Design Tables

The following design tables are given:

Table 10-3	Available Shear Strength of Bolts
Table 10-4	Available Tensile Strength of Bolts
Table 10-5	Available Bearing and Tearout Strength at Bolt Holes Based on Bolt Spacing
Table 10-6	Available Bearing and Tearout Strength at Bolt Holes Based on Edge Distance

Table 10-3
Available Shear
Strength of Bolts, kips

Nominal Bolt Diameter, *d*, in.			⅝		¾		⅞		1	
Nominal Bolt Area, in.^{2}			0.307		0.442		0.601		0.785	
Austenitic Stainless Steel Bolts										
Condition[a]	**Thread Cond.**	**Loading**	r_n/Ω	ϕr_n	r_n/Ω	ϕr_n	r_n/Ω	ϕr_n	r_n/Ω	ϕr_n
			ASD	**LRFD**	**ASD**	**LRFD**	**ASD**	**LRFD**	**ASD**	**LRFD**
AF	N	S	4.49	6.73	6.46	9.69	8.79	13.2	11.5	17.2
		D	8.97	13.5	12.9	19.4	17.6	26.4	23.0	34.5
	X	S	5.48	8.23	7.90	11.8	10.7	16.1	14.0	21.1
		D	11.0	16.5	15.8	23.7	21.5	32.2	28.1	42.1
A Class 1/1A	N	S	5.18	7.77	7.46	11.2	10.1	15.2	13.3	19.9
		D	10.4	15.5	14.9	22.4	20.3	30.4	26.5	39.8
	X	S	6.33	9.49	9.11	13.7	12.4	18.6	16.2	24.3
		D	12.7	19.0	18.2	27.3	24.8	37.2	32.4	48.6
CW	N	S	6.90	10.4	8.45	12.7	11.5	17.3	15.0	22.5
		D	13.8	20.7	16.9	25.3	23.0	34.5	30.0	45.1
	X	S	8.44	12.7	10.3	15.5	14.1	21.1	18.4	27.5
		D	16.9	25.3	20.7	31.0	28.1	42.2	36.7	55.1
SH	N	S	8.28	12.4	10.9	16.4	14.9	22.3	19.4	29.2
		D	16.6	24.9	21.9	32.8	29.8	44.6	38.9	58.3
	X	S	10.1	15.2	13.4	20.0	18.2	27.3	23.8	35.6
		D	20.2	30.4	26.7	40.1	36.4	54.6	47.5	71.3
Class 2B8	N	S	8.63	12.9	12.4	18.6	15.6	23.3	20.3	30.5
		D	17.3	25.9	24.9	37.3	31.1	46.7	40.6	61.0
	X	S	10.5	15.8	15.2	22.8	19.0	28.5	24.8	37.3
		D	21.1	31.6	30.4	45.6	38.0	57.1	49.7	74.5
Class 2B8M	N	S	7.59	11.4	10.9	16.4	13.5	20.3	17.7	26.5
		D	15.2	22.8	21.9	32.8	27.1	40.6	35.3	53.0
	X	S	9.28	13.9	13.4	20.0	16.5	24.8	21.6	32.4
		D	18.6	27.8	26.7	40.1	33.1	49.6	43.2	64.8
Duplex Stainless Steel Bolts										
Alloy[a]	**Thread Cond.**	**Loading**	r_n/Ω	ϕr_n	r_n/Ω	ϕr_n	r_n/Ω	ϕr_n	r_n/Ω	ϕr_n
			ASD	**LRFD**	**ASD**	**LRFD**	**ASD**	**LRFD**	**ASD**	**LRFD**
S32205	N	S	6.56	9.84	9.44	14.2	12.9	19.3	16.8	25.2
		D	13.1	19.7	18.9	28.3	25.7	38.6	33.6	50.4
	X	S	8.02	12.0	11.5	17.3	15.7	23.6	20.5	30.8
		D	16.0	24.0	23.1	34.6	31.4	47.1	41.0	61.6
Precipitation Hardening Stainless Steel Bolts										
Alloy[a]	**Thread Cond.**	**Loading**	r_n/Ω	ϕr_n	r_n/Ω	ϕr_n	r_n/Ω	ϕr_n	r_n/Ω	ϕr_n
			ASD	**LRFD**	**ASD**	**LRFD**	**ASD**	**LRFD**	**ASD**	**LRFD**
AH	N	S	8.28	12.5	11.9	18.0	16.2	24.5	21.2	32.0
		D	16.6	25.0	23.9	36.0	32.5	49.0	42.4	63.9
	X	S	10.1	15.3	14.6	22.0	19.8	29.9	25.9	39.1
		D	20.2	30.5	29.2	44.0	39.7	59.8	51.8	78.1

