

82 DZUS® Lion Quarter-Turn Fasteners

Stud selection



379

H Head style

- 11 Oval slot
- 12 Wing head
- 15 Bail RA
- 16 Bail RB
- 19 Oval Phillips recess
- 28 Flush Phillips recess
- 78 Hex recess
- T Tool head recess
(not available in stainless steel)

K Length

Enter number from selection table below

82 - 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		D		K	U
TMT Range For: 82-35-306-10		TMT Range For: 82-35-308-55 82-35-310-55		TMT Range For: 82-35-315-55		TMT Range For: 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 380-384

2. Select retainer and accessories

from page 385 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 377

Notes

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



82 DZUS® Lion Quarter-Turn Fasteners Receptacles

Material and Finish

Steel, zinc immersion coating

Installation Notes

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

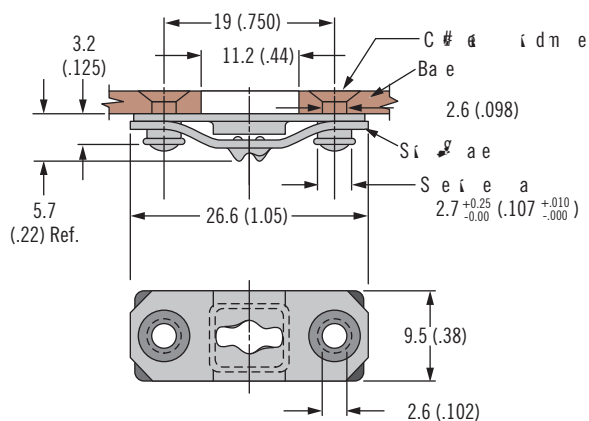
Part Number

See table

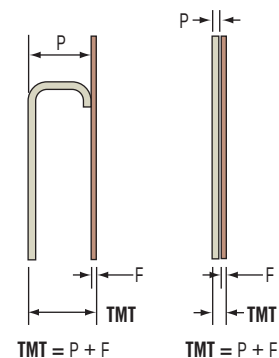
Notes

Utilize stud selection column indicated when choosing a stud length from the stud length table on page 379

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 Ø 2.5 (3/32) rivets, spring plate must float freely after riveting

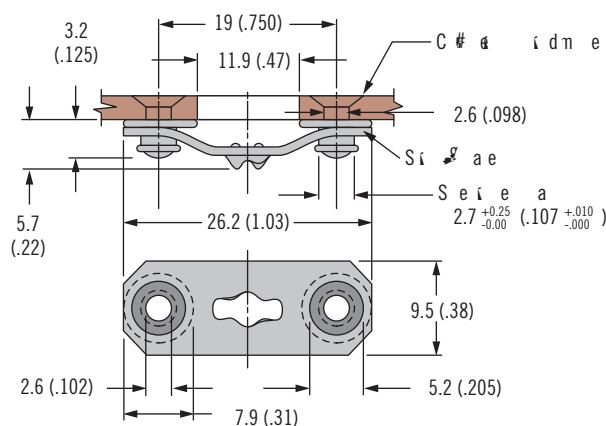
Part Number

See table

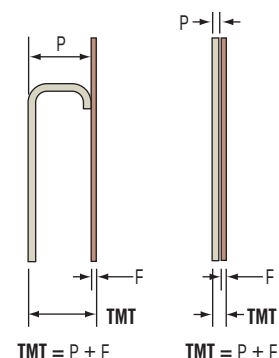
Notes

Utilize stud selection column indicated when choosing a stud length from the stud length table on page 379

Rivet-On Without Base



ACTUAL SIZE



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

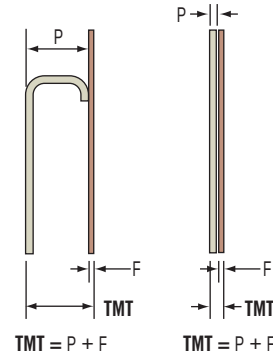
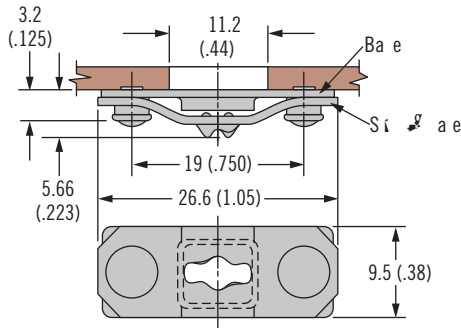


82 DZUS® Lion Quarter-Turn Fasteners Receptacles



381

Weld-On



ACTUAL SIZE

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

Material and Finish

Steel, zinc immersion coating

Installation Notes

Spring plate must float freely after welding

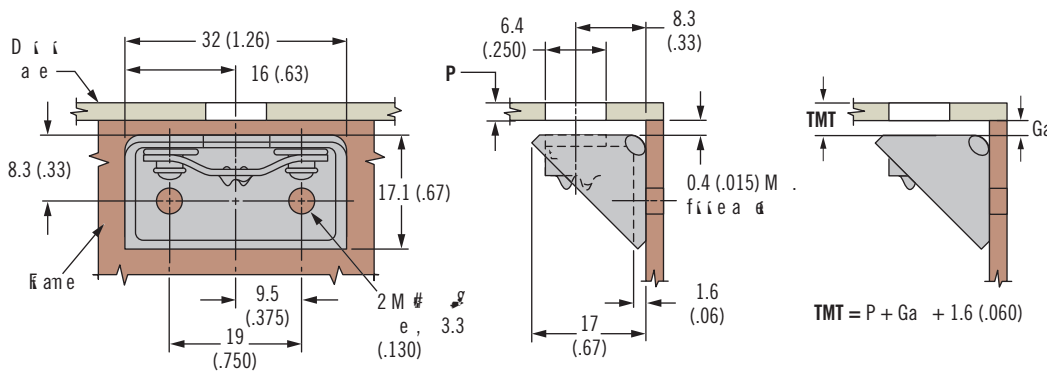
Part Number

See table

Notes

Utilize stud selection column indicated when choosing a stud length from the stud length tab

Side Mount



ACTUAL SIZE

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

Material and Finish

Steel, zinc immersion coating

Installation Notes

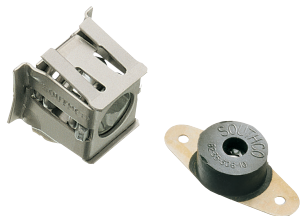
Install with Ø 2.5 (3/32) rivets

Part Number

See table

Notes

Utilize stud selection column indicated when choosing a stud length from the stud length table on page 379



