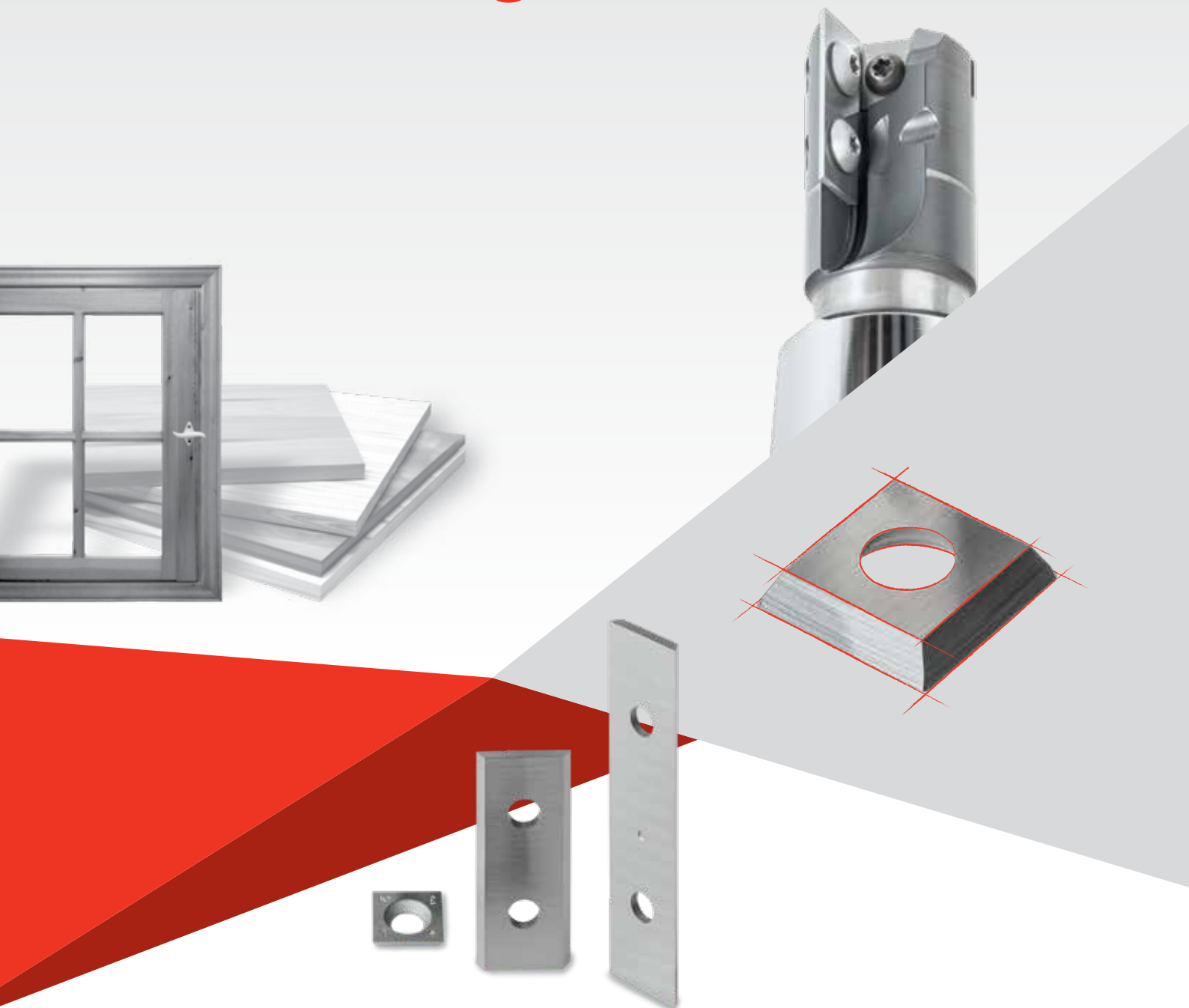


# Solutions for wood machining



CERATIZIT is a high-technology engineering group specialised in cutting tools and hard material solutions.



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# Wood machining

For wood machining, we offer a comprehensive range of finished and semi-finished products: rods, strips, planer blades, indexable knives, blanks and blanks for profiling. You can count on our in-depth knowledge of the market, resulting from many years of working with all kinds of applications. With a lot of our products, we have been the exclusive partner of market leaders and setters of quality standards for many years now.

We constantly develop and refine our portfolio of carbide grades to ensure the right choice for all kinds of materials and machining conditions, for example our proven KCR grades. We are happy to help you select the best grade for you, depending on your application, to make you even more successful in future.



## Proven superiority – our KCR grades

Our continuously growing selection of KCR grades with chrome has successfully proved its worth on the market. They are extremely corrosion-resistant, extraordinarily tough and highly wear-resistant, which results in an increase of the tool life of up to 20% and an improved surface finish. In this way we provide toolmakers with decisive competitive advantages.

### Benefits in tool production

- ▲ The production process is more reliable, stable & predictable
- ▲ Lower scrap rate
- ▲ Better surface quality
- ▲ Higher productivity






### Advantages in tool usage

- ▲ Harder grades that offer longer tool life
- ▲ More stability on the cutting edges
- ▲ Less regrinding
- ▲ Reduction of production stops
- ▲ Better cutting quality
- ▲ Constant, predictable tool life
- ▲ Smaller stocks





# Grades for wood machining

## Chrome grades

CERATIZIT grade code	Binder [m %]	Grain size	Hardness		Fracture toughness (K <sub>IC</sub> ) [MPa·m <sup>1/2</sup> ]	Transverse rupture strength [MPa]	Applications
			HV10	HRA			
KCR02+	2.0	ultrafine	2240	95	7.5	2500	
KCR05+	3.0	ultrafine	2160	94.5	7.8	2900	
KCR06	3.0	submicron	1950	93.6	8.5	2600	
KCR08	4.2	submicron	1920	93.4	8.7	2600	
KCR10	4.0	fine	1780	92.8	10.1	2800	
KCR18+	9.5	submicron	1590	91.7	10.8	3750	

## Special grades

CERATIZIT grade code	Binder [m %]	Grain size	Hardness		Fracture toughness (K <sub>IC</sub> ) [MPa·m <sup>1/2</sup> ]	Transverse rupture strength [MPa]	Applications
			HV10	HRA			
CTOPP10	10.0	submicron	1570	91.6	10.0	3000	
HE40	20.0	ultrafine	1250	88.8	12.1	3500	



Softwood



Hardwood








Chipboard



MDF/HDF



# Grade designation for inserts, scorers and blanks

Grade	Symbol	Embossed on the product
<b>KCR02+</b>	□ □	
<b>KCR08</b>	□	
<b>KCR18+</b>	○ ○	
<b>CTOPP10</b>	x	
<b>HE40</b>	△	



# Indexable knives

We are constantly looking for new ways to make you even more productive and successful. Our indexable knives have a worldwide reputation for high geometrical precision, resulting in an outstanding surface quality of the workpiece in a short space of time.



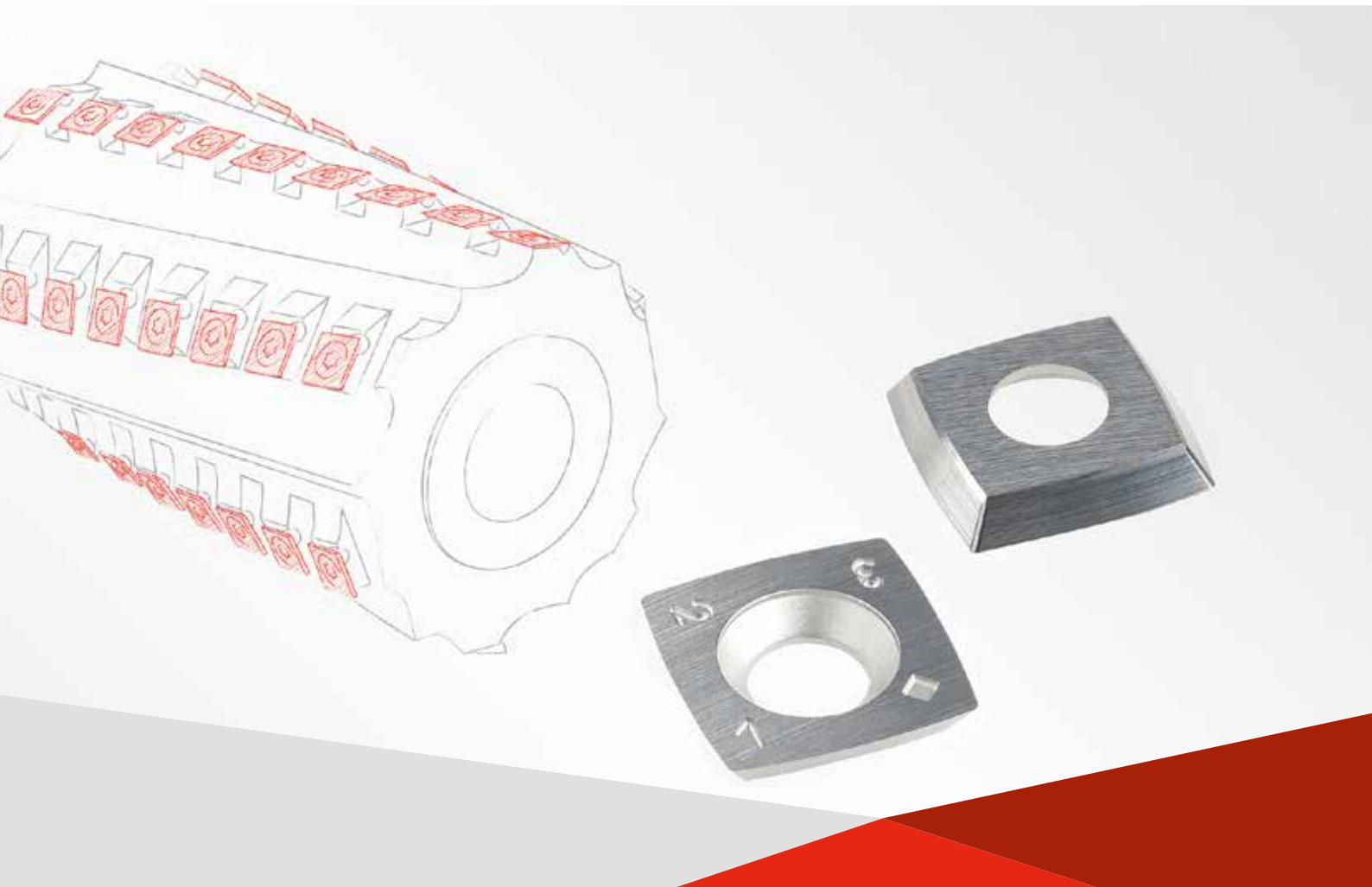
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## CERATIZIT designation system

### Indexable knives

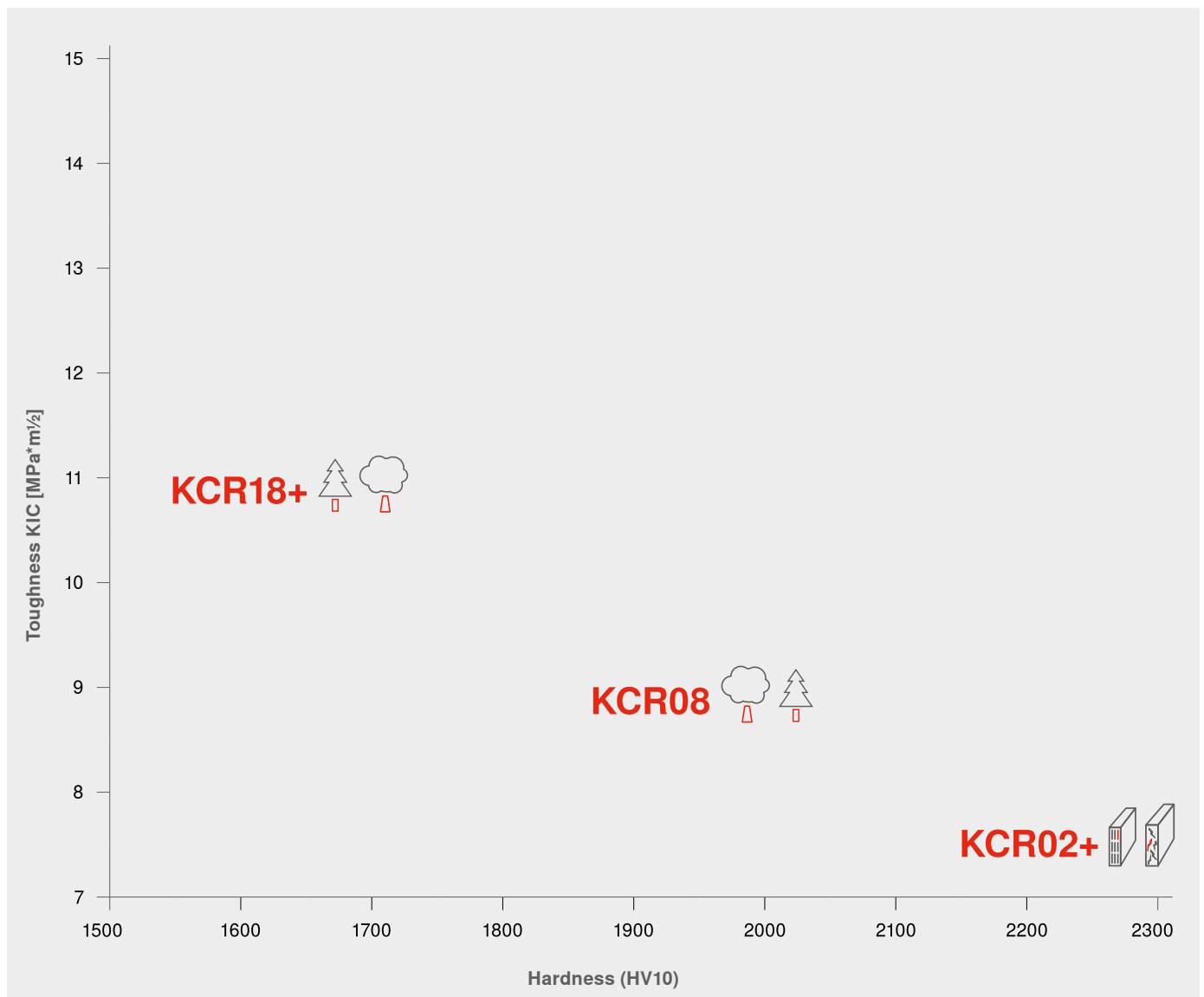
	Product	Style	Length [mm]		Width [mm]		Thickness [mm]	Grade
Example	CTK	ST	50	X	12	X	1.5	KCR08

**K** Indexable knives    **ST** Standard



## Grade recommendation

As each kind of wood has its own very specific properties, we offer a wide variety of grades in the field of wood machining. The graph and table will guide you in finding the right grade for your application.



Softwood



Hardwood



Chipboard



MDF/HDF



CERATIZIT grade code	Binder [m %]	Grain size	Hardness		Fracture toughness (K <sub>IC</sub> ) [MPa*m <sup>1/2</sup> ]	Transverse rupture strength [MPa]	Applications
			HV10	HRA			
KCR02+	2.0	ultrafine	2240	95	7.5	2500	
KCR08	4.2	submicron	1920	93.4	8.7	2600	
KCR18+	9.5	submicron	1590	91.7	10.8	3750	
CTOPP10	10.0	submicron	1570	91.6	10	3000	
HE40	20.0	ultrafine	1250	88.8	12.1	3500	



Softwood



Hardwood

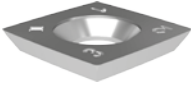
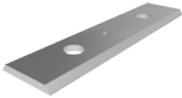
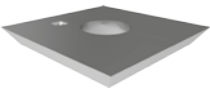
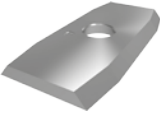

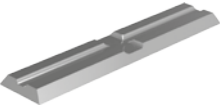
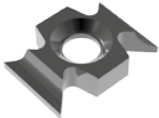

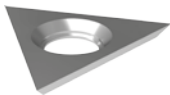
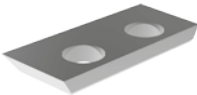



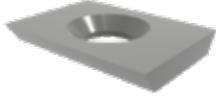


Chipboard



MDF/HDF

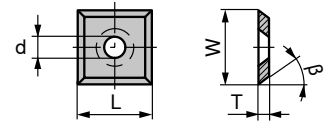
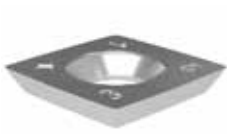
## Portfolio – overview

	Type, description	Grade	page(s)
	CTK SC	KCR18+ KCR08 KCR02+ CTOPP10 HE40	<b>14</b>
	CTK ST	KCR08 KCR02+ CTOPP10	<b>15</b>
	CTK FC	KCR08 KCR02+ CTOPP10	<b>17</b>
	CTK ST BO	KCR18+ KCR08	<b>18</b>
	CTK SK	KCR08	<b>19</b>
	CTK MK BCG	KCR08	<b>20</b>
	CTK CH	KCR08 CTOPP10	<b>21</b>
	CTK GR	KCR08 HE40 CTOPP10	<b>21</b>
	CTK SC 3CUT	KCR18+ KCR08 CTOPP10	<b>22</b>
	CTK ISO	KCR08 KCR02+	<b>23</b>
	CTK PK	CTOPP10	<b>24</b>

	Type, description	Grade	page(s)
	CTK ST SH	KCR08 KCR18+	<b>24</b>
	CTK SC SH	KCR08	<b>25</b>
	CTK SC SH	KCR08	<b>25</b>

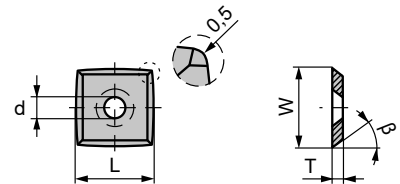
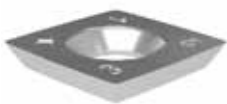
Pictures and illustrations are non binding.

