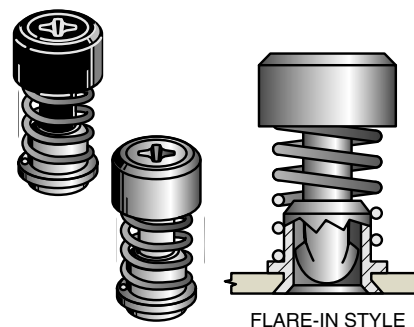
- Speeds installation
- Reduces inventory



To order, add a -1 suffix;  
Example: 82-11-180-16 “-1”

**Outer Panel Thickness for Snap-in Studs 1.5 (.060) MIN. 3.2 (.125) MAX.**

**Minimum stud grip range is 4.5 (.180) Grip.**

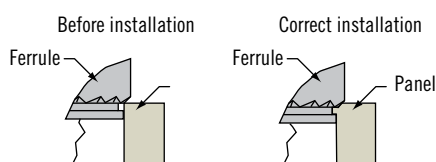


# Installation Guidelines

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.



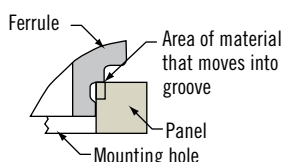
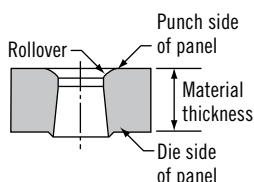
## Successful press-in installations depend on:

### 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:

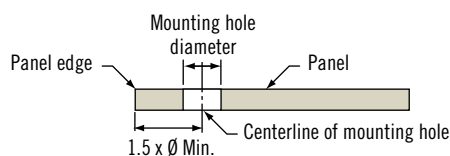
Mounting holes may be drilled, punched, or cast.



- 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.

