

WOOD WORKING MAIN CATALOGUE

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WOOD WORKING

MAIN CATALOGUE



Dear valued customer,

Be assured that for your individual requirements as a toolmaker you will find the right solution at CERATIZIT.

Under the new competence brand Toolmaker Solutions by CERATIZIT we offer innovative solutions in the field of wood and composite materials machining as well as metal sawing. Gain decisive competitive advantages with our comprehensive range of rapidly available standard products - as always of best quality. Being a global technology leader allows us to identify new trends and to adapt our product offering to meet new market challenges. We look forward to talking with you to identify ways in which we can “upgrade your tool performance”.

Your CERATIZIT team



INTRODUCTION

CONTENTS

| | | |
|-------------------------------------|--|-----|
| Introduction | | |
| | Welcome – corporate values | A6 |
| | Production sites | A8 |
| | Carbide – production | A9 |
| | Carbide – application and composition | A15 |
| | General grade overview – grade properties | A16 |
| | Grade selection | A20 |
| | Grade recommendation – saw tips for metal | A22 |
| | Grade recommendation – band saws for wood/metal | A23 |
| | Innovations – series 60000 | A24 |
| | Innovations – Easy Line | A26 |
| | Innovations – CTDIA02 | A28 |
| | E-Techstore | A31 |
| Saw tips for wood machining | | |
| | Grade properties | B3 |
| | Saw tip series 60000 | B4 |
| | Saw tip CTDIA02 | B6 |
| | Straight saw tip | B7 |
| | Hollow tooth saw tip | B19 |
| | Straight saw tip with pre-tinned top DA | B22 |
| | U.S. style saw tip | B30 |
| | U.S. style saw tip with pre-tinned top PT | B32 |
| | Canadian style saw tip | B33 |
| | Canadian style saw tip with pre-tinned top PT | B35 |
| Saw tips for metal machining | | |
| | Grade properties | C3 |
| | Straight saw tip | C4 |
| | Saw tip with chip breaker | C12 |
| | Straight saw tip with pre-tinned top DA | C13 |
| | Blanks for band saws | C15 |
| Strobe blanks | | |
| | Grade properties | D3 |
| | Strobe blanks for circular saws | D4 |
| | Strobe blanks for circular saws with pre-tinned top DA | D7 |
| Rectangular strips | | |
| | Grade properties | E3 |
| | Standard – rectangular | E4 |
| | Grooveline – rectangular | E5 |
| | U.S. standard – rectangular | E7 |
| | Standard – 1 bevel | E9 |
| | Grooveline – 1 bevel | E11 |
| | Standard – 2 bevels | E12 |
| | Grooveline – 2 bevels | E14 |
| Rods | | |
| | Grade properties | F3 |
| | Ground mat to h6 – metric | F4 |
| | Ground mat to h6 – inch | F5 |
| | Cut to length ground mat to h6 – metric | F6 |
| | Cut to length ground mat to h6 – inch | F8 |



Blanks

| | |
|---|-----|
| Grade properties | G3 |
| Drill bits for dowel drills | G4 |
| Drill bits for through-holes | G5 |
| For wood machining drill tips – multi-piece | G6 |
| Teeth for spiral-fluted milling cutters | G9 |
| Drill bits for dowel drills | G10 |

Indexable knives

| | |
|---|-----|
| Grade properties | H3 |
| Easy Line | H4 |
| Standard 35° | H6 |
| Standard 45° | H8 |
| Standard 45° – microfinish | H9 |
| Scorers | H11 |
| 4 cutting edges | H14 |
| Slanting knives/bossed | H16 |
| Scorers and centering points | H19 |
| Grooving knives | H20 |
| Chamfer breaking tips and chamfering knives | H21 |
| Mini | H23 |
| EcoKnives | H24 |
| Planer blades | H25 |

Blanks for profiling

| | |
|--|-----|
| Grade properties | I3 |
| Superprofiler | I4 |
| Standard - hole Ø 4.2 mm | I5 |
| Italian Style – hole Ø 4.5 mm | I10 |
| Multipurp – hole Ø 5.2 mm | I14 |
| Indexable blanks – hole Ø 4.2 mm | I17 |
| With countersunk hole - hole Ø 4.5 mm | I19 |
| With countersunk hole and groove – hole Ø 4.5 mm | I21 |
| With groove | I23 |
| Without hole | I24 |

Planer blades

| | |
|---------------------------------|-----|
| Grade properties | J3 |
| Terminus | J4 |
| Centrolock | J5 |
| Bulldozer | J6 |
| Thin planers, metric | J7 |
| Thin planers, inch | J9 |
| CTE PAC and CTE BP | J10 |
| BCFB with serrated back, metric | J13 |
| BCWC with serrated back, metric | J14 |
| BCWC with serrated back, inch | J24 |
| BCFB with serrated back, inch | J25 |

Technical information

| | |
|------------------------------|-----|
| Grade designation | K3 |
| Special products | K4 |
| Comparison of materials | K5 |
| Packaging | K8 |
| Basics of metal grinding | K9 |
| A revolution in PCD saw tips | K15 |
| Addition of a braze alloy | K17 |



Welcome to the world of CERATIZIT ...

... a world of unique and consistently innovative solutions for wear parts, cutting tools and wood and stone machining. CERATIZIT is your partner for exceptional and highly personalised hard material products which guarantee cost efficiency, resistance and performance. Increasing both the productivity and service life of your products in a very diverse range of industrial sectors is the very essence of our business.

... because 'hard material matters'

Hard materials in general and hard metals in particular are characterised by a range of interesting properties for all applications where maximum wear resistance is required. High pressure, high temperature and highly abrasive or aggressive conditions are factors to which hard materials or metals must be resistant. Our powder metallurgical production of parts for wear protection enables tailor-made adaptation of the material properties to your wear criteria.

This fact makes CERATIZIT hard materials and carbides indispensable materials in order to significantly increase the service life of components which are subject to high stress. Ever more powerful machines, facilities and machining methods constantly create new challenges for the CERATIZIT development engineers. Intensive research and development activities which precisely match your requirements and work processes already today are able to provide the solutions for tomorrow.

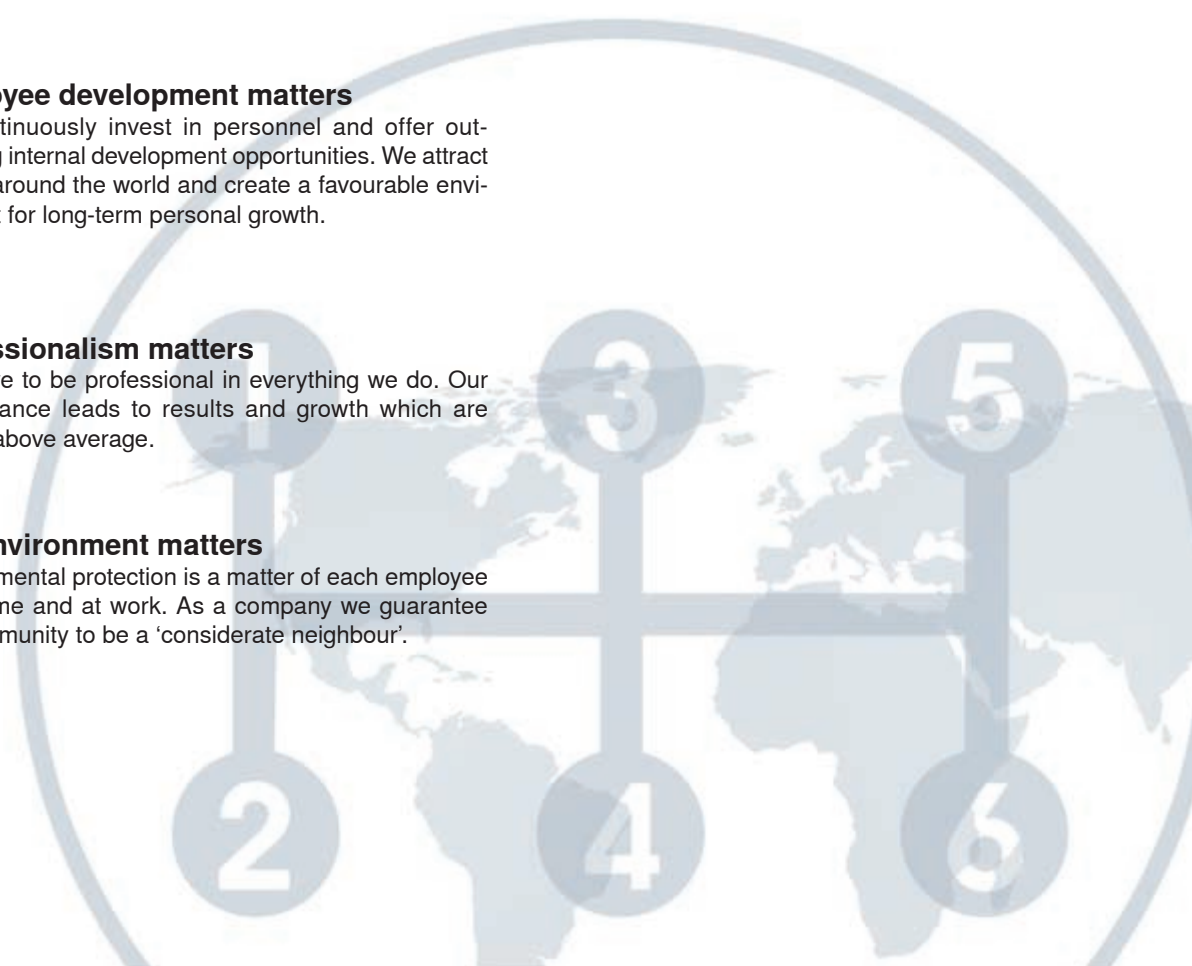




Guided by corporate values

We employ more than 5,500 people worldwide who are guided by our corporate values in their daily work:

- 1 The views and focus of our business partners matter**
Instead of talking product with customers, we work on real solutions for business partners.
- 2 Innovative and flexible thinking matters**
We challenge state-of-the-art technologies and develop intelligent alternatives. Our speed of thought and decisive actions give us a leading edge.
- 3 Communication matters**
Trust and respect enable open communication. We show who we are and what we feel. We keep our promises. We are open to and accept constructive criticism.
- 4 Employee development matters**
We continuously invest in personnel and offer outstanding internal development opportunities. We attract talents around the world and create a favourable environment for long-term personal growth.
- 5 Professionalism matters**
We strive to be professional in everything we do. Our performance leads to results and growth which are always above average.
- 6 Our environment matters**
Environmental protection is a matter of each employee – at home and at work. As a company we guarantee the community to be a 'considerate neighbour'.





Production site



PRODUCTION SITE

INTRODUCTION

Mamer (Luxembourg)

The CERATIZIT Group has its headquarters in Mamer in Luxembourg. Today the plant in Mamer has more than 1,150 employees and concentrates on industrial wear protection, wood and stone machining as well as inserts and tools.

● Mamer



Carbide – a composite material with valuable properties

Carbides are composite materials consisting of a hard material and a comparatively soft binder metal, like cobalt (Co). The performance characteristics of carbide are determined by hardness, transverse rupture strength and fracture toughness. With regard to their application, important parameters for the optimisation of these characteristics are the cobalt content and the grain size of the metal binder phase. The tungsten carbide grains have an average size of less than $0.2\ \mu\text{m}$ up to several micrometres (μm). The cobalt fills the gaps between the carbide grains. When extremely high toughness is required, the

cobalt content can amount up to 30%, whereas, for maximum wear resistance, the cobalt content is reduced and the grain size decreased to the nano-crystalline range of $< 0.2\ \mu\text{m}$.

CERATIZIT produces far more than 100 different carbide grades particularly for wear parts and cutting tools, thus offering a customised solution for every application.





Carbide production

Carbide production at CERATIZIT started in 1929.

Last but not least, thanks to long-standing experience CERATIZIT handles the entire process chain, from the raw material to the dispatching of the finished products to customers. The production process of powder-metallurgical products basically includes the four steps of powder preparation, forming, sintering and finishing.

Tungsten carbide production

The APT (ammonium para-tungstate) is calcined into tungsten oxide under high temperature. Subsequently the oxide is reduced to tungsten metal in a hydrogen atmosphere. The metal powder is then mixed with carbon and carburised under inert atmosphere at high temperatures. The production parameters are decisive for the WC grain size in the sintered carbide.

Powder preparation

The tungsten carbide is intensely mixed with the binder metal cobalt, nickel or iron, various grain growth inhibitors and materials, which promote compaction, by wet grinding so that a homogeneous suspension is created.

Afterwards, the suspension is dried in a spray tower to produce a granulate with good flow characteristics.

This granulate represents the basis for all forming processes.

APT (ammonium para-tungstate)



Yellow tungsten oxide



Blue tungsten oxide



Tungsten



Tungsten carbide





Metal forming – pressing – machining

Metal forming

The objective of the forming process is to obtain a near net shape sample. Pressing is normally carried out at room temperature with pressures reaching up to several tons per square centimetre.

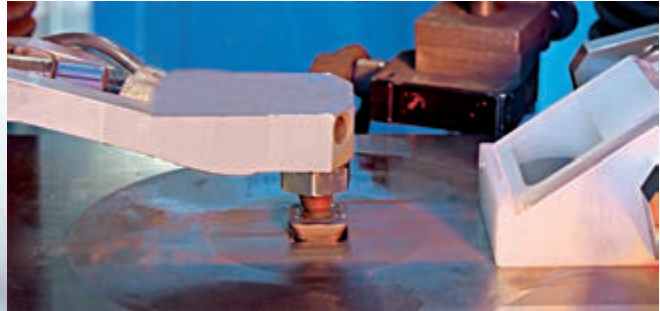
There are several ways of pressing blanks:

During isostatic cold pressing the powder is filled into an elastic flexible hose and pressed into a compacted form through high liquid pressure. The powder blocks which are produced in this way can then be processed mechanically. All common machining methods like milling, cutting, drilling or turning may be applied.

In uniaxial pressing the pressing tool consists of a die and an upper and a lower punch. The carbide powder is filled into the die and then compacted to create the so called green carbide, which is ejected from the pressing die.

Extrusion pressing is mainly used to produce rectangular bar or cylindrical rod, with or without axial hole(s). A plasticiser is added to the powder. The resulting paste is pressed through an extrusion nozzle. Before sintering, the plasticiser must be evaporated in special drying furnaces.

Metal Injection Moulding (MIM) is a process used to produce more complex forms which cannot be produced by direct pressing. The paste preparation is similar to the extrusion process.



Pressing

Machining

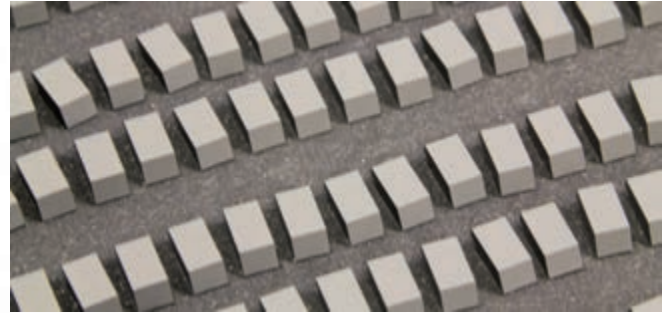




Sintering

Sintering process

The sintering process converts the blank into a homogeneous and dense carbide with a high level of hardness. The material is sintered at temperatures between 1,300 and 1,500 °C (liquid phase sintering) and sometimes also at high pressure (up to 100 bar). The volume is reduced by up to 50 % during this process.



Sintering





Finishing – grinding – coating

Finishing

In order to achieve the final requirements of surface finish, tolerances, etc. carbide parts can be subjected to a series of finishing processes such as grinding, spark erosion and coating. As a pioneer in coating technology we set new standards through revolutionary coating developments even today. Our coating competency covers classic hard material coatings, functional tailor-made coatings for specific customer applications as well as multi-layer coating. These coatings, which consist for example of titanium carbide, titanium nitride or aluminium oxide, maximise the cutting performance and service life of the CERATIZIT carbide products. The most important coating procedures are CVD (Chemical Vapour Deposition) and PVD (Physical Vapour Deposition).

Cemented carbide machining by spark erosion meets the highest technological standards. Wire erosion and cavity sinking by EDM guarantee high precision. Long-standing experience combined with carbide grades that are specially adapted for erosion guarantee optimum machining results.



Finishing

Grinding

Coating

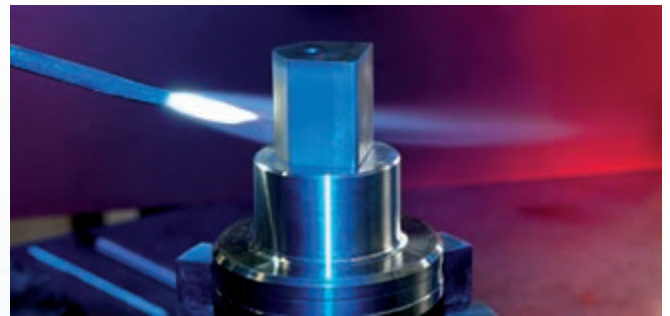




Joining – erosion – quality check

Composite parts

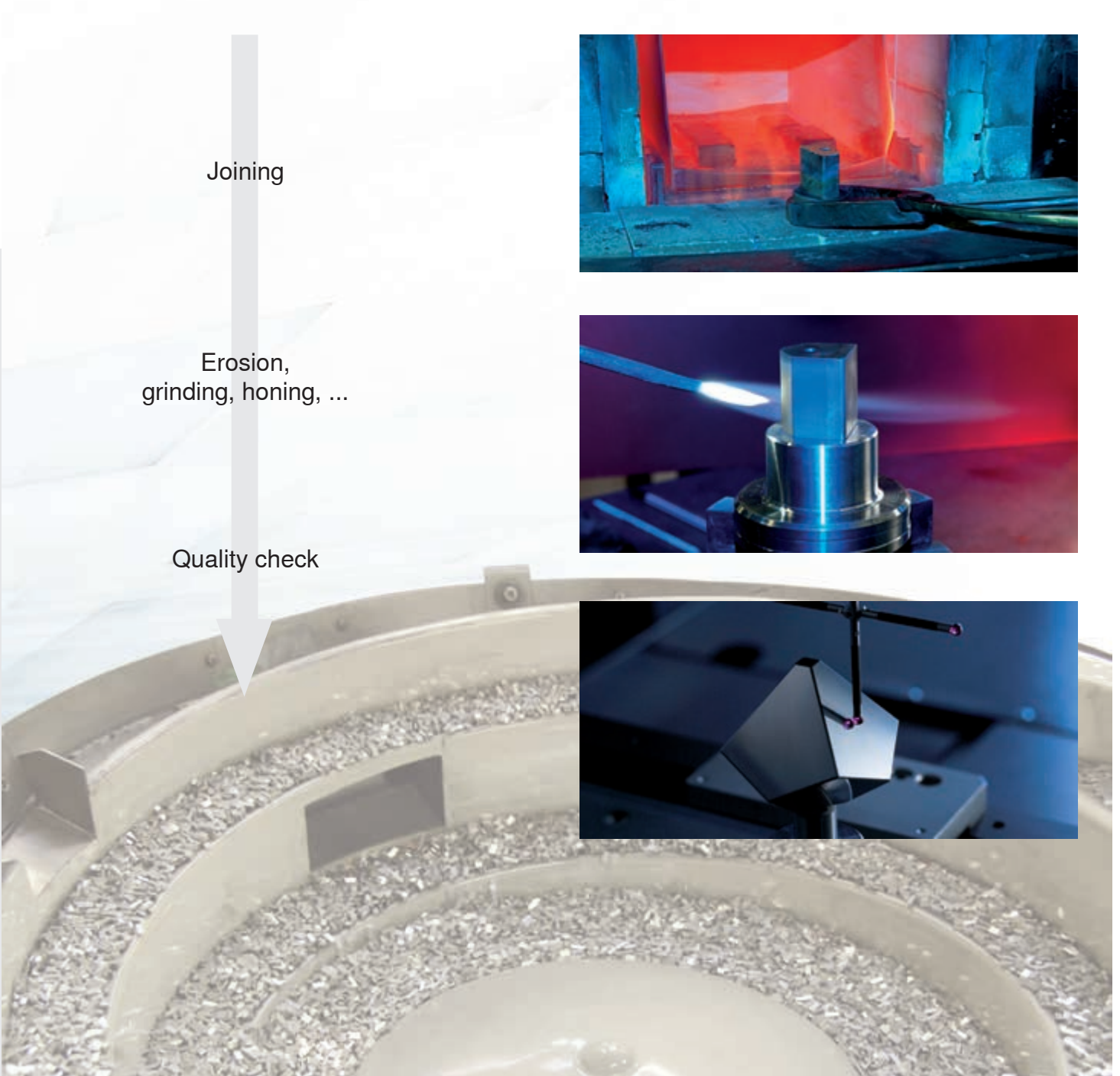
In many cases it is not optimal to manufacture the entire component in carbide. The use of carbide is then limited to the area in which wear occurs. Materials with appropriate wear resistance are used for the tool; they are easier to machine than carbide. Numerous tried and tested technologies, such as brazing, gluing, clamping, connections with screws and shrinking are applied to combine carbide with other materials.

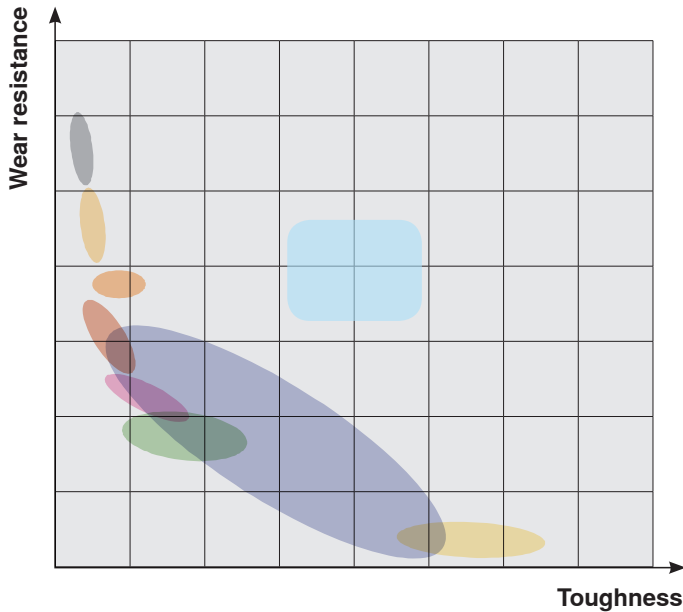


Joining

Erosion,
grinding, honing, ...

Quality check



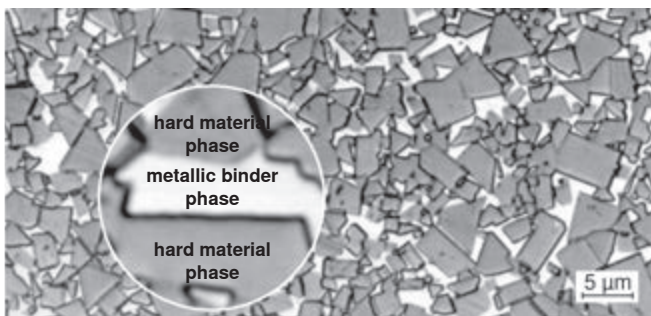


- Natural diamond
- PCD, diamond coated
- CBN
- Ceramic (O)
- Ceramic (N)
- Cermet
- Carbide
- HSS
- CTDIA02

Carbide is a hard material with mechanical properties that can be adjusted within a very wide range, given its composition and microstructure. The hardness and toughness range of the CERATIZIT grades includes everything from wear-resistant tool steel to super-hard ceramic materials.

Criteria relevant for application

- Wear resistance, hardness
- Compressive strength
- Impact strength
- Transverse rupture strength
- Tribological properties
- Specific weight
- Magnetic properties
- Modulus of elasticity, rigidity
- Thermal properties
- Corrosion resistance, resistance to oxidation
- Toughness



Micrograph of WC-Co carbide

The hard material provides the necessary

- hardness
- wear resistance

The metallic binder provides

- toughness

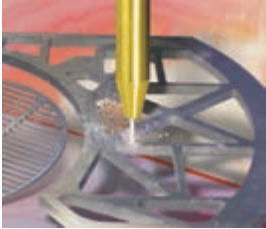
| Classification of the WC grain size | | CERATIZIT code |
|-------------------------------------|----------------|----------------|
| Average grain size [µm] | Classification | |
| < 0.2 | nano | N |
| 0.2 - < 0.5 | ultrafine | U |
| 0.5 - < 0.8 | submicron | S |
| 0.8 - < 1.3 | fine | F |
| 1.3 - < 2.5 | medium | M |
| 2.5 - < 6.0 | coarse | C |
| > 6.0 | extra-coarse | E |

The classification of carbides according to grain size corresponds to the recommendations of the Powder Metallurgy Association.



Carbide properties depending on the Co contents and C grain size

Hardness (wear resistance)

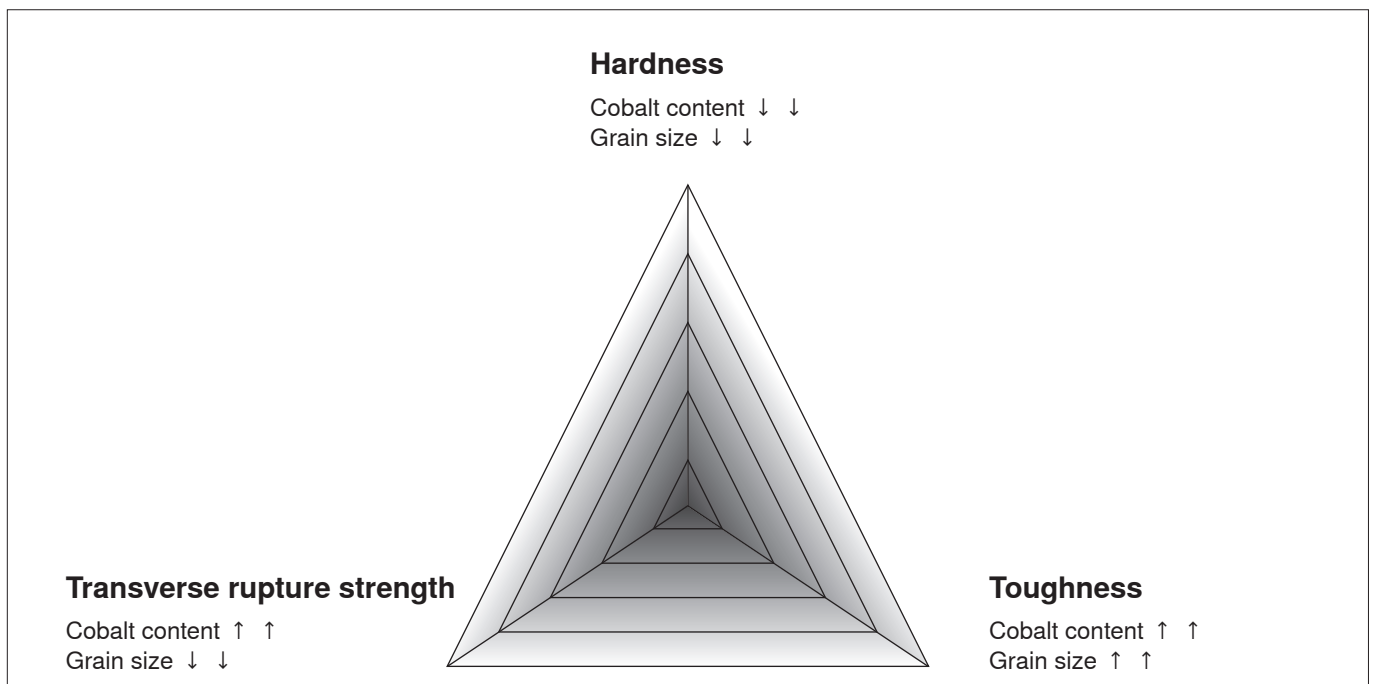


Nozzles for water jet cutting

- Type of stress
- Wear
 - Corrosion

Carbide grade

- Very high hardness: 2650 HV30
- Small grain size: < 0.5 μm
- Low Co content: 0.4%
- Corrosion resistance when adding Cr₃C₂



Transverse rupture strength

Micro-drilling

- Type of stress
- Wear
 - Deflection

Carbide grade

- T.R.S.: >4000 MPa
- Small grain size: < 0.5 μm + VC
- Low Co content ~ 8.5%
- High wear resistance: 1930 HV30



Toughness

Hot rolling

- Type of stress
- Wear due to abrasion
 - Built-up edge
 - Impact stress

Carbide grade

- Sufficient fracture toughness: Co content 20%
- Good wear resistance: 1030 HV30
- Medium grain size coarse or extra-coarse



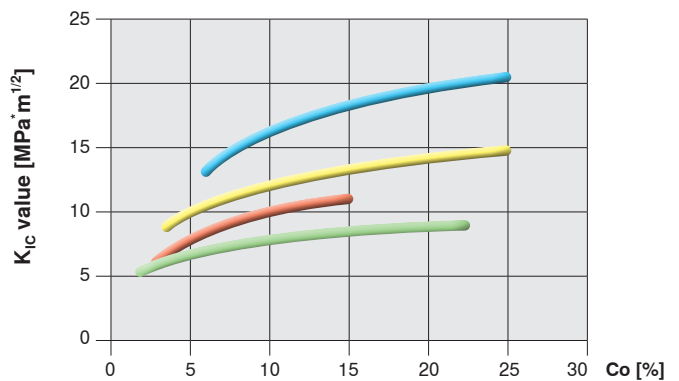
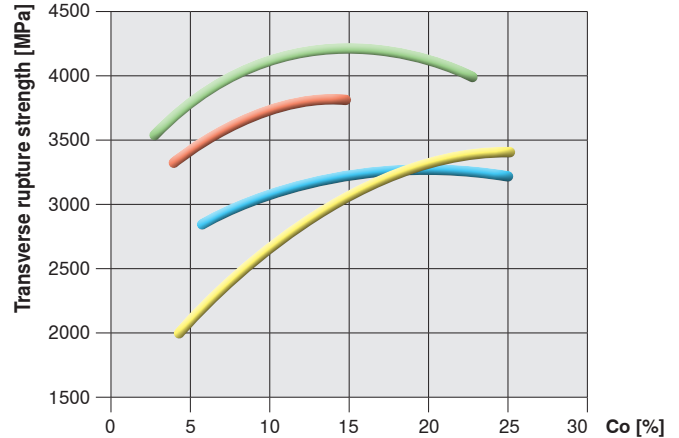
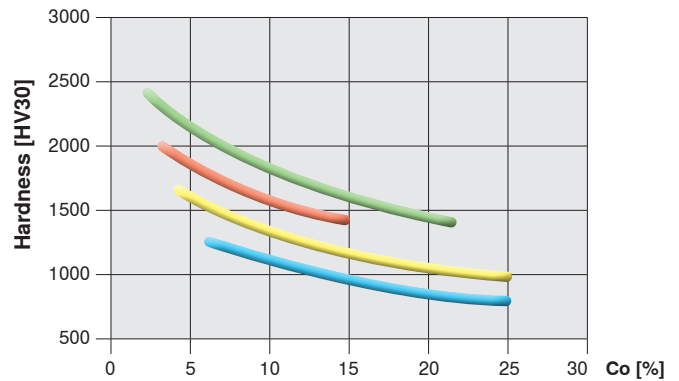
The graphic illustrations below show that the mechanical properties of the carbide mainly depend on the binder content (Co) and the TC grain size. Hardness, i.e. wear resistance, increases inversely proportional to the fracture toughness. This means that the harder the material the more it reacts to notch tensions and impact stress (the 'impact resistance' parameter, which cannot be precisely defined, correlates with the fracture toughness of the material).

On the other hand, the transverse rupture strength does not directly depend on the hardness but rather on the TC grain size and the cobalt content. The adhesive wear (tendency to

stick), however, decreases with the grain size and the cobalt content of the carbide used. The list of the mentioned interdependencies, which could be extended at will for other wear and failure mechanisms, show that it is only possible to choose the correct carbide grade following a systematic procedure and/or based on experience with similar applications.