82 DZUS® Lion Quarter-Turn Fasteners Receptacles

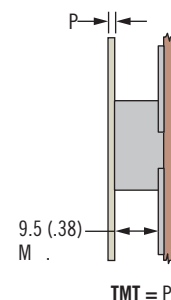
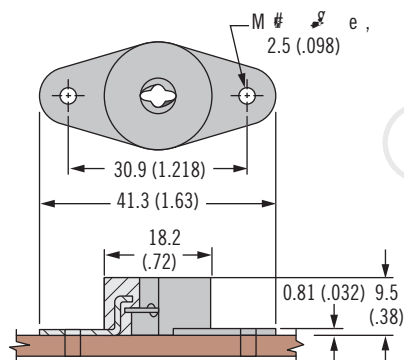
Material and Finish

Steel, zinc plated and neoprene

Installation Notes

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

Vibration Isolating

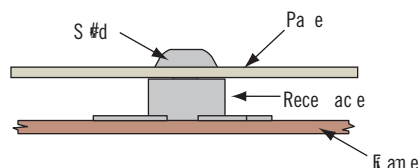


Part Number

See table

Notes

Utilize stud selection column indicated when choosing a stud length from the stud length table on page 379



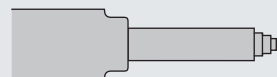
Part Number	Stud Selection Column
82-35-306-10	A

Material and Finish

Steel, zinc plated and stainless steel

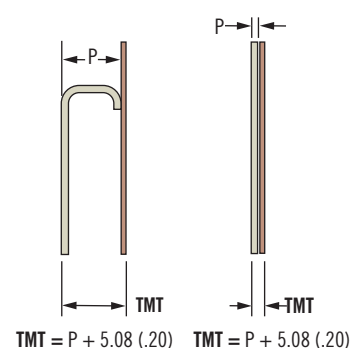
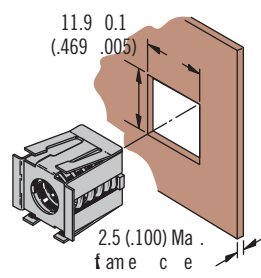
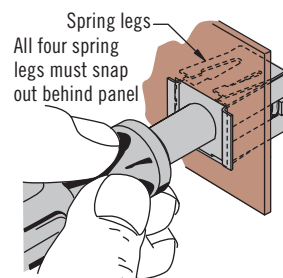
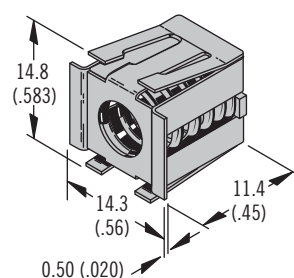
Installation Notes

Installation Tool



Part Number: 29-8125-309

Snap-In - Front Mount



Part Number

See table

Notes

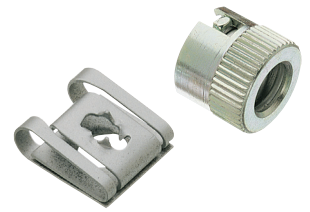
Utilize stud selection column indicated when choosing a stud length from the stud length table on page 379

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



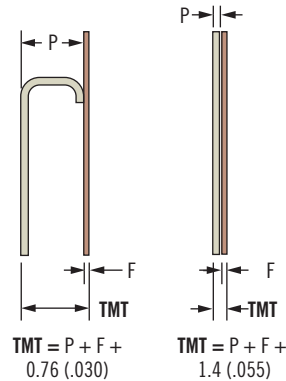
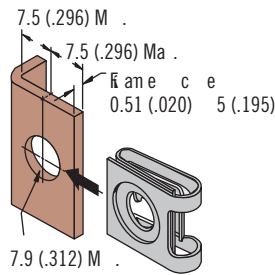
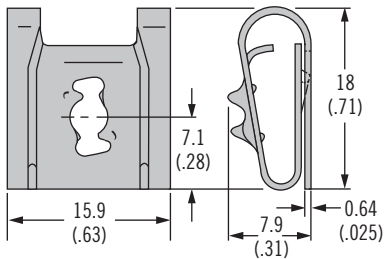
82 DZUS® Lion Quarter-Turn Fasteners

Receptacles

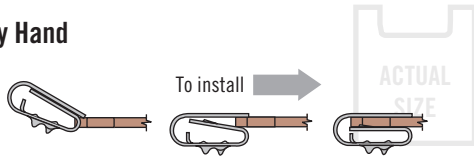


383

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

D5

D7

NY

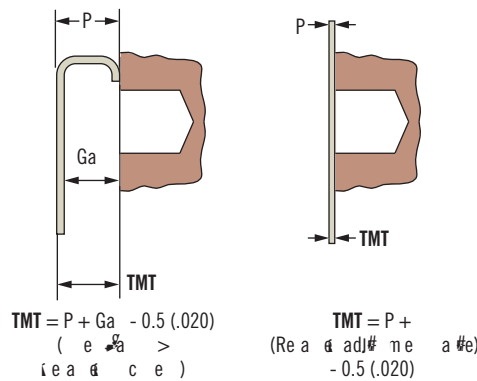
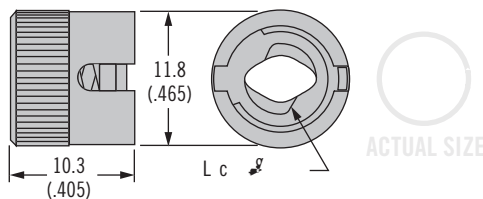
Part Number

See table

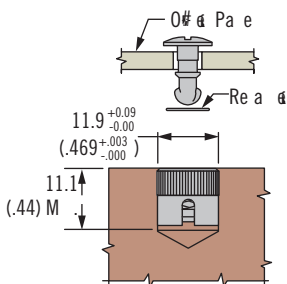
Notes

Utilize stud selection column indicated when choosing a stud length from the stud length table on page 379