## CTK SC



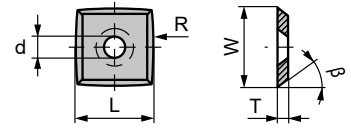
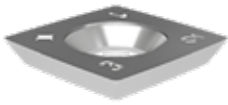
L [mm]	W [mm]	T [mm]	d [mm]	$\beta$ [°]	Remark	KCR18+	KCR08	KCR02+	CTOPP10	HE40
10.5	10.5	1.5	4.0	35		12156411	11804575		12054627	
13.4	13.4	1.5	6.4	30	no grade marking				12114133	
13.6	13.6	2.0	6.4	45					12054629	
14.0	14.0	1.2	8.5	30			11498131		12004928	
14.0	14.0	1.7	8.5	30			12137477		12118225	
14.0	14.0	2.0	6.4	30		12156413	80359802	11956690	11742545	
14.0	14.0	2.0	6.4	45					12231787	
14.3	14.3	2.5	6.4	35					12280839	
14.6	14.6	2.5	6.4	30			11444230			
15.0	15.0	2.5	6.2	30		12240592	11815708		11829045	
15.0	15.0	2.5	6.4	37			11978167			
21.0	21.0	5.5	7.2	40						80358970
21.0	21.0	5.5	7.2	40						11593472
21.0	21.0	5.5	7.1	40	special shape w. grooves				11962866	

## CTK SC R0.5



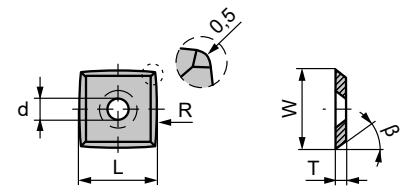
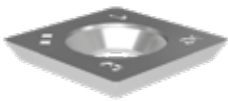
L [mm]	W [mm]	T [mm]	d [mm]	r [mm]	$\beta$ [°]	KCR08	KCR02+
14.0	14.0	2.0	6.4	0.5	30	12112468	
15.0	15.0	2.5	6.4	0.5	30	82022498	12006643
15.0	15.0	2.5	6.4	0.5	37	82022499	

## CTK SC R



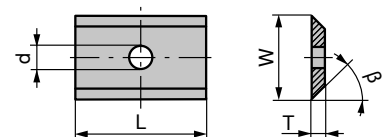
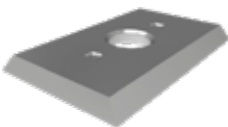
L [mm]	W [mm]	T [mm]	d [mm]	R [mm]	$\beta$ [°]	Surface finish	KCR18+	CTOPP10
15.0	15.0	2.5	6.3	95	30	ground		11778838
15.0	15.0	2.5	6.3	115	30	ground		11789902
15.0	15.0	2.5	6.3	150	30	ground	12618855	11789899
15.0	15.0	2.5	6.3	190	40	micropolish	12247474	
15.0	15.0	2.5	6.3	190	40	ground	14541392	
21.3	21.3	5.5	7.3	60	41	ground	11989375	

## CTK SC R R0.5



L [mm]	W [mm]	T [mm]	d [mm]	r [mm]	R [mm]	$\beta$ [°]	KCR18+	KCR08	CTOPP10
13.8	13.8	2.5	6.3	0.5	150	30		12100185	12243347
15.0	15.0	2.5	6.3	0.5	50	30	12527096	11721820	11918428
15.0	15.0	2.5	6.3	0.5	115	30	12240594	82019711	11827617
15.0	15.0	2.5	6.3	0.5	150	30	12240593	12112633	11827613

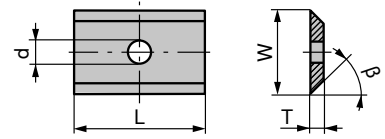
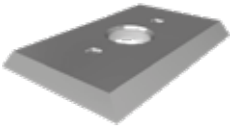
## CTK ST 1 hole



L [mm]	W [mm]	T [mm]	d [mm]	$\beta$ [°]	Surface finish	KCR08	KCR02+	CTOPP10
7.5	12.0	1.5	4.1	35	ground	80360013		
7.6	12.0	1.5	4.1	35	ground	12142499		
9.6	12.0	1.5	4.1	35	ground	80360014	12280832	11791000

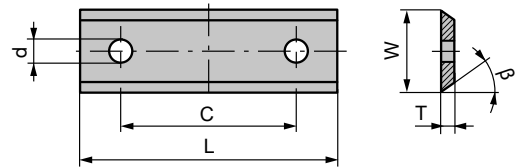
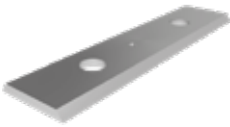


## CTK ST 1 hole



L [mm]	W [mm]	T [mm]	d [mm]	$\beta$ [°]	Surface finish	KCR08	KCR02+	CTOPP10
10.5	12.0	1.5	4.1	35	ground	80360015		
11.0	12.0	1.5	4.1	35	ground	80360016		
13.0	12.0	1.5	4.1	35	ground	80360017		
15.0	12.0	1.5	4.1	35	ground	80360018	11956726	11791001
15.7	12.0	1.5	4.1	35	ground	80360019		
17.0	12.0	1.5	4.1	35	ground	80360020		
18.0	12.0	1.5	4.1	35	ground	80360021		
19.0	12.0	1.5	4.1	35	ground	80360022		
20.0	12.0	1.5	4.1	35	ground	80358831	11956682	11791002
24.7	12.0	1.5	4.1	35	ground	80360023		

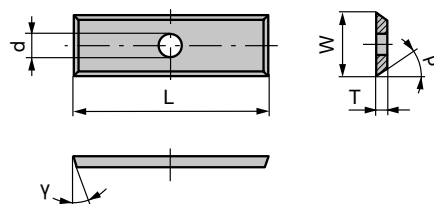
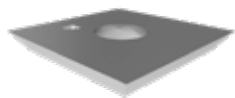
## CTK ST 2 holes



L [mm]	W [mm]	T [mm]	C [mm]	d [mm]	$\beta$ [°]	Surface finish	KCR18+	KCR08	KCR02+	CTOPP10	HE40
24.7	12.0	1.5	14	4.1	35	ground		80360024			
50.0	12.0	1.5	26	4.1	35	ground					80357928
30.0	12.0	1.5	14	4.1	35	ground	12170551	80358833	11938347	11742547	
30.0	12.0	2.5	14	4.1	35	ground		12054645			
40.0	12.0	1.5	26	4.1	35	ground		80360025	11956684	11791003	
50.0	12.0	1.5	26	4.1	35	ground		80358835	11938348	11742544	
60.0	12.0	1.5	26	4.1	35	ground		80360026	11956687	11791004	

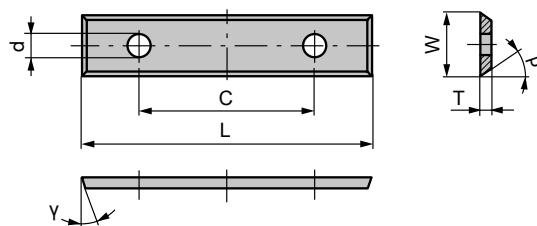


## CTK FC 1 hole



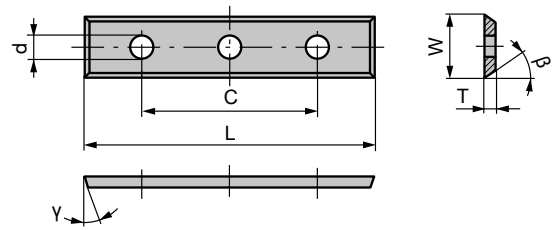
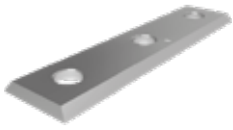
L [mm]	W [mm]	T [mm]	d [mm]	$\beta$ [°]	$\gamma$ [°]	Surface finish	KCR08	KCR02+	CTOPP10
9.0	12.0	1.5	4.1	35	20	ground	12156617		
10.5	10.5	1.5	4.1	35	35	ground	80360027		
12.0	12.0	1.5	4.1	35	35	ground	80360030	11956674	11820512
17.0	17.0	2.0	4.1	35	35	ground	80360028		
19.0	19.0	2.0	4.1	35	35	ground	80360029		
19.5	12.0	1.5	4.1	35	20	ground	12089523		
19.4	12.0	1.5	4.1	35	20	ground		12132387	

## CTK FC 2 holes



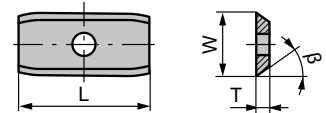
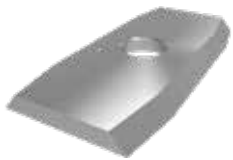
L [mm]	W [mm]	T [mm]	C [mm]	d [mm]	$\beta$ [°]	$\gamma$ [°]	Surface finish	KCR08	KCR02+	CTOPP10
29.5	9.0	1.5	14	4.1	35	20	ground	80360081	12161430	
29.5	12.0	1.5	14	4.1	35	20	ground	80360082	12054381	11812696
39.5	9.0	1.5	14	4.1	35	20	ground	12054605		
39.5	12.0	1.5	26	4.1	35	20	ground	12048478	12272871	
49.2	9.0	1.5	26	4.1	35	20	ground	80360083	12115072	
49.2	12.0	1.5	26	4.1	35	20	ground	80360089	12125307	
49.5	9.0	1.5	26	4.1	35	20	ground	12339542		
59.2	12.0	1.5	26	4.1	35	20	ground	12028637	12131729	

## CTK FC 3 holes



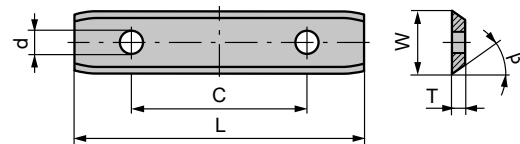
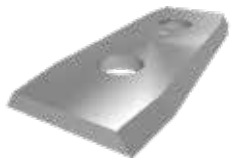
L [mm]	W [mm]	T [mm]	C [mm]	d [mm]	$\beta$ [°]	$\gamma$ [°]	Surface finish	KCR08	KCR02+
50.0	12.0	1.7	18.5	4.1	35	20	ground	80358958	12098694
50.0	12.0	1.7	18.5	4.1	35	20	ground	12013554	

## CTK ST BO 1 hole



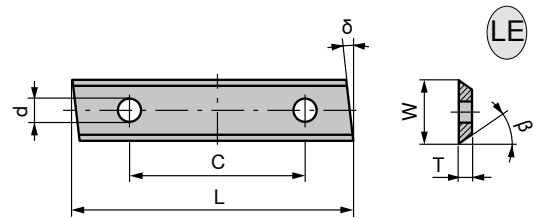
L [mm]	W [mm]	T [mm]	d [mm]	$\beta$ [°]	KCR08	KCR18+
20.0	12.0	1.5	4.1	35	12384545	12156743
24.0	12.0	1.5	4.1	40	11952447	
24.7	12.0	1.5	4.1	40	12145464	

## CTK ST BO 2 holes



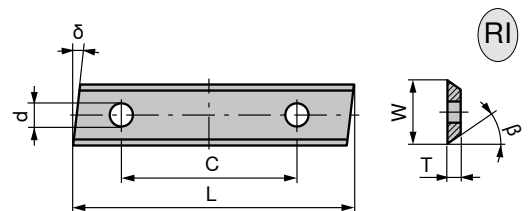
L [mm]	W [mm]	T [mm]	C [mm]	d [mm]	$\beta$ [°]	KCR18+	KCR08
30.0	12.0	1.5	14	4.1	35	12626372	12071624
50.0	12.0	1.5	26	4.1	35		12130694

## CTK SK LE



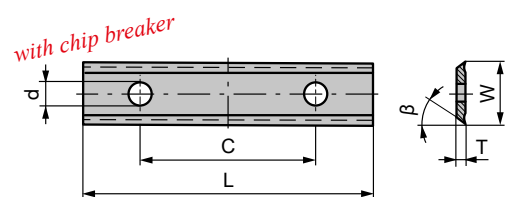
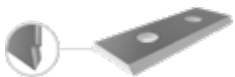
L [mm]	W [mm]	T [mm]	C [mm]	d [mm]	$\beta$ [°]	$\delta$ [°]	KCR08
28.3	12.0	1.5	14	4.1	35	5	12201038
29.5	12.0	1.5	14	4.1	35	5	80360077
49.5	12.0	1.5	26	4.1	35	5	80360079
48.3	12.0	1.5	26	4.1	35	5	12201040

## CTK SK RI



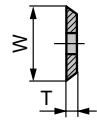
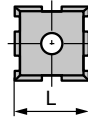
L [mm]	W [mm]	T [mm]	C [mm]	d [mm]	$\beta$ [°]	$\delta$ [°]	KCR08
29.5	12.0	1.5	14	4.1	35	5	80360078
49.5	12.0	1.5	26	4.1	35	5	80360080

## CTK ST CB



L [mm]	W [mm]	T [mm]	C [mm]	d [mm]	$\beta$ [°]	HE40
20.0	12.0	1.5	0	4.1	35	80357984
30.0	12.0	1.5	14	4.1	35	80357985
50.0	12.0	1.5	26	4.1	35	80357986

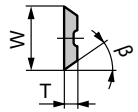
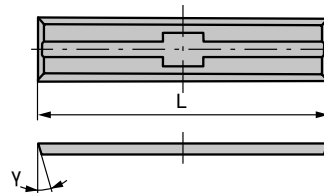
## CTK FC CB



L [mm]	W [mm]	T [mm]	C [mm]	d [mm]	$\beta$ [°]	$\gamma$ [°]	KCR08
18.5	12.0	1.5	0	4.1	35	10	11506263
28.5	12.0	1.5	14	4.1	35	10	11506260

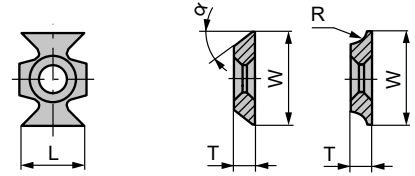
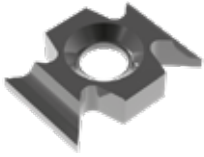
L [mm]	W [mm]	T [mm]	KCR18+	CTOPP10
15.0	15.0	2.0	12156746	12054584

## CTK MK BCG



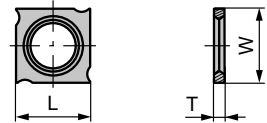
L [mm]	W [mm]	T [mm]	$\beta$ [°]	$\gamma$ [°]	KCR08
20.0	4.1	1.1	35	20	11996997
20.0	5.5	1.1	35	20	11998682
25.0	5.5	1.1	35	20	11996996
30.0	5.5	1.1	35	20	11998684
40.0	5.5	1.1	35	20	11998685
50.0	5.5	1.1	35	20	11998686

## CTK CH



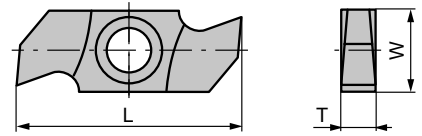
L [mm]	W [mm]	T [mm]	R [mm]	α [°]	KCR08	CTOPP10
22.0	16.0	5.0		45	11498133	11921629
22.0	16.0	5.0	1.0		12003893	11921631
22.0	16.0	5.0	1.5		11844764	11921633
22.0	16.0	5.0	2.0		11716752	11921635
22.0	16.0	5.0	2.5		11716750	11921636
22.0	16.0	5.0	3.0		11498136	11921638
22.0	16.0	5.0	5.0		12003894	11921640

## CTK GR type 1



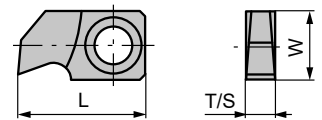
L [mm]	W [mm]	T [mm]	KCR08	CTOPP10
14.00	14.00	2.00	12120335	
14.00	14.00	2.50	12131506	
14.00	14.00	3.00	12114136	
18.00	18.00	1.95	11773916	11820356
18.00	18.00	2.50	11621998	
18.00	18.00	2.95	12096095	
18.00	18.00	3.70	11621999	
18.00	18.00	4.00	12054594	

