



SIQUAL 3505 Steel

Designation by Standards

Brand Name	Ravne	Mat. No.	DIN	EN	AISI/SAE
SIQUAL 3505	OCR4ES	1.3505	100Cr6	100Cr6	5210

Chemical Composition (in weight %)

C	Si	Mn	Cr	Mo	Ni	V	W	Others
0.97	0.25	0.35	1.50	-	max. 0.30	-	-	max. 0.30 Cu

Description

52100 is a high carbon, chromium containing low alloy steel that is through hardening and noted in particular for use as bearings.

Applications

Principal applications are those for bearings in rotating machinery. Balls, rollers and rings for roller bearings, diameter up to 30 mm.

Physical properties (average values) at ambient temperature

Modulus of elasticity [$10^3 \times \text{N/mm}^2$]: 190-210

Density [g/cm^3]: 7.83

Thermal conductivity [W/m.K]: 20.0

Electric resistivity [$\text{Ohm mm}^2/\text{m}$]: 0.65

Specific heat capacity [J/g.K]: 0.46

Soft Annealing

Heat to 760-800°C, cool slowly in furnace. This will produce a maximum Brinell hardness of 207.

Stress Relieving

Stress relieving to remove machining stresses should be carried out by heating to 650°C, holding for one hour at heat, followed by air cooling. This operation is performed to reduce distortion during heat treatment.

Hardening

Harden from a temperature of 830-870°C followed by oil quenching. Hardness after quenching is 64 HRC.

Tempering

Tempering temperature: 150-180°C.

Forging

Hot forming temperature: 1200-926°C.

Machinability

Machinability of 52100 alloy is good by conventional methods. A spheroidizing anneal at 1200 F before machining will improve the overall machinability of the alloy.

Welding

This is a high carbon alloy typically used in bearing applications where welding is not applicable or appropriate.

Forms manufactured: Please see the [Dimensional Sales Program](#).

Disclaimer

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