

NAVISTAR, INC.		
Material, Parts, and Process Specifications (MPAPS)		NUMBER: MPAPS- A-18
		Former Designation: CEMS A-18
TITLE: Welded and Seamless Steel Pipe		CURRENT REV No.: 1506
		DATE: June 2015
WRITTEN/EDITED BY: W. Cook	APPROVED BY: R. Goluch	SUPERSEDES: October 2001
PRINTED COPIES OF THIS DOCUMENT MUST BE VERIFIED FOR CURRENT REVISION		
<i>This specification may involve hazardous materials, equipment, and procedures. This specification does not purport to address all of the safety issues associated with its use. The user is responsible to consult appropriate safety and health practices and to determine the applicability of regulatory limits prior to use.</i>		
Change Notice: Reformatted as MPAPS; Editorial Changes; Merged with CEMS A-18 Appendix		

1.0 APPLICATION

Pipe is made in large quantities with a limited variation in wall thickness. Pipe is made with liberal dimensional tolerances with no tolerance specification for the ID. Pipe is generally the lowest cost tubular product.

Navistar specifications covering other steel tubular products used by the Company are as follows:

Mechanical Steel Tubing	MPAPS A-10
Structural Steel Tubing	MPAPS A-38
Fluid Line Steel Tubing	MPAPS A-45

2.0 SCOPE

This specification covers Navistar's requirements for black and galvanized welded and seamless steel pipe.

2.1 Restricted Chemical Substances

Effective January 1, 2007, all product supplied to the requirements of this specification must comply with the requirements of the MPAPS B-50 specification.

3.0 REFERENCE DOCUMENTS

Unless otherwise specified, the latest issue of all referenced standards shall apply. The following standards, specifications and regulations are referenced in this specification.

Quality System Standard ISO 9001 or TS-16949	NAVISTAR MPAPS A-10 PART I
CFR Title 29, Part 1910	ASTM A 120
NAVISTAR Manufacturing Std. MS-D-13	ASTM A 370
NAVISTAR Engineering Design Std A-16	ASTM A 90
NAVISTAR MPAPS B-50	ASTM A 53

This document is restricted and may not be sent outside Navistar, Inc. or reproduced without permission from Corporate Technical Standards.
Suppliers are required to assume all patent liability. ©2015 by Navistar, Inc.

OCTOBER 2001

NUMBER: MPAPS A-18	TITLE Welded and Seamless Steel Pipe	CURRENT ISSUE DATE: June 2015
------------------------------	--	---

4.0 REQUIREMENTS

4.1 Grade Classification

Four grades of black and galvanized steel pipe covered by this specification are classified as shown in Table I.

TABLE I
GRADE CLASSIFICATION

Designation		* Description	** Section and Nominal Size Range
International Grade	Approximate ASTM		
1	A53, Grade A	Butt Welded	0.125 to 4 Inch Rounds
2	A53, Grade A	Seamless or Electric Welded	2 to 12 Inch Rounds
3	A53, Grade B		
4	A36 (Chemistry & Mechanical Properties Only)	Butt Welded	0.5 to 4 Inch Rounds 1.25 to 2.5 Inch Squares 1.5 x 2.5 Inch Rectangles

* For a more complete description of the four grades, see "Appendix - General Information.

** Specific size availability is shown in Appendix - General Information," Navistar MPAPS A-10, Part I.

4.2 Permissible Alternates

When a certain grade of pipe is specified on a drawing, it may be desirable for manufacturing to use another grade. Permissible alternates for each pipe grade are shown in Table IA.

TABLE IA
PERMISSIBLE ALTERNATES

Grade	Permissible Alternates	
	Grades	Applications
1	2, 3	All
	4	Non-Fluid Carrying
2	3	Forming Not Critical
3	None	-
4	3	All

This document is restricted and may not be sent outside Navistar, Inc. or reproduced without permission from Corporate Technical Standards. Suppliers are required to assume all patent liability. ©2015 by Navistar, Inc.

JUNE 2015

NUMBER: MPAPS A-18	TITLE Welded and Seamless Steel Pipe	CURRENT ISSUE DATE: June 2015
------------------------------	--	---

4.3 Chemical Composition

Steel pipe purchased to this specification shall be made to the ladle composition shown in Table II.

TABLE II
CHEMICAL COMPOSITION

International Grade	Chemical Composition, Percent, Max		
	Carbon	Phosphorus	Sulfur
1	0.30	0.04	0.045
2	0.25	0.04	0.045
3	0.30	0.04	0.045
4	0.26	0.04	0.045

4.4 Mechanical Properties

4.4.1 Tensile Properties

All steel pipe furnished to this specification shall conform to the tensile property requirements shown in Table III, unless otherwise specified.

TABLE III - TENSILE PROPERTIES

International Grade	Yield Strength, psi, Min	Tensile Strength, psi		Elongation, Percent, Min	
		Min	Max	2 Inch Gage Length	8 Inch Gage Length
1	30000	48000	-	30	-
2	30000	48000	-	35 *	-
3	35000	60000	-	30 *	-
4	36000	58000	80000	23	20 **

- * Basic minimum elongation for walls 5/16 inch and over in thickness, strip tests, and for all small sizes tested in full section.

When standard round 2 inch gage length test specimen is used, the minimum percent elongation in 2 inches will be 28 for Grade 2 and 22 for Grade 3.

For strip tests, the width of the gage section will be 1.5 inches. A deduction in percent elongation of 1.75 for Grade 2 and 1.50 for Grade 3 will apply for each 1/32 inch decrease in wall thickness below 5/16 inch from the basic minimum elongation.

- ** Under 5/16 inch thickness, a deduction of 1.25 percent elongation in 8 inches will be made for each decrease of 1/32 inch of thickness or diameter below 5/16 inch.

Over 3/4 inch thickness, a deduction of 0.50 percent elongation in 8 inches will be made for each increase of 1/8 inch of thickness or diameter above 3/4 inch. This deduction will not exceed 3 percent.

4.4.2 Hydrostatic Pressure Requirements

Each length of Grades 1, 2, and 3 pipe will meet the appropriate hydrostatic pressure in accordance with Table IV. Grade 4 pipe does not require hydrostatic pressure testing.

This document is restricted and may not be sent outside Navistar, Inc. or reproduced without permission from Corporate Technical Standards. Suppliers are required to assume all patent liability. ©2015 by Navistar, Inc.

JUNE 2015