

§ 54.05-17

test plates shall be prepared for each 165 feet (50 meters) of production butt type welds.

§ 54.05-17 Weld toughness test acceptance criteria.

(a) For Charpy V-notch impact tests the energy absorbed in both the weld metal and heat affected zone impact tests in weld qualification and production shall be:

(1) For weld metal specimens, not less than the transverse values required for the parent material.

(2) For heat affected zone specimens, when the specimens are transversely oriented, not less than the transverse values required for the parent material.

(3) For heat affected zone specimens, when the specimens are longitudinally oriented, not less than 1.5 times the transverse values required for the parent material.

(b) For drop-weight tests both specimens from each required set shall exhibit a no-break performance.

[CGFR 68-82, 33 FR 18828, Dec. 18, 1968, as amended by CGD 73-254, 40 FR 40164, Sept. 2, 1975]

§ 54.05-20 Impact test properties for service of 0 °F and below.

(a) *Test energy.* The impact energies of each set of transverse Charpy specimens may not be less than the values shown in Table 54.05-20(a). Only one specimen in a set may be below the required average and the value of that specimen must be above the minimum impact value permitted on one specimen only. See § 54.05-5(c) for retest requirements.

TABLE 54.05-20(a)—CHARPY V-NOTCH IMPACT REQUIREMENTS

Size of specimen	Minimum impact value required for average of each set of 3 specimens foot-pounds ¹	Minimum impact value permitted on one specimen only of a set, foot-pounds
10 × 10 mm	20.0	13.5
10 × 7.5 mm	16.5	11.0
10 × 5 mm	13.5	9.0
10 × 2.5 mm	10.0	6.5

¹Straight line interpolation for intermediate values is permitted.

(b) Transversely oriented Charpy V-notch impact specimens of ASTM A 203

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(incorporated by reference, see § 54.01-1) nickel steels must exhibit energies not less than the values shown in § 54.05-20 (a). Requirements for 9 percent nickel steels are contained in § 54.25-20. Other nickel alloy steels, when specially approved by the Commandant, must exhibit a no-break performance when tested in accordance with the drop weight procedure. If, for such materials, there are data indicating suitable correlation with drop-weight tests, Charpy V-notch tests may be specially considered by the Commandant in lieu of drop-weight tests. If the drop-weight test cannot be performed because of material thickness limitations (less than one-half inch), or product shape, or is otherwise inapplicable (because of heat treatment, chemistry etc.) other tests or test criteria will be specified by the Commandant.

(c) Where sufficient data are available to warrant such waiver, the Commandant may waive the requirements for toughness testing austenitic stainless steel materials. Where required, austenitic stainless steels are to be tested using the drop-weight procedure and must exhibit a no-break performance. Where data are available indicating suitable correlation of Charpy V-notch results with drop-weight NDT or no-break performance, Charpy V-notch tests may be specially considered by the Commandant in lieu of dropweight tests. If the dropweight test cannot be performed because of material thickness limitations (less than one-half inch), or product shape, or is otherwise inapplicable (because of heat treatment, chemistry, etc.) other tests and/or test criteria will be specified by the Commandant.

[CGD 73-254, 40 FR 40164, Sept. 2, 1975, as amended by USCG-2000-7790, 65 FR 58460, Sept. 29, 2000]

§ 54.05-25 [Reserved]

§ 54.05-30 Allowable stress values at low temperatures.

(a) The Coast Guard will give consideration to the enhanced yield and tensile strength properties of ferrous and nonferrous materials at low temperature for the purpose of establishing allowable stress values for service temperature below 0 °F.