

# ZLoc® Stainless Series Fasteners

Skybolt manufactures studs and buttons similar to existing designs. Dzus is a registered trademark of the Dzus Fastener Co. Skybolt has no affiliation with Dzus Fasteners.



Design Selection Procedure:

1. From the information in the following table, consider a Stud type.
2. Select type of retainer (grommet or GP type retainer).
3. From charts, select Stud and S Spring combination for the application.

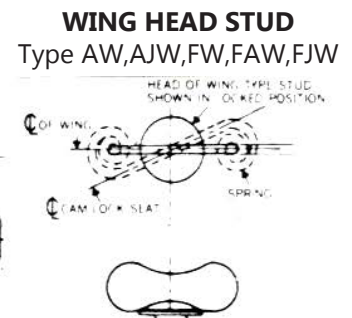
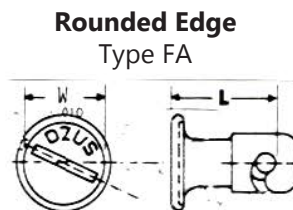
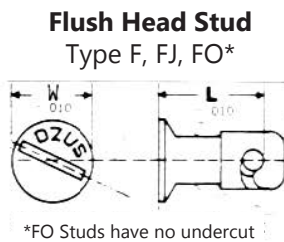
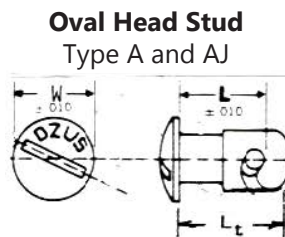
Fastener Size	-3	-4	-5	-6	-7
Locked Service Tension (LBS)	20	30	45	55	65
Max. Tension W/O Distortion (LBS)	45	60	85	110	125
Rated Shear (LBS)	100	150	200	300	350
Wear Life (Uses)	5M	5M	25M	40M	40M

Max. sheet separation at 150% of locked service tension = 3/64"

## STUD MATERIAL

- Hardened Carbon Steel - Cadmium Plated per QQ-P-416, Type II, Class 2
- 300 Series Stainless (Skybolt Stainless ZLoc® Series Fasteners are TSO-C148)

Note: SKYBOLT manufactures and stocks stainless ZLoc® Series studs



Note: AJ, FJ, AJW, and FJW studs have a long undercut and are a direct replacement for A and F studs. FA studs (common to WWII aircraft) available in 303 Stainless.

## STUD RETAINERS

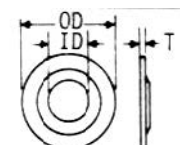
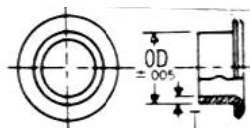
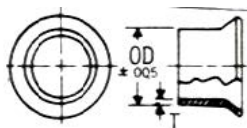
Type GA and GF Grommets are aluminum

Type GP Retainer is Nylon

**Type GA** - Full Grommet  
For use with all Studs  
except Flush Head

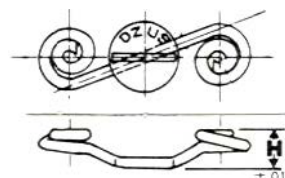
**Type GF** - Full Grommet  
For use with Flush  
Head Studs (FJ Studs)

**Type GP** - Half Grommet  
For use with all Studs



**RECEPTACLE - S SPRING** - Cadmium plated music wire

**Type SA Spring**



# ZLoc® Fastener Charts

## Studs

Typical Stud Size	Lt	L	Head Size W	Drill Outer Panel A max	Drill Support Panel B*	Rivet Spacing G	Rivet Size
3-25	0.325	0.250	5/16	7/32	3/8	5/8	3/32
3-30	0.375	0.300					
4-30	0.400	0.300	7/16	5/16	3/4	3/4	3/32
4-35	0.450	0.350					
4-40	0.500	0.400					
5-35	0.475	0.350	9/16	3/8	5/8	1"	1/8
5-40	0.525	0.400					
5-45	0.575	0.450					
5-50	0.625	0.500					
5-55	0.675	0.550					
6-40	0.550	0.400	5/8	7/16	1	1-3/8	1/8
6-45	0.600	0.450					
6-50	0.650	0.500					
6-55	0.700	0.550					
6.5-40	0.570	0.400	11/16	1/2	1	1-3/8	1/8
6.5-45	0.620	0.450					
6.5-50	0.670	0.500					
6.5-55	0.720	0.550					
7-40	0.575	0.400	3/4	17/32	1-1/16	1-7/16	1/8
7-50	0.675	0.500					
7-60	0.775	0.600					

Note: B\* is oversize to allow relief for grommet/retainer or dimpled panels.

