

# Your partner for metal sawing

## Updated version

CERATIZIT is a high-tech engineering group specialised in tooling and hard material technologies.

**Tooling the Future**

[www.ceratizit.com](http://www.ceratizit.com)



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## Saw tips for metal sawing

In the field of saw tip production, we have long-standing experience and are known for pioneering innovations in the world of metal cutting. Whether for band saws or circular saws, with Toolmaker Solutions by CERATIZIT you will find a wide variety of saw tips for metal sawing.

The combination of high carbide quality, state-of-the-art manufacturing technologies and comprehensive application knowledge enables us to support our customers when developing and producing the best carbide saws.

Most of the carbide grades presented here are surface-treated, ready-to-braze and suitable for PVD coating. For our band sawing tips we offer cobalt and nickel coating suitable for resistance welding.

We now also offer the new cermet grade CTF34T, which performs excellently in connection with steel sawing at high temperature.



## Grades for metal sawing

### P grades

Grade	Binder	Grain size	Density [g/cm <sup>3</sup> ]	Hardness		Fracture toughness (SEVNB) [MPa*m <sup>1/2</sup> ]	Transverse rupture strength [MPa]
				[HV10]	[HRA]		
S25T	9.5 % Co	medium	12.50	1550	91.5	10.5	2800
S25U	9.0 % Co	fine	11.70	1490	91.0	10.2	2700
S40T	11.0 % Co	fine	13.25	1440	90.6	13.5	2400
S40U	13.5 % Co	fine	12.50	1400	90.3	11.0	2000
SMX	10.5 % Co	fine	12.40	1550	91.5	10.0	2200

### K grades

Grade	Binder	Grain size	Density [g/cm <sup>3</sup> ]	Hardness		Fracture toughness (SEVNB) [MPa*m <sup>1/2</sup> ]	Transverse rupture strength [MPa]
				[HV10]	[HRA]		
CTS12D	6.0 % Co	submicron	14.95	1800	92.9	8.8	3700
CTS18D	9.0 % Co	submicron	14.55	1610	91.9	11.0	3800
CTS22D	11.0 % Co	submicron	14.35	1520	91.2	12.0	3900
CTS24D	12.0 % Co	submicron	14.25	1480	90.9	12.5	4000

### Chrome grades

Grade	Binder	Grain size	Density [g/cm <sup>3</sup> ]	Hardness		Fracture toughness (SEVNB) [MPa*m <sup>1/2</sup> ]	Transverse rupture strength [MPa]
				[HV10]	[HRA]		
KCR05+	3.0 % Co	ultrafine	15.25	2160	94.5	7.8	2900
KCR10	4.0 % Co	fine	15.15	1780	92.8	10.1	2800

### Cermet grade

Grade	Binder	Grain size	Density [g/cm <sup>3</sup> ]	Hardness		Fracture toughness (SEVNB) [MPa*m <sup>1/2</sup> ]	Transverse rupture strength [MPa]
				[HV10]	[HRA]		
CTF34T	17.0 % Co + Ni	medium	6.40	1490	91.0	10.0	1960

## Tips for circular saws

For circular saws, we provide one of the most extensive standard ranges of grades and styles, with different dimensions and angles. It goes without saying that we are happy to produce other geometries for you on request.





## Cermet grade CTF34T

### Long lifetime and easy handling

Take advantage now of our new cermet grade CTF34T for metal sawing. Your benefits: 10 % longer lifetime compared with common grades available on the market.

Cermet combines the best properties of both ceramic and carbide. If you are looking for a corrosion- and heat-resistant material, cermet is the right choice for you.



Grade	Binder	Grain size	Density [g/cm <sup>3</sup> ]	Hardness		Fracture toughness (SEVNB) [MPa*m <sup>1/2</sup> ]	Transverse rupture strength [MPa]
				[HV10]	[HRA]		
CTF34T	17.0 % Co + Ni	medium	6.40	1490	91.0	10.0	1960

### Available geometries:

Type, description	L [mm]	W [mm]	T [mm]	CTF34T
38111	3.70	2.30	2.50	12142490
38111	3.70	2.50	2.50	12142493
38111	3.70	2.90	2.50	12142495
38111	3.70	3.00	2.50	12142498
50661	4.32	2.30	2.70	12012636
50661	4.32	2.50	2.70	12012638
50661	4.32	3.00	2.70	12012639
50661	4.32	3.60	2.70	12126169

