

# Grip Lengths for A325 and A490 Bolts

(Includes allowance for one hardened washer)

Bolt Length In.	Bolt Diameter, In.								
	$\frac{1}{2}$	$\frac{5}{8}$	$\frac{3}{4}$	$\frac{7}{8}$	1	$1\frac{1}{8}$	$\frac{1}{4}$	$1\frac{3}{8}$	$\frac{1}{2}$
	Range of Grip Lengths, In.								
$\frac{1}{4}$	$\frac{5}{16} - \frac{1}{2}$	—	—	—	—	—	—	—	—
$\frac{1}{2}$	$\frac{9}{16} - \frac{3}{4}$	$\frac{5}{16} - \frac{1}{2}$	—	—	—	—	—	—	—
$\frac{3}{4}$	$\frac{13}{16} - 1$	$\frac{9}{16} - \frac{3}{4}$	$\frac{7}{16} - \frac{5}{8}$	—	—	—	—	—	—
2	$1\frac{1}{16} - 1\frac{1}{4}$	$\frac{13}{16} - 1$	$\frac{11}{16} - \frac{7}{8}$	$\frac{9}{16} - \frac{3}{4}$	—	—	—	—	—
$2\frac{1}{4}$	$1\frac{5}{16} - 1\frac{1}{2}$	$1\frac{1}{16} - 1\frac{1}{4}$	$\frac{15}{16} - 1\frac{1}{8}$	$\frac{13}{16} - 1$	$\frac{9}{16} - \frac{3}{4}$	—	—	—	—
$2\frac{1}{2}$	$1\frac{9}{16} - 1\frac{3}{4}$	$1\frac{5}{16} - 1\frac{1}{2}$	$1\frac{3}{16} - 1\frac{3}{8}$	$1\frac{1}{16} - 1\frac{1}{4}$	$\frac{13}{16} - 1$	$\frac{9}{16} - \frac{3}{4}$	—	—	—
$2\frac{3}{4}$	$1\frac{13}{16} - 2$	$1\frac{9}{16} - 1\frac{3}{4}$	$1\frac{7}{16} - 1\frac{5}{8}$	$1\frac{5}{16} - 1\frac{1}{2}$	$1\frac{1}{16} - 1\frac{1}{4}$	$\frac{13}{16} - 1$	$\frac{9}{16} - \frac{3}{4}$	—	—
3	$2\frac{1}{16} - 2\frac{1}{4}$	$1\frac{13}{16} - 2$	$1\frac{11}{16} - 1\frac{7}{8}$	$1\frac{9}{16} - 1\frac{3}{4}$	$1\frac{5}{16} - 1\frac{1}{2}$	$1\frac{1}{16} - 1\frac{1}{4}$	$\frac{13}{16} - 1$	$\frac{9}{16} - \frac{3}{4}$	—
$3\frac{1}{4}$	$2\frac{5}{16} - 2\frac{1}{2}$	$2\frac{1}{16} - 2\frac{1}{4}$	$1\frac{15}{16} - 2\frac{1}{8}$	$1\frac{13}{16} - 2$	$1\frac{9}{16} - 1\frac{3}{4}$	$1\frac{5}{16} - 1\frac{1}{2}$	$1\frac{1}{16} - 1\frac{1}{4}$	$1\frac{1}{16} - 1\frac{1}{4}$	—
$3\frac{1}{2}$	$2\frac{9}{16} - 2\frac{3}{4}$	$2\frac{5}{16} - 2\frac{1}{2}$	$2\frac{3}{16} - 2\frac{3}{8}$	$2\frac{1}{16} - 2\frac{1}{4}$	$1\frac{13}{16} - 2$	$1\frac{9}{16} - 1\frac{3}{4}$	$1\frac{5}{16} - 1\frac{1}{2}$	$1\frac{1}{16} - 1\frac{1}{4}$	—
$3\frac{3}{4}$	$2\frac{13}{16} - 3$	$2\frac{9}{16} - 2\frac{3}{4}$	$2\frac{7}{16} - 2\frac{5}{8}$	$2\frac{5}{16} - 2\frac{1}{2}$	$2\frac{1}{16} - 2\frac{1}{4}$	$1\frac{13}{16} - 2$	$1\frac{9}{16} - 1\frac{3}{4}$	$1\frac{5}{16} - 1\frac{1}{2}$	—
4	$3\frac{1}{16} - 3\frac{1}{4}$	$2\frac{13}{16} - 3$	$2\frac{11}{16} - 2\frac{7}{8}$	$2\frac{9}{16} - 2\frac{3}{4}$	$2\frac{5}{16} - 2\frac{1}{2}$	$2\frac{1}{16} - 2\frac{1}{4}$	$1\frac{13}{16} - 2$	$1\frac{9}{16} - 1\frac{3}{4}$	—