## CTK GR type 2



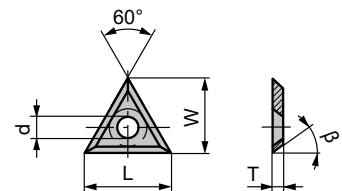
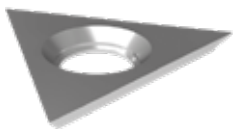
L [mm]	W [mm]	T [mm]	CTOPP10	HE40
34.0	16.0	3.2	11921649	
34.0	16.0	4.0	11921650	
34.0	16.0	5.0	11921651	
45.1	22.0	8.1		82010097
45.1	22.0	8.1		82010098

## CTK GR type 3



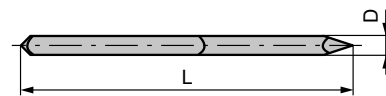
L [mm]	W [mm]	T [mm]	CTOPP10
24.5	13.0	3.0	11921643
24.5	13.0	4.0	11921646
24.5	13.0	5.0	11921648

## CTK SC 3CUT



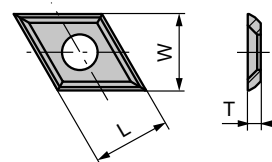
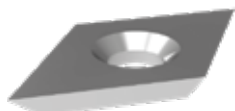
L [mm]	W [mm]	T [mm]	d [mm]	$\beta$ [°]	KCR18+	KCR08	CTOPP10
22.0	19.5	2.0	6.5	30	12302609	12099425	12054630

## CTK CP



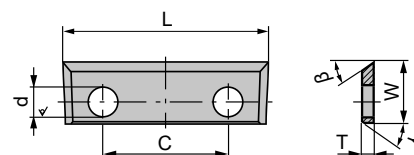
L [mm]	D [mm]	KCR18+
33.5	3.0	12156749

## CTK SC RHO



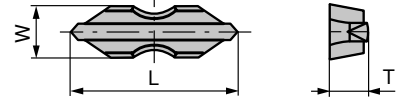
L [mm]	W [mm]	T [mm]	KCR08
14.0	14.0	2.0	12054654

## CTK ISO



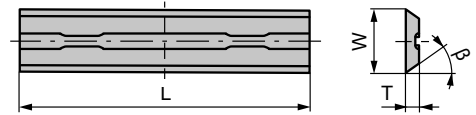
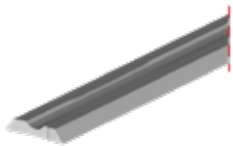
L [mm]	W [mm]	T [mm]	C [mm]	d [mm]	$\beta$ [°]	$\gamma$ [°]	Surface finish	KCR08	KCR02+
16.0	7.0	1.5	7	3.4	35	30	ground	12004870	
23.0	7.0	1.5	14	3.4	35	30	ground	12004871	
23.0	7.0	1.5		3.4	35	25	ground	12583904	
23.0	7.0	1.5		3.4	35	25	ground	12583900	
28.0	7.0	1.5	14	3.4	35	30	ground	12004877	
29.5	7.0	1.5	16	3.4	35	25	ground	11959958	12152608

## CTK SC



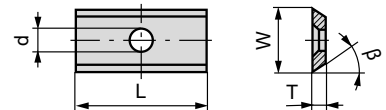
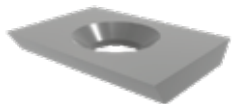
L [mm]	W [mm]	T [mm]	KCR18+	KCR08
18.0	5.7	3.5	12281790	11670721

## CTK PK



L [mm]	W [mm]	T [mm]	$\beta$ [°]	CTOPP10
56.0	5.5	1.1	35	12131249
75.5	5.5	1.1	35	11871695
78.0	5.5	1.1	35	12118371
80.5	5.9	1.2	40	11871691
82.0	5.5	1.1	35	11801133
92.0	5.5	1.2	35	12280863
102.0	5.5	1.1	35	12142972

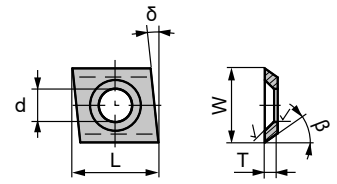
## CTK ST SH



L [mm]	W [mm]	T [mm]	d [mm]	$\beta$ [°]	Surface finish	KCR08	KCR18+
20.0	14.3	2.5	6.4	35	ground	12131236	12429863

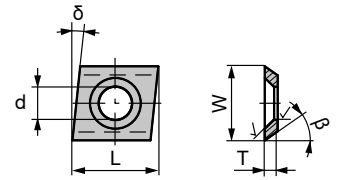


## CTK SC SH LE



L [mm]	W [mm]	T [mm]	d [mm]	β [°]	δ [°]	Surface finish	KCR08
15.0	14.3	2.5	6.4	35	6	ground	12217264

## CTK SC SH RI



L [mm]	W [mm]	T [mm]	d [mm]	β [°]	δ [°]	Surface finish	KCR08
15.0	14.3	2.5	6.4	35	6	ground	12217261

# Profiling blanks

Our customers appreciate the premium quality and long tool life of our blanks for profiling. We have been the exclusive supplier and development partner to market leaders in the tool manufacturing industry for many decades. Whether you are looking for a standard product from stock or a customised solution, you can always count on us as your premium partner for profiling blanks.



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## CERATIZIT designation system

### Profiling blanks

	Product	Style	Holes / chamfer [mm]	Length [mm]		Width [mm]		Thickness [mm]	Grade
Example	CTBL	ST	20	20.0	X	25.5	X	2.0	KCR08

**BL** Profiling blanks

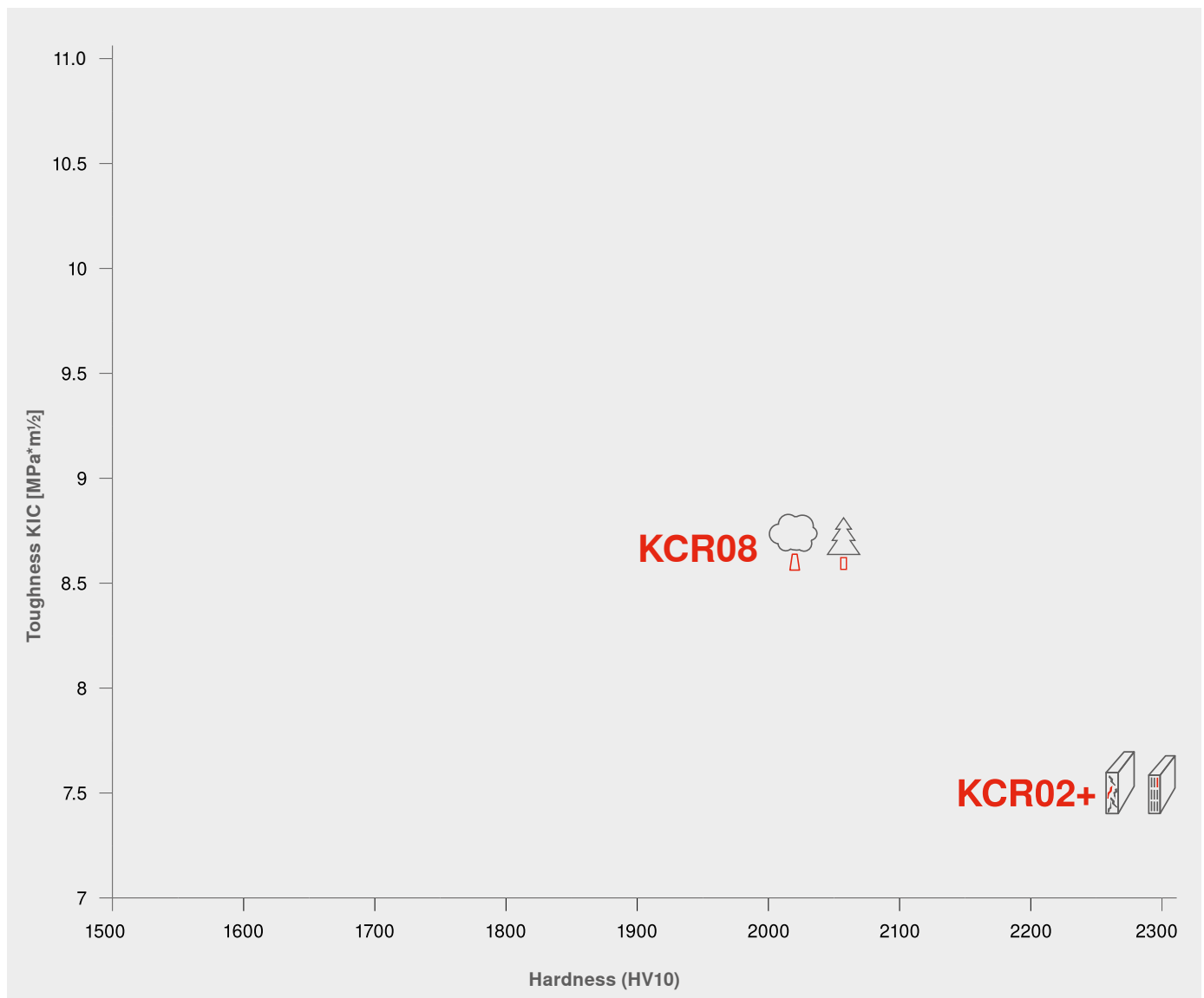
**ST** Standard

**2** Holes  
**0** Chamfer



# Grade recommendation

As each kind of wood has its own very specific properties, we offer a wide variety of grades in the field of wood machining. The graph and table will guide you in finding the right grade for your application.



Softwood



Hardwood



Chipboard



MDF/HDF



CERATIZIT grade code	Binder [m %]	Grain size	Hardness		Fracture toughness (K <sub>IC</sub> ) [MPa*m <sup>1/2</sup> ]	Transverse rupture strength [MPa]	Applications
			HV10	HRA			
KCR02+	2.0	ultrafine	2240	95.0	7.5	2500	
KCR08	4.2	submicron	1920	93.4	8.7	2600	
CTOPP10	10.0	submicron	1570	91.6	10.0	3000	
HE40	12.0	ultrafine	1250	88.8	12.1	3500	



Softwood



Hardwood



Chipboard

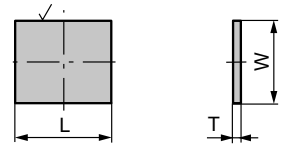
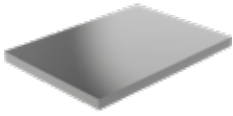


MDF/HDF

## Portfolio – overview

	Type, description	Grade	page(s)
	CTBL ST00	KCR08 CTOPP10	<b>30</b>
	CTBL ST10, CTBL ST11, CTBL ST12	KCR08 HE40	<b>32</b>
	CTBL ST20, CTBL ST21, CTBL ST22	KCR08 HE40	<b>34</b>
	CTBL MP10, CTBL MP11, CTBL MP20, CTBL MP21	KCR08	<b>37</b>
	CTBL SP20	KCR08	<b>40</b>
	CTBL RV10, CTBL RV20, CTBL RV22	KCR08	<b>40</b>
	CTBL CH10, CTBL CH20	KCR08	<b>42</b>
	CTBL GR10, CTBL GR20	KCR08	<b>43</b>
	CTBL MC00	KCR08	<b>44</b>
	CTBL NN10, CTBL NN20	KCR08 HE40	<b>46</b>
	CTBL IT10, CTBL IT11, CTBL IT20, CTBL IT21	KCR08	<b>47</b>

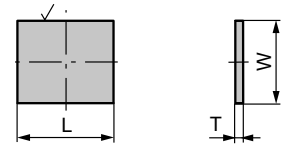
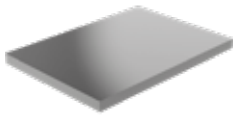
## CTBL ST00



L [mm]	W [mm]	T [mm]	KCR08	CTOPP10
15.0	15.5	2.0	11965858	
15.0	20.5	2.0	11965861	
15.0	25.5	2.0	11965867	
20.0	20.5	2.0	82023321	11776550
20.0	25.5	2.0	82019119	12072233
20.0	30.5	2.0	80301000	12072277
20.0	35.5	2.0	11965873	
25.0	20.5	2.0	82021847	
25.0	25.5	2.0	82026075	
25.0	30.5	2.0	82026077	12072279
25.0	35.5	2.0	80301001	
25.0	40.5	2.0		12071865
30.0	15.5	2.0	82019728	
30.0	25.5	2.0	82024505	12072280
30.0	25.5	2.5	12067816	
30.0	30.5	2.0	82021360	12071868
30.0	35.5	2.0	80301002	
30.0	30.5	2.5	12030938	
30.0	40.5	2.0	11965874	12072283
35.0	20.5	2.0		11776554
35.0	25.5	2.0	82022466	11792776
35.0	30.5	2.0	82021848	
35.0	35.5	2.0	82019712	
35.0	40.5	2.0	82027464	
40.0	20.5	2.0	82026080	
40.0	25.5	2.0	82019223	
40.0	30.4	2.0	82021543	
40.0	40.5	2.0	80301003	
45.0	20.5	2.0	82028692	
45.0	25.5	2.0	82026152	
45.0	30.5	2.0	11544440	
45.0	35.5	2.0	11965876	
50.0	20.5	2.0	82026548	
50.0	25.5	2.0	82023927	
50.0	30.5	2.0	80301004	12089518
50.0	35.5	2.0	82023784	
50.0	40.5	2.0	82023785	
50.0	45.5	2.0	11272525	
50.0	50.5	2.0	82024736	

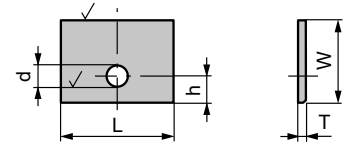


## CTBL ST00



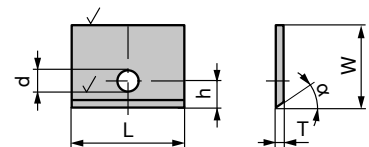
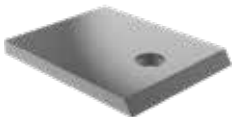
L [mm]	W [mm]	T [mm]	KCR08	CTOPP10
60.0	20.5	2.0	82026549	
60.0	25.5	2.0	82025828	
60.0	30.5	2.0	82028435	
60.0	35.5	2.0	11363187	
60.0	40.5	2.0	80301005	12099409
60.0	45.5	2.0	11965880	
70.0	20.5	2.0	11965881	
70.0	30.5	2.0	11495972	
70.0	40.5	2.0	82026083	
70.0	50.5	2.0	82024732	
80.0	25.5	2.0	11965882	
80.0	35.5	2.0	80301006	11783958
80.0	40.5	2.0	11790549	
80.0	45.5	2.0	11284684	
80.0	60.5	2.0	11965884	11842060
85.0	20.5	2.0	11965886	
85.0	25.5	2.0	11965887	
85.0	30.5	2.0	11495981	
85.0	35.5	2.0	11965890	
85.0	40.5	2.0	11965894	
85.0	50.5	2.0	11965897	
100.0	25.5	2.0	11965898	
100.0	30.5	2.0	11610153	
100.0	35.5	2.0	11610155	
100.0	40.5	2.0	11965900	
100.0	50.5	2.0	11965901	
105.0	25.5	2.0	11965902	
105.0	30.5	2.0	11965903	
105.0	40.5	2.0	11965905	

## CTBL ST10



L [mm]	W [mm]	T [mm]	h [mm]	d [mm]	KCR08	HE40
15.0	20.5	2.0	6.5	4.2	11342117	
15.0	25.5	2.0	6.5	4.2	11342115	
20.0	20.5	2.0	6.5	4.2	80301010	80300507
20.0	25.5	2.0	6.5	4.2	80301011	80300508
20.0	30.5	2.0	6.5	4.2	80301012	80300509
20.0	35.5	2.0	6.5	4.2	80301013	
20.0	40.5	2.0	6.5	4.2	12076556	
25.0	20.5	2.0	6.5	4.2	80301014	
25.0	25.5	2.0	6.5	4.2	80301015	80300510
25.0	30.5	2.0	6.5	4.2	80301016	80300511
25.0	35.5	2.0	6.5	4.2	80301017	80358372
30.0	20.5	2.0	6.5	4.2	80301018	80300512
30.0	25.5	2.0	6.5	4.2	80301019	80358373
30.0	30.5	2.0	6.5	4.2	80301020	80300513
30.0	35.5	2.0	6.5	4.2	80332963	82002931
35.0	25.5	2.0	6.5	4.2	80357667	
35.0	30.5	2.0	6.5	4.2	80301021	
35.0	35.5	2.0	6.5	4.2	80357668	

## CTBL ST11

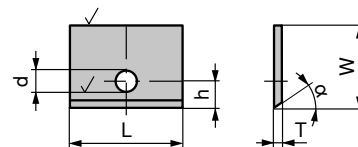
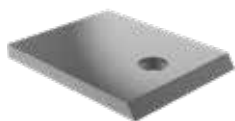


