

TECHNICAL INFORMATION

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Reference list of materials (Steels)

ISO	Germany		U.S.A	Japan	Spain	U.K.		Sweden	France	Italy
	W.-nr.	DIN	AISI/SAE	JIS	UNE	BS	EN	SS	AFNOR	UNI
P Unalloyed steel	1.0038	RSt.37-2	A570.36	STKM 12A,C	-	4360 40 C	-	1311	E 24-2 Ne	-
	1.0038	GS-CK16	1115	-	-	030A04	1A	1325	-	-
	1.0116	St.37-3	A573-81 65	-	F.111	4360 40 B	-	1312	E 24-U	Fe37-3
	1.0401	C15	1015	-	F.112	080M15	-	1350	CC12	C15C16
	1.0402	C22	1020	-	11SMn28	050A20	2C/2D	1450	CC20	C20C21
	1.0715	9SMn28	1213	SUM22	11SMnPb28	230M07	-	1912	S250	CF9SMn28
	1.0718	9SMnPb28	12L13	SUM22L	10SPb20	-	-	1914	S250Pb	CF9SMnPb28
	1.0722	10SPb20	-	-	12SMn35	-	-	-	10PbF2	CF10Pb20
	1.0736	9SMn36	1215	-	12SMnPb36	240M07	1B	-	S300	CF9SMn36
	1.0737	9SMnPb36	12L14	-	C15K	-	-	1926	S300Pb	CF9MnPb36
	1.1141	Ck15	1015	S15C	-	080M15	32C	1370	XC12	C16
	1.1158	Ck25	1025	S25C	-	-	-	-	-	-
	1.8900	StE 380	A572-60	-	-	4360 55 E	-	2145	-	FeE390KG
	-	17 MnV 6	A572-60	-	-	4360 55 E	-	2142	NFA 35-501 E36	-
	1.0501	C35	1035	-	F.113	060A35	-	1550	CC35	C35
	1.0503	C45	1045	-	F.114	080M46	-	1650	CC45	C45
	1.0726	35S20	1140	-	F210G	212M36	8M	1657	35MF4	-
	1.1157	40Mn4	1039	-	-	150M36	15	-	35M5	-
	1.1167	36Mn5	1335	SMn438(H)	36Mn5	-	-	2120	40M5	-
	1.1170	28Mn6	1330	SCMn1	-	150M28	14A	-	20M5	C28Mn
	1.1183	Cr35	1035	S35C	-	060A35	-	1572	XC38TS	C36
	1.1191	Ck45	1045	S45C	C45K	080M46	-	1672	CX42	C45
	1.1213	Cr53	1050	S50C	-	060A52	-	1674	XC48TS	C53
	1.0535	C55	1055	-	-	070M55	-	1655	-	C55
	1.0601	C60	1060	-	-	080A62	43D	-	CC55	C60
	1.1203	Ck55	1055	S55c	C55K	070M55	-	-	XC55	C50
	1.1221	Ck60	1060	S58C	-	080A62	43D	1678	XC60	C60
1.1274	CK 101	1095	-	F-5117	060A96	-	1870	XC100	-	
1.1545	C105W1	W 1	SK 3	F-5118	BW1A	-	1880	Y105	C36KU	
1.1545	C105W1	W210	SUP4	F.515	BW2	-	2900	Y120	C120KU	
P Low alloyed steel	1.0144	St.44-2	A573-81	SM400A;B;C	-	4360 43C	-	1412	E28-3	-
	1.0570	St.52-3	-	SM490A;B;YA;YB	-	4360 50B	-	2132	E36-3	Fe52BFN/Fe52CFN
	1.0841	St.52-3	5120	-	F-431	150 M 19	-	2172	20 MC 5	Fe52
	1.0904	55Si7	9255	-	56Si7	250A53	45	2085	55S7	55Si8
	1.0961	60SiCr7	9262	-	60SiCr8	-	-	-	60SC7	60SiCr8
	1.3505	100Cr	52100	SUJ2	F.131	534A99	31	2258	100C6	100Cr6
	1.5415	15Mo3	ASTM A204Gr.A	-	16Mo3	1501-240	-	2912	15D3	16Mo3KW
	1.5423	16Mo5	4520	-	16Mo5	1503-245-420	-	-	-	16Mo5
	1.5622	14Ni6	ASTM A350LF5	-	15Ni6	-	-	-	16N6	14Ni6
	1.6523	21NiCrMo2	8620	SNCM220(H)	20NiCrMo2	805M20	362	2506	20NCD2	20NiCrMo2
	1.6546	40NiCrMo22	8740	SNCM240	40NiCrMo2	311-Type7	-	-	-	40NiCrMo2(KB)
	1.6587	17CrNiMo6	-	-	14NiCrMo13	820A16	-	-	18NCD6	-
	1.7015	15Cr3	5015	SCr415(H)	-	523M15	-	-	12C3	-
	1.7045	42Cr4	5140	SCr440	42Cr4	-	-	2245	-	-
	1.7176	55Cr3	5155	SUP9(A)	-	527A60	48	-	55C3	-
	1.7262	15CrMo5	-	SCM415(H)	12CrMo4	-	-	2216	12CD4	-
	1.7335	13CrMo4 4	ASTMA182F11;F12	-	14CrMo45	1501-620Gr27	-	-	15CD3.5	14CrMo4 5
	1.7380	10CrMo9 10	ASTM A182F.22	-	TU.H	1501-622Gr31;45	-	2218	12CD9, 10	12CrMo9, 10

Reference list of materials (Steels)

