

Investment casting materials

Heat-treatable, nitriding and spring steels



Designation	Material no.	Standard	Common heat treatment condition	mechanisch-technologische Kennwerte			Hardness		Application/ particular use cases
				0,2-Yield strength RP _{0,2}	Tensile strength RM (MPa)	Elongation A ₅ (%)	Hardness	Glow hardness (HB)	
GS CTL	TL 2350-002	BWB	tempered	≥ 785	930-1180	≥ 10	260-330	≤ 230	armored steel casting; for components with high strength and toughness
C 22	1.0402	EN 10083 EN 10250	tempered	≥ 350	550-700	≥ 15		≥ 160	for components with low wall thickness and low stress; machine and apparatus construction
C 35	1.0501	EN 10083 EN 10343	tempered	≥ 430	630-780	≥ 15		≥ 185	for thin-walled components with slightly higher stresses in mechanical engineering
C 45	1.0503	EN 10083 EN 10343	tempered	≥ 500	700-850	≥ 10		≥ 210	castings of higher strength with low cross sections and medium stress
C 55	1.0535	EN 10083 T1 - T2	tempered	≥ 550	800-950	≥ 10		≥ 230	for thin-walled castings with high strength
CK 60	1.1221	EN 10083 T1 - T2	tempered	≥ 580	850-1000	≥ 8		≥ 240	for components with high strength and low cross section/ higher degree of purity
GS 36 CrNiMo 4	1.6511	EN 10083 EN 10297	tempered	≥ 900	1100-1300	≥ 8		248	Heat-treated cast steel for highly stressed components with good through-hardening up to 50 mm wall thickness; highly stressed parts in vehicle construction
30 CrNiMo 8	1.6580	EN 10083 T1 - T2	tempered	≥ 800	1000-1200	≥ 8		248	heat-treatable cast steel for large cross sections; through-hardenable up to 100 mm wall thickness; high toughness and elasticity
67 SiCr 5	1.7103	EN 10132 T - T4	tempered	≥ 1320	1450-1650	≥ 3		240	castings with a small cross section, subjected to impact and bending stresses
60 SiCr 7	1.7108	EN 10089	tempered	~ 1100	1350-1550	≥ 4		≥ 240	highly tempered components with high demands on spring properties

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GS 25 CrMo 4	1.7218 1.7254	DIN 17205 WL 1.7254	tempered	≥ 600 ≥ 700	750-900 900-1100	≥ 10 ≥ 9	≥ 265 HV	215 215	aerospace parts and parts in mechanical and apparatus engineering; for further data see WL 1.7254
GS 34 CrMo 4	1.7220	DIN 17205	tempered	≥ 700	850-1000	≥ 10		200	high-strength quenched and tempered cast steel; wall thickness < 50 mm
GS 42 CrMo 4	1.7225	DIN 17205	tempered	≥ 800	900-1100	≥ 10		240	universal, high-strength quenched and tempered cast steel with medium toughness requirements
42 CrMo S4	1.7227	EN 10083 T1 - T2	tempered	≥ 750	850-1050	≥ 8		240	corresponding to material 1.7225; due to adjusted sulphur content, good machinability
GS 50 CrMo 4	1.7228	EN 10083 T1 - T2	tempered	≥ 800	1050-1250	≥ 5		245	quenched and tempered cast steel corresponding to 1.7225; but with higher strength
15 CrMoV 69	1.7744	WL 1.7744	tempered	≥ 800 ≥ 930	1000-1150 1030-1180	≥ 10 ≥ 10	≥ 290	220 ≥ 310	Aerospace material with high tempering strength for temperatures from -75°C to approx. 500 °C
15 CrMoV 59	1.8521	DIN 17211	tempered	≥ 900	1000-1150	≥ 10	≥ 300	220	good weldability even in hardened and tempered condition; nitriding steel for machine parts subject to wear and tear
GS 50 CrV 4	1.8159	SEW 835	tempered	≥ 850	1100-1250	≥ 6	≥ 330	245	highly wear-resistant quenched and tempered steel with good toughness properties
58 CrV 4	1.8161		tempered	≥ 1000	≥ 1200	≥ 5		235	highly wear-resistant components; also spring steel; gear wheels, shafts
31 CrMoV9	1.8519 1.8514	DIN 17211 WL 1.8514	tempered	≥ 900	≥ 1050	≥ 10		248	heat-treated and nitriding steel for highly stressed wear parts up to approx. 100 mm wall thickness