Technical Information

Hand tap sets

HSS-E



Suitable materials

HSS-E is intended for difficult-to-machine materials and steels up to approximately 1200 N/mm² as well as general use. These include unalloyed and alloy steels, case-hardening and quenched and tempered steels, heat-resistant steels, grey cast iron, selected aluminium and copper alloys, and titanium alloys.

The following table lists example materials and represents only a selection of suitable materials.

Material number	Designation
Free-cutting, case-hardening and quenched and tempered steels	
1.0711	9S 20 free-cutting steel
1.0712	18S10 steel
1.0715	9SMn 28 free-cutting steel
1.0718	9SMnPb 28 free-cutting steel
1.0726	35S 20 free-cutting steel
1.0736	9SMn 36 free-cutting steel
1.0737	9SMnPb 36 free-cutting steel
1.1121	Ck 10 case-hardening steel
1.1141	Ck 15 case-hardening steel
1.1151	Ck 22 quenched and tempered steel
1.1158	Ck 25 quenched and tempered steel
1.1183	Cf 35 quenched and tempered steel
1.7131	16MnCr 5 case-hardening steel
Unalloyed steels	
1.0401	C 15 quenched and tempered steel
1.0535	C 55 quenched and tempered steel
1.0601	C 60 quenched and tempered steel
1.1157	40Mn 4 quenched and tempered steel
1.1181	Ck 35 quenched and tempered steel
1.1191	Ck 45 structural steel
1.1203	Ck 55 structural steel
1.1213	Cf 53 structural steel
1.1221	Ck 60 structural steel
1.5752	14NiCr 14 (ECN 35) case-hardening steel
1.6582	35CrNiMo 6 quenched and tempered steel
1.7015	15Cr 3 quenched and tempered steel
1.7033	34Cr 4 quenched and tempered steel

Material number	Designation
Unalloyed steels	
1.7035	41Cr 4 quenched and tempered steel
1.7218	25CrMo 4 quenched and tempered steel
1.7223	41CrMo 4 quenched and tempered steel
1.7225	42CrMo 4 quenched and tempered steel
1.7361	32CrMo 12 quenched and tempered steel
Unalloyed and alloy steels	
1.1157	40Mn 4 quenched and tempered steel
1.2080	X210Cr 12 cold-work tool steel
1.2083	X42Cr 13 hot-work tool steel
1.2210	115CrV 3 cold-work tool steel
1.2311	40CrMnMo 7 hot-work tool steel
1.2316	X36CrMo 17 hot-work tool steel
1.2343	X38CrMoV 5 1 hot-work tool steel
1.2344	X40CrMoV 5 1 hot-work tool steel
1.2363	X100CrMoV 5 1 cold-work tool steel
1.2365	X32CrMoV 3 3 hot-work tool steel
1.2436	X210CRW 12 cold-work tool steel
1.2510	100MnCrW 4 cold-work tool steel
1.2542	45WCrV 7 hot-work tool steel
1.2581	X30WCrV 9 3 hot-work tool steel
1.2601	X165CrMoV 12 cold-work tool steel
1.2631	X50CrMoW 9 11 cold-work tool steel
1.2713	55NiCrMoV 6 hot-work tool steel
1.2743	60NiCrMoV 12 4 hot-work tool steel

Material number	Designation
Unalloyed and alloy steels	
1.2766	35NiCrMo 16 hot-work tool steel
1.2842	90MnCrV 8 cold-work tool steel
1.3207	S10-4-3-10 cold-work tool steel
1.6580	30CrNiMo 8 quenched and tempered steel
1.6582	35CrNiMo 6 nitriding steel
1.7218	25CrMo 4 quenched and tempered steel
1.7223	41CrMo 4 quenched and tempered steel
1.7225	42CrMo 4 quenched and tempered steel
1.8151	50CrV 4 cold-work tool steel
1.8161	58CrV 4 cold-work tool steel
1.8515	31 CrMo 12 nitriding steel
1.8519	31CrMo V 9 nitriding steel
1.8523	39CrMoV 13 9 nitriding steel
Unalloyed and alloy steels	
1.2379	X155CrVMo 12 1 tool steel
1.2714	56NiCrMoV 7 tool steel
1.6582	35CrNiMo 6 heat-resistant steel
1.8159	50CrV 4 tool steel
Stainless and acid-resistant steels; V2A steels	
1.4006	X12Cr13 stainless and acid-resistant steel
1.4008	GX8CrNi 13 stainless and acid-resistant steel
1.4021	X20Cr 13 stainless and acid-resistant steel
1.4027	GX20Cr14 stainless and acid-resistant steel
1.4028	X30Cr 13 stainless and acid-resistant steel
1.4031	X39Cr 13 stainless and acid-resistant steel
1.4057	X17CrNi 162 stainless and acid-resistant steel



