

General Technical Information



Cemented Carbide products safety standard

1、 Safety responsibilities

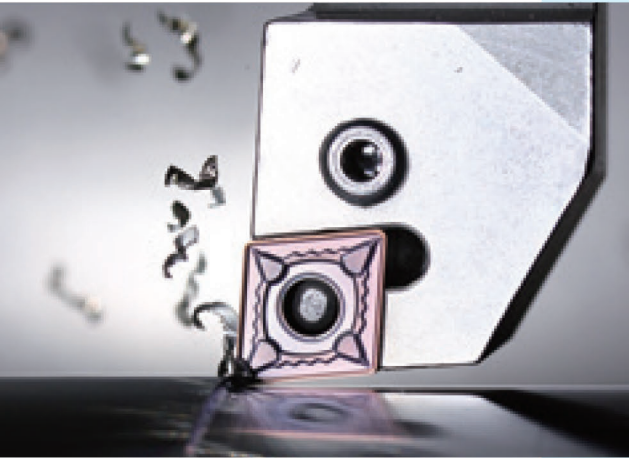
Before using ZCCCT products, please provide necessary safety training for operators, and carefully read the 'NOTE' and 'CAUTION' contents on the product package. We are not liable for any responsibility caused by not complying with the request for operation.

2、 Features of cemented carbide materials

Cemented carbide cutting tools are mainly composed of W, C, Co, N, Ti, Si, Al, O, etc elements and their chemical compound, and come into shape after sintering and a series of subsequent machining. Cemented carbide tool has good chemical stability and high strength. It is the ideal tool to cut most metals and high-strength nonmetals.

3、 Cautions for safely using cemented carbide tools

- 1) Cemented carbide is hard and frangible material, liable to brittle rupture and breakage due to larger force or partial stress, which causes sharp edge.
- 2) Most cemented carbide is mainly composed of W and Co with high density. In the process of transport and storage, it should be treated as great heavy object and be handled with care.
- 3) Cemented carbide and steel have different thermal expansion coefficients. To avoid breakage caused by concentrated stress, welding should be conducted under suitable temperature.
- 4) Cemented carbide tools should be stored in dry environment, away from corrosive atmosphere.
- 5) In the cutting process, it is unavoidable to generate chips and brittle discs, etc. Please make sure necessary labor protection articles are prepared before machining.
- 6) If coolant is needed in the cutting process, please select correct coolant to prolong machine and tool life.
- 7) If cracks are generated in the machining process, please stop using the tool.
- 8) Long use of cemented carbide tool will lead to cutting edge passivation and lower strength. Please make sure it is regrinded by professionals
- 9) Please collect the broken tools and chips properly to avoid injury to other people.



Cautions for safely using cutting tools

Danger	Protective measure
Direct contact with the sharp cutting edges may cause injuries.	Please use labor protection articles such as gloves when assembling or disassembling cutting tools on machine.
Improper use of tools may cause tool breakage and expulsion from machine, causing injuries.	Please read catalogue and safety standard before operating.
	Please wear safeguard glasses and protective clothes.
Rapid increase of cutting resistance due to excessive abrasion and severe impact may lead to breakage of tool and spatter of chips, thus cause injuries to operator.	Change the tool with excessive abrasion without delay.
	Please wear safeguard glasses and protective clothes.
In the cutting process, hot chips may cause scald and scratch on operator.	Please use tools such as pliers to clear away the chips in time.
	Please wear safeguard glasses and protective clothes.
In cutting process, sparks and hot chips may cause fire and explosion hazard.	Clear away the Inflammable and explosive materials in the cutting area.
	Please make sure the fire extinguishers are ready for use.
At high speed, the machine will vibrate severely because of poor balance of holder, causing tool breakage.	Check whether the machine is loose or has any abnormal noise before cutting.
	Please wear safeguard glasses and protective clothes.
Burrs on workpiece are very sharp and likely to cause injuries.	Do not touch the burrs on the workpiece with bare hand.
	Please wear protective gloves and clothes.
Machining workpiece held infirmly will cause tool breakage and spatter of workpiece.	Make sure the workpiece is clamped firmly.
	Please wear safeguard glasses and protective clothes.
If inserts or spare parts are not clamped properly, they may become loose and fly off, causing risk of injuries.	Make sure the inserts and spare parts are clamped firmly before machining.
If Inserts and tool are clamped too tightly with screw and clamp, they face the risk of breakage and spatter.	Please do not clamp tools too tightly with bushing.
Inserts or spare parts may fly off due to inertial centrifugal force at high cutting speed.	Use the tools within recommended cutting conditions.
	Please wear safeguard glasses and protective clothes.
Milling cutters have sharp cutting edges and direct contact with them may cause injuries.	For your safety, please wear protective gloves if you need to touch inserts.
During rotary cutting, clothes, gloves, etc. are easily to get wringed in the machine at high speed, thus cause casualties.	The operator should not wear gloves during rotary cutting.
	Please pay attention that the clothes should not contact the operational parts of machine.
Off-center or poor balance of tools in rotating machining will cause vibration, breakage and splash of tool, thus will cause injuries.	Please use the tools within the range of recommended rotating speed.
	Check and adjust machine balance periodically.
During cutting at high speed, the chips flying off rapidly may cause injuries.	Safeguard articles such as protective cover, screen, etc. should be used.
	Please wear safeguard glasses, protective clothes and gloves.
Using the extremely small drill is likely to cause tool breakage and spatter, and it would be hard to take out the broken part.	Reduce tool vibration and conduct machining at suitable speed.
	Please wear safeguard glasses, protective clothes and gloves.
Machine and tools may be damaged if they are used beside the range of specified purposes, thus may cause other risks.	Please use them strictly according to instructions and specified purposes.

Note: We are not responsible for any accidents caused by private modified tools without our permission.



Threading pre-hole diameter

● Metric common thread

Thread code	Recommended hole diameter (mm)
M3×0.5	2.5
M3.5×0.6	2.9
M4×0.7	3.3
M5×0.8	4.2
M6×1.0	5.0
M7×1.0	6.0
M8×1.25	6.75
M9×1.25	7.75
M10×1.5	8.5
M11×1.5	9.5
M12×1.75	10.25
M14×2.0	12.0
M16×2.0	14.0
M18×2.5	15.5
M20×2.5	17.5
M24×3.0	21.0
M27×3.0	24.0
M30×3.5	26.5

● Metric fine thread

Thread code	Recommended hole diameter (mm)	Thread code	Recommended hole diameter (mm)
M3×0.35	2.65	M14×1.5	12.5
M3.5×0.35	3.15	M14×1.0	13.0
M4×0.5	3.5	M15×1.5	13.5
M4.5×0.5	4.0	M15×1.0	14.0
M5×0.5	4.5	M16×1.5	14.5
M5.5×0.5	5.0	M16×1.0	15.0
M6×0.75	5.25	M17×1.5	15.5
M7×0.75	6.25	M17×1.0	16.0
M8×1.0	7.0	M18×2.0	16.0
M8×0.75	7.25	M18×1.5	16.5
M9×1.0	8.0	M18×1.0	17.0
M9×0.75	8.25	M20×2.0	18.0
M10×1.25	8.75	M20×1.5	18.5
M10×1.0	9.0	M20×1.0	19.0
M10×0.75	9.25	M22×2.0	20.0
M11×1.0	10.0	M22×1.5	20.5
M11×0.75	10.25	M22×1.0	21.0
M12×1.5	10.5	M24×2.0	22.0
M12×1.25	10.75	M24×1.5	22.5
M12×1.0	11.0	M24×1.0	23.0

Surface roughness

The surface roughness refers to the small space and unevenness from peak to valley on workpiece surface.

Surface roughness has close relationship with the matching property of machine elements, wear resistance, machining precision and corrosion resistance. It influences the reliability and life of machine and instrument.

Type	Code	Calculation method	Calculation example (figure)
Arithmetic average deviation of profile	Ra	<p>Within sampling length l, the arithmetic average absolute value of profile deviation is</p> $R_a = \frac{1}{l} \int_0^l y(x) dx$ <p>In the formula, the profile deviation y is the distance between profile points and reference line in the measuring direction. Reference line is the profile least-square average line O. This line divides the profile and makes the sum of squares of profile deviation to be the minimum within the sampling length.</p>	
Irregularity Ten-point height	Rz	<p>Within sampling length l, the sum of the average value of heights of five highest profile peak and the depths of five deepest profile valleys</p> $R_z = \frac{\sum_{i=1}^5 y_{pi} + \sum_{i=1}^5 y_{vi}}{5}$ <p>In the formula, y_{pi} means the height of the i'th highest profile peak. In the formula, y_{vi} means the depth of the i'th deepest profile valley. Maximum height of profile R_y: the distance between the top profile peak line and the bottom profile valley line in the longitudinal direction within the sampling length l.</p>	
Maximum height of profile	Ry	<p>The distance between the inner profile peak line and the bottom profile valley line in the longitudinal direction within the sampling length l. Top profile peak line is the line that parallels to the reference line and passes through the highest point of profile peak. Bottom profile line is the line that parallels to the reference line and passes through the lowest point of profile valley.</p>	

The value of sampling length l and evaluated length ln

$R_a / \mu m$	$R_z / \mu m$	l/mm	$ln=5l / mm$
$\geq 0.008 \sim 0.02$	$\geq 0.025 \sim 0.10$	0.08	0.4
$> 0.02 \sim 0.1$	$> 0.1 \sim 0.50$	0.25	1.25
$> 0.1 \sim 0.2$	$> 0.50 \sim 10.0$	0.8	4.0
$> 0.2 \sim 10.0$	$> 10.0 \sim 50.0$	2.5	12.5
$> 10.0 \sim 80.0$	$> 50 \sim 320$	8.0	40.0



GENERAL TECHNICAL INFORMATION

Material cross comparison table

Material cross comparison table

ISO	Country and Standard										
	China	USA	Germany		Great Britain		Sweden	France	Italy	Spain	Japan
	GB	AISI/SAE	W.-nr	DIN	BS	EN	SS	AFNOR	UNI	UNE	JIS
P	Structural steel										
	15	1015	1.0401	C15	080M15	-	1350	CC12	C15C16	F.111	-
	20	1020	1.0402	C22	050A20	2C	1450	CC20	C20C21	F.112	-
	35	1035	1.0501	C35	060A35	-	1550	CC35	C35	F.113	-
	45	1045	1.0503	C45	080M40	-	1650	CC45	C45	F.114	-
	55	1055	1.0535	C55	070M55	-	1655	-	C55	-	-
	60	1060	1.0601	C60	080A62	43D	-	CC55	C60	-	-
	Y15	1213	1.7015	9SMn28	230M07	-	1912	S250	CF9SMn28	11SMn28	SUM22
	-	12L13	1.0718	9SMnPb28	-	-	1914	S250Pb	CF9MnPb28	11SMnPb28	SUM22L
	-	-	1.0722	10SPb20	-	-	-	10PbF2	CF10Pb20	10SPb20	-
	-	1140	1.0726	35S20	212M36	8M	1957	35MF4	-	F210G	-
	Y13	1215	1.0736	9SMn36	240M07	1B	-	S300	CF9SMn36	12SMn35	-
	-	12L14	1.0737	9SMnPb36	-	-	1926	S300Pb	CF9SMnPb36	12SMnP35	-
	55Si2Mn	9255	1.0904	55Si9	250A53	45	2085	55S7	55Si8	56Si7	-
	-	9262	1.0961	60SiCr7	-	-	-	60SC7	60SiCr8	60SiCr8	-
	15	1015	1.1141	Ck15	080M15	32C	1370	XC12	C16	C15K	S15C
	40Mn	1039	1.1157	40Mn4	150M36	15	-	35M5	-	-	-
	25	1025	1.1158	Ck25	-	-	-	-	-	-	S25C
	35Mn2	1335	1.1167	36Mn5	-	-	2120	40Mn5	-	36Mn5	SMn438(H)
	30Mn	1330	1.1170	28Mn6	150M28	14A	-	20M5	C28Mn	-	SCMn1
	35Mn	1035	1.1183	Cf35	060A35	-	1572	XS38TS	C36	-	S35C
	Ck45	1045	1.1191	45	080M46	-	1672	XC42	C45	C45K	S45C
	55	1055	1.1203	Ck55	070M55	-	-	XC45	C50	C55K	S55C
	50	1050	1.1213	Cf53	060A52	-	1674	XC48TS	C53	-	S50C
	60Mn	1060	1.1221	Ck60	080A62	43D	1678	XC60	C60	-	S58C
	-	1095	1.1274	Ck101	060A96	-	1870	-	-	-	SUP4
	-	-	1.3401	X120Mn12	Z120M12	-	-	X120M12	XG120Mn12	X120Mn12	SCMnH/1
	Gr15;45Gr	52100	1.3505	100Cr6	534A99	31	2258	100C6	100Cr6	F.131	SUJ2
	-	ASTM A204Gr.A	1.5415	15Mo3	1501-240	-	2912	15D3	16Mo3KW	16Mo3	-
	-	4520	1.5426	16Mo5	1503-245-420	-	-	-	16Mo5	16Mo5	-
-	ASTM A350LF5	1.5622	14Ni6	-	-	-	16N6	14Ni6	15Ni6	-	
-	ASTM A353	1.5662	X8Ni9	1501-509;510	-	-	-	X10Ni9	XBNI09	-	