ISO	Germany		U.S.A	Japan	Spain	U.K.		Sweden	France	Italy	
	W.-nr.	DIN	AISI/SAE	JIS	UNE	BS	EN	SS	AFNOR	UNI	
P Low alloyed steel	1.7715	14MoV6 3	-	-	13MoCrV6	1503-660-440	-	-	-	-	
	1.8515	31 CeMo 12	-	-	F-1712	722 M 24	-	2240	-	30CrMo12	
	1.8523	39CrMoV13 9	-	-	-	897M39	-	-	30 CD 12	36CrMoV12	
	1.7039	34MoCrS4 G	L1	-	-	524A14	40C	2092	-	105WCR 5	
	1.5419	20MoCrS4	8620	-	-	F520.S	-	2108	-	-	
	1.7228	55NiCrMoV6G	-	-	-	823M30	-	2512	-	653M31	
	1.7139	16MnCr5	-	-	-	-	33	2127	-	-	
	-	31NiCrMo134	-	-	-	F-1270	830M31	-	2534	-	-
	1.271	50NiCr13	L6	-	-	F-528	-	-	2550	55NCV6	-
	1.5710	36NiCr6	3135	SNC236	-	640A35	111A	-	35NC6	-	-
	1.5732	14NiCr10	3415	SNC415(H)	15NiCr11	-	-	-	14NC11	16NiCr11	-
	1.5752	14NiCr14	3415;3310	SNC815(H)	-	655M13;A12	36A	-	12NC15	-	-
	1.0904	55S17	9255	-	-	-	-	2090	55S7	-	-
	1.6511	36CrNiMo4	9840	-	35NiCrMo4	816M40	110	-	40NCD3	38NiCrMo4(KB)	-
	1.6582	35CrNiMo6	4340	-	-	817M40	24	2541	35NCD6	35NiCrMo6(KB)	-
	1.7033	34Cr4	5132	SCr430(H)	35Cr4	530A32	18B	-	32C4	34Cr4(KB)	-
	1.7035	41Cr4	5140	SCr440(H)	42Cr4	530A40	18	-	42C4	41Cr4	-
	1.7131	16MnCr5	5115	-	16MnCr5	(527M20)	-	2511	16MC5	16MnCr5	-
	1.7218	25CrMo4	4130	SCM420;SCM430	55Cr3	1717CDS110	-	2225	25CD4	25CrMo4(KB)	-
	1.7220	34CrMo4	4137;4135	SCM432;SCCRM3	34CrMo4	708A37	19B	2234	35CD4	35CrMo4	-
	1.7223	41CrMo4	4140;4142	SCM440	42CrMo4	708M40	19A	2244	42CD4TS	41CrMo4	-
	1.7225	42CrMo4	4140	SCM440(H)	42CrMo4	708M40	19A	2244	42CD4	42CrMo4	-
	1.7361	32CrMo12	-	-	F.124.A	722M24	40B	2240	30CD12	32CrMo12	-
	1.8159	50CrV4	6150	SUP10	51CrV4	735A50	47	2230	50CV4	50CrV4	-
	1.8509	41CrAlMo7	-	-	41CrAlMo7	905M39	41B	2940	40CAD6,12	41CrAlMo7	-
	1.2067	100Cr6	L3	-	100Cr6	BL3	-	-	Y100C6	-	-
1.2419	105WCr6	-	SKS31,SKS2,SKS3	105WCr5	-	-	2140	105WC13	10WCr6	-	
1.2713	55NiCrMoV6	L6	SKT4	F.520.S	-	-	-	55NCDV7	-	-	
P High alloyed steel	1.5662	X8Ni9	ASTM A353	-	XBNI09	1501-509;510	-	-	-	X10Ni9	
	1.5680	12Ni19	2515	-	-	-	-	Z18N5	-	-	
	1.6657	14NiCrMo134	-	-	14NiCrMo131	832M13	36C	-	-	15NiCrMo131	
	1.2.080	X210Cr12	D3	SKD1	X210Cr12	BD3	-	-	Z200C12	X210Cr13KU	
	1.2083	-	-	-	-	-	-	2314	-	X250Cr12KU	
	1.2344	X40CrMoV5 1	H13	SKD61	X40CrMoV5	BH13	-	2242	Z40CDV5	X35CrMoV05KU	
	1.2363	X100CrMoV5 1	A2	SKD12	X100CrMoV5	BA2	-	2260	Z100CDV5	X40CrMoV511KU	
	1.2436	X210CrW12	-	SKD2	X210CrW12	-	-	2312	-	X100CrMoV511KU	
	1.2542	45WCrV7	S1	-	45WCrSi8	BS1	-	2710	-	X215CrW12 1KU	
	1.2581	X30wCrV9 3	H21	SKD5	X30WCrV9	BH21	-	-	Z30WCV9	45WCrV8KU	
	1.2601	X165CrMoV 12	-	-	X160CrMoV12	-	-	2310	-	X28W09KU	
	1.4718	X45GrSi93	HW3	SUH1	F322	401S45	52	-	Z45CS9	X160CrMoV12	
	1.3343	S6-5-2	D3	SUH3	-	4959BA2	-	2715	Z40CSD10	F322	
	1.3343	S6/5/2	M 2	SKH 51	F-5603	BM 2	-	2722	Z 85 WDCV	-	
1.3243	S6/5/2/5	M 35	SKH 55	F-5613	BM 35	-	2723	6-5-2-5	F-5603		
1.3348	S2/9/2	M 7	-	F-5607	-	-	2782	-	F-5607		
1.2379	X210Cr12 G	HNV3	-	-	-	-	2736	-	-		
P Steel castings	-	-	-	-	-	-	-	2223	-	-	
	1.3401	G-X210Mn12	-	SCMnH/1	X120Mn12	Z120M12	-	-	Z120M12	XG120Mn12	
	1.3401	-	-	SEMn H1	F-8251	BW 10	-	2183	2120 M12	Gx120 Mn12	

Reference list of materials (Stainless steels)

