

Material Overview

ANSI ISO 513	VDI 3323	Work Material	State	Rm N/mm ²	Hardness	Examples
P	1	Alloy Steels C < 0.25%	G	420	125	9SMn 28, St 37.3, C 10, Ck 22, GS-16 Mn 5
	2	0.25 ≤ C < 0.55%	G	650	190	35 S 20, GS-45, GS-52, St 52.3, C 25, C 45, Ck 45, Cf 53
	3		V	850	250	
	4	Free cutting steel 0.55% ≤ C	G	750	220	GS-60, 60 S 20, C 60, Ck 67, C 60 W, Ck 75, C 105 W 1, C 110 W
	5		V	1000	300	
	6	Low alloy steel	G	600	180	15 Cr 3, 16 MnCr 5, 17 CrNiMo 6, 25 CrMo 4, 29 CrMoV 9, 30 CrNiMo 8,
	7		V	930	275	31 CrV3, 42 CrMo 4, 51 CrV 4, 62 SiMnCr 4, 100 Cr 6, G-105 W 1,
	8		V	1000	300	105 WCr 6
	9		V	1200	350	
	10	High alloy steel	G	680	200	X 210 Cr 12, X 40 CrMoV 5 1, X 30 WCrV 9 3, X 85 CrMoV 18 2,
	11	Tool steel	V	1100	325	X 38 CrMoV 5 3, X 23 CrNi 17, X 155 CrVMo 12 1, S 6-5-2-5
	12		FE / MA	680	200	1.4000, 1.4005, 1.4021, 1.4109, 1.4119, 1.4120, 1.4313, 1.4510, 1.4512, 1.4523
	13.1	Stainless steel	MA	820	240	1.4000, 1.4002, 1.4005, 1.4006, 1.4024, 1.4119, 1.4120, 1.4313, 1.4510, 1.4512, 1.4523
13.2		MA-PH	1060	330	1.4542, 1.4548, 1.4923	
M	14.1	Stainless steel	AU	600	180	1.4301, 1.4401, 1.4436, 1.4541, 1.4550, 1.4568, 1.4571, 1.4573, 1.4580
	14.2		DU	740	260	1.4362, 1.4417, 1.4410, 1.4460, 1.4462, 1.4575, 1.4582
	14.3		S-AU	680	160	1.4465, 1.4505, 1.4506, 1.4529 (254SMO), 1.4539, 1.4563, 1.4577, 1.4586, 654SMO
	14.4		AU-PH	1060	250	1.4504, 1.4568
K	15	Grey iron GG	FE / PE		180	GG-10, GG-15, GG-170 HB
	16		PE		260	GG-20, GG-25, GG-30, GG-25Cr
	17	Nodular cast iron GGG	FE		160	GGG-35.3, GGG-40, GGG-50, GGV-30
	18		PE		250	GGG-60 and higher/ y más alto / e mais alto, GGV-40
	19	Malleable irons GTS / GTW	FE		130	GTS-35-10, GTS-45-06, GTW-5-38-12
	20		PE		230	GTW-35-04, GTS-55-04, GTS-65-02
N	21	Wrought aluminum		NAG	60	Al 99,5, AlMg 1
	22		AG		100	AlCuMg 1, AlMgSiPb, AlMgSi 1
	23	Cast iron alloys	NAG		75	G-AlSi 10 Mg, G-AlSi 12
	24		AG		90	G-AlCu 5 Si 3
	25				130	G-AlSi 17, G-AlSi 23
	26	Copper / Copper alloys			110	free cutting brass, CuNi 18 Zn 19 Pb
	27				90	Red brass CuZn33, CuZn- CuSnZn-Leg. alloys
	28				100	Bronze, Electrolytic copper
	29	Nonmetals				Thermosetting plastics, Fiber reinforced plastics
	30					Hard rubber
S	31	High-temperature alloys Fe-Basis/base	G		200	1.4864, 1.4865, 1.4876
	32	Ni-/Co Basis/base	AG		280	
	33		G		250	Inconel 718, Nimonic 80 A, Hasteloy, Udimet
	34		AG		350	
	35		GO		320	
	36	Titanium, pure titanium			400	Titan
	37	titanium alloys alpha / beta alloys	AG		1050	TiAl 6 V4
H	38.1	Steel	H		45 HRC	90 MnV 8, Hardox 400
	38.2		H		55 HRC	Hardox 500
	39.1		H		60 HRC	HSS, 90 MnV 8
	39.2		H		>62 HRC	
	40.1	Chill cast iron	GO		400	G-X 260 Cr 27, G-X 260 NiCr 42, G-X 300 CrNiSi 9 5 2, G-X 330 NiCr 42
	40.2		GO		>440	
	41.1	Cast iron	H		55 HRC	G-X 300 NiMo 3 Mg
	41.2		H		>57 HRC	