$4\frac{1}{4}$	$3\frac{5}{16} - 3\frac{1}{2}$	$3\frac{1}{16} - 3\frac{1}{4}$	$2\frac{15}{16} - 3\frac{1}{8}$	$2\frac{13}{16} - 3$	$2\frac{9}{16} - 2\frac{3}{4}$	$2\frac{5}{16} - 2\frac{1}{2}$	$2\frac{1}{16} - 2\frac{1}{4}$	$2\frac{1}{16} - 2\frac{1}{4}$	—
$4\frac{1}{2}$	$3\frac{9}{16} - 3\frac{3}{4}$	$3\frac{5}{16} - 3\frac{1}{2}$	$3\frac{3}{16} - 3\frac{3}{8}$	$3\frac{1}{16} - 3\frac{1}{4}$	$2\frac{13}{16} - 3$	$2\frac{9}{16} - 2\frac{3}{4}$	$2\frac{5}{16} - 2\frac{1}{2}$	$2\frac{1}{16} - 2\frac{1}{4}$	—
$4\frac{3}{4}$	$3\frac{13}{16} - 4$	$3\frac{9}{16} - 3\frac{3}{4}$	$3\frac{7}{16} - 3\frac{5}{8}$	$3\frac{5}{16} - 3\frac{1}{2}$	$3\frac{1}{16} - 3\frac{1}{4}$	$2\frac{13}{16} - 3$	$2\frac{9}{16} - 2\frac{3}{4}$	$2\frac{5}{16} - 2\frac{1}{2}$	—
5	$4\frac{1}{16} - 4\frac{1}{4}$	$3\frac{13}{16} - 4$	$3\frac{11}{16} - 3\frac{7}{8}$	$3\frac{9}{16} - 3\frac{3}{4}$	$3\frac{5}{16} - 3\frac{1}{2}$	$3\frac{1}{16} - 3\frac{1}{4}$	$2\frac{13}{16} - 3$	$2\frac{9}{16} - 2\frac{3}{4}$	—
$5\frac{1}{4}$	$4\frac{5}{16} - 4\frac{1}{2}$	$4\frac{1}{16} - 4\frac{1}{4}$	$3\frac{15}{16} - 4\frac{1}{8}$	$3\frac{13}{16} - 4$	$3\frac{9}{16} - 3\frac{3}{4}$	$3\frac{5}{16} - 3\frac{1}{2}$	$3\frac{1}{16} - 3\frac{1}{4}$	$3\frac{1}{16} - 3\frac{1}{4}$	—
$5\frac{1}{2}$	$4\frac{9}{16} - 4\frac{3}{4}$	$4\frac{5}{16} - 4\frac{1}{2}$	$4\frac{3}{16} - 4\frac{3}{8}$	$4\frac{1}{16} - 4\frac{1}{4}$	$3\frac{13}{16} - 4$	$3\frac{9}{16} - 3\frac{3}{4}$	$3\frac{5}{16} - 3\frac{1}{2}$	$3\frac{1}{16} - 3\frac{1}{4}$	—
$5\frac{3}{4}$	$4\frac{13}{16} - 5$	$4\frac{9}{16} - 4\frac{3}{4}$	$4\frac{7}{16} - 4\frac{5}{8}$	$4\frac{5}{16} - 4\frac{1}{2}$	$4\frac{1}{16} - 4\frac{1}{4}$	$3\frac{13}{16} - 4$	$3\frac{9}{16} - 3\frac{3}{4}$	$3\frac{5}{16} - 3\frac{1}{2}$	—
6	$5\frac{1}{16} - 5\frac{1}{4}$	$4\frac{13}{16} - 5$	$4\frac{11}{16} - 4\frac{7}{8}$	$4\frac{9}{16} - 4\frac{3}{4}$	$4\frac{5}{16} - 4\frac{1}{2}$	$4\frac{1}{16} - 4\frac{1}{4}$	$3\frac{13}{16} - 4$	$3\frac{9}{16} - 3\frac{3}{4}$	—
$6\frac{1}{4}$	$5\frac{5}{16} - 5\frac{1}{2}$	$5\frac{1}{16} - 5\frac{1}{4}$	$4\frac{15}{16} - 5\frac{1}{8}$	$4\frac{13}{16} - 5$	$4\frac{9}{16} - 4\frac{3}{4}$	$4\frac{5}{16} - 4\frac{1}{2}$	$4\frac{1}{16} - 4\frac{1}{4}$	$4\frac{1}{16} - 4\frac{1}{4}$	—
$6\frac{1}{2}$	$5\frac{9}{16} - 5\frac{3}{4}$	$5\frac{5}{16} - 5\frac{1}{2}$	$5\frac{3}{16} - 5\frac{3}{8}$	$5\frac{1}{16} - 5\frac{1}{4}$	$4\frac{13}{16} - 5$	$4\frac{9}{16} - 4\frac{3}{4}$	$4\frac{5}{16} - 4\frac{1}{2}$	$4\frac{1}{16} - 4\frac{1}{4}$	—