ISO	Germany		U.S.A	Japan	Spain	U.K.		Sweden	France	Italy
	W.-nr.	DIN	AISI/SAE	JIS	UNE	BS	EN	SS	AFNOR	UNI
M Stainless steel (Ferritic / martensitic)	1.4000	X7Cr13	403	SUS403	F.3110	403S17	-	2301	Z6Cr13	X6Cr13
	1.4001	X7Cr14	-	-	F.8401	-	-	-	-	-
	1.4005	X12CrS13	416	SUS416	F-3411	416 S 21	-	2380	Z11CF13	X12 CrS 13
	1.4016	X8Cr17	430	SUS430	F3113	430S15	960	2320	Z8C17	X8Cr17
	1.4006	X10Cr13	410	SUS410	F.3401	410S21	56A	2302	Z10C14	X12Cr13
	-	X8Cr17	430	SUS430	F.3113	430S17	60	2320	Z8C17	X8Cr17
	1.4034	X46Cr13	-	SUS420J2	F.3405	420S45	56D	2304	Z40CM	X40Cr14
	-	-	-	-	-	-	-	-	Z38C13M	-
	1.4003	-	405	-	-	405S17	-	-	Z8CA12	X6CrAl13
	1.4021	-	420	-	-	420S37	-	2303	Z20C13	X20Cr13
	1.4057	X22CrNi17	431	SUS431	F.3427	431S29	57	2321	Z15CNi6.02	X16CrNi16
	1.4104	X12CrMoS17	430F	SUS430F	F.3117	-	-	2383	Z10CF17	X10CrS17
	1.4113	X6CrMo17	434	SUS434	-	434S17	-	2325	Z8CD17.01	X8CrMo17
	1.4313	X5CrNi13 4	CA6-NM	SCS5	-	425C11	-	2385	Z4CND13.4M	(G)X6CrNi304
	1.4724	X10CrA113	405	SUS405	F.311	403S17	-	-	Z10C13	X10CrA112
	1.4742	X10CrA118	430	SUS430	F.3113	430S15	60	-	Z10CAS18	X8Cr17
	1.4747	X80CrNiSi20	HNV6	SUH4	F.320B	443S65	59	-	Z80CSN20.02	X80CrSiNi20
	1.4762	X10CrA124	446	SUH446	-	-	-	2322	Z10CAS24	X16Cr26
	1.4871	X53CrMnNiN21 9	EV8	SUH35, SUH36	-	349S54	-	-	Z52CMN21.09	X53CrMnNiN219
	1.4521	X1CrMoTi18 2	S44400	-	-	-	-	2326	-	-
1.4922	X20CrMoV12-1	-	-	-	-	-	2317	-	X20CrMoNi 12 01	
1.4542/ 1.4548	-	630	-	-	-	-	-	Z7CNU17-04	-	
M Stainless steel (Austenitic)	1.4306	-	304L	-	-	304S11	-	2352	Z2CrNi18 11	X2CrNi18 11
	1.4350	X5CrNi189	304	SUS304	F.3551	304S31	58E	2332/2333	Z6CN18.09	X5CrNi18 10
	-	-	-	-	F.3541	-	-	-	-	-
	-	-	-	-	F.3504	-	-	-	-	-
	1.4305	X12CrNiS18 8	303	SUS303	F.3508	303S21	58M	2346	Z10CNF 18.09	X10CrNiS 18.09
	1.4301	X5CrNi189	304	SUS304	F.3551	304S15	58E	2332	Z6CN18.09	X5CrNi18 10
	-	-	-	SUS304L	-	304C12	-	2333	Z3CN19.10	-
	1.4306	X2CrNi18 9	304L	SCS19	F.3503	304S12	-	2352	Z2CrNi18 10	X2CrNi18 11
	1.4310	X12CrNi17 7	301	SUS301	F.3517	-	-	2331	Z12CN17.07	X12CrNi17 07
	1.4311	X2CrNiN18 10	304LN	SUS304LN	-	304S62	-	2371	Z2CN18.10	-
	1.4401	X5CrNiMo18 10	316	SUS316	F.3543	316S16	58J	2347	Z6CND17.11	X5CrNiMo17 12
	1.4429	X2CrNiMoN18 13	316LN	SUS316LN	-	-	-	2375	Z2CND17.13	-
	1.4404	-	316L	-	-	316S13	-	2348	Z2CND17-12	X2CrNiMo1712
	1.4435	X2CrNiMo18 12	316L	SCS16	-	316S13	-	2353	Z2CND17.12	X2CrNiMo17 12
	-	-	-	SUS316L	-	-	-	-	-	-
	1.4436	-	316	-	-	316S33	-	2343	Z6CND18-12-03	X8CrNiMo1713
	-	-	-	-	-	-	-	2347	-	-
	1.4438	X2CrNiMo18 16	317L	SUS317L	-	317S12	-	2367	Z2 NCDU25-20	X2CrNiMo18 16
	1.4539	X1NiCrMo	UNS V 0890A	-	-	-	-	2562	Z6CNT18.10	-
	1.4541	X10CrNiTi18 9	321	SUS321	F.3553	321S12	58B	2337	-	X6CrNiTi18 11
	-	-	-	-	F.3523	-	-	-	Z6CNNb18.10	-
	1.4550	X10CrNiNb18 9	347	SUS347	F.3552	347S17	58F	2338	-	X6CrNiNb18 11
	-	-	-	-	F.3524	-	-	-	-	-
	1.4571	X10CrNiMoTi18 10	316Ti	-	F.3535	320S17	58J	2350	Z6NDT17.12	X6CrNiMoNb17 13
	1.4583	X10CrNiMoNb 18 12	318	-	-	-	-	-	Z6CNDNb17 13B	-
	1.4828	X15CrNiSi20 12	309	SUH309	-	309S24	-	-	Z15CNS20.12	X6CrNi25 20