## Grade recommendation

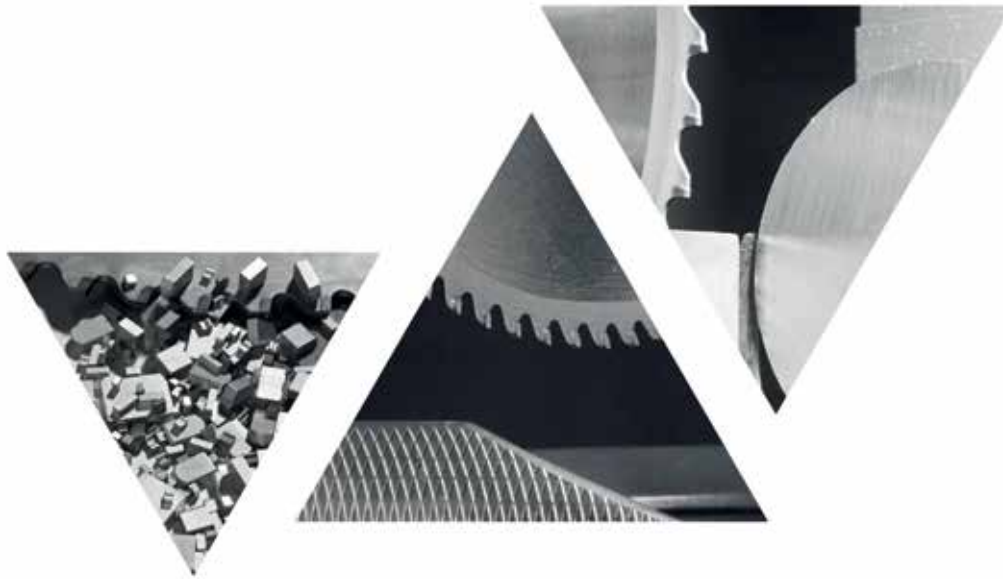
As each metal has its very own specific properties, we offer a wide variety of grades in the field of metal sawing. The table below will guide you in finding the right grade for your application.



Grade	Non-ferrous, Aluminium	Cast iron	Steel	Composite material	Stainless steels	Titanium	Nickel alloy
KCR05+	• • •			• • • •			
KCR10	• • • •						
CTF34T			• • • •				
S25T*			• • • •				
S25U*			• • •				
S40T*			• • • •				
S40U*			• • •				
SMX				• • • •			
CTS12D		• • • •					
CTS18D		• • •	• • • •	• • •	• • • •	• • • •	
CTS22D					• • •	• • • •	• • •
CTS24D						• • •	• • • •

S25U\* / S40U\*: best price / performance ratio  
 S25T\* / S40T\*: superior performance

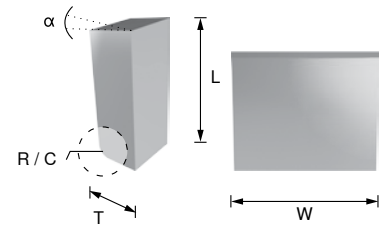




Binder	Grain size	Density [g/cm <sup>3</sup> ]	Hardness		Fracture toughness (SEVNB) [MPa*m <sup>1/2</sup> ]	Transverse rupture strength [MPa]
			[HV10]	[HRA]		
3.0 % Co	ultrafine	15.25	2160	94.5	7.8	2900
4.0 % Co	fine	15.15	1780	92.8	10.1	2800
17.0 % Co + Ni	medium	6.40	1490	91.0	10.0	1960
9.5 % Co	medium	12.50	1550	91.5	10.5	2800
9.0 % Co	fine	11.70	1490	91.0	10.2	2700
11.0 % Co	fine	13.25	1440	90.6	13.5	2400
13.5 % Co	fine	12.50	1400	90.3	11.0	2000
10.5 % Co	fine	12.40	1550	91.5	10.0	2200
6.0 % Co	submicron	14.95	1800	92.9	8.8	3700
9.0 % Co	submicron	14.55	1610	91.9	11.0	3800
11.0 % Co	submicron	14.35	1520	91.2	12.0	3900
12.0 % Co	submicron	14.25	1480	90.9	12.5	4000

