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Drill Size per Rivet Chart

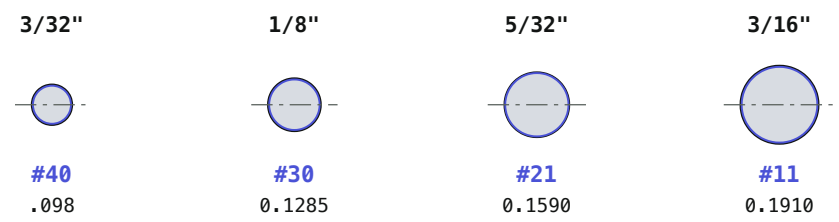
A 3/32 in rivet takes a #40 drill, 1/8 in a #30, 5/32 in a #21 and 3/16 in a #11.

1 Identification

REFERENCE DRAWING — NOT APPROVED DATA · THE SRM ALWAYS GOVERNS

HOLES

RIVET AND HOLE, TO SCALE



RIVET (GRAY) IN ITS DRILLED HOLE, TO SCALE

PARTS

PART	WHAT IT DOES
3/32 in rivet	#40 drill
3/16 in rivet	#11 drill
Sheets	Drilled to the rivet's hole

KEY DATA

THE FOUR
3/32 #40, 1/8 #30, 5/32 #21, 3/16 #11: they cover almost all light aircraft riveting.

THE CHART
Gives the clearance, the pilot drill where one is used, and the oversize step for a repaired hole.

NOTES

1. Dimensions in inches. Do not scale: the SRM sets the values.
2. For reference. The applicable manual always governs.

REVISIONS

REV	DESCRIPTION	YEAR
A	First issue	2026

The Aviation Point.			Structural repair reference
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DO NOT SCALE DRAWING			

The chart

Rivet size	AN dash	Shank Ø	Pilot drill	Final drill	Final Ø	Clearance
3/32"	-3	0.0938"	3/32"	#40	0.0980"	+0.0042"
1/8"	-4	0.1250"	1/8"	#30	0.1285"	+0.0035"
5/32"	-5	0.1563"	5/32"	#21 (FAA) · #20 (MIL-R-47196A)	0.1590" · 0.1610"	+0.0027" · +0.0047"
3/16"	-6	0.1875"	3/16"	#11	0.1910"	+0.0035"
1/4"	-8	0.2500"	1/4"	F	0.2570"	+0.0070"

Oversize drills: solid rivets and CherryMAX

Rivet	Standard drill	Oversize	Oversize drill	Source
Solid, 3/32 in	**#40**	Next size, 1/8 in	**#30**	FAA-H-8083-31B p. 4-44, Fig. 4-90; MIL-R-47196A Table I
Solid, 1/8 in	**#30**	1/64 in over: NAS1242 / NAS1241 -4, same head, shank .140-.144 in	**#27**, common shop practice	Shank: NAS1241AD4, shank band of NAS1241 and NAS1242. No public table gives the drill.
Solid, 1/8 in	**#30**	Next size, 5/32 in	**#21** or **#20**	FAA-H-8083-31B p. 4-44, Fig. 4-90; MIL-R-47196A Table I
Solid, 5/32 in	**#21** or **#20**	1/64 in over: NAS1242 / NAS1241 -5, same head, shank .171-.176 in	**#16**, common shop practice	Shank: NAS1242AD5, shank band of NAS1241 and NAS1242. No public table gives the drill.
Solid, 5/32 in	**#21** or **#20**	Next size, 3/16 in	**#11**	FAA-H-8083-31B p. 4-44, Fig. 4-90; MIL-R-47196A Table I
Solid, 3/16 in	**#11**	1/32 in over: NAS1242 / NAS1241 -6, same head, shank .218-.223 in	**#1**, common shop practice	Shank: NAS1241AD6, shank band of NAS1241 and NAS1242. The #1 is also the drill of the 7/32 in rivet (MIL-R-47196A Table I).
Solid, 1/4 in	**F**	1/32 in over: NAS1242 / NAS1241 -8, same head, shank .280-.285 in	**L**, common shop practice	Shank: NAS1242AD8, shank band of NAS1241 and NAS1242. No public table gives the drill.
CherryMAX -4, 1/8 in	**#30**, .129-.132 in	Oversize, 1/64 in over	**#27**, .143-.146 in	The Aviation Point data
CherryMAX -5, 5/32 in	**#20**, .160-.164 in	Oversize	**#16**, .176-.180 in	As above
CherryMAX -6, 3/16 in	**#10**, .192-.196 in	Oversize	**#5**, .205-.209 in	As above
CherryMAX -8, 1/4 in	**F**, .256-.261 in	Oversize	**I**, .271-.275 in	As above

Metric alternatives, solid rivets

Official drill	Used for	Inches (official)	Exact mm	Nearest metric alternative, mm	Difference, mm
3/32 in	Work, 3/32 rivet	0.09375 in	2.381	2.40	+0.019

Educational reference only, not approved data. Always consult the applicable SRM, AMM, or AC 43.13-1B and your certifying authority.