General technical information

ISO	Country and Standard										
	China	USA	Germany		Great Britain		Sweden	France	Italy	Spain	Japan
	GB	AISI/SAE	W.-nr	DIN	BS	EN	SS	AFNOR	UNI	UNE	JIS
P	Structural steel										
	-	2515	1.5680	12Ni19	-	-	-	Z18N5	-	-	-
	-	3135	1.5710	36NiCr6	640A35	111A	-	35NC6	-	-	SNC236
	-	3415	1.5732	14NiCr10	-	-	-	14NC11	16NiCr11	15NiCr11	SNC415(H)
	-	3415 3310	1.5752	14NiCr14	655M13 655A12	36A	-	12NC15	-	-	SNC815(H)
	-	9840	1.6511	36CrNiMo4	816M40	110	-	40NCD3	38CrNiMo4(KB)	35CrNiMo4	-
	-	8620	1.6523	21NiCrMo2	850M20	362	2503	20NCD2	20NiCrMo2	20NiCrMo2	SNCCM220(H)
	-	8740	1.6546	40NiCrMo2	311-Type7	-	-	-	40NiCrMo2(KB)	40NiCrMo2	SNC240
	40CrNiMoA	4340	1.6582	34CrNiMo6	817M40	24	2541	35NCD6	35CrNiMo6(KB)	-	-
	-	-	1.6587	17CrNiMo6	820A16	-	-	18NCD6	-	14CrNiMo13	-
	15Cr	5015	1.7015	15Cr3	523M15	-	-	12C3	-	-	SCr415(H)
	35Cr	5132	1.7033	34Cr4	530A32	18B	-	32C4	34Cr4(KB)	35Cr4	SCr430(H)
	40Cr	5140	1.7035	41Cr4	530M40	18	-	42C4	41Cr4	42Cr4	SCr440(H)
	40Cr	5140	1.7045	42Cr4	-	-	2245	-	-	42Cr4	SCr440
	18CrMn	5115	1.7131	16MnCr15	(527M20)	-	2511	16MC5	16MnCr15	16MnCr15	-
	20CrMn	5155	1.7176	55Cr3	527A60	48	-	55C3	-	-	SUP9(A)
	30CrMn	4130	1.7218	25CrMo4	1717CDS110	-	2225	25CD4	25CrMo4(KB)	55Cr3	SCM420; SCM430
	35CrMo	4137;4135	1.7220	34CrMo4	708A37	19B	2234	35CD4	35CrMo4	34CrMo4	SCM432; SCRRM3
	40CrMoA	4140;4142	1.7223	41CrMo4	708M40	19A	2244	42CD4TS	41CrMo4	41CrMo4	SCM440
	42CrMo 42CrMnMo	4140	1.7225	42CrMo4	708M40	19A	2244	42CD4	42CrMo4	42CrMo4	SCM440(H)
	-	-	1.7262	15CrMo5	-	-	2216	12CD4	-	12CrMo4	SCM415(H)
	-	ASTM A182 F11;F12	1.7335	13CrMo44	1501- 620Gr.27	-	-	15CD3.5; 15CD4.5	14CrMo44	14CrMo45	-
	-	-	1.7361	32CrMo12	722M24	40B	2240	30CD12	32CrMo12	F.124.A	-
	-	ASTM A182 F.22	1.7380	10CrMo910	1501- 622Gr.31;45	-	2218	12CD9;10	12CrMo9,10	TU.H	-
	-	-	1.7715	14MoV63	1503-660-440	-	-	-	-	13MoCrV6	-
	50CrVA	6150	1.8159	50CrV4	735A50	47	2230	50CV4	50CrV4	51CrV4	SUP10
-	-	1.8509	41CrAlMo7	905M39	41B	2940	40CAD6,12	41CrAlMo7	41CrAlMo7	-	
-	-	1.8523	39CrMoV139	897M39	40C	-	-	36CrMoV12	-	-	



GENERAL TECHNICAL INFORMATION

Material cross comparison table

ISO	Country and Standard										
	China	USA	Germany		Great Britain		Sweden	France	Italy	Spain	
	GB	AISI/SAE	W.-nr	DIN	BS	EN	SS	AFNOR	UNI	UNE	
P	Tool steel										
	T10	W.110	1.1545	C105W1	-	-	1880	Y1105	C98KU C100KU	F.515 F.516	
	T12A	W.112	1.1663	C125W	-	-	-	Y2120	C120KU	(C120)	SK2
	CrV;9SiCr	L3	1.2067	100Cr6	BL3	-	-	Y100C6	-	100Cr6	-
	Cr12	D3	1.2080	X210Cr12	BD3	-	-	Z200Cr12	X210Cr13KU X250Cr12KU	X210Cr12	SKD1
	4Cr5MoVSi	H13	1.2344	X40CrMoV5 1	BH13	-	2242	Z40CDV5	X35CrMoV05KU X40CrMoV51KU	X40CrMoV5	SKD61
	Cr6WV	A2	1.2363	X100CrMoV5 1	BA2	-	2260	Z100CDV5	X100CrMoV51KU	X100CrMoV5	SKD12
	CrWMo	-	1.2419	105WCr6	-	-	2140	105WC13	10WCr6 107WCr5KU	105WCr5	SKS31 SKS2 SKS3
	Cr12W	-	1.2436	X210CrW12	-	-	2312	-	X215CrW12 1KU	X210CrW12	SKD2
	5CrNiMo	S1	1.2542	45WCrV7	BS1	-	2710	-	45WCrV8KU	45WCrSi8	-
	3Cr2W8V	H21	1.2581	X30WCrV9 3 X30WCrV93KU	BH21	-	-	Z30WCV9	X28W09KU X30WCrV9 3KU	X30WCrV9	SKD5
	Cr12MoV	-	1.2601	X165CrMoV 12	-	-	2310	-	X165CrMoW12KU	X160CrMoV12	SKD11
	5CrNiMo	L6	1.2713	55NiCrMoV6	-	-	-	55NCDV7	-	F.250.S	SKT4
	V	W210	1.2833	100V1	BW2	-	-	Y1105V	-	-	SKS43
	W6Mo5Cr4V2Co5	-	1.3243	S6-5-2-5	-	-	2723	Z85WDCV	HS6-5-2-5	HS6-5-2-5	SKH55
	W18Cr4VCo5	T4	1.3255	S18-1-2-5	BT4	-	-	Z80WKC 10-05-04-01	X78WCo1805KU	HS18-1-1-5	SKH3
	W6Mo5Cr4V2	M2	1.3343	S6-5-2	BM2	-	2722	Z85WDCV 06-05-04-02	X82WMMo0605KU	HS6-5-2	SKH9
	-	M7	1.3348	S2-9-2	-	-Z-	2782	Z100WCWV 09-02-04-02	HS2-9-2	HS2-9-2	-
	W18Cr4V	T1	1.3355	S18-0-1	BT1	-	-	Z80WCV 18-04-01	X75W18KU	HS18-0-1	SKH2
	W6Mo5Cr4V3	M3	-	S6-5-3	-	-	-	-	-	-	SKH52
-	M42	-	-	BM42	-	-	-	-	-	SKH59	

ISO	Country and Standard					Main application
	China	USA	Germany	Japan	Daido Steel Co., Ltd (Japan)	
	GB	AISI/SAE	DIN	JIS	DAIDO	
P	Plastic die steel					
	-	P20 mod.		-	PX5N	For mass production of large mirror dies. Automobile rear light, front fender of car, video camera, household electrical appliances etc
	-	-		-	NAK55	For high-precision mirror die. Video camera, music disc, cosmetic containers, transparent covers, transparent films etc
	-	-		-	NAK80	For high-precision mirror dies. Video camera, music disc, cosmetic containers, transparent covers, transparent films etc
	3Cr13	420 mod.		SUS420J2 mod.	S-STAR	For ultra-mirror corrosion resistant precise dies. Accessories of camera, CD, lens, watch case
	Cold-working die steel					
	-	02	-	SKS93	YK30	Stamping die, gauge calipers, paper cutter, auxiliary tools
	9CrWMn	01 mod.	-	SKS3 mod.	GOA	Blanking die, gauge calipers, drawing die, taps, Perforated punch
	Cr12MoV	D2	X165CrMoV12	SKD11	DC11	Blanking die, cold forming die, cold drawing die, forming roller, punch
	-	D2 mod.	-	SKD11 mod.	DC53	Blanking die, cold forming die, cold drawing die, forming roll, punch
	Hot-working die steel					
	4Cr5MoSiV1	H13	X40CrMoV51	SKD61	DHA1	Aluminum compression die, connecting parts of compression die, hot stamping die, hot extrusion die, thermal shear cutting blade
	-	-	-	-	DH21	Long life aluminum compression die
	-	-	-	-	DH31-S	Large compression die
	-	-	-	-	DH2F	Compression die, plastic die



GENERAL TECHNICAL INFORMATION

Material cross comparison table

ISO	Country and Standard										
	China	USA	Germany		Great Britain		Sweden	France	Italy	Spain	Japan
	GB	AISI/ SAE	W.-nr	DIN	BS	EN	SS	AFNOR	UNI	UNE	JIS
M	Stainless steel										
	0Cr13; 1Cr12	403	1.4000	X6Cr13	403S17	-	2301	Z6C13	X6Cr13	F.3110	SUS403
	-	-	1.4001	X7Cr14	-	-	-	-	-	F.8401	-
	1Cr13	410	1.4006	X10Cr13	410S21	56A	2302	Z10C14	X12Cr13	F.3401	SUS410
	1Cr17	430	1.4016	X6Cr17	430S15	60	220	Z8C17	X8Cr17	F.3113	SUS430
	2Cr13	410	1.4021	X20Cr13	S62	56B; 56C	-	Z20C13	X20C13	F.3401	SUS410
	-	-	1.4027	G-X20Cr14	420C29	56B	-	Z20C13M	-	-	SCS2
	4Cr13	-	1.4034	X46Cr13	420S45	56D	2304	Z40CM Z38C13M	X40Cr14	F.3405	SUS420J2
	1Cr17Ni2	431	1.4057	X20CrNi172	431S29	57	2321	Z15CNi6.02	X16CNi16	F.3427	SUS431
	Y1Cr17	430F	1.4104	X12CrMoS17	-	-	2383	Z10CF17	X10CrS17	F.3117	SUS430F
	1Cr17Mo	434	1.4113	X6CrMo171	434S17	-	2325	Z8CD17.01	X8CrMo17	-	SUS434
	-	-	1.4313	X5CrNi134	425C11	-	-	Z4CND13.4M	-	-	SCS5
	-	-	1.4408	G-X6CrNiMo1810	316C16	-	-	-	-	F.8414	SCS14
	4Cr9Si2	HW3	1.4718	X45CrSi93	401S45	52	-	Z45CS9	X45CrSi8	F.322	SUH1
	0Cr13Al	405	1.4724	X10CrAl13	403S17	-	-	Z10C13	X10CrAl12	F.311	SUS405
	Cr17	430	1.4742	X10CrAl18	430S15	60	-	Z10CAS18	X8Cr17	F.3113	SUS430
	8Cr20Si2Ni	HNV6	1.4757	X80CrNiSi20	443S65	59	-	Z80CSN20.02	X80CrSiNi20	F.320V	SUH4
	2Cr25N	446	1.4762	X10CrAl24	-	-	2322	Z10CAS24	X16Cr26	-	SUH446
	Austenitic stainless steel										
	0Cr18Ni9	304	1.4301	X5CrNi1810	304S15	58E	2332	Z6CN18.09	X5CrNi1810	F.3551; F.3541; F.3504	SUS304
	1Cr18Ni9MoZr	303	1.4305	X10CrNiS189	303S21	58M	2346	Z10CNF18.09	X10CrNiS18.09	F.3508	SUS303
	0Cr19Ni10	304L	1.4306	X2CrNi1911	304S12	-	2352	Z2CN18.10	X2CrNi18.11	F.3503	SCS19
	-	-	1.4308	G-X6CrNi189	304C15	-	-	Z6CN18.10M	-	-	SCS13
	Cr17Ni7	301	1.4310	X12CrNi177	-	-	2331	Z12CN17.07	X12CrNi1707	F.3517	SUS301
	-	304LN	1.4311	X2CrNiN1810	304S62	-	2371	Z2CN18.10	-	-	SUS304LN
	0Cr19Ni9	304	1.4350	X5CrNi189	304S31	58E	-	Z6CN18.09	X5CrNi1810	-	SUS304
	0Cr17Ni11Mo2	316	1.4401	X5CrNiMo1712	316S16	Z6CND17.11	2347	1.4401	X5CrNiMo1712	F.3543	SUS316
	00Cr17Ni13Mo2	316LN	1.4429	X2CrNiMoN17133	-	-	2375	Z2CND17.13	-	-	SUS316LN
	0Cr27Ni12Mo3	316L	1.4435	X2CrNiMo18143	316S12	-	2353	Z2CDN17.13	X2CrNiMo1713	-	SCS16,
	00Cr19Ni13Mo3	317L	1.4438	X2CrNiMo17133	317S12	-	2367	Z2CND19.15	X2CrNiMo18.16	-	SUS317L
	-	329L	1.4460	X8CrNiMo275	-	-	2324	-	-	-	SUS329L; SCH11; SCS11
	1Cr18Ni9Ti	321	1.4541	X6CrNiTi1810	2337	321S12	58B	Z6CNT18.10	X6CrNiTi1811	F.3553	SUS321
1Cr18Ni11Nb	347	1.4550	X6CrNiNb1810	347S17	58F	2338	Z6CNNb18.1	X6CrNiTi1811	F.3552	SUS347	
Cr18Ni12Mo2Ti	316Ti	1.4571	X6CrNiMoTi17122	320S17	58J	2350	Z6NDT17.12	X6CrNiMoTi17	F.3535	-	

ISO	Country and Standard										
	China	USA	Germany		Great Britain		Sweden	France	Italy	Spain	Japan
	GB	AISI/ SAE	W.-nr	DIN	BS	EN	SS	AFNOR	UNI	UNE	JIS
M	Austenitic stainless steel										
	-	-	1.4581	G-X5CrNiMoNb1810	318C7	-	-	Z4CNDNb1812M	XG8CrNiMo18	-	SCS22
	Cr17Ni12Mo3Nb	318	1.4583	X10CrNiMoNb1812	-	-	-	Z6CNDNb1713B	X6CrNiMoTiNb17	-	-
	1Cr23Ni13	309	1.4828	X15CrNiSi2012	309S24	-	-	Z15CNS20.1	-	-	SUH309
	0Cr25Ni20	310S	1.4845	X12CrNi2521	310S24	-	2361	Z12CN2520	X6CrNi2520	F.331	SUH310
	Cr15Ni36W3Ti	330	1.4864	X12NiCrSi3616	-	-	-	Z12CNS35.1	-	-	SUH330
	-	-	1.4865	G-X40NiCrSi3818	330C11	-	-	-	XG50NiCr3919	-	SCH15
	5Cr2Mn9Ni4N	EV8	1.4871	X53CrMnNiN219	349S54; 321S12	- 58B	-	Z52CMN21.0	X53CrMnNiN219	-	SUH35
	1Cr18Ni9Ti	321	1.4878	X12CrNiTi189	321S320	58C	-	Z6CNT18.12	X6CrNiTi1811	F.3523	SU321