ASD	LRFD	Bolt
$\Omega = 2.00$	$\phi = 0.75$	Austenitic and duplex
$\Omega = 2.25$	$\phi = 0.67$	Precipitation hardening

[a] See Table 10-2.
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

Table 10-3 (continued)
Available Shear
Strength of Bolts, kips

Nominal Bolt Diameter, *d*, in.			1⅛		1¼		1⅜		1½	
Nominal Bolt Area, in.^{2}			0.994		1.23		1.48		1.77	
Austenitic Stainless Steel bolts										
Condition[a]	**Thread Cond.**	**Loading**	r_n/Ω	ϕr_n	r_n/Ω	ϕr_n	r_n/Ω	ϕr_n	r_n/Ω	ϕr_n
			ASD	**LRFD**	**ASD**	**LRFD**	**ASD**	**LRFD**	**ASD**	**LRFD**
AF	N	S	14.5	21.8	17.9	26.9	21.7	32.6	25.8	38.8
		D	29.1	43.6	35.9	53.8	43.4	65.1	51.7	77.5
	X	S	17.8	26.7	21.9	32.9	26.5	39.8	31.6	47.4
		D	35.5	53.3	43.9	65.8	53.1	79.6	63.2	94.8
A Class 1/1A	N	S	16.8	25.2	20.7	31.1	25.1	37.6	29.8	44.7
		D	33.5	50.3	41.4	62.1	50.1	75.2	59.6	89.5
	X	S	20.5	30.8	25.3	38.0	30.6	45.9	36.4	54.7
		D	41.0	61.5	50.6	75.9	61.3	91.9	72.9	109
CW	N	S	19.0	28.5	23.5	35.2	28.4	42.6	33.8	50.7
		D	38.0	57.0	46.9	70.4	56.8	85.2	67.6	101
	X	S	23.2	34.9	28.7	43.0	34.7	52.1	41.3	62.0
		D	46.5	69.7	57.4	86.1	69.4	104	82.6	124
SH	N	S	22.4	33.5	27.6	41.4	31.7	47.6	37.8	56.7
		D	44.7	67.1	55.2	82.8	63.5	95.2	75.5	113
	X	S	27.3	41.0	33.7	50.6	38.8	58.2	46.2	69.3
		D	54.7	82.0	67.5	101	77.6	116	92.3	139
Class 2B8	N	S	23.5	35.2	29.0	43.5	33.4	50.1	39.8	59.6
		D	47.0	70.5	58.0	87.0	66.8	100	79.5	119
	X	S	28.7	43.1	35.4	53.2	40.8	61.3	48.6	72.9
		D	57.4	86.1	70.9	106	81.7	123	97.2	146
Class 2B8M	N	S	21.2	31.9	26.2	39.3	30.1	45.1	35.8	53.7
		D	42.5	63.7	52.5	78.7	60.1	90.2	71.6	107
	X	S	26.0	39.0	32.1	48.1	36.8	55.1	43.7	65.6
		D	51.9	77.9	64.1	96.2	73.5	110	87.5	131
Duplex Stainless Steel Bolts										
Alloy[a]	**Thread Cond.**	**Loading**	r_n/Ω	ϕr_n	r_n/Ω	ϕr_n	r_n/Ω	ϕr_n	r_n/Ω	ϕr_n
			ASD	**LRFD**	**ASD**	**LRFD**	**ASD**	**LRFD**	**ASD**	**LRFD**
S32205	N	S	21.2	31.9	26.2	39.3	31.7	47.6	37.8	56.7
		D	42.5	63.7	52.5	78.7	63.5	95.2	75.5	113
	X	S	26.0	39.0	32.1	48.1	38.8	58.2	46.2	69.3
		D	51.9	77.9	64.1	96.2	77.6	116	92.3	139
Precipitation Hardening Stainless Steel Bolts										
Alloy[a]	**Thread Cond.**	**Loading**	r_n/Ω	ϕr_n	r_n/Ω	ϕr_n	r_n/Ω	ϕr_n	r_n/Ω	ϕr_n
			ASD	**LRFD**	**ASD**	**LRFD**	**ASD**	**LRFD**	**ASD**	**LRFD**
AH	N	S	26.8	40.5	33.1	49.9	40.1	60.4	47.7	71.9
		D	53.7	80.9	66.3	99.9	80.2	121	95.4	144
	X	S	32.8	49.4	40.5	61.0	49.0	73.9	58.3	87.9
		D	65.6	98.9	81.0	122	98.0	148	117	176

