	SARA SAE ENGINEERING SPECIFICATION	
Sara Sae	Section: SES 26-319	
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MATERIAL SPECIFICATION FOR AISI 4330

Rev	Reason of Change	Date	Made By	Reviewed By	Approved By	Status
0	Initial release	10/5/2008	USR	AKS	KKD	Released

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1.0 SCOPE

1.1 This specification describes the requirements for AISI 4330.

2.0 APPLICABLE SPECIFICATIONS

2.1 AISI 4330

3.0 CHEMICAL COMPOSITION

3.1 The chemistry shall be as follows:

Element	Content (%)
Iron, Fe	95.3-98.1
Nickel, Ni	1.0-1.50
Manganese, Mn	≤ 1.0
Silicon, Si	≤ 0.80
Chromium, Cr	0.40-0.60
Molybdenum, Mo	0.30-0.50
Carbon, C	0.20-0.30

4.0 MECHANICAL PROPERTIES

The following table shows the physical properties of AISI 4330 alloy steel.

Properties	Metric	Imperial
Melting point	1427°C	2600°F

Mechanical Properties

The mechanical properties of AISI 4330 alloy steel are displayed in the following table.

Properties	Metric	Imperial
Tensile strength	≥ 860 MPa	≥ 125000 psi
Yield strength	≥ 690 MPa	≥ 100000 psi
Elongation at break (In 50 mm)	≥ 15.0 %	≥ 15.0 %
Hardness, Brinell	285	285

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5.0 HEAT TREATMENT

5.1 Tempering

AISI 4330 alloy steel is tempered based on the desired state level. This alloy steel is tempered at 454 to 635°C (850 to 1175°F) for the lower strength 125 to 200 ksi level. AISI 4330 alloy steel is tempered at 218 to 260°C (425 to 500°F) for the 260 to 280 ksi level. Tempering is not recommended for strength levels in the 220 to 260 ksi range as this will lead to degradation of impact strength.

5.2 Annealing

AISI 4330 alloy steel can be completely annealed at 816 to 899°C (1500 to 1650°F). The alloy is then cooled slowly in the furnace and finally cooled in air.