ISO	Country and Standard									
	China	USA	Germany	Great Britain	Sweden	France	Italy	Spain	Japan	
K	Nodular cast iron									
	QT400-18	60-40-18	GGG40	400/17	0717-02	FGS370-17	GS370-17	FGE38-17	FCD400	
	QT450-10	65-45-12	--	420/12	--	FGS400-12	GS400-12	FGE42-12	FCD450	
	QT500-7	70-50-05	GGG50	500/7	0727-02	FGS500-7	GS500-7	FGE50-7	FCD500	
	QT600-3	80-60-03	GGG60	600/7	0732-03	FGS600-2	GS600-2	FGE60-2	FCD600	
	QT700-2	100-70-03	GGG70	700/2	0737-01	FGS700-2	GS700-2	FGE70-2	FCD700	
	QT800-2	120-90-02	GGG80	800/2	0864-03	FGS800-2	GS800-2	FGE80-2	FCD800	
	QT900-2	--	--	900/2	--	--	--	--	--	
	Grey cast iron									
	--	NO.60	GG40	--	0140	FGL400	--	--	--	
	HT350	NO.50	GG35	350	0135	FGL350	G35	FG35	FC350	
	HT300	NO.45	GG30	300	0130	FGL300	G30	FG30	FC300	
	HT250	NO.35	GG25	250	0125	FGL250	G25	FG25	FC250	
	HT200	NO.30	GG20	200	0120	FGL200	G20	FG20	FC200	
	HT150	NO.20	GG15	150	0115	FGL150	G15	FG15	FC150	
	HT100	--	--	100	0110	--	G10	--	FC100	



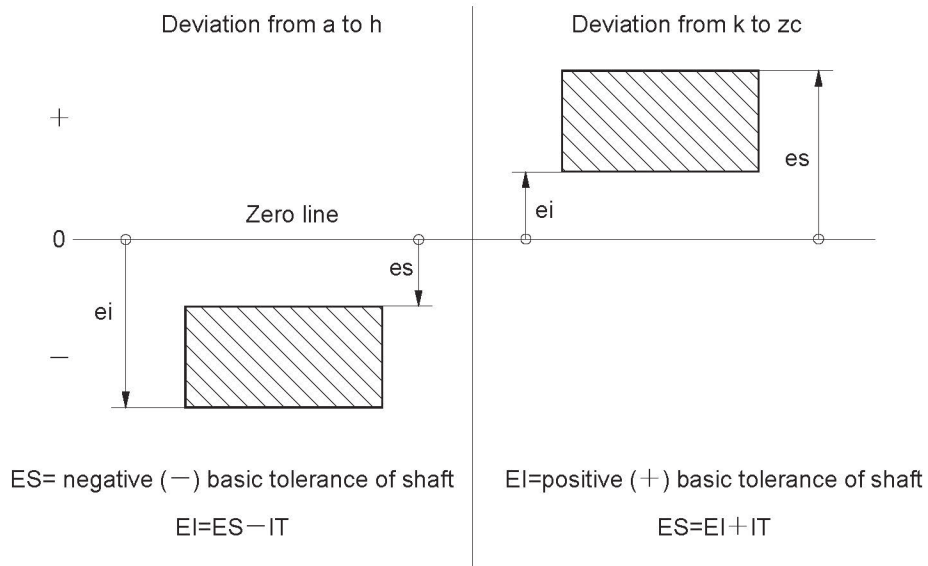
Tolerance of fitting dimensions

Basic dimensions mm		Standard tolerance class																	
		IT1	IT2	IT3	IT4	IT5	IT6	IT7	IT8	IT9	IT10	IT11	IT12	IT13	IT14	IT15	IT16	IT17	IT18
Min(>)	Max(≤)	µm											mm						
---	3	0.8	1.2	2	3	4	6	10	14	25	40	60	0.1	0.14	0.25	0.4	0.6	1	1.4
3	6	1	1.5	2.5	4	5	8	12	18	30	48	75	0.12	0.18	0.3	0.48	0.75	1.2	1.8
6	10	1	1.5	2.5	4	6	9	15	22	36	58	90	0.15	0.22	0.36	0.58	0.9	1.5	2.2
10	18	1.2	2	3	5	8	11	18	27	43	70	110	0.18	0.27	0.43	0.7	1.1	1.8	2.7
18	30	1.5	2.5	4	6	9	13	21	33	52	84	130	0.21	0.33	0.52	0.84	1.3	2.1	3.3
30	50	1.5	2.5	4	7	11	16	25	39	62	100	160	0.25	0.39	0.62	1	1.6	2.5	3.9
50	80	2	3	5	8	13	19	30	46	74	120	190	0.3	0.46	0.74	1.2	1.9	3	4.6
80	120	2.5	4	6	10	15	22	35	54	87	140	220	0.35	0.54	0.87	1.4	2.2	3.5	5.4
120	180	3.5	5	8	12	18	25	40	63	100	160	250	0.4	0.63	1	1.6	2.5	4	6.3
180	250	4.5	7	10	14	20	29	46	72	115	185	290	0.46	0.72	1.15	1.85	2.9	4.6	7.2
250	315	6	8	12	16	23	32	52	81	130	210	320	0.52	0.81	1.3	2.1	3.2	5.2	8.1
315	400	7	9	13	18	25	36	57	89	140	230	360	0.57	0.89	1.4	2.3	3.6	5.7	8.9
400	500	8	10	15	20	27	40	63	97	155	250	400	0.63	0.97	1.55	2.5	4	6.3	9.7
500	630	9	11	16	22	32	44	70	110	175	280	440	0.7	1.1	1.75	2.8	4.4	7	11
630	800	10	13	18	25	36	50	80	125	200	320	500	0.8	1.25	2	3.2	5	8	12.5
800	1000	11	15	21	28	40	56	90	140	230	360	560	0.9	1.4	2.3	3.6	5.6	9	14
1000	1250	13	18	24	33	47	66	105	165	260	420	660	1.05	1.65	2.6	4.2	6.6	10.5	16.5
1250	1600	15	21	29	39	55	78	125	195	310	500	780	1.25	1.95	3.1	5	7.8	12.5	19.5
1600	2000	18	25	35	46	65	92	150	230	370	600	920	1.5	2.3	3.7	6	9.2	15	23
2000	2500	22	30	41	55	78	110	175	280	440	700	1100	1.75	2.8	4.4	7	11	17.5	28
2500	3150	26	36	50	68	96	135	210	330	540	860	1350	2.1	3.3	5.4	8.6	13.5	21	33

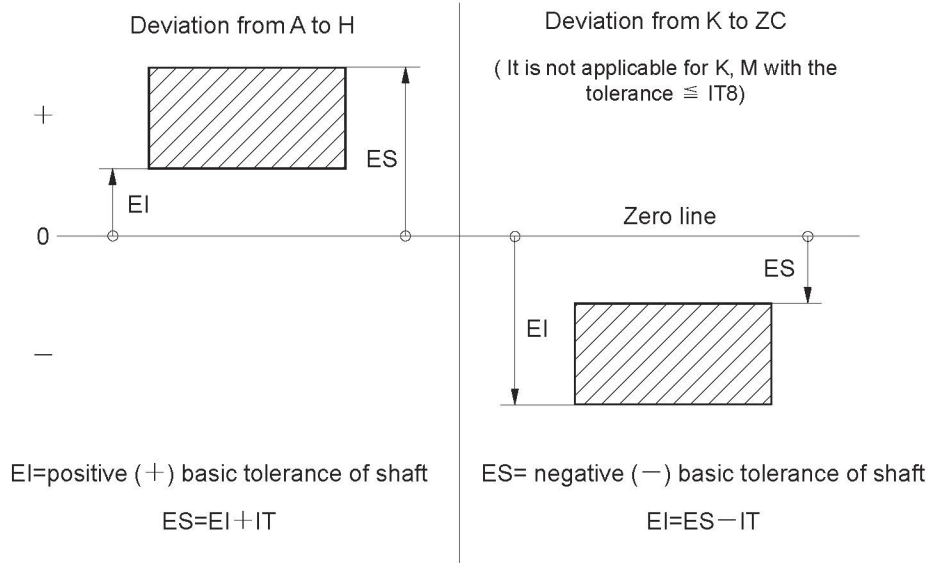
Note:

1. From IT1 to IT5, the standard tolerance with basic dimension more than 500 mm is on trial.
2. When the basic dimension ≤ 1 mm, the tolerances from IT4 to IT8 are invalid.

The shaft lower deviation(e_i) and upper deviation (e_s) can be obtained by basic tolerance and standard tolerance (IT) of shaft.



The hole lower deviation(E_i) and upper deviation (E_s) can be obtained by basic tolerance and standard tolerance (IT) of hole.



For example: for a hole with diameter 3 mm and tolerance H7, we can find that the lower deviation $E_i=0$ in relation to H7 from the basic tolerance table, and the standard tolerance $IT=10\mu\text{m}$ corresponding to H7, thus the upper deviation $ES=E_i+IT=10\mu\text{m}$. Therefore the hole fitting dimension is $\varnothing 3 \begin{smallmatrix} +0.01 \\ 0 \end{smallmatrix}$ mm.



GENERAL TECHNICAL INFORMATION

Tolerance of fitting dimensions

Basic deviations value of shaft

Dimensions (mm)		Basic deviation value											js
		Upper deviation es											
		Standard tolerance class											
Min(>)	Max(≤)	a	b	c	cd	d	e	ef	f	fg	g	h	In the formula Deviation = ± $\frac{IT_n}{2}$, IT _n is the IT value corresponding to 'n'.
---	3	-270	-140	-60	-34	-20	-14	-10	-6	-4	-2	0	
3	6	-270	-140	-70	-46	-30	-20	-14	-10	-6	-4	0	
6	10	-280	-150	-80	-56	-40	-25	-18	-13	-8	-5	0	
10	14	-290	-150	-95		-50	-32		-16		-6	0	
14	18												
18	24	-300	-160	-110		-65	-40		-20		-7	0	
24	30												
30	40	-310	-170	-120		-80	-50		-25		-9	0	
40	50	-320	-180	-130									
50	65	-340	-190	-140		-100	-60		-30		-10	0	
65	80	-360	-200	-150									
80	100	-380	-220	-170		-120	-72		-36		-12	0	
100	120	-410	-240	-180									
120	140	-460	-260	-200									
140	160	-520	-280	-210		-145	-85		-43		-14	0	
160	180	-580	-310	-230									
180	200	-660	-340	-240									
200	225	-740	-380	-260		-170	-100		-50		-15	0	
225	250	-820	-420	-280									
250	280	-920	-480	-300									
280	315	-1050	-540	-330		-190	-110		-56		-17	0	
315	355	-1200	-600	-360									
355	400	-1350	-680	-400		-210	-125		-62		-18	0	
400	450	-1500	-760	-440									
450	500	-1650	-840	-480		-230	-135		-68		-20	0	
500	560												
560	630					-260	-145		-76		-22	0	
630	710												
710	800					-290	-160		-80		-24	0	
800	900												
900	1000					-320	-170		-86		-26	0	
1000	1120												
1120	1250					-350	-195		-98		-28	0	
1250	1400												
1400	1600					-390	-220		-110		-30	0	
1600	1800												
1800	2000					-430	-240		-120		-32	0	
2000	2240												
2240	2500					-480	-260		-130		-34	0	
2500	2800												
2800	3150					-520	-290		-145		-38	0	

Note: 1. If basic dimension ≤ 1mm, the basic deviation a and b are not adopted.

2. Within the range from js7 to js11, if the value of IT_n is odd number, then the final deviation = ± $\frac{IT_n - 1}{2}$.



µm

Basic deviation value																		
Lower deviation <i>e</i> i																		
IT5 IT6	IT7	IT8	IT4 IT7	\leq IT3 $>$ IT7	Standard tolerance class													
j			k		m	n	p	r	s	t	u	v	x	y	z	zn	zb	zc
-2	-4	-6	0	0	+2	+4	+6	+10	+14		+18		+20		+26	+32	+40	+60
-2	-4		+1	0	+4	+8	+12	+15	+19		+23		+28		+35	+42	+50	+80
-2	-5		+1	0	+6	+10	+15	+19	+23		+28		+34		+42	+52	+67	+97
-3	-6		+1	0	+7	+12	+18	+23	+28		+33		+40		+50	+64	+90	+130
											+39	+45		+60	+77	+108	+150	
-4	-8		+2	0	+8	+15	+22	+28	+35		+41	+47	+54	+63	+73	+98	+136	+188
										+41	+48	+55	+64	+75	+88	+118	+160	+218
-5	-10		+2	0	+9	+17	+26	+34	+43		+48	+60	+68	+80	+94	+112	+148	+200
										+48	+60	+68	+80	+94	+112	+148	+200	+274
										+54	+70	+81	+97	+114	+136	+180	+242	+325
-7	-12		+2	0	+11	+20	+32	+41	+53	+66	+87	+102	+122	+144	+172	+226	+300	+405
								+43	+59	+75	+102	+120	+146	+174	+210	+274	+360	+480
-9	-15		+3	0	+13	+23	+37	+51	+71	+91	+124	+146	+178	+214	+258	+335	+445	+585
								+54	+79	+104	+144	+172	+210	+254	+310	+400	+525	+690
-11	-18		+3	0	+15	+27	+43	+63	+92	+122	+170	+202	+248	+300	+365	+470	+620	+800
								+65	+100	+134	+190	+228	+280	+340	+415	+535	+700	+900
								+68	+108	+146	+210	+252	+310	+380	+465	+600	+780	+1000
-13	-21		+4	0	+17	+31	+50	+77	+122	+166	+236	+284	+350	+425	+520	+670	+880	+1150
								+80	+130	+180	+258	+310	+385	+470	+575	+740	+960	+1250
								+84	+140	+196	+284	+340	+425	+520	+640	+820	+1050	+1350
-16	-26		+4	0	+20	+34	+56	+94	+158	+218	+315	+385	+475	+580	+710	+920	+1200	+1550
								+98	+170	+240	+350	+425	+525	+650	+790	+1000	+1300	+1700
-18	-28		+4	0	+21	+37	+62	+108	+190	+268	+390	+475	+590	+730	+900	+1150	+1500	+1900
								+114	+208	+294	+435	+530	+660	+820	+1000	+1300	+1650	+2100
-20	-32		+5	0	+23	+40	+68	+126	+232	+330	+490	+595	+740	+920	+1100	+1450	+1850	+2400
								+132	+252	+360	+540	+660	+820	+1000	+1250	+1600	+2100	+2600
			0	0	+26	+44	+78	+150	+280	+400	+600							
								+155	+310	+450	+660							
			0	0	+30	+50	+88	+175	+340	+500	+740							
								+185	+380	+560	+840							
			0	0	+34	+56	+100	+210	+430	+620	+940							
								+220	+470	+680	+1050							
			0	0	+40	+66	+120	+250	+520	+780	+1150							
								+260	+580	+840	+1300							
			0	0	+48	+78	+140	+300	+640	+960	+1450							
								+330	+720	+1050	+1600							
			0	0	+58	+92	+170	+370	+820	+1200	+1850							
								+400	+920	+1350	+2000							
			0	0	+68	+110	+195	+440	+1000	+1500	+2300							
								+460	+1100	+1650	+2500							
			0	0	+76	+135	+240	+550	+1250	+1900	+2900							
								+580	+1400	+2100	+3200							