Reference list of materials (Stainless steels)

ISO	Germany		U.S.A	Japan	Spain	U.K.		Sweden	France	Italy
	W.-nr.	DIN	AISI/SAE	JIS	UNE	BS	EN	SS	AFNOR	UNI
M Stainless steel (Austenitic)	1.4845	X12CrNi25 21	310S	SUH310	F.331	310S24	-	2361	Z12CN25 20	-
	1.4406	X10CrNi18.08	308	SCS17	F.8414	301S21	58C	2370	Z1NCDU25.20	-
	1.4418	X4 CrNiMo16 5	-	-	-	-	-	2387	Z6CND16-04-01	X2CrNiMo1712
	1.4568/ 1.4504	-	17-7PH	-	-	316S111	-	-	Z8CNA17-07	-
	1.4563	-	NO8028	-	-	-	-	2584	Z1NCDU31-27-03	-
	-	-	S31254	-	-	-	-	2378	Z1CNDU20-18-06AZ	-
M Stainless steel (Austenitic / ferritic (duplex))	1.4417	X2CrNiMoSi19 5	S31500	-	-	-	-	2376	-	-
	-	X8CrNiMo27 5	S32900	-	-	-	-	2324	-	-
	-	X2CrNiN23 4	S322304	-	-	-	-	2327	Z2CN23-04AZ	-
	-	-	-	-	-	-	-	2328	-	-
	-	X2CrNiMoN22 53	S31803	-	-	-	-	2377	Z2CND22-05-03	-

Reference list of materials (Castings)

ISO	Germany		U.S.A	Japan	Spain	U.K.		Sweden	France	Italy
	W.-nr.	DIN	AISI/SAE	JIS	UNE	BS	EN	SS	AFNOR	UNI
K Malleable cast iron	-	-	-	FCMB310	-	8 290/6	-	0814	MN 32-8	-
	-	GTS-35	32510	FCMW330	-	B 340/12	-	0815	MN 35-10	-
	0.8145	GTS-45	40010	FCMW370	-	P 440/7	-	0852	Mn 450	GMN 45
	0.8155	GTS-55	50005	FCMP490	-	P 510/4	-	0854	MP 50-5	GMN 55
	-	GTS-65	70003	FCMP540	-	P 570/3	-	0858	MP 60-3	-
	0.8165	GTS-65-02	A220-70003	FCMP590	-	P570/3	-	0856	Mn 650-3	GMN 65
	0.8170	GTS-70-02	A220-80002	FCMP690	-	P690/2	-	0862	Mn700-2	GMN 70
K Cast iron	-	-	-	-	-	-	-	0100	-	-
	-	GG10	No 20 B	FC100	-	-	-	0110	Ft 10 D	-
	0.6015	GG15	No 25 B	FC150	FG 15	Grade 150	-	0115	Ft 15 D	G 15
	0.6020	GG20	No 30 B	FC200	-	Grade 220	-	0120	Ft 20 D	G 20
	0.6025	GG25	No 35 B	FC250	FG25	Grade 260	-	0125	Ft 25 D	G 25
	-	-	No 40 B	-	-	-	-	-	-	-
	0.6030	GG30	No 45 B	FC300	FG30	Grade 300	-	0130	Ft 30D	G 30
	0.6035	GG35	No 50 B	FC350	FG35	Grade 350	-	0135	Ft 35 D	G 35
	0.6040	GG40	No 55 B	-	-	Grade 400	-	0140	Ft 40 D	-
0.6660	GGL-NiCr202	A436 Type 2	-	-	L-NiCuCr202	-	0523	L-NC 202	-	
K Nodular SG iron	0.7040	GGG 40	60-40-18	FCD400	FGE 38-17	SNG 420/12	-	0717-02	FCS 400-12	GS 370-17
	-	GGG 40.3	-	-	-	SNG 370/17	-	0717-12	FGS 370-17	-
	0.7033	GGG 35.3	-	-	-	-	-	0717-15	-	-
	0.7050	GGG 50	80-55-06	FCD500	FGE 50-7	SNG 500/7	-	0727-02	FGS 500-7	GS 500
	0.7660	GGG-NiCr202	A43D2	-	-	Grade S6	-	0776	S-NC 202	-
	-	GGG 60	-	FCD600	-	SNG 600/3	-	0732-03	FGS 600-3	-
	0.7070	GGG 70	100-70-03	FCD700	FGS 70-2	SNG 700/2	-	0737-01	FGS 700-2	GS 700-2

Reference list of materials (Non ferrous materials)

ISO	Germany		U.S.A	Japan	Spain	U.K.		Sweden	France	Italy
	W.-nr.	DIN	AISI/SAE	JIS	UNE	BS	EN	SS	AFNOR	UNI
N Non ferrous materials	3.2373	G-AISI9MGWA	SC64D	C4BS	-	-	-	4251	A-STG	-
	-	G-ALMG5	GD-AISI12	AC4A	-	LM5	-	4252	A-SU12	-
	-	-	356.1	A5052	-	LM25	-	4244	-	-
	-	GD-AISI12	A413.0	A6061	-	-	-	4247	-	-
	-	GD-AISI8Cu3	A380.1	A7075	-	LM24	-	4250	-	-
	-	G-AISI12(Cu)	A413.1	ADC12	-	LM20	-	4260	-	-
	-	G-AISI12	A413.2	-	-	LM6	-	4261	-	-
	-	G-AISI10Mg(Cu)	A360.2	-	-	LM9	-	4253	-	-

Reference list of materials (Heat resistant super-alloys)