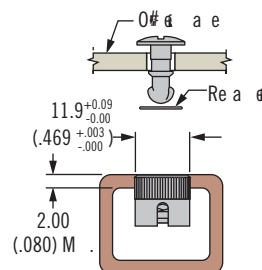
Press-In



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 379



82 DZUS® Lion Quarter-Turn Fasteners

Receptacles · Self-clinching

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 379

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 R₈₅ or softer

See page 543 for installation guidelines

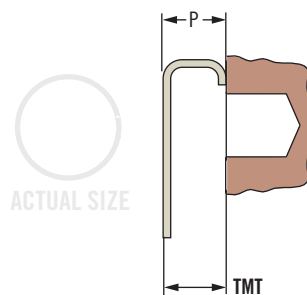
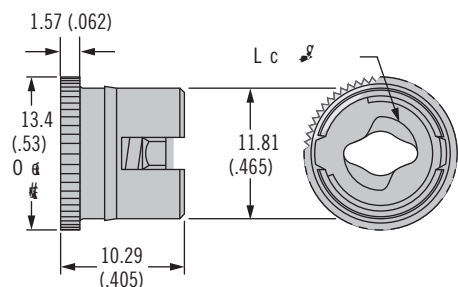
Part Number

See table

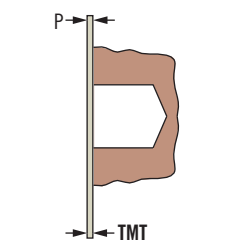
Notes

Utilize stud selection column indicated when choosing a stud length from the stud length table on page 379

Ultrasonic For Thermoplastics

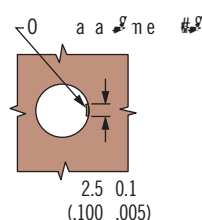


$$TMT = P - 0.5 (.020)$$

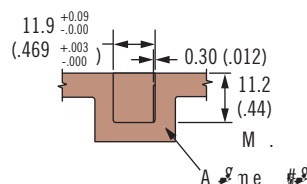


$$TMT = P + \text{Re a d j u s t m e n t} - 0.5 (.020)$$

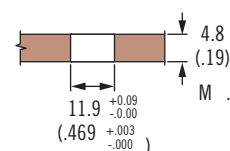
Installation



Blind Hole Installation

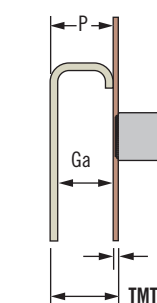
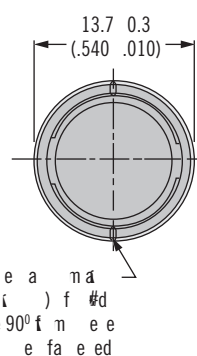
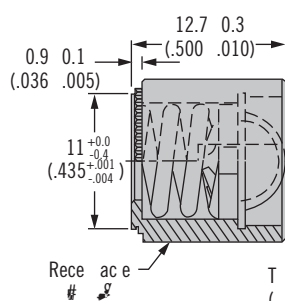


Thru Hole Installation

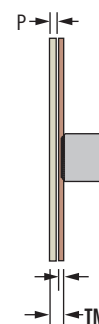


Part Number	Stud Selection Column
82-35-310-55	B

Shielded – Self-Clinching



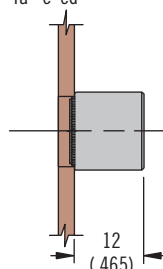
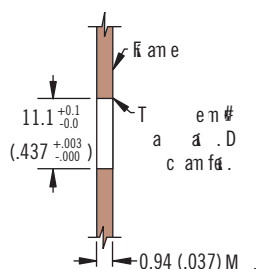
$$TMT = P + F$$



$$TMT = P + F + \text{Re a d j u s t m e n t}$$

$$TMT = P + 0.9 (.036) + \text{Re a d j u s t m e n t}$$

$$TMT = P + 0.9 (.036) + \text{Re a d j u s t m e n t}$$



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



Dimensions in millimeters (inch) unless otherwise stated



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85 DZUS® Lion Quarter-Turn Fasteners Studs

Material and Finish

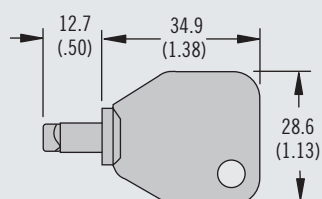
Studs: Steel, zinc plated
or stainless steel

Bail cover: ABS, black

Accessories

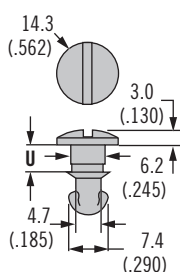
Tool head recess key:

Part number: 29-90-215-10

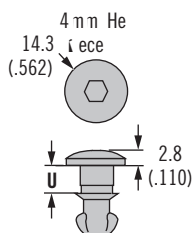


H Head Styles - Tool Actuated

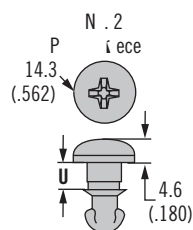
Oval Slot



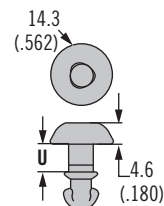
Hex Recess



Phillips Recess



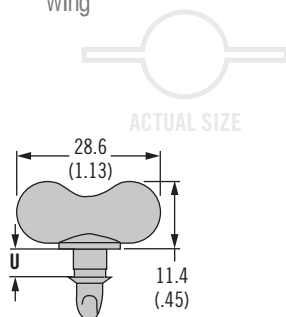
Tool Head Recess



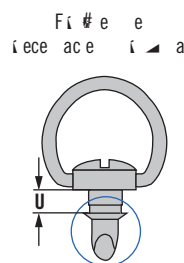
ACTUAL SIZE

H Head Styles - Hand Actuated

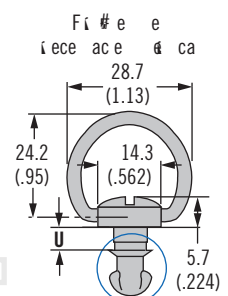
Wing



Bail Style RA



Bail Style RB



ACTUAL SIZE

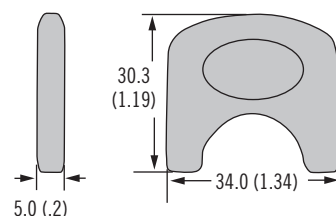
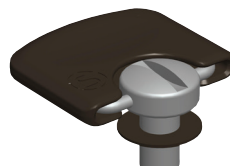
Installation Notes

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 391)