Coarse grain





INTRODUCTION

GENERAL GRADE OVERVIEW – GRADE PROPERTIES

Composition and properties

| CERATIZIT grade code | ISO code | U.S. code | Binder [m %] | Density [g/cm ³] | Hardness | | | Transverse rupture strength | | Fracture toughness [MPa*m ^{1/2}] |
|-------------------------|-------------|--------------|-----------------|---------------------------------|----------|------|-----|--------------------------------|----------|--|
| | | | | | HV10 | HV30 | HRA | [MPa] | [P.S.I.] | |

Nano-grades

| | | | | | | | | | | |
|-------|-----|----|-----|-------|------|------|------|------|--------|-----|
| UMG04 | K01 | C4 | 2,2 | 15,30 | 2500 | 2400 | 96,0 | 3200 | 464000 | 5,4 |
|-------|-----|----|-----|-------|------|------|------|------|--------|-----|

Ultrafine grades

| | | | | | | | | | | |
|--------|-----|----|------------|-------|------|------|------|------|--------|------|
| SMG02 | K01 | C4 | 2,4 | 15,25 | 2300 | 2200 | 95,2 | 3500 | 508000 | 5,7 |
| KCR05+ | | | Co+Ni 3,0 | 15,25 | 2160 | 2115 | 94,5 | 2600 | 377000 | 6,8 |
| KCR05 | K01 | C4 | Co+Ni 2,76 | 15,20 | 2150 | 2110 | 94,4 | 2500 | 363000 | 6,0 |
| HE40 | K40 | | 20,0 | 13,15 | 1250 | 1240 | 88,8 | 3500 | 508000 | 12,1 |

Submicron grain

| | | | | | | | | | | |
|---------|---------|----|-----------|-------|------|------|------|------|--------|------|
| KCR06+ | | | Co+Ni 3,0 | 15,30 | 2060 | 2020 | 94,0 | 2800 | 406000 | 7,5 |
| CTMPP03 | | | 3,0 | 15,30 | 1950 | 1910 | 93,6 | 2300 | 333000 | |
| KCR06 | | | 3,0 | 15,30 | 1950 | 1910 | 93,6 | 2300 | 334000 | 8,5 |
| KCR08 | | | 4,2 | 15,20 | 1920 | 1885 | 93,4 | 2300 | 331000 | 8,7 |
| CTS12D | K10-K15 | | 6,0 | 14,95 | 1800 | 1770 | 92,9 | 3700 | 537000 | 8,8 |
| MG18 | K20 | C2 | 10,0 | 14,45 | 1680 | 1660 | 92,3 | 3700 | 537000 | 9,4 |
| CTS18D | K20-K40 | C2 | 9,0 | 14,55 | 1610 | 1590 | 91,9 | 3700 | 537000 | 11,0 |
| CTOPP10 | | | 10,0 | 14,45 | 1570 | 1550 | 91,6 | 3000 | 435000 | |
| CTS24D | K30-K40 | | 12,0 | 14,25 | 1480 | 1460 | 90,9 | 4000 | 580000 | 12,5 |
| MG30 | >K40 | | 15,0 | 13,95 | 1330 | 1320 | 89,7 | 3800 | 551000 | 11,9 |

Fine grain grades

| | | | | | | | | | | |
|-------|-----------|-------|---------------------------------|-------|------|------|------|------|---------|------|
| KCR10 | | | Co+Ni 4,0 | 15,15 | 1780 | 1760 | 92,8 | 2800 | 406000 | 10,1 |
| HC10 | K10 | C3 | 5,6 | 15,00 | 1760 | 1730 | 92,7 | 2150 | 312000 | 9,2 |
| HC05 | K10 | C3 | 4,0 | 15,15 | 1730 | 1700 | 92,5 | 2200 | 319000 | 8,7 |
| HC20 | K20 | C2-C3 | 6,0 | 15,00 | 1640 | 1620 | 92,1 | 2200 | 319,000 | 9,9 |
| S26T | P20 | C2 | Co 9,5 (Ti,Ta,Nb) C 20,6 | 12,20 | 1570 | 1550 | 91,6 | 2200 | 319000 | 10,8 |
| S25T | P25 | C5-C6 | Co 9,5 (Ti,Ta,Nb) C 22,4 | 12,50 | 1550 | 1530 | 91,5 | 2500 | 363000 | 10,5 |
| SMX | P20M/P25M | C6 | Co 11,0 (Ti,Ta,Nb) C 18,5 | 12,65 | 1550 | 1530 | 91,5 | 2200 | 319000 | 10,0 |
| S4X7 | P30/P35 | C1-C2 | Co 11,0 (Ti,Ta,Nb) C 11,2 | 13,05 | 1490 | 1470 | 91,0 | 2300 | 334000 | 11,6 |
| S40T | P35 | C1-C2 | Co 11,0 (Ti,Ta,Nb) C 12,0 | 13,25 | 1440 | 1420 | 90,6 | 2400 | 348000 | 13,5 |
| HC40 | K40 | C1 | 12,0 | 15,00 | 1330 | 1320 | 89,7 | 3000 | 464000 | 12,0 |



Composition and properties

| CERATIZIT grade code | ISO code | U.S. code | Binder [m %] | Density [g/cm ³] | Hardness | | | Transverse rupture strength | | Fracture toughness [MPa*m ^{1/2}] |
|----------------------|----------|-----------|--------------|------------------------------|----------|------|-----|-----------------------------|----------|--|
| | | | | | HV10 | HV30 | HRA | [MPa] | [P.S.I.] | |

Medium grain grades

| | | | | | | | | | | |
|------|-----|----|---------------------------------|-------|------|------|------|------|--------|------|
| S3X7 | P25 | C6 | Co 9,0 (Ti,Ta,Nb) C | 12,45 | 1560 | 1540 | 91,5 | 2150 | 312000 | 10,7 |
| HC25 | K20 | C2 | 7,0 | 15,00 | 1550 | 1530 | 91,5 | 2600 | 377000 | 10,4 |
| HC30 | K30 | C1 | 8,5 | 15,00 | 1420 | 1400 | 90,4 | 3500 | 508000 | 12,1 |
| HC35 | K30 | C1 | 9,0 | 14,60 | 1400 | 1380 | 90,3 | 2800 | 335000 | 10,9 |
| S6X7 | P40 | C5 | Co 14,0 (Ti,Ta,Nb) C 17,2 | 11,60 | 1390 | 1370 | 90,2 | 2350 | 341000 | 11,7 |

Coarse grain

| | | | | | | | | | | |
|------|------|--|------|-------|------|------|------|------|--------|------|
| GC32 | K40 | | 10,0 | 14,60 | 1130 | 1120 | 87,6 | 2600 | 377000 | 18,0 |
| GC40 | <K40 | | 15,0 | 14,05 | 990 | 980 | 85,8 | 2800 | 457000 | 22,0 |

Silicon nitride

| | | | | | | | | | | |
|------|--------|--|---|------|------|------|------|------|--------|-----|
| SNC1 | CN-K20 | | Al ₂ O ₃ Y ₂ O ₃ 9,0 | 3,25 | 1550 | 1530 | 91,5 | 1100 | 160000 | 6,5 |
|------|--------|--|---|------|------|------|------|------|--------|-----|

Steel

| | | | | | | | | | | |
|---------|--|--|--------------------------------------|--|-----|--|----|--|--|--|
| HSS 18% | | | W 18,0, others 6,0, Fe balance | | 850 | | 64 | | | |
| HSS 6% | | | W 6,4, others 6,0, Fe balance | | 850 | | 64 | | | |
| HPS® | | | | | 790 | | 62 | | | |

Comment:

1. The data in this table are typical material parameters. We reserve the right to modify the data due to technical progress or due to further development within our company.

2. K_{IC}*: The measured critical tension intensity factors (K_{IC}) depend to a high degree on the sample geometry and sample preparation. A direct comparison with parameters which have been determined by means of a different method is therefore not admissible.



INTRODUCTION

GRADE OVERVIEW

GRADE OVERVIEW

INTRODUCTION

| CT grade code | Saw tips for wood working | | | | | | Saw tips for metal sawing | | | | Rods | | | | | | | |
|---------------|---------------------------|--|----------|----------|-----------|-----|---------------------------|--------------------|-------|-----------------|--------------------|----------|----------|-----------|-----|-----|----------|---------------------|
| | Winter | Sommer, mainly wood processing companies and saw mills | Softwood | Hardwood | Chipboard | MDF | HDF | Non-ferrous metals | Steel | Stainless steel | Aerospace material | Softwood | Hardwood | Chipboard | MDF | HDF | Plastics | Composite materials |
| UMG04 | | | | | | | | | | | | | | | | | | |
| SMG02 | | | | | | | | | | | | | | | | | | |
| HE40 | | | | | | | | | | | | | | | | | | |
| KCR05 | | | | | | | | | | | | | | | | | | |
| KCR05+ | | | | | | | | | | | | | | | | | | |
| CTMPP03 | | | | | | | | | | | | | | | | | | |
| CTOPP10 | | | | | | | | | | | | | | | | | | |
| MG18 | | | | | | | | | | | | | | | | | | |
| CTS18D | | | | | | | | | | | | | | | | | | |
| CTS12D | | | | | | | | | | | | | | | | | | |
| CTS24D | | | | | | | | | | | | | | | | | | |
| KCR06 | | | | | | | | | | | | | | | | | | |
| KCR06+ | | | | | | | | | | | | | | | | | | |
| KCR08 | | | | | | | | | | | | | | | | | | |
| HC10 | | | | | | | | | | | | | | | | | | |
| HC20 | | | | | | | | | | | | | | | | | | |
| HC05 | | | | | | | | | | | | | | | | | | |
| HC40 | | | | | | | | | | | | | | | | | | |
| KCR10 | | | | | | | | | | | | | | | | | | |
| S25T | | | | | | | | | | | | | | | | | | |
| S26T | | | | | | | | | | | | | | | | | | |
| S40T | | | | | | | | | | | | | | | | | | |
| S4X7 | | | | | | | | | | | | | | | | | | |
| SMX | | | | | | | | | | | | | | | | | | |
| HC25 | | | | | | | | | | | | | | | | | | |
| HC30 | | | | | | | | | | | | | | | | | | |
| HC35 | | | | | | | | | | | | | | | | | | |
| GC32 | | | | | | | | | | | | | | | | | | |
| HPS® | | | | | | | | | | | | | | | | | | |
| HSS 6% | | | | | | | | | | | | | | | | | | |
| HSS 18% | | | | | | | | | | | | | | | | | | |

see page(s)
 A22-A23

- Acceptable
- Good
- Very good
- Optimum



| Rectangular strips | | | | | | Blanks | | | | | | Indexable knives | | | | | | Planer blades | | | | | |
|--------------------|----------|-----------|-----|-----|----------|----------|----------|-----------|-----|-----|----------|------------------|----------|-----------|-----|-----|----------|---------------|----------|-----------|-----|-----|--|
| Softwood | Hardwood | Chipboard | MDF | HDF | Plastics | Softwood | Hardwood | Chipboard | MDF | HDF | Plastics | Softwood | Hardwood | Chipboard | MDF | HDF | Plastics | Softwood | Hardwood | Chipboard | MDF | HDF | |
| | | | | | | | | | | | | | | | | | | | | | | | |
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INTRODUCTION

GRADE RECOMMENDATIONS – SAW TIPS FOR METAL

Grade recommendations – saw tips for metal

| CT grade code | Material types | Circular saws | Work pieces | Coating |
|---------------|------------------------|---------------|---------------------------------------|---------|
| HC10 | Aluminium < 7% silicon | 215–600 mm | tube, plate, bar and extruded section | no |
| KCR10 | Aluminium < 7% silicon | 215–600 mm | tube, plate, bar and extruded section | no |
| KCR05+ | Aluminium > 7% silicon | 215–600 mm | tube, plate, bar and extruded section | no |
| HC10 | Brass | 215–600 mm | tube, plate, bar and extruded section | no |
| HC10 | Copper | 215–600 mm | tube, plate, bar and extruded section | no |

Non-ferrous metals



Sandwich materials



| | | | | |
|-----|-------------------------------------|------------|---------------------------------------|----|
| SMX | Aluminium steel and other materials | 215–600 mm | steel sandwiched with other materials | no |
|-----|-------------------------------------|------------|---------------------------------------|----|

Stainless steels



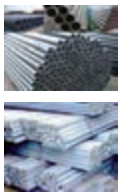
| | | | | |
|--------|-------------------|------------|--|-----|
| CTS24D | Duplex | 250–560 mm | | yes |
| CTS18D | SUS 304, 312, 316 | 250–560 mm | | yes |

Aerospace materials



| | | | | |
|--------|------------------------|------------|---------------|-----|
| CTS24D | Inconel 718, Hastelloy | 350–550 mm | solid carbide | yes |
| CTS18D | Titanium | 350–550 mm | solid carbide | yes |

Steel



| | | | | |
|-----------------|-------------------------|--|---|-----|
| S40T | General (reground saws) | 250–2000 mm | various | no |
| S25T new | Bearing steel | 355–600 mm | various | yes |
| S25T new | Oil / gas tubes | Flying cut-off 355–600 mm | seamless tubes without internal / external welding seam | yes |
| S25T new | Various materials | HSC (high speed cutting) 355–600 mm | seamless tubes without internal / external welding seam | yes |
| S40T | Various | Orbital saws 355–600 mm | tube with internal / external welding seam | yes |
| S25T | Die steel > HRC60 | 350–550 mm | various | yes |
| | Medium carbon steel | 350–550 mm | solid | yes |

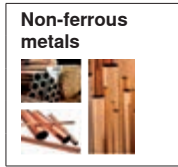
Cast iron



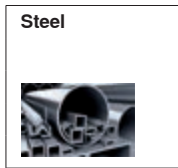
| | | | | |
|-------------------|--------------------------------|------------|--|-----|
| CTS12D new | Cast iron, low ferrite content | 355–600 mm | | yes |
|-------------------|--------------------------------|------------|--|-----|



Grade recommendation – band saws for metal



| CT grade code | Material types |
|---------------|----------------------------------|
| HC20 | Aluminium < 7% silicon |
| CTS12D | Aluminium > 7% silicon |
| KCR10 | Aluminium > 7% silicon, castings |
| HC20 | Brass |
| HC20 | Copper |



| | |
|--------|--|
| CTS18D | Black steel, constructional steel, annealed steels, cold/hot working steels and tool steel |
| HC20 | Steel > HRC60 |
| KCR10 | High chrome steel |



| | |
|--------|----------------------------|
| CTS18D | Duplex steels |
| CTS18D | Nickel based alloys |
| CTS18D | Corrosion resistant steels |

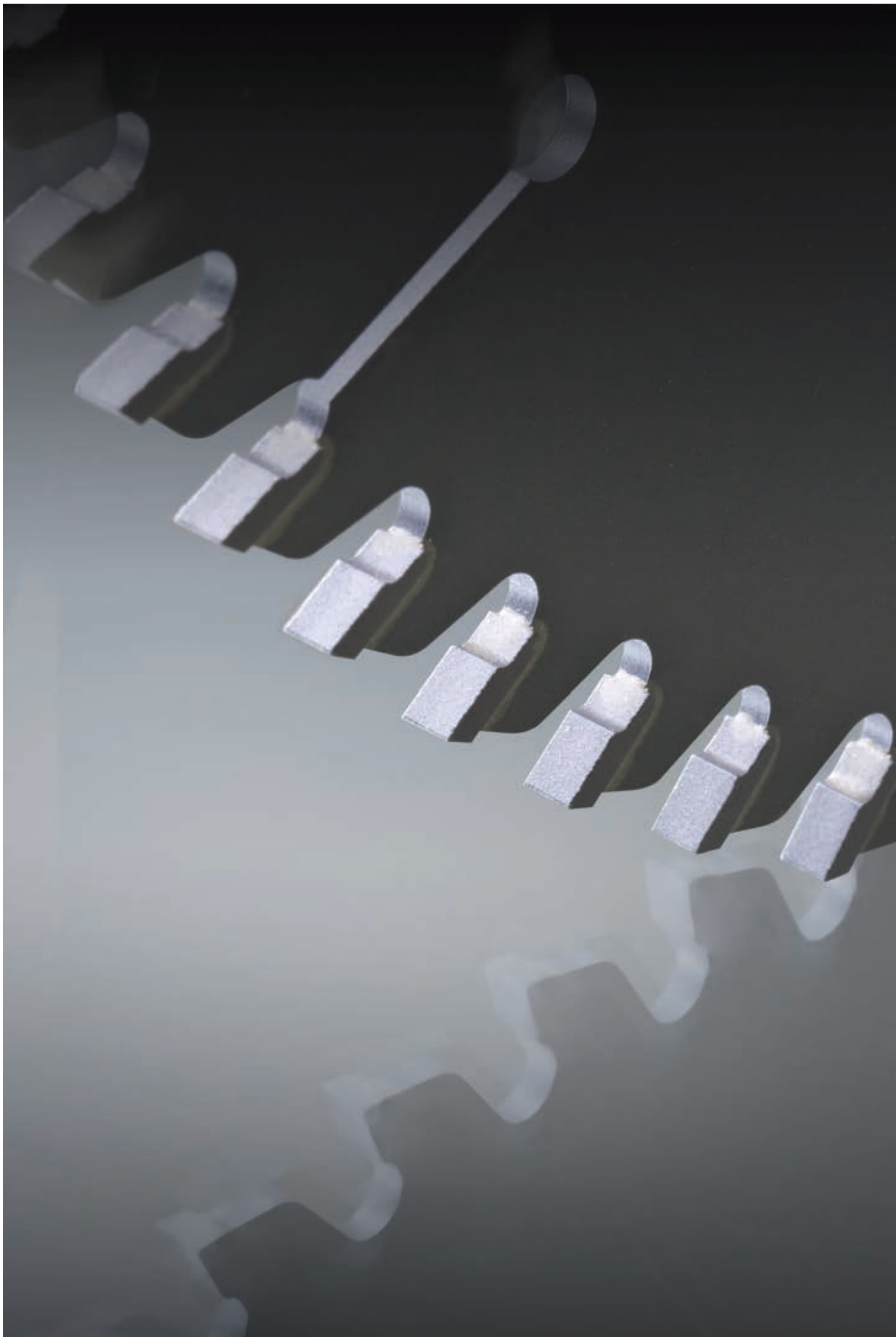


| | |
|--------|------------------------|
| CTS24D | Inconel 718, Hastelloy |
| CTS18D | Inconel 718, titanium |
| CTS24D | |
| CTS18D | |

Grade recommendations – band saws for wood



| CT grade code | Material types |
|---------------|---------------------|
| CTS18D | Laminated materials |

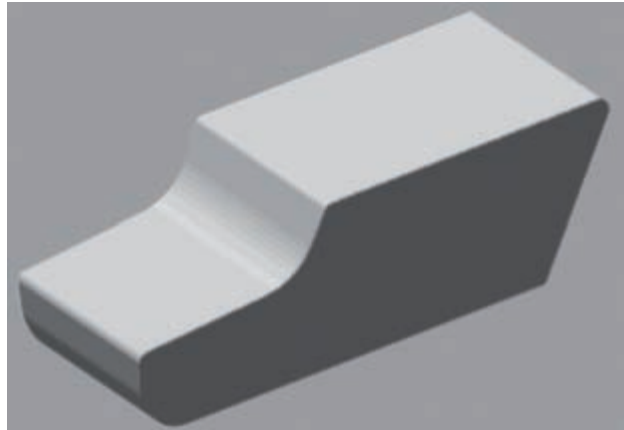




Saw tip 60000 series – the new saw tip geometry from CERATIZIT

The most characteristic feature of the saw tip series 60000 is the radius on the lower side of the tip which replaces the previous angle. As a result of this modification, the necessary heat is conducted faster to the back of the tip which subsequently allows quicker brazing of the saw tip.

Another positive effect of this tip geometry is that, thanks to the reduced brazing time, a homogeneous structure of the carbide with the basis is created.



Conserving resources

In terms of new developments CERATIZIT always strives for resource-conserving products. In this context too series 60000 stands out. Due to the modified shape, the weight of the tip has been notably reduced.

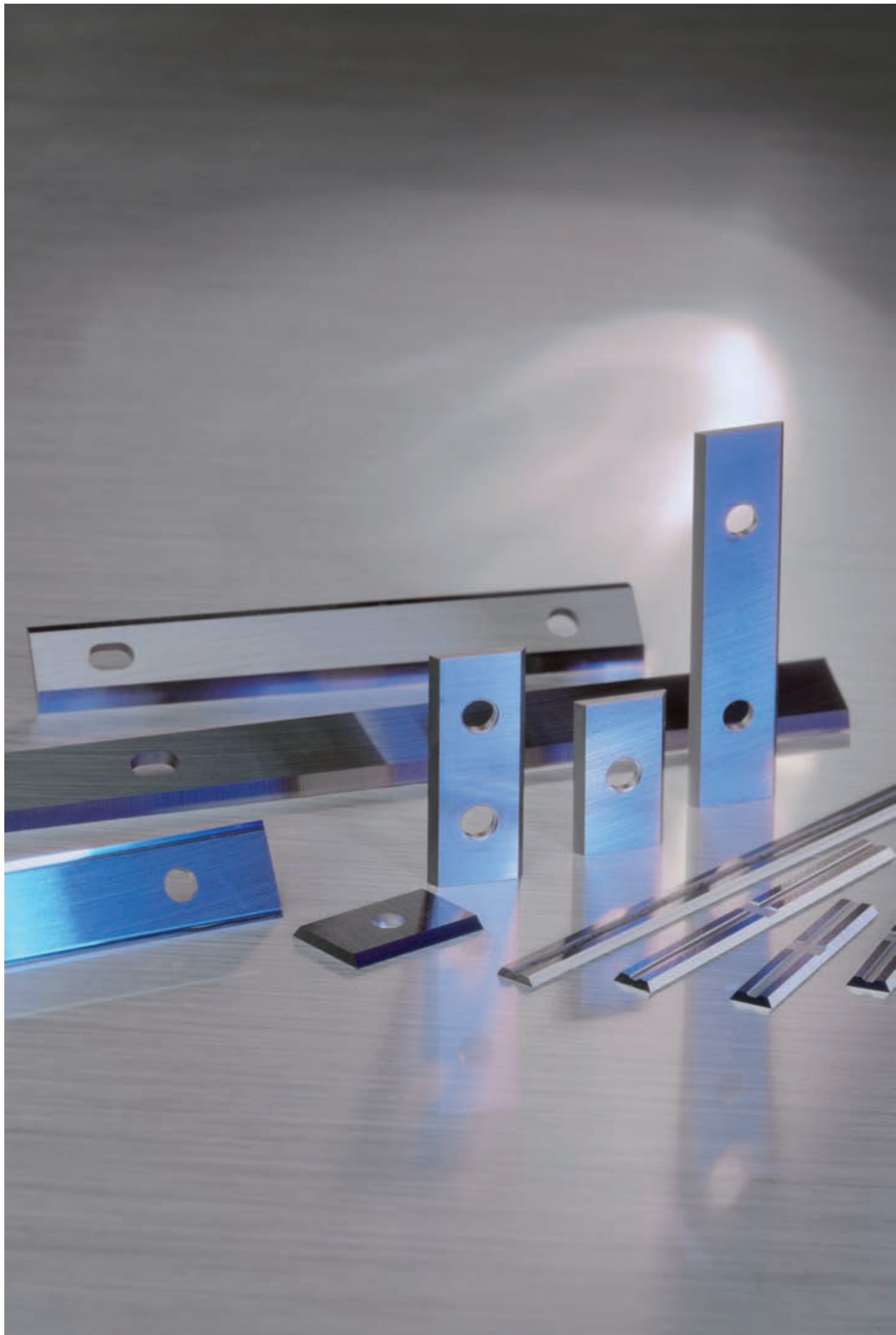
The new saw tip series can be applied directly in your production department.

Advantages

- Smart design
- Faster brazing of the saw tip
- More homogeneous structure carbide / tool
- Weight reduction = conserves resources

The following sizes are available:

| Reference number | sizes |
|------------------|----------------|
| 60000 | 8.0 x W x 2.3 |
| 60000 | 8.0 x W x 2.5 |
| 60000 | 8.0 x W x 3.0 |
| 60000 | 8.5 x W x 2.5 |
| 60000 | 10.5 x W x 2.5 |
| 60000 | 10.5 x W x 3.0 |
| 60000 | 10.5 x W x 3.5 |





Easy Line knives

Easy Line knives combine performance, affordability and availability.

Manufactured at our integrated production units in Europe, the Easy Line product range utilises our new submicron grade CTOPP10 which has been extensively tested in a variety of different wood machining applications. This entry performance tungsten carbide grade offers the same high reliability as CERATIZIT's existing grades with wear characteristics close to MG18, a recognised all round grade for solid wood.

| CTOPP10 | |
|------------------------------|------------|
| Cobalt content: | 10% |
| Hardness: | 1570 HV10 |
| Transverse rupture strength: | > 3000 MPa |
| Grain size: | 0,7 µm |

Advantages

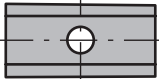


- Versatile application
- Very good price-performance ratio
- Conserves resources

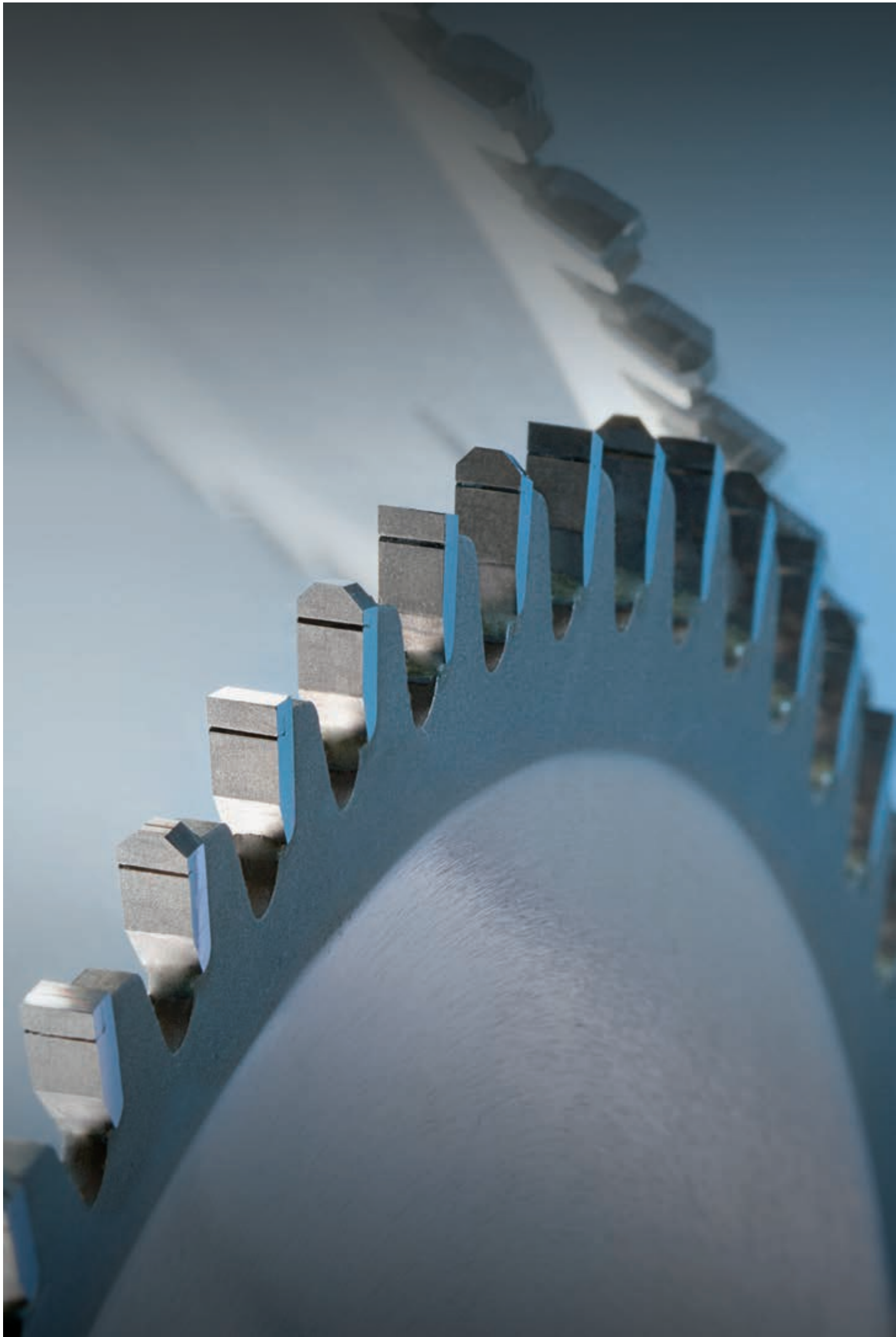
Optimal price-performance ratio

The manufacturing process for Easy Line knives has been optimised for high-volume and cost-sensitive markets. In exchange for minimum order quantities, customers benefit from special price levels to address today's market expectations. Lead time is also reduced, with most popular articles available from stock.

These benefits make Easy Line knives a great alternative for today's most common wood machining applications.

Easy Line product range

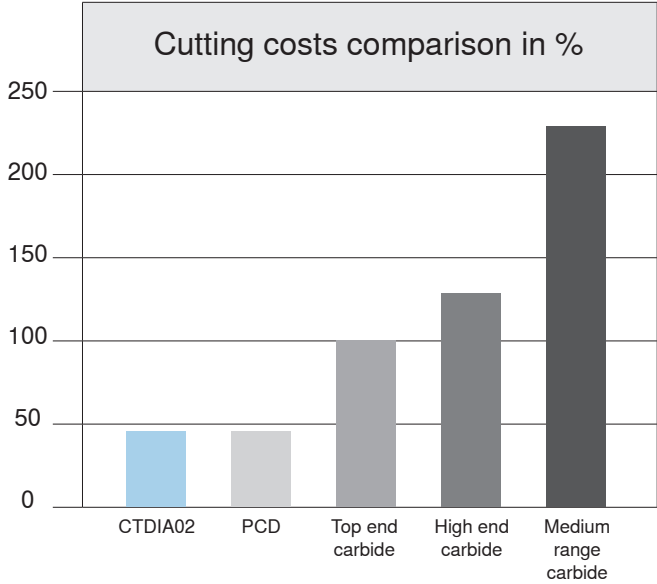
| | | | without corner radius | with corner radius |
|------------------|---|--|-----------------------|--------------------|
| Indexable knives |  | EL CTK ST 9.6X12.0X1.5 CTOPP10 | 11791000 | |
| | | EL CTK ST 15.0X12.0X1.5 CTOPP10 | 11791001 | |
| | | EL CTK ST 20.0X12.0X1.5 CTOPP10 | 11791002 | |
| | | EL CTK ST 30.0X12.0X1.5 CTOPP10 | 11742547 | |
| | | EL CTK ST 40.0X12.0X1.5 CTOPP10 | 11791003 | |
| | | EL CTK ST 50.0X12.0X1.5 CTOPP10 | 11742544 | |
| | | EL CTK ST 60.0X12.0X1.5 CTOPP10 | 11791004 | |
| Scorers |  | EL CTK SC 14.0X14.0X2.0 CTOPP10 | 11742545 | |
| | | EL CTK SC 15.0X15.0X2.5 82° R 95 CTOPP10 | 11799038 | |
| | | EL CTK SC 15.0X15.0X2.5 82° R115 CTOPP10 | 11799035 | |
| | | EL CTK SC 15.0X15.0X2.5 82° R150 CTOPP10 | 11799039 | |
| | | EL CTK SC 15.0X15.0X2.5 R 95 CTOPP10 | 11778838 | 11827619 |
| | | EL CTK SC 15.0X15.0X2.5 R115 CTOPP10 | 11789902 | 11827617 |
| Planer blades |  | EL CTK PK 75.5X5.5X1.1 CTOPP10 | 11871695 | |
| | | EL CTK PK 80.5X5.5X1.1 CTOPP10 | 11871691 | |
| | | EL CTK PK 82.0X5.5X1.1 CTOPP10 | 11801133 | |





CTDIA02

CERATIZIT is presenting the new saw tip CTDIA02. With an innovative layer structure CTDIA02 guarantees a consistent edge radius during the entire sawing operation. Thanks to the self-sharpening tip, the cutting edge remains constantly sharp. In case of an MDF particle board CTDIA02 cuts 250 kilometres surpassing the performance of conventional saw tips by a multiple. In addition, the PCD coating of CTDIA02 is protected against edge chipping. Thus the excellent surface quality of the work piece is also guaranteed when the cutting distance increases.

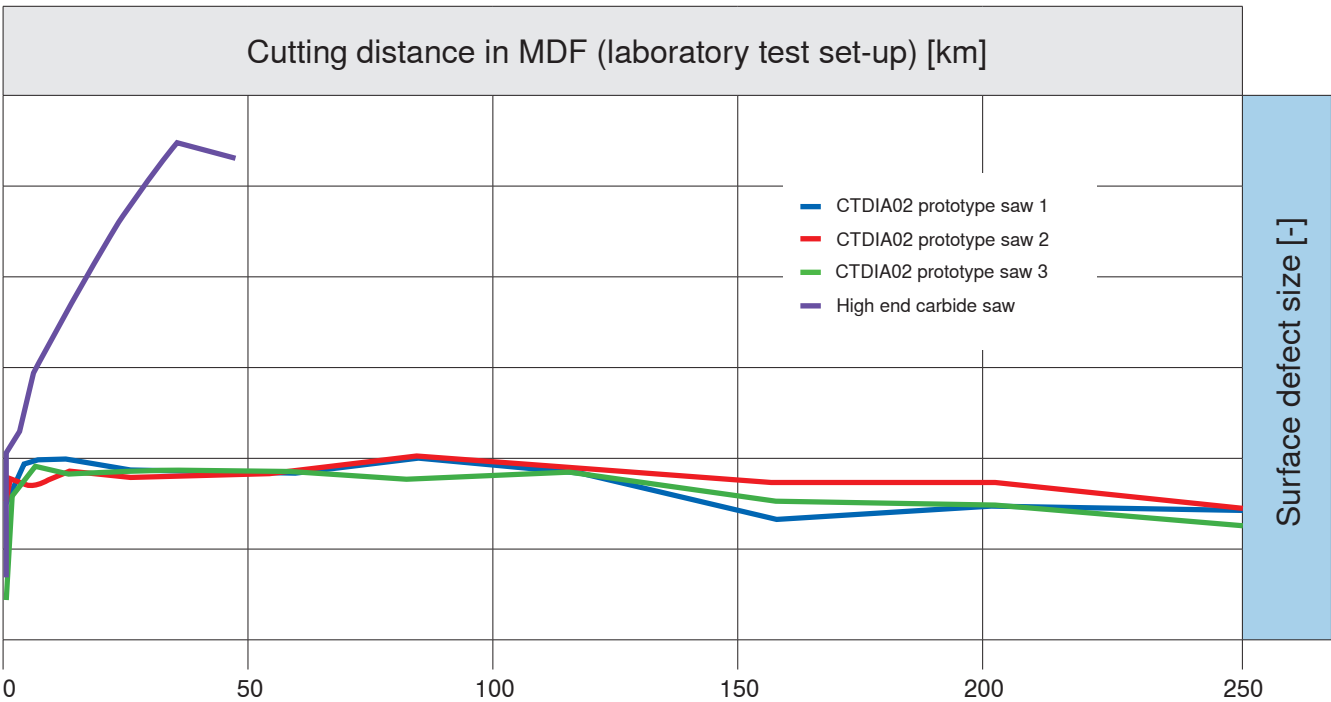


Advantages

- o Self-sharpening effect of the cutting edge
- o Tool life 250 kilometres
- o Well-suited for brazing and grinding
- o High surface quality of the work piece

Low overall operation costs

The overall operation costs of CTDIA02 are equal to the ones with PCD saw tips. Compared to high-quality carbide saw tips, the operation costs using CTDIA02 were reduced by a multiple.



Source: laboratory set-up by University of Stuttgart





CERATIZIT E-Techstore

The CERATIZIT online shop offers a comprehensive range of cutting tools, rods and products for wear protection. We promise you a well-structured navigation and easy user guide!



Speed

You have access to more than 20,000 products online. The extended rapid product search via the material number, ISO designation or characteristics allows you to find the product you need. After ordering you will immediately receive an order confirmation. You may inform yourself online at any time on the delivery status of your products. (Track & Trace)

Services

The CERATIZIT E-Techstore is available to you around the clock. You may check the offer, order, consignments and invoice online. Open orders can be changed at the last minute if you wish to correct them. For this purpose you always use your personal order templates. Should you have any questions, a personal contact will additionally be available.

Information

You will receive state-of-the-art detailed technical information and graphic illustrations for all products in the E-Techstore. You will also be informed about possible connections and suitable accessories. Thanks to the up-to-date availability check applicable to all standard articles you can immediately see when you will receive the requested products.