ISO	Germany		U.S.A	Japan	Spain	U.K.		Sweden	France	Italy
	W.-nr.	DIN	AISI/SAE	JIS	UNE	BS	EN	SS	AFNOR	UNI
Heat resistant super-alloys	1.4864	X12NiCrSi36 16	330	SUH330	-	-	-	-	Z12NCS35.16	F-3313
	1.4865	G-X40NiCrSi38 18	-	SCH15	-	330C11	-	-	-	XG50NiCr39 19
	2.4603	-	5390A	-	-	-	-	-	NC22FeD	-
	2.4856	NiCr22Mo9Nb	5666	-	-	-	-	-	NC22FeDNB	-
	2.4630	NiCr20Ti	-	-	-	HR5,203-4	-	-	NC20T	-
	LW2.4662	NiFe35Cr14MoTi	5660	-	-	-	-	-	ZSNCDT42	-
	LW2.4670	S-NiCr13A16MoNb	5391	-	-	3146-3	-	-	NC12AD	-
	LW2.4668	NiCr19Fe19NbMo	5383	-	-	HR8	-	-	NC19eNB	-
	2.4375	NiCu30Al	4676	-	-	3072-76	-	-	-	-
	2.4631	NiCr20TiAk	-	-	-	Hr401,601	-	-	NC20TA	-
	2.4973	NiCr19Co11MoTi	AMS 5399	-	-	-	-	-	NC19KDT	-
	LW2.4668	NiCr19Fe19NbMo	AMS 5544	-	-	-	-	-	NC20K14	-
	LW2.4674	NiCo15Cr10MoAlTi	AMS 5397	-	-	-	-	-	-	-
	LW2.4964	CoCr20W15Ni	5537C	-	-	-	-	-	KC20WN	-
	-	CoCr22W14Ni	AMS 5772	-	-	-	-	-	KC22WN	-
Titanium alloys	-	TiAl5Sn2.5	AMS R54520	-	-	TA14/17	-	-	T-A5E	-
	-	TiAl6V4	AMS R56400	-	-	TA10-13/TA28	-	-	T-A6V	-
	-	TiAl6V4ELI	AMS R56401	-	-	TA11	-	-	-	-
	-	TiAl4MoSn4Si0.5	-	-	-	-	-	-	-	-

Reference list of materials (Hardened materials)

ISO	Germany		U.S.A	Japan	Spain	U.K.		Sweden	France	Italy
	W.-nr.	DIN	AISI/SAE	JIS	UNE	BS	EN	SS	AFNOR	UNI
Hardened materials	1.4108	X100CrMo13	440A	C4BS	-	-	-	-	-	-
	1.4111	X110CrMoV15	610	AC4A	-	-	-	-	-	-
	-	X65CrMo14	0-2	AC4A	-	-	-	-	-	-

Turning inserts

Reference	Page
CCGT-AL	A23
CCGT-AP	A23
CCMT	A23
CCMW	A23
CNGP	A24
CNMA	A24
CNMG-CC	A24
CNMG-FC	A24
CNMG-FMC	A25
CNMG-KC	A25
CNMG-MC	A25
CNMG-MFC	A25
CNMG-MHC	A26
CNMG-RC	A26
CNMG-TC	A26
CNMM	A26
DCGT-AL	A27
DCGT-AP	A27
DCMT	A27
DCMW	A27
DNGP	A28
DNMA	A28
DNMG-FC	A28
DNMG-FMC	A28
DNMG-KC	A29
DNMG-MC	A29
DNMG-MFC	A29
DNMG-MHC	A29
DNMG-TC	A30
DNMX	A30
KNUX	A30
RCGT-AL	A31
RCGT-AP	A31
RCMT	A31
RNMG	A31
SCGT-AL	A32
SCMT	A32
SCMT-39	A32
SCMW	A32
SNMG-FMC	A33
SNMG-KC	A33
SNMG-MHC	A33
SNMG-RC	A33
SNMG-TC	A34
SNMM	A34
SPMR	A35
SPUN	A35
TCGT-AL	A36
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TCMW	A36

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TNMA	A37
TNMG-CC	A37
TNMG-FC	A37
TNMG-FMC	A37
TNMG-KC	A37
TNMG-MC	A38
TNMG-MFC	A38
TNMG-MHC	A38
TNMG-TC	A38
TNMX	A38
TPMN	A39
TPMR	A39
TPUN	A39
TPUX	A39
VBMT	A40
VCGT-AL	A40
VCGT-AP	A40
VCMT	A40
VNGP	A41
VNMG	A41
VNMG-TC	A41
WNMA	A42
WNMG-FC	A42
WNMG-FMC	A42
WNMG-KC	A42
WNMG-MC	A43
WNMG-MFC	A43
WNMG-MHC	A43
WNMG-TC	A43

Ceramic inserts

Reference	Page
CNGA	A45
CNGN	A45
CNGX	A45
DNGA	A45
DNGN	A46
DNGX	A46
RCGX	A46
RNGN	A47
RPGN	A47
SNGA	A47
SNGN	A47-48
SNGX	A48
TNGA	A48
TNGN	A48
VNGA	A49
WNGA	A49

CBN/PCD inserts

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CCMW	A50
CNGA	A50
DCMW	A50
DNGA	A50
SNGA	A51
TCMW	A51
TNGA	A51
TPMN	A51

Inserts for parting and grooving

Reference	Page
MRCN	B05
NG	B06
NR	B07
NT	B07
PTNT	B05
WDMG	B04
WDMP	B04
WDMR	B04
WDMT	B04

Threading inserts

Reference	Page
EL-60°/55°	C03
EL-ISO	C05
EL-LG	C10
EL-W	C08
ER-60°/55°	C03
ER-60°/55° TD	C03
ER-ISO	C05
ER-LG	C10
ER-W	C08
NL-60°/55	C04
NL-ISO	C07
NL-W	C10
NR-60°/55°	C04
NR-60°/55° TD	C04
NR-ISO	C06
NR-W	C09
TNMC	C10
TPMC	C10