Optional Bail Cover

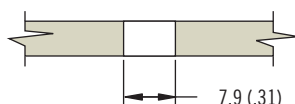


Bail Cover Part Number

85-5-B-000

Stud Panel Preparation

Prepare Hole



Dimensions in millimeters (inch) unless otherwise stated



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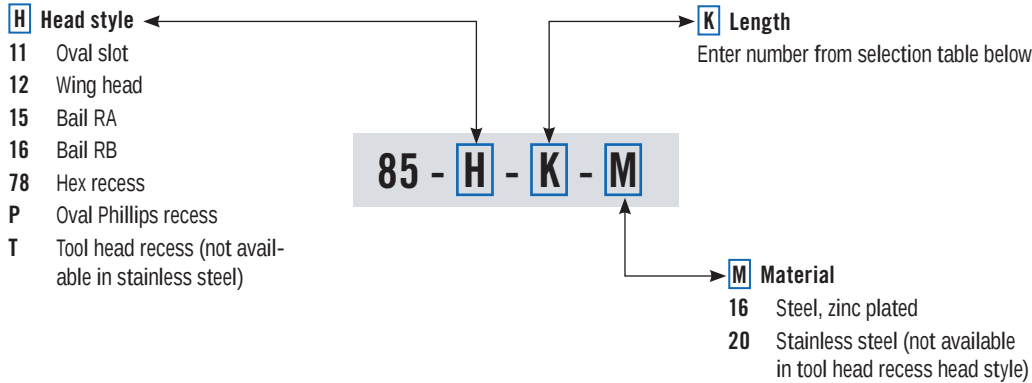
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85 DZUS® Lion Quarter-Turn Fasteners

Stud selection



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Stud Length Table							
A		B		C		K	U
TMT Range For: 85-35-308-55		TMT Range For: 85-35-311-55		TMT Range For: 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 page 388-390

2. Select retainer and accessories

from page 391 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

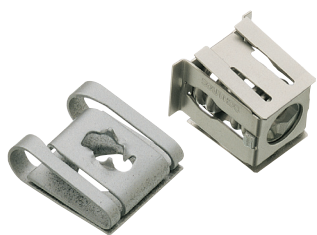
For TMT value calculated as 5.2 (.206), K = 200

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

A complete example can be found on page 377

Notes

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



85 DZUS® Lion Quarter-Turn Fasteners

Receptacles

Material and Finish

Steel, zinc immersion coating or stainless steel

82

85

D8

D1

D4

D5

D7

NY

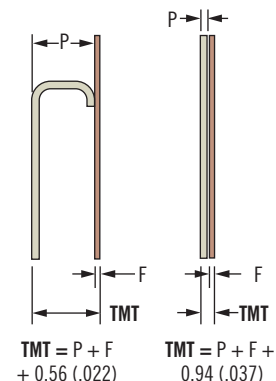
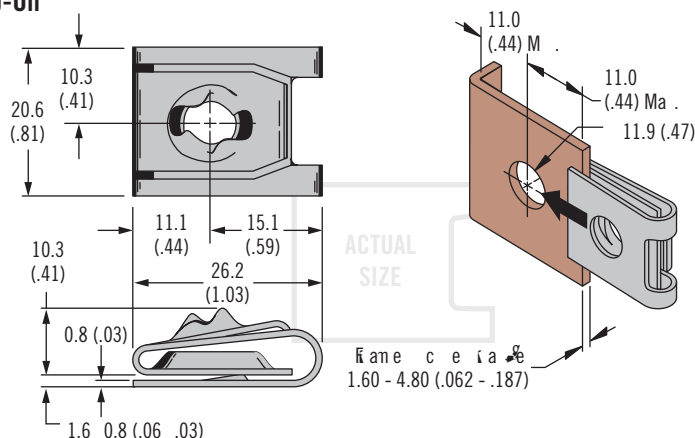
Part Number

See table

Notes

Utilize stud selection column indicated when choosing a stud length from the stud length table on page 387

Clip-On



By Hand



With Screwdriver

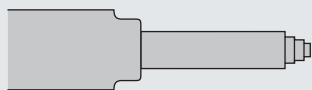


Material	Part Number	Stud Selection Column
Steel	85-47-101-15	C
Stainless steel	85-47-101-20	

Material and Finish

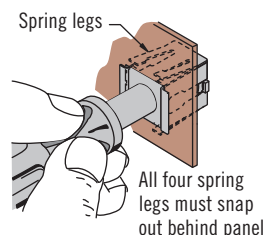
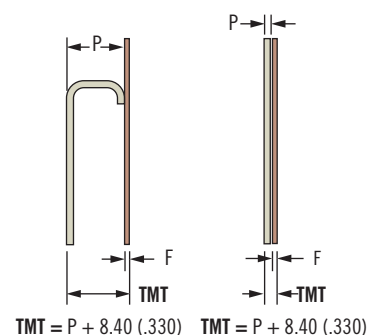
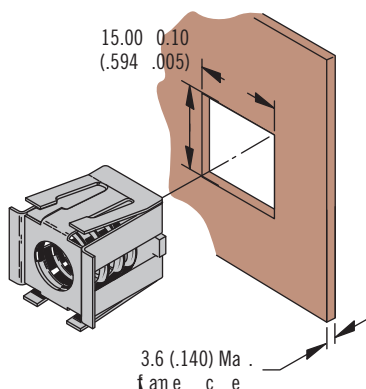
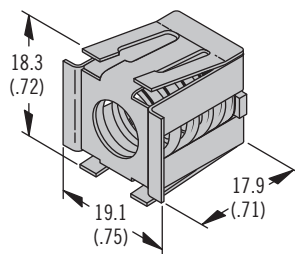
Steel, zinc plated and stainless steel

Installation Tool



Part Number: 29-8125-309

Snap-In – Front Mount



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

Part Number

See table

Notes

Utilize stud selection column indicated when choosing a stud length from the stud length table on page 387



www.southco.com/85

Dimensions in millimeters (inch) unless otherwise stated

DZUS®

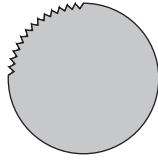
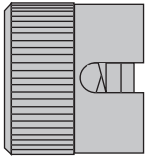
southco®
CONNECT · CREATE · INNOVATE

85 DZUS® Lion Quarter-Turn Fasteners

Receptacles

389

Press-In



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.