## Full range

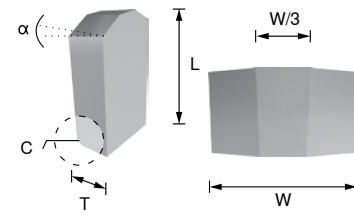
### Block design



Type, description	L [mm]	W [mm]	T [mm]	$\alpha$ [°]	r [mm]	c [mm]	Chamfer angle [°]
51500	4.4	2.0 – 6.5	2.4	0	0.5		
51508	4.4	2.0 – 11.5	2.9	0	0.5		
20771	5.3	2.0 – 15.0	2.7	8	1.0		
20772	7.0	2.0 – 17.0	4.0	8		1.0	45
20771	7.5	2.0 – 15.0	4.0	8	1.0		
20771	8.0	2.0 – 8.0	2.6	8	1.0		
20771	8.0	2.0 – 14.0	3.0	8	1.0		
20771	8.0	2.0 – 14.0	4.0	8	1.0		
20771	9.0	2.0 – 17.0	4.0	8	1.0		
20772	10.0	2.0 – 10.0	3.2	8		1.0	45
20771	10.0	2.0 – 15.0	4.0	8	1.0		
20771	10.0	2.0 – 17.0	4.5	8	1.0		
20771	10.5	2.0 – 18.0	2.6	8	1.0		
20771	10.5	2.0 – 16.0	3.0	8	1.0		
20771	10.5	2.0 – 16.5	3.5	8	1.0		
20771	11.0	2.0 – 14.0	3.5	8	1.0		
20771	11.0	2.0 – 15.0	4.0	8	1.0		
20771	12.0	2.0 – 17.0	4.0	8	1.0		
20772	12.0	2.0 – 17.0	4.0	8		1.0	45
20771	12.0	2.0 – 15.0	5.0	8	1.0		
20771	13.0	2.0 – 15.0	4.0	8	1.0		
20772	13.0	2.0 – 15.0	4.0	8		1.0	45
20771	15.0	2.0 – 17.0	4.0	8	1.0		
20772	15.0	2.0 – 17.0	4.0	8		1.0	45
20771	15.0	2.0 – 16.5	6.0	8	1.0		
20772	16.0	2.0 – 14.0	4.0	8		1.0	45
20772	20.0	2.0 – 20.0	4.0	8		1.0	45
20771	20.0	2.0 – 22.0	6.0	8	1.0		
20772	15.0	2.0 – 16.5	6.0	8		1.0	45
20772	20.0	2.0 – 22.0	6.0	8		1.0	45

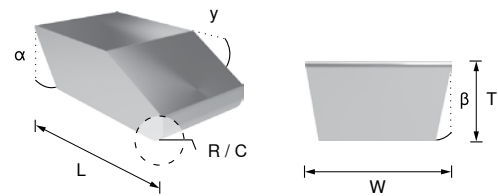
## Top angle ( $\alpha \leq 10^\circ$ )

### Block design tapered



Type, description	L [mm]	W [mm]	T [mm]	$\alpha$ [°]	c [mm]	Chamfer angle [°]
20769	12.3	7.2	4	8	0.6	45
20769	15.3	8.2	4	8	0.6	45

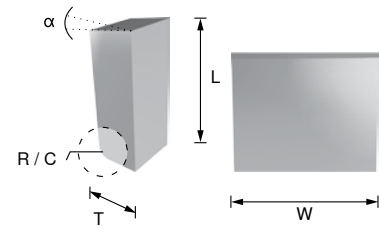
### Straight design



Type, description	L [mm]	W [mm]	T [mm]	$\alpha$ [°]	$\beta$ [°]	$\gamma$ [°]	r [mm]
51449	6.5	2.0 – 6.5	2.3	10	2	70	0.5
60163	8.0	2.0 – 6.5	2.3	10	5	70	0.8

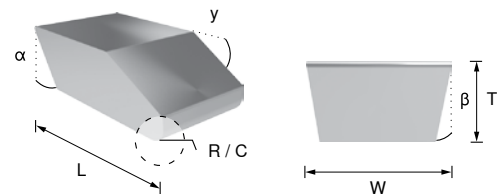
## Top angle ( $\alpha > 10^\circ$ )

### Block design



Type, description	L [mm]	W [mm]	T [mm]	$\alpha$ [°]	r [mm]	c [mm]	Chamfer angle [°]
60798	6.1	2.0 – 6.5	1.7	30	0.5		
19796	10.5	2.0 – 10.5	2.5	20	0.5		
43368	12.0	2.0 – 13.0	4.0	23		0.5	45
17109	15.4	2.0 – 13.0	4.9	30		1.0	45