Toolholders

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CKJN 93°	A100
CSBP 75°	A101
CSDP 45°	A102
CTAP 90°	A103
CTCO 90°	A104
CTCP 90°	A105
CTEP 60°	A106
CTFP 90°	A107
CTGP 90°	A108
CTRP 75°	A109
DCLN 95°-AN	A60
DCLN 95°-N	A67
DDJN 93°-AN	A61
DDJN 93°-N	A68
DSDN 45°-AN	A62
DSRN 75°-AN	A63
DSSN 45°-AN	A69
DTGN 90°-N	A70
DTJN 93°-AN	A64
DVJN 93°-AN	A65
DWLN 95°-AN	A66
DWLN 95°-N	A71
MCFN 90°	A76
MCGN 90°	A77
MCKN 75°	A78
MCLN 95°	A79
MCMN 50°	A80
MCRN 75°	A81
MDJN 93°	A82
MDPN 62°30'	A83
MDQN 107°30'	A84
MRGN	A85
MSDN 45°	A86
MSKN 75°	A87
MSRN 75°	A88
MSSN 45°	A89
MTAN 90°	A90
MTCN 90°	A91
MTENNS 60°	A92
MTFN 90°	A93
MTGN 90°	A94
MTJNS 93°	A95
MTRN 75°	A96
MVJN 93°	A97
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SDJC 93°	A115-116
SDNC 62°30'	A117
SDPC 62°30'	A118
SET-SAGD 90°	A110
SRDC	A119
SRGC	A120
SRSC	A121
SSDC 45°	A122
STAC 90°	A123
STDC 45°	A124
STFC 90°	A125
STGC 90°	A126
STJC 93°	A127
STTC 60°	A128
SVAC 90°	A129
SVHC 107°30'	A130
SVJC 93°	A131-132
SVVC 72°30'	A133
WCLN 95°	A72
WTENNS 60°	A73
WTJNS 93°	A74
WWLN 95°	A75

Boring bars

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A-MCLN 95°	A145
A-MDUN 93°	A147
A-MTFN 90°	A150
A-MVUN 93°	A153
A-MWLN 95°	A155
A-SCLC 95°	A162
A-SDUC 93°	A164
A-STFC 90°	A168
A..X-MTUN 93°-N	A176
A..X-PCLN 95°-N	A177
A..X-PDUN 93°-N	A178
A..X-PWLN 95°-N	A179
A..X-SCLC 95°-N	A180
A..X-SDUC 93°-N	A181
A..X-STFC 90°-N	A182
A..X-STXN 90°-N	A183
CSKP 75°	A159
CTFP 90°	A160
DCLN 95°-N	A142
DDUN 93°-N	A143
J..	A175
MCLN 95°	A144
MDUN 93°	A146

Boring bars

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MSKN 75°	A148
MTFN 90°	A149
MTUN 93°	A151
MVUN 93°	A152
MWLN 95°	A154
SCLC 95°	A161
SDUC 93°	A163
SDUC 93°-EX	A165
SSKC 75°	A166
STFC 90°	A167
SVQC 107°30'	A169
SVUC 93°	A170
WTFN 90°	A156
WTUN 93°	A157
WWLN 95°	A158

Cartridges

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CSKP 75°	A203
CSSP 45°	A203
CTFP 90°	A204
CTGP 90°	A204
CTSP 45°	A205
CTTP 60°	A205
CTWP 30°	A206
MCFN 90°	A196
MCKN 75°	A196
MCLN 95°	A197
MDJN 93°	A197
MSKN 75°	A198
MSRN 75°	A198
MSSN 45°	A199
MSTN 60°	A199
MSYN 85°	A200
MTFN 90°	A200
MTGN 90°	A201
MTUN 93°	A201
MWLN 95°	A202
PCFN 90°	A191
PCLN 95°	A191
PSKN 75°	A192
PSRN 75°	A192
PSSN 45°	A193
PTFN 90°	A193
PTGN 90°	A194
PTSN 45°	A194
PTTN 60°	A195
PTWN 30°	A195
SCFC 90°	A207
SCLC 95°	A207
SSKC 75°	A208
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STFC 90°	A209
STGC 90°	A209
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CRCFN	B33
CZCB	B30
CZDPN	B09
CZFD	B11
CZFD <i>Modular blades</i>	B12-13
CZGD	B10
DPTS	B32
NE 93°	B37
NNTO 93°	B40
NR 45°	B38
NS 93°	B39
XLCF	B31
XLCFN	B34
XLCTN	B35
XLCTN-HSS	B36

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MTGNR	C17
MXFNR	C18
MXFNR-C	C19
MXGNR	C16
SE	C12
SI	C13
STCN 90°	C14
STCNR	C15

Ceramic tools

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CCKN 75°	D09
CCLN 95°	D10
CDJN 93°	D11
CRDC	D12
CRDN	D13
CRGN	D14
CSDN 45°	D15
CSKN 75°	D16
CSRN 75°	D17
CSSN 45°	D18

PSC Toolholders

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DCKN 75°	E07
DCLN 95°	E08
DCMN 50°	E09
DCRN 75°	E10
DDHN 107°30'	E11
DDJN 93°	E12
DDMN 48°	E13
DDNN 63°	E14
DDUN 93°	E15
DRSN	E16
DSDN 45°	E17
DSKN 75°	E18
DSRN 75°	E19
DSSN 45°	E20
DTFN 90°	E21
DTGN 90°	E22
DVJN 93°	E23
DVVN 72°30'	E24
DWLN 95°	E25
PCLN 95°	E26
PCRN 75°	E27
PDJN 93°	E28
PDUN 93°	E29
PRDC	E30
PRSC	E31
PSDN 45°	E32
PSKN 75°	E33
PSRN 75°	E34
PSSN 45°	E35
SCLC 95°	E36
SDJC 93°	E37
SDNC 62°30'	E38
SRDC	E39
SRSC 45°	E40
SSRC 75°	E41
STGC 90°	E42
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SVHC 107°30'	E45
SVJB 93°	E46
SJVC 93°	E47
SVMB 50°	E48
SVVB 72°30'	E49
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PSC Adaptor