General technical information



GENERAL TECHNICAL INFORMATION

Tolerance of fitting dimensions

Basic deviations value of hole

Dimensions (mm)		Basic deviation value																						
		Lower deviation EI												Upper deviation ES										
		Standard tolerance class												IT6	IT7	IT8	≤IT8	>IT8	≤IT8	>IT8	≤IT8	>IT8	≤IT7	
Min(>)	Max(≤)	A	B	C	CD	D	E	EF	F	FG	G	H	JS	J	K	M	N	P to ZC						
---	3	+270	+140	+60	+34	+20	+14	+10	+6	+4	+2	0		+2	+4	+6	0	0	-2	-2	-4	-4		
3	6	+270	+140	+70	+46	+30	+20	+14	+10	+6	+4	0		+5	+6	+10	-1+Δ		-4+Δ	-4	-8+Δ	0		
6	10	+280	+150	+80	+56	+40	+25	+18	+13	+8	+5	0		+5	+8	+12	-1+Δ		-6+Δ	-6	-10+Δ	0		
10	14	+290	+150	+95		+50	+32		+16		+6	0		+6	+10	+15	-1+Δ		-7+Δ	-7	-12+Δ	0		
14	18																							
18	24	+300	+160	+110		+65	+40		+20		+7	0		+8	+12	+20	-2+Δ		-8+Δ	-8	-15+Δ	0		
24	30																							
30	40	+310	+170	+120		+80	+50		+25		+9	0		+10	+14	+24	-2+Δ		-9+Δ	-9	-17+Δ	0		
40	50	+320	+180	+130																				
50	65	+340	+190	+140		+100	+60		+30		+10	0		+13	+18	+28	-2+Δ		-11+Δ	-11	-20+Δ	0		
65	80	+360	+200	+150																				
80	100	+380	+220	+170		+120	+72		+36		+12	0		+16	+22	+34	-3+Δ		-13+Δ	-13	-23+Δ	0		
100	120	+410	+240	+180																				
120	140	+460	+260	+200		+145	+85		+43		+14	0		+18	+26	+41	-3+Δ		-15+Δ	-15	-27+Δ	0		
140	160	+520	+280	+210																				
160	180	+580	+310	+230		+170	+100		+50		+15	0		+22	+30	+47	-4+Δ		-17+Δ	-17	-31+Δ	0		
180	200	+660	+340	+240																				
200	225	+740	+380	+260		+190	+110		+56		+17	0		+25	+36	+55	-4+Δ		-20+Δ	-20	-34+Δ	0		
225	260	+820	+420	+280																				
260	280	+920	+480	+300		+210	+125		+62		+18	0		+29	+39	+60	-4+Δ		-21+Δ	-21	-37+Δ	0		
280	315	+1050	+540	+330																				
315	355	+1200	+600	+360		+230	+135		+68		+20	0		+33	+43	+66	-5+Δ		-23+Δ	-23	-40+Δ	0		
355	400	+1350	+680	+400																				
400	450	+1500	+760	+440		+260	+145		+76		+22	0								-26	-44			
450	500	+1650	+840	+480																				
500	560					+290	+160		+80		+24	0								-30	-50			
560	630																							
630	710					+320	+170		+86		+26	0								-34	-56			
710	800																							
800	900					+350	+195		+98		+28	0								-40	-66			
900	1000																							
1000	1120					+390	+220		+110		+30	0								-48	-78			
1120	1250																							
1250	1400					+430	+240		+120		+32	0								-58	-92			
1400	1600																							
1600	1800					+480	+260		+130		+34	0								-68	-110			
1800	2000																							
2000	2240					+520	+290		+145		+38	0								-76	-135			
2240	2500																							
2500	2800																							
2800	3150																							

In the formula Deviation = ± $\frac{IT_n}{2}$, IT_n is the IT value corresponding to 'n'.

if IT ≥ IT7, add a Δ value to the relevant value

- Note: 1. If basic dimension ≤1mm, the basic deviation A and B are not adopted, so is the N when IT ≥ IT8.
2. Within the range from JS7 to JS11, if the value of IT_n is odd number, then the final deviation = ± $\frac{IT_{n-1}}{2}$.
3. Regarding to the K, M, N with IT ≤ IT8 or the P to ZC with IT ≤ IT7, the Δ value can be selected from the right-side sheet.
For example:, within the range 8~30mm of K7, Δ=8μm, therefore ES=-2+8=+6μm within the range 18~30mm of S6: Δ=4μm, therefore ES=-35+4=-31μm.
4. Special cases: within the range 250~315mm of M5, ES=-9μm (instead -11μm).

General technical information

μm

Basic deviation value												Δ					
Upper deviationES																	
Standard tolerance class >IT7												Standard tolerance class					
P	R	S	T	U	V	X	Y	Z	ZA	ZB	ZC	IT3	IT4	IT5	IT6	IT7	IT8
-6	-10	-14		-18		-20		-26	-32	-40	-60	0	0	0	0	0	0
-12	-15	-19		-23		-28		-35	-42	-50	-80	1	1.5	1	3	4	6
-15	-19	-23		-28		-34		-42	-52	-67	-97	1	1.5	2	3	6	7
-18	-23	-28		-33		-40		-50	-64	-90	-130	1	2	3	3	7	9
					-39	-45	-60	-77	-108	-150							
-22	-28	-35		-41	-47	-54	-63	-73	-98	-136	-188	1.5	2	3	4	8	12
			-41	-48	-55	-64	-75	-88	-118	-160	-218						
-26	-34	-43		-48	-60	-68	-80	-94	-112	-148	-200	1.5	3	4	5	9	14
			-54	-70	-81	-97	-114	-136	-180	-242	-325						
-32	-41	-53	-66	-87	-102	-122	-144	-172	-226	-300	-405	2	3	5	6	11	16
	-43	-59	-75	-102	-120	-146	-174	-210	-274	-360	-480						
-37	-51	-71	-91	-124	-146	-178	-214	-258	-335	-445	-585	2	4	5	7	13	19
	-54	-79	-104	-144	-172	-210	-254	-310	-400	-525	-690						
-43	-63	-92	-122	-170	-202	-248	-300	-365	-470	-620	-800	3	4	6	7	15	23
	-65	-100	-134	-190	-228	-280	-340	-415	-535	-700	-900						
	-68	-108	-146	-210	-252	-310	-380	-465	-600	-780	-1000						
-50	-77	-122	-166	-236	-284	-350	-425	-520	-670	-880	-1150	3	4	6	9	17	26
	-80	-130	-180	-258	-310	-385	-470	-575	-740	-960	-1250						
	-84	-140	-196	-284	-340	-425	-520	-640	-820	-1050	-1350						
-56	-94	-158	-218	-315	-385	-475	-580	-710	-920	-1200	-1550	4	4	7	9	20	29
	-98	-170	-240	-350	-425	-525	-650	-790	-1000	-1300	-1700						
-62	-108	-190	-268	-390	-475	-590	-730	-900	-1150	-1500	-1900	4	5	7	11	21	32
	-114	-208	-294	-435	-530	-660	-820	-1000	-1300	-1650	-2100						
-68	-126	-232	-330	-490	-595	-740	-920	-1100	-1450	-1850	-2400	5	5	7	13	23	34
	-132	-252	-360	-540	-660	-820	-1000	-1250	-1600	-2100	-2600						
-78	-150	-280	-400	-600													
	-155	-310	-450	-660													
-88	-175	-340	-500	-740													
	-185	-380	-560	-840													
100	-210	-430	-620	-940													
	-220	-470	-680	-1050													
-120	-250	-520	-780	-1150													
	-260	-580	-840	-1300													
-140	-300	-640	-960	-1450													
	-330	-720	-1050	-1600													
-170	-370	-820	-1200	-1850													
	-400	-920	-1350	-2000													
-195	-440	-1000	-1500	-2300													
	-460	-1100	-1650	-2500													
-240	-550	-1250	-1900	-2900													
	-580	-1400	-2100	-3200													



GENERAL TECHNICAL INFORMATION

Hardness reference table

Hardness reference table (conversion of hardness and strength for ferrous metal)

Hardness				Tensile strength N/mm ²	Hardness				Tensile strength N/mm ²
Rockwell hardness		Vickers hardness	Brinell hardness		Rockwell hardness		Vickers hardness	Brinell hardness	
HRC	HRA	HV	HB		HRC	HRA	HV	HB	
70.0	86.6	1037	—	—	51.0	76.3	525	501	1780
69.5	86.3	1017	—	—	50.5	76.1	517	494	1750
69.0	86.1	997	—	—	50.0	75.8	509	488	1720
68.5	85.8	978	—	—	49.5	75.5	501	481	1690
68.0	85.5	959	—	—	49.0	75.3	493	474	1660
67.5	85.2	941	—	—	48.5	75.0	485	468	1630
67.0	85.0	923	—	—	48.0	74.7	478	461	1605
66.5	84.7	906	—	—	47.5	74.5	470	455	1575
66.0	84.4	889	—	—	47.0	74.2	463	449	1550
65.5	84.1	872	—	—	46.5	73.9	456	442	1525
65.0	83.9	856	—	—	46.0	73.7	449	436	1500
64.5	83.6	840	—	—	45.5	73.4	443	430	1475
64.0	83.3	825	—	—	45.0	73.2	436	424	1450
63.5	83.1	810	—	—	44.5	72.9	429	418	1430
63.0	82.8	795	—	—	44.0	72.6	423	413	1405
62.5	82.5	780	—	—	43.5	72.4	417	407	1385
62.0	82.2	766	—	—	43.0	72.1	411	401	1360
61.5	82.0	752	—	—	42.5	71.8	405	396	1340
61.0	81.7	739	—	—	42.0	71.6	399	391	1320
60.5	81.4	726	—	—	41.5	71.3	393	385	1300
60.0	81.2	713	—	2555	41.0	71.1	388	380	1280
59.5	80.9	700	—	2500	40.0	70.8	382	375	1260
59.0	80.6	688	—	2450	40.0	70.5	377	370	1245
58.5	80.3	676	—	2395	39.5	70.3	372	365	1225
58.0	80.1	664	—	2345	39.0	70.0	367	360	1210
57.5	79.8	653	—	2295	38.5	—	362	355	1190
57.0	79.5	642	—	2250	38.0	—	357	350	1175
56.5	79.3	631	—	2205	37.5	—	352	345	1160
56.0	79.0	620	—	2160	37.0	—	347	341	1140
55.5	78.7	609	—	2115	36.5	—	342	336	1125
55.0	78.5	599	—	2075	36.0	—	338	332	1110
54.5	78.2	589	—	2035	35.5	—	333	327	1095
54.0	77.9	579	—	1995	35.0	—	329	323	1080
53.5	77.7	570	—	1955	34.5	—	324	318	1065
53.0	77.4	561	—	1920	34.0	—	320	314	1050
52.5	77.1	551	—	1885	33.5	—	316	310	1035
52.0	76.9	543	—	1850	33.0	—	312	306	1020
51.5	76.6	534	—	1815	32.5	—	308	302	1010

Hardness reference table

Hardness				Tensile strength N/mm ²	Hardness				Tensile strength N/mm ²
Rockwell hardness		Vickers hardness	Brinell hardness		Rockwell hardness		Vickers hardness	Brinell hardness	
HRC	HRA	HV	HB		HRC	HRA	HV	HB	
32.0	—	304	298	995	24.0	—	249	245	820
31.5	—	300	294	980	23.5	—	246	242	810
31.0	—	296	291	970	23.0	—	243	240	800
30.5	—	292	287	960	22.5	—	240	237	790
30.0	—	289	283	950	22.0	—	237	234	785
29.5	—	285	280	935	21.5	—	234	232	775
29.0	—	281	276	920	21.0	—	231	229	765
28.5	—	278	273	910	20.5	—	229	227	760
28.0	—	274	269	900	20.0	—	226	225	750
27.5	—	271	266	890	19.5	—	223	222	745
27.0	—	268	263	880	19.0	—	221	220	735
26.5	—	264	260	870	18.5	—	218	218	730
26.0	—	261	257	860	18.0	—	216	216	725
25.5	—	258	254	850	17.5	—	214	214	715
25.0	—	255	251	835	17.0	—	211	211	710
24.5	—	252	248	830					

Note: The conversion values for steel in the table are commonly applicable for the steels with low and high carbon content.

The tensile strength in the table are applicable for the steels without high conversion precision requirement 1N/mm²=1Mpa.

This table is selected from GB1172-74.