85 DZUS® Lion Quarter-Turn Fasteners Receptacles

Material and Finish

Steel, zinc immersion coating or stainless steel

Installation Notes

Install with Ø 3 (.125) rivets; spring must float freely after riveting

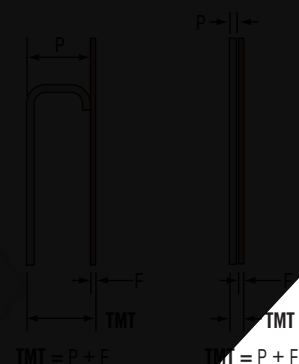
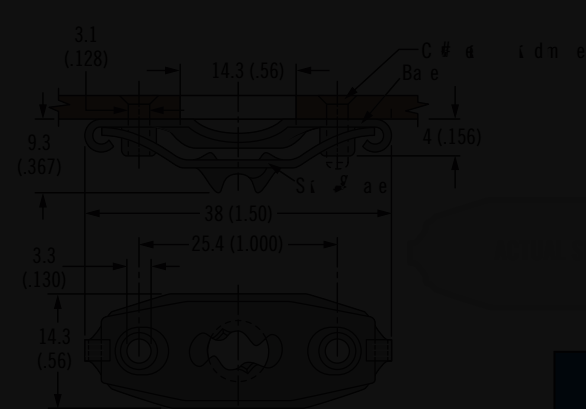
Part Number

See table

Notes

Utilize stud selection column indicated when choosing a stud length from the stud length table on page 387

Rivet-On With Base



Material	Part Number	Stud Selection Column
Steel	85-35-295-15	C
Stainless steel	85-35-295-20	

Material and Finish

Steel, zinc immersion coating

Installation Notes

Spring must float freely after welding

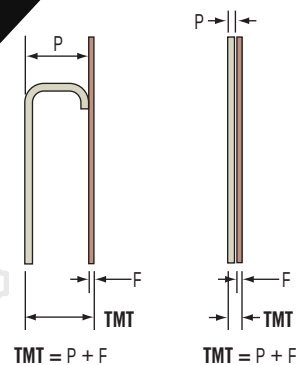
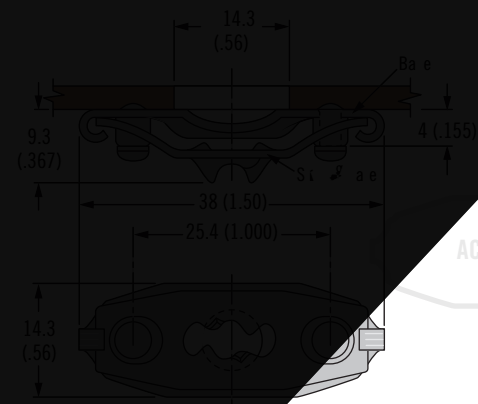
Part Number

See table

Notes

Utilize stud selection column indicated when choosing a stud length from the stud length table on page 387

Weld-On



Part Number	Stud Selection Column
85-35-296-15	C

Material and Finish

Steel, zinc immersion coating

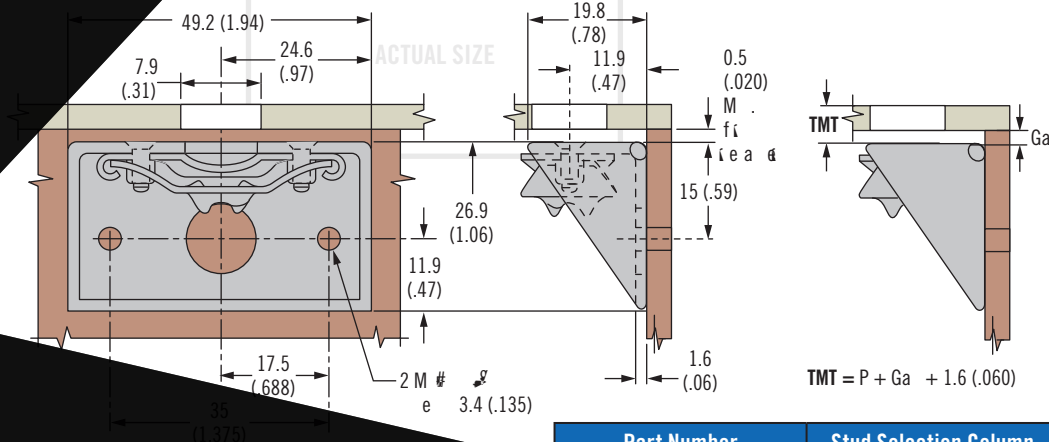
Part Number

See table

Notes

Utilize stud selection column indicated when choosing a stud length from the stud length table on page 387

