TAM International Incorporated

Carbon Steel Material for Load Bearing or Pressure Containing Components, 80 ksi Yield

ESMA-1005

Approval of Document ***ESMA-1005***

Signature _____ March 25, 2022

Luis Garcia – Sustaining Engineering Manager — Date

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1 SCOPE

1.1. This document provides specifications for carbon steel material with 60 ksi minimum yield strength used for producing load bearing or pressure containing component parts in TAM products.

1.2. Material specified by this document is compliant to NACE MR-0175, Part 2 Annex A (ISO 15156).

2. ACCEPTABLE MATERIALS / CHEMISTRY

Material shall be carbon steel meeting the following chemistry requirements:

Carbon (C) 0.22 – 0.35 %
Manganese (Mn) 0.60 – 0.90
Phosphorus (P) .040 Max
Sulfur (S) .050 Max

3 MECHANICAL PROPERTIES

3.1 The mechanical properties of this material shall conform to the following requirements:

3.1.1 80,000 psi minimum yield strength as determined in accordance with ASTM A370,

3.1.2 90,000 psi minimum tensile strength as determined in accordance with ASTM A370,

3.1.3 Minimum Elongation of 10%,

3.1.4 Material shall have a Minimum hardness of HRB (HRC 11) and a Maximum hardness of HRB 99 (HRC 22) as determined in accordance with ASTM E18.

NOTE: No other mechanical properties are required by this specification to be reported unless otherwise specified.

4 WELDABILITY

4.1 Material weldability shall meet or exceed the requirements listed for ASTM 519, P1 materials as identified in ASME BPVC-IX.

Ferrous and Nonferrous P-Numbers

Spec No.	Type/Grade	P-No.
A519	1018 CW	1
A519	1018 HR	1
A519	1020 CW	1
A519	1020 HR	1
A519	1022 CW	1
A519	1022 HR	1
A519	1025 CW	1
A519	1025 HR	1
A519	1026 CW	1
A519	1026 HR	1

5 DIMENSIONAL TOLERANCES

5.1 Unless otherwise specified, dimensional tolerances shall comply with the following:

5.1.1 Plates shall comply with the dimensional requirements of ASTM A568.

5.1.2 Tubes shall comply with the dimensional requirements of ASTM A450.

5.1.3 Bars shall comply with the dimensional requirements of ASTM A29.

5.1.4 Shapes shall comply with the dimensional requirements of ASTM A6.

6 REPORTS

6.1 Material ordered to this specification shall be accompanied by a Material Test Report. Report shall contain the following minimum information which will be subject to inspection upon receipt:

6.1.1 Statement of material type/grade

6.1.2 Chemical analysis that shows the carbon content

6.1.3 Material yield strength

6.1.4 Material hardness

6.1.5 Material Identification Number

7 MATERIAL ACCEPTANCE

7.1 All requirements of this specification are subject to verification at the discretion of TAM International.

7.2 TAM Engineering Manager or designee is responsible for accepting or rejecting material that does not conform to any portion of this specification.

7.3 Any material deviations must be submitted and approved on a Material Deviation Request (PF-09) before machining can begin.

8 DOCUMENT REVISION

8.1 Document revisions will be managed in accordance with SOP-009 Document Control.

Rev	Date	Description	Prepared By:	Reviewed By / Approved By	Date
A	7/21/15	New Document	Mark Wyatt	M. Wyatt, G. Fletcher, T. Young	7/21/2015
B	01/21/2022	New document format. All changes marked in **Red**. (Sect. 1, Sect. 2, Sect. 4,)	G. Fletcher	J. Dinkel, L. Garcia, T. Young, D. Gregory; / G. Fletcher	01/28/2022
C	03/08/2022	All changes marked in **Red**. (Sect. 1, Sect. 2, Sect. 4, Sect. 7)	G. Fletcher	J. Dinkel, L. Garcia, C. Kelley, T. Young, D. Gregory; / G. Fletcher	03/25/2022