

Material Grade List

Series	Grade	W (%)	Co (%)	Grain size (µm)	Density g/cm³	Hardness HRA	Bending strength N/mm²	Classification	Applications
Ultrafine grain size	G6FF	94,0	6,0	0,4	14,75	94	3500	K01-K30	Regular grades for mining tool, strip, plate, cutting tool ect
	G7FF	93,0	7,0	0,4	14,60	93	3600	K05-K30	
	G10FF	90,0	10,0	0,4	14,40	92	3800	K10-K40	
	G12FF	88,0	12,0	0,4	14,15	92	4100	K20-K50	
Submicron grain size	G3F	96,7	3,3	0,6	15,15	94	2600	K01-K05	Regular grades for mining tool, strip, plate, cutting tool ect
	G6F	94,0	6,0	0,6	14,80	93	3500	K05-K20	
	G10F	90,0	10,0	0,6	14,45	92	4000	K10-K40	
	G12F	88,0	12,0	0,6	14,20	91	4100	K20-K50	
Medium grain size	G6	94,0	6,0	1,5	14,80	92	3000	K10	Regular grades for mining tool, strip, plate, cutting tool ect
	G10	90,0	10,0	1,5	14,45	91	3400	K30	
	G12	88,0	12,0	1,5	14,30	89	3400	K40	
	G13	87,0	13,0	1,5	14,20	90	3200		
Coarse grain size	G6G	93,7	6,3	2-4	14,90	91	3000	G10	Mould dies
	G9G	91,0	9,0	2-4	14,60	89	3300	G20	
	G12G	88,0	12,0	2-4	14,35	88	3200	G20-G30	
	G14G	86,0	14,0	2-4	14,15	77	3100	G30	
Nickel grades non-magnetic	GN9F	91,0	Ni 9%	0,6	14,40	91	2800	K10-K30	Non-magnetic products
	GN12F	88,0	Ni 12%	0,6	14,10	90	2700	K20-K50	

We reserve the right to change the above parameters.

Material performance table

Series	Grade	HIP	CIP	Grain	Co (%)	Density g/cm ³	Hardness		T.R.S.	Applications
							HRA	HV		
Wear-resistant series	GM10	•		Ultrafine	6.0	14.80	94	1900	3800	Often used for dies, blades, chips, sealing rings and gasket rings.
	GM20	•	•	Medium	6.5	14.88	91	1550	3100	
	GM30	•	•	Medium	8.0	14.62	89.5	1400	3200	High hardness, wear-resistant, used widely for common drawing dies.
	GM33	•	•	Submicron	8.0	14.60	92	1700	3800	Used widely for drawing dies which is for high rigidity material.
Wear- & Impact-resistant series	GC10	•		Medium	10.0	14.30	89	1200	3430	Excellent toughness and hardness. Widely used for punches, bushes, cavity inserts and core inserts. Can also be chosen for forming dies, rolling dies and drawing dies with high stress.
	GC30	•	•	Medium	15.0	14.20	87	1070	3500	
	GC15	•		Submicron	13.0	14.06	91	1550	3600	Suitable for precision metal sheet stamping, lead frame, IC die, not suitable for thick sheet stamping.
	GC35	•		Submicron	15.0	13.85	89.5	1320	3700	Used commonly for sheet stamping, lead frame, LED bracket, IC mould, motor stator and rotor.
	GC38	•		Medium fine	12.0	14.20	89	1400	3300	Used for punching steel sheet and E&I sheet stamping.
	GC78	•		Submicron	12.0	14.10	90	1450	3950	Can be used specially for wire cutting and EDM.
	GC40	•	•	Coarse	20.0	13.60	84	850	2850	Commonly used in cold punching dies, cold heading dies, cold extruding dies.
	GC50	•	•	Coarse	22.0	13.40	83	780	2950	Used for applications with high stress, such as screw/ nuts forging etc.
Supefine grade	GQX05	•		Ultrafine	7.0	14.60	94	1950	3520	Very high hardness, only suitable for wear parts with low impact force, knife and cutting tools.
	GQX10	•		Ultrafine	8.0	14.60	92.8	1730	3800	
	GQX20	•		Ultrafine	10.0	14.45	91.8	1550	4200	
	GQX30	•		Ultrafine	12.0	14.15	92.3	1640	4000	
Heat resistant series	GR20		•	Medium	patent	13.00	83	780	2550	Used for hot forging dies.
	GR50		•	Medium	patent	13.20	84	850	2550	Hot extrusion of small and medium profiles, hot forging dies.
Non magnetic series	GW10	•	•	Medium	Ni	14.30	89.5	1320	1500	For non-magnetic abrasives with less stress.
	GW10X	•	•	Submicron	Ni	14.30	92	1760	2700	Commonly used for non-magnetic forming dies.
	GW30	•	•	Medium	Ni	14.00	87	1160	3000	
	GW35	•	•	Submicron	Ni	13.80	86.5	1070	2900	
	GW40	•	•	Medium	Ni	13.50	85.5	930	3000	

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