GENERAL TECHNICAL INFORMATION

Grades comparison table

CVD coating grades

Application	ISO Code	ZCC.CT	SANDVIK	KORLOY	TaeguTec	WALTER	MITSUBISHI	SUMITOMO	TUNGALOY	KYOCERA	DIJET	HITACHI	KENNAMETAL	SECO	ISCAR
P	P01		GC4305 GC4205		TT8115	WPP01 WPP05 WPP05S	UE6105	AC810P AC700G AC2000	T9105	CA510 CA5505	JC110V	HG8010	KCP05B KCP05 KC9105	TP0501 TP0500 TP1501 TP1500	IC9150 IC8150 IC428
	P10		GC4315 GC4215 GC4325	NC310 NC3015	TT8115	WPP05 WPP10 WAK20 WPP05S WPP10S	UE6105 MC6015 UE6110 MY5015	AC8015P AC810P AC700G AC820P AC2000	T9105 T9115	CA510 CA5505 CA515 CA025P CA025P	JC110V JC215V	HG8010 HG8025 GM8020	KCP10B KCP10 KCP25 KC9110	TP1501 TP1500 TP2501 TP2500	IC9150 IC8150 IC8250
	P20		GC4315 GC4215 GC4325 GC4225	NC3020	TT8125 TT5100	WPP20 WPP20S	MC6015 UE6110 MC6025 UE6020 MY5015	AC820P AC2000 AC8025P AC630P	T9115 T9125	CA515 CA5515 CA525 CA5525 CR9025 CA025P	JC110V JC215V	HG8025 GM8020 GM25	KCP25B KCP30B KCP25 KC9125	TP2501 TP2500	IC8250 IC9250 IC8350
	P30		GC4335 GC4325 GC4225 GC4025 GC4235	NC330	TT8125 TT5100 TT8135	WPP30 WAK30 WPP30S	MC6025 UE6020 MC6035 UE6035 UH6400	AC8035P AC630P AC630M	T9125 T9135 T6130	CA525 CA5525 CA530 CA5535 CR9025	JC325V JC215V	GM25 GM8035	KCP30B KCP30	TP3501 TP3500 TP3000	IC8350 IC9250 IC9350
P40		GC4335 GC4235		TT7100 TT8135	WPP30 WAK30 WPP30S	MC6035 UE6035 UH6400	AC8035P AC630M	T9135 T6130	CA530 CA5535	JC325V	GM8035 GX30	KCP40B KCP40 KC9140 KC9240	TP3501 TP3500 TP3000	IC9350	
M	M10		GC2015 GC2220		TT9215		MC7015 US7020	AC610M AC6020M	T9115	CA6515	JX605X JC110V		KCM15B KCM15	TM2000	IC6015 IC8250
	M20		GC2220 GC2015	NC9020	TT9215 TT9225		MC7015 US7020 MC7025	AC6020M AC610M AC6030M AC630M	T6120 T9125	CA6515 CA6525	JC110V	HG8025 GM25	KCM15 KC9225 KCM25B	TM2000	IC6015
	M30		GC2025	NC330	TT9225 TT9235		MC7025 US735	AC6030M AC630M	T6130	CA6525	JX525X	GM8035 GX30	KCM25 KC9230 KCM35B	TM4000	IC6025
	M40		GC2025		TT9235		US735	AC6030M AC630M		CA4505 CA4010 CA310	JX525X	GX30	KCM35B KCM35 KC9240 KC9245	TM4000	IC6025
K	K01		GC3205 GC3210			WAK10 WPP01	MC5005 UC5015	AC405K AC410K	T5105	CA4505 CA4010 CA310	JC050W JC105V	HX3505	KCK05B KCK05	TK0501 TH1500	IC5005
	K10		GC3205 GC3210	N305K	TT7005	WPP10 WAK10 WKK10S	MC5015 UC5115 MY5015	AC405K AC410K AC415K AC420K AC700G	T5105 T5115 T5115	CA315 CA4515 CA4010 CA4115	JC108W JC050W JC105V JC110V	HX3515 HG8010	KCK15B KCK15 KCK20 KC9315 KCK20B	TK0501 TH1501	IC5005 IC5010 IC428
	K20		GC3225 GC3215	N315K	TT7310	WPP20 WAK20 WKK20S	MC5015 UC5115 UE6110 MY5015	AC415K AC420K AC700G AC820P	T5115 T5115 T5125	CA320 CA4515 CA4115 CA4120	JC108W JC110V JC215V	HG8025 GM8020	KCK20B KCK20 KC9325 KCPK05	TK1501	IC5010 IC8150
K30		GC3225			WAK30 WKP30S	UE6110	AC820P	T9115 T5125		JC215	HG8025 GM8020	KCPK05			
S	S01		S05F				US905			CA6515 CA6525 CA6535		HS9105 HS9115			

General technical information

CVD coating grades

Application	ISO Code	ZCC.CT	SANDVIK	KORLOY	TaeguTec	WALTER	MITSUBISHI	SUMITOMO	TUNGALOY	KYOCERA	DIJET	HITACHI	KENNAMETAL	SECO	ISCAR	
Milling	P	P10				WKP25					JC730U			MP1500	IC9080 IC4100 IC9015	
		P20	YBC301 YBM251	GC4220	TT7800	WKP25 WKP35 WKP35S	F7030 MC7020	ACP100	T3225			JC730U	GX2140	MP1500 MP2500	IC5500 IC5100 IC520M	
		P30	YBM351	GC4230	TT7800	WKP25 WKP35 WKP35S	F7030 MC7020	ACP100	T3130 T3225				GX2140 GX2160	KCPK30 KC930M	MP2500	IC5500 IC4050
		P40	YBC302	GC4240	TT7800	WKP35 WKP35S							GX2030 GX30 GX2160	KC935M KC530M		
	M10														IC9250	
	M20	YBM251 YBM253			TT7800		F7030 MC7020	ACP100 ACM200	T3225	CA6535	JC730U	AX2040 GX2140	KC925M	MP2500 MM4500	IC520M IC9350	
	M30	YBC302	GC2040	NCM335	TT7800		F7030 MC7020	ACP100	T3130 T3225	CA6535		AX2040 GX2140 GX2160 GX30	KC930M	MP2500 MM4500	IC9350 IC4050	
	M40	YBM351										GX2030 GX2160 GX30	KC930M KC935M		IC635	
	K01					WKP15					JC600					
	K10	YBD152		NCM310	TT6800	WKP15 WKP25	MC5020	ACK100	T1215 T1115	CA420M	JC600					
	K20	YBD203 YBD252	GC3220 GC3330 K20W	NCM320	TT6800	WKP15 WKP25 WKP35 WKP35S	MC5020	ACK200	T1215		JC610			KC915M	MK1500 MK2000	IC5100 IC9150
	K30	YBD252	GC3330 GC3040			WKP25 WKP35 WKP35S					JC610	GX30	KC920M KC925M KCPK30 KC930M KC935M	MK2000 MK3000	IC4100 IC4050 IC520M	



GENERAL TECHNICAL INFORMATION

Grades comparison table

PVD coating grades

ISO Code	ZCC.CT	SANDVIK	KORLOY	TaeguTec	WALTER	MITSUBISHI	SUMITOMO	TUNGALOY	KYOCERA	DIJET	HITACHI	KENNAMETAL	SECO	ISCAR
P	P01				WXN10				PR1005					
	P10	YBG102	GC1125		WSM10 WSM21	VP10MF MS6015		AH710	PR1005 PR930 PR1025 PR115 PR1225 PR1425			KCU10 KC5010 KC5510 KU10T	CP200 TS2000	IC250 IC507 IC570 IC807 IC907 IC908
	P20	YBG202	GC1125 GC15	TT9030	WSM21 WSM20	VP10RT VP20RT VP15TF VP20MF MS6015	AC520U	AH120 AH730 AH725 SH725 SH730 J740	PR930 PR1025 PR1115 PR1225 PR1425 PR1535		IP2000	KCU10 KC5025 KC5525 KU25T	TS2500	IC1007 IC250 IC308 IC507 IC807 IC808 IC907 IC908 IC1008 IC1028 IC3028
	P30	YBG202	GC1125	TT9030 TT8020	WSM30	VP10RT VP20RT VP15TF VP20MF	AC1030U AC530U	AH725 AH120 AH730 SH730 GH330 GH730 J740 SH725	PR1025 PR1225 PR1425 PR1535 PR1625		IP3000	KCU25 KC5525 KU25T	CP500	IC228 IC250 IC328 IC330 IC354 IC528 IC1008 IC1028 IC3028
P40			PC240	TT8020			AH120 AH725 AH645	PR1535					CP500 CP600	IC228 IC328 IC528 IC928 IC1008 IC1028 IC3028
M	M10	YBG202 YBG205	GC1115 GC15 GC1105		WSM10 WSM10S	VP10MF MS6015		AH630	PR1025 PR1225 PR1425	JC5003 JC8015	IP050S	KCU10 KC5010 KC5510	CP200 TS2000	IC354 IC507 IC520 IC807 IC907 IC1007 IC5080T
	M20	YBG202 YBG205	GC1115 GC15 GC1125	TT9030 TT8010	WSM20 WSM21 WSM20S	VP10RT VP20RT VP15TF VP20MF	AC520U	AH725 AH120 SH730 AH630 SH725	PR1025 PR1125 PR1225 PR1425 PR915 PR930 PR1535	JC5003 JC5015 JC8015 JC5118	IP100S	KCU10 KC5010 KC5510	TS2500 CP500	IC354 IC808 IC908 IC1008 IC1028 IC3028 IC5080T
	M30		GC1125 GC2035	TT8020	WSM30 WSM30S	VP10RT VP20RT VP15TF VP20MF MP7035	AC520U AC530U AC1030U AC6040U	AH725 AH120 SH730 J740 AH645 SH725	PR1125 PR1425 PR1535	JC5015 JC8015 JC5118			CP500 CP600	IC228 IC250 IC328 IC330 IC1008 IC1028 IC9080T
	M40		GC2035			MP7035	AC530U AC6040U	AH645	PR1535	JC5118				IC328 IC928 IC1008 IC1028 IC3028 IC9080T
Application	Turning													



PVD coating grades

ISO Code	ZCC.CT	SANDVIK	KORLOY	TaeguTec	WALTER	MITSUBISHI	SUMITOMO	TUNGALOY	KYOCERA	DIJET	HITACHI	KENNAMETAL	SECO	ISCAR
K	K01							AH110						
	K10	GC15	PC205K	TT9030			AC510U	GH110 AH110				KCU10 KC5010 KC5510	CP200 TS2000	IC350 IC910 IC1008
	K20		PC215K	TT9030		VP10RT VP20RT VP15TF		AH120				KCU15 KCU25	CP200 TS2000 TS2500	IC228 IC350 IC808 IC830 IC908 IC1007 IC1008
	K30			TT9030		VP10RT VP20RT VP15TF		AH120 GH130				KCU25 KC5525 KCU25T	CP500	IC228 IC350 IC808 IC830 IC908 IC1007 IC1008
S	S01				WSM10	MP9005 VP05RT		AH8005	PR005S PR1305	JC5003 JC8015	JP9105		TH1000	IC507 IC807 IC903 IC806 IC5080T
	S10	YBG102 YBG105 YBG202	GC1105 GC15	TT8010	WSM110 WSM10S	MP9005 MP9015 VP10RT	AC510U	AH8005 AH8015	PR005S PR1310 PR015S	JC5003 JC5015 JC8015	JP9115	KCU10 KC5010 KC5410 KC5510	CP200 CP250 TS2000 TS2050 TS2500 TH1000	IC228 IC300 IC328 IC808 IC908 IC928 IC3028 IC806 IC9080T
	S20	YBG212	GC1125	TT8020	WSM20 WSM20S WSM21	MP9005 MT9015	AC510U AC520U	AH8015	PR015S PR1125 PR1325	JC5015 JC8015 JC5118		KCU10 KCU25 KC5025 KC5525	TS2500 CP500	IC928 IC830
	S30		GC1125		WSM30 WSM30S	VP15TF MP9025 VP20RT	AC1030U	AH630 AH7025	PR1125 PR1535	JC5118		KC5525	CP600	
	Application	Turning												

General technical information



GENERAL TECHNICAL INFORMATION

Grades comparison table

PVD coating grades

ISO Code	ZCC-CT	SANDVIK	KORLOY	TaeguTec	WALTER	mitsubishi	SUMITOMO	TUNGALOY	KYOCERA	DIJET	HITACHI	KENNAMETAL	SECO	ISCAR	
P	P01	YBH053		TT2510 TT5505				AH110 AH710		JC8003	ATH80D ATH08M TH308 PN208 JP4105 PN15M			IC903	
		YBG252	GC1010 GC1130	TT2510 TT5505 TT5515 TT7080	WXH15 WXM15		ACP200	AH120 AH725	PR830 PR1225	JC8003 JC8015 JC5015 JC5118	PN15M PN215 PCA12M JP4115	KC505M KC715M KC510M KC515M		IC250 IC350 IC808 IC810 IC900 IC903 IC908 IC910 IC950	
	P20	YBG205 YBG202 YBG9320 YBG252	GC1010 GC1030 GC1130 GC2030	PC230	TT2510 TT5505 TT5525 TT7080 TT9030 TT9080	WHH15 WXM15	MP6120 VP15TF	ACP200	AH725 AH120 AH3135 AH9030	PR830 PR1225 PR1230 PR1525	JC5015 JC5040 JC6235 JC8015 JC8118 JC6235 JC7560P JC8118P	CY9020 JP4120 CY150	KC522M KC525M KC527M KC610M KC620M KC635M KC715M KC720M KC730M KTPK20	F25M MP3000	IC250 IC300 IC328 IC330 IC350 IC808 IC810 IC830 IC900 IC908 IC910 IC928 IC950 IC1008
		YBG302	GC1010 GC1030 GC1130 GC2030	PC3530 PC130	TT5525 TT7080 TT8020 TT8080 TT9030 TT9080	WSP45 WSP46	MP6120 VP15TF MP6130 VP30RT	ACP200 ACP300	AH725 AH120 AH130 AH3135 AH6030	PR1230 PR1525	JC6235 JC7560 JC8050 JC7560P JC5015 JC8118 JC5040 JC8118P JC8015 JC5118	JS4045 CY250 CY250V CY25 HC844	KC735M KC725M KC530M KC537M KCPM40	F25M MP3000 F30M	IC250 IC300 IC328 IC330 IC350 IC830 IC845 IC900 IC928 IC950 IC1008
		YBG302	GC1030 GC1130 GC2030		TT8020	WSP45 WSP46	VP30RT	ACP300	AH140	PR1525	JC6235 JC7560 JC8050 JC7560P JC5040 JC8118 JC5118 JC8118P JC5118	JS4060 PTH30E PTH40H JX1060 JS4060	KC735M KC537M KCPM40	F40M T60M	IC300 IC328 IC330 IC830 IC928 IC1008
P40															
Application	Milling														