ASD	LRFD	Bolt
$\Omega = 2.00$ $\Omega = 2.25$	$\phi = 0.75$ $\phi = 0.67$	Austenitic and duplex Precipitation hardening

[a] See Table 10-2.
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

Table 10-4
Available Tensile
Strength of Bolts, kips

Nominal Bolt Diameter, *d*, in.	⅝		¾		⅞		1	
Nominal Bolt Area, in.^{2}	0.307		0.442		0.601		0.785	
Austenitic Stainless Steel Bolts								
Condition[a]	r_n/Ω	ϕr_n	r_n/Ω	ϕr_n	r_n/Ω	ϕr_n	r_n/Ω	ϕr_n
	ASD	LRFD	ASD	LRFD	ASD	LRFD	ASD	LRFD
AF	7.48	11.2	10.8	16.2	14.7	22.0	19.1	28.7
A and Class 1/1A	8.63	12.9	12.4	18.6	16.9	25.4	22.1	33.1
CW	11.5	17.3	14.1	21.1	19.2	28.8	25.0	37.6
SH	13.8	20.7	18.2	27.3	24.8	37.2	32.4	48.6
Class 2B8	14.4	21.6	20.7	31.1	25.9	38.9	33.9	50.8
Class 2B8M	12.7	19.0	18.2	27.3	22.5	33.8	29.5	44.2
Duplex Stainless Steel Bolts								
Alloy[a]	r_n/Ω	ϕr_n	r_n/Ω	ϕr_n	r_n/Ω	ϕr_n	r_n/Ω	ϕr_n
	ASD	LRFD	ASD	LRFD	ASD	LRFD	ASD	LRFD
S32205	10.9	16.4	15.7	23.6	21.4	32.1	28.0	42.0
Precipitation Hardening Stainless Steel Bolts								
Alloy[a]	r_n/Ω	ϕr_n	r_n/Ω	ϕr_n	r_n/Ω	ϕr_n	r_n/Ω	ϕr_n
	ASD	LRFD	ASD	LRFD	ASD	LRFD	ASD	LRFD
AH	13.8	20.8	19.9	30.0	27.1	40.8	35.3	53.3