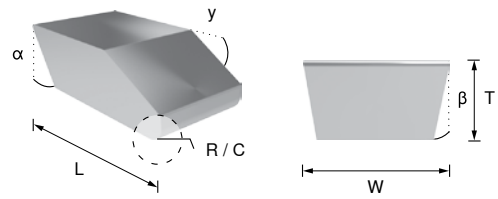
### Straight design



Type, description	L [mm]	W [mm]	T [mm]	$\alpha$ [°]	$\beta$ [°]	$\gamma$ [°]	r [mm]	c [mm]	Chamfer angle [°]
60357	4.0	2.0 – 3.0	1.5	20	0	60	0.5		
45752	4.5	2.0 – 3.5	1.5	20	0	60	0.5		
28601	5.0	2.0 – 3.5	1.5	28	0	45		0.5	45
44670	5.5	2.0 – 3.5	1.6	20	0	75		0.5	45
13651	6.0	2.0 – 3.5	1.8	20	4	63		0.5	45
25375	6.0	2.0 – 5.0	1.8	28	0	45		0.5	45
25374	6.0	2.0 – 5.0	2.0	28	0	45		0.5	45
47015	6.5	2.0 – 6.5	1.6	28	5	65	0.9		
16387	6.5	2.0 – 5.5	2.0	30	5	65	0.9		
31440	6.5	2.0 – 6.0	2.0	28	0	57	0.9		
31450	6.5	2.0 – 6.5	2.0	28	5	56	0.9		
51449	6.5	2.0 – 6.5	2.3	10	2	70	0.5		
11460	7.0	2.0 – 9.0	2.0	28	6	67	0.6		
29984	7.0	2.0 – 5.5	2.2	28	6	70	0.9		
44671	7.0	2.0 – 7.0	2.3	20	0	76		0.5	45
51849	7.0	2.0 – 8.5	2.5	25	0	56		0.5	45



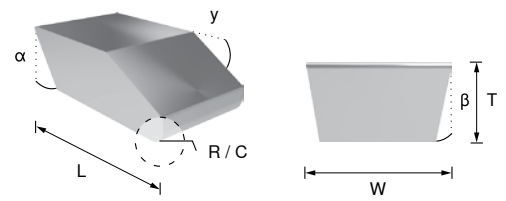
### Straight design



Type, description	L [mm]	W [mm]	T [mm]	α [°]	β [°]	γ [°]	r [mm]	c [mm]	Chamfer angle [°]
15705	7.5	2.0 – 6.5	2.0	28	5	70	0.6		
44814	7.5	2.0 – 6.5	2.4	30	0	50		0.5	45
26014	7.5	2.0 – 12.5	2.5	28	5	70	1.0		
17037	8.0	2.0 – 8.5	2.3	28	5	70	0.8		
11963	8.0	2.0 – 10.0	2.5	28	5	70	0.8		
60122	8.0	2.0 – 8.5	2.5	29	5	64	0.9		
6071	8.0	2.0 – 8.0	3.0	25	0	45	0.6		
51786	8.0	2.0 – 6.5	3.4	30	0	65	0.8		
10975	8.5	2.0 – 8.5	2.5	28	5	70	0.8		
41884	8.5	2.0 – 8.5	3.2	30	3	45	0.8		
44246	8.5	2.0 – 7.5	3.2	30	3	60	0.8		
47784	8.5	2.0 – 6.0	3.5	25	0	65		0.5	45
24466	9.0	2.0 – 6.0	2.5	20	0	57		0.5	45
22974	9.0	2.0 – 6.0	2.7	28	5	45		0.5	45
25618	9.0	2.0 – 8.5	2.7	28	4	65	1.0		
24467	10.0	2.0 – 7.0	2.5	20	0	65		0.5	45
12154	10.0	2.0 – 8.0	2.8	30	6	70	0.8		
31591	10.0	2.0 – 10.0	3.0	15	0	72	0.5		
22180	10.5	2.0 – 7.0	2.3	28	5	72		0.5	45
11748	10.5	2.0 – 10.0	2.5	28	5	70	0.8		
12356	10.5	2.0 – 15.5	3.0	28	5	70	0.8		
51224	10.5	2.0 – 6.5	3.2	30	0	60	0.8		
26457	10.5	2.0 – 13.0	3.5	28	5	60	0.8		
51361	11.0	2.0 – 8.0	3.5	30	0	63		0.5	45
60888	11.0	2.0 – 8.0	4.0	28	5	60	0.8		
47938	11.5	2.0 – 6.5	3.0	28	4	72	0.8		
19975	12.0	2.0 – 12.5	3.5	30	10	45		0.5	45
10529	12.5	2.0 – 11.5	3.0	30	8	70	0.8		
46623	12.5	2.0 – 9.0	3.5	28	5	70	0.8		