PVD coating grades

ISO Code	ZCC.CT	SANDVIK	KORLOY	TaeguTec	WALTER	MITSUBISHI	SUMITOMO	TUNGALOY	KYOCERA	DIJET	HITACHI	KENNAMETAL	SECO	ISCAR
M01											PN08M PN208			IC907
M10	YBG252	GC1025 GC1130 GC1030 GC1010		TT5525 TT9030 TT9080	WXM15		ACM100	AH725	PR1225		PN15M PN215	KC735M KC515M		IC903
M20	YBG205 YBG202 YBG9320 YBG252	GC1025 GC1030 GC1040 GC2030 S30T		TT8020 TT8080	WXM15 WSM35 WSM36	VP15TF MP7130 MP7030 VP20RT	ACP200	AH725 AH130 AH6030 AH3135	PR1025 PR1225	JC5015 JC5118 JC8015	JP4120	KC610M KC5635M KC730M KC720M KC522M KC525M KCPM40 KCPK20	F25M MP3000	IC250 IC300 IC808 IC830 IC900 IC908 IC928 IC1008
M30	YBG302	S30T GC1040 GC2030	PC9530	TT8020 TT8080	WSM35 WSM36 WSP45 WSP46	VP15TF MP7130 MP7030 VP20RT MP7140 VP30RT	ACP200 ACP300 ACM300	AH130 AH3135	PR830 PR1225 PR1525 PR1535	JC5015 JC7560 JC8015 JC7560P JC8050 JC8118 JC5118 JC8118P	JS4045 CY250 HC844	KC537M KC725M KC735M KCPM40 KC530M	F30M F40M MP3000	IC250 IC300 IC328 IC330 IC830 IC928 IC1008 IC380 IC882
M40	YBG302			TT8020	WSM35 WSM36 WSP45 WSP46	MP7140 VP30RT	ACP300 ACM300	AH140	PR1525 PR1535	JC5015 JC7560 JC5118 JC7560P JC8050 JC8118 JC8118P	PTH30E PTH40H JM4160		F40M	IC250 IC300 IC328I C330 IC1008 IC882
M														
Application	Milling													



GENERAL TECHNICAL INFORMATION

Grades comparison table

PVD coating grades

ISO Code	ZCC.CT	SANDVIK	KORLOY	TaeguTec	WALTER	mitsubishi	SUMITOMO	TUNGALOY	KYOCERA	DIJET	HITACHI	KENNAMETAL	SECO	ISCAR
K01				TT6080		MP8010		AH110		JC8003	ATH80D ATH08M TH308			IC350 IC810 IC830 IC900 IC910 IC928 IC950 IC380 IC1008
K10	YBG102 YBG252	GC1010	PC205K	TT6080	WHH15 WXM15 WKK25	MP8010		AH110 AH120	PR1210 PR1510	JC8015	ATH10E TH315 CY100H	KC514M KC515M KC527M KC635M	MK2050	IC350 IC808 IC810 IC830 IC900 IC908 IC910 IC928 IC950 IC950 IC1008
K20	YBG152	GC1010 GC1020	PC215K		WHH15 WXM15 WKK25	VP15TF VP20RT	ACK300	AH120 AH9030	PR1210 PR1510	JC5015 JC8015 JC6235 JC8118P	CY150 JP4120 CY9020 PTH13S	KTPK20 KC514M KC610M KC520M KC620M KC524M	MK2000 MK2050	IC350 IC808 IC810 IC830 IC900 IC908 IC910 IC928 IC950 IC1008
K30		GC1020			WKK25	VP15TF VP20RT	ACK300	AH120		JC6235 JC5015 JC8015 JC8118 JC8118P	CY250 JS4045	KC522M KC725M KC524M KC735M KC537M	MK2050	IC350 IC808 IC830 IC908 IC928 IC950 IC1008
S01								AH110 AH710	PR1210	JC8003 JC8015 JC5118	PN08M PN208			IC907 IC908 IC808 IC903
S10	YBG202	GC1130 GC1010 GC1030 GC2030		TT9030 TT9080 TT8080		MP9120 VP15TF	EHE20Z EH20Z ACM100	AH120 AH725	PR1210	JC8003 JC8015 JC5118 JC5015	JS1025 JP4120	KC510M	MS2050	IC903 IC907 IC908 IC840 IC910 IC808
S20		S30T GC2030 GC1030 GC1130		TT8020 TT8080	WSM35 WSM36	MP9120 VP15TF MP9130 MP9030	EHE20Z EH20Z ACK300 ACP300	AH725 AH130 AH6030	PR1535	JC8050 JC8015 JC5118 JC5015	PTH30H	KC522M KC525M KCSM30 KCPM40	MS2050	IC300 IC908 IC808 IC900 IC830 IC928 IC328 IC330 IC840 IC882 IC380
S30		GC2030 GC1040		TT8020	WSM35 WSP45 WSP46		ACM300 ACP300	AH130	PR1535	JC8050 JC7560 JC5118	JM4160	KC725M KCPM40	MS2050 F40M KCSM40	IC830 IC882 IC928
H01				TT2510 TT5505		MP8010 VP05HT		AH110		JC8003 DH103 JC8008 DH102				IC903
H10		GC1130 GC1010 GC1030		TT5515 TT6080	WHH15	VP15TF VP10H		AH120		JC8003 JC8008 JC8015 JC5118 JC8118P	JP4105 TH308 TH303 PTH08M ATH08M ATH80D	KC505M KC510M	MH1000 F15M	IC900 IC808 IC907 IC905
H20		GC1030 GC1130		TT5515 TT6080	WHH15	VP15TF		AH120 AH725 AH9030		JC8015 JC5118 JC8118P	JP4115 TH315		F15M	IC900 IC808 IC908 IC380 IC1008
H30											JP4120		MP3000 F30M	IC380 IC900 IC1008

Application

Milling

ISO Code	ZCC-CT	SANDVIK	KORLOY	TaeguTec	WALTER	MITSUBISHI	SUMITOMO	TUNGALOY	KYOCERA	DIJET	HITACHI	KENAMETAL	SECO	ISCAR
P01			CC105 CN100	PV3010 CT3000		AP25N* VP25N*	T110A T1000A	NS520	TN30 TN610 PV710* PV30* TN6010 PV7010*	LN10 CX50				IC20N IC520N*
	P10	YNG151 YNG151C	CT5015 GC1525*	PV3010 CT3000	WCE10	NX2525 AP25N* VP25N*	T1200A T2000Z* T1500A T1500Z*	GT9530* J9530	TN60TN610 PV710* PV60* TN6010 PV7010*	CX50 CX75 CX75 PX75*		CZ25*	KT315 KT125	TP1020 TP1030* CM CMP*
P20			GC1525*	PV3010 CT3000	WCE10	NX2525 AP25N* VP25N* NX3035 MP3025*	T1200A T2500A T2000Z* T3000Z* T1500A T1500Z*	GT9530* NS9530 J9530	TN60 PV60* TN620 PV720* TN6020 PV7020* PV7025*	CX75 PX75* PX90*		CH550	KT325 KT1120 KT5020*	TP1020 TP1030*
	P30					MP3025* VP45N*	T3000Z*	NS9530	PV7025* PV90*	PX90*				
M10		YNG151 YNG151C	GC1525*	PV3010 CT3000		NX2525 AP25N VP25N	T110A T1000A T2000Z T1500Z	NS520	TN60 PV60* TN620 PV720* TN6020 PV7020*	LN10 CX50			KT125	TP1020 TP1030* CM CMP*
	M20			PV3010 CT3000		NX2525 AP25N* VP25N*	T1200A T2000Z T1500A T1500Z	GT9530 NS9530 J9530	TN90 TN6020 TN620 PV720* PV90* PV7020* PV7025*	CX50 CX75 PX75		CH550		
M30							NS9530							
	M40													
K01				CC105 CN100	PV3010 CT3000			NS520	TN30 PV30* PV7005* TN610 PV710* TN6010 PV7010*	LN10				
	K10	YNG151 YNG151C	CT5015	PV3010 CT3000		NX2525 AP25N*	T110A T1000A T2000Z* T1500Z*	GT9530 NS9530 J9530	TN60 PV60* TN6020 TN620 PV720* PV7020* PV7025*	LN10			KT325 KT125	
K20						NX2525 AP25N*	T1200A T2000Z* T1500A T1500Z*	NS9530						
	K30						T3000Z*							
Application		Turning												



GENERAL TECHNICAL INFORMATION

Grades comparison table

General technical information

Cermet grades

Application	ISO Code	ZCC.CT	SANDVIK	KORLOY	TaeguTec	WALTER	mitsubishi	SUMITOMO	TUNGALOY	KYOCERA	DIJET	HITACHI	KENAMETAL	SECO	ISCAR
Milling	P01				CT3000										
	P10	YNG151 YNG151C		CN100	CT3000 CT7000		NX2525		NS740	TN60	CX75	MZ1000*		C15M	IC30N
	P20		CT530	CN20	CT3000 CT7000		NX2525 MX3020	T250A	NS740	TN100M TN60	CX75 CX90	CH550 CH7030 MZ1000* MZ2000*	KT530M HT7 KT605M	C15M MP1020	IC30N
	P30			CN30	CT7000		MX3030 NX4545	T250A T4500A			CX90 CX99	MZ3000* CH7035			IC30N
	M01														
	M10	YNG151 YNG151C			CT3000 CT7000		NX2525		NS740	TN60					IC30N
	M20		CT530		CT7000		NX2525 MX3020		NS740	TN100M	CX75	CH550 CH7030 MZ1000* MZ2000*	KT530M HT7 KT605M	C15M	IC30N
	M30						MX3030 NX4545	T250A			CX90 CX99				
	M40														
	K01														
	K10	YNG151 YNG151C				CT7000		NX2525		NS740	TN60				
	K20							NX2525							
	K30														



PCBN grades

Application	ISO Code	ZCC.CT	SANDVIK	KORLOY	TaeguTec	WALTER	MITSUBISHI	SUMITOMO	TUNGALOY	KYOCERA	DIJET	SECO	Element Six	
Turning	H	H01			WCB30	BC8105 BC8110 MBC010 MB810	BNC100 BNX10 BN1000	BXM10 BX310	KBN050M KBN100M KBN510			CBN060K		
				CB7015	KB320 KB330 KB420	KB50 TB650	WCB30 WCB50	BNC160 BNX20 BN2000	BXM10 BX330 BX530	KBN25M KBN525	JBN300	CBN010	DBC50	
		H20		CB7025 CB20		WCB50 WCB80	MBC020 BC8120 BC8020 MB8025	BNC200 BNX25 BN250	BXA20 BXM20 BX360	KBN30M	JBN245	CBN150 CBN160C	DBN45	
		H30		CB7525		BC8130 MB835	BNC300 BN350	BXC50 BX380	KBN35M			CBN150 CBN160C		
		S	S01		KB90		MB730	BN700 BN7000	M714B			CBN170		
		K	K01		KB90	WCB90	MB710 MB5015	BN500 BNC500	BX930 BX910 BX870					
	K10			KB90A	WCB50 WCB80	MB730 MB4020	BN700 BN7500	BX470 BX480 BX950	KBN60M	JBN795			DBA80	
	K20				WCB80	MB730 MB4020	BN700 BN7000	BXC90 BX90S	KBN60M	JBN500		CBN200		
		K30		CB7925			BC5030 MBS140	BNS800	BX90S BXC90	KBN900		CBN300 CBN400C CBN500		

PCD grades

Application	ISO Code	ZCC.CT	SANDVIK	KORLOY	TaeguTec	WALTER	MITSUBISHI	SUMITOMO	TUNGALOY	KYOCERA	DIJET	SECO	Element Six
Turning	N	N01	CD05		WCD10	MD205	DA90	DX180 DX160	KPD001	JDA30 JDA735	PCD05	CTH025	
				CD10	DP90 DP150 DP200	KP500	WCD10	MD220	DA150	DX140	KPD010	PCD10	CTB010
	N20			KP300	WCD10	MD220	DA2200	DX120		JDA715	PCD20	CTB002	
	N30			KP100		MD230	DA1000	DX110	KPD230	JDA10	PCD30 PCD30M		

General technical information



GENERAL TECHNICAL INFORMATION

Grades comparison table

Uncoating grades

ISO Code	ZCC.CT	SANDVIK	KORLOY	TaeguTec	WALTER	MITSUBISHI	SUMITOMO	TUNGALOY	KYOCERA	DIJET	HITACHI	KENNAMETAL	SECO	ISCAR
P01			ST05											
P10	YC10		ST10	P10			ST10P	TH10		SRT				IC70
P20		SMA	ST20	P20	UT120T	UT120T	ST20E	KS20		SRT DX30	EX35			IC70 IC50M
P30		SM30	ST30A	P30	UT120T	UT120T	A30	KS15F UX30	PW30	SR30 DX30	EX35			IC50M IC54
P40	YC40			P40			ST40E	TX40		SR30	EX45			IC54
M10		H10A	U10	M10			EH510 U10E	TH10		UMN	WA10B	KU10 K313 K68	890	IC07
M20		H13A	U20	M20	UT120T	UT120T	EH520 U2	KS20		DX25 UMS	EX35	KU10 K313 K68	HX	IC07 IC08 IC20
M30		H10F SM30	ST30A		UT120T	UT120T	A30	UX30		DX25 UMS	EX45		883	IC08 IC20 IC28
M40			U40	M40				TU40		UM40	EX45			IC28
K01	YD051		H02	UF1	HT105T	HT105T	H1 H2	KS05F		KG03	WH05	KU10 K313 K68		
K10	YD201	H10 HM	H01	K10	HT110	HT110	EH10 EH510	TH10	KW10 GW15	KG10 KT9	WH10	KU10 K313 K68	890	IC20
K20	YD201	H13A	G10	K20	UT120T	UT120T	G10E EH20 EH520	KS15F KS20	GW25	CR1 KG20		KU10 K313 K68	HX	IC20
K30			G3	K30	UT120T	UT120T	G10E			KG30			883	
N01		H10 H13A					H1 H2	KS05F	KW10					
N10	YD101		H01	K10	HT110	HT110	EH10 EH510	TH10	KW10 GW15	KT9	WH10	KU10 K313 K68	H15	IC08 IC20
N20				K20			G10E EH20 EH520	KS15F		CR1	WH20	KU10 K313 K68	HX	IC08 IC20
N30										KG30			H25	
S01					RT9005	RT9005			SW05	KG03				
S10	YD101	H10 H10A H10F H13A	H01	K10	RT9010 MT9015	RT9010 MT9015	EH10 EH510	KS05F TH10	SW10	FZ05 KG10	WH135	KU10 K313 K68	HX	IC07 IC08
S20				K20	RT9010 TF15	RT9010 TF15	EH20 EH520	KS15F KS20	SW25	FZ15 KG20		KU10 K313 K68	H25	IC07 IC08
S30					WMG40	WMG40				KG30				