L [mm]	W [mm]	T [mm]	h [mm]	d [mm]	$\alpha$ [°]	KCR08	HE40
15.0	15.5	2.0	6.3	4.2	35	80301047	
15.0	20.5	2.0	6.3	4.2	35	80301048	80300401
15.0	25.5	2.0	6.3	4.2	35	80301049	80300402
15.0	30.5	2.0	6.3	4.2	35	80301050	80300403
20.0	20.5	2.0	6.3	4.2	35	80301051	80300404
20.0	25.5	2.0	6.3	4.2	35	80301052	80300405
20.0	30.5	2.0	6.3	4.2	35	80301053	80300406
20.0	35.5	2.0	6.3	4.2	35	80301054	80300407



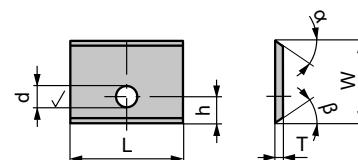
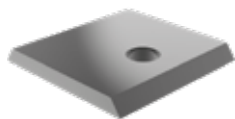


## CTBL ST11



L [mm]	W [mm]	T [mm]	h [mm]	d [mm]	$\alpha$ [°]	KCR08	HE40
20.0	40.5	2.0	6.3	4.2	35	11965561	
25.0	20.5	2.0	6.3	4.2	35	80301055	80300408
25.0	25.5	2.0	6.3	4.2	35	80301056	80300409
25.0	30.5	2.0	6.3	4.2	35	80301057	80300410
25.0	35.5	2.0	6.3	4.2	35	80301058	80300411
30.0	20.5	2.0	6.3	4.2	35	80301059	80300412
30.0	25.5	2.0	6.3	4.2	35	80301060	80300413
30.0	30.5	2.0	6.3	4.2	35	80301061	80300414
30.0	35.5	2.0	6.3	4.2	35	80301062	80300415
30.0	40.5	2.0	6.3	4.2	35	80301063	80300416
35.0	20.5	2.0	6.3	4.2	35	80301064	80300417
35.0	25.5	2.0	6.3	4.2	35	80301065	80300418
35.0	30.5	2.0	6.3	4.2	35	80301066	82002624
35.0	35.5	2.0	6.3	4.2	35	80301067	80300419
35.0	40.5	2.0	6.3	4.2	35	80301068	82011527
40.0	20.5	2.0	6.3	4.2	35	11964489	80300420
40.0	25.5	2.0	6.3	4.2	35	80357699	80300421
40.0	30.5	2.0	6.3	4.2	35	80357700	80300422
40.0	35.5	2.0	6.3	4.2	35	80357701	80300423
40.0	40.5	2.0	6.3	4.2	35	80357702	80300424

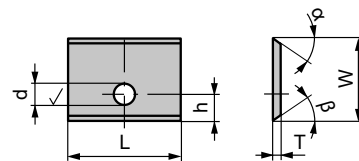
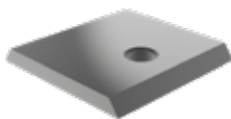
## CTBL ST12



L [mm]	W [mm]	T [mm]	h [mm]	d [mm]	$\alpha$ [°]	$\beta$ [°]	KCR08	HE40
15.0	20.0	2.0	6.3	4.2	35	35	11964635	80300700
20.0	20.0	2.0	6.3	4.2	35	35		80300701
20.0	30.0	2.0	6.3	4.2	35	35		80300702
25.0	20.0	2.0	6.3	4.2	35	35		80300703
25.0	25.0	2.0	6.3	4.2	35	35		80300704
25.0	30.0	2.0	6.3	4.2	35	35	11964636	80300705

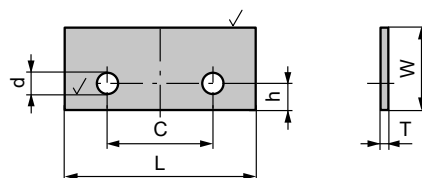


## CTBL ST12



L [mm]	W [mm]	T [mm]	h [mm]	d [mm]	$\alpha$ [°]	$\beta$ [°]	KCR08	HE40
30.0	25.0	2.0	6.3	4.2	35	35		80300706
30.0	35.0	2.0	6.3	4.2	35	35		80300707
35.0	30.0	2.0	6.3	4.2	35	35	11964637	80300708
35.0	35.0	2.0	6.3	4.2	35	35		80300709

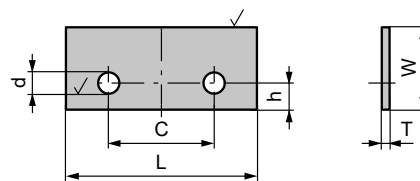
## CTBL ST20



L [mm]	W [mm]	T [mm]	C [mm]	h [mm]	d [mm]	KCR08	HE40
30.0	20.5	2.0	14	6.5	4.2	80301022	
30.0	25.5	2.0	14	6.5	4.2	80301023	80300201
30.0	30.5	2.0	14	6.5	4.2	80301025	80300202
30.0	35.5	2.0	14	6.5	4.2	80301027	80300203
35.0	25.5	2.0	14	6.5	4.2	80301028	80300204
35.0	30.5	2.0	14	6.5	4.2	80301029	
35.0	35.5	2.0	14	6.5	4.2	80301030	80300205
40.0	20.5	2.0	26	6.5	4.2	80301031	80300206
40.0	25.5	2.0	26	6.5	4.2	80301032	80300207
40.0	30.5	2.0	26	6.5	4.2	80301033	80300208
40.0	35.5	2.0	26	6.5	4.2	80301034	80300209
40.0	40.5	2.0	26	6.5	4.2	80301035	80300210
50.0	20.5	2.0	26	6.5	4.2	12086540	80300211
50.0	25.5	2.0	26	6.5	4.2	80301037	80300212
50.0	30.5	2.0	26	6.5	4.2	80301038	82004972
50.0	35.5	2.0	26	6.5	4.2	80301040	80300213
50.0	40.5	2.0	26	6.5	4.2	80301041	
60.0	25.5	2.0	26	6.5	4.2	11356817	
60.0	30.5	2.0	26	6.5	4.2	11353637	
60.0	35.5	2.0	26	6.5	4.2	80301042	80300214
60.0	40.5	2.0	26	6.5	4.2	80301043	80300215
60.0	45.5	2.0	26	6.5	4.2	80301044	

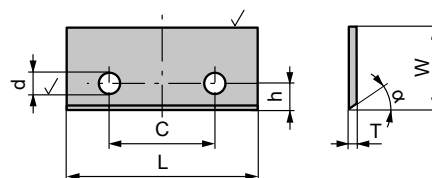
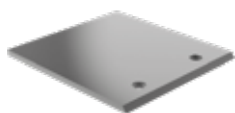


## CTBL ST20



L [mm]	W [mm]	T [mm]	C [mm]	h [mm]	d [mm]	KCR08	HE40
80.0	25.5	2.0	60	6.5	4.2	80301045	80300216
80.0	30.5	2.0	60	6.5	4.2	11358151	
80.0	35.5	2.0	60	6.5	4.2	80301046	
80.0	40.5	2.0	60	6.5	4.2	80357685	80300217

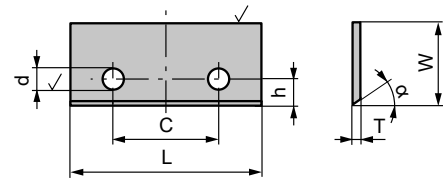
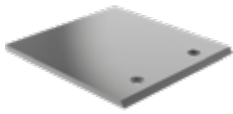
## CTBL ST21



L [mm]	W [mm]	T [mm]	C [mm]	h [mm]	d [mm]	$\alpha$ [°]	KCR08	HE40
30.0	20.5	2.0	14	6.3	4.2	35	80301069	
30.0	25.5	2.0	14	6.3	4.2	35	80301070	
30.0	30.5	2.0	14	6.3	4.2	35	80301071	
30.0	35.5	2.0	14	6.3	4.2	35	80301072	
35.0	25.5	2.0	14	6.3	4.2	35	80301073	
35.0	30.5	2.0	14	6.3	4.2	35	80301074	
35.0	35.5	2.0	14	6.3	4.2	35	80301075	
40.0	20.5	2.0	26	6.3	4.2	35	80301076	80300600
40.0	25.5	2.0	26	6.3	4.2	35	80301077	80300602
40.0	30.5	2.0	26	6.3	4.2	35	80301078	80300604
40.0	35.5	2.0	26	6.3	4.2	35	80301079	80300606
40.0	40.5	2.0	26	6.3	4.2	35	80301080	80300607
50.0	20.5	2.0	26	6.3	4.2	35	80301081	80300608
50.0	25.5	2.0	26	6.3	4.2	35	80301082	82015962
50.0	30.5	2.0	26	6.3	4.2	35	80301083	80300609
50.0	35.5	2.0	26	6.3	4.2	35	80301084	80300610
50.0	40.5	2.0	26	6.3	4.2	35	80301085	80300611
60.0	25.5	2.0	26	6.3	4.2	35	80301086	80300612
60.0	30.5	2.0	26	6.3	4.2	35	80301087	80300613
60.0	35.5	2.0	26	6.3	4.2	35	80301088	82002631
60.0	40.5	2.0	26	6.3	4.2	35	80301090	80300615
70.0	20.5	2.0	26	6.3	4.2	35	11424210	

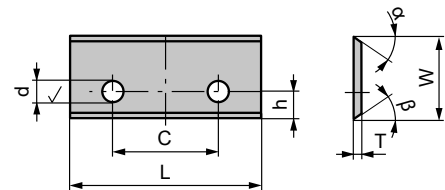
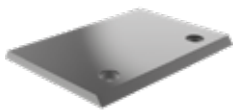


## CTBL ST21



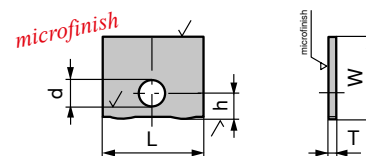
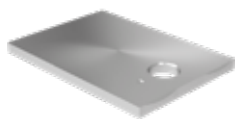
L [mm]	W [mm]	T [mm]	C [mm]	h [mm]	d [mm]	$\alpha$ [°]	KCR08	HE40
70.0	25.5	2.0	26	6.3	4.2	35	80301091	
70.0	30.5	2.0	26	6.3	4.2	35	80301092	82002516
70.0	35.5	2.0	26	6.3	4.2	35	80301093	80300616
80.0	25.5	2.0	60	6.3	4.2	35	80301095	82002633
80.0	30.5	2.0	60	6.3	4.2	35	80301096	
80.0	35.5	2.0	60	6.3	4.2	35	80301097	80300617
80.0	40.5	2.0	60	6.3	4.2	35	80301098	80300618

## CTBL ST22



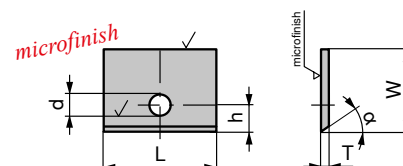
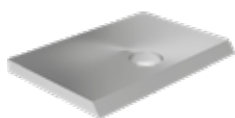
L [mm]	W [mm]	T [mm]	C [mm]	h [mm]	d [mm]	$\alpha$ [°]	$\beta$ [°]	KCR08	HE40
40.0	20.0	2.0	26	6.3	4.2	35	35	11965983	
40.0	25.0	2.0	26	6.3	4.2	35	35	11965986	80300821
40.0	30.0	2.0	26	6.3	4.2	35	35	11965987	80300822
40.0	35.0	2.0	26	6.3	4.2	35	35	11965992	80300824
40.0	40.0	2.0	26	6.3	4.2	35	35	11965993	80300825
45.0	35.0	2.0	26	6.3	4.2	35	35	11965994	
50.0	25.0	2.0	26	6.3	4.2	35	35	11965995	
50.0	30.0	2.0	26	6.3	4.2	35	35	11965997	80300826
50.0	40.0	2.0	26	6.3	4.2	35	35	11965998	80300827
60.0	25.0	2.0	26	6.3	4.2	35	35	11965999	80300828
60.0	30.0	2.0	26	6.3	4.2	35	35	11966000	80300829
60.0	35.0	2.0	26	6.3	4.2	35	35		80300830
60.0	40.0	2.0	26	6.3	4.2	35	35	11966002	80300831

## CTBL MP10



L [mm]	W [mm]	T [mm]	h [mm]	d [mm]	KCR08
20.0	20.5	2.0	6.5	5.2	80302000
20.0	25.5	2.0	6.5	5.2	80302001
20.0	30.5	2.0	6.5	5.2	80302002
25.0	20.5	2.0	6.5	5.2	80302004
25.0	25.5	2.0	6.5	5.2	80302005
25.0	30.5	2.0	6.5	5.2	80302006
25.0	35.5	2.0	6.5	5.2	80302007
26.0	32.0	2.0	6.5	5.2	11803771
30.0	20.5	2.0	6.5	5.2	80302008
30.0	25.5	2.0	6.5	5.2	80302009
30.0	30.5	2.0	6.5	5.2	80302010
35.0	30.5	2.0	6.5	5.2	80302011

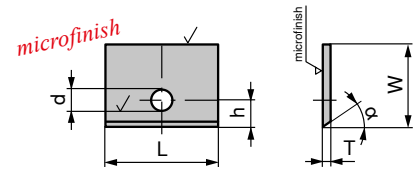
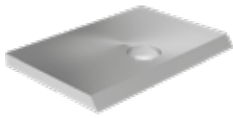
## CTBL MP11



L [mm]	W [mm]	T [mm]	h [mm]	d [mm]	$\alpha$ [°]	KCR08
20.0	20.5	2.0	5.9	5.2	35	80302037
20.0	25.5	2.0	5.9	5.2	35	80302038
20.0	30.5	2.0	5.9	5.2	35	80302039
20.0	35.5	2.0	5.9	5.2	35	80302040
25.0	20.5	2.0	5.9	5.2	35	80302041
25.0	25.5	2.0	5.9	5.2	35	80302042
25.0	30.5	2.0	5.9	5.2	35	80302043
25.0	35.5	2.0	5.9	5.2	35	80302044
30.0	20.5	2.0	5.9	5.2	35	80302045
30.0	25.5	2.0	5.9	5.2	35	80302046
30.0	30.5	2.0	5.9	5.2	35	80302047
30.0	35.5	2.0	5.9	5.2	35	80302048
30.0	40.5	2.0	5.9	5.2	35	80302049
35.0	20.5	2.0	5.9	5.2	35	80302050

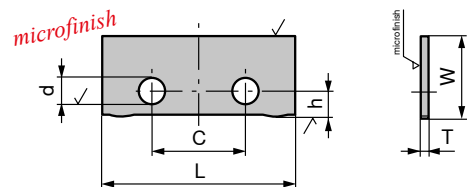
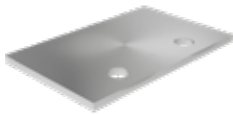


## CTBL MP11



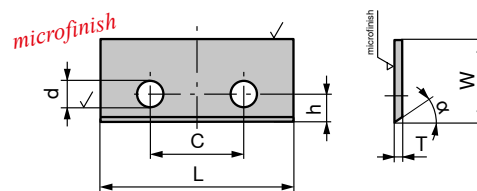
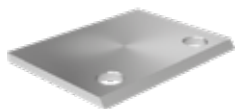
L [mm]	W [mm]	T [mm]	h [mm]	d [mm]	$\alpha$ [°]	KCR08
35.0	25.5	2.0	5.9	5.2	35	80302051
35.0	30.5	2.0	5.9	5.2	35	80302052
35.0	35.5	2.0	5.9	5.2	35	80302053
35.0	40.5	2.0	5.9	5.2	35	80302054

## CTBL MP20



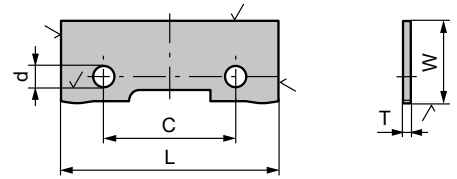
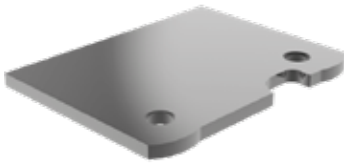
L [mm]	W [mm]	T [mm]	C [mm]	h [mm]	d [mm]	KCR08
30.0	20.5	2.0	14	6.5	5.2	80302012
30.0	25.5	2.0	14	6.5	5.2	80302013
30.0	30.5	2.0	14	6.5	5.2	80302015
30.0	35.5	2.0	14	6.5	5.2	80302017
35.0	25.5	2.0	14	6.5	5.2	80302018
35.0	30.5	2.0	14	6.5	5.2	80302019
35.0	35.5	2.0	14	6.5	5.2	80302020
40.0	20.5	2.0	26	6.5	5.2	80302021
40.0	25.5	2.0	26	6.5	5.2	80302022
40.0	30.5	2.0	26	6.5	5.2	80302023
40.0	35.5	2.0	26	6.5	5.2	80302024
40.0	40.5	2.0	26	6.5	5.2	80302025
50.0	20.5	2.0	26	6.5	5.2	80302026
50.0	25.5	2.0	26	6.5	5.2	80302027
50.0	30.5	2.0	26	6.5	5.2	80302028
50.0	32.3	2.0	24	6.5	5.2	80302029
50.0	35.5	2.0	26	6.5	5.2	80302030
50.0	40.5	2.0	26	6.5	5.2	80302031
60.0	35.5	2.0	26	6.5	5.2	80302032
60.0	40.5	2.0	26	6.5	5.2	80302033
60.0	45.5	2.0	26	6.5	5.2	80302034
80.0	25.5	2.0	60	6.5	5.2	80302035
80.0	35.5	2.0	60	6.5	5.2	80302036

