

# ASTM A1085

ASTM A1085 is a new HSS specification designed with enhanced performance. This critical improvement makes HSS design easier and more effective for dynamically loaded structures. ASTM A1085 was designed for use in applications such as: buildings, bridges, towers, cranes, sign supports and poles, off-shore production and drilling platforms, Roll-Over Protective Structures (ROPS), and Falling-Over Protective Structures (FOPS).

## Tighter material tolerances and a single minimum yield stress of 50 ksi

More stringent wall tolerances and the addition of a mass tolerance mean the full nominal wall thickness can be used for design of HSS. This means no longer needing to reduce the nominal wall thickness by 0.93 as prescribed in the AISC Steel Construction Manual for both member selection and connection design. More area available for design and a higher min yield means that HSS are more economical and more efficient.

## Maximum specified yield stress of 70 ksi

The maximum yield will result in a lower expected yield strength and reduce capacity design requirements and column required strengths in seismic designs. This is the only specification used in North America or Europe that limits the maximum yield stress in HSS.

## Standard requirement for Charpy notch toughness

New specification will require all HSS to meet a minimum CVN value of 25 ft-lb @ 40° F, which corresponds to AASHTO Zone 2. Having the minimum CVN required makes HSS more suitable for use in dynamically loaded structures.

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	ASTM A500-10 Grade B	ASTM A1085
Manufacture Process	Cold-Formed Welded	Cold-Formed Welded
Maximum Perimeter	88"	88"
Thickness Range	$t < 0.875"$	0.148" - 0.875"
Yield Strength	Round— 42 ksi min	All Shapes 50 ksi min 70 ksi max
	Shapes—46 ksi min	
Tensile Strength	Round— 58 ksi min	All Shapes—65 ksi min
	Shapes—58 ksi min	
Wall Thickness	+/- 10%	+10% /- 5%
Mass Tolerance	N/A	-3.5%
Corner Radii	No more than 3t max	$t \leq 0.400$ 1.6t to 3.0t
		$t > 0.400$ 1.8t to 3.0t
CVN	N/A	25 ft-lbs @ 40° F
Elongation, min in 2"	23%	21%



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