Side Mount

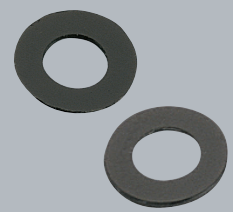


Part Number	Stud Selection Column
85-45-101-15	C



85 DZUS® Lion Quarter-Turn Fasteners

Retainers · Accessories



391

Material and Finish

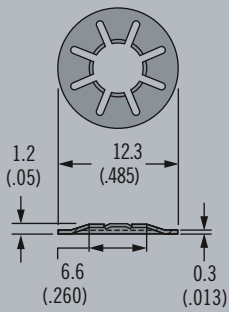
See table

Installation Notes

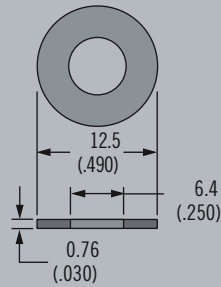
For standard retainers use tool



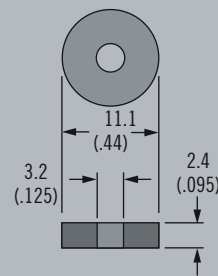
Part number 85-0-22543-11



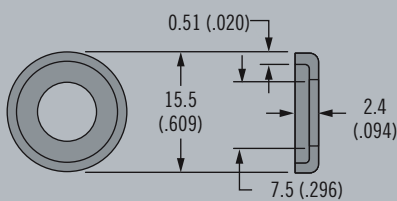
Sealing Washer



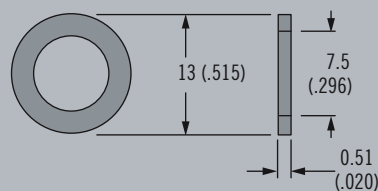
Ejector Spring



Cupped Washer



Flat Wear Washer

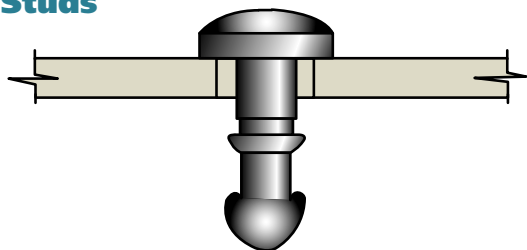


Southco® Quarter-turn Fasteners

Small Series

- For limited-space applications
- Quick access

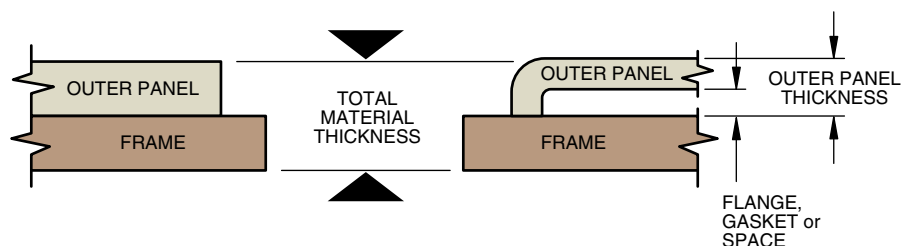
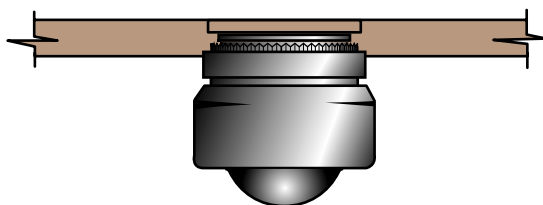
Studs



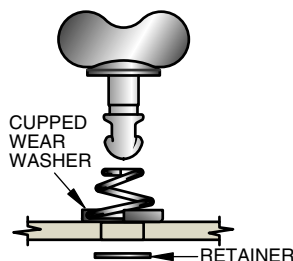
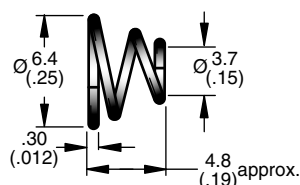
Retainer



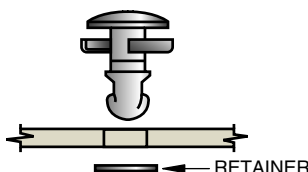
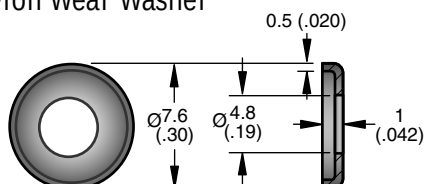
Receptacles



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)

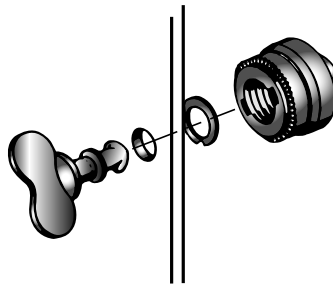
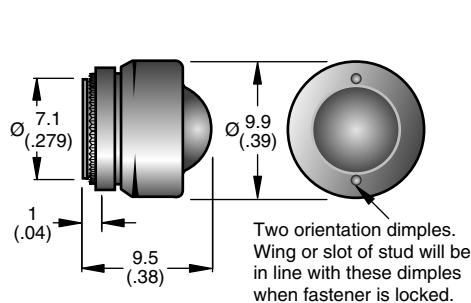
Dimensions without tolerances are for reference only.

Southco® Quarter-turn Fasteners

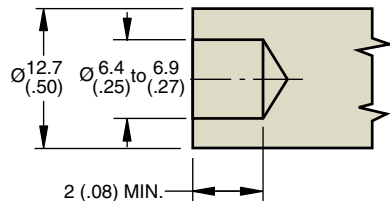
Small Series, Receptacles

Shielded press-in for sheet metal

• Provides RFI-EMI shielding

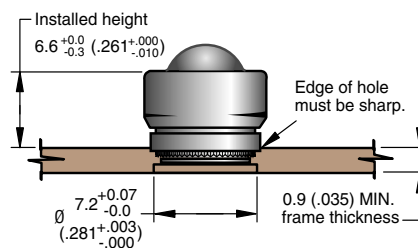


Installation Tool



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_B85 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.

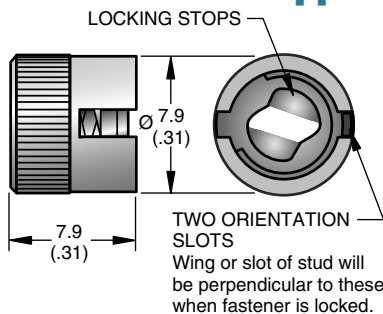
Substitute 1.3 (.050) (constant) for frame thickness if frame thickness is less than 1.27 (.050).

Product Strength Guidelines

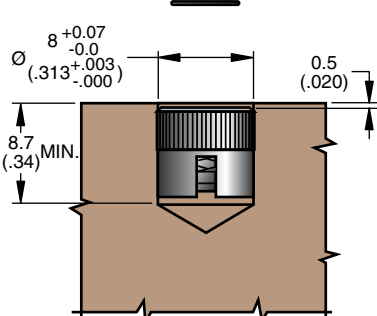
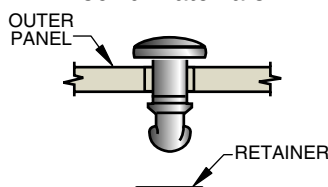
(To assist in your product selection; samples are available for your evaluation.)

Maximum static load: 440 N (100 lbs.)

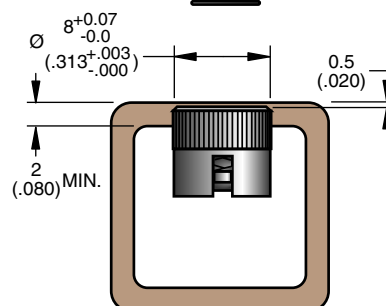
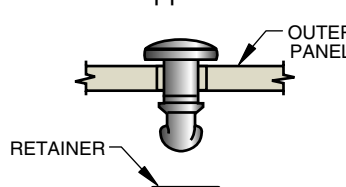
Press-in for blind applications and solid materials



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.

