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### 4130 Alloy Steel Round Bar

#### MATERIAL SPECIFICATIONS

PREPARED BY: H POPE

REVISION DATE: 03/15/2013

<b>MATERIAL</b>	<b>ALLOY ROUND BAR 4130</b>	<b>HOT ROLLED OR FORGED</b>
	<b>12-24' RANDOM LENGTHS</b>	<b>SIZES 7 to 50 inch</b>
		<b>ROUGH TURNED</b>

<b>SPECIFICATIONS</b>	<b>ALL SPECIFICATIONS WITH LATEST YEAR REVISIONS</b> AISI 4130  ASTM A29, ASTM A108, ASTM A255, ASTM A322, ASTM A370, ASTM A388 API 6A Class K, PSL 3, API 16A ISO 15156, NACE MR-1075, EN 10204 3.1
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<u>CHEMICAL ANALYSIS</u>	<u>MECHANICAL PROPERTIES</u>
Carbon C 0.280 /0.330	Tensile Strength 100,000 psi
Chromium Cr 0.800 /1.100	(U.T.S.)
Copper Cu 0.350	Yield Strength 80,000 psi
Manganeses Mn 0.400 /0.600	(Yield) 0.2% Offset
Molybdenum Mo 0.200 /0.250	Elongation 18%
Nickel Ni 0.250	(El. or Elong.)
Nitrogen N 0.015	Reduction of Area 35%
Phosphorous P 0.025	(R.A. or Red.)
Silicon Si 0.200 /0.350	Hardness 15-22 RC
Sulfur S 0.025	RC or BHN 207-235 BHN
Vanadium Va 0.030	
Residual trace elements shall not exceed 1% on Cu, Ni, Va	Impact Charpy-V min <b>20 ft/lb at -75 Deg. F</b>

All singular chemistry values are  
MAXIMUM unless otherwise noted

All mechanical properties are  
MINIMUM unless otherwise noted

#### OTHER TEST(S) AND/OR REQUIREMENTS

REPORT CHARPY-V-NOTCH IMPACT TESTING TO ASTM A370/E23 AT 20 FT/LB -75 DEG. F  
THE CHARPY-V-NOTCH ROOT SHALL BE AT LEAST 1/4T FROM ENDS OF QTC  
IMPACT TEST TEMPERATURE, SAMPLE SIZE OF SPECIMENS INCLUDING LATERAL EXPANSION MUST BE REPORTED.

REPORT ULTRASONIC TESTED TO ASTM A388, API 6A PSL 3 VOLUMETRIC NDE  
REDUCTION RATIO 4:1 MINIMUM  
REPORT FINISH CONDITION, MELT AND HOT WORKING PRACTICES (FORGED OR ROLLED)  
REPORT HEAT TREATMENT METHOD, SOAKED TIME AND TEMPERATURE  
REPORT HARDNESS PER ASTM A255, TESTING AS PER ASTM E10 OR ASTM E18  
REPORT GRAIN SIZE PER ASTM E112 (SIZE 5 minimum)  
NO WELD OR WELD REPAIR STATEMENT  
FREE FROM RADIOACTIVE CONTAMINATION STATEMENT  
GRADE AND HEAT NUMBER MUST BE METAL STAMPED ON ENDS OF BAR  
LABEL AFFIXED TO BOTH ENDS OF BAR MUST SHOW: CUSTOMER REF NUMBER, GRADE, HEAT, SIZE, WEIGHT, LENGTH.

#### IMPORTANT:

ORIGINAL CERTIFICATES OF CHEMICAL & PHYSICAL ANALYSIS REQUIRED TWO (2) WEEKS BEFORE SHIPMENT ARRIVES  
ALL TEST REPORTS MUST STATE COUNTRY OF ORIGIN  
TEST REPORTS MUST HAVE THE SIGNATURE NAME AND TITLE/POSITION PRINTED  
ALL TEST REPORTS MUST BE SIGNED BY AUTHORIZED PERSON.