Business

All products are ordered at net prices and conditions. We guarantee optimal safety through SSL-encoding.

CERATIZIT linkage

Would you like to link your system with CERATIZIT? CERATIZIT supports all common link formats (EDI, XML, OCI, etc.).

Get in touch with your contact person! Our technical engineer will analyse your requirements together with you and will help you when choosing the suitable technology.

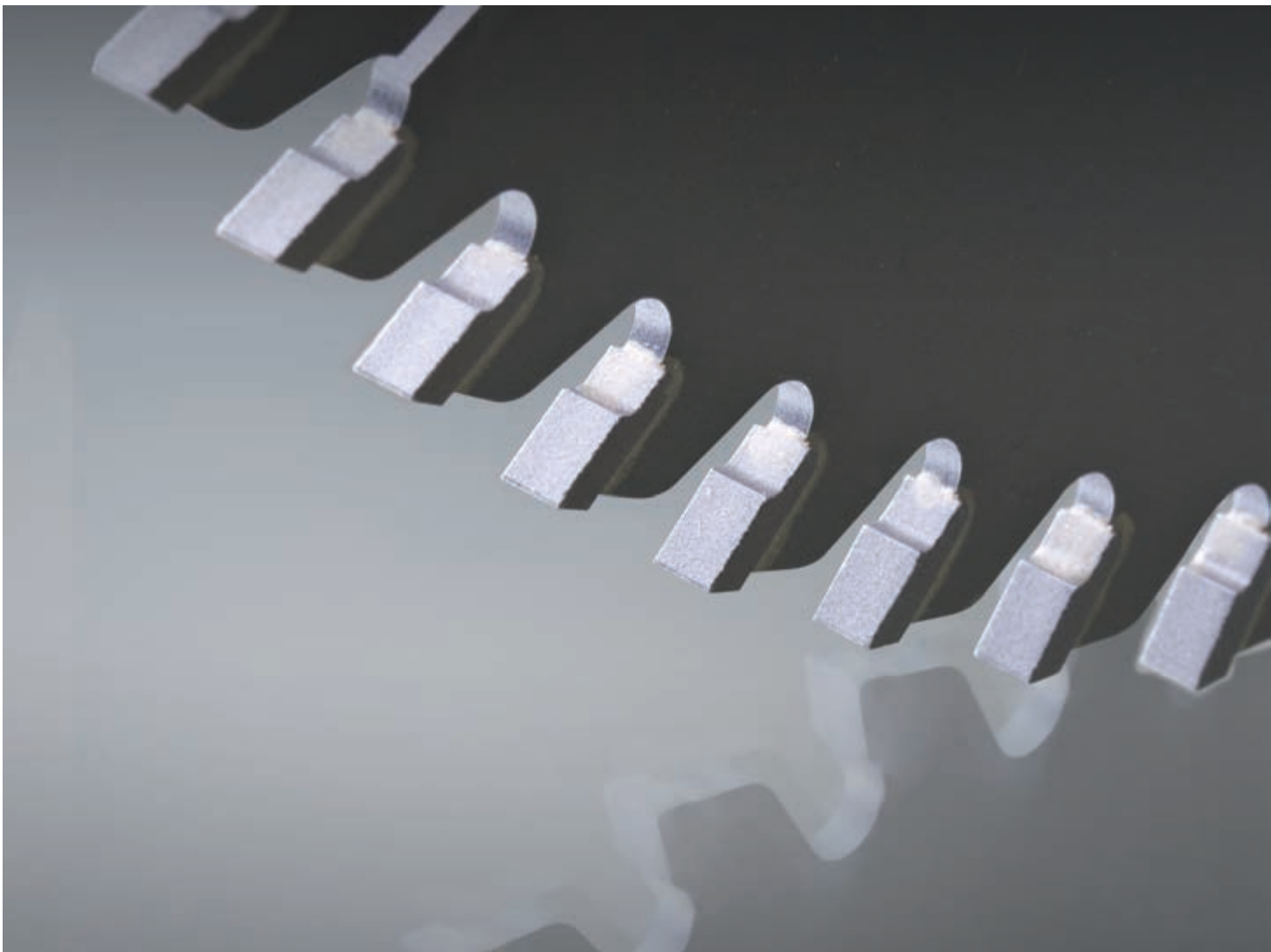


Saw tips for wood working

Long tool life thanks to customised carbide grades is what characterises our saw tips in application. The very good brazability and close geometric tolerances make the difference when it comes to tool production.

The special design of the new saw tip series 60000 ensures shorter brazing time thanks to a better distribution of the induced heat, while other advantages are the simplified regrinding process and enhanced chip evacuation.

The innovative saw tip CTDIA02 combines the efficient manufacturing of carbide saws with the tool life of PCD saws in a unique way. Thanks to a proven self-sharpening effect, the innovative saw tip CTDIA02 achieves a tool life of over 250 kilometres without having to be reground.





Composition and properties

| CERATIZIT grade code | ISO code | U.S. code | Binder [m %] | Density [g/cm ³] | Hardness | | | Transverse rupture strength | | Fracture toughness [MPa*m ^{1/2}] |
|-------------------------|-------------|--------------|-----------------|---------------------------------|----------|------|-----|--------------------------------|----------|--|
| | | | | | HV10 | HV30 | HRA | [MPa] | [P.S.I.] | |

Ultrafine grades

| | | | | | | | | | | |
|--------|-----|-----|------|-------|------|------|------|------|--------|------|
| KCR05+ | N/A | N/A | 3,0 | 15,25 | 2160 | 2115 | 94,5 | 2600 | 377000 | 6,8 |
| KCR05 | K01 | C4 | 2,76 | 15,20 | 2150 | 2110 | 94,4 | 2500 | 363000 | 6,0 |
| HE40 | K40 | N/A | 20,0 | 13,15 | 1250 | 1240 | 88,8 | 3500 | 508000 | 12,1 |

Submicron grain

| | | | | | | | | | | |
|---------|-----|-----|------|-------|------|------|------|------|--------|-----|
| KCR06+ | N/A | N/A | 3,0 | 15,30 | 2060 | 2020 | 94,0 | 2800 | 406000 | 7,5 |
| CTMPP03 | N/A | N/A | 3,0 | 15,30 | 1950 | 1910 | 93,6 | 2300 | 333000 | N/A |
| KCR06 | N/A | N/A | 3,0 | 15,30 | 1950 | 1910 | 93,6 | 2300 | 334000 | 8,5 |
| CTOPP10 | N/A | N/A | 10,0 | 14,45 | 1570 | 1550 | 91,6 | 3000 | 435000 | N/A |

Fine grain grades

| | | | | | | | | | | |
|-------|-----|-----|-----|-------|------|------|------|------|--------|------|
| KCR10 | N/A | N/A | 4,0 | 15,15 | 1780 | 1760 | 92,8 | 2800 | 406000 | 10,1 |
| HC10 | K10 | C3 | 5,6 | 15,00 | 1760 | 1730 | 92,7 | 2150 | 312000 | 9,2 |

Coarse grain

| | | | | | | | | | | |
|------|-----|-----|------|-------|------|------|------|------|--------|------|
| GC32 | K40 | N/A | 10,0 | 14,55 | 1130 | 1120 | 87,6 | 2600 | 377000 | 18,0 |
|------|-----|-----|------|-------|------|------|------|------|--------|------|

Comment:

1. The data in this table are typical material parameters. We reserve the right to modify the data due to technical progress or due to further development within our company.

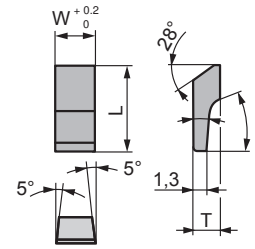
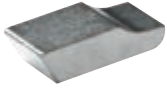
2. K_{IC}^* : The measured critical tension intensity factors (K_{IC}) depend to a high degree on the sample geometry and sample preparation. A direct comparison with parameters which have been determined by means of a different method is therefore not admissible.



SAW TIPS FOR WOOD

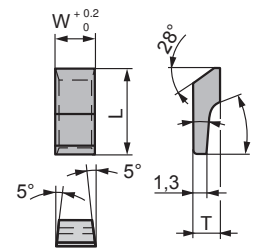
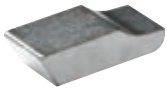
SAW TIPS SERIES 60000

60000..



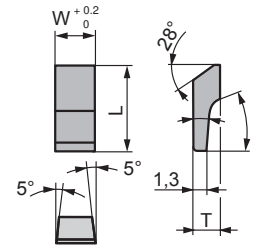
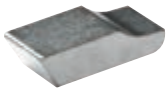
| Type, description | L [mm] | W _{min} [mm] | W _{max} [mm] | T [mm] | Grade [see page(s)] |
|-------------------|--------|-----------------------|-----------------------|--------|---------------------|
| 60000 | 8.0 | 2.0 | 7.0 | 2.3 | B3 |

60000..



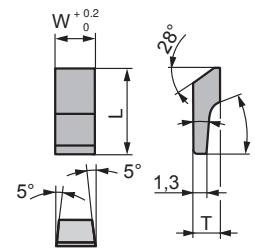
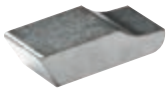
| Type, description | L [mm] | W _{min} [mm] | W _{max} [mm] | T [mm] | Grade [see page(s)] |
|-------------------|--------|-----------------------|-----------------------|--------|---------------------|
| 60000 | 8.0 | 2.0 | 7.0 | 2.5 | B3 |

60000..



| Type, description | L [mm] | W _{min} [mm] | W _{max} [mm] | T [mm] | Grade [see page(s)] |
|-------------------|--------|-----------------------|-----------------------|--------|---------------------|
| 60000 | 8.0 | 2.0 | 7.0 | 3.0 | B3 |

60000..



| Type, description | L [mm] | W _{min} [mm] | W _{max} [mm] | T [mm] | Grade [see page(s)] |
|-------------------|--------|-----------------------|-----------------------|--------|---------------------|
| 60000 | 8.5 | 2.0 | 7.0 | 2.5 | B3 |

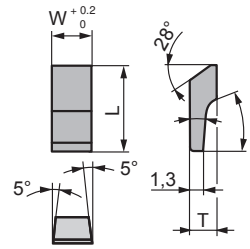
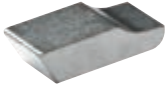
SAW TIPS SERIES 60000

SAW TIPS FOR WOOD



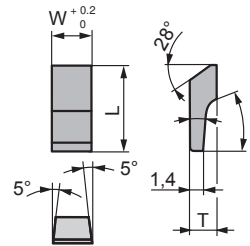
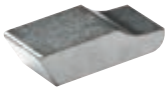


60000..



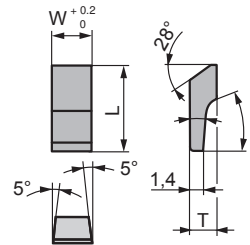
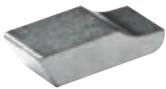
| Type, description | L [mm] | W_{min} [mm] | W_{max} [mm] | T [mm] | Grade [see page(s)] |
|-------------------|--------|----------------|----------------|--------|---------------------|
| 60000 | 10.5 | 2.0 | 7.0 | 2.5 | B3 |

60000..



| Type, description | L [mm] | W_{min} [mm] | W_{max} [mm] | T [mm] | Grade [see page(s)] |
|-------------------|--------|----------------|----------------|--------|---------------------|
| 60000 | 10.5 | 2.0 | 7.0 | 3.0 | B3 |

60000..



| Type, description | L [mm] | W_{min} [mm] | W_{max} [mm] | T [mm] | Grade [see page(s)] |
|-------------------|--------|----------------|----------------|--------|---------------------|
| 60000 | 10.5 | 2.0 | 7.0 | 3.5 | B3 |

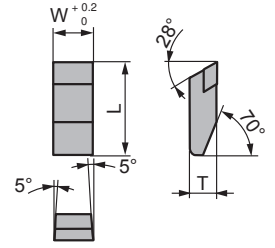




SAW TIPS FOR WOOD

SAW TIPS DIA

51064..



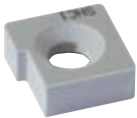
| Type, description | Material | L [mm] | W [mm] | T [mm] | Grade [see page(s)] |
|------------------------------|----------|--------|--------|--------|---------------------|
| 51064- 8.5X3.8X2.5 CTDIA02 | 11794723 | 8.5 | 3.8 | 2.5 | B3 |
| 51064- 10.5X 5.4X3.5 CTDIA02 | 11794730 | 10.5 | 5.4 | 3.5 | B3 |
| 51064- 10.5X6.2X3.5 CTDIA02 | 11794732 | 10.5 | 6.2 | 3.5 | B3 |

Grinding wheel



| Type, description | Material | | | | |
|-----------------------------------|----------|--|--|--|--|
| CTDIA - 100-4-6 RS3-32 T10 - 4A9 | 11818385 | | | | |
| CTDIA - 125-3-6 RTS-32 T18 - 6B2H | 11818386 | | | | |

Clamp

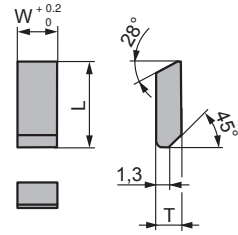
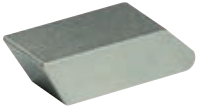


| Type, description | Material | | | | |
|----------------------------|----------|--|--|--|--|
| 51064-010 SENKUNG 1.5X45GR | 11528036 | | | | |
| 51064-011 12.7X12.7X4.8MM | 11528745 | | | | |
| 51064-031 12.7X12.7X4.8MM | 11586727 | | | | |



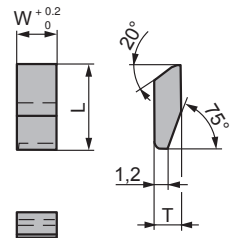


28601..



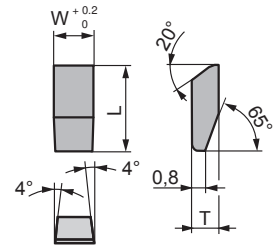
| Type, description | L [mm] | W _{min} [mm] | W _{max} [mm] | T [mm] | Grade [see page(s)] |
|-------------------|--------|-----------------------|-----------------------|--------|---------------------|
| 28601 | 5.0 | 1.5 | 2.2 | 1.5 | B3 |

44670..



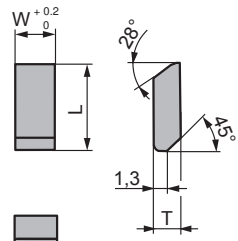
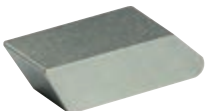
| Type, description | L [mm] | W _{min} [mm] | W _{max} [mm] | T [mm] | Grade [see page(s)] |
|-------------------|--------|-----------------------|-----------------------|--------|---------------------|
| 44671 | 5.5 | 2.0 | 3.3 | 1.6 | B3 |

13651..



| Type, description | L [mm] | W _{min} [mm] | W _{max} [mm] | T [mm] | Grade [see page(s)] |
|-------------------|--------|-----------------------|-----------------------|--------|---------------------|
| 13651 | 6.0 | 1.6 | 3.5 | 1.8 | B3 |

25375..



| Type, description | L [mm] | W _{min} [mm] | W _{max} [mm] | T [mm] | Grade [see page(s)] |
|-------------------|--------|-----------------------|-----------------------|--------|---------------------|
| 25375 | 6.0 | 2.0 | 5.0 | 1.8 | B3 |

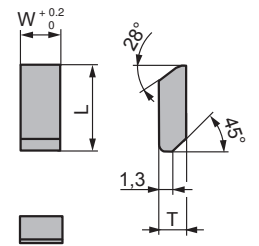
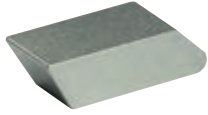




SAW TIPS FOR WOOD

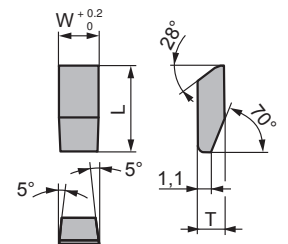
STRAIGHT SAW TIPS

25374..



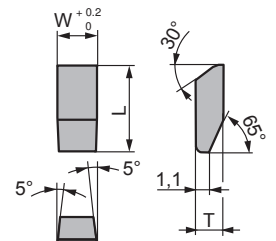
| Type, description | L [mm] | W_{min} [mm] | W_{max} [mm] | T [mm] | Grade [see page(s)] |
|-------------------|--------|----------------|----------------|--------|---------------------|
| 25374 | 6.0 | 2.0 | 5.0 | 2.0 | B3 |

47015..



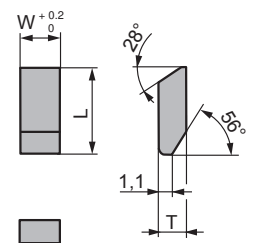
| Type, description | L [mm] | W_{min} [mm] | W_{max} [mm] | T [mm] | Grade [see page(s)] |
|-------------------|--------|----------------|----------------|--------|---------------------|
| 47015 | 6.5 | 1.4 | 6.5 | 1.6 | B3 |

16387..



| Type, description | L [mm] | W_{min} [mm] | W_{max} [mm] | T [mm] | Grade [see page(s)] |
|-------------------|--------|----------------|----------------|--------|---------------------|
| 16387 | 6.5 | 2.0 | 5.6 | 2.0 | B3 |

31440..

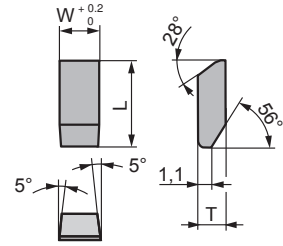


| Type, description | L [mm] | W_{min} [mm] | W_{max} [mm] | T [mm] | Grade [see page(s)] |
|-------------------|--------|----------------|----------------|--------|---------------------|
| 31440 | 6.5 | 1.6 | 6.0 | 2.0 | B3 |



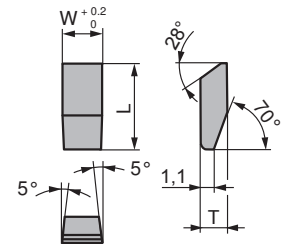


31450..



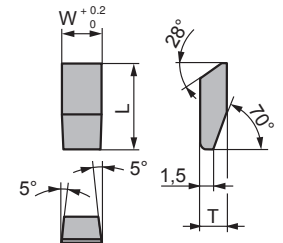
| Type, description | L [mm] | W _{min} [mm] | W _{max} [mm] | T [mm] | Grade [see page(s)] |
|-------------------|--------|-----------------------|-----------------------|--------|---------------------|
| 31450 | 6.5 | 1.8 | 6.3 | 2.0 | B3 |

11460..



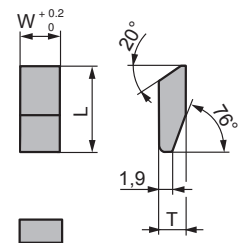
| Type, description | L [mm] | W _{min} [mm] | W _{max} [mm] | T [mm] | Grade [see page(s)] |
|-------------------|--------|-----------------------|-----------------------|--------|---------------------|
| 11460 | 7.0 | 2.0 | 9.0 | 2.0 | B3 |

29984..



| Type, description | L [mm] | W _{min} [mm] | W _{max} [mm] | T [mm] | Grade [see page(s)] |
|-------------------|--------|-----------------------|-----------------------|--------|---------------------|
| 29984 | 7.0 | 2.2 | 4.7 | 2.2 | B3 |

44671..



| Type, description | L [mm] | W _{min} [mm] | W _{max} [mm] | T [mm] | Grade [see page(s)] |
|-------------------|--------|-----------------------|-----------------------|--------|---------------------|
| 44671 | 7.0 | 2.5 | 6.8 | 2.3 | B3 |

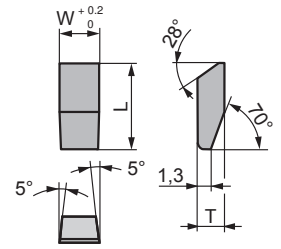
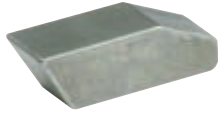




SAW TIPS FOR WOOD

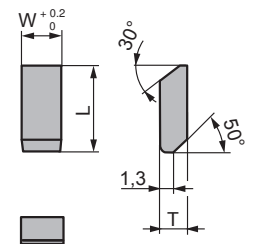
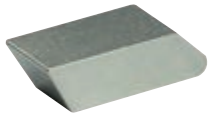
STRAIGHT SAW TIPS

15705..



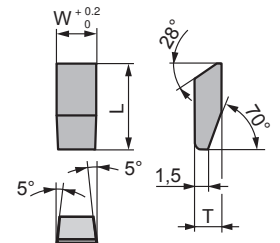
| Type, description | L [mm] | W _{min} [mm] | W _{max} [mm] | T [mm] | Grade [see page(s)] |
|-------------------|--------|-----------------------|-----------------------|--------|---------------------|
| 15705 | 7.5 | 2.0 | 5.0 | 2.0 | B3 |

44814..



| Type, description | L [mm] | W _{min} [mm] | W _{max} [mm] | T [mm] | Grade [see page(s)] |
|-------------------|--------|-----------------------|-----------------------|--------|---------------------|
| 44814 | 7.5 | 2.8 | 6.5 | 2.4 | B3 |

26014..

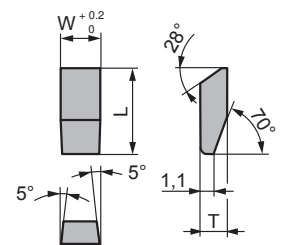


| Type, description | L [mm] | W _{min} [mm] | W _{max} [mm] | T [mm] | Grade [see page(s)] |
|-------------------|--------|-----------------------|-----------------------|--------|---------------------|
| 26014 | 7.5 | 2.0 | 12.5 | 2.5 | B3 |

17037..



Series 60000
see page(s)
A25+B4



| Type, description | L [mm] | W _{min} [mm] | W _{max} [mm] | T [mm] | Grade [see page(s)] |
|-------------------|--------|-----------------------|-----------------------|--------|---------------------|
| 17037 | 8.0 | 1.6 | 8.4 | 2.3 | B3 |

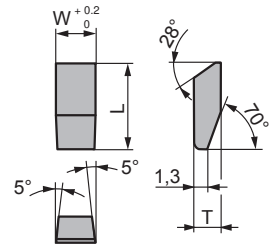




11963..

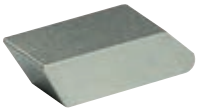



Series 60000
see page(s)
 A25+B4

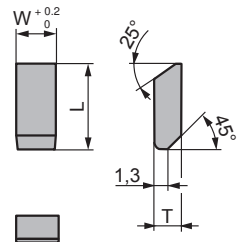


| Type, description | L [mm] | W _{min} [mm] | W _{max} [mm] | T [mm] | Grade [see page(s)] |
|-------------------|--------|-----------------------|-----------------------|--------|---------------------|
| 11963 | 8.0 | 2.0 | 10.0 | 2.5 | B3 |

6071..

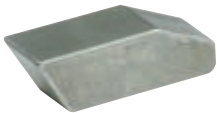



Series 60000
see page(s)
 A25+B5

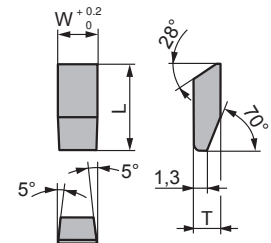


| Type, description | L [mm] | W _{min} [mm] | W _{max} [mm] | T [mm] | Grade [see page(s)] |
|-------------------|--------|-----------------------|-----------------------|--------|---------------------|
| 6071 | 8.0 | 2.9 | 7.2 | 3.0 | B3 |

10975..

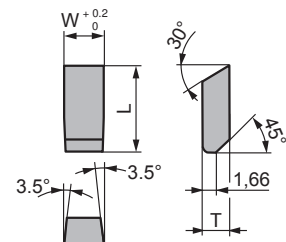
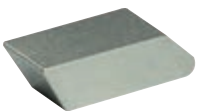


Series 60000
see page(s)
 A25+B4



| Type, description | L [mm] | W _{min} [mm] | W _{max} [mm] | T [mm] | Grade [see page(s)] |
|-------------------|--------|-----------------------|-----------------------|--------|---------------------|
| 10975 | 8.5 | 2.0 | 8.5 | 2.5 | B3 |

41884..



| Type, description | L [mm] | W _{min} [mm] | W _{max} [mm] | T [mm] | Grade [see page(s)] |
|-------------------|--------|-----------------------|-----------------------|--------|---------------------|
| 41884 | 8.5 | 3.6 | 8.2 | 3.2 | B3 |





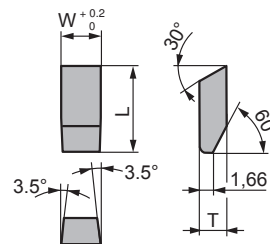
SAW TIPS FOR WOOD

STRAIGHT SAW TIPS

STRAIGHT SAW TIPS

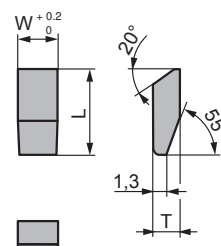
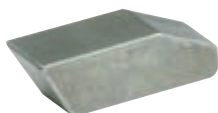
SAW TIPS FOR WOOD

44246..



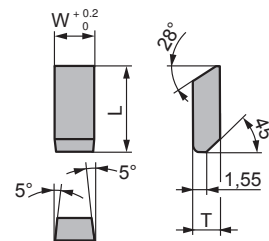
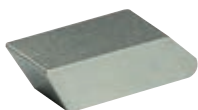
| Type, description | L [mm] | W _{min} [mm] | W _{max} [mm] | T [mm] | Grade [see page(s)] |
|-------------------|--------|-----------------------|-----------------------|--------|---------------------|
| 44246 | 8.5 | 2.8 | 7.5 | 3.2 | B3 |

24466..



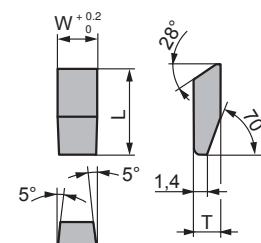
| Type, description | L [mm] | W _{min} [mm] | W _{max} [mm] | T [mm] | Grade [see page(s)] |
|-------------------|--------|-----------------------|-----------------------|--------|---------------------|
| 24466 | 9.0 | 2.5 | 6.0 | 2.5 | B3 |

22974..



| Type, description | L [mm] | W _{min} [mm] | W _{max} [mm] | T [mm] | Grade [see page(s)] |
|-------------------|--------|-----------------------|-----------------------|--------|---------------------|
| 22974 | 9.0 | 2.4 | 9.0 | 2.7 | B3 |

25618..

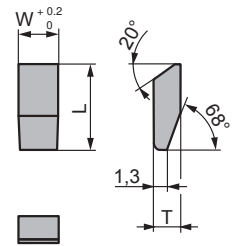
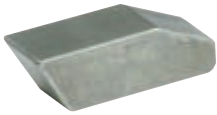


| Type, description | L [mm] | W _{min} [mm] | W _{max} [mm] | T [mm] | Grade [see page(s)] |
|-------------------|--------|-----------------------|-----------------------|--------|---------------------|
| 25618 | 9.0 | 2.2 | 8.5 | 2.7 | B3 |



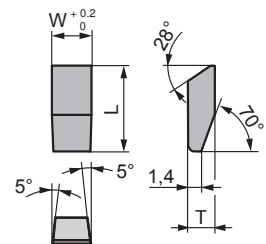


24467..



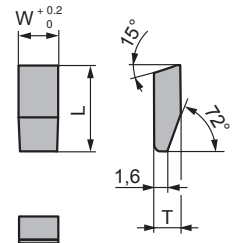
| Type, description | L [mm] | W _{min} [mm] | W _{max} [mm] | T [mm] | Grade [see page(s)] |
|-------------------|--------|-----------------------|-----------------------|--------|---------------------|
| 24467 | 10.0 | 3.0 | 7.0 | 2.5 | B3 |

12154..



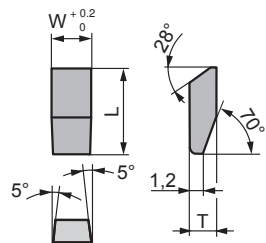
| Type, description | L [mm] | W _{min} [mm] | W _{max} [mm] | T [mm] | Grade [see page(s)] |
|-------------------|--------|-----------------------|-----------------------|--------|---------------------|
| 12154 | 10.0 | 3.0 | 8.0 | 2.8 | B3 |

31591..



| Type, description | L [mm] | W _{min} [mm] | W _{max} [mm] | T [mm] | Grade [see page(s)] |
|-------------------|--------|-----------------------|-----------------------|--------|---------------------|
| 31591 | 10.0 | 3.5 | 10.0 | 3.0 | B3 |

22180..



| Type, description | L [mm] | W _{min} [mm] | W _{max} [mm] | T [mm] | Grade [see page(s)] |
|-------------------|--------|-----------------------|-----------------------|--------|---------------------|
| 22180 | 10.5 | 2.9 | 7.0 | 2.3 | B3 |





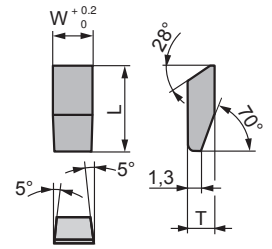
SAW TIPS FOR WOOD

STRAIGHT SAW TIPS

11748..

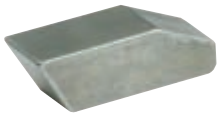


Series 60000
see page(s)
 A25+B5

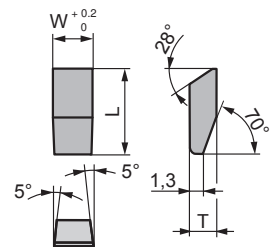


| Type, description | L [mm] | W _{min} [mm] | W _{max} [mm] | T [mm] | Grade [see page(s)] |
|-------------------|--------|-----------------------|-----------------------|--------|---------------------|
| 11748 | 10.5 | 2.2 | 10.6 | 2.5 | B3 |

12356..

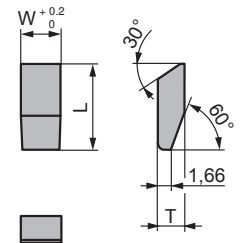


Series 60000
see page(s)
 A25+B5



| Type, description | L [mm] | W _{min} [mm] | W _{max} [mm] | T [mm] | Grade [see page(s)] |
|-------------------|--------|-----------------------|-----------------------|--------|---------------------|
| 12356 | 10.5 | 2.5 | 15.5 | 3.0 | B3 |

51224..

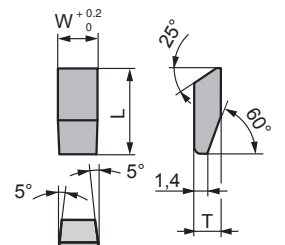


| Type, description | L [mm] | W _{min} [mm] | W _{max} [mm] | T [mm] | Grade [see page(s)] |
|-------------------|--------|-----------------------|-----------------------|--------|---------------------|
| 51224 | 10.5 | 6.5 | 5.5 | 3.2 | B3 |

26457..



Series 60000
see page(s)
 A25+B5



| Type, description | L [mm] | W _{min} [mm] | W _{max} [mm] | T [mm] | Grade [see page(s)] |
|-------------------|--------|-----------------------|-----------------------|--------|---------------------|
| 26457 | 10.5 | 2.5 | 13.0 | 3.5 | B3 |

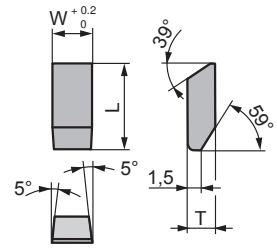
STRAIGHT SAW TIPS

SAW TIPS FOR WOOD



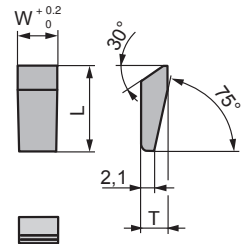
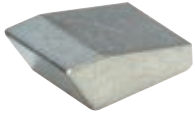


50208..



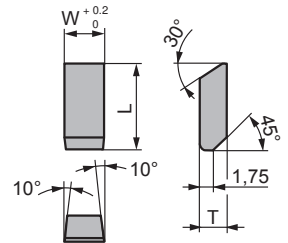
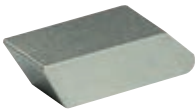
| Type, description | L [mm] | W _{min} [mm] | W _{max} [mm] | T [mm] | Grade [see page(s)] |
|-------------------|--------|-----------------------|-----------------------|--------|---------------------|
| 50208 | 10.5 | 3.3 | 9.0 | 3.5 | B3 |

47978..



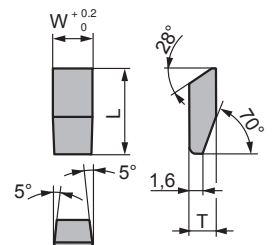
| Type, description | L [mm] | W _{min} [mm] | W _{max} [mm] | T [mm] | Grade [see page(s)] |
|-------------------|--------|-----------------------|-----------------------|--------|---------------------|
| 47978 | 10.5 | 3.5 | 11.0 | 4.0 | B3 |

19975..



| Type, description | L [mm] | W _{min} [mm] | W _{max} [mm] | T [mm] | Grade [see page(s)] |
|-------------------|--------|-----------------------|-----------------------|--------|---------------------|
| 19975 | 12.0 | 4.0 | 12.5 | 3.5 | B3 |

10529..



| Type, description | L [mm] | W _{min} [mm] | W _{max} [mm] | T [mm] | Grade [see page(s)] |
|-------------------|--------|-----------------------|-----------------------|--------|---------------------|
| 10529 | 12.5 | 3.2 | 11.5 | 3.0 | B3 |

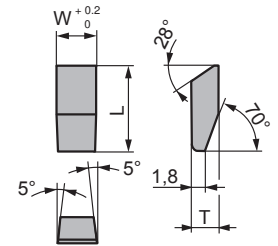




SAW TIPS FOR WOOD

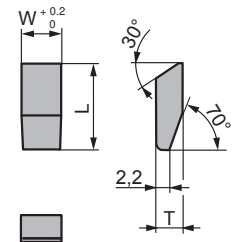
STRAIGHT SAW TIPS

46623..



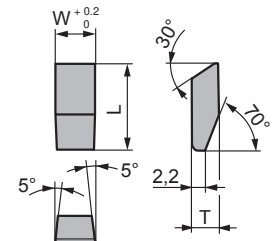
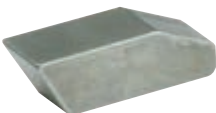
| Type, description | L [mm] | W _{min} [mm] | W _{max} [mm] | T [mm] | Grade [see page(s)] |
|-------------------|--------|-----------------------|-----------------------|--------|---------------------|
| 46623 | 12.5 | 4.1 | 7.5 | 3.5 | B3 |

24150..



