



CCR-1150

Roller Bearing Steel

Distinctive feature & main attribute

A temperable ball bearing steel, showing unease of machining. However, it has a high hardness and a good resistance to deformation with an excellent wearing.

Use & application range

This quality is universally deployed in the ball and roller bearing industry including anti-friction bearing such as balls, sheaves and links.

Material No. and norms

Material No.	1.3505
DIN Abbreviation	100Cr6
AFNOR	~ 100C6
AISI/SAE/ASTM	AISI ~ 52100
ISO	100Cr6
Euro Standard EN	~ 100Cr6
Others	JIS ~ SUJ2 / JIS ~ SUJ4

Reference analysis

	C	Si	Mn	P	S	Cr	Cu	Al	Fe
%	0.93	0.15	0.25	max.	max.	1.35	max.	max.	balance
	1.05	0.35	0.45	0.025	0.015	1.60	0.30	0.05	

Execution, delivery form, standard sizes and availability

- Execution in 3 m (2 m) round or square & hexagonal bars as well as in coils
- Standard size in stock: [see product range](#)
- Other sizes on request

Tolerances

- $\varnothing < 3.00$ mm, cold drawn; ISO h8
- $\varnothing \geq 3.00$ mm, cold drawn, ground, polished; ISO h7 (h8); surface finish Ra 0.4 – 0.8 (N5/N6) for ground surface
- Tighter tolerances (up to +/- 0.002 mm) on request

Mechanical properties

At delivery status:

- Tensile strength (Rm): 600 – 800 MPa, size depending
- Hardness after tempering: max. 65 HRC

Heat treatment

- Tempering in oil: 830 – 870°C
- Tempering in air: 800 – 830°C
- Soft annealing: 730 – 760°C
- Normalizing annealing: 870 – 900°C
- Annealing as required see charts

Cutting rates

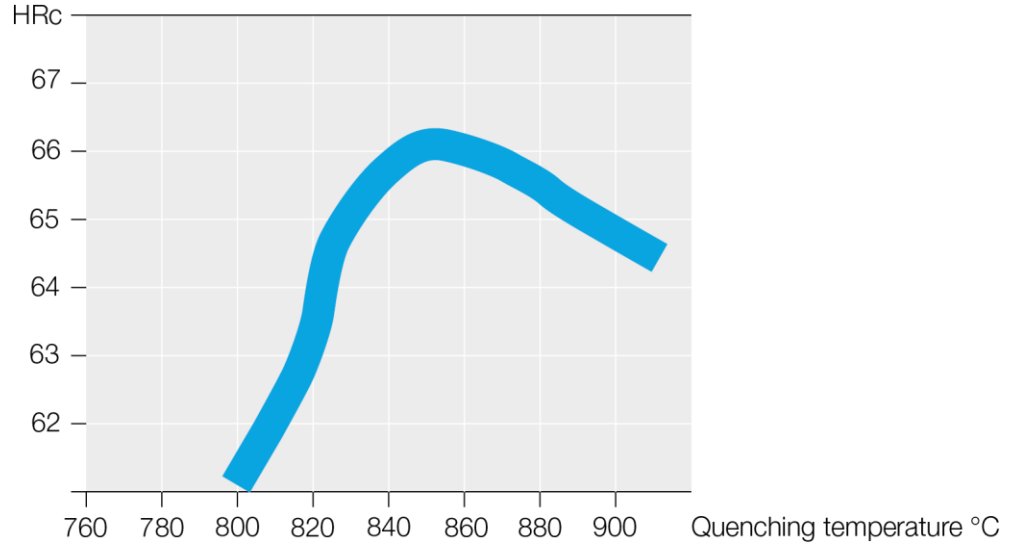
vc ~ 25 – 40 m/min, long-chipping, value depending on the lubrication oil, cutting tools and shape of parts.



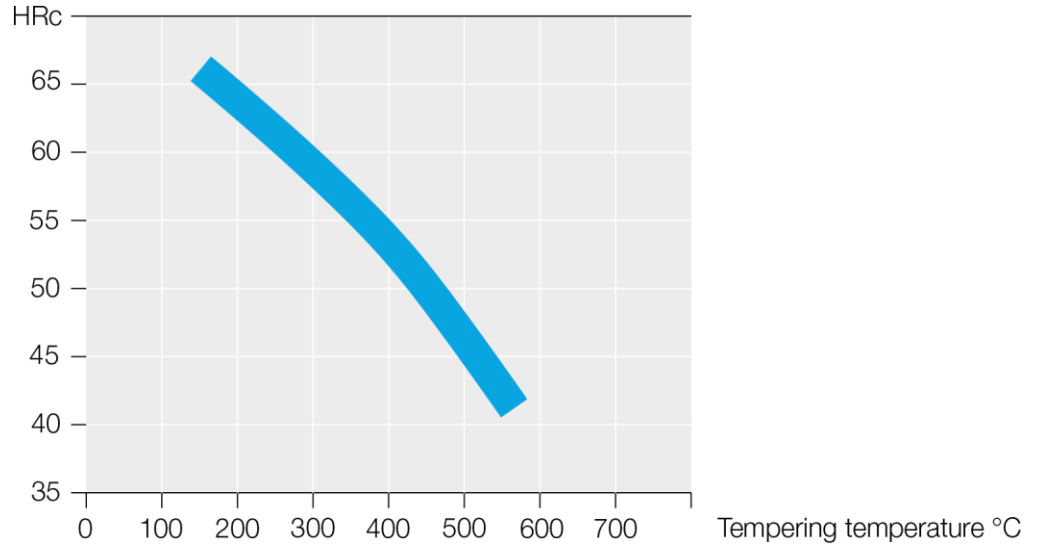
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HARDENING CURVE



ANNEALING CURVE 30 minutes



If your harden in oil, we recommend to not pass over the annealing temperature of 820°C to avoid cracks. The water should be pre-heated at about 50°C. The above curves indicate the results of determinate section of a curtain size of 5 mm. The result after heat treatment can be slightly different than shown on this curve, depending on the shape and size of the part.