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Official drill	Used for	Inches (official)	Exact mm	Nearest metric alternative, mm	Difference, mm
#40	Final, 3/32 rivet	0.0980 in	2.489	2.50	+0.011
1/8 in	Work, 1/8 rivet	0.1250 in	3.175	3.15 or 3.20	−0.025 or +0.025
#30	Final, 1/8 rivet	0.1285 in	3.264	3.25	−0.014
5/32 in	Work, 5/32 rivet	0.15625 in	3.969	3.95	−0.019
#21	Final, 5/32 rivet	0.1590 in	4.039	4.05	+0.011
#20	Final, 5/32 rivet (MIL-R-47196A)	0.1610 in	4.089	4.10	+0.011
3/16 in	Work, 3/16 rivet	0.1875 in	4.763	4.75	−0.013
#11	Final, 3/16 rivet	0.1910 in	4.851	4.85	−0.001
1/4 in	Work, 1/4 rivet	0.2500 in	6.350	6.35	0.000
F	Final, 1/4 rivet	0.2570 in	6.528	6.55	+0.022

Metric alternatives for blind rivets

Official drill	Used for	Maker's hole range, in	Metric inside the range, mm	= inches	Nearest metric, mm
#40	CherryLOCK 3/32 in	0.097 to 0.100	2.50	0.0984	2.50 (inside)
#30	CherryMAX / CherryLOCK -4 (1/8 in)	0.129 to 0.132	3.30	0.1299	3.25 (outside)
#20	-5 (5/32 in)	0.160 to 0.164	4.10	0.1614	4.10 (inside)
#10	-6 (3/16 in)	0.192 to 0.196	4.90	0.1929	4.90 (inside)
F	-8 (1/4 in)	0.256 to 0.261	6.55	0.2579	6.55 (inside)
#27	-4 oversize / bulbed	0.143 to 0.146	3.65	0.1437	3.65 (inside)
#16	-5 oversize / bulbed	0.176 to 0.180	4.50	0.1772	4.50 (inside)
#5	-6 oversize / bulbed	0.205 to 0.209	5.25	0.2067	5.20 (outside)
I	-8 oversize	0.271 to 0.275	6.90	0.2717	6.90 (inside)

Alternates you will see quoted, and what they are for

Drill	Diameter	Relative to	What it is for
#41	0.0960"	0.002" under #40	Common shop-practice pilot ahead of #40. Not named as such in either FAA source.
#31	0.1200"	0.005" under 1/8"	Same practice ahead of #30. Undersize even of the rivet, so never rivet into it.
#20	0.1610"	0.002" over #21	Quoted for 5/32" clecos. A cleco only has to fit the hole, not fill it to rivet tolerance.
#10	0.1935"	0.0025" over #11	Quoted for 3/16" clecos, for the same reason.

2 Allowable damage

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3 Repair

1. Pilot in fractions: 1/8 in for a 1/8 in rivet (FAA-H-8083-31B Fig. 4-90).
2. Clecos in: they hold the sheets together and the holes aligned (pp. 4-28, 4-29). Common shop practice: relieve any stress in the stack with the Clecos in, before the final drill.
3. Final with the numbered drill: #40, #30, #21, #11 or F (Fig. 4-90).
4. Deburr: remove all burrs and chips before riveting (p. 4-40).
5. Rivet: holes lined up, parts held with temporary fasteners (p. 4-40).

Key points

- **Always inches, never millimeters.** Inch values are the official ones; a millimeter figure is only a conversion.
- **Approved data governs.** The SRM, AMM or repair drawing specifies the hole. Where it differs from this chart, it wins.
- **Blind and special fasteners have their own hole sizes.** CherryMAX, Hi-Lok, lockbolts and Jo-Bolts are drilled and often reamed to the manufacturer's published dimensions, which are tighter and are not the drills in this chart.
- **Interference-fit and reamed applications are different.** Some structures call for a reamed hole to a tighter tolerance than a drill alone can hold. Drilling to size and stopping is not equivalent.
- **Not for composites.** Hole preparation in laminates involves different geometry, different tooling and delamination control at breakout.
- **Oversize repair is a design decision.** Going up a size changes edge distance and pitch requirements — see above.
- **Drill wear defeats the chart.** A worn bit cuts oversize regardless of what is stamped on it. Measure the hole on anything that matters.

MAIN SOURCES · FAA-H-8083-31, AMT Handbook — Airframe, Volume 1, Figure 4-90 · FAA AC 43.13-1B CHG 1, Chapter 4 · ANSI/ASME B94.11M number drill series · FAA-H-8083-31B, AMT Handbook — Airframe, Chapter 4 · The Aviation Point data · MIL-R-47196A, Rivets, Buck Type, Preparation for and Installation of · FAA AC 43.13-1B CHG 1, Acceptable Methods, Techniques, and Practices: Aircraft Inspection and Repair · NAS1241 and NAS1242, Rivets, Solid, Oversize Repair

SCAN · OPEN THIS GUIDE
theaviationpoint.com/sheet-metal/rivet-drill-sizes/

Educational reference only, not approved data. Always consult the applicable SRM, AMM, or AC 43.13-1B and your certifying authority.