

1.4057 (X17CrNi16-2)

Material Designation

1.4057 DIN
S43100 UNS
431 AISI

Standards

DIN EN 10088-3
DIN EN 10250-4
ASTM A276, A479, F899

Chemical Composition Mass-% acc. to DIN EN 10088-3 and ASTM A276

	C	Si	Mn	P	S	Cr	Ni
min.	0,12	-	-	-	-	15,0	1,5
max.	0,20	1,0	1,0	0,04	0,03	17,0	2,5

Customer specific restrictions upon request

Properties

Stainless martensitic chromium-nickel-steel with high strength and good toughness. High-gloss polishable. Good corrosion resistance (PREN≈19).

The formation of chromium-depleted areas by improper heat treatment increases the risk for intercrystalline corrosion.

Delivery Condition

- ✘ quenched and tempered (+QT)
- ✘ quench., tempered, stress relieved (+QT +SR)
- ✘ annealed (+A) max. 295 HBW

Application Area

Parts for high mechanical loads in corrosive environment.

Standard material for highly stressed shafts, piston rods and valves in all applications.

Typical Applications

- ✘ General mechanical engineering and equipment construction
- ✘ Chemical and petrochemical industry
- ✘ Nonwovens industry, technical textiles
- ✘ Surgical instruments
- ✘ Water and wastewater treatment
- ✘ Oil and gas industry

Mechanical Properties acc. to DIN EN 10088-3, longitudinal

Condition	Yield strength [N/mm ²]	Tensile strength [N/mm ²]	Elongation [%]	Impact toughness [J] Charpy-V
+A	-	≤ 950	-	-
+QT800	≥ 600	800 - 950	≥ 14	≥ 25
+QT900	≥ 700	900 - 1050	≥ 12	≥ 16

Heat Treatment Guideline Values

	Temperature [°C]	Cooling medium
Annealing +A	680 - 800	Furnace, air
Quenching and tempering +QT800	950 - 1050 (Hardening)	Oil, air
	750 - 800 (1st Tempering)	Oil, air
	650 - 700 (2nd Tempering)	Oil, air
Quenching and tempering +QT900	950 - 1050 (Hardening)	Oil, air
	600 - 650 (Tempering)	Oil, air

Quality

- ISO 9001
- ISO 14001
- ISO 50001
- Approvals acc. to standards like ABS, BV, DNV ...
- Customer specific approval certificates

Innovation

- Fully automated ultrasonic testing up to dia. 1000 mm
- CO₂-reduction by innovative heat treatment solutions

Flexibility

- Product range from fine wire to forging
- Directly from stock close at hand

Individuality

- Dimensions
- Tolerances
- Surface qualities
- Delivery conditions

Your personal contact:

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