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DCLN 95°	E52
DDUN 93°	E53
DWLN 95°	E54
MTFN 90°	E55
MVUN 93°	E56
MWLN 95°	E57
PCLN 95°	E58
PDUN 93°	E59
PSKN 75°	E60
SCLC 95°	E61
SDUC 93°	E62
SDUC-X 93°	E63
SSKC 75°	E64
STFC 90°	E65
SVQB 107°30'	E66
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SE 90°	A68
SI 90°	A69

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CZCD	E70
CZFD	E71
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PSC Arbors and adaptors

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13.218	E112
16.218	E113
18.160	E84-85
18.215	E86
18.218	E114
18.296	E87
18.306	E88-89
18.315	E90
18.400	E92-93
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18.470	E98
18.500	E100-101
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06.0 $\frac{1}{2}$	F13
13.315	F09
16.315	F10
23.315	F11
A11.315	F06
A11.315IK	F06
A14.160 <i>Conical</i>	F04
A14.160 <i>Cylindrical</i>	F05
A16.315IK	F07
A20.315	F08
ER20	F03
SET-ER20	F03

Milling inserts

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ADMW-R	G07
APHT-AL	G07
APKT	G07
APMT	G07
HIBF	G08
HIBS	G08
LNMM	G08
NNMU	G09
RDHW	G09
RDMT	G09
RDMW	G10
RPMT	G10
RPMW	G10
SDMT	G11
SEHT	G11
SEHT-AL	G11
SEHW	G11
SEMT	G11
SNHX	G12
SNMX	G12
SPMT	G12
SPMT	G13
SPMX	G13
TCGT-AL	G13
TCMT-39	G13
TCMW	G14
VCGT-AL	G14
VCGT-AP	G14

Face and chamfering

Reference	Page
073503 45°	G40
123507	G44
143090 75°	G38
16 $\frac{2}{3}$ 421	G42
174293 45°	G32
174890 45°	G34
185293 45°	G36

Facing square shoulder cutters

Reference	Page
122006 90°	G24
122021 90°	G22
122022 90°	G22
122093 90°	G24
122237	G18
122293	G18
123006 90°	G28
123021 90°	G26
123022 90°	G26
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123237	G20
123293 90°	G20

Slot cutters

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194290	G48

High feed

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16 $\frac{2}{4}$ 903	G52
16 $\frac{2}{4}$ 906	G52
163993	G54
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55_5	G58
55_506	G58
55 $\frac{4}{5}$ 590	G60
5549 $\frac{01}{02}$	G62
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Finishing ball nose

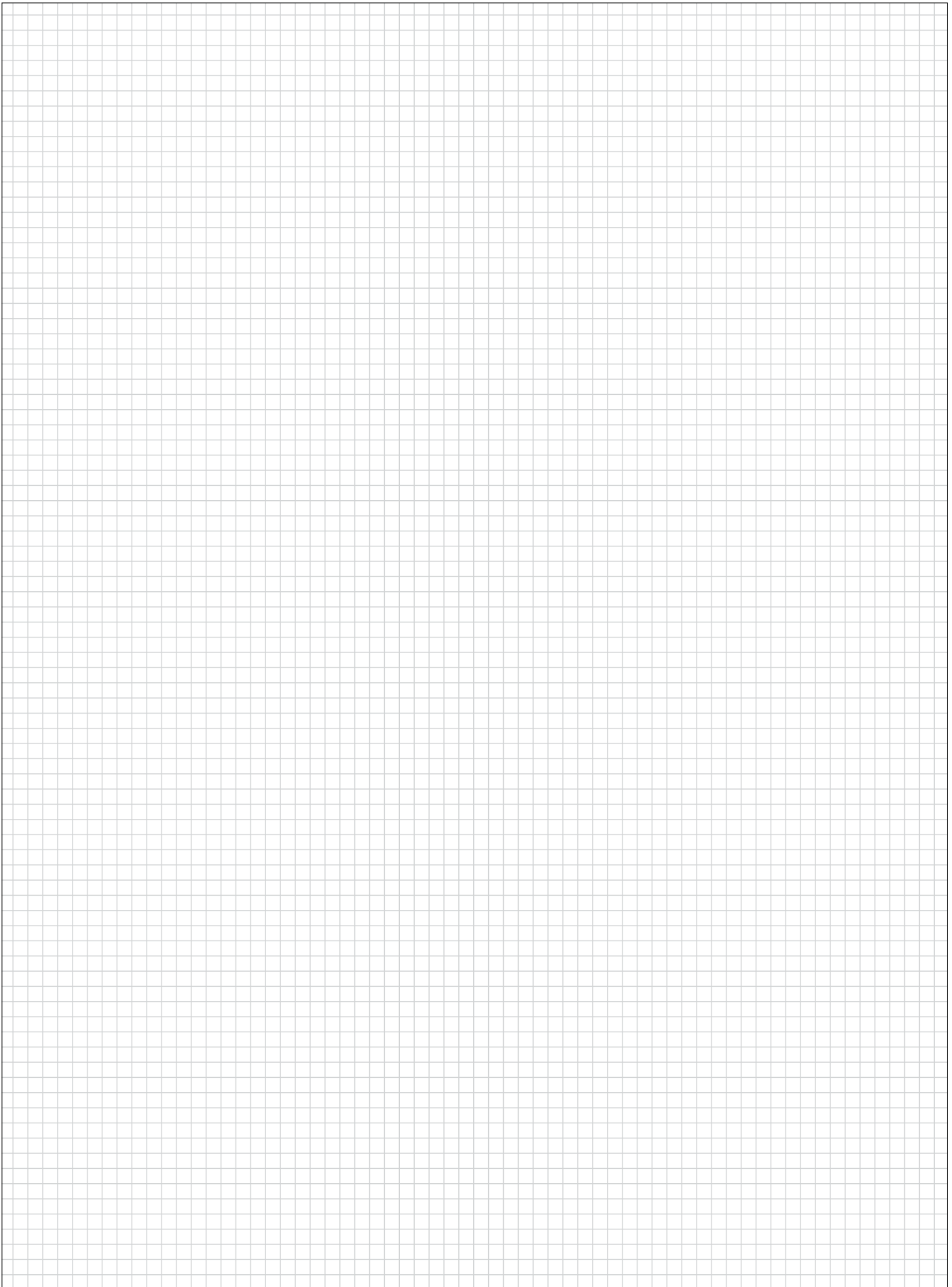
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CANELA Corporation**Conditions of sale**