$6\frac{3}{4}$	$5\frac{13}{16} - 6$	$5\frac{9}{16} - 5\frac{3}{4}$	$5\frac{7}{16} - 5\frac{5}{8}$	$5\frac{5}{16} - 5\frac{1}{2}$	$5\frac{1}{16} - 5\frac{1}{4}$	$4\frac{13}{16} - 5$	$4\frac{9}{16} - 4\frac{3}{4}$	$4\frac{5}{16} - 4\frac{1}{2}$	—
7	$6\frac{1}{16} - 6\frac{1}{4}$	$5\frac{13}{16} - 6$	$5\frac{11}{16} - 5\frac{7}{8}$	$5\frac{9}{16} - 5\frac{3}{4}$	$5\frac{5}{16} - 5\frac{1}{2}$	$5\frac{1}{16} - 5\frac{1}{4}$	$4\frac{13}{16} - 5$	$4\frac{9}{16} - 4\frac{3}{4}$	—
$7\frac{1}{4}$	$6\frac{5}{16} - 6\frac{1}{2}$	$6\frac{1}{16} - 6\frac{1}{4}$	$5\frac{15}{16} - 6\frac{1}{8}$	$5\frac{13}{16} - 6$	$5\frac{9}{16} - 5\frac{3}{4}$	$5\frac{5}{16} - 5\frac{1}{2}$	$5\frac{1}{16} - 5\frac{1}{4}$	$5\frac{1}{16} - 5\frac{1}{4}$	—
$7\frac{1}{2}$	$6\frac{9}{16} - 6\frac{3}{4}$	$6\frac{5}{16} - 6\frac{1}{2}$	$6\frac{3}{16} - 6\frac{3}{8}$	$6\frac{1}{16} - 6\frac{1}{4}$	$5\frac{13}{16} - 6$	$5\frac{9}{16} - 5\frac{3}{4}$	$5\frac{5}{16} - 5\frac{1}{2}$	$5\frac{1}{16} - 5\frac{1}{4}$	—
$7\frac{3}{4}$	$6\frac{13}{16} - 7$	$6\frac{9}{16} - 6\frac{3}{4}$	$6\frac{7}{16} - 6\frac{5}{8}$	$6\frac{5}{16} - 6\frac{1}{2}$	$6\frac{1}{16} - 6\frac{1}{4}$	$5\frac{13}{16} - 6$	$5\frac{9}{16} - 5\frac{3}{4}$	$5\frac{5}{16} - 5\frac{1}{2}$	—
8	$7\frac{1}{16} - 7\frac{1}{4}$	$6\frac{13}{16} - 7$	$6\frac{11}{16} - 6\frac{7}{8}$	$6\frac{9}{16} - 6\frac{3}{4}$	$6\frac{5}{16} - 6\frac{1}{2}$	$6\frac{1}{16} - 6\frac{1}{4}$	$5\frac{13}{16} - 6$	$5\frac{9}{16} - 5\frac{3}{4}$	—
$8\frac{1}{4}$	$7\frac{5}{16} - 7\frac{1}{2}$	$7\frac{1}{16} - 7\frac{1}{4}$	$6\frac{15}{16} - 7\frac{1}{8}$	$6\frac{13}{16} - 7$	$6\frac{9}{16} - 6\frac{3}{4}$	$6\frac{5}{16} - 6\frac{1}{2}$	$6\frac{1}{16} - 6\frac{1}{4}$	$6\frac{1}{16} - 6\frac{1}{4}$	—
$8\frac{1}{2}$	$7\frac{9}{16} - 7\frac{3}{4}$	$7\frac{5}{16} - 7\frac{1}{2}$	$7\frac{3}{16} - 7\frac{3}{8}$	$7\frac{1}{16} - 7\frac{1}{4}$	$6\frac{13}{16} - 7$	$6\frac{9}{16} - 6\frac{3}{4}$	$6\frac{5}{16} - 6\frac{1}{2}$	$6\frac{1}{16} - 6\frac{1}{4}$	—
$8\frac{3}{4}$	$7\frac{13}{16} - 8$	$7\frac{9}{16} - 7\frac{3}{4}$	$7\frac{7}{16} - 7\frac{5}{8}$	$7\frac{5}{16} - 7\frac{1}{2}$	$7\frac{1}{16} - 7\frac{1}{4}$	$6\frac{13}{16} - 7$	$6\frac{9}{16} - 6\frac{3}{4}$	$6\frac{5}{16} - 6\frac{1}{2}$	—
9	$8\frac{1}{16} - 8\frac{1}{4}$	$7\frac{13}{16} - 8$	$7\frac{11}{16} - 7\frac{7}{8}$	$7\frac{9}{16} - 7\frac{3}{4}$	$7\frac{5}{16} - 7\frac{1}{2}$	$7\frac{1}{16} - 7\frac{1}{4}$	$6\frac{13}{16} - 7$	$6\frac{9}{16} - 6\frac{3}{4}$	—