












Cast iron with spheroidal graphite

Designation in accordance with DIN EN 1563		EN-GJS-350-22-LT	EN-GJS-400-18-LT	EN-GJS-400-15	EN-GJS-450-10	EN-GJS-500-7	EN-GJS-600-3	EN-GJS-700-2	EN-GJS-800-2	EN-GJS-450-18	EN-GJS-500-14	EN-GJS-600-10
Reference analysis	C	3.50 – 3.70	3.50 – 3.70	3.50 – 3.70	3.20 – 3.50	3.50 – 3.70	3.50 – 3.70	3.50 – 3.70	3.50 – 3.70	3.20 – 3.50	3.00 – 3.30	2.80 – 3.10
for medium wall thicknesses	Si	1.80 – 2.00	2.30 – 2.60	2.30 – 2.60	2.80 – 3.20	2.30 – 2.60	2.30 – 2.60	2.30 – 2.60	2.30 – 2.60	2.80 – 3.20	3.40 – 3.80	3.90 – 4.30
	Mn	max. 0.2	max. 0.25	max. 0.25	max. 0.40	max. 0.40	max. 0.40	max. 0.40	max. 0.40	max. 0.50	max. 0.50	max. 0.50
	Mo	-	-	-	-	-	-	-	-	-	-	-
	Ni	-	-	-	-	-	-	-	-	-	-	-
Microstructure												

Mechanical properties ¹⁾

Tensile strength	R _m	MPa	350	400	400	450	500	600	700	800	450	500	600
0.2 yield strength	R _{p0.2}	MPa	220	240	250	310	320	370	420	480	350	400	470
Elongation at fracture	A ₅	%	22	18	15	10	7	3	2	2	18	14	10
Elastic modulus	E	GPa	169	169	169	169	169	174	176	176	170	170	170
Notched bar impact work ²⁾	at +23 °C (RT)	Joules	17	14	-	-	-	-	-	-	8	3	-
	at -20 °C (LT)	Joules	-	12	-	-	-	-	-	-	4	3	-
	at -40 °C (LT)	Joules	12	-	-	-	-	-	-	-	3	2	-
Brinell hardness	BHN		< 160	130 – 175	135 – 180	160 – 210	170 – 230	190 – 270	225 – 305	245 – 335	170 – 200	185 – 215	200 – 230
Fatigue limit ³⁾		MPa	180	195	-	210	224	248	290	304	210	225	275
Fatigue limit ⁴⁾		MPa	114	122	-	128	134	149	168	182	130	140	165

Technological properties

Usage temperature ⁵⁾			< 500	< 500	< 500	< 500	< 500	< 500	< 500	< 500	< 500	< 500	< 500
Machinability			Excellent	Excellent	Excellent	Good	Good	Good	Average	Average	Good	Good	Good
Wear resistance			Low	Low	Low	Low	Good	Good	Excellent	Excellent	Low	Low	Low
Induction or flame-hardening capacity			Low	Low	Low	Low	Low	Good	Excellent	Excellent	Low	Low	Low
Nitriding capacity			Good	Good	Good	Good	Good	Good	Excellent	Excellent	Good	Good	Good
Weldability			Only weldable using special electrodes				Only weldable using special electrodes				Only weldable using special electrodes		

Physical properties

Density	ρ	kg/dm ³	7.10	7.10	7.20	7.10	7.10	7.20	7.20	7.20	7.1	7.0	7.0
Thermal conductivity	λ at 300 °C	W/(K·m)	36.2	36.2	36.2	36.2	36.2	36.2	31.1	31.1	-	-	-
Thermal expansion coefficient	α up to 400 °C	10 ⁻⁶ /K	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	-	-	-

Special materials or grades not listed available on request

¹⁾ The mechanical properties of cast iron with spheroidal graphite in integrally cast 'Y-shaped' test specimens (minimum values)²⁾ Mean value of three ISO-V test specimens (DIN 50175)³⁾ Wöhler rotating bending fatigue test, unnotched test specimen⁴⁾ Wöhler rotating bending fatigue test, notched test specimen⁵⁾ Literature values