## CTBL MP21



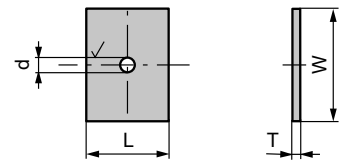
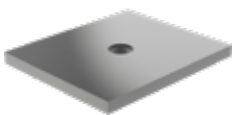
L [mm]	W [mm]	T [mm]	C [mm]	h [mm]	d [mm]	$\alpha$ [°]	KCR08
30.0	20.5	2.0	14	5.9	5.2	35	80302055
30.0	25.5	2.0	14	5.9	5.2	35	80302056
30.0	30.5	2.0	14	5.9	5.2	35	80302057
35.0	25.5	2.0	14	5.9	5.2	35	80302059
35.0	30.5	2.0	14	5.9	5.2	35	80302060
35.0	35.5	2.0	14	5.9	5.2	35	80302061
40.0	20.5	2.0	26	5.9	5.2	35	80302062
40.0	25.5	2.0	26	5.9	5.2	35	80302063
40.0	30.5	2.0	26	5.9	5.2	35	80302064
40.0	35.5	2.0	26	5.9	5.2	35	80302065
40.0	40.5	2.0	26	5.9	5.2	35	80302066
50.0	20.5	2.0	26	5.9	5.2	35	80302067
50.0	25.5	2.0	26	5.9	5.2	35	80302068
50.0	30.5	2.0	26	5.9	5.2	35	80302069
50.0	35.5	2.0	26	5.9	5.2	35	80302070
50.0	40.5	2.0	26	5.9	5.2	35	80302071
60.0	25.5	2.0	26	5.9	5.2	35	80302072
60.0	30.5	2.0	26	5.9	5.2	35	80302073
60.0	35.5	2.0	26	5.9	5.2	35	80302074
60.0	39.5	2.0	44	5.9	5.2	35	80302075
60.0	40.5	2.0	26	5.9	5.2	35	80302076
70.0	25.5	2.0	26	5.9	5.2	35	80302077
70.0	30.5	2.0	26	5.9	5.2	35	80302078
70.0	35.5	2.0	26	5.9	5.2	35	80302079
80.0	25.5	2.0	60	5.9	5.2	35	80302081
80.0	30.5	2.0	60	5.9	5.2	35	80302082
80.0	35.5	2.0	60	5.9	5.2	35	80302083
80.0	40.5	2.0	60	5.9	5.2	35	80302084

## CTBL SP20



L [mm]	W [mm]	T [mm]	C [mm]	d [mm]	KCR08
30.6	25.5	1.5	20	4.0	82002867
40.4	34.5	2.0	28	4.0	82023341
40.6	28.2	1.5	28	4.0	80301115
40.6	28.2	2.0	28	4.0	80301116
40.6	31.5	1.5	28	4.0	11509584
40.6	31.5	2.0	28	4.0	82025820
40.6	40.6	2.0	28	5.0	82002869
50.7	34.5	1.5	35	4.0	11805260
50.7	34.5	2.0	35	4.0	11286787
60.6	30.2	2.0	48	4.0	11365817
60.6	34.5	1.5	48	4.0	82031543
60.6	45.6	2.0	45	5.0	80301118
60.8	30.2	1.5	48	4.0	80301117
80.6	45.6	2.0	65	6.0	80301119

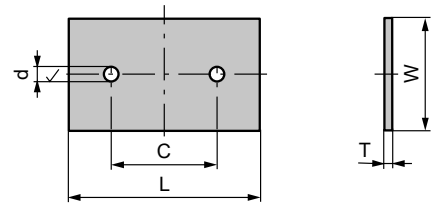
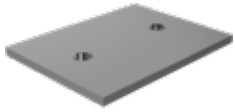
## CTBL RV10



L [mm]	W [mm]	T [mm]	d [mm]	KCR08
12.0	20.4	2.0	4.2	11965758
24.0	22.0	2.0	4.2	80301107
28.0	24.0	2.0	4.2	11965760
32.0	24.0	2.0	4.2	11965765
36.0	28.0	2.0	4.2	80301108
40.0	26.0	2.0	4.2	11965767

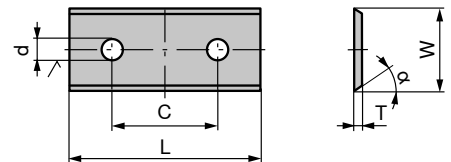
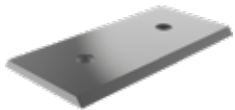


## CTBL RV20



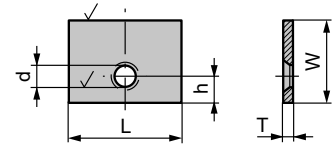
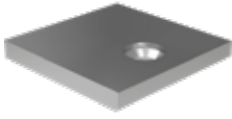
L [mm]	W [mm]	T [mm]	C [mm]	d [mm]	KCR08
40.0	20.4	2.0	26	4.2	11965777
42.0	32.0	2.0	24	4.2	11965770
48.0	36.0	2.0	24	4.2	11965774

## CTBL RV22



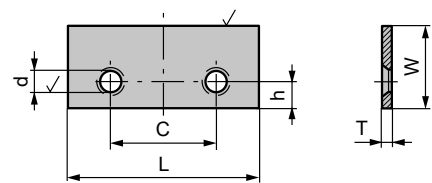
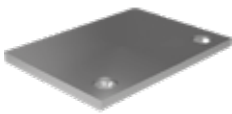
L [mm]	W [mm]	T [mm]	C [mm]	d [mm]	$\alpha$ [°]	KCR08
30.0	25.0	2.0	20	4.2	35	11965780
42.0	32.0	2.0	26	4.2	35	11965812
45.0	35.0	2.0	26	4.2	35	11965821
50.0	16.0	2.0	26	4.2	35	11965834
50.0	20.0	2.0	26	4.2	35	11965835
50.0	25.0	2.0	26	4.2	35	11884976
50.0	40.0	2.0	34	4.2	35	11965838
50.0	45.0	2.0	34	4.2	35	11965839
51.0	26.0	2.0	26	4.2	35	11965840
52.0	34.0	2.0	24	4.2	35	11965846
60.0	19.0	2.0	44	4.2	35	11965847
60.0	20.0	2.0	26	4.2	35	80301103
60.0	25.0	2.0	36	4.0	35	12113519

## CTBL CH10



L [mm]	W [mm]	T [mm]	h [mm]	d [mm]	KCR08
20.0	20.5	3.0	7.0	4.5	80301120
20.0	25.5	3.0	7.0	4.5	80301121
20.0	30.5	3.0	7.0	4.5	80301122
20.0	35.5	3.0	7.0	4.5	80301123
20.0	40.5	3.0	7.0	4.5	80301124
25.0	25.5	3.0	7.0	4.5	80301125
25.0	30.5	3.0	7.0	4.5	80301126
25.0	35.5	3.0	7.0	4.5	80301127
25.0	40.5	3.0	7.0	4.5	80301128
30.0	25.5	3.0	7.0	4.5	80301129
30.0	30.5	3.0	7.0	4.5	80301130
30.0	35.5	3.0	7.0	4.5	80301131
30.0	40.5	3.0	7.0	4.5	80301132
35.0	25.5	3.0	7.0	4.5	80301133
35.0	30.5	3.0	7.0	4.5	80301134
35.0	35.5	3.0	7.0	4.5	80301135
35.0	40.5	3.0	7.0	4.5	80301136

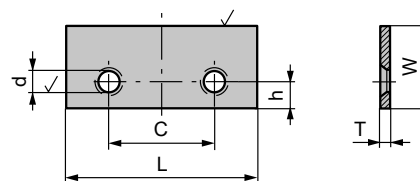
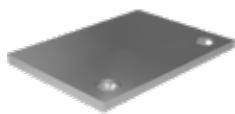
## CTBL CH20



L [mm]	W [mm]	T [mm]	C [mm]	h [mm]	d [mm]	KCR08
40.0	20.5	3.0	28	7.0	4.5	80301137
40.0	25.5	3.0	28	7.0	4.5	80301138
40.0	30.5	3.0	28	7.0	4.5	80301139
45.0	25.5	3.0	28	7.0	4.5	80301140
45.0	30.5	3.0	28	7.0	4.5	80301141
45.0	35.5	3.0	28	7.0	4.5	80301142
55.0	25.5	3.0	41	6.0	4.5	80301143
55.0	30.5	3.0	41	6.0	4.5	80301144
55.0	35.5	3.0	41	6.0	4.5	80301145

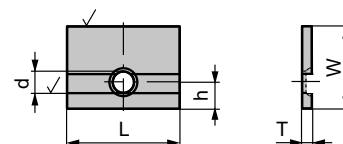
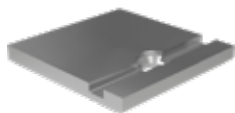


## CTBL CH20



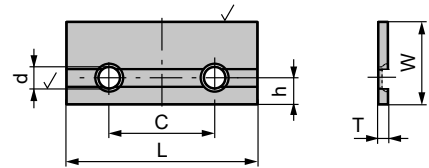
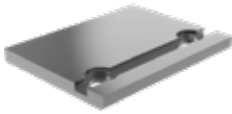
L [mm]	W [mm]	T [mm]	C [mm]	h [mm]	d [mm]	KCR08
55.0	40.5	3.0	41	6.0	4.5	80301146
65.0	20.5	3.0	28	6.0	4.5	80301155
65.0	25.5	3.0	28	6.0	4.5	80301147
65.0	30.5	3.0	28	6.0	4.5	80301148
65.0	35.5	3.0	28	6.0	4.5	80301149
65.0	40.5	3.0	28	6.0	4.5	80301150
80.0	25.5	3.0	66	6.0	4.5	80301151
80.0	30.5	3.0	66	6.0	4.5	80301152
80.0	35.5	3.0	66	6.0	4.5	80301153
80.0	40.5	3.0	66	6.0	4.5	80301154

## CTBL GR10



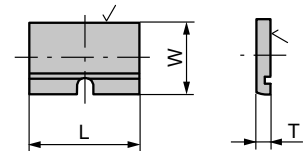
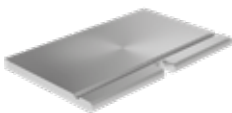
L [mm]	W [mm]	T [mm]	h [mm]	d [mm]	KCR08
20.0	20.5	3.0	7.0	4.5	80301156
20.0	25.5	3.0	7.0	4.5	80301157
20.0	30.5	3.0	7.0	4.5	80301158
20.0	35.5	3.0	7.0	4.5	80301159
20.0	40.5	3.0	7.0	4.5	80301160
25.0	25.5	3.0	7.0	4.5	80301161
25.0	30.5	3.0	7.0	4.5	80301162
25.0	35.5	3.0	7.0	4.5	80301163
25.0	40.5	3.0	7.0	4.5	80301164
30.0	25.5	3.0	7.0	4.5	80301165
30.0	30.5	3.0	7.0	4.5	80301166
30.0	35.5	3.0	7.0	4.5	80301167
30.0	40.5	3.0	7.0	4.5	80301168
35.0	25.5	3.0	7.0	4.5	80301169
35.0	30.5	3.0	7.0	4.5	80301170
35.0	35.5	3.0	7.0	4.5	80301171
35.0	40.5	3.0	7.0	4.5	80301172

## CTBL GR20



L [mm]	W [mm]	T [mm]	C [mm]	h [mm]	d [mm]	KCR08
40.0	20.5	3.0	28	7.0	4.5	80301173
40.0	25.5	3.0	28	7.0	4.5	80301174
40.0	30.5	3.0	28	7.0	4.5	80301175
45.0	25.5	3.0	28	7.0	4.5	80301176
45.0	30.5	3.0	28	7.0	4.5	80301177
45.0	35.5	3.0	28	7.0	4.5	80301178
55.0	25.5	3.0	41	6.0	4.5	80301179
55.0	30.5	3.0	41	6.0	4.5	80301180
55.0	35.5	3.0	41	6.0	4.5	80301181
65.0	20.5	3.0	28	6.0	4.5	80301183
65.0	25.5	3.0	28	6.0	4.5	80301184
65.0	30.5	3.0	28	6.0	4.5	80301185
65.0	35.5	3.0	28	6.0	4.5	80301186
65.0	40.5	3.0	28	6.0	4.5	80301187
70.0	25.5	3.0	41	6.0	4.5	80301188
80.0	25.5	3.0	66	6.0	4.5	80301189
80.0	30.5	3.0	66	6.0	4.5	80301190
80.0	35.5	3.0	66	6.0	4.5	80301191
80.0	40.5	3.0	66	6.0	4.5	80301192

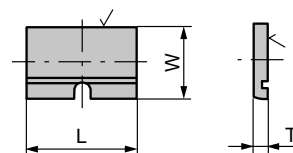
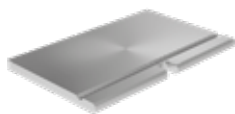
## CTBL MC00



L [mm]	W [mm]	T [mm]	KCR08
20.5	16.5	2.0	80301200
20.5	22.5	2.0	80301201
20.5	25.5	2.0	80301202
20.5	27.9	2.0	80301203
20.5	30.5	2.0	80301204
20.5	34.5	2.0	80301205
25.5	16.5	2.0	11907017

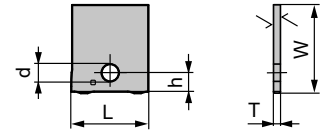
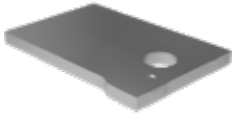


## CTBL MC00



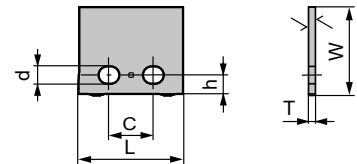
L [mm]	W [mm]	T [mm]	KCR08
25.5	22.5	2.0	11907019
25.5	25.5	2.0	80301206
25.5	27.9	2.0	80301207
25.5	30.5	2.0	80301208
25.5	34.5	2.0	80301209
30.5	16.5	2.0	11907020
30.5	22.5	2.0	80301210
30.5	25.5	2.0	80301211
30.5	27.9	2.0	80301212
30.5	30.5	2.0	80301213
30.5	34.5	2.0	80301214
35.5	22.5	2.0	80301215
35.5	25.5	2.0	80301216
35.5	32.5	2.0	80301217
40.5	16.5	2.0	80301218
40.5	22.5	2.0	80301219
40.5	25.5	2.0	80301220
40.5	27.9	2.0	80301221
40.5	30.5	2.0	80301222
40.5	32.5	2.0	80301223
40.5	34.5	2.0	80301224
50.5	22.5	2.0	80301225
50.5	25.5	2.0	80301226
50.5	27.9	2.0	80301227
50.5	30.5	2.0	80301228
50.5	32.5	2.0	80301229
50.5	34.5	2.0	80301230
60.5	22.5	2.0	80301231
60.5	25.5	2.0	80301232
60.5	27.9	2.0	80301233
60.5	30.5	2.0	80301234
60.5	32.5	2.0	80301235
80.5	16.5	2.0	80301236
150.0	15.5	2.0	11702321
150.0	20.5	2.0	11702320
150.0	25.5	2.0	11607971
150.0	30.5	2.0	11702318
150.0	35.5	2.0	11702317

## CTBL NN10



L [mm]	W [mm]	T [mm]	h [mm]	d [mm]	KCR08	HE40
12.0	16.6	2.0	6.0	5.0	82001412	
12.5	20.5	2.0	5.9	5.0	82002871	80358200
13.5	16.6	2.0	5.9	5.0	82001411	
15.5	20.5	2.0	5.9	5.0	82002872	
15.5	25.5	2.0	5.9	5.0	82002873	
16.4	20.5	2.0	5.9	5.0	82002874	
16.7	25.9	2.0	5.9	5.0	82002875	
18.4	18.9	2.0	5.9	5.0	82002876	
18.4	25.9	2.0	5.9	5.0	82002877	
18.4	36.3	2.0	5.9	5.0	82002878	
20.3	20.5	2.0	5.9	5.0	82002879	
20.3	25.5	2.0	5.9	5.0	82002880	80358209
20.3	30.4	2.0	5.9	5.0	82002881	80358210
22.3	25.5	2.0	5.9	5.0	82002882	
24.3	20.9	2.0	5.9	5.0	82002883	
24.3	28.4	2.0	5.9	5.0	82002884	
25.3	25.9	2.0	5.9	5.0	82002885	
25.3	35.3	2.0	5.9	5.0	82002886	
28.2	25.5	2.0	5.9	5.0	82002887	
28.2	35.3	2.0	5.9	5.0		80358217

