

100CrMnSi6-6 All

General Information

Ovako 832 is a through hardening bearing steel that is mainly used for medium sized bearing rings, but can also be used for machine components that require high tensile strength and high hardness.

- 40 mm maximum wall thickness for through hardening
- Used for martensitic hardening
- Can be induction hardened
- Good machinability in soft annealed condition
- Machiabe in hardened condition using hard-turning techniques (CBN tools)
- Ovako 832 is weldable if pre-heated, otherwise risk of hot-cracking
- Very good dimension stability

832K - Bearing quality (BQ) variant

For additional Heat Treatment Data, please visit the Heat Treatment Guide.

BQ-Steel®

(Bearing Quality) is a bearing quality clean steel optimized for fatigue strength by a strict control of steel cleanliness. BQ-steel is also ideal for new design solutions in a wide array of demanding applications outside the bearing industry that require longer performance and higher loads. The BQ-steel offer is the result of the Ovako clean steel program. Purity of production means that the material has significantly smaller inclusions compared to conventional steel and, as a result, the fatigue strength of the steel is increased dramatically. Use of the material allows components to be manufactured in smaller sizes. The BQ-steel has for decades been the problem-solver.

Similar designations

100CrMnSi6-4, ASTM A485 grade 2

Chemical composition

Variant	Cast		C %	Si %	Mn %	P %	S %	Cr %	Ni %	Mo %
832K	IC	Mn	0.87	0.60	1.50	-	-	1.40	0.10	0.06
		Max	0.97	0.80	1.70	0.015	0.015	1.70	0.25	0.10

Mechanical Properties

Variant	Condition	Format	Dimension [mm]	Yield strength min [MPa]	Tensile strength [MPa]	Hardness
832K	+SA	All formats	24 < 190	-	-	230 HB typical
	+QT(m)	Ring, wall	< 15	1700	2300 typical	62 HRC typical

*Rp0.2 * Reh, ** Rel*

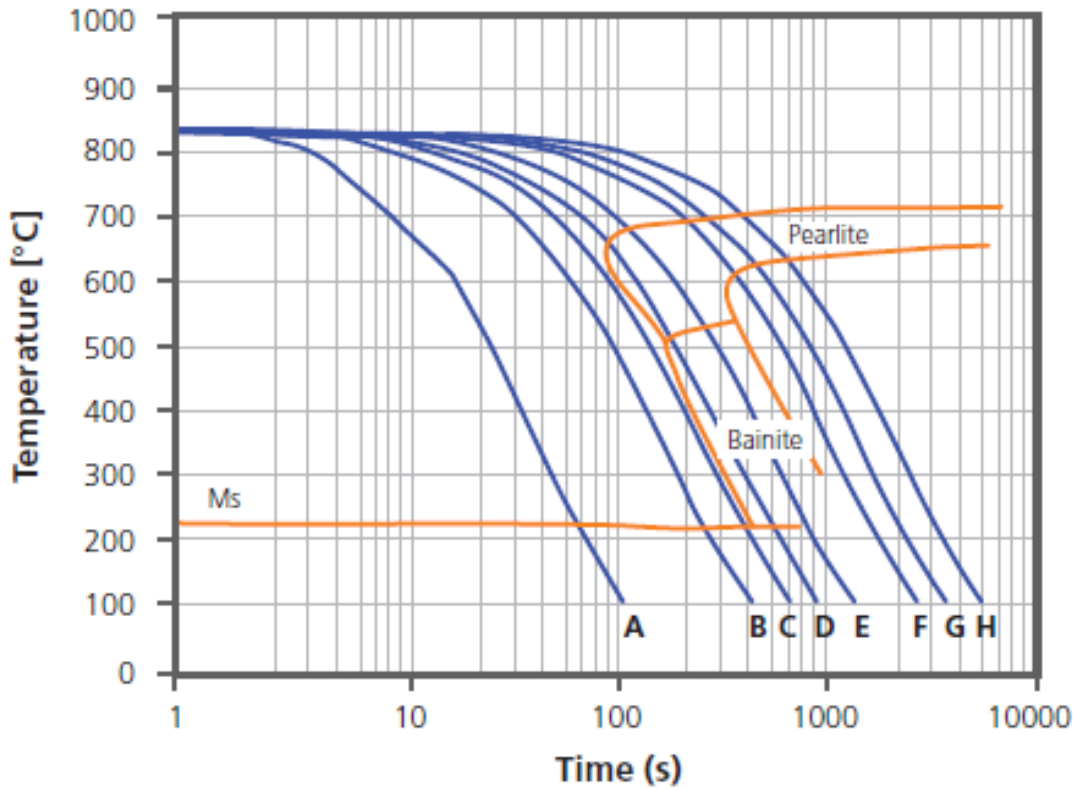
Transformation temperatures

	Temperature °C
MS	229
AC1	749
AC3	723

Heat treatment recommendations

Treatment	Condition	Temperature cycle	Cooling/quenching
Hot forging	+U	800-1100C	In air
Normalizing	+N	880-910C	In air
Spheroidize annealing	+SA	RT-810°C 1h, 810°C 2h, 810-740°C 1h, 740-650°C 10h	In air
Stress relieve annealing	+SRA	550-650C 2h	In air
Quenching	+Q	830-870C 20-60 min (martensitic)	Oil quench (temper within 2h)
Tempering	+T	160-500C (see diagram)	In air

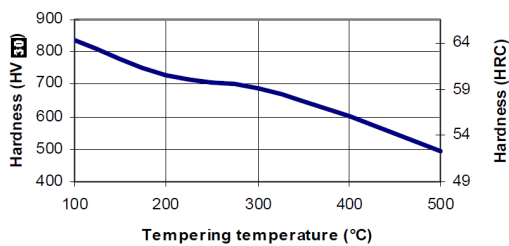
CCT – Ovako 832 Austenitized at 830°C



	A	B	C	D	E	F	G
T_{8-5} [s]:	25	100	150	200	500	800	1200
Hv ₃₀ :	820	813	750	627	410	316	316

Tempering response

Other properties (typical values)



Tempering response for Ovako 832K. Austenitized at 830°C for 30min and hardened in air. Tempered one hour at each tested temperature level

Young's module (GPa)	Poisson's ratio (-)	Shear module (GPa)	Density (kg/m ³)
210	0.3	80	7800
Average CTE 20-300°C (µm/m ² K)	Specific heat capacity 50/100°C (J/kg ² K)	Thermal conductivity Ambient temperature (W/m ² K)	Electrical resistivity Ambient temperature (µΩm)
12	460 - 480	40 - 45	0.20 - 0.25

Contact us

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Via e-mail: info@ovako.com

Steel cleanliness

Micro inclusions									Macro inclusions	
Applied standard	ASTME45								Applied standard	ISO 3763 (Blue fracture)
Sampling	ASTMA295								Sampling	Statistical testing on billets
Maximum average limits	A		B		C		D		Limits	< 2,5 mm/dm ²
	Th	He	Th	He	Th	He	Th	He		
	2,0	1,5	0,5	0,1	0	0	0,2	0,1		

Via telephone: +46 8 622 1300

For more detailed information please visit <http://www.ovako.com/en/Contact-Ovako/>

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