
 <small>A JOULON COMPANY</small>	SARA SAE ENGINEERING SPECIFICATION		
	Section: SES 26 – 845		
	Issue: “A”	Rev No: “0”	
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**SPECIFICATION FOR AISI 1020 CARBON STEEL
BARS & TUBING - STANDARD AND SOUR GAS SERVICE
WITH CHEMICAL AND PHYSICAL PROPERTIES**

Rev	Reason of Change	Date	Made By	Reviewed By	Approved By	Status
0	Initial release	30-07-2018	MN	AS	KKD	Released

Summary: This specification covers the requirements for carbon steel (AISI 1020) bars, shapes, and tubing. This material is intended for components in standard or sour gas service conditions.

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1. SCOPE

- 1.1 This specification covers the requirements for carbon steel (AISI 1018/1020) bars, shapes, and tubing. This material is intended for components in standard or sour gas service conditions.

2. APPLICABLE SPECIFICATIONS

- 2.1 AISI 1020
2.2 ASTM A29, A519

3. CHEMISTRY REQUIREMENTS

- 3.1 The chemistry shall conform to one of the compositions listed below:

AISI 1020

Carbon.....	0.18/0.23
Manganese.....	0.30/0.60
Phosphorus	0.040 max
Sulfur	0.050 max
Silicon	0.10/0.35

4. MATERIALS AND MANUFACTURE


- 4.1 Tubes shall be made by a seamless process. Bars, shapes, and tubes shall be either in the hot-finished, cold finished & stress relieved, or normalized condition as specified.
4.2 Permissible variations for dimensions of hot-wrought and cold-finished bars and tubing shall not exceed the applicable limits as stated in the tables of ASTM A29 and A519.

5. MECHANICAL PROPERTIES

Tensile strength, min.....	65 ksi
Yield strength, min	40 ksi
Elongation, min	16%
Reduction of area, min	35%
Hardness	126-235 HB

6. HEAT TREATMENT :

PROCESS	ATMOSPHERE/MEDIA	TEMPERATURE	TIME AT TEMPERATURE
Normalizing	Air	1500°-1600° F (815° - 870° C)	½ hour per inch of maximum through thickness.
Note: Maximum holding time shall not exceed Five times (5X) the minimum holding time. In all case, holding time shall not start until parts or materials have reached specified heat treatment temperature. The 5X rule does not apply to the separate QTC (e.g. ER 5”).			
Slow cool to room temperature.			

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7. MARKING

7.1 The products shall be legibly marked with steel grade, and heat number. Additional markings shall be per the order instructions. Heat numbers shall be marked on both ends or continuously roll stamped.

8. CERTIFICATION

8.1 A certificate of compliance to the requirements of this specification with the following information reported must be provided with the shipment:

- | | |
|------------------------------------|---------------------------|
| -Purchase order number | -Part number and size |
| -Specification number (incl. Rev.) | -Grade of steel furnished |
| -Heat Number | -Mechanical properties |
| -Chemical analysis | -Hardness |