Nominal Bolt Diameter, *d*, in.	1⅛		1¼		1⅜		1½	
Nominal Bolt Area, in.^{2}	0.994		1.23		1.48		1.77	
Austenitic Stainless Steel Bolts								
Condition[a]	r_n/Ω	ϕr_n	r_n/Ω	ϕr_n	r_n/Ω	ϕr_n	r_n/Ω	ϕr_n
	ASD	LRFD	ASD	LRFD	ASD	LRFD	ASD	LRFD
AF	24.2	36.3	29.9	44.9	36.2	54.3	43.1	64.6
A and Class 1/1A	28.0	41.9	34.5	51.8	41.8	62.6	49.7	74.6
CW	31.7	47.5	39.1	58.7	47.3	71.0	56.3	84.5
SH	37.3	55.9	46.0	69.0	52.9	79.3	63.0	94.4
Class 2B8	39.1	58.7	48.3	72.5	55.7	83.5	66.3	99.4
Class 2B8M	35.4	53.1	43.7	65.6	50.1	75.2	59.6	89.5
Duplex Stainless Steel Bolts								
Alloy[a]	r_n/Ω	ϕr_n	r_n/Ω	ϕr_n	r_n/Ω	ϕr_n	r_n/Ω	ϕr_n
	ASD	LRFD	ASD	LRFD	ASD	LRFD	ASD	LRFD
S32205	35.4	53.1	43.7	65.6	52.9	79.3	63.0	94.4
Precipitation Hardening Stainless Steel Bolts								
Alloy[a]	r_n/Ω	ϕr_n	r_n/Ω	ϕr_n	r_n/Ω	ϕr_n	r_n/Ω	ϕr_n
	ASD	LRFD	ASD	LRFD	ASD	LRFD	ASD	LRFD
AH	44.7	67.4	55.2	83.2	66.8	101	79.5	120

ASD	LRFD	Bolt
$\Omega = 2.00$	$\phi = 0.75$	Austenitic and duplex Precipitation hardening

[a] See Table 10-2.

Table 10-5

Available Bearing and Tearout Strength at Bolt Holes Based on Bolt Spacing

kip/in. thickness

Hole Type	Bolt Spacing, s, in.	F_u, ksi	Nominal Bolt Diameter, d, in.							
			⅝		¾		⅞		1	
			r_n/Ω	ϕr_n	r_n/Ω	ϕr_n	r_n/Ω	ϕr_n	r_n/Ω	ϕr_n
			ASD	LRFD	ASD	LRFD	ASD	LRFD	ASD	LRFD
STD SSLT	2⅔ d_b	75	17.8	26.6	21.6	32.5	25.5	38.3	27.8	41.7
		95	22.5	33.7	27.4	41.1	32.3	48.5	35.2	52.8
	3 in.	75	29.3	43.9	32.5	48.7	32.8	49.2	31.3	46.9
		95	37.1	55.7	41.1	61.7	41.6	62.3	39.6	59.4
SSLP	2⅔ d_b	75	14.0	20.9	17.6	26.4	21.3	31.9	23.8	35.7
		95	17.7	26.5	22.3	33.4	26.9	40.4	30.2	45.2
	3 in.	75	25.1	37.7	26.4	39.6	27.3	41.0	26.8	40.2
		95	31.8	47.7	33.4	50.1	34.6	52.0	33.9	50.9
OVS	2⅔ d_b	75	15.0	22.5	18.8	28.1	22.5	33.8	25.0	37.5
		95	19.0	28.5	23.8	35.6	28.5	42.8	31.7	47.5
	3 in.	75	27.0	40.6	28.1	42.2	29.0	43.4	28.1	42.2
		95	34.3	51.4	35.6	53.4	36.7	55.0	35.6	53.4
LSLP	2⅔ d_b	75	—	—	—	—	—	—	—	—
		95	—	—	—	—	—	—	—	—
	3 in.	75	14.1	21.1	14.1	21.1	—	—	—	—
		95	17.8	26.7	17.8	26.7	—	—	—	—
LSLT	2⅔ d_b	75	14.9	22.4	18.2	27.3	21.4	32.2	23.3	35.0
		95	18.9	28.3	23.0	34.5	27.2	40.7	29.6	44.3
	3 in.	75	24.6	36.9	27.3	40.9	27.6	41.3	26.3	39.4
		95	31.2	46.8	34.5	51.8	34.9	52.4	33.3	49.9
STD, SSLT, SSLP, OVS, LSLP	$s \geq s_{full}$	75	29.3	43.9	35.2	52.7	41.0	61.5	46.9	70.3
		95	37.1	55.7	44.5	66.8	52.0	77.9	59.4	89.1
LSLT	$s \geq s_{full}$	75	28.1	42.2	33.8	50.6	39.4	59.1	45.0	67.5
		95	35.6	53.4	42.8	64.1	49.9	74.8	57.0	85.5
Spacing for full bearing and tearout strength, s_{full}[a], in.		STD, SSLT, LSLT	2¾		3¼		3¾		4½	
		OVS	3¼		3¾		4¼		5	
		SSLP	3½		4		4½		5¼	
		LSLP	6¼		7½		8¾		10	