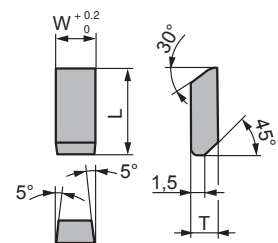
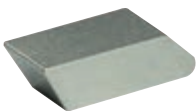
| Type, description | L [mm] | W _{min} [mm] | W _{max} [mm] | T [mm] | Grade [see page(s)] |
|-------------------|--------|-----------------------|-----------------------|--------|---------------------|
| 24150 | 12.5 | 3.3 | 20.0 | 4.0 | B3 |

50884..



| Type, description | L [mm] | W _{min} [mm] | W _{max} [mm] | T [mm] | Grade [see page(s)] |
|-------------------|--------|-----------------------|-----------------------|--------|---------------------|
| 50884 | 12.5 | 4.9 | 6.8 | 4.0 | B3 |

38376..



| Type, description | L [mm] | W _{min} [mm] | W _{max} [mm] | T [mm] | Grade [see page(s)] |
|-------------------|--------|-----------------------|-----------------------|--------|---------------------|
| 38376 | 13.0 | 3.8 | 18.3 | 4.0 | B3 |

STRAIGHT SAW TIPS

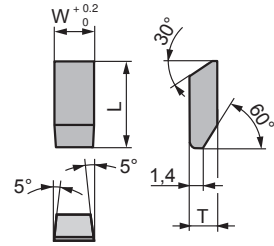
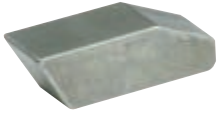
SAW TIPS FOR WOOD



A31

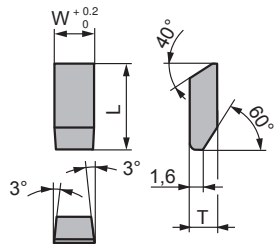
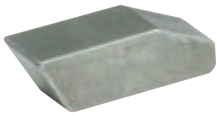


44092..



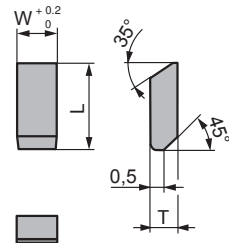
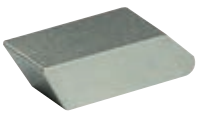
| Type, description | L [mm] | W _{min} [mm] | W _{max} [mm] | T [mm] | Grade [see page(s)] |
|-------------------|--------|-----------------------|-----------------------|--------|---------------------|
| 44092 | 13.0 | 4.0 | 12.5 | 4.0 | B3 |

50212..



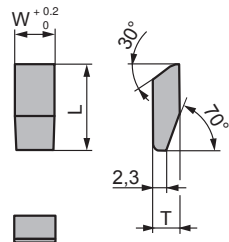
| Type, description | L [mm] | W _{min} [mm] | W _{max} [mm] | T [mm] | Grade [see page(s)] |
|-------------------|--------|-----------------------|-----------------------|--------|---------------------|
| 50212 | 13.0 | 4.0 | 11.0 | 4.0 | B3 |

18246..



| Type, description | L [mm] | W _{min} [mm] | W _{max} [mm] | T [mm] | Grade [see page(s)] |
|-------------------|--------|-----------------------|-----------------------|--------|---------------------|
| 18246 | 13.0 | 5.0 | 12.5 | 5.0 | B3 |

18160..



| Type, description | L [mm] | W _{min} [mm] | W _{max} [mm] | T [mm] | Grade [see page(s)] |
|-------------------|--------|-----------------------|-----------------------|--------|---------------------|
| 18160 | 14.5 | 4.0 | 20.5 | 4.0 | B3 |

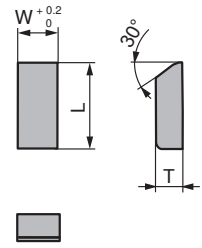




SAW TIPS FOR WOOD

STRAIGHT SAW TIPS

17109..

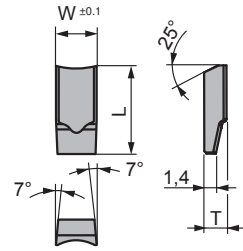


| Type, description | L [mm] | W_{\min} [mm] | W_{\max} [mm] | T [mm] | Grade [see page(s)] |
|-------------------|--------|-----------------|-----------------|--------|---------------------|
| 17109 | 15.5 | 7.5 | 13.0 | 5.0 | B3 |



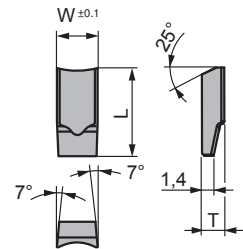


50973..



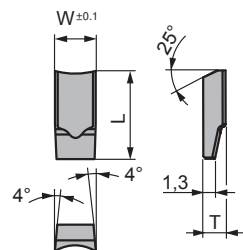
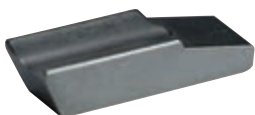
| Type, description | L [mm] | W [mm] | T [mm] | Grade [see page(s)] |
|-------------------|--------|--------|--------|---------------------|
| 50973 | 8.5 | 3.7 | 2.6 | B3 |
| 50973 | 10.5 | 3.7 | 2.6 | B3 |

51229..



| Type, description | L [mm] | W [mm] | T [mm] | Grade [see page(s)] |
|-------------------|--------|--------|--------|---------------------|
| 51229 | 10.5 | 3.8 | 2.6 | B3 |

51230..



| Type, description | L [mm] | W [mm] | T [mm] | Grade [see page(s)] |
|-------------------|--------|--------|--------|---------------------|
| 51230 | 8.5 | 3.5 | 2.5 | B3 |
| 51230 | 10.5 | 3.5 | 2.5 | B3 |

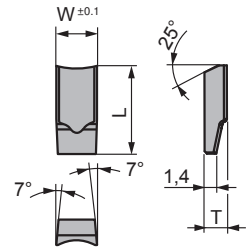




SAW TIPS FOR WOOD

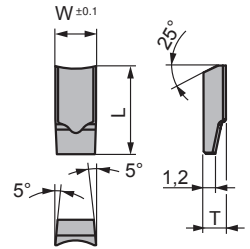
HOLLOW TOOTH SAW TIPS

51231..



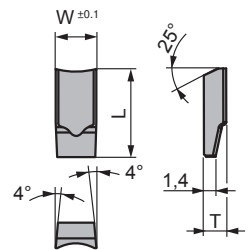
| Type, description | L [mm] | W [mm] | T [mm] | Grade [see page(s)] |
|-------------------|--------|--------|--------|---------------------|
| 51231 | 8.5 | 4.0 | 2.6 | B3 |
| 51231 | 10.5 | 4.0 | 2.6 | B3 |

51232..



| Type, description | L [mm] | W [mm] | T [mm] | Grade [see page(s)] |
|-------------------|--------|--------|--------|---------------------|
| 51232 | 8.5 | 4.2 | 2.6 | B3 |

51233..



| Type, description | L [mm] | W [mm] | T [mm] | Grade [see page(s)] |
|-------------------|--------|--------|--------|---------------------|
| 51233 | 8.5 | 4.5 | 2.6 | B3 |
| 51233 | 10.5 | 4.5 | 2.6 | B3 |

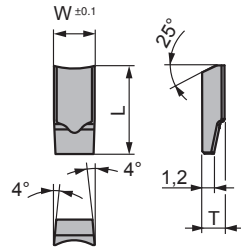
HOLLOW TOOTH SAW TIPS

SAW TIPS FOR WOOD





51242..



| Type, description | L [mm] | W [mm] | T [mm] | Grade [see page(s)] |
|-------------------|--------|--------|--------|---------------------|
| 51242 | 8.5 | 3.2 | 2.0 | B3 |



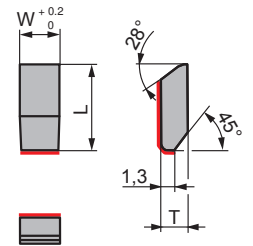
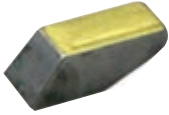


SAW TIPS FOR WOOD

STRAIGHT SAW TIPS WITH PRE-TINNED TOP DA

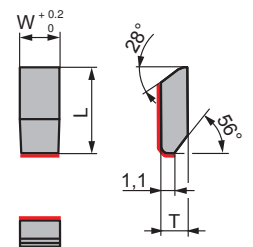
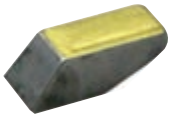
STRAIGHT SAW TIPS WITH PRE-TINNED TOP DA

25374.. DA



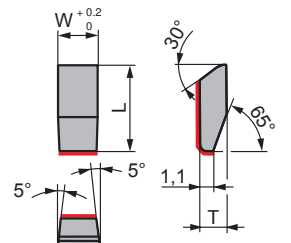
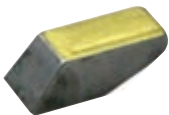
| Type, description | L [mm] | W _{min} [mm] | W _{max} [mm] | T [mm] | Grade [see page(s)] |
|-------------------|--------|-----------------------|-----------------------|--------|---------------------|
| 25374 | 6.0 | 2.4 | 5.0 | 2.0 | B3 |

31440.. DA



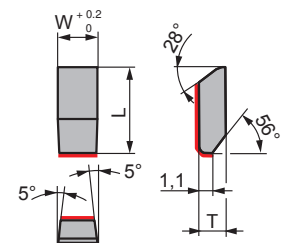
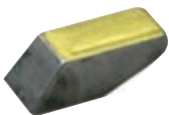
| Type, description | L [mm] | W _{min} [mm] | W _{max} [mm] | T [mm] | Grade [see page(s)] |
|-------------------|--------|-----------------------|-----------------------|--------|---------------------|
| 31440 | 6.5 | 2.8 | 3.6 | 2.0 | B3 |

16387.. DA



| Type, description | L [mm] | W _{min} [mm] | W _{max} [mm] | T [mm] | Grade [see page(s)] |
|-------------------|--------|-----------------------|-----------------------|--------|---------------------|
| 16387 | 6.5 | 3.0 | 5.0 | 2.0 | B3 |

31450.. DA



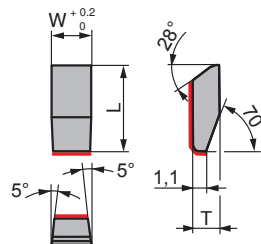
| Type, description | L [mm] | W _{min} [mm] | W _{max} [mm] | T [mm] | Grade [see page(s)] |
|-------------------|--------|-----------------------|-----------------------|--------|---------------------|
| 31450 | 6.5 | 3.3 | 3.3 | 2.0 | B3 |



SAW TIPS FOR WOOD

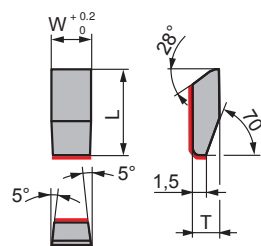
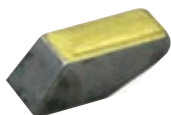


11460.. DA



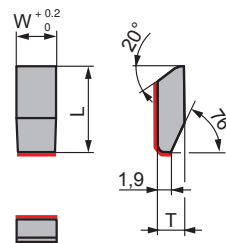
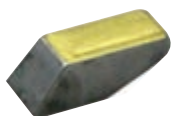
| Type, description | L [mm] | W _{min} [mm] | W _{max} [mm] | T [mm] | Grade [see page(s)] |
|-------------------|--------|-----------------------|-----------------------|--------|---------------------|
| 11460 | 7.0 | 2.6 | 5.5 | 2.0 | B3 |

29984.. DA



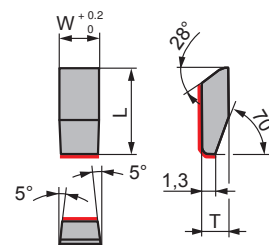
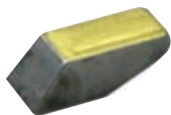
| Type, description | L [mm] | W _{min} [mm] | W _{max} [mm] | T [mm] | Grade [see page(s)] |
|-------------------|--------|-----------------------|-----------------------|--------|---------------------|
| 29984 | 7.0 | 4.6 | 4.6 | 2.2 | B3 |

44671.. DA

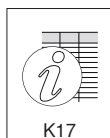


| Type, description | L [mm] | W _{min} [mm] | W _{max} [mm] | T [mm] | Grade [see page(s)] |
|-------------------|--------|-----------------------|-----------------------|--------|---------------------|
| 44671 | 7.0 | 3.0 | 3.0 | 2.3 | B3 |

15705.. DA



| Type, description | L [mm] | W _{min} [mm] | W _{max} [mm] | T [mm] | Grade [see page(s)] |
|-------------------|--------|-----------------------|-----------------------|--------|---------------------|
| 15705 | 7.5 | 3.0 | 3.6 | 2.0 | B3 |



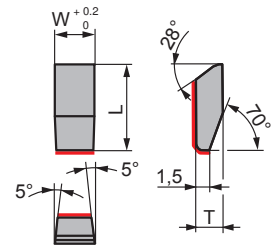
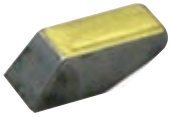


SAW TIPS FOR WOOD

STRAIGHT SAW TIPS WITH PRE-TINNED TOP DA

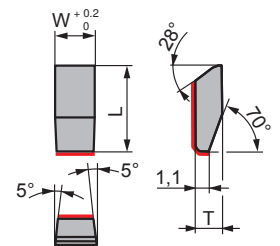
STRAIGHT SAW TIPS WITH PRE-TINNED TOP DA

26014.. DA



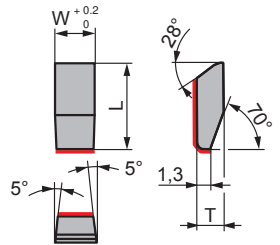
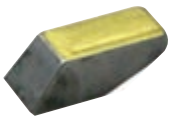
| Type, description | L [mm] | W _{min} [mm] | W _{max} [mm] | T [mm] | Grade [see page(s)] |
|-------------------|--------|-----------------------|-----------------------|--------|---------------------|
| 26014 | 7.5 | 3.2 | 6.0 | 2.5 | B3 |

17037.. DA



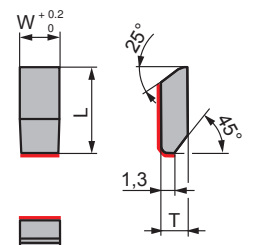
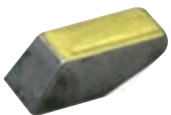
| Type, description | L [mm] | W _{min} [mm] | W _{max} [mm] | T [mm] | Grade [see page(s)] |
|-------------------|--------|-----------------------|-----------------------|--------|---------------------|
| 17037 | 8.0 | 2.5 | 5.5 | 2.3 | B3 |

11963.. DA



| Type, description | L [mm] | W _{min} [mm] | W _{max} [mm] | T [mm] | Grade [see page(s)] |
|-------------------|--------|-----------------------|-----------------------|--------|---------------------|
| 11963 | 8.0 | 3.0 | 4.8 | 2.5 | B3 |

6071.. DA



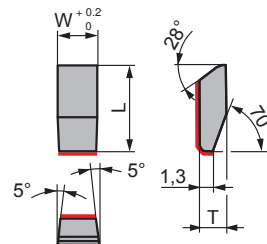
| Type, description | L [mm] | W _{min} [mm] | W _{max} [mm] | T [mm] | Grade [see page(s)] |
|-------------------|--------|-----------------------|-----------------------|--------|---------------------|
| 6071 | 8.0 | 5.5 | 5.5 | 3.0 | B3 |



SAW TIPS FOR WOOD

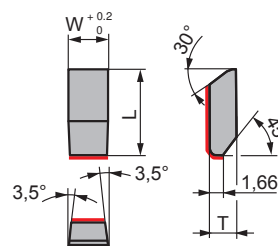
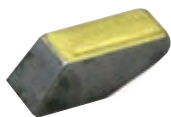


10975.. DA



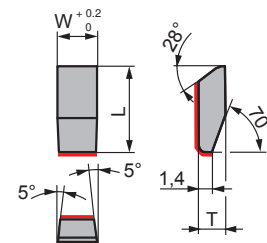
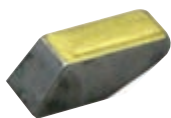
| Type, description | L [mm] | W _{min} [mm] | W _{max} [mm] | T [mm] | Grade [see page(s)] |
|-------------------|--------|-----------------------|-----------------------|--------|---------------------|
| 10975 | 8.5 | 2.5 | 6.5 | 2.5 | B3 |

41884.. DA



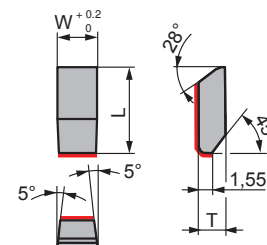
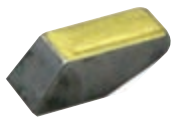
| Type, description | L [mm] | W _{min} [mm] | W _{max} [mm] | T [mm] | Grade [see page(s)] |
|-------------------|--------|-----------------------|-----------------------|--------|---------------------|
| 41884 | 8.5 | 3.5 | 6.8 | 3.2 | B3 |

25618.. DA



| Type, description | L [mm] | W _{min} [mm] | W _{max} [mm] | T [mm] | Grade [see page(s)] |
|-------------------|--------|-----------------------|-----------------------|--------|---------------------|
| 25618 | 9.0 | 2.8 | 7.0 | 2.7 | B3 |

22974.. DA



| Type, description | L [mm] | W _{min} [mm] | W _{max} [mm] | T [mm] | Grade [see page(s)] |
|-------------------|--------|-----------------------|-----------------------|--------|---------------------|
| 22974 | 9.0 | 4.0 | 6.0 | 2.7 | B3 |





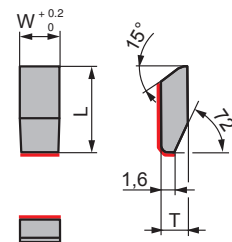
SAW TIPS FOR WOOD

STRAIGHT SAW TIPS WITH PRE-TINNED TOP DA

STRAIGHT SAW TIPS WITH PRE-TINNED TOP DA

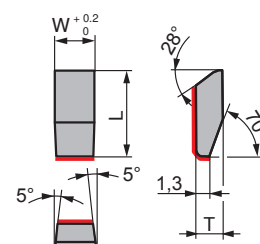
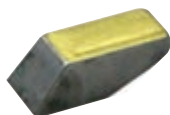
SAW TIPS FOR WOOD

31591.. DA



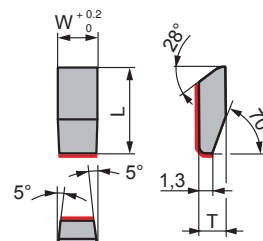
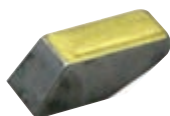
| Type, description | L [mm] | W _{min} [mm] | W _{max} [mm] | T [mm] | Grade [see page(s)] |
|-------------------|--------|-----------------------|-----------------------|--------|---------------------|
| 31591 | 10.0 | 5.0 | 5.0 | 3.0 | B3 |

11748.. DA



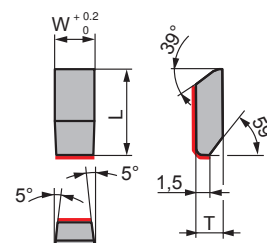
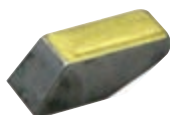
| Type, description | L [mm] | W _{min} [mm] | W _{max} [mm] | T [mm] | Grade [see page(s)] |
|-------------------|--------|-----------------------|-----------------------|--------|---------------------|
| 11748 | 10.5 | 2.8 | 6.5 | 2.5 | B3 |

12356.. DA

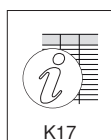


| Type, description | L [mm] | W _{min} [mm] | W _{max} [mm] | T [mm] | Grade [see page(s)] |
|-------------------|--------|-----------------------|-----------------------|--------|---------------------|
| 12356 | 10.5 | 3.0 | 9.0 | 3.0 | B3 |

50208.. DA

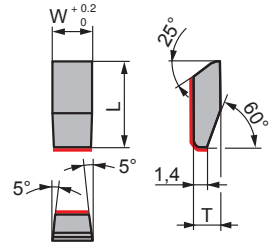
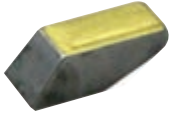


| Type, description | L [mm] | W _{min} [mm] | W _{max} [mm] | T [mm] | Grade [see page(s)] |
|-------------------|--------|-----------------------|-----------------------|--------|---------------------|
| 50208 | 10.5 | 4.0 | 6.5 | 3.5 | B3 |



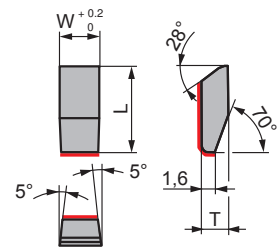
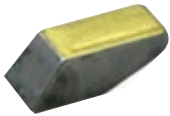


26457.. DA



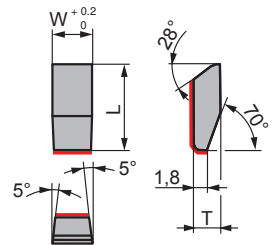
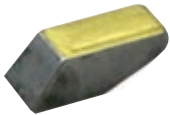
| Type, description | L [mm] | W _{min} [mm] | W _{max} [mm] | T [mm] | Grade [see page(s)] |
|-------------------|--------|-----------------------|-----------------------|--------|---------------------|
| 26457 | 10.5 | 3.0 | 11.0 | 3.5 | B3 |

10529.. DA



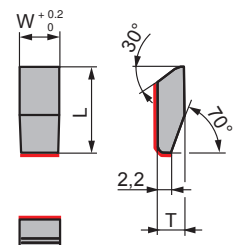
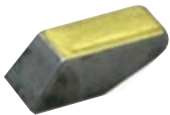
| Type, description | L [mm] | W _{min} [mm] | W _{max} [mm] | T [mm] | Grade [see page(s)] |
|-------------------|--------|-----------------------|-----------------------|--------|---------------------|
| 10529 | 12.5 | 4.3 | 5.8 | 3.0 | B3 |

46623.. DA

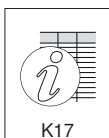


| Type, description | L [mm] | W _{min} [mm] | W _{max} [mm] | T [mm] | Grade [see page(s)] |
|-------------------|--------|-----------------------|-----------------------|--------|---------------------|
| 46623 | 12.5 | 4.5 | 6.0 | 3.5 | B3 |

24150.. DA



| Type, description | L [mm] | W _{min} [mm] | W _{max} [mm] | T [mm] | Grade [see page(s)] |
|-------------------|--------|-----------------------|-----------------------|--------|---------------------|
| 24150 | 12.5 | 4.0 | 11.0 | 4.0 | B3 |





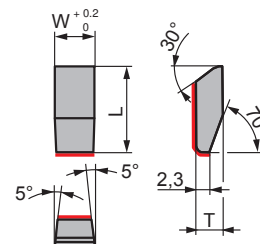
SAW TIPS FOR WOOD

STRAIGHT SAW TIPS WITH PRE-TINNED TOP DA

STRAIGHT SAW TIPS WITH PRE-TINNED TOP DA

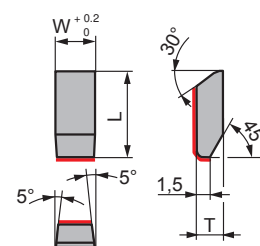
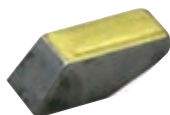
SAW TIPS FOR WOOD

50884.. DA



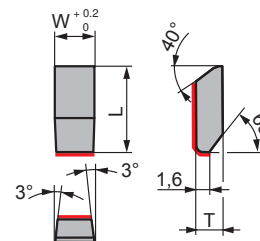
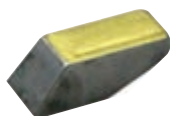
| Type, description | L [mm] | W _{min} [mm] | W _{max} [mm] | T [mm] | Grade [see page(s)] |
|-------------------|--------|-----------------------|-----------------------|--------|---------------------|
| 50884 | 12.5 | 6.8 | 6.8 | 4.0 | B3 |

38376.. DA



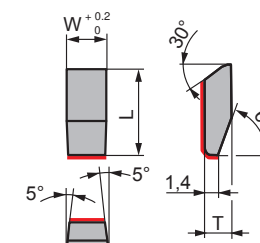
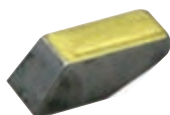
| Type, description | L [mm] | W _{min} [mm] | W _{max} [mm] | T [mm] | Grade [see page(s)] |
|-------------------|--------|-----------------------|-----------------------|--------|---------------------|
| 38376 | 13.0 | 3.8 | 11.0 | 4.0 | B3 |

50212.. DA

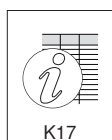


| Type, description | L [mm] | W _{min} [mm] | W _{max} [mm] | T [mm] | Grade [see page(s)] |
|-------------------|--------|-----------------------|-----------------------|--------|---------------------|
| 50212 | 13.0 | 4.5 | 6.5 | 4.0 | B3 |

44092.. DA

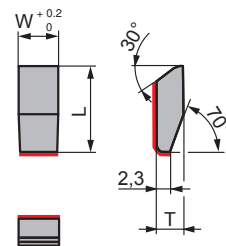


| Type, description | L [mm] | W _{min} [mm] | W _{max} [mm] | T [mm] | Grade [see page(s)] |
|-------------------|--------|-----------------------|-----------------------|--------|---------------------|
| 44092 | 13.0 | 4.9 | 9.0 | 4.0 | B3 |





18160.. DA



| Type, description | L [mm] | W_{min} [mm] | W_{max} [mm] | T [mm] | Grade [see page(s)] |
|-------------------|--------|----------------|----------------|--------|---------------------|
| 18160 | 14.5 | 5.0 | 11.0 | 4.0 | B3 |

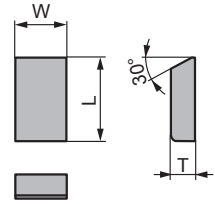
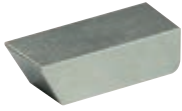




SAW TIPS FOR WOOD

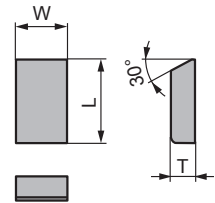
U.S. STYLE SAW TIPS

WA..



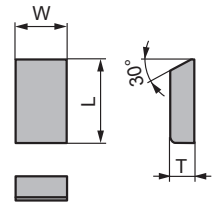
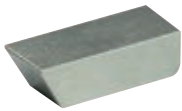
| Type, description | L [inch] | W _{min} [inch] | W _{max} [inch] | T [inch] | Grade [see page(s)] |
|-------------------|----------|-------------------------|-------------------------|----------|---------------------|
| WA | 0.250 | 0.085 | 0.200 | 0.062 | B3 |

WB..



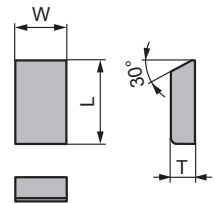
| Type, description | L [inch] | T [inch] | W _{min} [inch] | W _{max} [inch] | Grade [see page(s)] |
|-------------------|----------|----------|-------------------------|-------------------------|---------------------|
| WB | 0.281 | 0.078 | 0.119 | 0.215 | B3 |

WC..



| Type, description | L [inch] | T [inch] | W _{min} [inch] | W _{max} [inch] | Grade [see page(s)] |
|-------------------|----------|----------|-------------------------|-------------------------|---------------------|
| WC | 0.281 | 0.093 | 0.150 | 0.150 | B3 |

WD..



| Type, description | L [inch] | W _{min} [inch] | W _{max} [inch] | T [inch] | Grade [see page(s)] |
|-------------------|----------|-------------------------|-------------------------|----------|---------------------|
| WD | 0.312 | 0.120 | 0.375 | 0.093 | B3 |

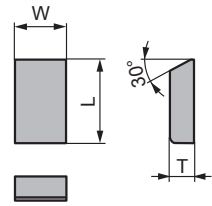
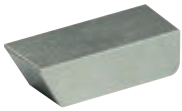
U.S. STYLE SAW TIPS

SAW TIPS FOR WOOD



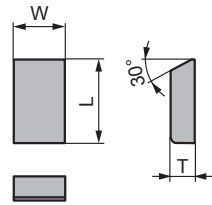


WE..



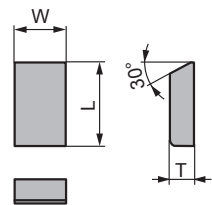
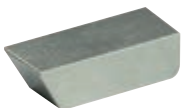
| Type, description | L [inch] | W _{min} [inch] | W _{max} [inch] | T [inch] | Grade [see page(s)] |
|-------------------|----------|-------------------------|-------------------------|----------|---------------------|
| WE | 0.375 | 0.100 | 0.375 | 0.093 | B3 |

WF..



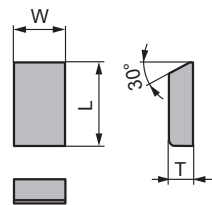
| Type, description | L [inch] | W _{min} [inch] | W _{max} [inch] | T [inch] | Grade [see page(s)] |
|-------------------|----------|-------------------------|-------------------------|----------|---------------------|
| WF | 0.500 | 0.120 | 0.750 | 0.125 | B3 |

WG..



| Type, description | L [inch] | W _{min} [inch] | W _{max} [inch] | T [inch] | Grade [see page(s)] |
|-------------------|----------|-------------------------|-------------------------|----------|---------------------|
| WG | 0.375 | 0.190 | 0.625 | 0.125 | B3 |

WQ..



| Type, description | L [inch] | W _{min} [inch] | W _{max} [inch] | T [inch] | Grade [see page(s)] |
|-------------------|----------|-------------------------|-------------------------|----------|---------------------|
| WQ | 0.375 | 0.200 | 0.890 | 0.156 | B3 |





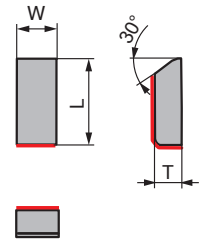
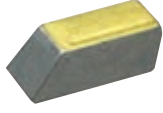
SAW TIPS FOR WOOD

U.S. STYLE SAW TIPS WITH PRE-TINNED TOP PT

U.S. STYLE SAW TIPS WITH PRE-TINNED TOP PT

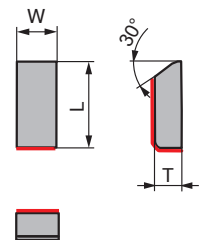
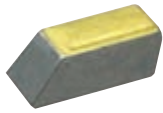
SAW TIPS FOR WOOD

WA.. PT



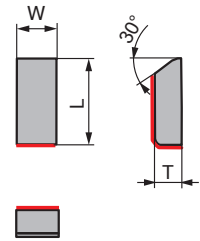
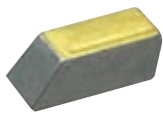
| Type, description | L [inch] | W _{min} [inch] | W _{max} [inch] | T [inch] | Grade [see page(s)] |
|-------------------|----------|-------------------------|-------------------------|----------|---------------------|
| WA | 0.250 | 0.115 | 0.180 | 0.062 | B3 |

WD.. PT



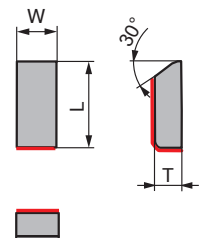
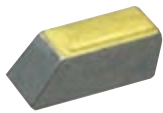
| Type, description | L [inch] | W _{min} [inch] | W _{max} [inch] | T [inch] | Grade [see page(s)] |
|-------------------|----------|-------------------------|-------------------------|----------|---------------------|
| WD | 0.312 | 0.115 | 0.375 | 0.093 | B3 |

WE.. PT



| Type, description | L [inch] | W _{min} [inch] | W _{max} [inch] | T [inch] | Grade [see page(s)] |
|-------------------|----------|-------------------------|-------------------------|----------|---------------------|
| WE | 0.375 | 0.100 | 0.400 | 0.093 | B3 |

WF.. PT

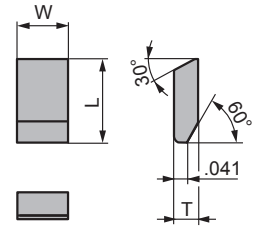


| Type, description | L [inch] | W _{min} [inch] | W _{max} [inch] | T [inch] | Grade [see page(s)] |
|-------------------|----------|-------------------------|-------------------------|----------|---------------------|
| WF | 0.500 | 0.150 | 0.750 | 0.125 | B3 |



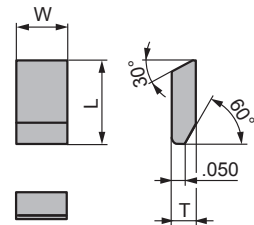


WBC..



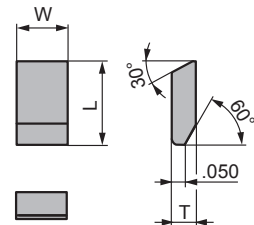
| Type, description | L [inch] | W _{min} [inch] | W _{max} [inch] | T [inch] | Grade [see page(s)] |
|-------------------|----------|-------------------------|-------------------------|----------|---------------------|
| WBC | 0.281 | 0.100 | 0.195 | 0.078 | B3 |

WDC..



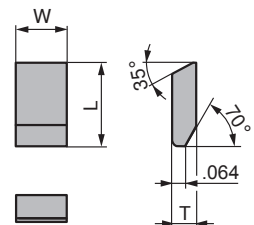
| Type, description | L [inch] | W _{min} [inch] | W _{max} [inch] | T [inch] | Grade [see page(s)] |
|-------------------|----------|-------------------------|-------------------------|----------|---------------------|
| WDC | 0.312 | 0.100 | 0.312 | 0.093 | B3 |

WEC..



| Type, description | L [inch] | W _{min} [inch] | W _{max} [inch] | T [inch] | Grade [see page(s)] |
|-------------------|----------|-------------------------|-------------------------|----------|---------------------|
| WEC | 0.375 | 0.110 | 0.400 | 0.093 | B3 |

WFC..



| Type, description | L [inch] | W _{min} [inch] | W _{max} [inch] | T [inch] | Grade [see page(s)] |
|-------------------|----------|-------------------------|-------------------------|----------|---------------------|
| WFC | 0.500 | 0.110 | 0.775 | 0.125 | B3 |

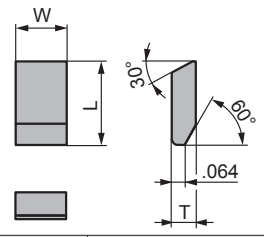
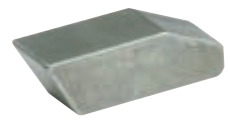




SAW TIPS FOR WOOD

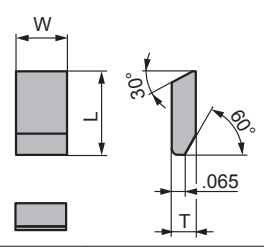
CANADIAN STYLE SAW TIPS

WGC..



