

12NiCr14-6* All

General Information

Ovako 245 is an ingot cast case hardening steel with high toughness of the type SAE 3311. It fulfills Ovako internal BQ-Steel demands ensuring a high microscopic and macroscopic cleanliness.

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.

* Designation followed by "*" is not an official EN standard grade but named according to the rules in EN 10027.

Similar designations

SAE 3311

Chemical composition

Variant	Cast		C %	Si %	Mn %	P %	S %	Cr %	Ni %	Mo %
245S	IC	Mn	0.10	0.15	0.40	-	0.005	1.35	3.25	-
		Max	0.15	0.35	0.60	0.015	0.010	1.60	3.75	0.15

Mechanical Properties

Variant	Condition	Format	Hardness
245S	+A	All formats	170-229 HB

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

Transformation temperatures

	Temperature °C
MS	395
AC1	694
AC3	806

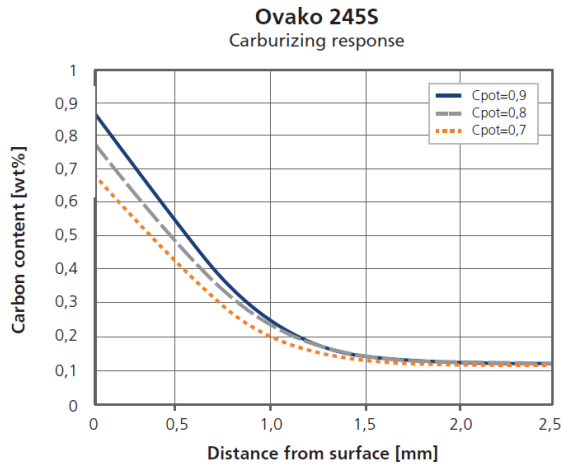
Heat treatment recommendations

Treatment	Condition	Temperature cycle	Cooling/quenching
Hot forging	+AR	800-1200C	In air
Normalizing	+N	860-890C	In air
Soft annealing	+A	670C, 15h	In air
Carburizing	+C	850-930C	-
Quench & Tempering	+QT	840-890C	In oil
Hardening	+QT	780-850C, hardening of as-carburized component	In oil

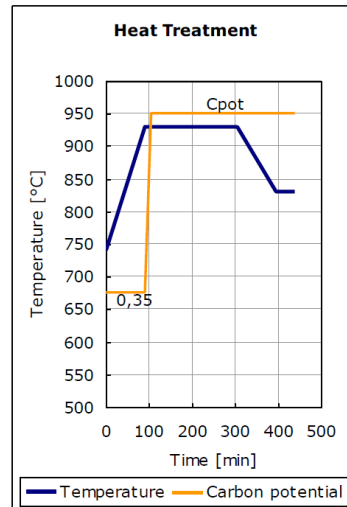
Hardenability

Jominy hardenability of Ovako 245S. Average value with +/- standard deviation. Austenitizing temperature 845°C.

Carburizing response



Heat treatment



Other properties (typical values)

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	< 5 mm/dm ²
	Th	He	Th	He	Th	He	Th	He		
	2,5	1,5	1,0	0,5	0	0	0,5	0,5		
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	

Contact us

Would you like to know more about our offers? Don't hesitate to contact us:

Via e-mail: info@ovako.com

Via telephone: +46 8 622 1300

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

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