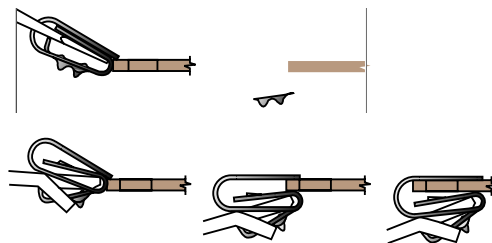
Product Strength Guidelines

(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.



millimeter (inch)
millimeter
(inch)

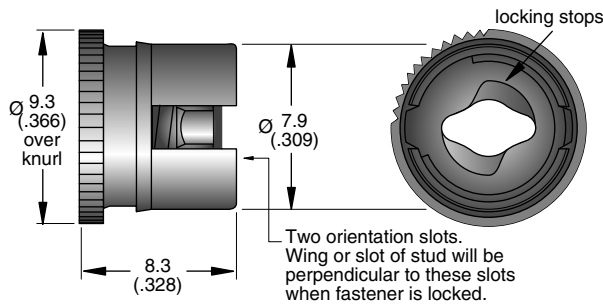
Dimensions without tolerances are for reference only.

Southco® Quarter-turn Fasteners

Small Series, Receptacles

For ultrasonic installation in thermoplastics

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

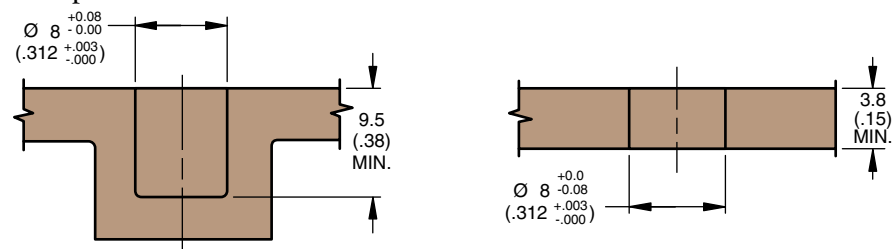


PART NUMBER

81-35-310-55 •

Installation

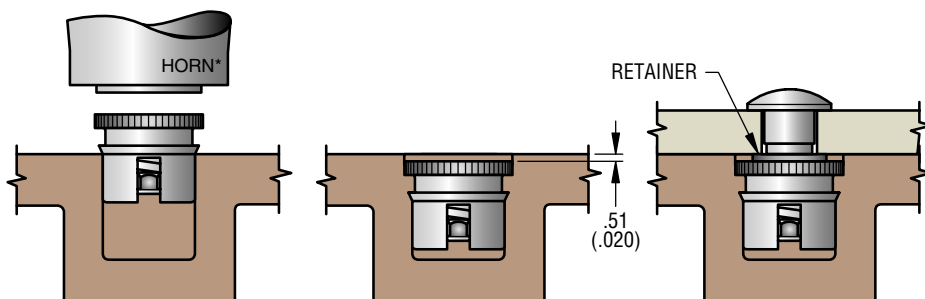
1. Prepare hole.



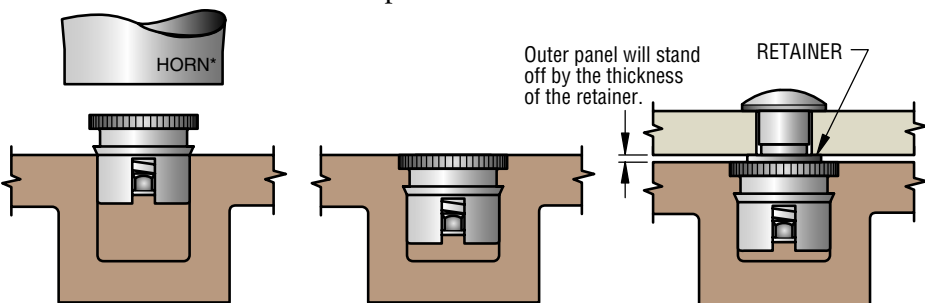
2. Use one of the methods shown.

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, zinc immersion coating.

Product Strength Guidelines

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

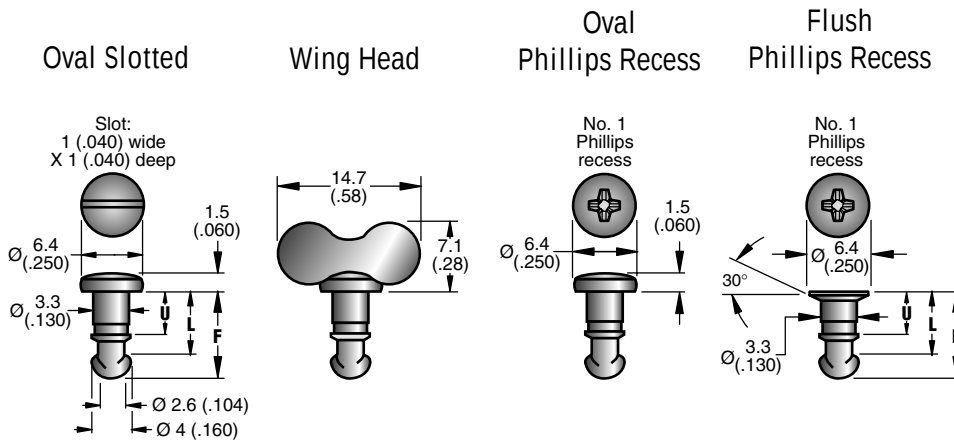
Maximum static load: 440 N (100 lbs.)

millimeter (inch)
millimeter
(inch)

Dimensions without tolerances are for reference only.

Southco® Quarter-turn Fasteners

Small Series, Stud Selection



FOR: Press-in Part No. 81-35-308-55 and Ultrasonic Part No. 81-35-310-55		FOR: ALL OTHER RECEPTACLES*		STUD PART NUMBER				DIMENSIONS		
				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)

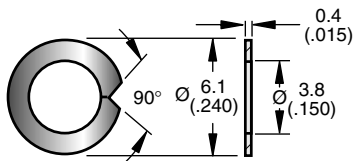
Dimensions without tolerances are for reference only.

