

STAINLESS STEEL
MARTENSITIC GRADE _ HARDENABLE
DSM 1.2.0

Martensitic: (400 series)

- Corrosion resistance, inferior to Austenitic grades.
- Magnetic in all conditions.
- Can be hardened and strengthened by heat treatment.
- Fabrication methods must allow for poor weldability.
- Max. service temp. 400°C

Definition:

431 Martensitic Stainless Steel optimised for high hardness is a heat treatable ($\leq 40RC$), high Chromium - low Nickel type. Offering the best corrosive resistance of all the Martensitic grades (still generally lower than Austenitic) this can be optimised when used in the hardened & tempered condition. Magnetic in all conditions.

Features:

Easily machined in the annealed state with excellent tensile & torque strength. Limited by loss of strength at high temperatures and loss of ductility at negative temperatures. Because of its high yield strength, this grade is not readily cold worked.

ASM (DEK) Applications:

Suitable for shaft & bolt applications.

These values are representative and should not be considered as definitive. For critical applications, refer to material data-sheet.

TYPICAL MECHANICAL PROPERTIES @25°C	
DENSITY:	7800 Kg/m ³
YOUNGS MODULUS:	200 GPa
POISSONS RATIO:	0.28
YIELD STRENGTH	655 MPa
Max. TENSILE STRENGTH	860 MPa

Issue	01	02	03	04	05	06	07	08	09
DCR	7135	30040	44682						



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CHEMICAL ANALYSIS		BENEFIT
Chrome	15.0/18.0	Improves corrosion resistance.
Nickel	1.2/3.0	Combines with Chrome for good through hardening.
Carbon	0.12/0.2	Increases hardness & strength.
Mang.	1.0 max	Improves the hardening process.
Silicon	1.0 max	Increases resistance to oxidation.
Sulphur	0.03 max	Good for machining.

CURRENT INTERNATIONAL SPECIFICATION COMPARISON	
GERMAN: DIN	X17CrNi15-2
AMERICAN: AISI	431
EUROPEAN STEEL No.	1.4057
JAPANESE GRADE	JIS SUS 431
CHINA GRADE	GB 1Cr17Ni2

REPLACES

BS970 1955	BS970 1991	COLOUR CODE	DESCRIPTION
EN57	431S29		Martensitic Stainless Steel

Alternatives:

Alternative materials are allowed only with the express written permission of ASMPT. Please email details of your request to engineering_enquiries@asmpt.com

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**These sizes are given in good faith and should not be
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Rounds (mm)									
16	22	25	28	30	32	35	38	40	45
50	55	60	65	70	75	80	85	90	100
105	110	120	125	130	140	150	160	170	

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