

Table 7-1  
Available Shear  
Strength of Bolts, kips

Nominal Bolt Diameter, <i>d</i> , in.					5/8		3/4		7/8		1	
Nominal Bolt Area, in. <sup>2</sup>					0.307		0.442		0.601		0.785	
Designation	Thread Cond.	<i>F<sub>nv</sub></i> /Ω (ksi)	φ <i>F<sub>nv</sub></i> (ksi)	Loading	<i>r<sub>n</sub></i> /Ω	φ <i>r<sub>n</sub></i>	<i>r<sub>n</sub></i> /Ω	φ <i>r<sub>n</sub></i>	<i>r<sub>n</sub></i> /Ω	φ <i>r<sub>n</sub></i>	<i>r<sub>n</sub></i> /Ω	φ <i>r<sub>n</sub></i>
		ASD	LRFD		ASD	LRFD	ASD	LRFD	ASD	LRFD	ASD	LRFD
Group 120	N	27.0	40.5	S D	8.29 16.6	12.4 24.9	11.9 23.9	17.9 35.8	16.2 32.5	24.3 48.7	21.2 42.4	31.8 63.6
	X	34.0	51.0	S D	10.4 20.9	15.7 31.3	15.0 30.1	22.5 45.1	20.4 40.9	30.7 61.3	26.7 53.4	40.0 80.1
Group 144	N	32.5	48.8	S D	9.98 20.0	15.0 30.0	14.4 28.7	21.6 43.1	19.5 39.1	29.3 58.7	25.5 51.0	38.3 76.6
	X	40.5	60.8	S D	12.4 24.9	18.7 37.3	17.9 35.8	26.9 53.7	24.3 48.7	36.5 73.1	31.8 63.6	47.7 95.5
Group 150	N	34.0	51.0	S D	10.4 20.9	15.7 31.3	15.0 30.1	22.5 45.1	20.4 40.9	30.7 61.3	26.7 53.4	40.0 80.1
	X	42.0	63.0	S D	12.9 25.8	19.3 38.7	18.6 37.1	27.8 55.7	25.2 50.5	37.9 75.7	33.0 65.9	49.5 98.9
Group 200	N	45.0	67.5	S D	— —	— —	— —	— —	— —	— —	35.3 70.7	53.0 106
	X	56.5	84.8	S D	— —	— —	— —	— —	— —	— —	44.4 88.7	66.6 133
A307	Not applicable	13.5	20.3	S D	4.14 8.29	6.23 12.5	5.97 11.9	8.97 17.9	8.11 16.2	12.2 24.4	10.6 21.2	15.9 31.9
ASD	LRFD	— Indicates that this grade is unavailable in the given diameter.										
Ω = 2.00	φ = 0.75	For end loaded connections greater than 38 in., see AISC Specification Table J3.2 footnote c.										
Group 120 includes ASTM F3125/F3125M Grades A325 and F1852 bolts.												
Group 144 includes ASTM F3148 bolts.												
Group 150 includes ASTM F3125/F3125M Grades A490 and F2280 bolts.												
Group 200 includes ASTM F3043 and ASTM F3111.												
Thread condition "N" indicates that threads are included in the shear plane.												
Thread condition "X" indicates that threads are excluded from the shear plane.												
S = single shear                      D = double shear												