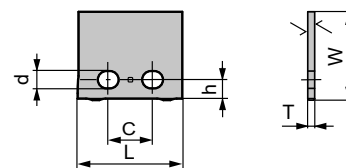
## CTBL NN20



L [mm]	W [mm]	T [mm]	h [mm]	d [mm]	C [mm]	KCR08	HE40
30.2	25.5	2.0	5.9	5.0	13.8	82002889	80358235
30.2	30.4	2.0	5.9	5.0	13.8	82002890	80358236
32.2	22.8	2.0	5.9	5.0	13.8	82002891	
32.2	35.4	2.0	5.9	5.0	13.8	82002892	
32.8	47.2	2.0	5.9	5.0	13.0	82002893	
35.2	26.0	2.0	5.9	5.0	13.0	82002894	

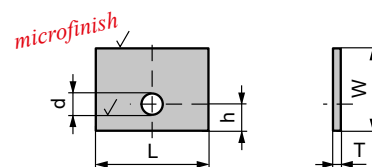
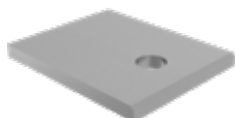


## CTBL NN20



L [mm]	W [mm]	T [mm]	h [mm]	d [mm]	C [mm]	KCR08	HE40
40.1	20.9	2.0	5.9	5.0	25.5	82002895	80358241
40.1	30.4	2.0	5.9	5.0	25.5	82002896	80358242
40.8	36.0	2.0	5.9	5.0	25.5	82002897	
42.8	31.0	2.0	5.9	5.0	25.5	82002898	
42.8	36.0	2.0	5.9	5.0	25.5		80358245
45.8	36.0	2.0	5.9	5.0	25.5	82002900	
49.9	20.9	2.0	5.9	5.0	25.5	82002901	
49.9	33.0	2.0	5.9	5.0	25.5	82002902	80358248
49.9	40.2	2.0	5.9	5.0	25.5	82002903	
60.9	25.8	2.0	5.9	5.0	26.0	82002904	80358250
81.0	36.0	2.0	6.0	5.0	44.0	82002968	

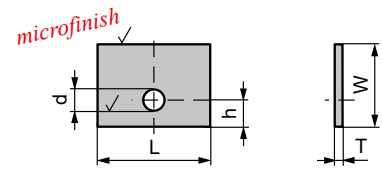
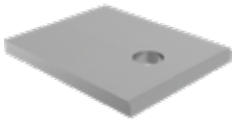
## CTBL IT10



L [mm]	W [mm]	T [mm]	h [mm]	d [mm]	KCR08
15.0	15.5	2.0	6.8	4.5	11965039
15.0	20.5	2.0	6.8	4.5	11965050
15.0	25.5	2.0	6.8	4.5	11965053
15.0	30.5	2.0	6.8	4.5	11965055
15.0	35.5	2.0	6.8	4.5	12133222
16.0	20.5	2.0	6.5	4.5	11482195
20.0	20.5	2.0	6.8	4.5	11965058
20.0	25.5	2.0	6.8	4.5	11965072
20.0	30.5	2.0	6.8	4.5	11965117
20.0	35.5	2.0	6.8	4.5	11965119
20.0	40.5	2.0	6.8	4.5	12045374
22.0	20.5	2.0	6.8	4.5	12090982
25.0	25.0	2.0	6.8	4.5	11556261
25.0	20.5	2.0	6.8	4.5	11965122
25.0	25.5	2.0	6.8	4.5	11965123

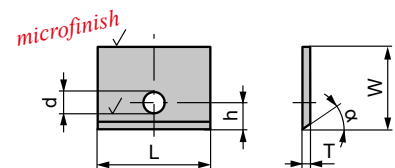
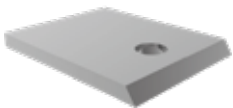


## CTBL IT10



L [mm]	W [mm]	T [mm]	h [mm]	d [mm]	KCR08
25.0	30.5	2.0	6.8	4.5	11965124
25.0	35.5	2.0	6.8	4.5	11965126
25.0	40.5	2.0	6.8	4.5	11965283
30.0	20.5	2.0	6.8	4.5	11965285
30.0	25.5	2.0	6.8	4.5	11965288
30.0	30.5	2.0	6.8	4.5	11965292
30.0	35.5	2.0	6.8	4.5	11827297
30.0	40.5	2.0	6.8	4.5	11965294
35.0	25.5	2.0	6.8	4.5	11965295

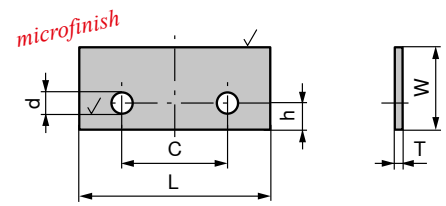
## CTBL IT11



L [mm]	W [mm]	T [mm]	h [mm]	d [mm]	$\alpha$ [°]	KCR08
15.0	20.5	2.0	6.3	4.5	35	11965312
15.0	25.5	2.0	6.3	4.5	35	11965315
20.0	20.5	2.0	6.3	4.5	35	11965337
20.0	25.5	2.0	6.3	4.5	35	11965340
25.0	25.5	2.0	6.3	4.5	35	11965363
25.0	30.5	2.0	6.3	4.5	35	11965365

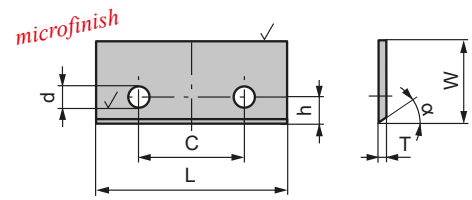
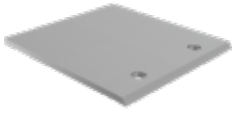


## CTBL IT20



L [mm]	W [mm]	T [mm]	h [mm]	C [mm]	d [mm]	KCR08
30.0	20.5	2.0	6.5	14	4.5	11965436
30.0	25.5	2.0	6.5	14	4.5	11965441
30.0	30.5	2.0	6.5	14	4.5	11965444
30.0	40.5	2.0	6.5	14	4.5	11844700
35.0	25.5	2.0	6.5	14	4.5	11965452
35.0	30.5	2.0	6.5	14	4.5	11965456
35.0	35.5	2.0	6.5	14	4.5	11965458
35.0	40.5	2.0	6.5	14	4.5	11965474
40.0	20.5	2.0	6.5	26	4.5	11965475
40.0	25.5	2.0	6.5	26	4.5	11965480
40.0	30.5	2.0	6.5	26	4.5	11965481
40.0	35.5	2.0	6.5	26	4.5	11965482
40.0	40.5	2.0	6.5	26	4.5	11965493
40.0	45.5	2.0	6.5	26	4.5	12006984
50.0	20.5	2.0	6.5	26	4.5	11965500
50.0	25.5	2.0	6.5	26	4.5	11965502
50.0	30.5	2.0	6.5	26	4.5	11965506
50.0	35.5	2.0	6.5	26	4.5	11965512
50.0	40.5	2.0	6.5	26	4.5	11965514
60.0	20.5	2.0	6.5	26	4.5	11965518
60.0	25.5	2.0	6.5	26	4.5	11965521
60.0	30.5	2.0	6.5	26	4.5	11965522
60.0	35.5	2.0	6.5	26	4.5	11965527
60.0	40.5	2.0	6.5	26	4.5	11965530
80.0	25.5	2.0	6.5	60	4.5	11965537
80.0	30.5	2.0	6.5	60	4.5	11965541
80.0	50.5	2.0	6.5	60	4.5	11965551

## CTBL IT21



L [mm]	W [mm]	T [mm]	C [mm]	h [mm]	d [mm]	$\alpha$ [°]	KCR08
30.0	35.5	2.0	14	6.3	4.5	35	11965602
35.0	30.5	2.0	18	6.3	4.5	35	11965605
50.0	25.5	2.0	26	6.3	4.5	35	11965659
70.0	35.5	2.0	26	6.3	4.5	35	11965744
100.0	30.5	2.0	60	6.3	4.5	35	11965753



# Strips

Our strips are also available in the innovative carbide grade KCR18+, combining corrosion resistance with higher performance: thanks to its toughness, you can even work on non-homogeneous parts with less risk of chipping. We have shortened the presentation of the product tables by only indicating the existing size ranges to provide a better overview of the great variety of our strips.

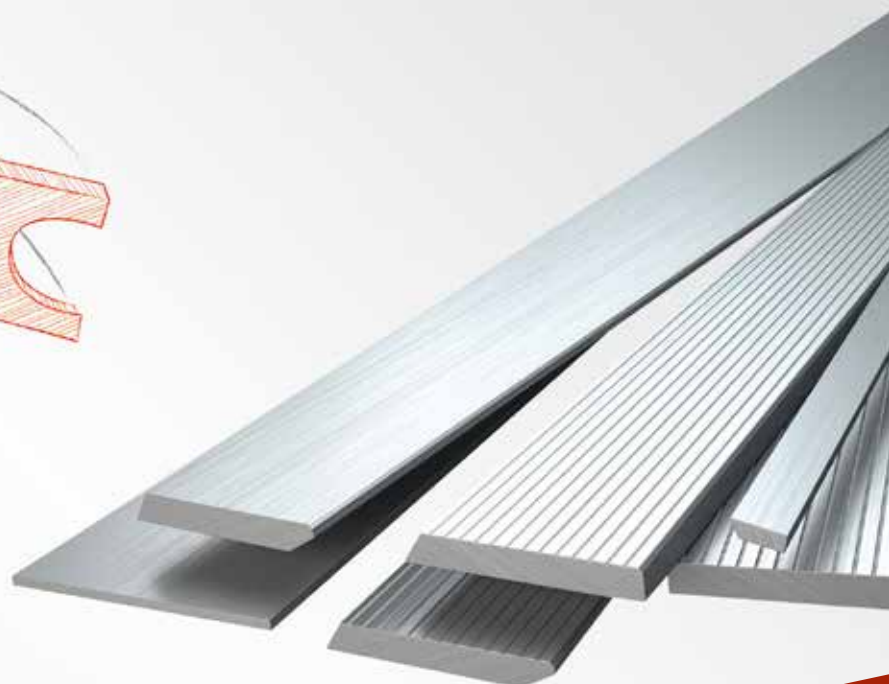
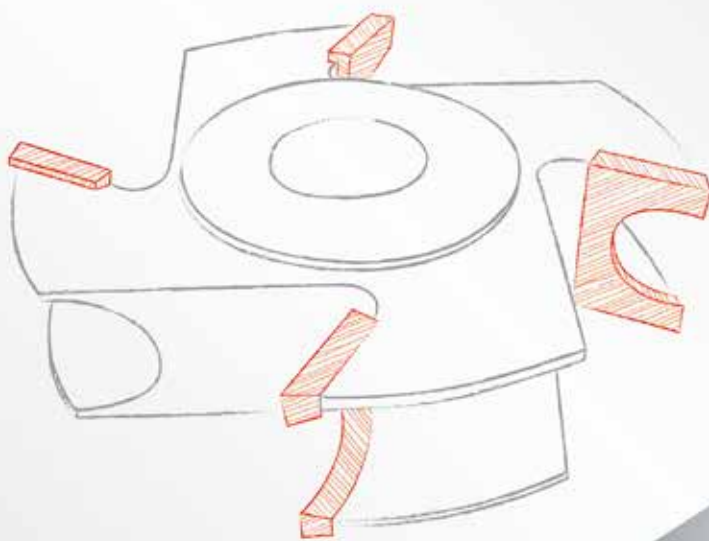


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## CERATIZIT designation system

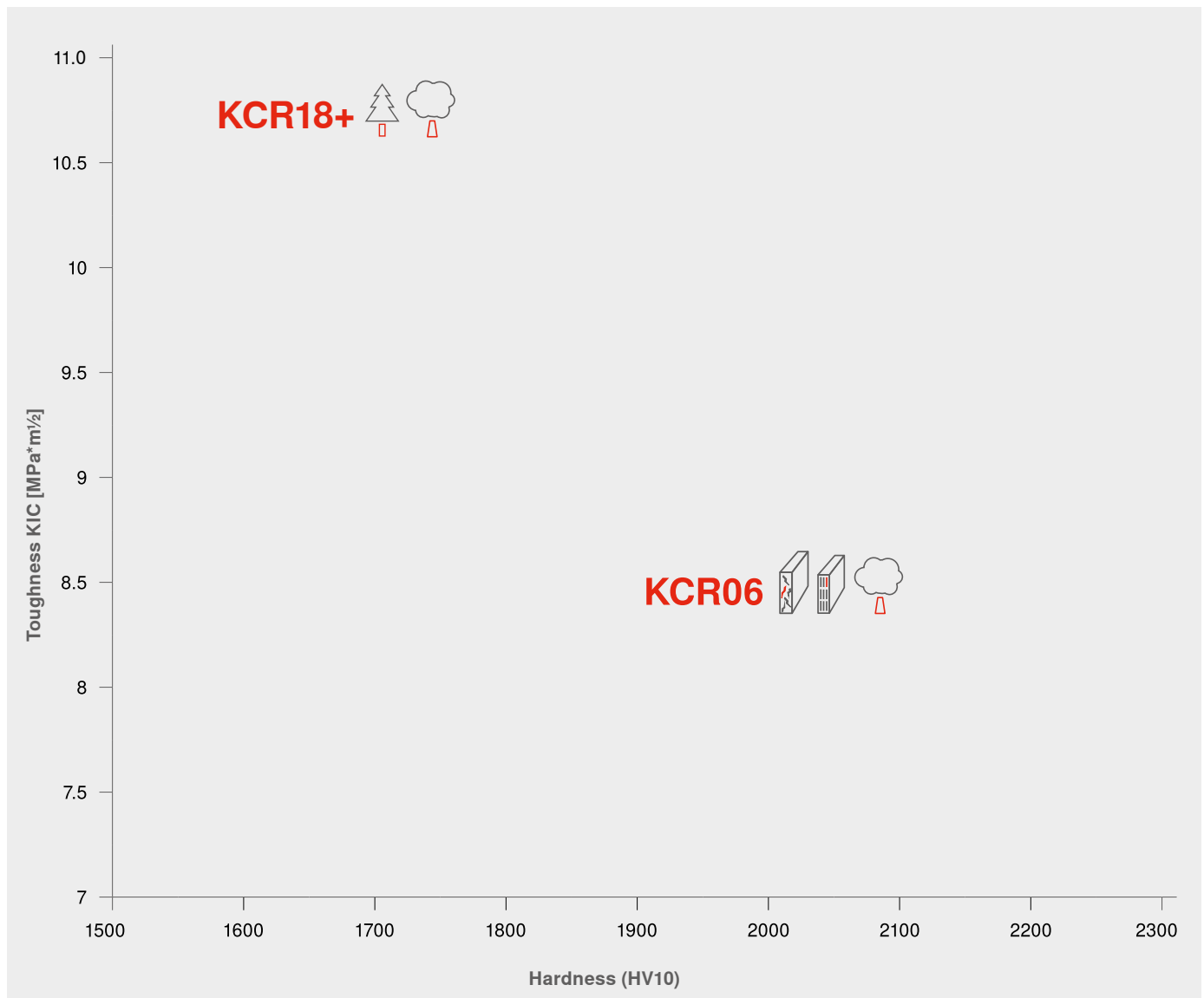
### Strips

	Product	Style	Thickness [mm]		Width [mm]		Length [mm]	Grade
Example	CTS	BG02-	5.0	X	14.0	X	400	KCR18+



## Grade recommendation

As each kind of wood has its own very specific properties, we offer a wide variety of grades in the field of wood machining. The graph and table will guide you in finding the right grade for your application.



