

GUIDE TO SELECTION

STRUCTURAL SHAPES

ANGLES

Bar size and structural size angles of equal and unequal legs for general structural use with a 36 KSI minimum yield. Many sizes are stocked galvanized for atmospheric corrosion resistance. All sizes in stock can be galvanized prior to delivery. Material is certified to ASTM A36 and ASME SA36 with some sizes dual certified to A529 Grade 50. HSLA angles are produced as weathering steel certified to ASTM A588 Grade A.

CHANNELS

Bar size A36/SA36 can be used for all purpose structural applications requiring small sections. C channels (standard) for general purpose are stocked as A36/SA36. These are also certified to the bridge specification A709. Many sizes are stock as grade 50 where greater strength is required. ASTM A572 is certified. Also available is A992 for building framing or bridges. MC ship and car is stocked as A36/SA36 with some sizes dual certified as grade 50. Jr. channels are light weight, for stair stringers but can be used for many applications where light structural steel is required. These are certified to A36/SA36.

BEAMS

Standard beams are produced to A36/SA36. Wide flange is dual certified grade 50 to A572 and A992. M beams, Jr., H, or light are certified to A36/SA36.

Structural Shape Grade Comparison

Chemistry, %

Grade

Elements	ASTM A36	ASTM A572 Gr. 50	A36/A572 Gr. 50	A572/992 Gr. 50	ASTM A992 Gr. 50	CSA 44 W	CSA 50 W
C	0.26 max	0.23 max	0.23 max	0.23 max	0.23 max	0.22 max	0.23 max
Mn	—	1.35 max*	1.35 max*	0.50-1.50	0.50-1.50	0.50-1.50	0.50-1.50
P	0.04 max	0.04 max	0.04 max	0.035 max	0.035 max	0.04 max	0.04 max
S	0.05 max	0.05 max	0.05 max	0.045 max	0.045 max	0.05 max	0.05 max
Si	0.40 max	0.40 max	0.40 max	0.40 max	0.40 max	0.40 max	0.40 max
Cu	—	—	—	0.60 max	0.60 max	—	—
Ni	—	—	—	0.45 max	0.45 max	—	—
Cr	—	—	—	0.45 max	0.35 max	—	—
Mo	—	—	—	0.15 max	0.15 max	—	—
Sn	—	—	—	—	—	—	—
V	—	0.010-0.15**	0.010-0.15**	—	0.11**	0.10 max	0.10 max
Cb/Nb	—	0.005-0.05**	0.005-0.05**	—	0.05 max**	0.10 max	0.10 max

Mechanical Properties

	36 min.	50 min.	50	50-65	50-65	44 min	50
Fy (ksi)	36 min.	50 min.	50	50-65	50-65	44 min	50
Fu (ksi)	58-80	65 min	65-80	65 min	65 min	65-90	65-95
Elong %	20 @ 8" 21 @ 2"	18 @ 8" 21 @ 2"	20 @ 8" 21 @ 2"	18 @ 8" 21 @ 2"	18 @ 8" 22 @ 2"	20 min 23 @ 2"	19 22 @ 2"
Fy/Fu	n/a	n/a	n/a	.85 max	.85 max	n/a	n/a

*For each .01% reduction of carbon, manganese may be increased .06% to 1.50% max

**Cb & V in combination must be .02-.15%

Fy/Fu is yield to tensile ratio