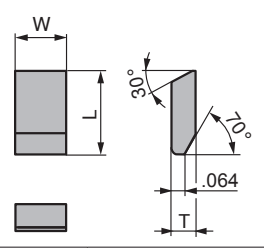
| Type, description | L [inch] | W _{min} [inch] | W _{max} [inch] | T [inch] | Grade [see page(s)] |
|-------------------|----------|-------------------------|-------------------------|----------|---------------------|
| WGC | 0.375 | 0.090 | 0.550 | 0.125 | B3 |

WHC..



| Type, description | L [inch] | W _{min} [inch] | W _{max} [inch] | T [inch] | Grade [see page(s)] |
|-------------------|----------|-------------------------|-------------------------|----------|---------------------|
| WHC | 0.344 | 0.110 | 0.280 | 0.125 | B3 |

WXC..



| Type, description | L [inch] | W _{min} [inch] | W _{max} [inch] | T [inch] | Grade [see page(s)] |
|-------------------|----------|-------------------------|-------------------------|----------|---------------------|
| WXC | 0.437 | 0.095 | 0.195 | 0.125 | B3 |

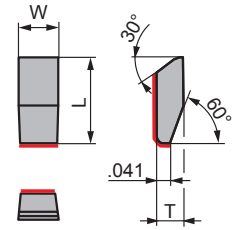
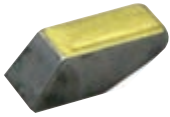
CANADIAN STYLE SAW TIPS

SAW TIPS FOR WOOD



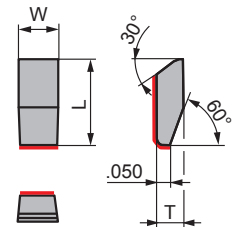
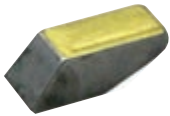


WBC.. PT



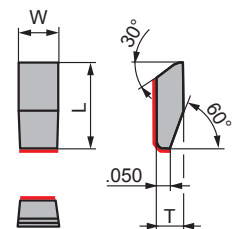
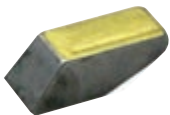
| Type, description | L [inch] | W _{min} [inch] | W _{max} [inch] | T [inch] | Grade [see page(s)] |
|-------------------|----------|-------------------------|-------------------------|----------|---------------------|
| WBC | 0.281 | 0.120 | 0.195 | 0.078 | B3 |

WDC.. PT



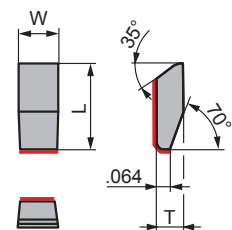
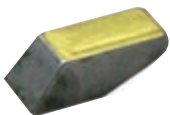
| Type, description | L [inch] | W _{min} [inch] | W _{max} [inch] | T [inch] | Grade [see page(s)] |
|-------------------|----------|-------------------------|-------------------------|----------|---------------------|
| WDC | 0.312 | 0.100 | 0.312 | 0.093 | B3 |

WEC.. PT



| Type, description | L [inch] | W _{min} [inch] | W _{max} [inch] | T [inch] | Grade [see page(s)] |
|-------------------|----------|-------------------------|-------------------------|----------|---------------------|
| WEC | 0.375 | 0.120 | 0.375 | 0.093 | B3 |

WFC.. PT



| Type, description | L [inch] | W _{min} [inch] | W _{max} [inch] | T [inch] | Grade [see page(s)] |
|-------------------|----------|-------------------------|-------------------------|----------|---------------------|
| WFC | 0.500 | 0.115 | 0.750 | 0.125 | B3 |





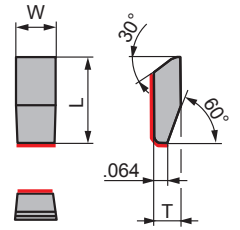
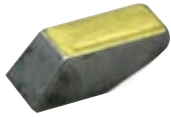
SAW TIPS FOR WOOD

CANADIAN STYLE SAW TIPS WITH PRE-TINNED TOP PT

CANADIAN STYLE SAW TIPS WITH PRE-TINNED TOP PT

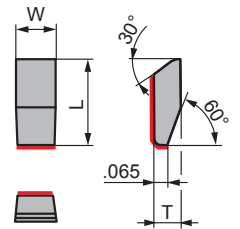
SAW TIPS FOR WOOD

WGC.. PT



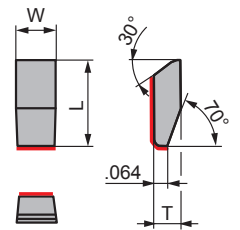
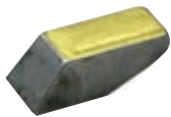
| Type, description | L [inch] | W _{min} [inch] | W _{max} [inch] | T [inch] | Grade [see page(s)] |
|-------------------|----------|-------------------------|-------------------------|----------|---------------------|
| WGC | 0.375 | 0.090 | 0.500 | 0.125 | B3 |

WHC.. PT



| Type, description | L [inch] | W _{min} [inch] | W _{max} [inch] | T [inch] | Grade [see page(s)] |
|-------------------|----------|-------------------------|-------------------------|----------|---------------------|
| WGC | 0.344 | 0.150 | 0.250 | 0.125 | B3 |

WXC.. PT



| Type, description | L [inch] | W _{min} [inch] | W _{max} [inch] | T [inch] | Grade [see page(s)] |
|-------------------|----------|-------------------------|-------------------------|----------|---------------------|
| WXC | 0.437 | 0.095 | 0.195 | 0.125 | B3 |

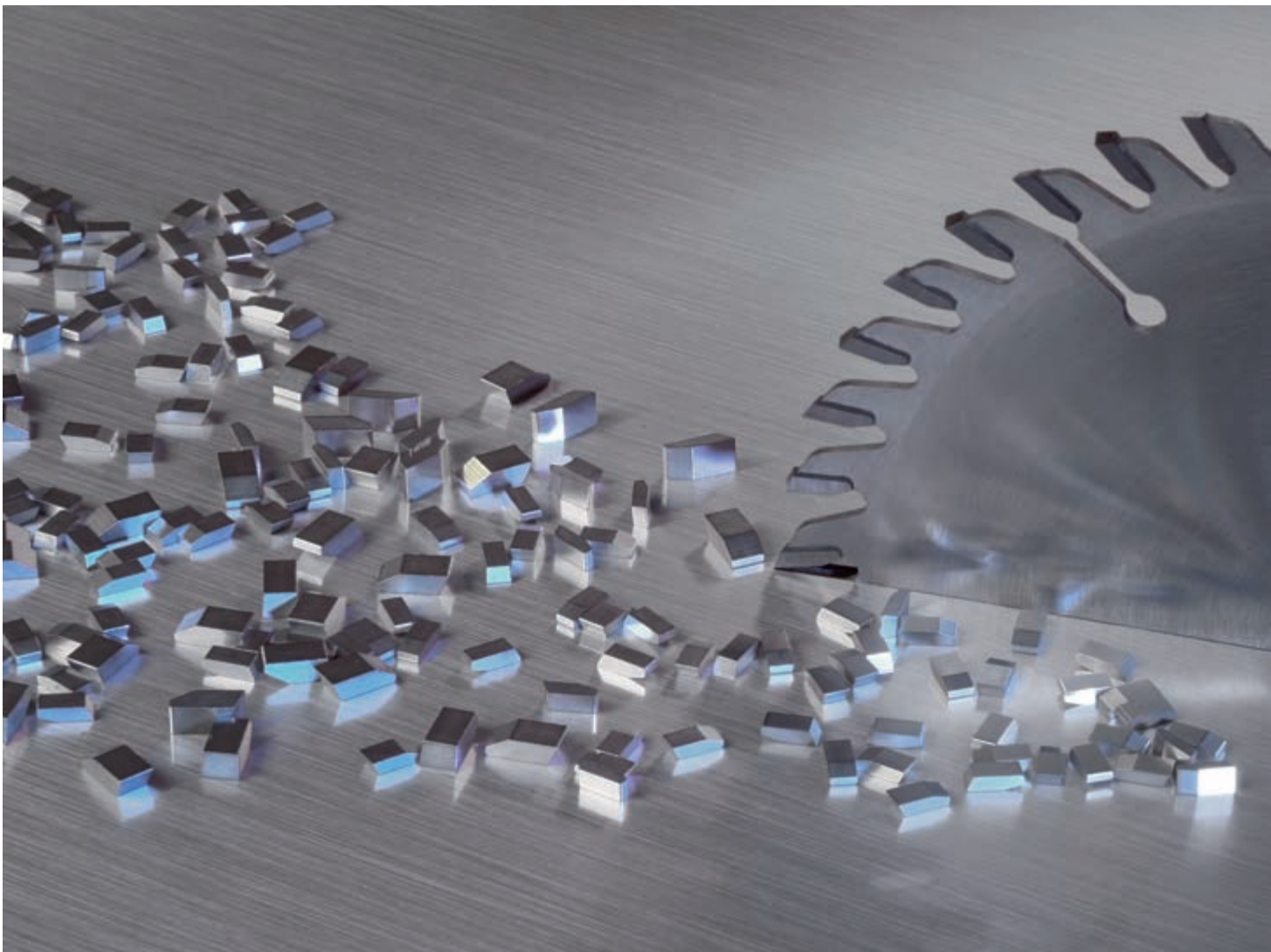






Saw tips for metal working

In the field of saw tip production, we have long-standing experience and are known for pioneering innovations in the world of metal cutting. The combination of maximum 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.





Composition and properties

| CERATIZIT grade code | ISO code | U.S. code | Binder [m %] | Density [g/cm ³] | Hardness | | | Transverse rupture strength | | Fracture toughness [MPa*m ^{1/2}] |
|-------------------------|-------------|--------------|-----------------|---------------------------------|----------|------|-----|--------------------------------|----------|--|
| | | | | | HV10 | HV30 | HRA | [MPa] | [P.S.I.] | |

Ultrafine grades

| | | | | | | | | | | |
|--------|--|--|-----------|-------|------|------|------|------|--------|-----|
| KCR05+ | | | Co+Ni 3,0 | 15,25 | 2160 | 2115 | 94,5 | 2600 | 377000 | 5,8 |
|--------|--|--|-----------|-------|------|------|------|------|--------|-----|

Submicron grain

| | | | | | | | | | | |
|--------|---------|----|------|-------|------|------|------|------|--------|------|
| KCR06 | | | 3,0 | 15,30 | 1950 | 1910 | 93,6 | 2300 | 334000 | 8,5 |
| CTS12D | K10-K15 | | 6,0 | 14,95 | 1800 | 1770 | 92,9 | 3700 | 537000 | 8,8 |
| CTS18D | K20-K40 | C2 | 9,0 | 14,55 | 1610 | 1590 | 91,9 | 3700 | 537000 | 11,0 |
| CTS24D | K30-K40 | | 12,0 | 14,25 | 1480 | 1460 | 90,9 | 4000 | 580000 | 12,5 |

Fine grain grades

| | | | | | | | | | | |
|-------|-----------|-------|-----------------------------------|-------|------|------|------|------|--------|------|
| KCR10 | | | Co+Ni 4,0 | 15,15 | 1780 | 1760 | 92,8 | 2800 | 406000 | 10,1 |
| HC10 | K10 | C3 | 5,6 | 15,00 | 1760 | 1730 | 92,7 | 2150 | 312000 | 9,2 |
| S26T | P20 | C2 | Co 9,5 (Ti, Ta, Nb) C 20,6 | 12,20 | 1570 | 1550 | 91,6 | 1700 | 319000 | 10,8 |
| S25T | P25 | C5-C6 | Co 9,5 (Ti, Ta, Nb) C 22,4 | 12,50 | 1550 | 1530 | 91,5 | 2500 | 363000 | 10,5 |
| SMX | P20M/P25M | C6 | Co 11,0 (Ti, Ta, Nb) C 18,5 | 12,65 | 1550 | 1530 | 91,5 | 2200 | 319000 | 10,0 |
| S4X7 | P30/P35 | C1-C2 | Co 11,0 (Ti, Ta, Nb) C 11,2 | 13,05 | 1490 | 1470 | 91,0 | 2300 | 334000 | 11,6 |
| S40T | P35 | C1-C2 | Co 11,0 (Ti, Ta, Nb) C 12,0 | 13,25 | 1440 | 1420 | 90,6 | 2400 | 348000 | 13,5 |

Comment:

1. The data in this table are typical material parameters. We reserve the right to modify the data due to technical progress or due to further development within our company.

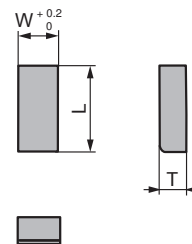
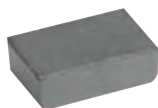
2. K_{IC}^* : The measured critical tension intensity factors (K_{IC}) depend to a high degree on the sample geometry and sample preparation. A direct comparison with parameters which have been determined by means of a different method is therefore not admissible.



SAW TIPS FOR METAL

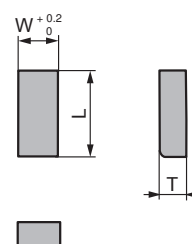
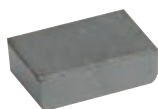
STRAIGHT SAW TIPS

51500..



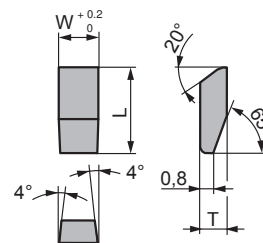
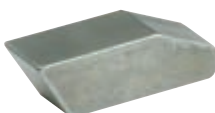
| Type, description | L [mm] | W_{min} [mm] | W_{max} [mm] | T [mm] | Grade [see page(s)] |
|-------------------|--------|----------------|----------------|--------|---------------------|
| 51500 | 4.5 | 2.5 | 12.0 | 2.5 | C3 |

51508..



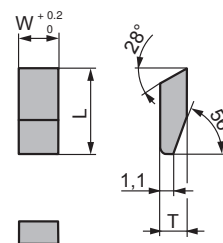
| Type, description | L [mm] | W_{min} [mm] | W_{max} [mm] | T [mm] | Grade [see page(s)] |
|-------------------|--------|----------------|----------------|--------|---------------------|
| 51508 | 4.5 | 3.5 | 3.5 | 2.2 | C3 |

13651..



| Type, description | L [mm] | W_{min} [mm] | W_{max} [mm] | T [mm] | Grade [see page(s)] |
|-------------------|--------|----------------|----------------|--------|---------------------|
| 13651 | 6.0 | 2.0 | 3.2 | 1.8 | C3 |

31440..

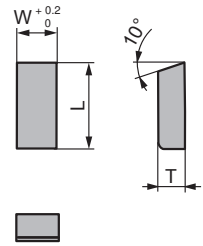


| Type, description | L [mm] | W_{min} [mm] | W_{max} [mm] | T [mm] | Grade [see page(s)] |
|-------------------|--------|----------------|----------------|--------|---------------------|
| 31440 | 6.5 | 2.2 | 2.8 | 2.0 | C3 |



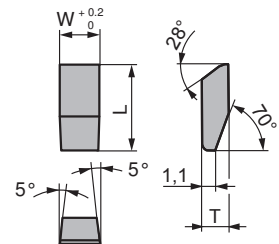


50812..



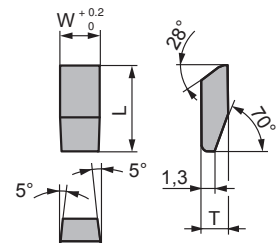
| Type, description | L [mm] | W _{min} [mm] | W _{max} [mm] | T [mm] | Grade [see page(s)] |
|-------------------|--------|-----------------------|-----------------------|--------|---------------------|
| 50812 | 7.24 | 4.0 | 5.0 | 3.3 | C3 |

17037..



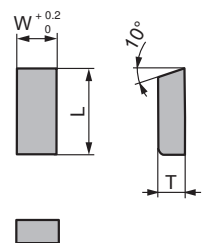
| Type, description | L [mm] | W _{min} [mm] | W _{max} [mm] | T [mm] | Grade [see page(s)] |
|-------------------|--------|-----------------------|-----------------------|--------|---------------------|
| 17037 | 8.0 | 1.6 | 8.4 | 2.3 | C3 |

10975..



| Type, description | L [mm] | W _{min} [mm] | W _{max} [mm] | T [mm] | Grade [see page(s)] |
|-------------------|--------|-----------------------|-----------------------|--------|---------------------|
| 10975 | 8.5 | 2.0 | 8.5 | 2.5 | C3 |

50966..



| Type, description | L [mm] | W _{min} [mm] | W _{max} [mm] | T [mm] | Grade [see page(s)] |
|-------------------|--------|-----------------------|-----------------------|--------|---------------------|
| 50966 | 9.6 | 4.5 | 7.6 | 3.3 | C3 |



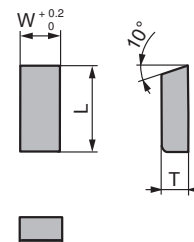
A31



SAW TIPS FOR METAL

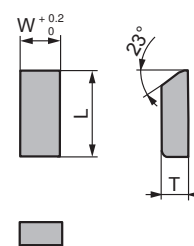
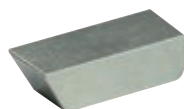
STRAIGHT SAW TIPS

50811..



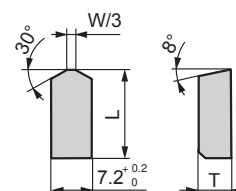
| Type, description | L [mm] | W _{min} [mm] | W _{max} [mm] | T [mm] | Grade [see page(s)] |
|-------------------|--------|-----------------------|-----------------------|--------|---------------------|
| 50811 | 9.65 | 6.8 | 8.8 | 4.45 | C3 |

43368..



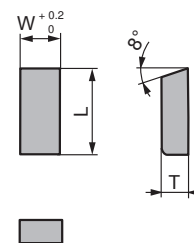
| Type, description | L [mm] | W _{min} [mm] | W _{max} [mm] | T [mm] | Grade [see page(s)] |
|-------------------|--------|-----------------------|-----------------------|--------|---------------------|
| 43368 | 12 | 6.0 | 6.0 | 4 | C3 |

20769..



| Type, description | L [mm] | W _{min} [mm] | W _{max} [mm] | T [mm] | Grade [see page(s)] |
|-------------------|--------|-----------------------|-----------------------|--------|---------------------|
| 20769 | 12.3 | 7.0 | 7.2 | 4.0 | C3 |

50838..



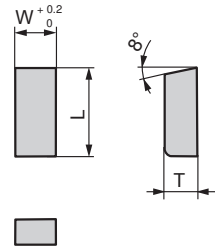
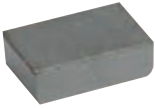
| Type, description | L [mm] | W _{min} [mm] | W _{max} [mm] | T [mm] | Grade [see page(s)] |
|-------------------|--------|-----------------------|-----------------------|--------|---------------------|
| 50838 | 12.82 | 7.6 | 12.9 | 4.95 | C3 |



A31

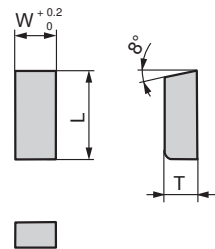
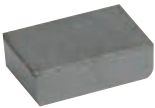


20771..



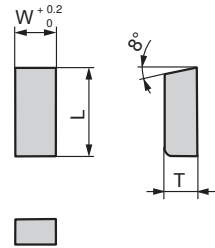
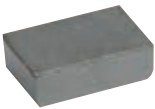
| Type, description | L [mm] | W _{min} [mm] | W _{max} [mm] | T [mm] | Grade [see page(s)] |
|-------------------|--------|-----------------------|-----------------------|--------|---------------------|
| 20771 | 5.3 | 1.6 | 15.0 | 2,7 | C3 |

20771..



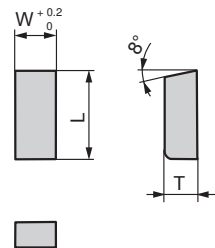
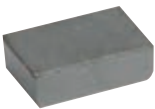
| Type, description | L [mm] | W _{min} [mm] | W _{max} [mm] | T [mm] | Grade [see page(s)] |
|-------------------|--------|-----------------------|-----------------------|--------|---------------------|
| 20771 | 7.0 | 2.0 | 17.0 | 4,0 | C3 |

20771..



| Type, description | L [mm] | W _{min} [mm] | W _{max} [mm] | T [mm] | Grade [see page(s)] |
|-------------------|--------|-----------------------|-----------------------|--------|---------------------|
| 20771 | 7.5 | 2.0 | 15.0 | 4,0 | C3 |

20771..



| Type, description | L [mm] | W _{min} [mm] | W _{max} [mm] | T [mm] | Grade [see page(s)] |
|-------------------|--------|-----------------------|-----------------------|--------|---------------------|
| 20771 | 8.0 | 2.4 | 8.0 | 2,6 | C3 |

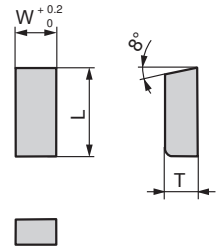
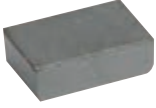




SAW TIPS FOR METAL

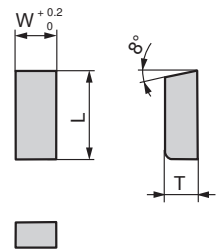
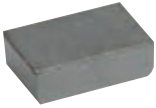
STRAIGHT SAW TIPS

20771..



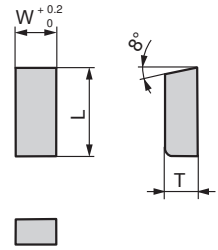
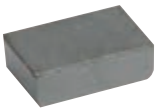
| Type, description | L [mm] | W _{min} [mm] | W _{max} [mm] | T [mm] | Grade [see page(s)] |
|-------------------|--------|-----------------------|-----------------------|--------|---------------------|
| 20771 | 8.0 | 2.0 | 14.0 | 3,0 | C3 |

20771..



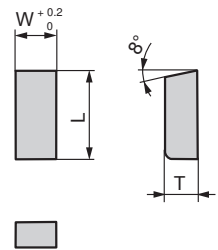
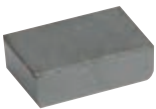
| Type, description | L [mm] | W _{min} [mm] | W _{max} [mm] | T [mm] | Grade [see page(s)] |
|-------------------|--------|-----------------------|-----------------------|--------|---------------------|
| 20771 | 8.0 | 2.0 | 12.0 | 4,0 | C3 |

20771..



| Type, description | L [mm] | W _{min} [mm] | W _{max} [mm] | T [mm] | Grade [see page(s)] |
|-------------------|--------|-----------------------|-----------------------|--------|---------------------|
| 20771 | 9.0 | 2.0 | 17.0 | 4,0 | C3 |

20771..



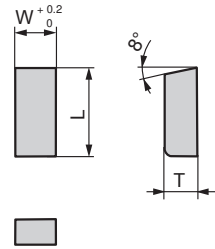
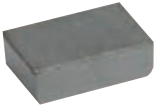
| Type, description | L [mm] | W _{min} [mm] | W _{max} [mm] | T [mm] | Grade [see page(s)] |
|-------------------|--------|-----------------------|-----------------------|--------|---------------------|
| 20771 | 10.0 | 2.0 | 10.0 | 3,2 | C3 |



A31

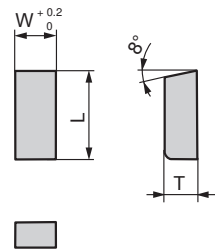
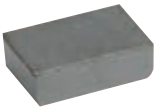


20771..



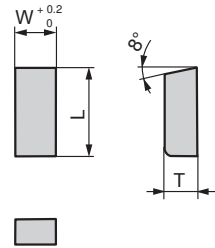
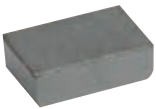
| Type, description | L [mm] | W _{min} [mm] | W _{max} [mm] | T [mm] | Grade [see page(s)] |
|-------------------|--------|-----------------------|-----------------------|--------|---------------------|
| 20771 | 10.0 | 2.0 | 15.0 | 4,0 | C3 |

20771..



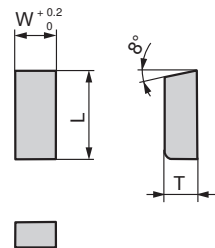
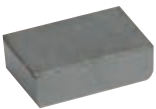
| Type, description | L [mm] | W _{min} [mm] | W _{max} [mm] | T [mm] | Grade [see page(s)] |
|-------------------|--------|-----------------------|-----------------------|--------|---------------------|
| 20771 | 10.0 | 2.0 | 17.0 | 4,5 | C3 |

20771..



| Type, description | L [mm] | W _{min} [mm] | W _{max} [mm] | T [mm] | Grade [see page(s)] |
|-------------------|--------|-----------------------|-----------------------|--------|---------------------|
| 20771 | 10.5 | 2.0 | 18.0 | 2,6 | C3 |

20771..



| Type, description | L [mm] | W _{min} [mm] | W _{max} [mm] | T [mm] | Grade [see page(s)] |
|-------------------|--------|-----------------------|-----------------------|--------|---------------------|
| 20771 | 10.5 | 2.0 | 16.5 | 3,5 | C3 |

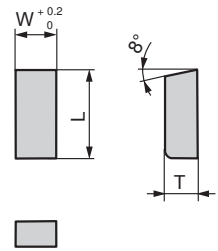
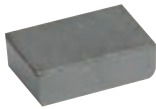




SAW TIPS FOR METAL

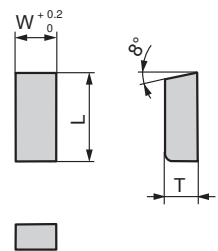
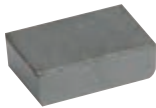
STRAIGHT SAW TIPS

20771..



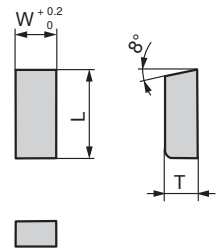
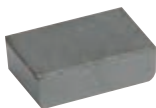
| Type, description | L [mm] | W _{min} [mm] | W _{max} [mm] | T [mm] | Grade [see page(s)] |
|-------------------|--------|-----------------------|-----------------------|--------|---------------------|
| 20771 | 11.0 | 2.0 | 15.0 | 3,5 | C3 |

20771..



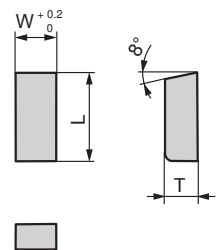
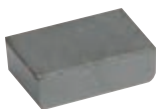
| Type, description | L [mm] | W _{min} [mm] | W _{max} [mm] | T [mm] | Grade [see page(s)] |
|-------------------|--------|-----------------------|-----------------------|--------|---------------------|
| 20771 | 11.0 | 2.0 | 15.0 | 4,0 | C3 |

20771..



| Type, description | L [mm] | W _{min} [mm] | W _{max} [mm] | T [mm] | Grade [see page(s)] |
|-------------------|--------|-----------------------|-----------------------|--------|---------------------|
| 20771 | 12.0 | 2.0 | 17.0 | 4,0 | C3 |

20771..

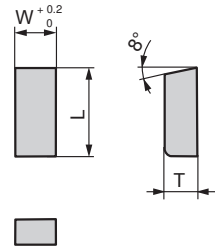
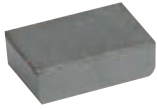


| Type, description | L [mm] | W _{min} [mm] | W _{max} [mm] | T [mm] | Grade [see page(s)] |
|-------------------|--------|-----------------------|-----------------------|--------|---------------------|
| 20771 | 12.0 | 2.0 | 15.0 | 5,0 | C3 |



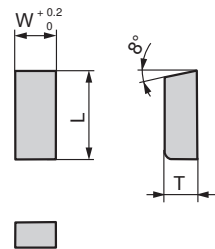
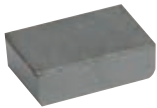


20771..



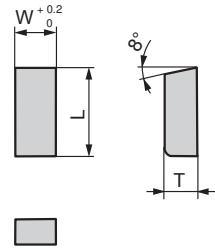
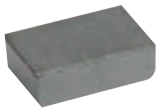
| Type, description | L [mm] | W _{min} [mm] | W _{max} [mm] | T [mm] | Grade [see page(s)] |
|-------------------|--------|-----------------------|-----------------------|--------|---------------------|
| 20771 | 13.0 | 2.0 | 15.0 | 4,0 | C3 |

20771..



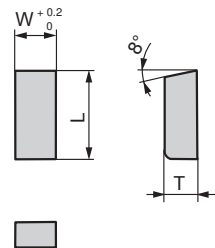
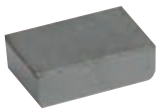
| Type, description | L [mm] | W _{min} [mm] | W _{max} [mm] | T [mm] | Grade [see page(s)] |
|-------------------|--------|-----------------------|-----------------------|--------|---------------------|
| 20771 | 15.0 | 2.0 | 17.0 | 4,0 | C3 |

20771..



| Type, description | L [mm] | W _{min} [mm] | W _{max} [mm] | T [mm] | Grade [see page(s)] |
|-------------------|--------|-----------------------|-----------------------|--------|---------------------|
| 20771 | 16.0 | 2.0 | 14.0 | 4,0 | C3 |

20771..



| Type, description | L [mm] | W _{min} [mm] | W _{max} [mm] | T [mm] | Grade [see page(s)] |
|-------------------|--------|-----------------------|-----------------------|--------|---------------------|
| 20771 | 20.0 | 2.0 | 22.0 | 6,0 | C3 |

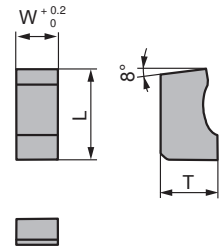




SAW TIPS FOR METAL

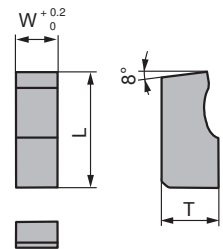
SAW TIPS WITH CHIP BREAKER

38111..



| Type, description | L [mm] | W _{min} [mm] | W _{max} [mm] | T [mm] | Grade [see page(s)] |
|-------------------|--------|-----------------------|-----------------------|--------|---------------------|
| 38111 | 3.7 | 2.0 | 6.5 | 2.5 | C3 |

50661..



| Type, description | L [mm] | W _{min} [mm] | W _{max} [mm] | T [mm] | Grade [see page(s)] |
|-------------------|--------|-----------------------|-----------------------|--------|---------------------|
| 50661 | 4.32 | 2.5 | 5.5 | 2.7 | C3 |

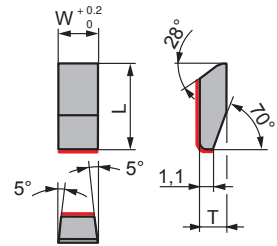
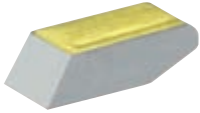
SAW TIPS WITH CHIP BREAKER

SAW TIPS FOR METAL



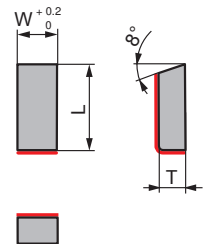
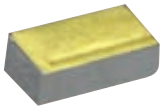


17037.. DA



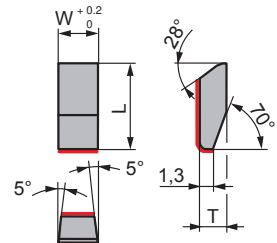
| Type, description | L [mm] | W _{min} [mm] | W _{max} [mm] | T [mm] | Grade [see page(s)] |
|-------------------|--------|-----------------------|-----------------------|--------|---------------------|
| 17037 | 8.0 | 3.0 | 5.5 | 2.3 | C3 |

20771.. DA



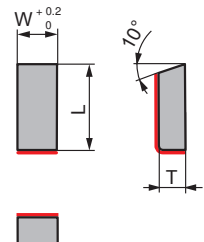
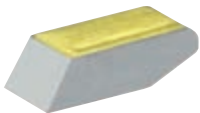
| Type, description | L [mm] | W _{min} [mm] | W _{max} [mm] | T [mm] | Grade [see page(s)] |
|-------------------|--------|-----------------------|-----------------------|--------|---------------------|
| 20771 DA | 8.0 | 2.0 | 12.0 | 4.0 | C3 |

10975.. DA



| Type, description | L [mm] | W _{min} [mm] | W _{max} [mm] | T [mm] | Grade [see page(s)] |
|-------------------|--------|-----------------------|-----------------------|--------|---------------------|
| 10975 | 8.5 | 3.8 | 4.0 | 2.5 | C3 |

50966.. DA



| Type, description | L [mm] | W _{min} [mm] | W _{max} [mm] | T [mm] | Grade [see page(s)] |
|-------------------|--------|-----------------------|-----------------------|--------|---------------------|
| 50966 | 9.6 | 6.8 | 7.6 | 3.3 | C3 |



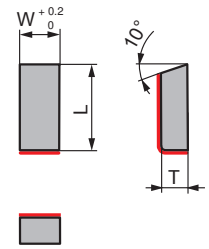
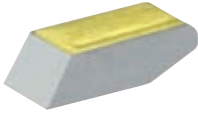


SAW TIPS FOR METAL

STRAIGHT SAW TIPS WITH PRE-TINNED TOP DA

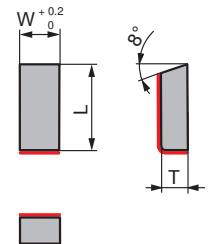
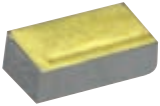
STRAIGHT SAW TIPS WITH PRE-TINNED TOP DA

50811.. DA



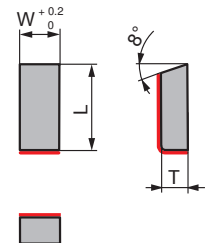
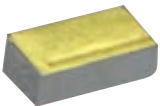
| Type, description | L [mm] | W_{min} [mm] | W_{max} [mm] | T [mm] | Grade [see page(s)] |
|-------------------|--------|----------------|----------------|--------|---------------------|
| 50811 | 9.65 | 6.8 | 8.3 | 4.45 | C3 |