Application **Turning**



Grades comparison table

Uncoating grades		ISO Code	ZCC-CT	SANDVIK	KORLOY	TaeguTec	WALTER	MITSUBISHI	SUMITOMO	TUNGALOY	KYOCERA	DIJET	HITACHI	KENNAMETAL	SECO	ISCAR		
Application	Milling	P	P10	S1P								SRT						
		P20			ST20	P30		UT120T	A30N				SRT DX30	EX35	K125M		IC50M IC28	
		P30			ST30A	P30		UT120T	A30N		UX30	PW30	SR30 DX30	EX35	GX		IC50M IC28	
		P40			ST40							PW30	SR30	EX45			IC28	
Application	Milling	M	M10		U10	M10												
		M20			U20	M20							UMIN					
		M30							UT120T	A30N								IC08 IC20
		M40				U40	M40		UT120T	A30N				EX35				IC08 IC28
Application	Milling	K	K01		H01	K10		HT105T				KG03		K115M K313				
		K10			H05 H10	K10		WK10	HT110	G10E	TH10	KW10 GW25	KG10	WH10	K115M K313		IC20	
		K20			G10				UT120T	G10E		GW25	KT9 CR1 KG20			HX		IC20
		K30							UT120T				KG30					

General technical information

Insert index

A

ADKT-GM	B236
ANGX-GM	B239
ANGX-LH	B239
APHT-AL	B237
APHT-CBN	B237
APHT-PCD	B237
APHT-W	B237
APKT-ALH	B232
APKT-APF	B238
APKT-APL	B238
APKT-APM	B238
APKT-PM/KM	B239

C

CCGT-SF	A95
CCGX-LC	A99
CCGX-LH	A99
CCMT-EF	A96
CCMT-AHF	A96
CCMT-EG	A97
CCMT-EM	A97
CCMT-HF	A97
CCMT-HM	A97
CCMT-TC	A98
CCMT-HR	A98
CCMT-XF	A95
CCMT-XM	A96
CNE□□□A/B	B240
CNEG-NF	A53
CNMA	A59
CNMG	A59
CNMG-ADF	A53
CNMG-DF	A52
CNMG-DM	A54
CNMG-DR	A56
CNMG-EF	A52
CNMG-EG	A55
CNMG-EH	A57
CNMG-EM	A55
CNMG-ER	A57
CNMG-NM	A55
CNMG-PM	A53
CNMG-SF	A52
CNMG-SNR	A57
CNMG-TC	A58
CNMG-XF	A52

CNMG-XM	A54
CNMM-DR	A57
CNMM-ER	A57
CNMM-LR	A56
CNMM-HDR	A58
CNMM-HPR	A58
CPGT-SF	A120

D

DCGT-SF	A100
DCGT-USF	A100
DCGW	A139
DCGX-LC	A103
DCGX-LH	A103
DCMT-AHF	A101
DCMT-EF	A101
DCMT-EM	A102
DCMT-HF	A100
DCMT-HM	A102
DCMT-HR	A102
DCMT-XF	A100
DCMT-XM	A101
DNEG-NF	A61
DNEG-NGF	A62
DNMA	A67
DNMG-ADF	A61
DNMG-DF	A60
DNMG-DM	A63
DNMG-DR	A65
DNMG-EF	A61
DNMG-EM	A64
DNMG-ER	A65
DNMG-EG	A64
DNMG-NM	A64
DNMG-PM	A62
DNMG-SF	A60
DNMG-SNR	A66
DNMG-TC	A66
DNMG-XF	A60
DNMG-XM	A63
DNMM-DR	A65
DNMM-ER	A66
DNMM-LR	A65
DNMM-HDR	A66

E

EDC-GD/KD/LD	C224-228
ENMX□□XR-GM	B240

ENMX□□-GM	B241
ENMX□□□□-GM	B241

G

G□MD-GM	A248
G□MD-GM	A249

H

HNEX-DF	B242
HNEX-DM	B242
HNEX-DR	B242

K

KNUX	A91
------------	-----

L

LNGX-GM	B245
LNET-GM	B244
LNKT-ZR	B242
LNKT□PNR-GM	B243
LNKT□PNR-GL	B243
LNMT□PNR-GM	B243
LNUX-RF	A94
LNUX-RH	A94
LT□□W-□□GM	A311
LT□□N-□□GM	A312
LT□□W-A(G)(N)□□	A313
LT□□N-A(G)(N)□□	A313
LT□□W-□□W	A314
LT□□N-□□W	A314
LT□□W-□□UN	A315
LT□□N-□□W	A315
LT□□W-□□BSPT	A316
LT□□N-□□BSPT	A316
LT□□W-□□NPT	A317
LT□□N-□□NPT	A317

M

MPHT	B246
------------	------

O

ODHT-GL	B247
ODHT-GM	B247
ODHT-GH	B247
ODHT-LH	B247
ODMT-GM	B247
OFKT-DF	B246
OFKT-DM	B246
OFKT-LH	B246
ONHU-CM	B247

ONHU-GM	B248
ONHU-GH	B248
ONHU-GL	B248
ONHU-PF	B248
ONHU-PM	B248
ONHU-W	B248
ONMU-GM.....	B248
ONMU-GH.....	B248

P

PNEG-CF/CM/CR/PF/PM/PR	B249,250
PNEG□-GH/GL/GM	B249
PNEG□-KH/KL/KM	B250

Q

QC□□L	B251
QC□□R/L	A251-252
QC□□R/L□□□R	A252

R

RCGX-LH	A104
RCKT-DM	B252
RCKT-DR	B252
RCKT-ER	B252
RCKT□MO-NM	B252
RCM(G)T	A104
RCMX.....	A105
RDKW□MO	B253
ROHX.....	B253
RP(D)MW(MT)-H/M/MM	B254
RT□□W-□□GM	A312
RT□□N-□□GM	A312
RT□□W-A(G)(N)□□	A313
RT□□N-A(G)(N)□□	A313
RT□□W-□□W	A314
RT□□N-□□W.....	A314
RT□□W-□□UN	A315
RT□□N-□□W.....	A315
RT□□W-□□BSPT	A316
RT□□N-□□BSPT	A316
RT□□W-□□NPT	A317
RT□□N-□□NPT.....	A317

S

SCGX-LC	A108
SCMT-XM	A107
SCGX-LH	A108
SCMT-AHF	A106

SCMT-EF	A106
SCMT-EM	A107
SCMT-HF	A106
SCMT-HM	A107
SCMT-HR	A108
SCMT-XF	A106
SDMT-DM/PM/NM	B255
SDMT	B255
SEET-CF	B256
SEET-CM	B256
SEET-CR	B256
SEET-DF	B256
SEET-DM	B256
SEET-DR	B256
SEET-EF	B256
SEET-EM	B256
SEET-LH	B256
SEET-LH	B258
SEET-W.....	B256
SEET□PER-APF.....	B258
SEET□PER-APM	B258
SEET□PER-APR.....	B258
SEHT-AL	B262
SEHT-CBN	B262
SEHT-PCD	B262
SEK(E)N	B257
SEKR-M.....	B257
SNCU-W4	B261
SNGX-W	B259-261
SEMR-M	B257
SN□X□-GL/GM/GH	B259-261
SNGX-LH	B259
SNEG-GM/HGR/W/GR	B258
SNGU□□-GM	B262
SNMA	A77
SNMG.....	A79
SNMG-ADF	A69
SNMG-DF	A68
SNMG-DM.....	A71
SNMG-DR	A73
SNMG-EF	A68
SNMG-EG	A72
SNMG-EM	A71
SNMG-ER	A74
SNMG-NM.....	A72
SNMG-PM	A70

SNMG-SF	A69
SNMG-XF	A68
SNMG-XM.....	A70
SNMG-SNR	A75
SNMM-DR	A74
SNMM-ER	A75
SNMM-LR	A72
SNMM-HDR	A75
SNMM-HPR	A76
SNMM-TC	A76
SPEX	B266
SPGT-PM/EM	C212
SPKR-GM	B265
SPKT	B265
SPKW.....	B265
SPMR-M	B265
SPMT	B263
SPMT-PM/KM	B263
SPMX-EM/LM/XM/XR	C210-211
SP□N.....	B264
SP□N.....	B264

T

TBGH-L	A121
TCGT-SF	A109
TCGX-LC	A113
TCGX-LH	A113
TCMT-AHF	A111
TCMT-EF	A110
TCMT-EG	A111
TCMT-EM	A111
TCMT-HF	A110
TCMT-HM	A112
TCMT-HR	A112
TCMT-XF	A109
TCMT-XM	A111
TNMA	A84
TNMG-ADF	A79
TNMG-DF	A78
TNMG-DM.....	A81
TNMG-DR	A82
TNMG-EF	A79
TNMG-EG	A81
TNMG-EH	A82
TNMG-EM	A81
TNMG-ER	A83
TNMG-ES	A79

Insert index

TNMG-PM	A80
TNMG-SF	A78
TNMG-SNR	A83
TNMG-TC	A84
TNMG-XF	A78
TNMG-XM	A83
TNMM-DR	A83
TNMM-LR	A82
TNMM-HDR	A84
TPGH-L	A121
TPGT-SF	A122
TPKN	B266
TPMR	B266

V

VBET-NF	A118
VBET-NGF	A118
VBGT-SF	A117
VBMT-AHF	A118
VBMT-EF	A117
VBMT-EM	A118
VBMT-HF	A117
VBMT-HM	A119
VBMT-HR	A119
VBMT-SNR	A119
VBMT-XF	A117
VBMT-XM	A118
VCGT-SF	A114
VCGT-NF	A114
VCGT-NGF	A114
VCGX-LC	A116
VCGX-LH	A116
VCMT-AHF	A114
VCMT-XF	A114
VCMT-XM	A115
VNEG-NF	A85
VNEG-NGF	A86
VNMG-ADF	A85
VNMG-DF	A85
VNMG-DM	A86
VNMG-EF	A85
VNMG-EG	A87
VNMG-EM	A86
VNMG-NM	A87
VNMG-PM	A86
VNMG-SF	A86
VNMG-SNR	A87

VNMG-XF	A85
VNMG-XM	A86
VNMG-TC	A87

W

WCMX-53	C213
WCMX-PG	C213
WNEG-NF	A89
WNHU-GM	B267
WNHU-LH	B267
WNMA	A93
WNMG-ADF	A89
WNMG-DF	A88
WNMG-DM	A91
WNMG-DR	A92
WNMG-EF	A89
WNMG-EG	A91
WNMG-EH	A92
WNMG-EM	A91
WNMG-ES	A89
WNMG-NM	A92
WNMG-PM	A90
WNMG-SF	A88
WNMG-SNR	A92
WNMG-TC	A93
WPGT	B267
WPGT-PM	B267
WNMG-XF	A88
WNMG-XM	A90

X

XEEC	B268
XPHT-GM	B268
XSEQ	B269

Z

ZOOEROOISO	A294
ZOOEROOISOPP	A301
ZOOERA(G)(N)OO	A296
ZOOERA(G)(N)OOPP	A302
ZOOEROOOW	A297
ZOOEROOOWPP	A303
ZOOEROOOUN	A298
ZOOEROOOUNPP	A304
ZOOEROOBSPT	A299
ZOOEROOBSPTPP	A305
ZOOEROOONPT	A300
ZOOEROOONPTPP	A306

ZOOELOOISO	A294
ZOOELA(G)(N)OO	A296
ZOOELOOW	A297
ZOOELOOUN	A298
ZOOELOOBSPT	A299
ZOOELOONPT	A300
ZOOILOOISO	A295
ZOOILA(G)(N)OO	A296
ZOOILOOW	A297
ZOOILOOUN	A298
ZOOILOOBSPT	A299
ZOOILOONPT	A300
ZOOIROOISO	A295
ZOOIROOISOPP	A301
ZOOIRA(G)(N)OO	A296
ZOOIRA(G)(N)OOPP	A302
ZOOIROOW	A297
ZOOIROOWPP	A303
ZOOIROOUN	A298
ZOOIROOUNPP	A304
ZOOIROOBSPT	A299
ZOOIROOBSPTPP	A305
ZOOIROONPT	A300
ZOOIROONPTPP	A306
ZDET	B269
ZIGQ-NF	A246
ZIGQ-NM	A246
ZILD-LC	A247
ZIMF-NM	A244
ZIMF-SM	A244
ZOHX-GF	B270
ZOHX-GM	B270
ZOHX-HM	B270
ZPNT	B270
ZPOD-MG	A241
ZPOS-MG	A241
ZQMX-1E	A253
ZROD-EG	A245
ZROD-LH	A247
ZROD-MG	A245
ZROD-NM	A245
ZTOD-EG	A243
ZTOD-MG	A242
ZTOS-MG	A242
ZTOD-MM	A242

