

100CrMnSi6-4 All

General Information

Ovako 837 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.

- 30 mm maximum wall thickness for through hardening
- Used for martensitic hardening
- Can be induction hardened
- Good machinability in soft annealed condition
- Machinable in hardened condition using hard-turning techniques (CBN tools)
- Very good dimension stability

837R - Bearing quality (BQ) variant

837S - Variant with a controlled high sulphur content for enhanced low speed machining

5625 / 837Z - A continuous cast variant

BQ-Steel®

BQ-steel® is a bearing quality clean steel optimized for fatigue strength and is also ideal for new design solutions outside the bearing industry.

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

Similar designations

A485 (B3), 100 CM 6

Chemical composition

Variant	Cast		C %	Si %	Mn %	P %	S %	Cr %	Ni %	Mo %
837R	IC	Mn	0.93	0.50	1.00	-	0.003	1.40	-	-
		Max	0.98	0.70	1.20	0.025	0.008	1.55	0.25	0.10
837S	IC	Mn	0.92	0.50	1.00	-	0.020	1.40	-	-
		Max	0.98	0.70	1.20	0.025	0.027	1.65	0.25	0.10
5625 / 837Z	CC	Mn	0.93	0.50	1.00	-	-	1.40	-	-
		Max	1.05	0.70	1.20	0.025	0.008	1.65	0.30	0.10

Mechanical Properties

Variant	Condition	Format	Dimension [mm]	Hardness
5625 / 837Z	+AR	Round bar	40 < 120	< 400 HB
	+A	Round bar	40 < 120	180-220 HB

$R_{p0.2}$ * R_{eh} , ** R_{el}

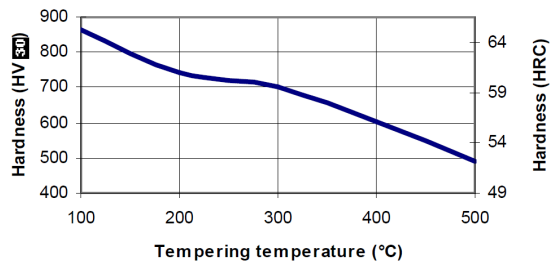
Transformation temperatures

	Temperature °C
MS	229
AC1	750
AC3	750

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
Q/T (martensite)	+Q/T(m)	830-870C 20-60min,	In oil (temper within 2h)
Tempering	+T	160-500C (see diagram)	In air

Tempering response



Tempering response for Ovako 837R. Austenitized at 850°C for 30min and quenched in oil. Tempered one hour at each tested temperature level

Other properties (typical values)

Steel cleanliness

Micro inclusions - Ovako 837R									Macro inclusions - Ovako 837R	
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	0,8	0,1	0	0	0,5	0,3		
Youngs module (GPa)	Poisson's ratio (-)				Shear module (GPa)				Density (kg/m ³)	
210	0.3				80				7800	
Average CTE 20-300°C (µm/m°C)	Specific heat capacity 50/100°C (J/kg°C)				Thermal conductivity Ambient temperature (W/m°C)				Electrical resistivity Ambient temperature (µΩm)	
12	460 - 480				40 - 45				0.20 - 0.25	

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