## Grommets

Stud Size	Panel (P) Thickness	Type GA	Type GF	GP Plastic Retainer Type				
				OD	T*	GP	OD	T
3	.015-.025	GA3-175	NA	7/32	0.015	GP3B	5/16	.035
	.026-.050	GA3-200	NA					
	.051-.094	GA3-250	NA					
4	.015-.025	GA4-225	GF4-125	5/16	0.025	GP4B	7/16	.035
	.026-.050	GA4-250	GF4-150					
	.051-.075	GA4-275	GF4-175					
	.076-.100	GA4-300	GF4-200					
5	.031-.062	GA5-312	GF5-175	3/8	0.028	GP5B	9/16	.035
	.063-.094	GA5-350	GF5-225					
	.095-.125	GA5-375	GF5-250					
6	.040-.065	GA6-350	GF6-218	7/16	0.028	GP6B	5/8	.045
	.066-.100	GA6-375	GF6-250					
	.101-.135	GA6-425	GF6-300					
6.5	Max .062		GF6.5-218	1/2	0.035	GP6B	5/8	.045
	.063-.093	GA6.5-375	GF6.5-250					
	.094-.200	GA6.5-500						
7	.050-.095	GA7-375	GF7-250	17/32	0.040	NA		
	.096-.156	GA7-475	GF7-325					
	.157-.218	GA7-525	GF7-400					



## 5 SPRING RECEPTACLES

Stud Size	Part#
Size 3	S3-150
	S3-175
Size 4	S4-200
	S4-225
Size 5	S5A-200
	S5A-225
	S5A-250
	S5A-275
	S5A-300
Size 6 & 6.5	S5A-325
	S6A-225
	S6A-250
	S6A-275
	S6A-300
Size 7	S6A-400
	S6A-425
	S7A-225
Size 7	S7A-250
	S7A-275
	S7A-300

# ZLoc® Fastener Charts

## Total Thickness Charts

Choose correct chart for Stud Size. Enter Total Thickness column and select Stud/Spring combination

Size 3 Stud SK3 Spring			Size 4 Stud, SK4 Spring			Size 5 Stud, SK5 Spring			Size 6 & 7 Stud, SK6 & 7 Spring		
Total Thickness	Stud Dim L	Use Spring Dim H	Total Thickness	Stud Dim L	Use Spring Dim H	Total Thickness	Stud Dim L	Use Spring Dim H	Total Thickness	Stud Dim L	Use Spring Dim H
.045-.069	-20	-175	.100-.124	-30	-225	.055-.079	-30	-275	.140-.164	-40	-300
.070-.094	-20	-150	.125-.149	-30	-200	.080-.104	-30	-250	.165-.189	-40	-275
.095-.119	-25	-175	.150-.174	-35	-225	.105-.129	-30	-225	.190-.214	-40	-250
.120-.144	-25	-150	.175-.199	-35	-200	.130-.154	-30	-200	.215-.239	-40	-225
.145-.169	-30	-175	.200-.224	-40	-225	.155-.179	-40	-275	.240-.264	-50	-300
.170-.194	-30	-150	.225-.249	-40	-200	.180-.204	-40	-250	.265-.289	-50	-275
Determine Total Thickness by adding: 1. Outside Panel Thickness (P) 2. Inside (Support) Panel Thickness (Q) 3. Grommet Thickness (T) if GA or GF grommet used. 4. Allow for gasket material or paint build-up. Allow for panel face misalignment.						.205-.229	-40	-225	.290-.314	-50	-250
						.230-.254	-40	-200	.315-.339	-50	-225
						.255-.279	-50	-275	.340-.364	-60	-300

## Principle Design Options

One usually thinks of two components as part of the ZLoc® Fastener, the Stud and Spring Receptacle. In the case of the EHF Ejector Series Stud, it is retained in the panel, when unlocked by the flange being fastened to the outside panel. Standard ZLoc® Studs, typically use a Stud retainer to prevent them from falling from the panel when unlocked.

### Some helpful hints to remember about ZLoc® Fasteners:

- 1) Thicker panels require shorter Springs for a given stud. Likewise, thinner panels require a taller Spring for a given Stud.
- 2) When locked, the Stud slot or wing always aligns with the Spring mounting holes. Therefore, whatever angle you mount the Spring Receptacle, the Stud will align with it when locked.
- 3) SKEHF5 Studs should only use S5A or #5 Springs. SKEHF6 Studs can use either S5A or S6A Springs.
- 4) TOTAL THICKNESS is the summation of both the outside and inside panels plus allowances for gaskets, grommets, interference or panels that do not lay flat together. Panel facing can add greatly to charted values.
- 5) If springs are mounted to Weld Tabs or Plates, the Tab serves as the Inside Panel and adds .100 to Total Thickness
- 6) If locking torque is too tight or too loose, bend the spring with Skybolt Tool SK-7302. See below.
- 7) The Part number of a ZLoc® stud is the L Dimension measured from the head (beneath the head for Oval Head, on the top of the head for Flat Head) to the far end of the slot where the spring rests when locked. SKF65-50 is .50 from the flat of the head to the end of the slot saddle.
- 8) The Part number of the Spring is the height of the Spring. SK6-375 is .375 high.