



ASTM A516/ASME SA516 Normalized Steel Plate

Scope

SSAB's ASTM A516 and ASME SA516 normalized steel plate products are produced to pressure vessel quality (PVQ) standards as delineated in ASTM A20/ASME SA20. These products are made from carbon-manganese steels and are suitable for the fabrication of welded pressure vessels designed for moderate and lower-temperature service requiring excellent notch toughness.

Available Grades and Thickness Ranges

SSAB A516/SA516 normalized plates are available in three ultimate tensile strength levels in a variety of chemistry and thickness combinations. The table below, which includes product carbon equivalent (CE)** maximums more restrictive than ASTM A20 - supplemental requirement S20.3, lists the products currently available from SSAB.

Grade	Thickness Range*	Chemistry Restrictions**
516-70	0.375 to 2.000"	No CE restrictions
516-70	0.375 to 2.000"	CE max. of 0.43 or 0.45
516-70	0.375 to 2.000"	Max. Cu and CE of 0.20% and 0.45, respectively
516-65	0.375 to 2.000"	CE max. of 0.43 or 0.45
516-60	0.375 to 2.000"	CE max. of 0.43 or 0.45
516-60/65/70 triple certified	0.375 to 2.000"	CE max. of 0.43 or 0.45

*Please inquire for plate thicknesses < 0.375".

**CE = C + Mn/6 + (Cr + Mo + V)/5 + (Cu + Ni)/15

Available Sizes

Widths: 96 to 120" (2,438 to 3,048 mm)

Lengths: 20 to 50' (6.1 to 15.2 m)

Flatness

Guaranteed to meet ½ ASTM A20 flatness tolerances.

Composition (max. wt. %; ASTM A20 limits apply to unspecified elements)



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	C	Mn ^(a)	P	S	Si
SSAB	0.21	1.20	0.030 ^(b)	0.010 ^(b)	0.40
A516/SA516	0.27	1.20	0.035	0.035	0.40

^(a) For each reduction of 0.01% below the specified maximum for carbon, an increase of 0.06% above the specified Mn max. is permitted, up to a max. of 1.50% for grades A516-65 and A516-70 and a max. of 1.20% for grade A516-60.

^(b) Note that SSAB's P and S levels are more restrictive than that of A516/SA516. Even lower limits for P and S are available on an inquiry basis.

Weldability

Each of the A516/SA516 normalized products can be welded using a low-hydrogen electrode and Shielded Metal Arc Welding (SMAW), Gas Metal Arc Welding (GMAW) or Submerged Arc Welding (SAW) processes. When weldability is a concern, SSAB offers more restrictive CE limits of 0.45 and 0.43. It is recommended that welding be conducted in accordance with the applicable ASME/AWS codes.

Formability

Because the normalizing process results in a homogenous, fine-grained ferritic microstructure, plates produced by this process exhibit excellent formability. Nevertheless, it is recommended that the cold bending guidelines of A20 Appendix X4 be followed.

Tensile Properties (per ASTM A20)

Grade	Min. YS, ksi	UTS, ksi	Min.%Elong. in 8"	Min. %Elong. in 2"
516-70	38	70-90	17	21
516-65	35	65-85	19	23
516-60	32	60-80	21	25

Supplementary Requirements

By agreement between the purchaser and the plate manufacturer, the following Supplementary Agreements may be specified on the purchase order: S2. Product Analysis; S3. Simulated Post-Weld Heat Treatment of Mechanical Test Coupons; S5. Charpy V-notch Impact Test; S6. Drop Weight Test; S8. Ultrasonic Examination in accordance with A435; S11. Ultrasonic Examination in accordance with A577; and S12. Ultrasonic Examination in accordance with A578.

Sales Contacts



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For sales information, please call 877-722-2589 (Southern USA & Mexico), 800-340-5566 (Western & Central USA), 800-383-9031 (North Central USA), or 888-576-8530 (Northeast USA & Canada), or consult www.ssab.com