STD = standard hole
SSLT = short-slotted hole oriented with length transverse to the line of force
SSLP = short-slotted hole oriented with length parallel to the line of force
OVS = oversized hole
LSLP = long-slotted hole oriented with length parallel to the line of force
LSLT = long-slotted hole oriented with length transverse to the line of force

ASD	LRFD
$\Omega = 2.00$	$\phi = 0.75$

— Indicates spacing less than minimum spacing required per ANSI/AISC 370, Section J3.3.

Note: Spacing indicated is from the center of the hole or slot to the center of the adjacent hole or slot in the line of force. Hole deformation is considered. When hole deformation is not considered, see ANSI/AISC 370, Section J3.10.

[a] Decimal value has been rounded to the nearest sixteenth of an inch.

Table 10-5 (continued)

Available Bearing and Tearout Strength at Bolt Holes Based on Bolt Spacing

kip/in. thickness

Hole Type	Bolt Spacing, s, in.	F_u, ksi	Nominal Bolt Diameter, d, in.							
			1⅛		1¼		1⅜		1½	
			r_n/Ω	ϕr_n	r_n/Ω	ϕr_n	r_n/Ω	ϕr_n	r_n/Ω	ϕr_n
			ASD	LRFD	ASD	LRFD	ASD	LRFD	ASD	LRFD
STD SSLT	2⅔ d_b	75	31.6	47.5	35.5	53.3	39.4	59.1	43.3	64.9
		95	40.1	60.1	45.0	67.5	49.9	74.8	54.8	82.2
	3 in.	75	31.6	47.5	—	—	—	—	—	—
		95	40.1	60.1	—	—	—	—	—	—
SSLP	2⅔ d_b	75	26.4	39.6	30.0	45.1	33.8	50.6	37.5	56.3
		95	33.4	50.1	38.1	57.1	42.8	64.1	47.5	71.3
	3 in.	75	26.4	39.6	—	—	—	—	—	—
		95	33.4	50.1	—	—	—	—	—	—
OVS	2⅔ d_b	75	27.5	41.3	31.3	46.9	35.0	52.5	38.8	58.2
		95	34.9	52.3	39.6	59.4	44.3	66.5	49.1	73.7
	3 in.	75	27.5	41.3	—	—	—	—	—	—
		95	34.9	52.3	—	—	—	—	—	—
LSLP	2⅔ d_b	75	—	—	—	—	—	—	—	—
		95	—	—	—	—	—	—	—	—
	3 in.	75	—	—	—	—	—	—	—	—
		95	—	—	—	—	—	—	—	—
LSLT	2⅔ d_b	75	26.6	39.9	29.8	44.7	33.1	49.6	36.3	54.5
		95	33.7	50.5	37.8	56.7	41.9	62.9	46.0	69.1
	3 in.	75	26.6	39.9	—	—	—	—	—	—
		95	33.7	50.5	—	—	—	—	—	—
STD, SSLT, SSLP, OVS, LSLP	$s \geq s_{full}$	75	52.7	79.1	58.6	87.9	64.5	96.7	70.3	105
		95	66.8	100	74.2	111	81.6	122	89.1	134
LSLT	$s \geq s_{full}$	75	50.6	75.9	56.3	84.4	61.9	92.8	67.5	101
		95	64.1	96.2	71.3	107	78.4	118	85.5	128
Spacing for full bearing and tearout strength, s_{full}[a], in.		STD, SSLT, LSLT	5		5½		6		6½	
		OVS	5¾		6¼		6¾		7¼	
		SSLP	6		6½		7		7½	
		LSLP	11¼		12½		13¾		15	

STD = standard hole
SSLT = short-slotted hole oriented with length transverse to the line of force
SSLP = short-slotted hole oriented with length parallel to the line of force
OVS = oversized hole
LSLP = long-slotted hole oriented with length parallel to the line of force
LSLT = long-slotted hole oriented with length transverse to the line of force

ASD	LRFD
$\Omega = 2.00$	$\phi = 0.75$

— Indicates spacing less than minimum spacing required per ANSI/AISC 370, Section J3.3.