Material number	Designation
Stainless and acid-resistant steels; V2A steels	
1.4104	X14CrMoS 17 stainless and acid-resistant steel
1.4125	X105CrMo 17 stainless and acid-resistant steel
1.4301	X5CrNi18 10 stainless and acid-resistant steel
1.4305	X8CrNiS 18 9 stainless and acid-resistant steel
1.4306	X2CrNi 19 11 stainless and acid-resistant steel
1.4308	GX5CrNi 19 10 stainless and acid-resistant steel
1.4310	X10CrNi 18 8 stainless and acid-resistant steel
1.4311	X2CrNiN 18 10 stainless and acid-resistant steel
1.4541	X10CrNiTi 18 9 stainless and acid-resistant steel
Stainless and acid-resistant steels with high chromium-nickel content; V4A steels	
1.4401	X5CrNiMo 17 12 1 stainless and acid-resistant steel
1.4404	X2CrNiMo17-12-2 stainless and acid-resistant steel
1.4406	X2CrNiMoN17-11-2 stainless and acid-resistant steel
1.4429	X2CrNiMoN17-13-3 stainless and acid-resistant steel
1.4435	X2CrNiMo18-14-3 stainless and acid-resistant steel
1.4436	X5CrNiM0 17 13 3 stainless and acid-resistant steel
1.4438	X2CrNiMo18-15-4 stainless and acid-resistant steel
1.4449	X5CrNiMo 17 13 stainless and acid-resistant steel
1.4460	X4CrNiMoN 27 5 2 stainless and acid-resistant steel
1.4462	X2CrNiMoN 22 5 3 stainless and acid-resistant steel
1.4503	X3NiCrCuMoTi 27 23 stainless and acid-resistant steel
1.4505	X5NiCrMoCuNb 20 18 stainless and acid-resistant steel
1.4510	X6CrTi 17 stainless and acid-resistant steel
1.4511	X6CrNb 17 stainless and acid-resistant steel
1.4512	X6CrTi 12 stainless and acid-resistant steel

Material number	Designation
Stainless and acid-resistant steels with high chromium-nickel content; V4A steels	
1.4521	X2CrMoTi 18 2 stainless and acid-resistant steel
1.4542	X5CrNiCuNb16-4 stainless and acid-resistant steel
1.4546	X5CrNiNb 18 10 stainless and acid-resistant steel
1.4550	X6CrNiNb 18 10 stainless and acid-resistant steel
1.4552	GX5CrNiNb 19 10 stainless and acid-resistant steel
Grey cast iron	
0.6015	GG15 grey cast iron
0.6020	GG20 grey cast iron
0.6025	GG25 grey cast iron
0.6030	GG30 grey cast iron
0.6035	GG35 grey cast iron
0.6040	GG40 grey cast iron
Short-chipping copper alloys	
2.0401	CuZn39Pb 3 (MS58) short-chipping brass
2.0410	CuZn44Pb 2 short-chipping brass
2.0580	CuZn40MnPb short-chipping brass
Long-chipping brass	
2.0250	CuZn 20 long-chipping brass
2.0265	CuZn 30 long-chipping brass
2.0321	CuZn 37 long-chipping brass
2.0335	CuZn 36 (MS63) long-chipping brass
Unalloyed aluminium and magnesium	
3.0250	AL 99.5 H unalloyed aluminium
3.0280	AL 99.8 H unalloyed aluminium
3.0305	AL 99.9 unalloyed aluminium
3.3308	AL 99.9 Mg 0,5 unalloyed aluminium
Aluminium alloys	
3.0515	ALMn 1 aluminium alloy, Si < 0.5%
3.0525	AlMn 1 Mg 05 aluminium alloy, Si < 0.5%
3.0615	AlMgSi-Pb aluminium alloy, Si < 0.5%

Material number	Designation
Aluminium alloys	
3.1325	AlCuMg 1 aluminium alloy, Si < 0.5%
3.1355	AlCuMg 2 aluminium alloy, Si < 0.5%
3.2134	G-AlSi 5 Cu 1 Mg aluminium alloy, Si 0.5-10%
3.2152	G-AlSi 6 Cu 4 aluminium alloy, Si 0.5-10%
3.2162	G-AlSi 8 Cu 3 aluminium alloy, Si 0.5-10%
3.2373	G-AlSi 9 Mg aluminium alloy, Si 0.5-10%
3.2381	G-AlSi 10 Mg aluminium alloy, Si > 10%
3.2383	G-AlSi 10 Mg (CU) aluminium alloy, Si > 10%
3.2581	G-AlSi 12 aluminium alloy, Si > 10%
3.2583	G-AlSi (CU) aluminium alloy, Si > 10%
3.2982	GD-AlSi 12 (CU) aluminium alloy, Si > 10%
3.3315	AlMg 1 aluminium alloy, Si < 0.5%
3.4365	AlZnMgCu 1.5 aluminium alloy, Si < 0.5%
3.5912	G-MgAl 9 Zn 1 cast magnesium alloy
Titanium alloy	
3.7115	TiAl 5 Sn 2 titanium alloy
3.7165	TiAl 6 V 4 titanium alloy
3.7185	TiAl4Mo4Sn2 titanium alloy
Thermoplastics	
-	Polyethylene (PE)
-	Polypropylene (PP)
-	Polystyrene (PS)
-	Polyethylene terephthalate (PET)
-	Acrylonitrile butadiene styrene (ABS)