20771.. DA



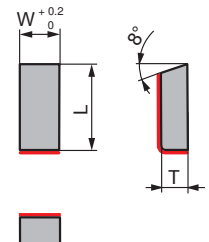
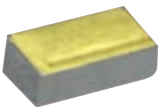
| Type, description | L [mm] | W_{min} [mm] | W_{max} [mm] | T [mm] | Grade [see page(s)] |
|-------------------|--------|----------------|----------------|--------|---------------------|
| 20771 DA | 10.0 | 2.0 | 15.0 | 4,0 | C3 |

20771.. DA



| Type, description | L [mm] | W_{min} [mm] | W_{max} [mm] | T [mm] | Grade [see page(s)] |
|-------------------|--------|----------------|----------------|--------|---------------------|
| 20771 DA | 10.5 | 2.0 | 18.0 | 2,6 | C3 |

20771.. DA



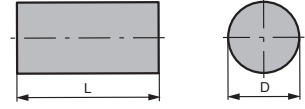
| Type, description | L [mm] | W_{min} [mm] | W_{max} [mm] | T [mm] | Grade [see page(s)] |
|-------------------|--------|----------------|----------------|--------|---------------------|
| 20771 DA | 12.0 | 2.0 | 17.0 | 4,0 | C3 |



SAW TIPS FOR METAL



CTCY ST.. (cylinder E)



| L [mm] | D [mm] | | CTS18D | |
|-----------|-----------|--|----------|--|
| 2.16 | 1.32 | | 11757201 | |
| 2.16 | 1.57 | | 11577441 | |
| 2.66 | 1.98 | | 11757246 | |
| 2.66 | 1.32 | | 11757231 | |
| 3.17 | 1.98 | | 11262807 | |

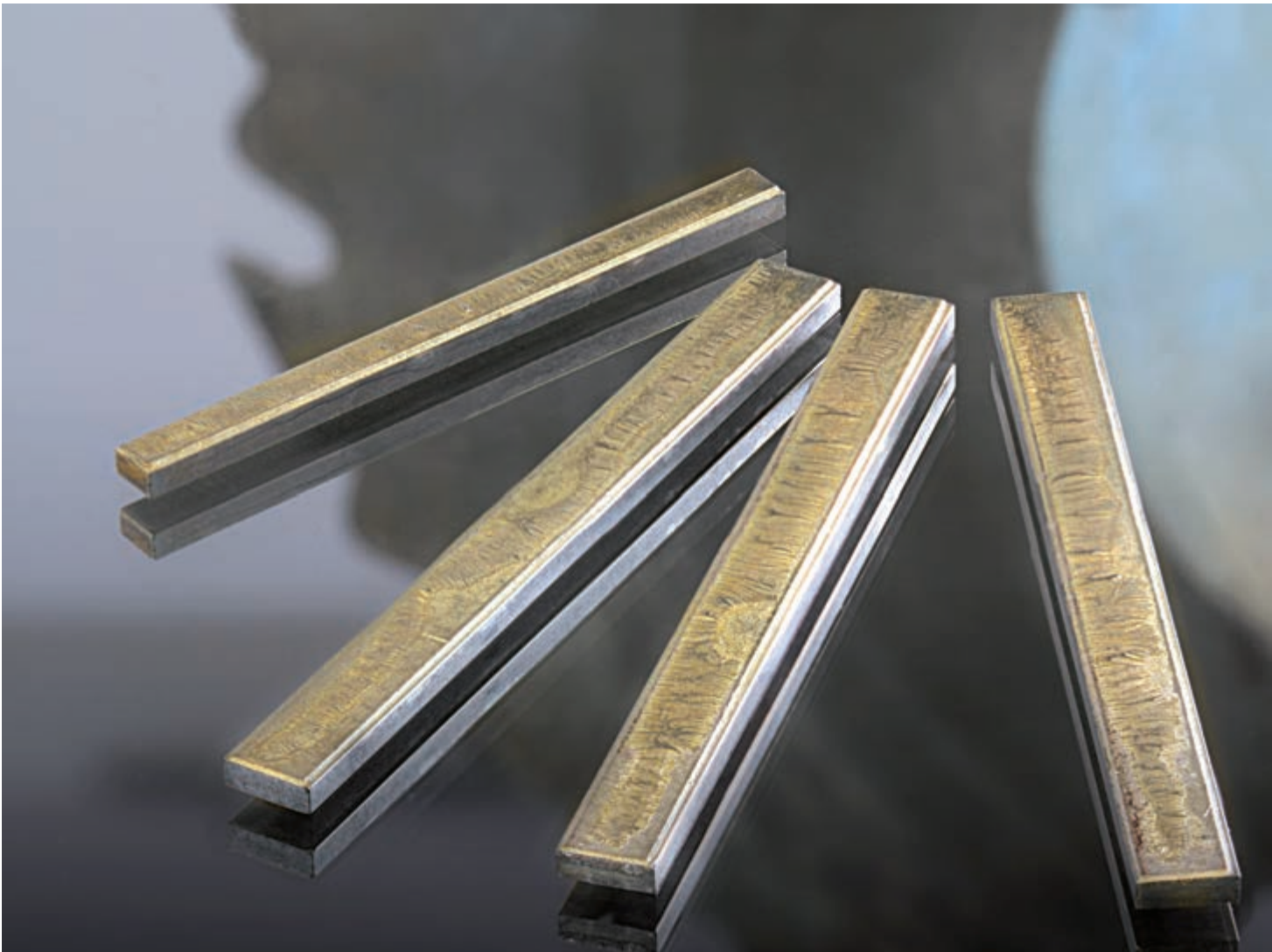




Strobe blanks

We offer strobe blanks with and without a brazing alloy in the recently developed grade CTOPP10 which guarantees an optimal ratio of wear resistance and toughness.

The strobe blanks with the brazing alloy make the brazing process easier and help to save production time and costs.





Composition and properties

| CERATIZIT grade code | ISO code | U.S. code | Binder [m %] | Density [g/cm ³] | Hardness | | | Transverse rupture strength | | Fracture toughness [MPa*m ^{1/2}] |
|-------------------------|-------------|--------------|-----------------|---------------------------------|----------|------|-----|--------------------------------|----------|--|
| | | | | | HV10 | HV30 | HRA | [MPa] | [P.S.I.] | |

Submicron grain

| | | | | | | | | | | |
|---------|-----|-----|------|-------|------|------|------|------|--------|-----|
| CTOPP10 | N/A | N/A | 10,0 | 14,45 | 1570 | 1550 | 91,6 | 3000 | 435000 | N/A |
|---------|-----|-----|------|-------|------|------|------|------|--------|-----|

Comment:

1. The data in this table are typical material parameters. We reserve the right to modify the data due to technical progress or due to further development within our company.

2. K_{IC}^* : The measured critical tension intensity factors (K_{IC}) depend to a high degree on the sample geometry and sample preparation. A direct comparison with parameters which have been determined by means of a different method is therefore not admissible.



STROBE BLANKS

STROBE BLANKS FOR CIRCULAR SAWS

44800..



STROBE BLANKS FOR CIRCULAR SAWS

STROBE BLANKS

| L [mm] | W [mm] | T [mm] | CTOPP10 |
|-----------|-----------|-----------|----------|
| 20 | 3.0 | 2.0 | 11829574 |
| 25 | 2.0 | 2.0 | 11829514 |
| 30 | 2.0 | 2.0 | 11931632 |
| 35 | 2.0 | 2.0 | 11829516 |
| 30 | 2.3 | 2.0 | 11856183 |
| 20 | 2.5 | 2.0 | 11829519 |
| 25 | 2.5 | 2.0 | 11804769 |
| 30 | 2.5 | 2.0 | 11771974 |
| 35 | 2.5 | 2.0 | 11829532 |
| 40 | 2.5 | 2.0 | 11921296 |
| 50 | 2.5 | 2.0 | 11895295 |
| 310 | 2.5 | 2.0 | 11829541 |
| 40 | 2.6 | 2.0 | 11829571 |
| 30 | 2.7 | 2.0 | 11829572 |
| 35 | 2.7 | 2.0 | 11794216 |
| 40 | 2.7 | 2.0 | 11794232 |
| 22 | 3.0 | 2.0 | 11802823 |
| 25 | 3.0 | 2.0 | 11771976 |
| 30 | 3.0 | 2.0 | 11771977 |
| 35 | 3.0 | 2.0 | 11771978 |
| 38 | 3.0 | 2.0 | 11816260 |
| 40 | 3.0 | 2.0 | 11771979 |
| 50 | 3.0 | 2.0 | 11829581 |
| 60 | 3.0 | 2.0 | 11895296 |
| 310 | 3.0 | 2.0 | 11963691 |
| 30 | 3.2 | 2.0 | 11771981 |
| 40 | 3.2 | 2.0 | 11771982 |
| 30 | 3.3 | 2.0 | 11771984 |
| 35 | 3.3 | 2.0 | 11771985 |
| 38 | 3.3 | 2.0 | 11801802 |
| 40 | 3.3 | 2.0 | 11771983 |
| 45 | 3.3 | 2.0 | 11895855 |
| 50 | 3.3 | 2.0 | 11771986 |
| 60 | 3.3 | 2.0 | 11885379 |
| 310 | 3.3 | 2.0 | 11963694 |
| 30 | 3.4 | 2.0 | 11928281 |
| 25 | 3.5 | 2.0 | 11875951 |
| 30 | 3.5 | 2.0 | 11771987 |
| 35 | 3.5 | 2.0 | 11791056 |
| 40 | 3.5 | 2.0 | 11771988 |
| 45 | 3.5 | 2.0 | 11791066 |
| 50 | 3.5 | 2.0 | 11771989 |
| 55 | 3.5 | 2.0 | 11855396 |
| 60 | 3.5 | 2.0 | 11719649 |
| 30 | 3.6 | 2.0 | 11794217 |
| 40 | 3.6 | 2.0 | 11771990 |
| 30 | 3.7 | 2.0 | 11787451 |
| 35 | 3.7 | 2.0 | 11849366 |
| 38 | 3.7 | 2.0 | 11806269 |





44800..



| L [mm] | W [mm] | T [mm] | CTOPP10 |
|--------|--------|--------|----------|
| 40 | 3.7 | 2.0 | 11787456 |
| 45 | 3.7 | 2.0 | 11913039 |
| 50 | 3.7 | 2.0 | 11787462 |
| 60 | 3.7 | 2.0 | 11929793 |
| 70 | 3.7 | 2.0 | 11895297 |
| 30 | 3.8 | 2.0 | 11783875 |
| 35 | 3.8 | 2.0 | 11826868 |
| 40 | 3.8 | 2.0 | 11783876 |
| 50 | 3.8 | 2.0 | 11783877 |
| 25 | 4.0 | 2.0 | 11889003 |
| 30 | 4.0 | 2.0 | 11772135 |
| 35 | 4.0 | 2.0 | 11772138 |
| 38 | 4.0 | 2.0 | 11812861 |
| 40 | 4.0 | 2.0 | 11719646 |
| 45 | 4.0 | 2.0 | 11791076 |
| 50 | 4.0 | 2.0 | 11791078 |
| 55 | 4.0 | 2.0 | 11817377 |
| 60 | 4.0 | 2.0 | 11772142 |
| 65 | 4.0 | 2.0 | 11841884 |
| 310 | 4.0 | 2.0 | 11963695 |
| 35 | 4.1 | 2.0 | 11874967 |
| 40 | 4.1 | 2.0 | 11801488 |
| 45 | 4.1 | 2.0 | 11801489 |
| 23 | 4.2 | 2.0 | 11928367 |
| 40 | 4.2 | 2.0 | 11772143 |
| 50 | 4.2 | 2.0 | 11772145 |
| 60 | 4.2 | 2.0 | 11772146 |
| 70 | 4.2 | 2.0 | 11856516 |
| 50 | 4.3 | 2.0 | 11801490 |
| 30 | 4.5 | 2.0 | 11889005 |
| 35 | 4.5 | 2.0 | 11889008 |
| 40 | 4.5 | 2.0 | 11772147 |
| 45 | 4.5 | 2.0 | 11794219 |
| 50 | 4.5 | 2.0 | 11791099 |
| 55 | 4.5 | 2.0 | 11791102 |
| 60 | 4.5 | 2.0 | 11772148 |
| 65 | 4.5 | 2.0 | 11845776 |
| 70 | 4.5 | 2.0 | 11791103 |
| 75 | 4.5 | 2.0 | 11894775 |
| 310 | 4.5 | 2.0 | 11856074 |
| 50 | 4.6 | 2.0 | 11805378 |
| 60 | 4.6 | 2.0 | 11819497 |
| 35 | 4.8 | 2.0 | 11874369 |
| 40 | 4.8 | 2.0 | 11899464 |
| 45 | 4.8 | 2.0 | 11871160 |
| 50 | 4.8 | 2.0 | 11801498 |
| 60 | 4.8 | 2.0 | 11871161 |
| 40 | 5.0 | 2.0 | 11865192 |
| 45 | 5.0 | 2.0 | 11838054 |

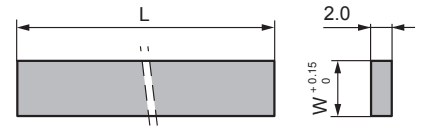




STROBE BLANKS

STROBE BLANKS FOR CIRCULAR SAWS

44800..



STROBE BLANKS FOR CIRCULAR SAWS

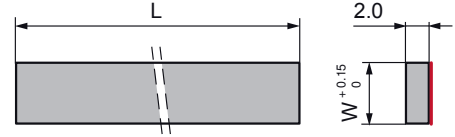
STROBE BLANKS

| L [mm] | W [mm] | T [mm] | CTOPP10 | |
|-----------|-----------|-----------|----------|--|
| 50 | 5.0 | 2.0 | 11772149 | |
| 55 | 5.0 | 2.0 | 11791104 | |
| 60 | 5.0 | 2.0 | 11772150 | |
| 65 | 5.0 | 2.0 | 11853290 | |
| 70 | 5.0 | 2.0 | 11772152 | |
| 80 | 5.0 | 2.0 | 11875953 | |
| 40 | 5.2 | 2.0 | 11894922 | |
| 70 | 5.2 | 2.0 | 11862875 | |
| 40 | 5.5 | 2.0 | 11922048 | |
| 50 | 5.5 | 2.0 | 11772153 | |
| 55 | 5.5 | 2.0 | 11849424 | |
| 60 | 5.5 | 2.0 | 11772154 | |
| 65 | 5.5 | 2.0 | 11848291 | |
| 70 | 5.5 | 2.0 | 11828000 | |
| 75 | 5.5 | 2.0 | 11829903 | |
| 310 | 5.5 | 2.0 | 11931598 | |
| 70 | 5.8 | 2.0 | 11933589 | |
| 30 | 6.0 | 2.0 | 11897135 | |
| 50 | 6.0 | 2.0 | 11876976 | |
| 60 | 6.0 | 2.0 | 11772156 | |
| 70 | 6.0 | 2.0 | 11876975 | |
| 60 | 6.5 | 2.0 | 11874356 | |
| 65 | 6.5 | 2.0 | 11928175 | |
| 70 | 6.5 | 2.0 | 11875954 | |
| 80 | 6.5 | 2.0 | 11878393 | |
| 310 | 6.5 | 2.0 | 11865574 | |
| 70 | 7.5 | 2.0 | 11921902 | |





44800..DA



| L [mm] | W [mm] | T [mm] | CTOPP10 |
|--------|--------|--------|----------|
| 30 | 2.0 | 2.0 | 11846331 |
| 20 | 2.7 | 2.0 | 11891667 |
| 20 | 2.5 | 2.0 | 11879340 |
| 22 | 4.0 | 2.0 | 11844725 |
| 22 | 3.0 | 2.0 | 11886717 |
| 25 | 4.0 | 2.0 | 11889004 |
| 25 | 2.0 | 2.0 | 11911256 |
| 30 | 2.5 | 2.0 | 11806210 |
| 30 | 3.5 | 2.0 | 11822951 |
| 30 | 4.0 | 2.0 | 11842891 |
| 30 | 2.4 | 2.0 | 11856026 |
| 30 | 3.2 | 2.0 | 11856014 |
| 30 | 3.4 | 2.0 | 11856020 |
| 30 | 4.5 | 2.0 | 11889006 |
| 30 | 3.3 | 2.0 | 11880587 |
| 30 | 3.0 | 2.0 | 11880628 |
| 35 | 4.0 | 2.0 | 11806217 |
| 35 | 2.5 | 2.0 | 11879375 |
| 35 | 3.0 | 2.0 | 11879339 |
| 35 | 4.5 | 2.0 | 11888989 |
| 35 | 3.3 | 2.0 | 11867898 |
| 38 | 4.0 | 2.0 | 11885144 |
| 38 | 3.0 | 2.0 | 11853675 |
| 38 | 3.7 | 2.0 | 11880595 |
| 38 | 4.6 | 2.0 | 11880626 |
| 40 | 3.6 | 2.0 | 11806216 |
| 40 | 4.0 | 2.0 | 11847725 |
| 40 | 5.0 | 2.0 | 11847729 |
| 40 | 4.2 | 2.0 | 11884989 |
| 40 | 3.5 | 2.0 | 11841822 |
| 40 | 3.2 | 2.0 | 11853410 |
| 40 | 4.4 | 2.0 | 11856022 |
| 40 | 4.5 | 2.0 | 11891759 |
| 40 | 3.0 | 2.0 | 11901328 |
| 45 | 4.5 | 2.0 | 11837705 |
| 45 | 3.5 | 2.0 | 11871158 |
| 45 | 4.2 | 2.0 | 11902280 |
| 45 | 3.8 | 2.0 | 11856016 |
| 50 | 3.3 | 2.0 | 11806211 |
| 50 | 4.5 | 2.0 | 11832754 |
| 50 | 5.5 | 2.0 | 11806220 |
| 50 | 4.2 | 2.0 | 11847726 |
| 50 | 4.0 | 2.0 | 11847730 |
| 50 | 3.5 | 2.0 | 11841824 |
| 50 | 3.0 | 2.0 | 11888995 |
| 50 | 4.8 | 2.0 | 11856024 |
| 50 | 3.7 | 2.0 | 11892997 |
| 50 | 2.5 | 2.0 | 11896220 |
| 50 | 4.6 | 2.0 | 11901753 |



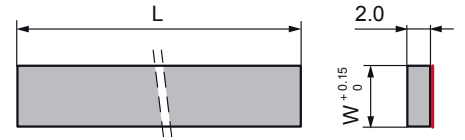


STROBE BLANKS

STROBE BLANKS FOR CIRCULAR SAWS WITH PRE-TINNED TOP DA

STROBE BLANKS FOR CIRCULAR SAWS WITH PRE-TINNED TOP DA

44800..DA



| L [mm] | W [mm] | T [mm] | CTOPP10 | |
|-----------|-----------|-----------|----------|--|
| 50 | 5.0 | 2.0 | 11855470 | |
| 60 | 4.0 | 2.0 | 11847728 | |
| 60 | 4.5 | 2.0 | 11837709 | |
| 60 | 5.2 | 2.0 | 11856025 | |
| 60 | 3.6 | 2.0 | 11860983 | |
| 60 | 5.5 | 2.0 | 11841821 | |
| 60 | 4.2 | 2.0 | 11841827 | |
| 60 | 5.0 | 2.0 | 11841829 | |
| 60 | 3.5 | 2.0 | 11901342 | |
| 60 | 5.6 | 2.0 | 11901744 | |
| 60 | 4.6 | 2.0 | 11887423 | |
| 65 | 5.5 | 2.0 | 11877022 | |
| 70 | 5.5 | 2.0 | 11868542 | |
| 70 | 5.0 | 2.0 | 11876389 | |

STROBE BLANKS



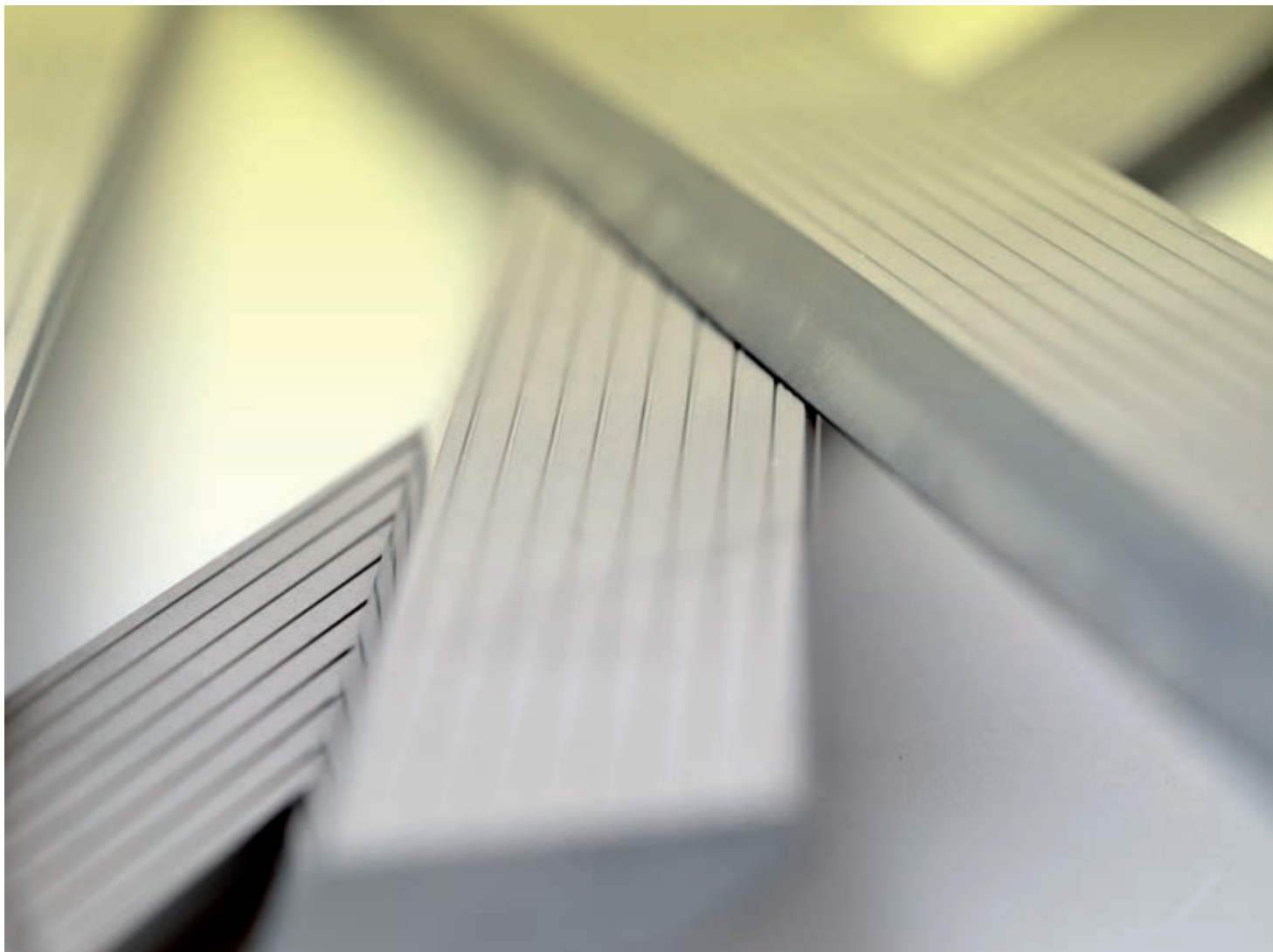




Rectangular strips

Tool life is determined by the carbide grade used on the cutting edge and the design and quality applied to produce the tool. Our rectangular strips represent the ideal basis for high-quality wood working tools.

Thanks to the additional form fit of the brazing alloy and the carbide, the special 'Grooveline' geometry increases the carbide's shear strength on the steel support.





Composition and properties

| CERATIZIT grade code | ISO code | U.S. code | Binder [m %] | Density [g/cm ³] | Hardness | | | Transverse rupture strength | | Fracture toughness [MPa*m ^{1/2}] |
|-------------------------|-------------|--------------|-----------------|---------------------------------|----------|------|-----|--------------------------------|----------|--|
| | | | | | HV10 | HV30 | HRA | [MPa] | [P.S.I.] | |

Ultrafine grades

| | | | | | | | | | | |
|------|-----|-----|------|-------|------|------|------|------|--------|------|
| HE40 | K40 | N/A | 20,0 | 13,15 | 1250 | 1240 | 88,8 | 3500 | 508000 | 12,1 |
|------|-----|-----|------|-------|------|------|------|------|--------|------|

Submicron grain

| | | | | | | | | | | |
|---------|-----|-----|------|-------|------|------|------|------|--------|-----|
| KCR06 | N/A | N/A | 3,0 | 15,30 | 1950 | 1910 | 93,6 | 2300 | 334000 | 8,5 |
| MG18 | K20 | C2 | 10,0 | 14,45 | 1680 | 1660 | 92,3 | 3700 | 537000 | 9,4 |
| CTOPP10 | N/A | N/A | 10,0 | 14,45 | 1570 | 1550 | 91,6 | 3000 | 435000 | N/A |

Fine grain grades

| | | | | | | | | | | |
|------|-----|----|-----|-------|------|------|------|------|--------|------|
| HC25 | K20 | C2 | 7,0 | 15,00 | 1550 | 1530 | 91,5 | 2600 | 377000 | 10,4 |
|------|-----|----|-----|-------|------|------|------|------|--------|------|

Comment:

1. The data in this table are typical material parameters. We reserve the right to modify the data due to technical progress or due to further development within our company.

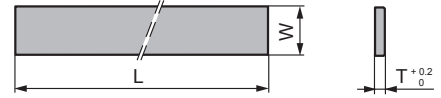
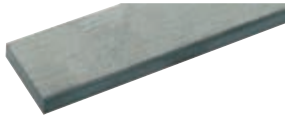
2. K_{IC}^* : The measured critical tension intensity factors (K_{IC}) depend to a high degree on the sample geometry and sample preparation. A direct comparison with parameters which have been determined by means of a different method is therefore not admissible.



RECTANGULAR STRIPS

STANDARD – RECTANGULAR

CTS 00..



| T [mm] | W [mm] | L [mm] | CTOPP10 | |
|-----------|-----------|-----------|----------|--|
| 2 | 4 | 310 | | |
| 2 | 5 | 310 | 11703782 | |
| 2 | 8 | 310 | 11654419 | |
| 2 | 10 | 310 | 11743477 | |
| 2 | 12 | 310 | 11786087 | |
| 2 | 14 | 310 | 11786088 | |
| 2 | 15 | 310 | 11703267 | |
| 2 | 16 | 310 | 11786089 | |
| 2 | 18 | 310 | 11786090 | |
| 2 | 19 | 310 | 11786091 | |
| 3 | 3 | 310 | 11786095 | |
| 3 | 5 | 310 | 11729726 | |
| 3 | 8 | 310 | 11654424 | |
| 3 | 9 | 310 | 11786096 | |
| 3 | 10 | 310 | 11743478 | |
| 3 | 11 | 310 | 11786093 | |
| 3 | 12 | 310 | 11654426 | |
| 3 | 15 | 310 | 11654430 | |
| 3 | 16 | 310 | 11699867 | |
| 3 | 18 | 310 | 11706993 | |
| 3 | 20 | 310 | 11654432 | |
| 3 | 22 | 310 | 11749702 | |
| 3 | 25 | 310 | 11786094 | |
| 3 | 28 | 310 | 11786107 | |
| 3 | 31 | 310 | 11786108 | |
| 4 | 4 | 310 | 11786109 | |
| 4 | 5 | 310 | 11786103 | |
| 4 | 8 | 310 | 11786104 | |
| 4 | 10 | 310 | 11654441 | |
| 4 | 12 | 310 | 11654449 | |
| 4 | 13 | 310 | 11786097 | |
| 4 | 14 | 310 | 11786098 | |
| 4 | 15 | 310 | 11786099 | |
| 4 | 16 | 310 | 11749703 | |
| 4 | 18 | 310 | 11786100 | |
| 4 | 20 | 310 | 11654453 | |
| 4 | 22 | 310 | 11786101 | |
| 4 | 25 | 310 | 11786102 | |
| 5 | 5 | 310 | 11786700 | |
| 5 | 7 | 310 | 11786702 | |
| 5 | 10 | 310 | 11786699 | |
| 5 | 15 | 310 | 11786698 | |
| 5 | 16 | 310 | 11786697 | |
| 5 | 20 | 310 | 11786703 | |

STANDARD – RECTANGULAR

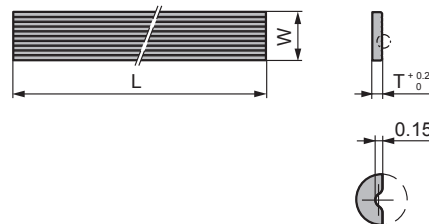
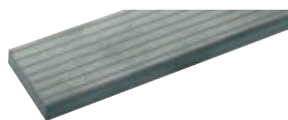
RECTANGULAR STRIPS



A31



CTS RE00..



| T [mm] | W [mm] | L [mm] | KCR06 | MG18 | HE40 |
|-----------|-----------|-----------|----------|----------|---------|
| 2 | 8 | 400 | 6288727 | 6288732 | 6288748 |
| 2 | 10 | 400 | 6288740 | 6288758 | 6288760 |
| 2 | 12 | 400 | 6288762 | 6288767 | 6288768 |
| 2 | 15 | 400 | 6288770 | 6288772 | 6288774 |
| 2 | 20 | 400 | 6288776 | 6288781 | 6288782 |
| 2 | 25 | 400 | 6288783 | 6288785 | 6288786 |
| 2 | 30 | 400 | 6288788 | 6288790 | 6288792 |
| 3 | 8 | 400 | 6288793 | 6288797 | 6288798 |
| 3 | 10 | 400 | 6288799 | 6288801 | 6288802 |
| 3 | 12 | 400 | 6288841 | 6288842 | 6288843 |
| 3 | 15 | 400 | 6288845 | 6288847 | 6288848 |
| 3 | 16 | 400 | | 11782281 | |
| 3 | 18 | 400 | 6288850 | 6288852 | |
| 3 | 20 | 400 | 6288854 | 6288858 | 6288860 |
| 3 | 22 | 400 | 11575440 | | |
| 3 | 25 | 400 | 6288861 | 6288864 | 6288865 |
| 3 | 30 | 400 | 6288866 | 6288867 | 6288868 |
| 3 | 35 | 400 | 6288870 | 6288871 | 6288873 |
| 3 | 40 | 400 | | 11512628 | |
| 4 | 8 | 400 | 6288874 | 6288875 | 6288876 |
| 4 | 10 | 400 | 6288878 | 6288879 | 6288881 |
| 4 | 12 | 400 | 6288882 | 6288883 | 6288884 |
| 4 | 14 | 400 | | 11392023 | |
| 4 | 15 | 400 | 6288885 | 6288886 | 6288887 |
| 4 | 16 | 400 | 11529552 | 11392029 | |
| 4 | 18 | 400 | 6288888 | 6288889 | 6288891 |
| 4 | 20 | 400 | 6288892 | 6288893 | 6288894 |
| 4 | 22 | 400 | 11329367 | 11392031 | |
| 4 | 22 | 400 | | 11556418 | |
| 4 | 25 | 400 | | 11556419 | |
| 4 | 25 | 400 | 6288895 | 6288897 | 6288898 |
| 4 | 28 | 400 | 11329371 | | |
| 4 | 30 | 400 | 6288901 | 6288903 | 6288904 |
| 4 | 32 | 400 | 11417622 | | |
| 4 | 35 | 400 | 6288905 | 6288906 | 6288907 |
| 4 | 40 | 400 | 11417631 | 6288913 | 6288915 |
| 5 | 10 | 400 | 6288917 | 6288919 | 6288920 |
| 5 | 12 | 400 | 6288924 | 6288925 | 6288927 |
| 5 | 15 | 400 | 6288928 | 6288929 | 6288931 |
| 5 | 18 | 400 | 6288932 | 6288934 | 6288935 |
| 5 | 20 | 400 | 6288937 | 6288939 | 6288941 |
| 5 | 25 | 400 | 6288944 | 6288945 | 6288946 |
| 5 | 30 | 400 | 6288948 | 6288949 | 6288951 |
| 5 | 35 | 400 | 6288952 | 6288955 | 6288956 |
| 5 | 40 | 400 | 6288958 | 6288959 | 6288961 |
| 5 | 45 | 400 | | 11669999 | |

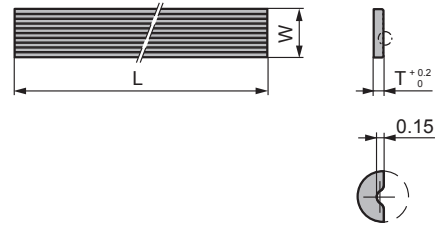
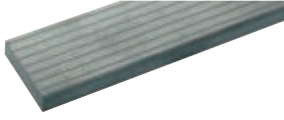




RECTANGULAR STRIPS

GROOVELINE – RECTANGULAR

CTS RE00..



| T [mm] | W [mm] | L [mm] | KCR06 | MG18 | HE40 | |
|-----------|-----------|-----------|---------|----------|----------|--|
| 5 | 50 | 400 | | 11667370 | | |
| 6 | 20 | 400 | 6288965 | 6288968 | | |
| 6 | 25 | 400 | 6288969 | 6288971 | 11211310 | |
| 6 | 30 | 400 | 6288972 | 6288973 | 11211312 | |
| 6 | 35 | 400 | 6288978 | 6288979 | | |
| 6 | 40 | 400 | 6288980 | 6288982 | 11211315 | |

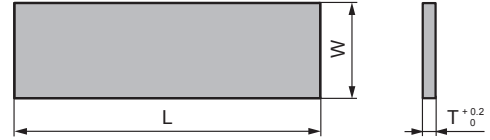
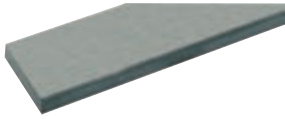


RECTANGULAR STRIPS

U.S. STANDARD – RECTANGULAR



STB..