Softwood



Hardwood



Chipboard



MDF/HDF



CERATIZIT grade code	Binder [m %]	Grain size	Hardness		Fracture toughness (K <sub>IC</sub> ) [MPa*m <sup>1/2</sup> ]	Transverse rupture strength [MPa]	Applications
			HV10	HRA			
KCR06	3.0	submicron	1950	93.6	8.5	2300	
KCR18+	9.5	submicron	1590	91.7	10.8	3750	
CTOPP10	10.5	submicron	1570	91.6	10.0	3000	



Softwood



Hardwood



Chipboard



MDF/HDF

# Portfolio – overview

	Type, description	Grade	page(s)
Conventional Style			
	CTS 00	CTOPP10	56
	CTS 01 / CTS 02	CTOPP10	56
Back grooves			
	CTS BG00	CTS BG00	57
	CTS BG01 / CTS BG02	CTS BG01 / CTS BG02	57
STB			
	STB	KCR18+	58

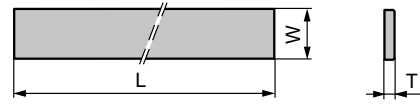
## Tolerances

Length [mm]	Tolerances [mm]
400	+0 / +8

Width [mm]	Tolerances [mm]
7 – 29	+0 / +0.5
30 – 40	+0 / +0.8

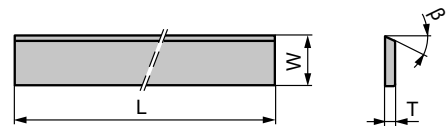
Thickness [mm]	Tolerances [mm]
2 – 7	+0 / +0.2

## CTS 00



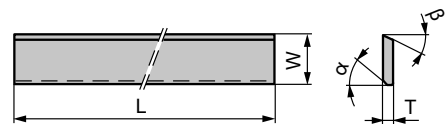
T [mm]	W [mm]	L [mm]	CTOPP10
2	3 – 19	310	•
3	3 – 31	310	•
4	4 – 40	310	•
5	5 – 20	310	•

## CTS 01



T [mm]	W [mm]	L [mm]	$\beta$ [°]	CTOPP10
2	3 – 19	310	35	•
3	3 – 31	310	35	•
4	4 – 25	310	35	•
5	5 – 20	310	35	•

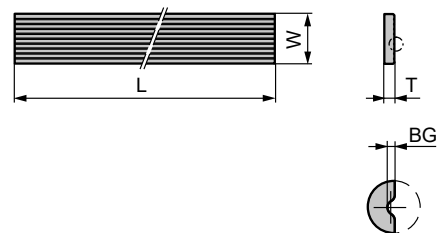
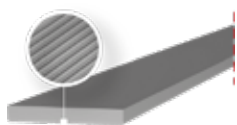
## CTS 02



T [mm]	W [mm]	L [mm]	$\alpha$ [°]	$\beta$ [°]	CTOPP10
2	3 – 19	310	30	35	•
3	3 – 31	310	30	35	•
4	4 – 40	310	30	35	•
5	5 – 20	310	30	35	•

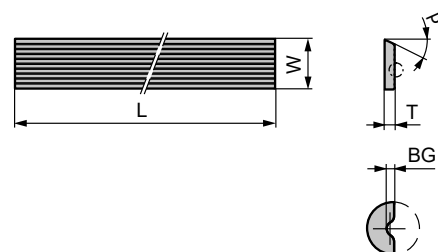
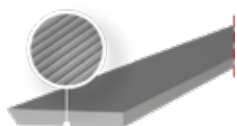


## CTS BG00



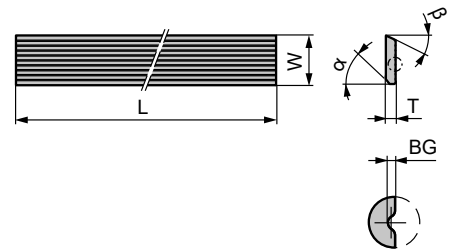
T [mm]	W [mm]	L [mm]	BG – groove depth [°]	KCR06	KCR18+
2	8 – 30	400	0.15	•	•
3	8 – 35	400	0.15	•	•
4	8 – 40	400	0.15	•	•
5	10 – 40	400	0.15	•	•
6	20 – 40	400	0.15	•	•

## CTS BG01



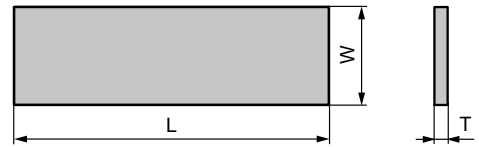
T [mm]	W [mm]	L [mm]	BG – groove depth [mm]	$\beta$ [°]	KCR06	KCR18+
2	8 – 30	400	0.15	35	•	•
3	8 – 35	400	0.15	35	•	•
4	10 – 40	400	0.15	35	•	•
5	10 – 40	400	0.15	35	•	•
6	20 – 40	400	0.15	35	•	•

## CTS BG02



T [mm]	W [mm]	L [mm]	BG – groove depth [mm]	$\alpha$ [°]	$\beta$ [°]	KCR06	KCR18+
3	10 – 35	400	0.15	30	35	•	•
4	10 – 40	400	0.15	30	35	•	•
5	10 – 40	400	0.15	30	35	•	•
6	20 – 40	400	0.15	30	35	•	•

## STB



T [inch]	W [inch]	L [inch]	KCR18+
1/16	1/4 – 1 1/4	6	•
3/32	3/16 – 3/4	6	•
1/8	1/4 – 1 1/2	6	•
5/32	3/8 – 2	6	•
3/16	1/4 – 1 1/2	6	•
1/4	3/8 – 1 1/4	6	•

# Blanks

We manufacture customised blanks according to the customer's requirements. The large variety of our range includes simple geometries in high volumes, as well as very complex geometries in small batches. The production options at our disposal, coupled with our carbide grade selection, enable our customers to match their products perfectly to market requirements.

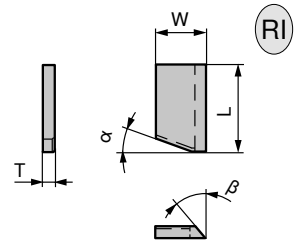
With our new cobalt surface treatment, you can benefit from easier and faster brazing. Blanks for drill tips are available in our market-leading special drilling grades, which are also fully impact- and wear-resistant.



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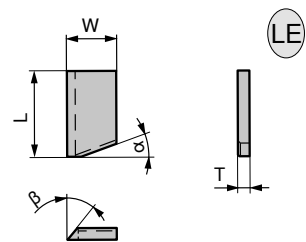


## CTDB RI



$\emptyset$ [mm]	L [mm]	W [mm]	T [mm]	$\alpha$ [°]	$\beta$ [°]	KCR10
15.0	6.5	10.5	2.5	15	30	12567164
16.0	7.0	10.5	2.5	15	30	12567166
17.0	7.5	10.5	2.5	15	30	12567168
18.0	8.0	10.5	2.5	15	30	12567170
20.0	9.0	10.5	2.5	15	30	12567171
22.0	10.0	10.5	2.5	20	40	12567173
23.0	10.5	10.5	2.5	20	40	12567174
24.0	11.0	10.5	2.5	20	40	12567176
25.0	11.5	10.5	2.5	20	40	12567178
26.0	12.0	10.5	2.5	20	40	12567179
28.0	13.0	10.5	2.5	20	40	12567180
30.0	14.0	10.5	2.5	20	40	12567182
32.0	15.0	10.5	2.5	20	40	12567185
34.0	16.0	10.5	2.5	20	40	12567186
35.0	16.5	10.5	2.5	20	40	12567187
40.0	19.0	10.5	2.5	20	40	12567189
45.0	21.5	10.5	2.5	20	40	12567190
50.0	24.0	10.5	2.5	20	40	12567192
55.0	26.5	10.5	2.5	20	40	12567193
60.0	29.0	10.5	2.5	20	40	12567196

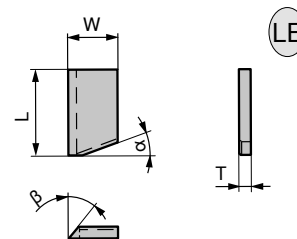
## CTDB LE



$\emptyset$ [mm]	L [mm]	W [mm]	T [mm]	$\alpha$ [°]	$\beta$ [°]	KCR10
15.0	6.5	10.5	2.5	15	30	12567198
16.0	7.0	10.5	2.5	15	30	12567199
17.0	7.5	10.5	2.5	15	30	12567200
18.0	8.0	10.5	2.5	15	30	12567202
20.0	9.0	10.5	2.5	15	30	12567203
22.0	10.0	10.5	2.5	20	40	12567204

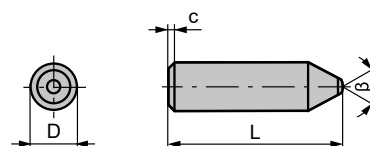


## CTDB LE



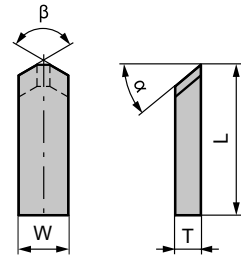
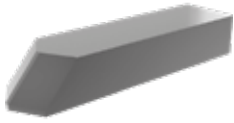
$\varnothing$ [mm]	L [mm]	W [mm]	T [mm]	$\alpha$ [°]	$\beta$ [°]	KCR10
23.0	10.5	10.5	2.5	20	40	12567206
24.0	11.0	10.5	2.5	20	40	12567207
25.0	11.5	10.5	2.5	20	40	12567209
26.0	12.0	10.5	2.5	20	40	12567210
28.0	13.0	10.5	2.5	20	40	12567212
30.0	14.0	10.5	2.5	20	40	12567213
32.0	15.0	10.5	2.5	20	40	12567216
34.0	16.0	10.5	2.5	20	40	12567217
35.0	16.5	10.5	2.5	20	40	12567219
40.0	19.0	10.5	2.5	20	40	12567220
45.0	21.5	10.5	2.5	20	40	12567221
50.0	24.0	10.5	2.5	20	40	12567222
55.0	26.5	10.5	2.5	20	40	12567224
60.0	29.0	10.5	2.5	20	40	12567225

## CTDB Z



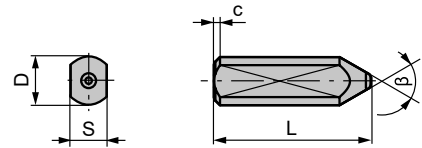
D	L [mm]	$\beta$ [°]	c [mm]	Chamfer angle [°]	KCR10
3.0	11.5	60	0.5	45	12567227
3.0	13.0	60	0.5	45	12567228
3.0	14.5	60	0.5	45	12567229
4.0	13.0	60	0.5	45	12567230
4.0	15.0	60	0.5	45	12567231

## CTDB S



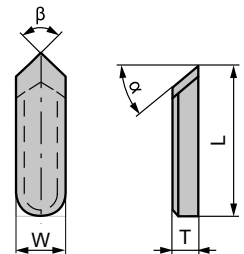
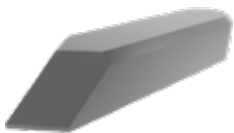
L	W [mm]	T [mm]	$\alpha$ [°]	$\beta$ [°]	KCR10
12.0	3.0	2.5	40	120	12567232
13.0	4.0	2.5	40	120	12567233
14.0	5.0	3.0	40	120	12567234
15.0	4.0	2.5	40	120	12567235
15.0	5.0	2.5	40	120	12567239

## CTDB ZF



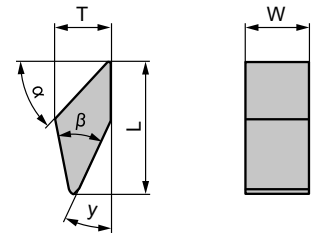
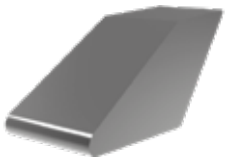
D [mm]	L [mm]	S [mm]	$\beta$ [°]	c [mm]	Chamfer angle [°]	KCR10
4.0	13.0	3.0	60	0.5	45	12567241

## CTDB R



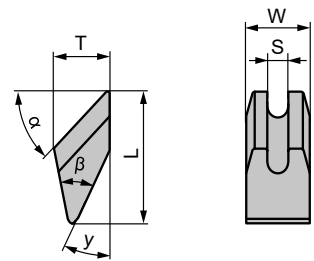
L [mm]	W [mm]	T [mm]	$\alpha$ [°]	$\beta$ [°]	KCR10
13.0	4.0	3.0	35	90	12567242

## CTSO



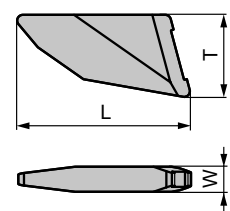
L [mm]	W [mm]	T [mm]	$\alpha$ [°]	$\beta$ [°]	$\gamma$ [°]	KCR10
12.8	6.2	5.3	47	25	11	12567243
12.8	8.2	5.3	47	25	11	12567244

## CTSM



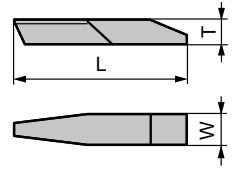
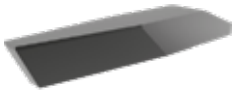
L [mm]	W [mm]	T [mm]	S [mm]	$\alpha$ [°]	$\beta$ [°]	$\gamma$ [°]	KCR10
12.8	6.2	5.4	2.0	47	25	25	12567245

## 16015



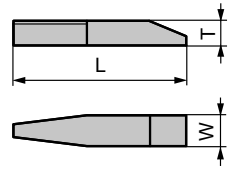
L [mm]	W [mm]	T [mm]	KCR18+
30.3	14.4	4.4	12567247

## 37800



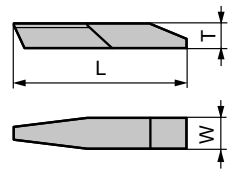
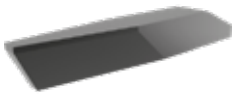
L [mm]	W [mm]	T [mm]	KCR18+
28.0	5.0	4.0	12567250

## 40330



L [mm]	W [mm]	T [mm]	KCR18+
23.5	4.5	5.0	12567251

## 45757



L [mm]	W [mm]	T [mm]	KCR18+
28.2	4.5	4.2	12567252
28.2	5.0	4.0	12567253





# Rods

We offer a wide range of solid carbide rods for the manufacturing of milling cutters and drills for wood working. Rods made of submicron grades which were specially developed for wood working are able to achieve high cutting speeds along with maximum wear resistance. Whether you are machining hardwood, chipboard, MDF or HDF – we can help you choose the most suitable grade for your application.

Decades of experience in extruding have enabled us to develop an economically efficient production process, so we can offer you an excellent price-performance ratio. We have shortened the presentation of the product tables by only indicating the standard size ranges to provide a better overview of the great variety of our rods.

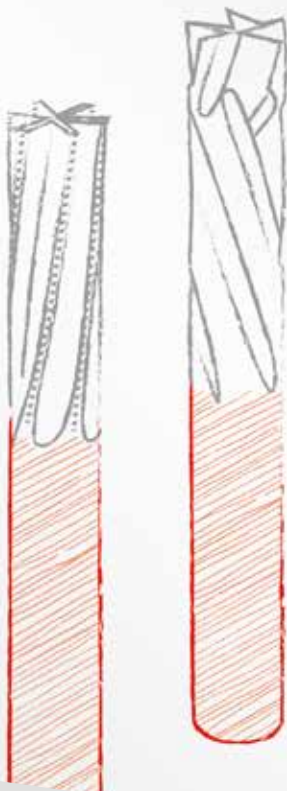


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## CERATIZIT designation system

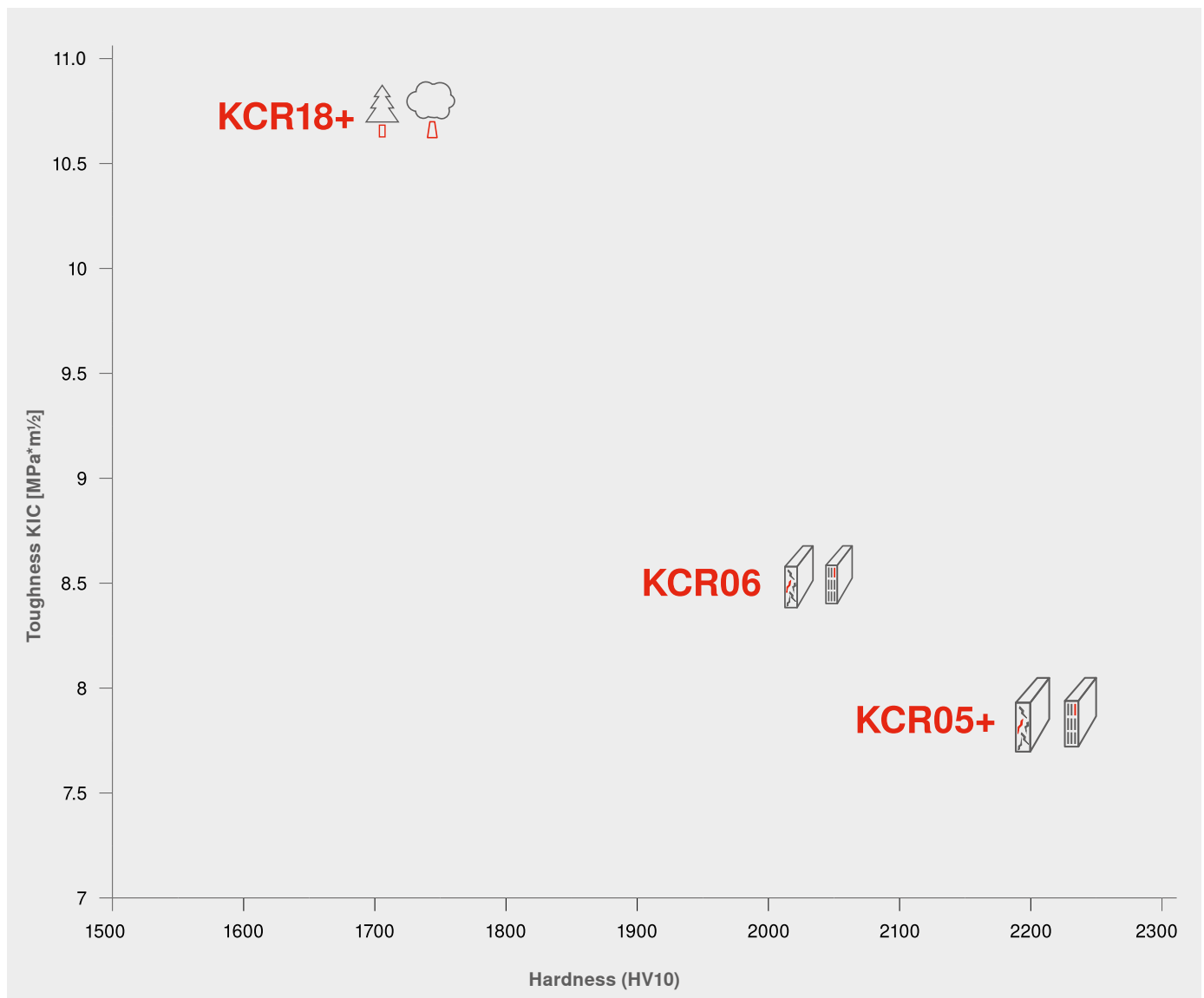
### Rods

	Product	Style	Diameter [mm]	Length [mm]	Grade [mm]
Example	CTRG	W01	3.0	50.0	KCR06



# Grade recommendation

As each kind of wood has its own very specific properties, we offer a wide variety of grades in the field of wood machining. The graph and table will guide you in finding the right grade for your application.



