



KE factory standard based on EN-1561 cast iron with lamellar graphite (cast iron)

The cast iron grade is determined according to relevant wall thickness and tensile strength. It is measured on processed sample separately cast specimens Ø 30 mm. The Brinell hardnesses apply only to the specified wall thickness range and are determined with a test ball with a diameter of 10 mm.

For a given wall thickness, a tolerance range of 40 brinell units can be agreed.

Material designation according to EN-1561				EN-GJL-200	EN-GJL-250	EN-GJL-300
EN-material no.				EN-JL-1030	EN-JL-1040	EN-JL-1050
Wall Thickness	Characteristic		SI-Unit	Standard values printed in bold		Recommended variety
2,5 - 5 mm	Tensile Strength Hardness of one	Rm HB	N/mm ²			
5 - 10 mm	Tensile Strength Hardness of one	Rm HB	N/mm ²	200 - 300 170 - 260		
10 - 20 mm	Tensile Strength Hardness of one	Rm HB	N/mm ²	200 - 300 150 - 230	250 - 300 180 - 255	
20 - 40 mm	Tensile Strength Hardness of one	Rm HB	N/mm ²	200 - 300 135 - 210	250 - 350 160 - 235	300 - 400 180 - 255
40 - 80 mm	Tensile Strength Hardness of one	Rm HB	N/mm ²	200 - 300 120 - 195	250 - 350 145 - 215	300 - 400 165 - 235
80 - 150 mm	Tensile Strength	Rm	N/mm ²			min. 190

Mechanical Properties (measured on separately cast specimen Ø 30 mm)

Matrix			Perlit	Perlit	Perlit
Tensile Strength	Rm	N/mm ²	200 - 300	250 - 350	300 - 400
Brinell Hardness	HB		150 - 230	180 - 255	180 - 255
0,1%-Elastic Limit	Rp _{0,1}	N/mm ²	130 - 195	165 - 228	195 - 260
Failure Strain	A _{tot}	%	0,8 - 0,3	0,8 - 0,3	0,8 - 0,3
Compressive Strength	σ _{db}	N/mm ²	720	840	960
Bending Strength	σ _{bB}	N/mm ²	290	340	390
Shearing Strength	σ _{aB}	N/mm ²	230	290	345
Torsional Strength	T _{tB}	N/mm ²	230	290	345
Modulus of elasticity (load-dependent)	E	kN/mm	88 - 113	103 - 118	108 - 137
Poisson Ratio	ν	—	0,26	0,26	0,26
Bending Strength	σ _{bW}	N/mm ²	90	120	140
Compression-Tension Endurance	σ _{zdW}	N/mm ²	50	60	75
Fracture Toughness	K _{ic}	N/mm ^{3/2}	400	480	560

Physical Properties

Mass Density	ρ	g/cm ³	7,15	7,20	7,25
Specific Thermal Capacity	c	J/(kg * K)	20° - 200° C = 460		20°-600°C = 53
Thermal Expansion Coefficient	α	μm/m * K)	20° - 200° C = 11,7		20° - 400°C = 13
Thermal Conductivity (100-500° C)	λ	W/(m * K)	50,0 - 46,0	48,5 - 44,5	47,5 - 43,0
Coercive Field Strength	H ₀	A/m	560 - 720		
Maximal Permeability	μ	μH/m	220 - 330		
Hysteresis Loss by B = 1 T		J/m ³	2.500 - 3.000		
Specific electrical resistance	ρ	Ω * mm ² /m	0,77	0,73	0,7

Comparable standard varieties

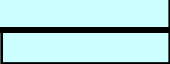
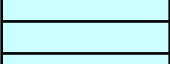
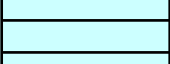
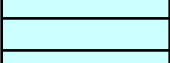
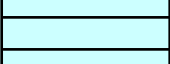
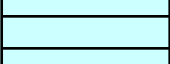
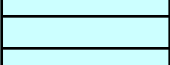
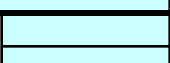
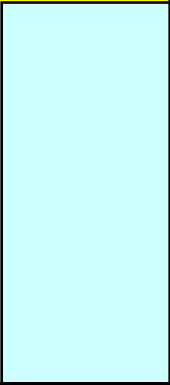
ISO R 185	Grade	200	250	300
ASTM A 48 (USA)	Class	30	35/40	45



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