Note: Spacing indicated is from the center of the hole or slot to the center of the adjacent hole or slot in the line of force. Hole deformation is considered. When hole deformation is not considered, see ANSI/AISC 370, Section J3.10.

[a] Decimal value has been rounded to the nearest sixteenth of an inch.

Table 10-6

Available Bearing and Tearout Strength at Bolt Holes Based on Edge Distance

kip/in. thickness

Hole Type	Edge Distance, l_e, in.	F_u, ksi	Nominal Bolt Diameter, d, in.							
			⅝		¾		⅞		1	
			r_n/Ω	ϕr_n	r_n/Ω	ϕr_n	r_n/Ω	ϕr_n	r_n/Ω	ϕr_n
			ASD	LRFD	ASD	LRFD	ASD	LRFD	ASD	LRFD
STD SSLT	1¼	75	26.6	40.0	27.0	40.6	27.3	41.0	26.0	39.1
		95	33.7	50.6	34.3	51.4	34.6	52.0	33.0	49.5
	2	75	29.3	43.9	35.2	52.7	41.0	61.5	41.7	62.5
		95	37.1	55.7	44.5	66.8	52.0	77.9	52.8	79.2
SSLP	1¼	75	20.9	31.4	22.0	33.0	22.8	34.2	22.3	—
		95	26.5	39.8	27.8	41.7	28.9	43.3	28.3	—
	2	75	29.3	43.9	35.2	52.7	36.5	54.7	35.7	53.6
		95	37.1	55.7	44.5	66.8	46.2	69.3	45.2	67.9
OVS	1¼	75	22.5	33.8	23.4	35.2	24.1	36.2	23.4	—
		95	28.5	42.8	29.7	44.5	30.6	45.8	29.7	—
	2	75	29.3	43.9	35.2	52.7	38.6	57.9	37.5	56.3
		95	37.1	55.7	44.5	66.8	48.9	73.3	47.5	71.3
LSLP	1¼	75	11.7	—	—	—	—	—	—	—
		95	14.8	—	—	—	—	—	—	—
	2	75	18.8	28.1	18.8	28.1	18.8	28.1	18.8	28.1
		95	23.8	35.6	23.8	35.6	23.8	35.6	23.8	35.6
LSLT	1¼	75	22.4	33.6	22.7	34.1	23.0	34.5	21.9	32.8
		95	28.3	42.5	28.8	43.2	29.1	43.6	27.7	41.6
	2	75	24.6	36.9	29.5	44.3	34.5	51.7	35.0	52.5
		95	31.2	46.8	37.4	56.1	43.6	65.5	44.3	66.5
STD, SSLT, SSLP, OVS, LSLP	$l_e \geq l_{e\,full}$	75	29.3	43.9	35.2	52.7	41.0	61.5	46.9	70.3
		95	37.1	55.7	44.5	66.8	52.0	77.9	59.4	89.1
LSLT	$l_e \geq l_{e\,full}$	75	28.1	42.2	33.8	50.6	39.4	59.1	45.0	67.5
		95	35.6	53.4	42.8	64.1	49.9	74.8	57.0	85.5
Edge distance for full bearing and tearout strength $l_e \geq l_{e\,full}$[a], in.		STD, SSLT, LSLT	1⅜		1⅝		1⅞		2¼	
		OVS	1⅝		1⅞		2⅛		2½	
		SSLP	1¾		2		2¼		2⅝	
		LSLP	3⅛		3¾		4⅜		5	

STD = standard hole
SSLT = short-slotted hole oriented with length transverse to the line of force
SSLP = short-slotted hole oriented with length parallel to the line of force
OVS = oversized hole
LSLP = long-slotted hole oriented with length parallel to the line of force
LSLT = long-slotted hole oriented with length transverse to the line of force

ASD	LRFD
$\Omega = 2.00$	$\phi = 0.75$

— Indicates spacing less than minimum spacing required per ANSI/AISC 370, Section J3.3.