| Type, description | T [inch] | W [inch] | L [inch] | MG18 | HC25 |
|-------------------|----------|----------|----------|----------|----------|
| STB 28 | 0.0625 | 0.2500 | 6 | 6138288 | 6138287 |
| STB 210 | 0.0625 | 0.3125 | 6 | 6255529 | 6138263 |
| STB 212 | 0.0625 | 0.3750 | 6 | 6255530 | 6110348 |
| STB 212L | 0.0625 | 0.3750 | 6 | | |
| STB 216 | 0.0625 | 0.5000 | 6 | 6255532 | 6110339 |
| STB 220 | 0.0625 | 0.6250 | 6 | 6241993 | 6110349 |
| STB 224 | 0.0625 | 0.7500 | 6 | 6255536 | |
| STB 228 | 0.0625 | 0.8750 | 6 | 6255537 | |
| STB 232 | 0.0625 | 1.0000 | 6 | 6255538 | |
| STB 240 | 0.0625 | 1.2500 | 6 | 6255539 | |
| STB 248 | 0.0625 | 1.5000 | 6 | 6255540 | |
| STB 36 | 0.0938 | 0.1875 | 6 | 11254918 | |
| STB 38E | 0.0938 | 0.2500 | 6 | 11231624 | 11229470 |
| STB 310 | 0.0938 | 0.3125 | 6 | 6255601 | 6110346 |
| STB 312A | 0.0938 | 0.3750 | 6 | 11231617 | 6110340 |
| STB 316 | 0.0938 | 0.5000 | 6 | 6143663 | 6143662 |
| STB 320 | 0.0938 | 0.6250 | 6 | 6143668 | |
| STB 324 | 0.0938 | 0.7500 | 6 | 6243373 | 6102872 |
| STB 328 | 0.0938 | 0.8750 | 6 | 6143672 | 6143671 |
| STB 332 | 0.0938 | 1.0000 | 6 | 6143674 | 6143673 |
| STB 336 | 0.0938 | 1.1250 | 6 | 11547139 | |
| STB 340 | 0.0938 | 1.2500 | 6 | 6143680 | |
| STB 348 | 0.0938 | 1.5000 | 6 | 6138322 | |
| STB 356 | 0.0938 | 1.7500 | 6 | 6255638 | |
| STB 48E | 0.1250 | 0.2500 | 6 | | 6143765 |
| STB 410 | 0.1250 | 0.3125 | 6 | 6143705 | 6102873 |
| STB 412C | 0.1250 | 0.3750 | 6 | | 6143715 |
| STB 416 | 0.1250 | 0.5000 | 6 | 6143720 | 6143719 |
| STB 424 | 0.1250 | 0.7500 | 6 | | 6143732 |
| STB 428 | 0.1250 | 0.8750 | 6 | 6143738 | 6138378 |
| STB 432 | 0.1250 | 1.0000 | 6 | 6143740 | 6143739 |
| STB 440 | 0.1250 | 1.0000 | 6 | 6143747 | 6143745 |
| STB 444 | 0.1250 | 1.2500 | 6 | | 6138395 |
| STB 448 | 0.1250 | 1.3750 | 6 | 6255100 | 6138522 |
| STB 512 | 0.1563 | 0.3750 | 6 | 11231618 | 11229471 |
| STB 516 | 0.1563 | 0.5000 | 6 | 11231619 | 11229472 |
| STB 520 | 0.1563 | 0.6250 | 6 | 11231620 | 11229473 |
| STB 524 | 0.1563 | 0.7500 | 6 | 11231621 | 11229474 |
| STB 532 | 0.1563 | 1.0000 | 6 | 11231622 | 11229475 |
| STB 536 | 0.1563 | 1.1250 | 6 | 11231623 | 11229476 |
| STB 540 | 0.1563 | 1.2500 | 6 | 6138448 | |
| STB 548 | 0.1563 | 1.5000 | 6 | 6138457 | 6138456 |
| STB 564 | 0.1563 | 2.0000 | 6 | 6138462 | 6138461 |
| STB 612 | 0.1875 | 0.3750 | 6 | | 6143774 |
| STB 616 | 0.1875 | 0.5000 | 6 | | 6143780 |

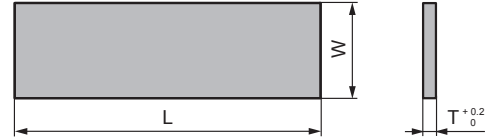
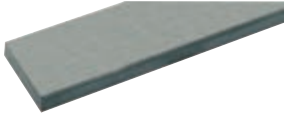




RECTANGULAR STRIPS

U.S. STANDARD – RECTANGULAR

STB..



| Type, description | T [inch] | W [inch] | L [inch] | MG18 | HC25 |
|-------------------|----------|----------|----------|---------|---------|
| STB 624 | 0.1875 | 0.7500 | 6 | 6143792 | 6143791 |
| STB 628 | 0.1875 | 0.8750 | 6 | 6143796 | |
| STB 632 | 0.1875 | 1.0000 | 6 | 6148361 | |
| STB 636 | 0.1875 | 1.1250 | 6 | | 6240458 |
| STB 640 | 0.1875 | 1.2500 | 6 | 6143800 | |
| STB 648 | 0.1875 | 1.5000 | 6 | 6255239 | |
| STB 812 | 0.2500 | 0.3750 | 6 | 6143809 | 6143808 |
| STB 816 | 0.2500 | 0.5000 | 6 | 6143818 | 6143817 |
| STB 820 | 0.2500 | 0.6250 | 6 | | 6143823 |
| STB 824 | 0.2500 | 0.7500 | 6 | 6143830 | |
| STB 832 | 0.2500 | 1.0000 | 6 | 6143834 | 6143833 |
| STB 840 | 0.2500 | 1.2500 | 6 | 6143837 | |

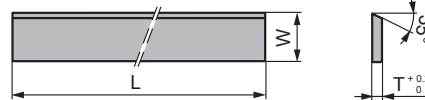
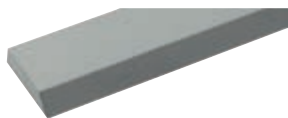


RECTANGULAR STRIPS

STANDARD – 1 BEVEL



CTS 01..



| T [mm] | W [mm] | L [mm] | CTOPP10 |
|-----------|-----------|-----------|----------|
| 2 | 3 | 310 | 11788328 |
| 2 | 4 | 310 | 11788329 |
| 2 | 5 | 310 | 11788330 |
| 2 | 6 | 310 | 11788331 |
| 2 | 8 | 310 | 11788332 |
| 2 | 10 | 310 | 11788321 |
| 2 | 12 | 310 | 11788322 |
| 2 | 14 | 310 | 11788323 |
| 2 | 15 | 310 | 11788324 |
| 2 | 16 | 310 | 11788325 |
| 2 | 18 | 310 | 11788326 |
| 2 | 19 | 310 | 11788327 |
| 3 | 3 | 310 | 11788344 |
| 3 | 4 | 310 | 11788346 |
| 3 | 5 | 310 | 11788347 |
| 3 | 6 | 310 | 11788348 |
| 3 | 8 | 310 | 11788349 |
| 3 | 9 | 310 | 11788350 |
| 3 | 10 | 310 | 11788333 |
| 3 | 11 | 310 | 11788334 |
| 3 | 12 | 310 | 11788335 |
| 3 | 13 | 310 | 11788336 |
| 3 | 15 | 310 | 11788337 |
| 3 | 16 | 310 | 11788338 |
| 3 | 18 | 310 | 11788339 |
| 3 | 20 | 310 | 11788340 |
| 3 | 22 | 310 | 11788341 |
| 3 | 25 | 310 | 11788342 |
| 3 | 28 | 310 | 11788343 |
| 3 | 31 | 310 | 11788345 |
| 4 | 4 | 310 | 11788361 |
| 4 | 5 | 310 | 11788362 |
| 4 | 6 | 310 | 11788363 |
| 4 | 8 | 310 | 11788364 |
| 4 | 10 | 310 | 11788351 |
| 4 | 12 | 310 | 11788352 |
| 4 | 13 | 310 | 11788353 |
| 4 | 14 | 310 | 11788354 |
| 4 | 15 | 310 | 11788355 |
| 4 | 16 | 310 | 11788356 |
| 4 | 18 | 310 | 11788357 |
| 4 | 20 | 310 | 11788358 |
| 4 | 22 | 310 | 11788359 |
| 4 | 25 | 310 | 11788360 |
| 5 | 5 | 310 | 11788369 |
| 5 | 7 | 310 | 11788370 |

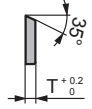
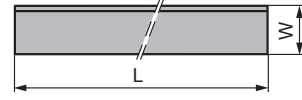
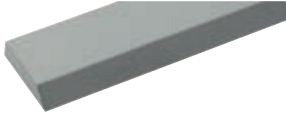




RECTANGULAR STRIPS

STANDARD – 1 BEVEL

CTS 01..



| T [mm] | W [mm] | L [mm] | CTOPP10 | |
|-----------|-----------|-----------|----------|--|
| 5 | 10 | 310 | 11788365 | |
| 5 | 15 | 310 | 11788366 | |
| 5 | 16 | 310 | 11788367 | |
| 5 | 20 | 310 | 11788368 | |

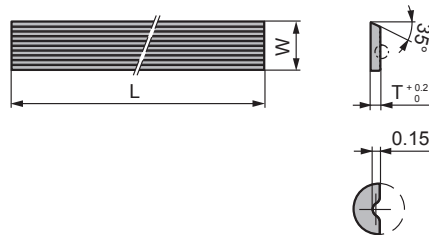
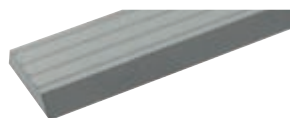


RECTANGULAR STRIPS

GROOVELINE – 1 BEVEL



CTS BE01..



| T [mm] | W [mm] | L [mm] | KCR06 | MG18 | HE40 |
|-----------|-----------|-----------|---------|----------|----------|
| 2 | 8 | 400 | 6289313 | 6289314 | 6289315 |
| 2 | 10 | 400 | 6289316 | 6289317 | 6289318 |
| 2 | 12 | 400 | 6289319 | 6289320 | 6289321 |
| 2 | 15 | 400 | 6289322 | 6289323 | 6289324 |
| 2 | 20 | 400 | 6289325 | 6289326 | 6289327 |
| 2 | 25 | 400 | 6289328 | 6289329 | 6289331 |
| 2 | 30 | 400 | 6289332 | 6289334 | 6289335 |
| 3 | 8 | 400 | 6289336 | 6289337 | 6289338 |
| 3 | 10 | 400 | 6289339 | 6289340 | 6289341 |
| 3 | 12 | 400 | 6289364 | 6289365 | 6289366 |
| 3 | 14 | 400 | | 11804648 | |
| 3 | 15 | 400 | 6289368 | 6289369 | 6289370 |
| 3 | 16 | 400 | | 11804666 | |
| 3 | 18 | 400 | 6289371 | 6289374 | 6289401 |
| 3 | 20 | 400 | 6289402 | 6289403 | 6289404 |
| 3 | 25 | 400 | 6289405 | 6289406 | 6289407 |
| 3 | 30 | 400 | 6289408 | 6289409 | 6289410 |
| 3 | 35 | 400 | 6289411 | 6289412 | |
| 4 | 10 | 400 | 6289413 | 6289415 | 6289416 |
| 4 | 12 | 400 | 6289417 | 6289423 | 6289426 |
| 4 | 15 | 400 | 6289429 | 6289431 | 6289432 |
| 4 | 18 | 400 | 6289434 | 6289438 | 6289439 |
| 4 | 20 | 400 | 6289440 | 6289441 | 6289442 |
| 4 | 22 | 400 | | 11536912 | |
| 4 | 25 | 400 | 6289443 | 6289444 | 6289446 |
| 4 | 30 | 400 | 6289447 | 6289448 | 6289449 |
| 4 | 35 | 400 | 6289451 | 6289452 | |
| 4 | 40 | 400 | 6289453 | 6289454 | |
| 5 | 10 | 400 | 6289455 | 6289457 | 6289458 |
| 5 | 12 | 400 | 6289459 | 6289461 | 6289462 |
| 5 | 13 | 400 | | 11431242 | |
| 5 | 15 | 400 | 6289465 | 6289471 | |
| 5 | 18 | 400 | 6289482 | 6289483 | 6289484 |
| 5 | 20 | 400 | 6289508 | 6289509 | 6289513 |
| 5 | 25 | 400 | 6289514 | 6289550 | 6289557 |
| 5 | 30 | 400 | | 6289561 | 6289562 |
| 5 | 35 | 400 | 6289563 | 6289564 | 11547144 |
| 5 | 40 | 400 | 6289565 | 6289566 | |
| 6 | 20 | 400 | 6289567 | | |
| 6 | 25 | 400 | 6289570 | 6289571 | |
| 6 | 30 | 400 | 6289572 | 6289574 | |
| 6 | 35 | 400 | 6289575 | 6289579 | |
| 6 | 40 | 400 | 6289580 | 6289581 | |

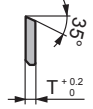
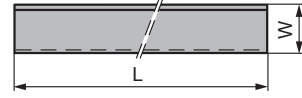
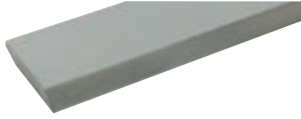




RECTANGULAR STRIPS

STANDARD – 2 BEVELS

CTS 02..



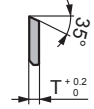
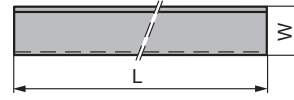
| T [mm] | W [mm] | L [mm] | CTOPP10 | |
|-----------|-----------|-----------|----------|--|
| 2 | 3 | 310 | 11788379 | |
| 2 | 4 | 310 | 11788380 | |
| 2 | 5 | 310 | 11788381 | |
| 2 | 6 | 310 | 11788382 | |
| 2 | 8 | 310 | 11788383 | |
| 2 | 10 | 310 | 11788372 | |
| 2 | 12 | 310 | 11788373 | |
| 2 | 14 | 310 | 11788374 | |
| 2 | 15 | 310 | 11788375 | |
| 2 | 16 | 310 | 11788376 | |
| 2 | 18 | 310 | 11788377 | |
| 2 | 19 | 310 | 11788378 | |
| 3 | 3 | 310 | 11788395 | |
| 3 | 4 | 310 | 11788397 | |
| 3 | 5 | 310 | 11788398 | |
| 3 | 6 | 310 | 11788399 | |
| 3 | 8 | 310 | 11788400 | |
| 3 | 9 | 310 | 11788401 | |
| 3 | 10 | 310 | 11788384 | |
| 3 | 11 | 310 | 11788385 | |
| 3 | 12 | 310 | 11788386 | |
| 3 | 13 | 310 | 11788387 | |
| 3 | 15 | 310 | 11788388 | |
| 3 | 16 | 310 | 11788389 | |
| 3 | 18 | 310 | 11788390 | |
| 3 | 20 | 310 | 11788391 | |
| 3 | 22 | 310 | 11788392 | |
| 3 | 25 | 310 | 11788393 | |
| 3 | 28 | 310 | 11788394 | |
| 3 | 31 | 310 | 11788396 | |
| 4 | 4 | 310 | 11788411 | |
| 4 | 5 | 310 | 11788412 | |
| 4 | 6 | 310 | 11788413 | |
| 4 | 8 | 310 | 11788414 | |
| 4 | 10 | 310 | 11788402 | |
| 4 | 12 | 310 | 11788403 | |
| 4 | 13 | 310 | 11788404 | |
| 4 | 14 | 310 | 11788405 | |
| 4 | 15 | 310 | 11788406 | |
| 4 | 16 | 310 | 11788407 | |
| 4 | 18 | 310 | 11788408 | |
| 4 | 20 | 310 | 11788371 | |
| 4 | 22 | 310 | 11788409 | |
| 4 | 25 | 310 | 11788410 | |
| 5 | 5 | 310 | 11788419 | |
| 5 | 7 | 310 | 11788420 | |



A31



CTS 02..



| T [mm] | W [mm] | L [mm] | CTOPP10 | |
|-----------|-----------|-----------|----------|--|
| 5 | 10 | 310 | 11788415 | |
| 5 | 15 | 310 | 11788416 | |
| 5 | 16 | 310 | 11788417 | |
| 5 | 20 | 310 | 11788418 | |

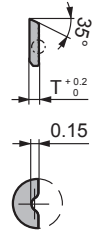
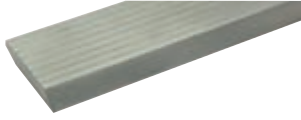




RECTANGULAR STRIPS

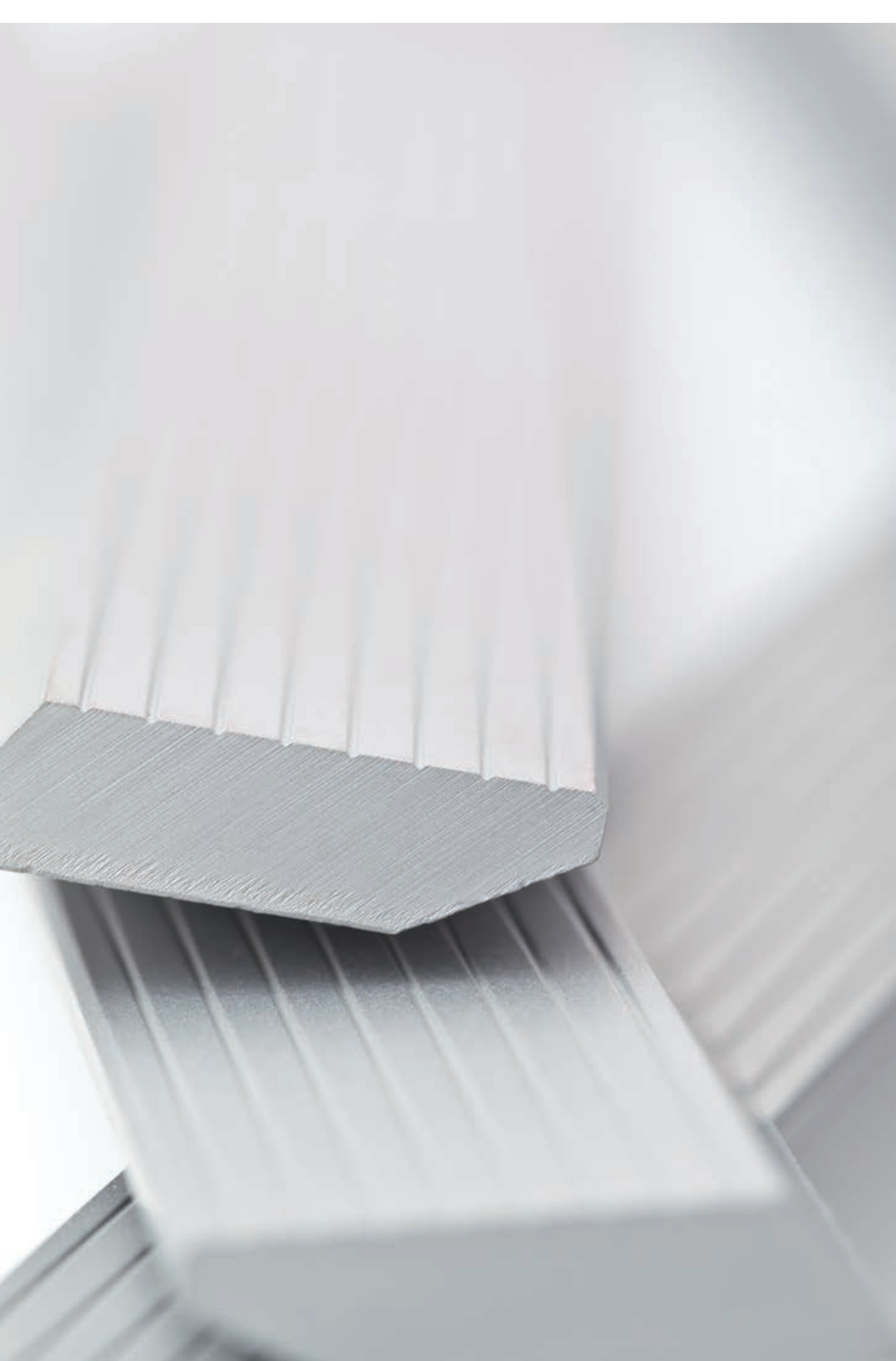
GROOVELINE – 2 BEVELS

CTS BE02..



| T [mm] | W [mm] | L [mm] | KCR06 | MG18 | HE40 | |
|-----------|-----------|-----------|----------|----------|----------|--|
| 3 | 8 | 400 | | 11608862 | | |
| 3 | 10 | 400 | 6289138 | 6289140 | 6289142 | |
| 3 | 12 | 400 | 6289143 | 6289144 | 6289145 | |
| 3 | 15 | 400 | 6289146 | 6289147 | 6289149 | |
| 3 | 18 | 400 | 6289150 | 6289151 | 6289153 | |
| 3 | 20 | 400 | 6289154 | 6289155 | 6289156 | |
| 3 | 25 | 400 | 6289157 | 6289158 | 6289159 | |
| 3 | 30 | 400 | 6289160 | 6289162 | 6289163 | |
| 3 | 35 | 400 | 6289164 | 6289165 | | |
| 4 | 10 | 400 | 6289174 | 6289218 | 6289219 | |
| 4 | 12 | 400 | 6289220 | 6289222 | 6289224 | |
| 4 | 15 | 400 | 6289225 | 6289227 | 6289228 | |
| 4 | 18 | 400 | 6289229 | 6289230 | 6289231 | |
| 4 | 20 | 400 | 6289232 | 6289235 | 6289236 | |
| 4 | 22 | 400 | | 11260541 | | |
| 4 | 25 | 400 | 6289237 | 6289238 | 6289240 | |
| 4 | 28 | 400 | | 11260544 | | |
| 4 | 30 | 400 | 6289241 | 6289242 | 6289243 | |
| 4 | 35 | 400 | 6289244 | 6289245 | | |
| 4 | 40 | 400 | 6289249 | 6289251 | | |
| 5 | 10 | 400 | 6289252 | 6289268 | 6289269 | |
| 5 | 12 | 400 | 6289270 | 6289271 | | |
| 5 | 15 | 400 | 6289273 | 6289274 | | |
| 5 | 18 | 400 | 6289276 | 6289278 | 6289280 | |
| 5 | 20 | 400 | 6289283 | 6289284 | 6289285 | |
| 5 | 21 | 400 | 11665273 | 11260548 | | |
| 5 | 24 | 400 | | 11260550 | | |
| 5 | 25 | 400 | 6289286 | 6289287 | 6289288 | |
| 5 | 27 | 400 | | 11260559 | | |
| 5 | 30 | 400 | 6289289 | 6289290 | 6289291 | |
| 5 | 35 | 400 | 6289292 | 6289293 | 11346132 | |
| 5 | 40 | 400 | 6289294 | 6289295 | 11346145 | |
| 5 | 45 | 400 | | 11494671 | | |
| 6 | 15 | 400 | | 11597649 | | |
| 6 | 20 | 400 | 6289296 | 6289297 | | |
| 6 | 25 | 400 | 6289298 | 6289300 | | |
| 6 | 30 | 400 | | 6289302 | | |
| 6 | 35 | 400 | 6289303 | 6289304 | | |
| 6 | 40 | 400 | 6289305 | 6289306 | | |
| 7 | 20 | 400 | | | 11891794 | |
| 7 | 25 | 400 | | | 11891795 | |







Rods

Rods made of submicron grades which were specially developed for wood working are able to reach high cutting speeds combined with high wear resistance. Under the same conditions, tools made of our KCR grade exceed many times over the service life of tools consisting of conventional carbide. All rods can be ground mat. This ensures that the tool is securely gripped so that it does not move from its clamped position even with high torque moments.





Composition and properties

| CERATIZIT grade code | ISO code | U.S. code | Binder [m %] | Density [g/cm ³] | Hardness | | | Transverse rupture strength | | Fracture toughness [MPa*m ^{1/2}] |
|-------------------------|-------------|--------------|-----------------|---------------------------------|----------|------|-----|--------------------------------|----------|--|
| | | | | | HV10 | HV30 | HRA | [MPa] | [P.S.I.] | |

Ultrafine grades

| | | | | | | | | | | |
|--------|--|--|-----------|-------|------|------|------|------|--------|-----|
| KCR05+ | | | Co+Ni 3,0 | 15,25 | 2160 | 2115 | 94,5 | 2600 | 377000 | 6,8 |
|--------|--|--|-----------|-------|------|------|------|------|--------|-----|

Submicron grain

| | | | | | | | | | | |
|---------|--|--|------|-------|------|------|------|------|--------|-----|
| KCR06 | | | 3,0 | 15,30 | 1950 | 1910 | 93,6 | 2300 | 334000 | 8,5 |
| CTOPP10 | | | 10,0 | 14,45 | 1570 | 1550 | 91,6 | 3000 | 435000 | |

Comment:

1. The data in this table are typical material parameters. We reserve the right to modify the data due to technical progress or due to further development within our company.

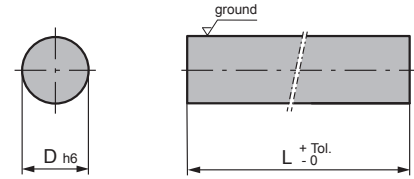
2. K_{IC}^* : The measured critical tension intensity factors (K_{IC}) depend to a high degree on the sample geometry and sample preparation. A direct comparison with parameters which have been determined by means of a different method is therefore not admissible.



RODS

GROUND MAT TO h6 – METRIC

CTRG W00..

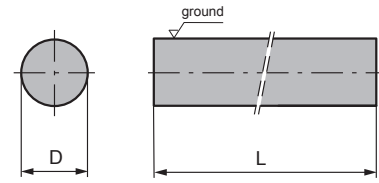


| D [mm] | L [mm] | Tol. Ø D [mm] | KCR05+ | KCR06 | CTOPP10 | |
|-----------|-----------|------------------|----------|----------|----------|--|
| 2.0 | 330 | +0/-0.006 | | 11331962 | | |
| 2.5 | 330 | +0/-0.006 | | 11331963 | | |
| 3.0 | 330 | +0/-0.006 | 11908004 | 11332639 | 11723520 | |
| 4.0 | 330 | +0/-0.008 | 11908005 | 11332640 | 11723525 | |
| 5.0 | 330 | +0/-0.008 | 11908007 | 11332641 | 11723527 | |
| 5.5 | 330 | +0/-0.008 | 11908008 | 11332642 | 11723528 | |
| 6.0 | 330 | +0/-0.008 | 11908009 | 11332643 | 11723529 | |
| 7.0 | 330 | +0/-0.009 | 11908010 | 11332645 | 11723531 | |
| 8.0 | 330 | +0/-0.009 | 11908012 | 11332648 | 11723533 | |
| 9.0 | 330 | +0/-0.009 | 11908014 | 11332654 | 11723535 | |
| 10.0 | 330 | +0/-0.009 | 11908015 | 11332655 | 11723486 | |
| 10.5 | 330 | +0/-0.011 | | 11332657 | 11723487 | |
| 12.0 | 330 | +0/-0.011 | 11908016 | 11332659 | 11723490 | |
| 13.0 | 330 | +0/-0.011 | 11908017 | 11332662 | 11723491 | |
| 14.0 | 330 | +0/-0.011 | 11908018 | 6263454 | 11723493 | |
| 16.0 | 330 | +0/-0.011 | 11908019 | 11282333 | 11723497 | |
| 18.0 | 330 | +0/-0.011 | 11908020 | 11332673 | 11723501 | |
| 20.0 | 330 | +0/-0.013 | 11908021 | 11332676 | 11723505 | |
| 25.0 | 330 | +0/-0.013 | 11908023 | | 11723514 | |





CTRG W00..



| D [inch] | L [inch] | Tol. Ø D [inch] | KCR06 |
|-------------|-------------|--------------------|----------|
| 0.250 | 13 | -.0002 / -.0004 | 11331932 |
| 0.313 | 13 | -.0002 / -.0004 | 11331937 |
| 0.375 | 13 | -.0002 / -.0004 | 11331943 |
| 0.500 | 13 | -.0002 / -.0004 | 11331944 |
| 0.625 | 13 | -.0002 / -.0004 | 11331953 |
| 0.750 | 13 | -.0002 / -.0004 | 11331958 |

Grade KCR05+ - upon request!

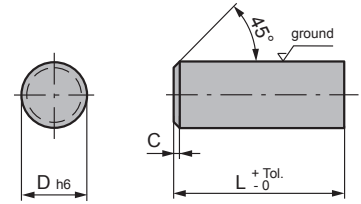




RODS

CUT TO LENGTH GROUND MAT h6 – METRIC

CTRG W01..



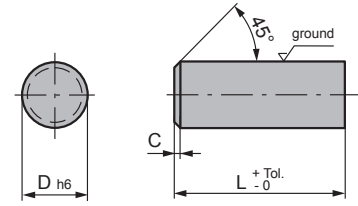
| D [mm] | L [mm] | Tol. Ø D [mm] | C [mm] | KCR05+ | KCR06 | CTOPP10 | |
|-----------|-----------|------------------|-----------|----------|----------|----------|--|
| 2.0 | 50 | +0/-0.006 | 0.2 | | 11330766 | 11723572 | |
| 2.5 | 50 | +0/-0.006 | 0.2 | | 11330773 | | |
| 3.0 | 40 | +0/-0.006 | 0.3 | | 11330781 | | |
| 3.0 | 50 | +0/-0.006 | 0.3 | | 11330783 | 11723539 | |
| 4.0 | 50 | +0/-0.008 | 0.4 | | 11330786 | 11723579 | |
| 4.0 | 55 | +0/-0.008 | 0.4 | | 11330790 | 11723580 | |
| 5.0 | 50 | +0/-0.008 | 0.4 | | 11330793 | 11723581 | |
| 5.0 | 55 | +0/-0.008 | 0.4 | | 11330802 | 11723582 | |
| 5.0 | 60 | +0/-0.008 | 0.4 | | 11330806 | 11723583 | |
| 6.0 | 25 | +0/-0.008 | 0.4 | | 11330930 | | |
| 6.0 | 35 | +0/-0.008 | 0.4 | | 11330944 | | |
| 6.0 | 40 | +0/-0.008 | 0.4 | | 11330945 | 11723584 | |
| 6.0 | 50 | +0/-0.008 | 0.4 | | 11330950 | 11723585 | |
| 6.0 | 60 | +0/-0.008 | 0.4 | | 11330956 | 11723586 | |
| 6.0 | 70 | +0/-0.008 | 0.4 | 11896071 | 11330961 | 11723587 | |
| 6.0 | 76 | +0/-0.008 | 0.4 | | 11331070 | 11723588 | |
| 6.0 | 80 | +0/-0.008 | 0.4 | | | 11723589 | |
| 7.0 | 49 | +0/-0.009 | 0.5 | | 11331071 | 11723590 | |
| 8.0 | 50 | +0/-0.009 | 0.6 | | 11331105 | 11723591 | |
| 8.0 | 56 | +0/-0.009 | 0.6 | | 11331143 | 11723592 | |
| 8.0 | 60 | +0/-0.009 | 0.6 | | 11331150 | 11723593 | |
| 8.0 | 70 | +0/-0.009 | 0.6 | 11896070 | 11331155 | 11723540 | |
| 8.0 | 80 | +0/-0.009 | 0.6 | | 11331157 | 11723541 | |
| 8.0 | 100 | +0/-0.009 | 0.6 | 11904184 | | | |
| 10.0 | 49 | +0/-0.009 | 0.6 | | 11341382 | | |
| 10.0 | 53 | +0/-0.009 | 0.6 | | 11341380 | | |
| 10.0 | 55 | +0/-0.009 | 0.6 | | 11331160 | 11723546 | |
| 10.0 | 61 | +0/-0.009 | 0.6 | | 11341381 | | |
| 10.0 | 65 | +0/-0.009 | 0.6 | | 11331162 | 11723548 | |
| 10.0 | 70 | +0/-0.009 | 0.6 | | 11331170 | 11723549 | |
| 10.0 | 75 | +0/-0.009 | 0.6 | | 11331174 | | |
| 10.0 | 80 | +0/-0.009 | 0.6 | 11714302 | 11331177 | 11723551 | |
| 10.0 | 90 | +0/-0.009 | 0.6 | | 11331184 | 11723552 | |
| 10.0 | 100 | +0/-0.009 | 0.6 | | 11331187 | 11723543 | |
| 10.0 | 120 | +0/-0.009 | 0.6 | | 11331194 | | |
| 11.0 | 80 | +0/-0.011 | 0.6 | | 11331202 | 11723553 | |
| 11.0 | 90 | +0/-0.011 | 0.6 | | 11331263 | | |
| 12.0 | 71 | +0/-0.011 | 0.6 | | 11331279 | 11723557 | |
| 12.0 | 80 | +0/-0.011 | 0.6 | 11965766 | 11331281 | 11723558 | |
| 12.0 | 90 | +0/-0.011 | 0.6 | 11968560 | 11331283 | 11723559 | |
| 12.0 | 100 | +0/-0.011 | 0.6 | | 11331284 | 11723555 | |
| 12.0 | 110 | +0/-0.011 | 0.6 | | 11915359 | | |
| 12.0 | 120 | +0/-0.011 | 0.6 | | 11331298 | | |
| 13.0 | 115 | +0/-0.011 | 0.6 | | 11331304 | | |
| 14.0 | 100 | +0/-0.011 | 0.6 | | 11331332 | 11723561 | |
| 14.0 | 110 | +0/-0.011 | 0.6 | | 11331333 | 11723562 | |
| 14.0 | 120 | +0/-0.011 | 0.6 | | 11331334 | 11723563 | |
| 14.0 | 137 | +0/-0.011 | 0.6 | | 11331336 | | |
| 16.0 | 100 | +0/-0.011 | 0.6 | | 11331342 | 11723565 | |



A31



CTRG W01..



| D [mm] | L [mm] | Tol. Ø D [mm] | C [mm] | KCR05+ | KCR06 | CTOPP10 | |
|-----------|-----------|------------------|-----------|----------|----------|----------|--|
| 16.0 | 110 | +0/-0.011 | 0.6 | | 11331343 | 11723566 | |
| 16.0 | 120 | +0/-0.011 | 0.6 | | 11331346 | 11723567 | |
| 16.0 | 150 | +0/-0.011 | 0.6 | | 11331347 | | |
| 18.0 | 100 | +0/-0.011 | 0.6 | | 11331351 | | |
| 18.0 | 110 | +0/-0.011 | 0.6 | | 11331352 | 11723570 | |
| 18.0 | 120 | +0/-0.011 | 0.6 | | 11331363 | 11723571 | |
| 20.0 | 100 | +0/-0.013 | 0.6 | | 11331364 | 11723573 | |
| 20.0 | 110 | +0/-0.013 | 0.6 | | 11331366 | 11723574 | |
| 20.0 | 115 | +0/-0.013 | 0.6 | | | 11898849 | |
| 20.0 | 120 | +0/-0.013 | 0.6 | 11906999 | 11331368 | 11723575 | |
| 20.0 | 130 | +0/-0.013 | 0.6 | | 11351539 | 11723576 | |
| 20.0 | 135 | +0/-0.013 | 0.6 | | | 11898850 | |
| 20.0 | 140 | +0/-0.013 | 0.6 | | 11351549 | 11723577 | |
| 20.0 | 150 | +0/-0.013 | 0.6 | | 11713422 | 11723578 | |

CUT TO LENGTH GROUND MAT h6 – METRIC



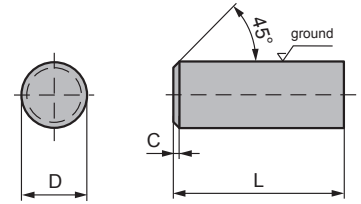
RODS



RODS

CUT TO LENGTH GROUND MAT TO h6 – INCH

CTRG W01..



| D [inch] | L [inch] | Tol. Ø D [inch] | C [inch] | KCR05+ | KCR06 | CTOPP10 | |
|-------------|-------------|--------------------|-------------|----------|----------|----------|--|
| 0.250 | 2 | -0.002 / -.0004 | 0.025 | | 11331709 | 11774107 | |
| 0.250 | 2.5 | -0.002 / -.0004 | 0.025 | 11714291 | 11248640 | 11774108 | |
| 0.250 | 3 | -0.002 / -.0004 | 0.025 | | 11331711 | 11774109 | |
| 0.250 | 3.5 | -0.002 / -.0004 | 0.025 | | 11331713 | 11774110 | |
| 0.250 | 4 | -0.002 / -.0004 | 0.025 | | 11331715 | 11774106 | |
| 0.313 | 2.5 | -0.002 / -.0004 | 0.025 | | 11331724 | 11774111 | |
| 0.313 | 3 | -0.002 / -.0004 | 0.025 | | 11331726 | 11774112 | |
| 0.375 | 2.5 | -0.002 / -.0004 | 0.025 | | 11248641 | 11774114 | |
| 0.375 | 3 | -0.002 / -.0004 | 0.025 | 11714296 | 11248643 | 11774115 | |
| 0.375 | 3.5 | -0.002 / -.0004 | 0.025 | | 11331727 | 11774116 | |
| 0.500 | 3 | -0.002 / -.0004 | 0.030 | 11926731 | 11248631 | 11774096 | |
| 0.500 | 3.5 | -0.002 / -.0004 | 0.030 | 11714279 | 11248633 | 11774098 | |
| 0.500 | 4 | -0.002 / -.0004 | 0.030 | 11926732 | 11248634 | 11774092 | |
| 0.500 | 4.5 | -0.002 / -.0004 | 0.030 | | 11325374 | | |
| 0.500 | 5 | -0.002 / -.0004 | 0.030 | | 11331728 | 11774093 | |
| 0.500 | 5.5 | -0.002 / -.0004 | 0.030 | | 11331733 | 11774094 | |
| 0.625 | 4 | -0.002 / -.0004 | 0.030 | | 11331734 | 11774099 | |
| 0.750 | 4 | -0.002 / -.0004 | 0.040 | | 11325376 | 11774102 | |
| 0.750 | 4.75 | -0.002 / -.0004 | 0.040 | | 11331921 | 11774103 | |
| 0.750 | 5 | -0.002 / -.0004 | 0.040 | | 11268699 | 11774104 | |
| 0.750 | 6 | -0.002 / -.0004 | 0.040 | | 11331927 | 11774105 | |

CUT TO LENGTH GROUND MAT TO h6 – INCH

RODS







Blanks

We manufacture customised blanks according to the respective requirements. The large variety of our range includes simple geometries in high volumes as well as very complex geometries in small batches. Our production possibilities coupled with our carbide grade selection enable our customers to perfectly adapt their products to the market requirements.





