



Selection of Cold Work Tool Steels for Castings

M.-No.	Code	DE-Brand	Chemical composition									Properties, applications	Delivery condition	Obtainable hardness values				Nitriding	Coating	
			C	Si	Mn	Cr	Mo	V	W	Ni	Co			Through-hardening	Surface hardening flame	induction	laser		CVD	PVD
1.2310	G40CrMnMo7	GMCM	0,40	0,50	1,50	1,90	0,30	-	-	-	-	Tool steel casting for hot work, plastic mould and cold work applications, usually supplied in a quenched and tempered condition, good machinability. Forging dies and tools, plastic moulds, frames for plastic and pressure dies, hydroforming tools, blank holder, tools with subsequent surface hardening.	quenched and tempered, 800 - 950 N/mm ²	-	54 HRC	54 HRC	54 HRC	X	-	-
1.2769	G45CrNiMo4-2	GPCNP	0,45	0,50	0,60	1,00	0,25	0,10	-	0,50	-	Cr-Ni-alloyed tool steel casting heat treatable, high toughness, good weldability, good surface hardenability, very economic. Widest range of applications. Forming-, stamping dies, demanding high endurance for working resistances of 850-1050 MPa. Guiding rolls, frames, general components.	a) annealed, max. 250 HB b) quenched and tempered, 850 - 1050 N/mm ²	-	56 HRC	56 HRC	56 HRC	X	-	-
-	Special steel	GPCNPS	0,45	0,50	0,60	1,00	0,25	0,10	-	-	-	Special tool steel casting with same properties and applications as material 1.2769, Ni-free.	a) annealed, max. 250 HB b) quenched and tempered, 850 - 1050 N/mm ²	-	56 HRC	56 HRC	56 HRC	X	-	-
1.7140	G47CrMn6	GMF	0,50	0,60	0,80	1,50	-	-	-	-	-	Alloyed heat treatable cast steel, tough, very economic. Forming- and stamping dies, demanding high toughness.	a) annealed, max. 250 HB b) quenched and tempered, 800 - 950 N/mm ²	-	56 HRC	56 HRC	56 HRC	X	-	-
-	Special steel	GWP7V	0,50	0,90	0,40	8,00	1,50	1,50	-	-	-	Cr-Mo-V-alloyed special tool steel casting with high toughness, good abrasion resistance, good hardenability and high compressive strength. Stamping dies and dressing rolls, demanding high toughness.	annealed, max. 265 HB	50 - 56 HRC	56 HRC	56 HRC	56 HRC	X	-	(X)
-	Special steel	Cast Cut	0,60	0,70	1,40	1,50	-	-	-	0,25	-	Special tool steel casting for large dimensions. Good machinability and weldability, good surface hardenability. Suitable for blanking tools, drawing and stamping dies.	a) annealed, max. 240 HB b) quenched and tempered, 800 - 950 N/mm ²	50 - 60 HRC	60 HRC	60 HRC	60 HRC	X	-	-
1.2320	G60CrMoV10-7	GP3M	0,60	0,50	1,20	2,50	0,70	0,1	-	-	-	Special tool steel casting with good hardenability after surface hardening. Available in large dimensions. Very good weldability. Suitable for blanking tools, drawing and stamping dies.	a) annealed, max. 250 HB b) quenched and tempered, 800 - 950 N/mm ²	50 - 60 HRC	60 HRC	60 HRC	60 HRC	X	-	-
1.2333	G59CrMoV18-5	GAMO	0,60	0,40	0,80	4,50	0,50	0,20	-	-	-	Special tool steel casting with very good hardenability. Good weldability, good surface hardenability. Blanking tools, drawing and stamping dies.	a) annealed, max. 250 HB b) quenched and tempered, 800 - 950 N/mm ²	50 - 60 HRC	60 HRC	60 HRC	60 HRC	X	(X)	(X)
-	Special steel	GP4M [®]	0,60	0,30	⊕	5,00	⊕	⊕	⊕	-	-	Cr-Mo-V-alloyed, secondary hardening cold work tool steel casting with high toughness, good dimensional stability. Larger sizes possible and better weldability than ledeburitic cold work tool steel 1.2382. Suitable as base material for subsequent nitriding or coating (CVD, PVD). For blanking tools, drawing and stamping dies.	a) annealed, max. 250 HB b) quenched and tempered, 900 - 1050 N/mm ²	55 - 60 HRC	60 HRC	60 HRC	60 HRC	X	X	X
1.2370	GX100CrMoV5-1	GP5M	1,00	0,50	0,50	5,00	1,00	0,30	-	-	-	High-alloyed tool steel casting, good through hardenability, high compressive strength, wear resistant, very good cutting edge retention. Highly loaded stamping dies, blanking tools and drawing dies for for medium demands, shaping rolls, section rolls, common straightening rolls. Tools requiring more toughness than offered by ledeburitic chromium steel castings.	annealed, max. 275 HB	50 - 60 HRC	60 HRC	60 HRC	(60 HRC)	X	(X)	(X)
1.2382	GX155CrVMo12-1	GCPPU	1,55	0,60	0,50	12,00	0,80	1,00	-	-	-	Equivalent cast material to widely used cold work tool steel 1.2379. Range of application and characteristics comparable to 1.2602, however better through-hardenability, good dimensional stability. Highly loaded dressing-, forming-, calibration-rolls, stamping dies, pressure dies, rollers, roll sleeves, blanking, forming and drawing dies.	annealed, max. 285 HB	55 - 60 HRC	60 HRC	(60 HRC)	(60 HRC)	X	X	X
1.2602	GX165CrMoV12	GP16	1,60	0,60	0,50	12,00	0,60	0,40	0,40	-	-	Ledeburitic special tool steel casting, highly Cr-alloyed, extremely edge tear resistant, for large tools for chipless shaping. Good hardenability and edge holding, very good dimension stability. All types of blanking-, forming and drawing dies, well-proven for highly loaded dressing-, calibration- and profiling rolls.	annealed, max. 285 HB	55 - 60 HRC	60 HRC	(60 HRC)	(60 HRC)	X	X	X
-	Special steel	GP16XR	1,80	0,60	0,50	13,50	0,90	0,50	-	-	0,80	Cr-Mo-V-Co-alloyed special tool steel casting. Improvement of basic material equiv. to 1.2602. Abrasion resistant, compression strength, improved through-hardenability compared to 1.2602. Highly loaded dressing-, forming- and calibration rolls, stamping- and pressing dies, rollers and roll sleeves as well as wearing parts for cement industry, ceramics industry, cellulose industry and paper industry.	annealed, max. 285 HB	55 - 60 HRC	60 HRC	(60 HRC)	(60 HRC)	X	X	X