

RAW MATERIALS / FERROUS

FNHA-2-A-403.00

COLD DRAWN ROUND BAR AISI 1018**1. SCOPE**

This specification defines the requirements for Cold Drawn Steel Bar conforming to AISI chemistry specifications and ASTM A29 dimensional tolerances.

2. APPLICATION

This specification includes material requirements, ordering information and quality requirements to be used by Engineering, Purchasing and Manufacturing.

3. DRAWING SPECIFICATIONS

- 3.1 C.D.Round AISI 1018 (Preferred)
- 3.2 C.D.Round AISI 1018 G&P
- 3.3 C.D.Round AISI 10L18 (see Section 8.)
- 3.4 Material Code 214 - Cold Drawn, Round (Versatile Only)

4. RELATED SPECIFICATIONS**4.1 REFERENCE STANDARDS**

ASTM A29 - Standard Specifications for Steel Bar, Carbon and Alloy, Hot Wrought and Cold Finished, General Requirements.

ASTM A108 - Standard Specifications for Steel Bar, Carbon, Cold Finished, Standard Quality.

86050124(FNHA-2-A-027.00) - General Requirements for Carbon and Alloy Steel Bars, Hot Rolled and Cold Finished.

86599830 (FNHA-2-A-403.01) Matl List 86050099
WS 50.03 material Ck 15

4.2 This standard replaces the following company standard:

Versatile

MS - 610.

5. ORDERING INFORMATION

- 5.1 AISI 1018 Steel.
- 5.2 Cold Drawn Bar, Standard Quality.
- 5.3 Dimensions (diameter, bar length, and whether cut length or random length).
- 5.4 Condition:
- 5.4.1 Cold drawn, unless otherwise specified.
- 5.4.2 Cold drawn, ground and polished (G&P).

6. CHEMICAL COMPOSITION FOR AISI 1018 STEEL

Carbon, %	0.15 to 0.20
Manganese, %	0.60 to 0.90
Phosphorus, %	0.040 maximum
Sulfur, %	0.050 maximum
Lead - not permitted, unless specified for free-machining properties (see Section 8.).	

7. DIMENSIONAL TOLERANCES

- 7.1 Size tolerances for Cold Drawn Rounds, see Table 1.
- 7.2 Length tolerance for cut lengths + 2" / - 0, unless otherwise specified by part number drawing.

					NAME	STD AISI 1018 CD RD		
ALL	G	TH	114396	02-00	 NEW HOLLAND	ENGINEERING SPECIFICATION		
ALL	F	TH	112867	12-98				
ALL	E	BJF	112648	10/98				
ALL	D	RLF	110229	JUL 97				
ALL	C	RLF	107053	951019	THE INFORMATION HEREON IS THE CONFIDENTIAL AND PROPRIETARY PROPERTY OF NEW HOLLAND N. V. AND/OR ITS SUBSIDIARIES. ANY USE, EXCEPT THAT FOR WHICH IT MAY BE LOANED, IS PROHIBITED.	FRAME 1	OF 2	
ALL	B	RE	104739	940216		PART NUMBER		
FRAME NO.	REV.	BY	ECN NO.	DATE		86090099		
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7.3 Straightness tolerances for Cold Drawn Rounds, see Table 2.

8. FREE-MACHINING PROPERTIES

8.1 The use of 10L18, low carbon leaded steel, is being discontinued by New Holland. If free-machining properties are desired, and are not detrimental to the function of the product, AISI 1117 steel should be specified by the engineer, either as the preferred material or as the alternate material to AISI 1018 steel. If 1117 is listed as an alternate material, Manufacturing has the option of specifying 1117 if the reduction in machining cost will offset the increased material cost.

8.2 AISI 1117 should be used with caution under the following conditions, because it is more brittle than AISI 1018:

8.2.1 Impact or shock loading conditions.

8.2.2 Welding the circumference of small diameter shafts (less than 0.75" diameter).

8.2.3 Carburizing or carbonitriding thin cross-sections (less than 0.25").

9. MECHANICAL PROPERTIES

Tensile Strength, psi, typical	64 000
Yield Strength, psi, typical	54 000
Elongation in 2", typical %	15
Reduction in Area, typical %	40
Rockwell B Hardness, typical	72
Brinnell Hardness, typical	126

TABLE 1. Size Tolerance for 1018 C.D. Round

Size, inches	Cold Drawn Tolerance from Specified Size, Minus only, inches	Cold Drawn, Ground and Polished, Tolerance from Specified Size, Minus only, inches
To 1 1/2, incl.	0.002	0.001
Over 1 1/2 to 2 1/2, incl.	0.003	0.0015
Over 2 1/2 to 3, incl.	0.004	0.002
Over 3 to 4, incl.	0.004	0.003
Over 4 to 6, incl.	0.005	---
Over 6 to 8, incl.	0.006	---
Over 8 to 9, incl.	0.007	---

TABLE 2. Straightness Tolerance for 1018 C.D. Rounds

Size, inches	Length, feet	Straightness Tolerance, inches, Maximum Deviation from Straightness in any 10 ft. Portion of Bar
Less than 5/8	Less than 15	1/8
Less than 5/8	15 and over	1/8
5/8 and over	Less than 15	1/16
5/8 and over	15 and over	1/8

	NAME				PART NUMBER	
	STD AISI 1018 CD RD				86050099	
ENGINEERING SPECIFICATION			REV. G	FRAME 2	OF 2	