Note: Spacing indicated is from the center of the hole or slot to the center of the adjacent hole or slot in the line of force. Hole deformation is considered. When hole deformation is not considered, see ANSI/AISC 370, Section J3.10.

[a] Decimal value has been rounded to the nearest sixteenth of an inch.

Table 10-6 (continued)

Available Bearing and Tearout Strength at Bolt Holes Based on Edge Distance

kip/in. thickness

Hole Type	Edge Distance, l_e, in.	F_u, ksi	Nominal Bolt Diameter, d, in.							
			1⅛		1¼		1⅜		1½	
			r_n/Ω	ϕr_n	r_n/Ω	ϕr_n	r_n/Ω	ϕr_n	r_n/Ω	ϕr_n
			ASD	LRFD	ASD	LRFD	ASD	LRFD	ASD	LRFD
STD SSLT	1¼	75	26.4	—	26.6	—	—	—	—	—
		95	33.4	—	33.7	—	—	—	—	—
	2	75	42.2	63.3	42.6	63.9	43.0	64.5	43.3	64.9
		95	53.4	80.2	54.0	81.0	54.4	81.6	54.8	82.2
SSLP	1¼	75	—	—	—	—	—	—	—	—
		95	—	—	—	—	—	—	—	—
	2	75	35.2	52.7	36.1	54.1	36.8	55.2	37.5	—
		95	44.5	66.8	45.7	68.5	46.7	70.0	47.5	—
OVS	1¼	75	22.9	—	—	—	—	—	—	—
		95	29.0	—	—	—	—	—	—	—
	2	75	36.7	55.0	37.5	56.3	38.2	57.3	38.8	58.2
		95	46.5	69.7	47.5	71.3	48.4	72.6	49.1	73.7
LSLP	1¼	75	—	—	—	—	—	—	—	—
		95	—	—	—	—	—	—	—	—
	2	75	18.8	—	—	—	—	—	—	—
		95	23.8	—	—	—	—	—	—	—
LSLT	1¼	75	22.1	—	22.4	—	—	—	—	—
		95	28.1	—	28.3	—	—	—	—	—
	2	75	35.4	53.2	35.8	53.7	36.1	54.1	36.3	54.5
		95	44.9	67.3	45.3	68.0	45.7	68.6	46.0	69.1
STD, SSLT, SSLP, OVS, LSLP	$l_e \geq l_{e\,full}$	75	52.7	79.1	58.6	87.9	64.5	96.7	70.3	105
		95	66.8	100	74.2	111	81.6	122	89.1	134
LSLT	$l_e \geq l_{e\,full}$	75	50.6	75.9	56.3	84.4	61.9	92.8	67.5	101
		95	64.1	96.2	71.3	107	78.4	118	85.5	128
Edge distance for full bearing and tearout strength $l_e \geq l_{e\,full}$[a], in.		STD, SSLT, LSLT	2½		2¾		3		3¼	
		OVS	2⅞		3⅛		3⅜		3⅝	
		SSLP	3		3¼		3½		3¾	
		LSLP	5⅝		6¼		6⅞		7½	

STD = standard hole
SSLT = short-slotted hole oriented with length transverse to the line of force
SSLP = short-slotted hole oriented with length parallel to the line of force
OVS = oversized hole
LSLP = long-slotted hole oriented with length parallel to the line of force
LSLT = long-slotted hole oriented with length transverse to the line of force

ASD	LRFD
$\Omega = 2.00$	$\phi = 0.75$

— Indicates spacing less than minimum spacing required per ANSI/AISC 370, Section J3.3.

Note: Spacing indicated is from the center of the hole or slot to the center of the adjacent hole or slot in the line of force. Hole deformation is considered. When hole deformation is not considered, see ANSI/AISC 370, Section J3.10.

[a] Decimal value has been rounded to the nearest sixteenth of an inch.