All sales are made in accordance with our standard conditions of sale, current at the time orders are accepted. Specifications and prices subject to change without notice.

Product warranty

Canela Corporation will repair or replace any of its products, which in its judgement, are found to be defective in material or workmanship. All claims must be made in writing within thirty days after receipt of product. No claims for labor or damages will be allowed. In no event shall Canela Corporation be liable for consequential or special damages of any kind.

Special tool quotation

Orders for special tools must be confirmed in writing before manufacturing can begin. Special items and non-stock standard items cannot be cancelled or returned for exchange or credit.

Delivery terms

Full transportation costs will be charged to the buyer. Specify shipment to be made by other than regular means of transportation.

Claims

Claims for loss in transit must be made against the transportation company. The foregoing shall constitute the sole and exclusive remedies of the customer and are in lieu of all other warranties, expressed, implied or statutory, including but not limited to any implied warranty of merchantability or fitness.

Returns

No merchandise will be accepted for return after 30 days of shipment. All returns must be pre-paid and must be accompanied by our Return Goods Authorization (RGA) number. This number must appear on the outside of the box. Merchandise must be received in good condition or will be refused.

**Conditions, terms, and prices are subject to change without notice.
Any typographical or other error in this catalog is subject to correction.**

CANELA Corporation

This catalog contains information and specifications concerning cutting tools sold by Canela Corporation. Although some of the cutting tools made from carbides are very tough and resist breakage, most are brittle and special safety precautions are required when using them.

Small fragment and chips may be thrown from a cutting tool when a fracture occurs. Since these fragments or chips are thrown at very high speeds and are very hot, contact with the skin or eyes could cause severe injury. Also, the grinding of these cutting tools will produce fine carbide and cobalt or nickel dust which may be harmful to the lungs. Listed below are some suggestions on how to minimize the potential for injury while using cutting tools.

For more information about the product hazards and safety precautions that must be taken to minimize the possibility of injury while using cutting tools, please call your Canela Corporation Sales Engineer.

Canela Corporation has no control over use of these cutting tools. The user must determine the suitability of these tools in its particular application.

WARNING: Very hot chip fragments may be thrown from cutting tools at very high speeds. These chips can cause severe burns, cuts or punctures to the skin, or damage to the eyes. The following are some of the safety precautions that must be followed by operators and observers while using cutting tools:

1. Make sure that the insert size and shape are adequate for use to which it is being cut.
2. Chip control is necessary to prevent a continuous chip catching in the workpiece.
3. Chips are very hot and have sharp edges and should not be removed by hand.
4. Turn off the machine whenever chips are removed or when the cutting tools are changed.
5. Do not use air hoses to blow chips away from the machine.
6. To prevent tool breakage use the correct size toolholder.
7. Make sure that the overhang on the toolholder is as short as possible. Too much overhang can result in chatter and tool breakage.
8. To prevent the workpiece from coming loose during use, be sure the workpiece is tight and secure in its holder.
9. Overloading of tungsten carbide cutting tools may cause fractures of these tools.
10. A slug may be ejected at high speeds during drilling.

To protect the operator and observer from possible flying objects which could result in severe injury, the following protective devices should be worn or used while using cutting tools:

1. Wear hard hats.
2. Wear safety glasses with side shields.
3. Wear closed shoes with steel toes.
4. Keep protective enclosure on machine in place during operation.

WARNING: Grinding or finishing carbide produces fine carbide and cobalt or nickel dust. This dust may cause injury to the lungs.

Operators and observers must take the following safety precautions to minimize the possibility of such injury:

1. Use with adequate ventilation.
2. Maintain the dust or mist level below recommended levels.
3. Avoid breathing dust or mist. If not possible, wear appropriate respirators, particularly when grinding tungsten carbide.
4. Minimize prolonged skin contact.
5. Wash hands thoroughly after handling.

WARNING: Use of cutting fluids and work materials create hazards. Be careful at all times.

1. Keep the cutting fluid clean so no particles can be carried back across the workpiece and possibly scratch it.
2. Cutting fluids may catch on fire when exposed to high temperatures generated during cutting.
3. Work materials such as aluminium, magnesium, uranium and titanium are flammable and could catch on fire.
4. Cutting fluids should be treated or replaced to reduce bacterial levels which may cause illness.

- WARNING -

Speeds, Feeds and Grade information within this catalog are for reference only. If the operator does not feel safe using our speeds, feeds and grades, then the operator should use what is comfortable to him or her. Canela Corporation is not responsible for any damage or injury that occurs using the speeds, feeds and grades information within catalog.