Southco® Quarter-turn Fasteners

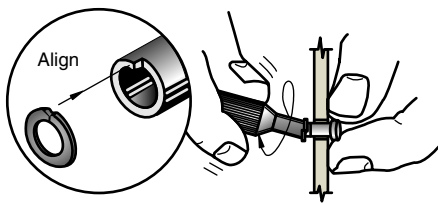
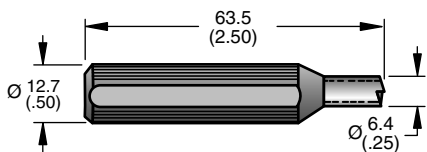
Small Series

Retainers

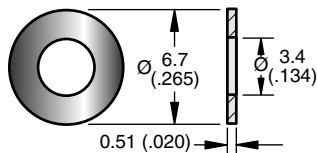
Split-Ring Retainer Hand or tool installation



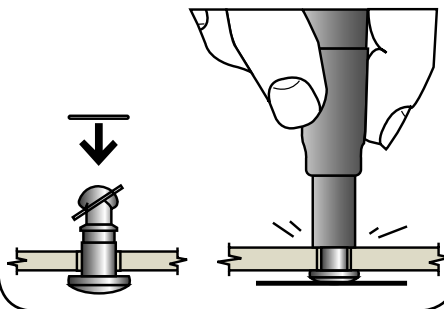
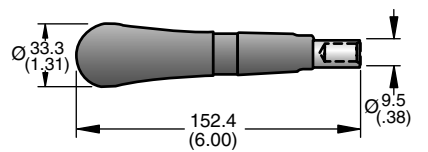
Installation Tool



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.

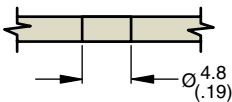
PUSH-ON TOOL: Hardened low carbon steel, zinc plated.

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 •

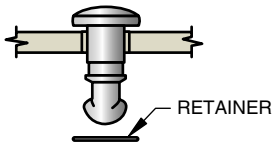
Installation

For Above-surface styles

1. Drill.

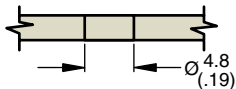


2. Insert stud and add retainer.

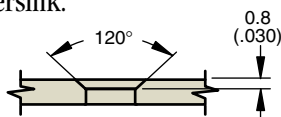


For Flush-head style

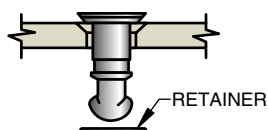
1. Drill.



2. Countersink.



3. Insert stud and add retainer.



millimeter (inch)
millimeter
(inch)

Dimensions without tolerances are for reference only.

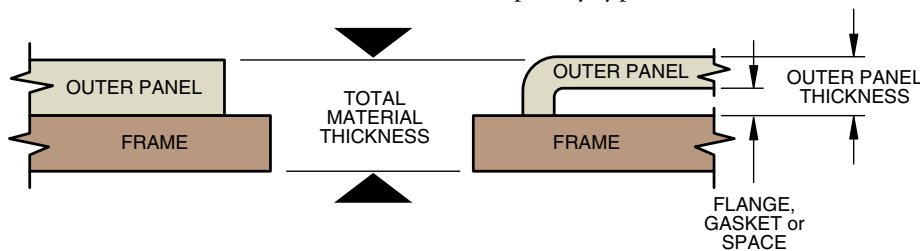
Southco® Quarter-turn Fasteners

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

1/4-turn and Snap-in Studs

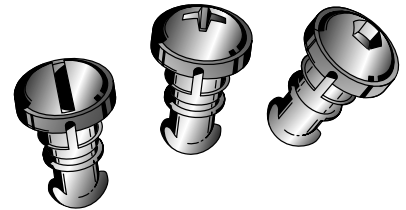
To select correct fastener

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.



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.

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

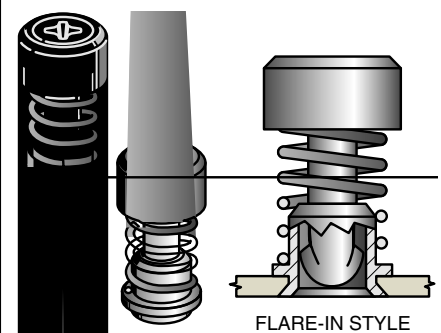
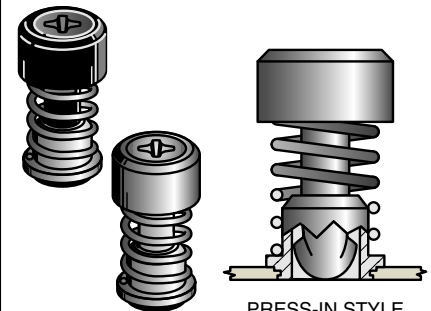
- a) Use your Outer Panel Thickness or measure your Total Material Thickness, as required by your choice of receptacle.
- b) If an adjustment formula is shown under the receptacle part number, apply this formula to your measurement.
- c) Use measurement (or adjusted measurement) to find stud part number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



millimeter (inch)
millimeter
(inch)

Dimensions without tolerances are for reference only.

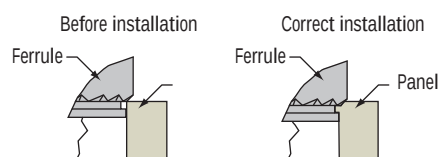
Installation Guidelines

for *SOUTHCO*® Self-Clinching products

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

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

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



Successful press-in installations depend on:

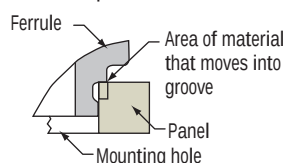
Material:

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

Installation Holes:

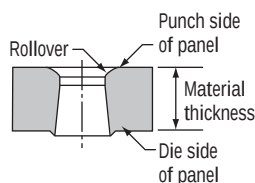
Mounting holes may be drilled, punched, or cast.

- Hole edge: the top hole edge must be sharp but with no broken edges.



Do not chamfer or debur edge.

- Punched holes: use a punch and die with a small clearance to minimize the rollover and fracture angle.
- Hole diameter: measure the hole diameter at the panel surface on the side on which the fastener will be installed. The diameter must be within *SOUTHCO*® specifications for that product.



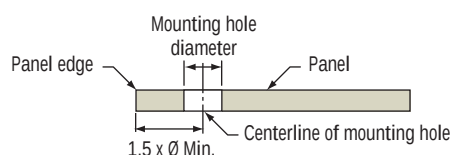
- If the hole is too large, not enough material will flow into the

retaining groove and the fastener may not be retained adequately.

- If the hole is too small, the fastener will not fit and installation may become difficult and unsafe.
- Hole distance from the edge of panel: the minimum recommended distance is 1.5 x the diameter of the mounting hole, unless otherwise indicated.

- Spring-loaded Plungers
- Captive Nuts
- Threaded Inserts

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



Panel Thickness:

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

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

Installation is fast and easy if you follow these tips:

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

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

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

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

When to Install:

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

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

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