1101SC05	C140-143
1105SC03	C140-143
1143SC120	C150
1143SC90	C150
1165PA03	C144-147
1534SP03C	C122-123
1534ST03C	C125-137
1534SU03	C84-113
1534SU03C	C84-113
1534SH03	C139
1536ST05C	C125-137
1536SU05	C84-113
1536SU05C	C84-113
1538SU08C	C84-113
1557SU03	C114
1576PC05	C148-149
1579PC15C	C148-149
1588SL12/20/30C	C118-121
1734SU03C	C84-113
1736ST05C	C125-137
1736SU05C	C84-113
3101H7	C236
3102H7	C237
3103H7	C238
4111	C236
4122A	C250-251
4122M	C252-253
4201A	C258-259
4201C	C254-255
4202A	C260-261
4202C	C256-257
4222A	C250-251
4222M	C252-253

A

AMA01	B29
AMP01	B31
AL-2B	B519
AL-2E	B515
AL-2EL	B516
AL-2R-AIR	B521

AL-2RL-AIR	B522
AL-3E	B517
AL-3EL	B518
AL-3R-AIR	B523
AL-3RL-AIR	B524
AL-3W	B520
ALG-2E	B526
ALG-2R	B528
ALG-3E	B527
ALG-3R	B529
ALU-3E	B513

B

BMR01	B150
BMR02	B152
BMR03	B154-157
BMR04	B167-168

C

C40X-Q□DR/L	A268
C□□□-SCLPR/L	A217
C□□□-SDQPR/L	A218
C□□□-SDUPR/L	A219
C□□□-STUPR/L	A220
C□□□-SVQCR/L	A221
C□□□-SVUCR/L	A221
CM-2E	B538
CM-4E	B539
CMA01	B225
CMD01	B226
CMZ01	B224
C□□□-Q□DR/L	A268

D

DCLNR/L	A136
DDJNR/L	A137
DSBNR/L	A138
DTGNR/L	A139
DVJNR/L	A140
DVVNN	A140
DWLNR/L	A141

E

EMP01	B116-118
EMP02	B119
EMP03	B120
EMP04	B121
EMP05	B127-128
EMP09	B135-139
EMP09 BT/JT	B140
EMP13	B145-147

F

FMA01	B33-34
FMA03	B38
FMA04(OFKT05□□)	B41
FMA04(ODHT/ODMT06□□) ...	B44
FMA07	B47-48
FMA08	B51
FMA11	B54-55
FMA12	B59-60
FMA14	B63
FMA17	B85
FMD02(PN11)	B68-69
FMD02(HN09)	B73
FMD03	B75
FME02	B77
FME03	B79
FME04	B83
FMP01	B87
FMP02	B89
FMP03	B94
FMP12	B97-98
FMP17	B100-101
FMR01	B103
FMR02	B105
FMR03	B108
FMR04	B109
FMR11	B112-113

G

GD03	C9-44
GD03C	C11-44

Tool index

GD05	C9-44
GD05C	C11-44
GD08C	C11-41
GED□□R/L	A269-271
GFD□□RR/LL	A272-275
GFD□□R/L	A276-277
GID□□R/L	A278
GM-2B	B432
GM-2BFP	B434
GM-2BL/M/X	B433
GM-2BP	B438-439
GM-2BS	B437
GM-2E	B405
GM-2EBL/X	B411
GM-2EFP	B410
GM-2EL	B407
GM-2EP	B429-430
GM-2ES	B431
GM-2EX	B409
GM-2F	B460
GM-2FL	B408
GM-2R	B440
GM-3E	B412-413
GM-3EL	B414
GM-4B	B435
GM-4BL/M/X	B436
GM-4E	B422-423
GM-4EBL/X	B426
GM-4EBL/X-G	B421
GM-4EFP	B425
GM-4E-G	B415-416
GM-4EL	B424
GM-4EL-G	B418
GM-4EX-G	B420
GM-4F-G	B417
GM-4FL-G	B419
GM-4R	B441
GM-4RL/M/X	B442-443
GM-4W	B444
GM-6E	B427
GM-6EL	B428

GQCR/L	A280
--------------	------

H

HMX-2B	B460
HMX-2BFP	B462
HMX-2BL/M/X	B461
HMX-2BP	B466-467
HMX-2BS	B465
HMX-2E	B446-447
HMX-2EBL/X	B449
HMX-2EFP	B448
HMX-2EP	B457-458
HMX-2ES	B459
HMX-4B	B463
HMX-4BL	B464
HMX-4E	B450-451
HMX-4EBL/X	B454
HMX-4EFP	B453
HMX-4EL	B452
HMX-4R	B468-469
HMX-4RBL/M/X	B470
HMX-4RF	B471
HMX-4RP	B472
HMX-6R-MAX	B473
HMX-6E	B455
HMX-6EL	B456
HMP01	B219-220
HMP01 EC	B221

M

MCBNR/L	A154
MCLNR/L	A155
MDJNR/L	A156
MDPNN	A157
MM-4E	A490
MM-4EF	A491
MM-4R	A492
MM-4RFP	A493
MSBNR/L	A158
MSDNN	A161
MSKNR/L	A160
MSRNR/L	A159

MTFNR/L	A165
MTGNR/L	A162
MTJNR/L	A163
MTJNR/L□□-Z	A164
MVJNR/L	A167
MVVNN	A166
MWLNR/L	A168

N

NM-2B	B508
NM-2BP	B509-510
NM-2E	B505
NM-2EP	B507
NM-4E	B506

P

PCBNR/L	A142
PCLNR/L	A143
PDJNR/L	A144
PDPNN	A145
PM-2B	B382
PM-2BC	B387-390
PM-2BFP	B384
PM-2BL/M/X	B383
PM-2E	B358
PM-2EBL/X	B363
PM-2EFP	B362
PM-2EL	B360
PM-2F	B359
PM-2FL	B361
PM-2R	B391-392
PM-3E-H	B364
PM-3EL-H	B365
PM-4B	B385
PM-4BL/M/X	B386
PM-4E	B373-374
PM-4EBL/X	B379
PM-4EBL/X-G	B372
PM-4EFP	B378
PM-4E-G	B366-367
PM-4EL	B375
PM-4E-H	B376

Tool index

PM-4EL-H B377
 PM-4EL-G B369
 PM-4EX-G B371
 PM-4F-G B368
 PM-4FL-G B370
 PM-4H B401
 PM-4HL B402
 PM-4R B393-394
 PM-4RBL/M/X B395-396
 PM-4RBL/M/X-H B399
 PM-4R-H B397-398
 PM-4RFP B400
 PM-6E B380
 PM-6EL B381
 PML-2B B347
 PML-2BFP B349
 PML-2BL B348
 PML-2E B328
 PML-2EFP B332
 PML-2EL B330
 PML-2F B329
 PML-2FL B331
 PML-2R B352
 PML-3E-H B333
 PML-3EL-H B334
 PML-4B B350
 PML-4BL B351
 PML-4E B340
 PML-4EFP B341
 PML-4E-G B335
 PML-4EL B341
 PML-4E-H B342
 PML-4EL-H B343
 PML-4EL-G B337
 PML-4EX-G B339
 PML-4F-G B336
 PML-4FL-G B338
 PML-4R B353
 PML-4R-H B354
 PML-4RFP B355
 PML-6E B345

PML-6EL B346
 PMX-4E B315-316
 PMX-4EBL/X B317
 PMX-4EFP B318
 PMX-4R B319-320
 PMX-4RBL/X B321-322
 PMX-2B B324
 PMX-2BL/M/X B325
 PMX-2BFP B326
 PSB NR/L A146
 PSDNN A147
 PSKNR/L A148
 PSSNR/L A149
 PTFNR/L A150
 PTG NR/L A152
 PTTNR/L A151
 PWLNR/L A153

Q

Q□-HMX-2B/4B B666
 Q□-HMX-4E B665
 Q□-HMX-4R B667
 Q□-PM-2B/4B B661
 Q□-PM-4E B660
 Q□-PM-4R B662
 Q□-VPM-4E B663
 Q□-VPM-4R B664
 Q□-XM-2B B670
 Q□-XM-2C B671
 Q□-XM-2CR B672
 Q□-XM-2E B668
 Q□-XM-2R B669
 QCH-AD B129
 QCH-AN B148
 QCH-APKT B122
 QCH-EN B210
 QCH-LN B141
 QCH-M B114
 QCH-RD B110
 QCH-SDMT B196
 QCH-WN B98
 QCH-WPGT B200

QCH-XPHT B158
 QCH-ZOHX B169
 QECDR/L A257
 QE□SR/L A258
 QE□S□□N A259
 QE□□R/L A256-257
 QF□DR/L-H A266-267
 QF□□R/L-L A260-261
 QF□□RR/LL A262-265
 QX□DR/L A258
 QZQ□□R/L A282
 QZS□ A259

R

RM-4E B476
 RM-5E B477
 RM-6E B478
 RM-4B B479
 RM-4R B480-482
 RM-5R B483-485
 RM-6R B486
 RM-7R B487-488

S

SCACR/L A169
 SCLCR/L A170
 SDACR/L A171
 SDJCR/L A172
 SDNCN A173
 SM-3E B532
 SM-4R B535
 SMP01 B175-176
 SMP03 B178-179
 SMP05 B182
 SMP08 B184-187
 SMP09 B189-192
 SNR/L A320
 S□□□-PCLNR/L A194
 S□□□-PDPNR/L A195
 S□□□-PDUNR/L A196
 S□□□-PSKNR/L A197
 S□□□-PTFNR/L A198

Tool index

S□□□-PWLNR/L	A199
S□□□-SCFCR	A214
S□□□-SCLCR	A200
S□□□-SCLCR/L	A215
S□□□-SCLPR/L	A210
S□□□-SDQCR/L	A201
S□□□-SDQPR/L	A211
S□□□-SDUCR/L	A202
S□□□-SDUPR/L	A212
S□□□-SDZCR/L	A203
S□□□-SSKCR/L	A204
S□□□-STFCR/L	A205
S□□□-STUPR/L	A213
S□□□-SVQBR/L	A208
S□□□-SVQCR/L	A206
S□□□-SVUBR/L	A209
S□□□-SVUCR/L	A207
SRDCN	A186
SRGCR/L	A187
SSBCR/L	A179
SSDCN	A180
SSKCR/L	A181
SSSCR/L	A182
STACR/L	A183
STFCR/L	A184
STGCR/L	A185

SVABR/L	A175
SVJBR/L	A174
SVJCR/L	A178
SVVBN	A176
SVVCN	A177
S□□□-QC□□□□R/L	A280
SWR/L	A319

T

TM-4E	B495
TM-4B	B496
TM-4R	B497-499
TM-4RP	B500
TM-5R	B501-502
TM-6R	B503
TMP01	B217

U

UD03	C47-82
UD03C	C49-82
UD05	C47-82
UD05C	C49-82
UM-4E	B307
UM-4EFP	B309
UM-4EL	B308
UM-4R	B310
UM-4RFP	B312

UM-4RL	B311
--------------	------

V

VPM-4E	B298
VPM-4EBL/X	B299
VPM-4EFP	B300
VPM-4R	B301-302
VPM-4RBL/X	B303-304
VPM-4RFP	B305
VSM-4E	B533
VSM-4EFP	B534
VSM-4R	B536
VSM-4RFP	B537

X

XMP01	B215
XMR01	B194-199
XMR03	B206
XMR12	B208-209

Z

ZD02/03/04/05	C200-207
ZTD02/03/04/05	C196-199
ZTK015/03/04/05/08	C219-223
ZSD02/03/04/05	C181-192
ZSIR/L	A309
ZSER/L	A308





Safety & environmental protection

Cemented carbide products are hard and fragile, which are easily damaged due to improper carrying or clamping, so please be careful with them.

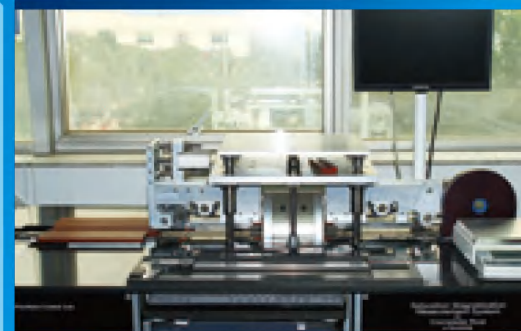
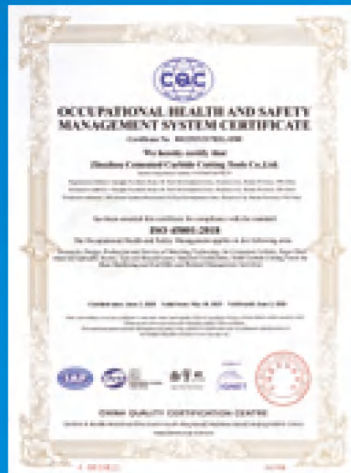
Spattering of chips may occur and a lot of cooling liquid is used during the machining process, so protective measures should be used, such as ventilating equipment, machine protective shield, safeguard glasses, protective clothes, and so on. Please take care to protect hand when clamping inserts with sharp edge.



Welcome to call our technical service hotline: 4008815915

Quality guarantee

We have been awarded GB/T19001-ISO9001 Quality System Certificate. All our products are inspected strictly.



ZCC-CT

Zhuzhou Cemented Carbide Cutting Tool Co.Ltd(ZCCCT) is the research, production and sales base of CNC cutting tools with large production scale, advanced equipments and leading technology strength in China.

—Starting from the very beginning of material selection, we strictly control each procedure and implement refined management to guarantee the stable quality of products.

—Our research and application experts constantly pay close attention to the latest development of materials and cutting technology to provide high-quality and high-efficiency cutting tools and complete solutions to our customers.

—Our sales and service network can be found all over China and spanning the globe. We offer considerate and professional technology services regarding orders of standard or non-standard tailor-made products.



Address: Huanghe Southern Road, Tianyuan Zone,Zhuzhou,Hunan
Province, China

Postcode: 412007

Tel: Asia: 0086-731-22889050, 0086-731-22884423

South America: 0086-731-22887837

North America: 001-734-997-3811

Europe: 0049-211-989240-0

Other regions: 0086-731-22887833

Fax:0086-731-2288-9023,0086-22889025

Website: www.zccct.com www.zccct-europe.com www.zccusa.com

Email: export@zccct.com