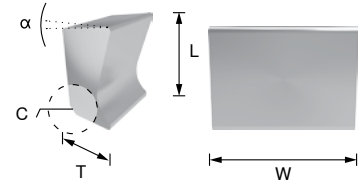


## Straight design



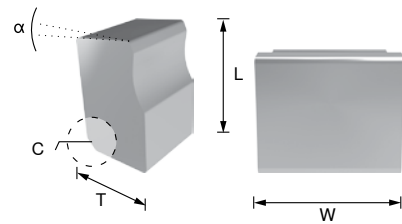
Type, description	L [mm]	W [mm]	T [mm]	$\alpha$ [°]	$\beta$ [°]	$\gamma$ [°]	r [mm]	c [mm]	Chamfer angle [°]
24150	12.5	2.0 – 12.0	4.0	30	0	70	0.8		
38376	13.0	2.0 – 16.0	4.0	30	5	45	0.9		
44092	13.0	2.0 – 12.5	4.0	30	5	60	0.8		
18160	14.5	2.0 – 16.0	4.0	30	0	70	0.8		

**Net shape design**



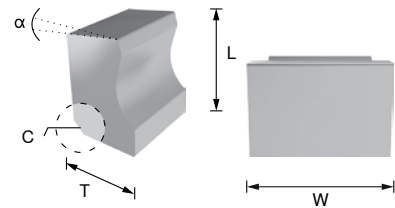
Type, description	L [mm]	W [mm]	T [mm]
60230	4.70	2.0 – 5.0	2.50

**Net shape design**



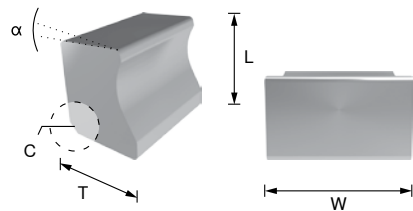
Type, description	L [mm]	W [mm]	T [mm]
50661	4.32	2.0 – 5.5	2.70

**Net shape design**



Type, description	L [mm]	W [mm]	T [mm]
38111	3.70	2.0 – 6.5	2.50

**Net shape design**



Type, description	L [mm]	W [mm]	T [mm]
60229	3.00	2.0 – 5.0	2.50

## Tips for band saws

We offer balls, cylinders and segments for the production of band saws. In addition to our standard product portfolio, we provide all specific designs on request.







## Grade recommendation

As each metal has its very own specific properties, we offer a wide variety of grades in the field of metal sawing. The table below will guide you in finding the right grade for your application.



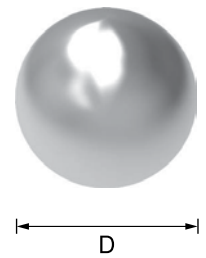
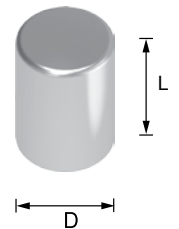
Grade	Non-ferrous, Aluminium	Steel	Stainless steels	Titanium / Nickel alloy
KCR10	• • • •			
CTS12D	• • •			
CTS18D		• • • •	• • •	
CTS22D		• • •	• • • •	
CTS24D			• • •	• • • •



Binder	Grain size	Density [g/cm <sup>3</sup> ]	Hardness		Fracture toughness (SEVNB) [MPa*m <sup>1/2</sup> ]	Transverse rupture strength [MPa]
			[HV10]	[HRA]		
4.0 % Co	fine	15.15	1780	92.8	10.1	2800
6.0 % Co	submicron	14.95	1800	92.9	8.8	3700
9.0 % Co	submicron	14.55	1610	91.9	11.0	3800
11.0 % Co	submicron	14.35	1520	91.2	12.0	3900
12.0 % Co	submicron	14.25	1480	90.9	12.5	4000

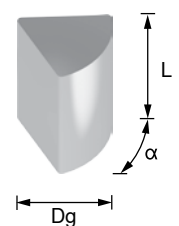
**Ball ... CTBA**

Available only upon request

**Cylinder ... CTCY**

Diameter D [mm]	Diameter D [inch]	L [mm]	L [inch]
1.32	0.052	1.0 – 4.0	0.039 – 0.157
1.57	0.062	1.0 – 4.0	0.039 – 0.157
1.60	0.063	1.0 – 4.0	0.039 – 0.157
1.85	0.073	1.0 – 4.0	0.039 – 0.157
1.98	0.078	1.0 – 4.0	0.039 – 0.157
2.30	0.091	1.0 – 4.0	0.039 – 0.157
2.50	0.098	1.0 – 4.0	0.039 – 0.157
2.75	0.108	1.0 – 4.0	0.039 – 0.157

Other dimensions upon request

**Segment ... CTSG**

Diagonal Dg [mm]	Diagonal Dg [inch]	$\alpha$ [°]	L [mm]	L [inch]
2.05	0.081	65	1.0 – 4.0	0.039 – 0.157

Other dimensions upon request



# Notes



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