Softwood



Hardwood



Chipboard



MDF/HDF



CERATIZIT grade code	Binder [m %]	Grain size	Hardness		Fracture toughness (K <sub>IC</sub> ) [MPa*m <sup>1/2</sup> ]	Transverse rupture strength [MPa]	Applications
			HV10	HRA			
KCR05+	3.0	ultrafine	2160	94.5	7.8	2900	
KCR06	3.0	submicron	1950	93.6	8.5	2600	
KCR18+	9.5	submicron	1590	91.7	10.8	3750	
CTOPP10	10.0	submicron	1570	91.6	10.0	3000	



Softwood



Hardwood


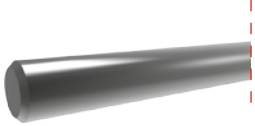


Chipboard

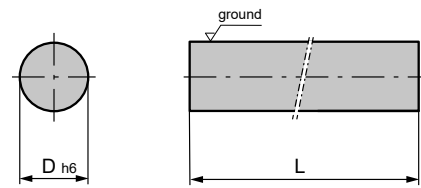


MDF/HDF

## Portfolio – overview

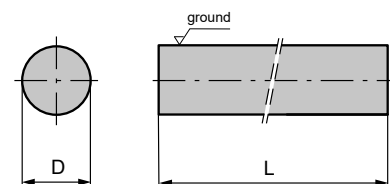
	Type, description	Grade	page(s)
 Standard length without chamfer	CTRG W00	KCR05+ KCR06 KCR18+ CTOPP10	<b>70</b>
 Cut-to-length with one chamfer	CTRG W01	KCR05+ KCR06 CTOPP10	<b>71</b>

## CTRG W00 – ground rods h6 [mm]



D [mm]	L [mm]	KCR06	KCR05+	KCR18+
2.0	330	11331962		
2.5	330	11331963		
2.7	330	12272129		
3.0	330	11332639	11908004	
4.0	330	11332640	11908005	12549614
5.0	330	11332641	11908007	
5.5	330	11332642	11908008	
6.0	330	11332643	11908009	12549627
7.0	330	11332645	11908010	
8.0	330	11332648	11908012	12620528
8.5	330	12328929		
9.0	330	11332654	11908014	
10.0	330	11332655	11908015	12549641
10.5	330	11332657		
12.0	330	11332659	11908016	12549677
13.0	330	11332662	11908017	
14.0	330	6263454		
14.0	330		11908018	12549680
16.0	330	11282333	11908019	
16.0	330			12620530
18.0	330	11332673	11908020	12549685
20.0	330	11332676	11908021	12549688
25.0	330	12307069		
25.0	330		11908023	

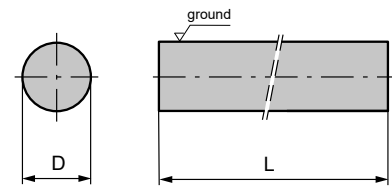
## CTRG W00 – ground rods h6 [inch]



D [inch]	L [inch]	KCR05+	KCR06
0.250	13		11331932
0.313	13		11331937

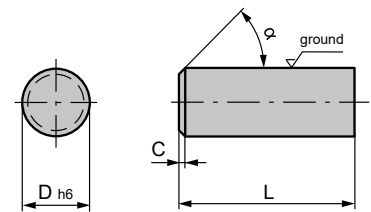


## CTRG W00 – ground rods h6 [inch]



D [inch]	L [inch]	KCR05+	KCR06
0.375	13	12272927	11331943
0.500	13	12272926	11331944
0.625	13		11331953
0.750	13		11331958

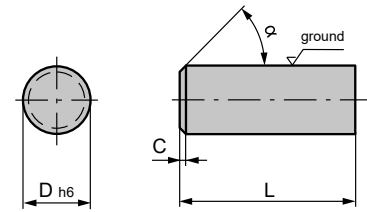
## CTRG W01 – ground rods h6 [mm]



D [mm]	L [mm]	C [mm]	$\alpha$ [°]	KCR06	KCR05+	CTOPP10
2.0	50.0	0.2	45	11330766		
3.0	40.0	0.3	45	11330781		11723538
3.0	42.0	0.3	45			12541742
3.0	45.0	0.3	45			11983579
3.0	50.0	0.3	45			11723539
3.0	50.0	0.3	45	11330783		
3.0	55.0	0.3	45	11435513		12541747
3.5	41.0	0.4	45	11870650		
4.0	25.0	0.4	45			12570746
4.0	40.0	0.4	45			11853927
4.0	50.0	0.4	45	11330786		
4.0	50.0	0.4	45			11723579
4.0	55.0	0.4	45			11723580
4.0	55.0	0.4	45	11330790		
4.0	60.0	0.4	45			11981210
5.0	40.0	0.4	45			11930660
5.0	46.0	0.4	45		12427225	
5.0	50.0	0.4	45			11723581
5.0	50.0	0.4	45	11330793		
5.0	55.0	0.4	45	11330802		
5.0	55.0	0.4	45			11723582
5.0	60.0	0.4	45			11723583



## CTRG W01 – ground rods h6 [mm]

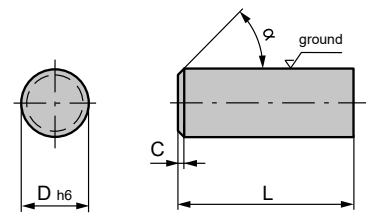


D [mm]	L [mm]	C [mm]	α [°]	KCR06	KCR05+	CTOPP10
5.0	60.0	0.4	45	11330806		
5.0	70.0	0.4	45			11981215
5.0	80.0	0.4	45			11864338
6.0	25.0	0.4	45	11330930		
6.0	35.0	0.4	45	11330944		
6.0	40.0	0.4	45	11330945		
6.0	45.0	0.4	45	11390142		11983583
6.0	50.0	0.4	45			11723585
6.0	50.0	0.4	45	11330950		
6.0	55.0	0.4	45	11435514		11981216
6.0	60.0	0.4	45			11723586
6.0	60.0	0.4	45	11330956	12026157	
6.0	64.0	0.4	45			12012661
6.0	70.0	0.4	45	11330961	11896071	11723587
6.0	75.0	0.4	45		12360714	
6.0	80.0	0.4	45			11723589
7.0	55.0	0.5	45	11435516		
8.0	34.0	0.6	45			12063177
8.0	42.5	0.6	45			11981407
8.0	50.0	0.6	45	11331105		
8.0	50.0	0.6	45			11723591
8.0	55.0	0.6	45	11435517		11997498
8.0	60.0	0.6	45	11331150	12280145	
8.0	60.0	0.6	45			11723593
8.0	65.0	0.6	45			12029282
8.0	70.0	0.6	45			11723540
8.0	70.0	0.6	45	11331155	11896070	
8.0	75.0	0.6	45		12026165	11886617
8.0	80.0	0.6	45	11331157	12254663	
8.0	80.0	0.6	45			11723541
8.0	85.0	0.6	45	11960187		
8.0	100.0	0.6	45	11568109	11904184	11886616
8.0	110.0	0.6	45			12156101
8.0	120.5	0.6	45			12445310
10.0	55.0	0.6	45	11331160		11723546
10.0	60.0	0.6	45			11896585
10.0	61.0	0.6	45			11723547
10.0	65.0	0.6	45	11331162		11723548
10.0	70.0	0.6	45	11331170		





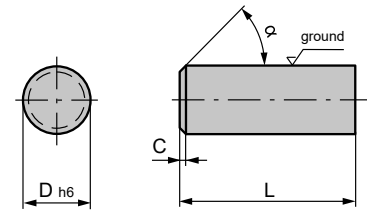
## CTRG W01 – ground rods h6 [mm]



D [mm]	L [mm]	C [mm]	$\alpha$ [°]	KCR06	KCR05+	CTOPP10
10.0	70.0	0.6	45			11723549
10.0	70.0	0.6	45		12280147	
10.0	75.0	0.6	45	11331174		
10.0	75.0	0.6	45			11723550
10.0	80.0	0.6	45	11331177	11714302	
10.0	80.0	0.6	45			11723551
10.0	80.0	0.6	45			
10.0	85.0	0.6	45	12564390		
10.0	90.0	0.6	45			11723552
10.0	90.0	0.6	45	11331184		
10.0	100.0	0.6	45	11331187		11723543
10.0	110.0	0.6	45			11990139
10.0	120.0	0.6	45	11331194		
10.0	136.0	0.6	45			12315951
11.0	80.0	0.6	45			11723553
11.0	80.0	0.6	45	11331202		
11.0	90.0	0.6	45	11331263		
12.0	60.0	0.6	45		12360731	
12.0	70.0	0.6	45			11981408
12.0	71.0	0.6	45			11723557
12.0	71.0	0.6	45	11331279		
12.0	75.0	0.6	45	11207393		11990136
12.0	80.0	0.6	45	11331281	11965766	
12.0	80.0	0.6	45			11723558
12.0	80.0	0.6	45			
12.0	85.0	0.8	45			11990137
12.0	90.0	0.6	45			11723559
12.0	90.0	0.6	45	11331283	11968560	
12.0	100.0	0.6	45	11331284		11723555
12.0	110.0	0.6	45	11915359		12017962
12.0	117.0	0.6	45			12445309
12.0	120.0	0.6	45	11331298		11723556
12.0	130.0	0.6	45	11851592		12017634
14.0	90.0	0.6	45	6268461		
14.0	100.0	0.6	45	11331332		11723561
14.0	110.0	0.6	45	11331333		11723562
14.0	120.0	0.6	45	11331334		11723563
14.0	160.0	0.6	45			12015073
16.0	70.0	0.6	45			12034872

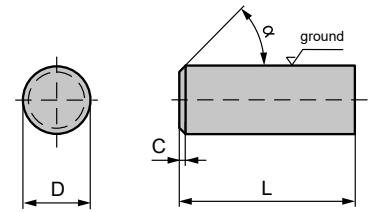


## CTRG W01 – ground rods h6 [mm]



D [mm]	L [mm]	C [mm]	α [°]	KCR06	KCR05+	CTOPP10
16.0	80.0	0.6	45	11367807	12062158	
16.0	80.0	0.6	45			11983584
16.0	90.0	0.6	45			11823358
16.0	90.0	0.6	45	11414525		
16.0	100.0	0.6	45	11331342		11723565
16.0	100.0	0.8	45		12083998	
16.0	110.0	0.6	45	11331343		11723566
16.0	120.0	0.6	45	11331346		11723567
16.0	130.0	0.6	45			12024708
16.0	150.0	0.6	45	11331347		11723568
16.0	185.0	0.6	45	11886006		
18.0	100.0	0.6	45		12382271	
18.0	100.0	0.6	45	11331351		11723569
18.0	110.0	0.6	45	11331352		11723570
18.0	120.0	0.6	45	11331363		11723571
18.0	170.0	0.6	45	6263456		
20.0	100.0	0.6	45	11331364	12587176	11723573
20.0	110.0	0.6	45	11331366		11723574
20.0	115.0	0.6	45			11898849
20.0	120.0	0.6	45	11331368	11906999	11723575
20.0	130.0	0.6	45	11351539		11723576
20.0	135.0	0.6	45	11379827		11898850
20.0	140.0	0.6	45	11351549		11723577
20.0	145.0	0.6	45			12038767
20.0	150.0	0.6	45	11713422		11723578
20.0	170.0	0.6	45	11563088		
20.0	180.0	1.0	45			12123908
20.0	190.0	1.0	45			14506984
20.0	230.0	1.0	45			14506985
25.0	100.0	0.6	45			12062165
25.0	170.0	1.2	45			12126192
25.0	175.0	0.6	45	11520274		
25.0	190.0	1.2	45			14506986
25.0	200.0	0.6	45			11842880
25.0	230.0	1.2	45			14506988
25.0	250.0	1.2	45			14506990
30.0	190.0	1.3	45			12126186
30.0	250.0	1.3	45			12126189
30.0	290.0	1.3	45			14506991

## CTRG W01 – ground rods h6 [inch]

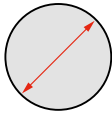


D [inch]	L [inch]	C [inch]	$\alpha$ [°]	KCR18+	KCR05+	KCR06	CTOPP10
0.188	2.500	0.025	45			11900086	
0.250	2.000	0.025	45				11774107
0.250	2.000	0.025	45			11331709	
0.250	2.500	0.025	45		11714291	11248640	
0.250	2.500	0.025	45				11774108
0.250	2.500	0.025	45				
0.250	3.000	0.025	45				11774109
0.250	3.000	0.025	45			11331711	
0.250	3.500	0.025	45			11331713	
0.250	4.000	0.025	45			11331715	
0.313	2.500	0.025	45			11331724	
0.313	3.000	0.025	45			11331726	
0.313	6.000	0.025	45			12009297	
0.375	2.500	0.025	45			11248641	
0.375	3.000	0.025	45		11714296	11248643	
0.375	3.000	0.025	45	12407126			
0.375	3.250	0.025	45			11811276	
0.375	3.500	0.025	45			11331727	
0.375	4.000	0.025	45			11811271	
0.438	4.500	0.030	45			12009299	
0.500	3.000	0.030	45				11774096
0.500	3.000	0.030	45		11926731	11248631	
0.500	3.500	0.030	45		11714279	11248633	11774098
0.500	4.000	0.030	45				11774092
0.500	4.000	0.030	45		11926732	11248634	
0.500	4.063	0.030	45			11352903	
0.500	4.500	0.030	45			11325374	
0.500	5.000	0.030	45			11331728	
0.500	5.500	0.030	45			11331733	
0.563	4.000	0.030	45			11600244	
0.625	4.000	0.030	45			11331734	
0.625	4.500	0.030	45			11379834	
0.625	6.500	0.030	45			12009298	
0.750	4.000	0.040	45			11325376	
0.750	4.750	0.040	45			11331921	
0.750	5.000	0.040	45			11268699	

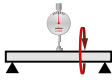
# Specifications

## CTRG W00

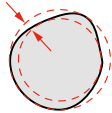
### Outside diameter

Ground	Outside diameter [mm]	Tolerance h6 [mm]
	1.0 – 3.0	+0/-0.006
	3.1 – 6.0	+0/-0.008
	6.1 – 10.0	+0/-0.009
	10.1 – 18.0	+0/-0.011
	18.1 – 30.0	+0/-0.013
	30.1 – 40.0	+0/-0.016

### Straightness

Ground	Outside diameter [mm]	max. deflection h6 [mm]
	1.0 – 2.9	1.2
	3.0 – 5.9	0.15
	6.0 – 7.9	0.12
	8.0 – 9.9	0.10
	10.0 – 11.9	0.08
	12.0 – 19.9	0.05
	20.0 – 40.0	< 0.05

### Roundness

Ground	Outside diameter [mm]	Tolerance RGI h6 [mm]
	1.0 – 3.0	0.003
	3.1 – 6.0	0.004
	6.1 – 10.0	0.005
	10.1 – 30.0	0.006
	30.1 – 40.0	0.008

### Length

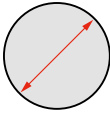
Ground	Tolerance [mm]
	+ 5

### Surface finish

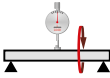
Executions	Ra <sub>max</sub> [μm]
	0.4

## CTRG W01

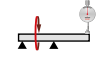
### Outside diameter

	Outside diameter [mm]	Tolerance h6 [mm]
	1.0 – 3.0	+0/-0.006
	3.1 – 6.0	+0/-0.008
	6.1 – 10.0	+0/-0.009
	10.1 – 18.0	+0/-0.011
	18.1 – 30.0	+0/-0.013
	30.1 – 40.0	+0/-0.016

### Roundness

	Outside diameter [mm]	Tolerance h6 [mm]
	1.0 – 3.0	0.003
	3.1 – 6.0	0.004
	6.1 – 10.0	0.005
	10.1 – 25.0	0.006

### Run-out

	Outside diameter [mm]	max. concentricity [μm] starting length [mm]		
		30 – 65	65 – 80	80 – 120
	1.5 – < 6	8	8	15
	6 – < 50	3	5	10

### Length

	Designation	Total length tolerance [mm]
	CTRG	+ 1%

### Surface finish

	Ra <sub>max</sub> [μm]
	0.4





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