Composition and properties

| CERATIZIT grade code | ISO code | U.S. code | Binder [m %] | Density [g/cm ³] | Hardness | | | Transverse rupture strength | | Fracture toughness [MPa*m ^{1/2}] |
|-------------------------|-------------|--------------|-----------------|---------------------------------|----------|------|-----|--------------------------------|----------|--|
| | | | | | HV10 | HV30 | HRA | [MPa] | [P.S.I.] | |

Submicron grain

| | | | | | | | | | | |
|---------|-----|----|------|-------|------|------|------|------|--------|-----|
| MG18 | K20 | C2 | 10,0 | 14,45 | 1680 | 1660 | 92,3 | 3700 | 537000 | 9,4 |
| CTOPP10 | | | 10,0 | 14,45 | 1570 | 1550 | 91,6 | 3000 | 435000 | |

Fine grain grades

| | | | | | | | | | | |
|------|-----|-------|------|-------|------|------|------|------|---------|------|
| HC20 | K20 | C2-C3 | 6,0 | 15,00 | 1640 | 1620 | 92,1 | 2200 | 319,000 | 9,9 |
| HC40 | K40 | C1 | 12,0 | 15,00 | 1330 | 1320 | 89,7 | 3000 | 464000 | 12,0 |

Medium grain grades

| | | | | | | | | | | |
|------|-----|----|-----|-------|------|------|------|------|--------|------|
| HC25 | K20 | C2 | 7,0 | 15,00 | 1550 | 1530 | 91,5 | 2600 | 377000 | 10,4 |
| HC30 | K30 | C1 | 8,5 | 15,00 | 1420 | 1400 | 90,4 | 3500 | 508000 | 12,1 |
| HC35 | K30 | C1 | 9,0 | 14,60 | 1400 | 1380 | 90,3 | 2800 | 335000 | 10,9 |

Comment:

1. The data in this table are typical material parameters. We reserve the right to modify the data due to technical progress or due to further development within our company.

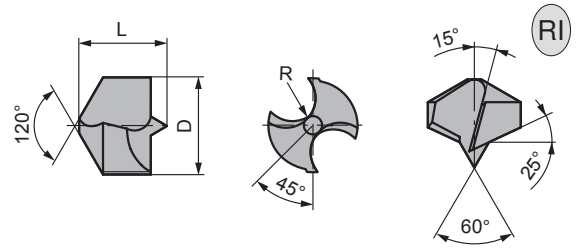
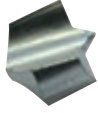
2. K_{IC}^* : The measured critical tension intensity factors (K_{IC}) depend to a high degree on the sample geometry and sample preparation. A direct comparison with parameters which have been determined by means of a different method is therefore not admissible.



BLANKS

DRILL BITS FOR DOWEL DRILLS

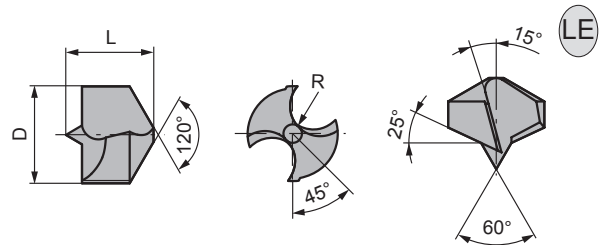
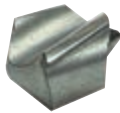
CTDD.. RI



| Ø [mm] | D [mm] | L [mm] | R [mm] | HC35 |
|-----------|-----------|-----------|-----------|----------|
| 4.0 | 4.6 | 7.0 | 1.15 | 80350406 |
| 5.0 | 5.6 | 7.7 | 1.80 | 80050686 |
| 6.0 | 6.6 | 7.7 | 2.20 | 80050688 |
| 7.0 | 7.6 | 8.5 | 2.70 | 80050690 |
| 8.0 | 8.6 | 9.7 | 3.20 | 80050692 |
| 9.0 | 9.6 | 10.7 | 3.70 | 80050694 |
| 10.0 | 10.6 | 11.2 | 3.70 | 80050696 |
| 11.0 | 11.6 | 12.5 | 4.20 | 80050698 |
| 12.0 | 12.6 | 13.4 | 4.30 | 80050700 |
| 13.0 | 13.6 | 14.2 | 4.50 | 80050701 |
| 14.0 | 14.6 | 15.5 | 4.70 | 80050702 |
| 15.0 | 15.6 | 16.2 | 5.00 | 80050703 |
| 16.0 | 16.6 | 17.0 | 5.50 | 80050704 |
| 18.0 | 18.6 | 17.2 | 6.00 | 80050705 |
| 19.0 | 19.6 | 17.2 | 6.20 | 80052201 |
| 20.0 | 20.6 | 18.0 | 6.50 | 80050706 |

DRILL BITS FOR DOWEL DRILLS

CTDD.. LE



| Ø [mm] | D [mm] | L [mm] | R [mm] | HC35 |
|-----------|-----------|-----------|-----------|----------|
| 4.0 | 4.6 | 7.0 | 1.15 | 80350407 |
| 5.0 | 5.6 | 7.7 | 1.80 | 80050665 |
| 6.0 | 6.6 | 7.7 | 2.20 | 80050667 |
| 7.0 | 7.6 | 8.5 | 2.70 | 80050669 |
| 8.0 | 8.6 | 9.7 | 3.20 | 80050671 |
| 9.0 | 9.6 | 10.7 | 3.70 | 80050673 |
| 10.0 | 10.6 | 11.2 | 3.70 | 80050675 |
| 11.0 | 11.6 | 12.5 | 4.20 | 80050677 |
| 12.0 | 12.6 | 13.4 | 4.30 | 80050679 |
| 13.0 | 13.6 | 14.2 | 4.50 | 80050680 |
| 14.0 | 14.6 | 15.5 | 4.70 | 80050681 |
| 15.0 | 15.6 | 16.2 | 5.00 | 80050682 |
| 16.0 | 16.6 | 17.0 | 5.50 | 80050683 |
| 18.0 | 18.6 | 17.2 | 6.00 | 80050684 |
| 19.0 | 19.6 | 17.2 | 6.20 | 80052198 |
| 20.0 | 20.6 | 18.0 | 6.50 | 80050685 |

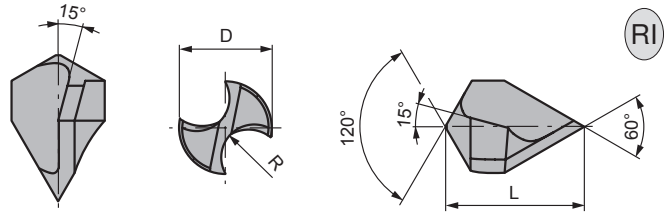
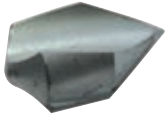
BLANKS



A31

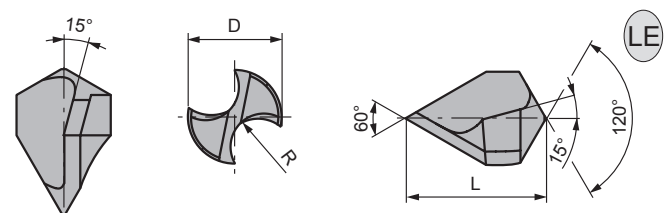
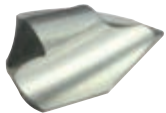


CTDT.. RI



| Ø [mm] | D [mm] | L [mm] | R [mm] | HC35 |
|--------|--------|--------|--------|----------|
| 4.0 | 4.5 | 9.00 | 1.30 | 80357882 |
| 5.0 | 5.6 | 10.50 | 2.00 | 80055839 |
| 6.0 | 6.6 | 11.50 | 2.50 | 80055840 |
| 7.0 | 7.6 | 13.00 | 2.75 | 80055841 |
| 8.0 | 8.6 | 14.50 | 3.00 | 80055842 |
| 9.0 | 9.6 | 16.75 | 3.30 | 80056909 |
| 10.0 | 10.6 | 18.70 | 4.20 | 80056913 |
| 11.0 | 11.6 | 21.00 | 4.70 | 80356220 |
| 12.0 | 12.6 | 22.00 | 4.90 | 80056921 |
| 13.0 | 13.6 | 24.00 | 5.00 | 80356528 |
| 14.0 | 14.6 | 25.50 | 5.00 | 80356298 |
| 15.0 | 15.6 | 26.00 | 5.00 | 80239750 |
| 16.0 | 16.6 | 27.00 | 5.50 | 80239752 |
| 18.0 | 18.6 | 28.00 | 6.00 | 80239754 |
| 20.0 | 20.6 | 33.50 | 6.50 | 80239756 |

CTDT.. LE



| Ø [mm] | D [mm] | L [mm] | R [mm] | HC35 |
|--------|--------|--------|--------|----------|
| 4.0 | 4.4 | 9.00 | 1.30 | 80357920 |
| 5.0 | 5.6 | 10.50 | 2.00 | 80055843 |
| 6.0 | 6.6 | 11.50 | 2.50 | 80055844 |
| 7.0 | 7.6 | 13.00 | 2.75 | 80055845 |
| 8.0 | 8.6 | 14.50 | 3.00 | 80055846 |
| 9.0 | 9.6 | 16.75 | 3.30 | 80056910 |
| 10.0 | 10.6 | 18.70 | 4.20 | 80056914 |
| 11.0 | 11.6 | 21.00 | 4.70 | 80356221 |
| 12.0 | 12.6 | 22.00 | 4.90 | 80056922 |
| 13.0 | 13.6 | 24.00 | 5.00 | 80356527 |
| 14.0 | 14.6 | 25.50 | 5.00 | 80356297 |
| 15.0 | 15.6 | 26.00 | 5.00 | 80239751 |
| 16.0 | 16.6 | 27.00 | 5.50 | 80239753 |
| 18.0 | 18.6 | 28.00 | 6.00 | 80239755 |
| 20.0 | 20.6 | 33.50 | 6.50 | 80239757 |

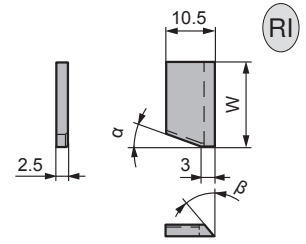
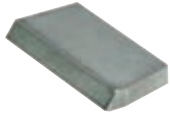




BLANKS

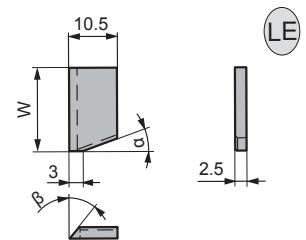
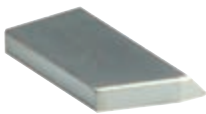
FOR WOOD MACHINING DRILL TIPS – MULTI-PIECE

CTDB.. RI



| Ø [mm] | W [mm] | α [°] | β [°] | HC20 | |
|-----------|-----------|----------|----------|---------|--|
| 15.0 | 6.5 | 15 | 30 | 6209064 | |
| 16.0 | 7.0 | 15 | 30 | 6209038 | |
| 17.0 | 7.5 | 15 | 30 | 6220168 | |
| 18.0 | 8.0 | 15 | 30 | 6209040 | |
| 20.0 | 9.0 | 15 | 30 | 6209042 | |
| 22.0 | 10.0 | 20 | 40 | 6209044 | |
| 23.0 | 10.5 | 20 | 40 | 6110869 | |
| 24.0 | 11.0 | 20 | 40 | 6104596 | |
| 25.0 | 11.5 | 20 | 40 | 6209046 | |
| 26.0 | 12.0 | 20 | 40 | 6209048 | |
| 28.0 | 13.0 | 20 | 40 | 6209067 | |
| 30.0 | 14.0 | 20 | 40 | 6209050 | |
| 32.0 | 15.0 | 20 | 40 | 6209052 | |
| 34.0 | 16.0 | 20 | 40 | 6209307 | |
| 35.0 | 16.5 | 20 | 40 | 6209054 | |
| 40.0 | 19.0 | 20 | 40 | 6209056 | |
| 45.0 | 21.5 | 20 | 40 | 6209058 | |
| 50.0 | 24.0 | 20 | 40 | 6209060 | |
| 55.0 | 26.5 | 20 | 40 | 6209061 | |
| 60.0 | 29.0 | 20 | 40 | 6209063 | |

CTDB.. LE



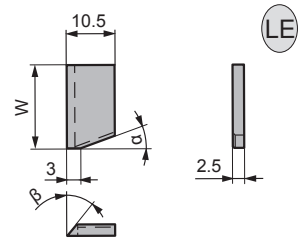
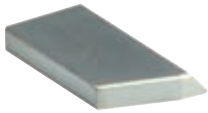
| Ø [mm] | W [mm] | α [°] | β [°] | HC20 | |
|-----------|-----------|----------|----------|---------|--|
| 15.0 | 6.5 | 15 | 30 | 6209062 | |
| 16.0 | 7.0 | 15 | 30 | 6209037 | |
| 17.0 | 7.5 | 15 | 30 | 6220167 | |
| 18.0 | 8.0 | 15 | 30 | 6209039 | |
| 20.0 | 9.0 | 15 | 30 | 6209041 | |
| 22.0 | 10.0 | 20 | 40 | 6209043 | |
| 23.0 | 10.5 | 20 | 40 | 6104598 | |
| 24.0 | 11.0 | 20 | 40 | 6220169 | |
| 25.0 | 11.5 | 20 | 40 | 6209045 | |
| 26.0 | 12.0 | 20 | 40 | 6209047 | |
| 28.0 | 13.0 | 20 | 40 | 6209068 | |
| 30.0 | 14.0 | 20 | 40 | 6209049 | |
| 32.0 | 15.0 | 20 | 40 | 6209051 | |



A31

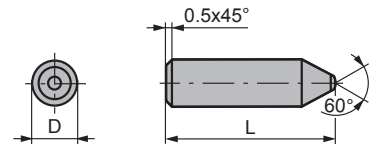


CTDB.. LE



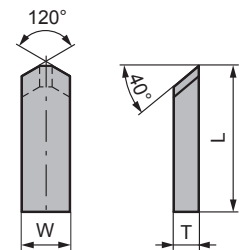
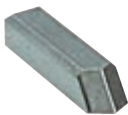
| \varnothing [mm] | W [mm] | α [°] | β [°] | HC20 | |
|-----------------------|-----------|-----------------|----------------|---------|--|
| 34.0 | 16.0 | 20 | 40 | 6220171 | |
| 35.0 | 16.5 | 20 | 40 | 6209053 | |
| 40.0 | 19.0 | 20 | 40 | 6209055 | |
| 45.0 | 21.5 | 20 | 40 | 6209057 | |
| 50.0 | 24.0 | 20 | 40 | 6209059 | |
| 55.0 | 26.5 | 20 | 40 | 6209065 | |
| 60.0 | 29.0 | 20 | 40 | 6209066 | |

CTDB..-Z



| D [mm] | L [mm] | HC20 | HC40 |
|-----------|-----------|----------|---------|
| 3.0 | 11.5 | | 6247856 |
| 3.0 | 13.0 | | 6283593 |
| 3.0 | 14.5 | | 6209432 |
| 4.0 | 13.0 | 11240226 | |
| 4.0 | 15.0 | | 6224626 |

CTDB..-S



| L [mm] | W [mm] | T [mm] | HC20 | HC30 |
|-----------|-----------|-----------|----------|----------|
| 12.0 | 3.0 | 2.5 | 6291349 | |
| 13.0 | 4.0 | 2.5 | 6209124 | |
| 14.0 | 5.0 | 3.0 | 11092584 | 11284863 |
| 15.0 | 4.0 | 2.5 | | 6209129 |
| 15.0 | 4.0 | 2.5 | 6209115 | 6244367 |

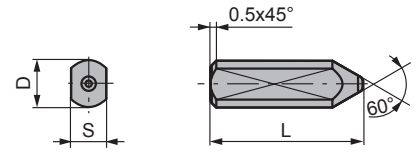




BLANKS

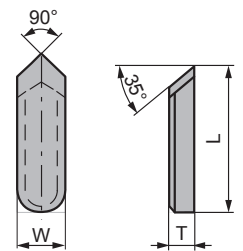
FOR WOOD MACHINING DRILL TIPS – MULTI-PIECE

CTDB..-ZF



| D [mm] | S [mm] | L [mm] | HC20 | |
|-----------|-----------|-----------|----------|--|
| 4.0 | 3.0 | 13.0 | 11180519 | |

CTDB..-R

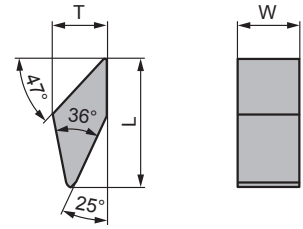


| L [mm] | W [mm] | T [mm] | HC20 | |
|-----------|-----------|-----------|---------|--|
| 13.0 | 4.0 | 3.0 | 6209306 | |



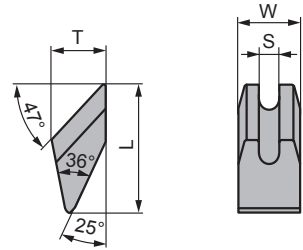


CTSO..



| L [mm] | W [mm] | T [mm] | HC20 |
|-----------|-----------|-----------|----------|
| 12.8 | 6.2 | 5.4 | 335939 |
| 12.8 | 8.2 | 5.4 | 11033444 |

CTSM..



| L [mm] | W [mm] | T [mm] | S [mm] | HC20 |
|-----------|-----------|-----------|-----------|--------|
| 12.8 | 6.2 | 5.4 | 2.0 | 335929 |

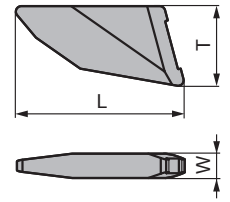




BLANKS

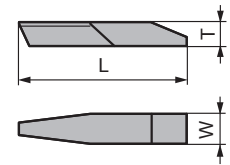
FINGERJOINT TIPS

16015..



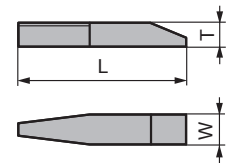
| L [mm] | W [mm] | T [mm] | MG18 | HC25 |
|-----------|-----------|-----------|---------|---------|
| 14.4 | 4.4 | 30.3 | 6113670 | 6221837 |

37800..



| L [mm] | W [mm] | T [mm] | HC25 | |
|-----------|-----------|-----------|---------|--|
| 28.0 | 5.0 | 4.0 | 6110985 | |

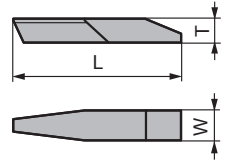
40330..



| L [mm] | W [mm] | T [mm] | MG18 | HC25 |
|-----------|-----------|-----------|---------|---------|
| 23.5 | 4.5 | 5.0 | 6220177 | 6209541 |



45757..



| L [mm] | W [mm] | T [mm] | MG18 | HC25 |
|-----------|-----------|-----------|---------|---------|
| 28.2 | 4.5 | 4.2 | 6226665 | |
| 28.2 | 5.0 | 4.0 | | 6242173 |





Indexable knives

For tooling systems with replaceable indexable knives we produce a wide range of products in optimised carbide grades. Our indexable knives made of chrome grades or the grades SMG02 and UMG04 are the market leaders in this field. Our Easy Line indexable knives stand for a good price-performance-ratio in standard applications.

We also produce specific indexable knives according to customer request.





Composition and properties

| CERATIZIT grade code | ISO code | U.S. code | Binder [m %] | Density [g/cm ³] | Hardness | | | Transverse rupture strength | | Fracture toughness [MPa*m ^{1/2}] |
|----------------------|----------|-----------|--------------|------------------------------|----------|------|-----|-----------------------------|----------|--|
| | | | | | HV10 | HV30 | HRA | [MPa] | [P.S.I.] | |

Nano-grades

| | | | | | | | | | | |
|-------|-----|----|-----|-------|------|------|------|------|--------|-----|
| UMG04 | K01 | C4 | 2,2 | 15,30 | 2500 | 2400 | 96,0 | 3200 | 464000 | 5,4 |
|-------|-----|----|-----|-------|------|------|------|------|--------|-----|

Ultrafine grades

| | | | | | | | | | | |
|-------|-----|-----|------|-------|------|------|------|------|--------|------|
| SMG02 | K01 | C4 | 2,4 | 15,25 | 2300 | 2200 | 95,2 | 3500 | 508000 | 5,7 |
| HE40 | K40 | N/A | 20,0 | 13,15 | 1250 | 1240 | 88,8 | 3500 | 508000 | 12,1 |

Submicron grain

| | | | | | | | | | | |
|---------|-----|-----|------|-------|------|------|------|------|--------|-----|
| KCR08 | N/A | N/A | 4,2 | 15,20 | 1920 | 1885 | 93,4 | 2300 | 331000 | 8,7 |
| MG18 | K20 | C2 | 10,0 | 14,45 | 1680 | 1660 | 92,3 | 3700 | 537000 | 9,4 |
| CTOPP10 | N/A | N/A | 10,0 | 14,45 | 1570 | 1550 | 91,6 | 3000 | 435000 | N/A |

Fine grain grades

| | | | | | | | | | | |
|------|-----|-------|-----|-------|------|------|------|------|---------|-----|
| HC05 | K10 | C3 | 4,0 | 15,15 | 1730 | 1700 | 92,5 | 2200 | 319000 | 8,7 |
| HC20 | K20 | C2-C3 | 6,0 | 15,00 | 1640 | 1620 | 92,1 | 2200 | 319,000 | 9,9 |

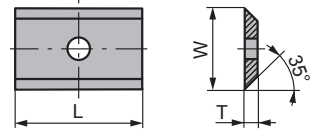
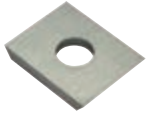
Medium grain grades

| | | | | | | | | | | |
|------|-----|----|-----|-------|------|------|------|------|--------|------|
| HC35 | K30 | C1 | 9,0 | 14,60 | 1400 | 1380 | 90,3 | 2800 | 335000 | 10,9 |
|------|-----|----|-----|-------|------|------|------|------|--------|------|

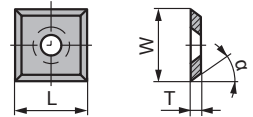
Comment:

1. The data in this table are typical material parameters. We reserve the right to modify the data due to technical progress or due to further development within our company.

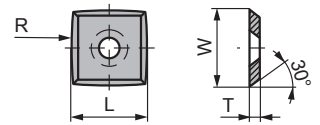
2. K_{IC}^* : The measured critical tension intensity factors (K_{IC}) depend to a high degree on the sample geometry and sample preparation. A direct comparison with parameters which have been determined by means of a different method is therefore not admissible.


EL CTK ST..


| L [mm] | W [mm] | T [mm] | CTOPP10 | |
|-----------|-----------|-----------|----------|--|
| 9.6 | 12.0 | 1.5 | 11791000 | |
| 15.0 | 12.0 | 1.5 | 11791001 | |
| 20.0 | 12.0 | 1.5 | 11791002 | |
| 30.0 | 12.0 | 1.5 | 11742547 | |
| 40.0 | 12.0 | 1.5 | 11791003 | |
| 50.0 | 12.0 | 1.5 | 11742544 | |
| 60.0 | 12.0 | 1.5 | 11791004 | |

EL CTK SC


| L [mm] | W [mm] | T [mm] | CTOPP10 | |
|-----------|-----------|-----------|----------|--|
| 14.0 | 14.0 | 2.0 | 11742545 | |

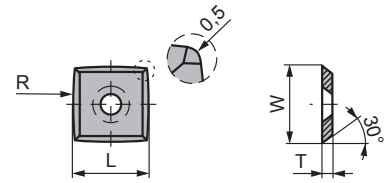
EL CTK SC..R


| L [mm] | W [mm] | T [mm] | R [mm] | CTOPP10 | |
|-----------|-----------|-----------|-----------|----------|--|
| 15.0 | 15.0 | 2.5 | 95 | 11778838 | |
| 15.0 | 15.0 | 2.5 | 115 | 11789902 | |
| 15.0 | 15.0 | 2.5 | 150 | 11789899 | |



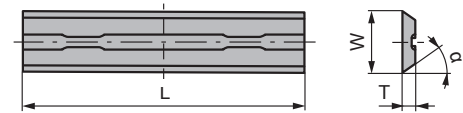


EL CTK SC..R

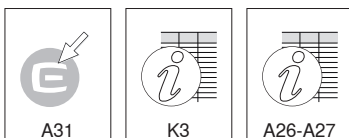


| L [mm] | W [mm] | T [mm] | R [mm] | CTOPP10 |
|-----------|-----------|-----------|-----------|----------|
| 15.0 | 15.0 | 2.5 | 95 | 11827619 |
| 15.0 | 15.0 | 2.5 | 115 | 11827617 |
| 15.0 | 15.0 | 2.5 | 150 | 11827613 |

EL CTK PK..

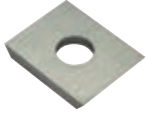


| L [mm] | W [mm] | T [mm] | CTOPP10 |
|-----------|-----------|-----------|----------|
| 75.5 | 5.5 | 1.1 | 11871695 |
| 80.5 | 5.9 | 1.2 | 11871691 |
| 82.0 | 5.5 | 1.1 | 11801133 |

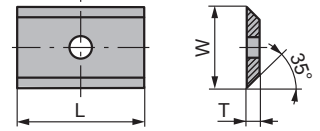




CTK ST



Easy Line
see page(s)

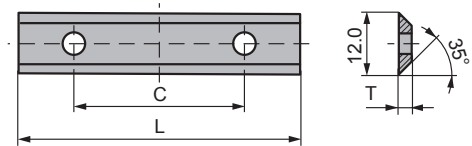


| L [mm] | W [mm] | T [mm] | α [°] | UMG04 | SMG02 | KCR08 | HC05 | |
|-----------|-----------|-----------|-----------------|----------|----------|----------|----------|--|
| 7.5 | 12.0 | 1.5 | 35 | | | 80360013 | | |
| 7.6 | 12.0 | 1.5 | 35 | | | | 80330647 | |
| 9.6 | 12.0 | 1.5 | 35 | | 80358956 | 80360014 | 80330652 | |
| 10.5 | 12.0 | 1.5 | 35 | | | 80360015 | 80239369 | |
| 11.0 | 12.0 | 1.5 | 35 | | | 80360016 | 80239370 | |
| 13.0 | 12.0 | 1.5 | 35 | | | 80360017 | 80239371 | |
| 15.0 | 12.0 | 1.5 | 35 | | 80358308 | 80360018 | 80330640 | |
| 15.7 | 12.0 | 1.5 | 35 | | | 80360019 | 80239372 | |
| 17.0 | 12.0 | 1.5 | 35 | | | 80360020 | 80331564 | |
| 18.0 | 12.0 | 1.5 | 35 | | | 80360021 | 80239368 | |
| 19.0 | 12.0 | 1.5 | 35 | | | 80360022 | 80331565 | |
| 20.0 | 12.0 | 1.5 | 35 | 80358633 | 80330673 | 80358831 | 80330641 | |
| 24.7 | 12.0 | 1.5 | 35 | | | 80360023 | 80239680 | |

CTK ST

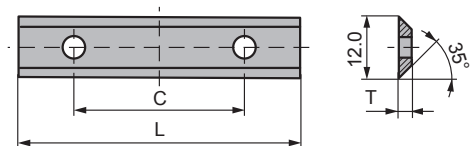


Easy Line
see page(s)

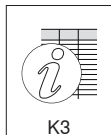


| L [mm] | W [mm] | T [mm] | C [mm] | UMG04 | SMG02 | KCR08 | HC05 | |
|-----------|-----------|-----------|-----------|----------|----------|----------|----------|--|
| 24.7 | 12.0 | 1.5 | 14 | | | 80360024 | 80239681 | |
| 30.0 | 12.0 | 1.5 | 14 | 80358634 | 80330674 | 80358833 | 80330642 | |
| 40.0 | 12.0 | 1.5 | 26 | 82009287 | 80358316 | 80360025 | 80330649 | |
| 50.0 | 12.0 | 1.5 | 26 | 80358635 | 80330675 | 80358835 | 80330643 | |
| 60.0 | 12.0 | 1.5 | 26 | | 80358317 | 80360026 | 80330644 | |

CTK ST

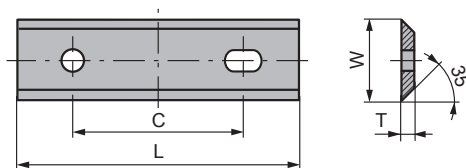


| L [mm] | W [mm] | T [mm] | C [mm] | HC05 | MG18 |
|-----------|-----------|-----------|-----------|----------|----------|
| 30.0 | 12.0 | 2.5 | 14 | 82015043 | 82028333 |



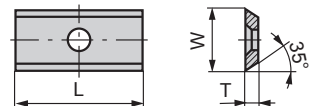
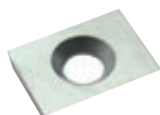


CTK ST

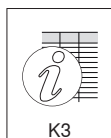


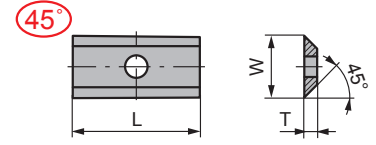
| L [mm] | W [mm] | T [mm] | C [mm] | KCR08 | |
|-----------|-----------|-----------|-----------|----------|--|
| 80.0 | 13.0 | 2.2 | 60 | 80360069 | |
| 100.0 | 13.0 | 2.2 | 60 | 80360084 | |
| 120.0 | 13.0 | 2.2 | 60 | 80360085 | |

CTK ST.. SH

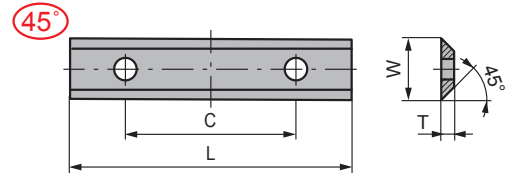


| L [mm] | W [mm] | T [mm] | SMG02 | |
|-----------|-----------|-----------|----------|--|
| 20.0 | 14.3 | 2.5 | 82030290 | |

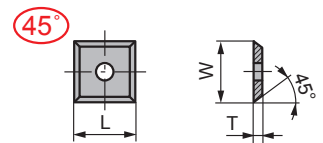
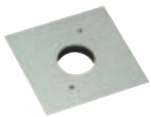



CTK ST.. 45°


| L [mm] | W [mm] | T [mm] | MG18 | |
|-----------|-----------|-----------|----------|--|
| 7.5 | 12.0 | 1.5 | 80330520 | |
| 15.0 | 12.0 | 1.5 | 80330522 | |
| 20.0 | 12.0 | 1.5 | 80330523 | |
| 24.7 | 12.0 | 1.5 | 80332389 | |

CTK ST.. 45°


| L [mm] | W [mm] | T [mm] | C [mm] | MG18 | |
|-----------|-----------|-----------|-----------|----------|--|
| 30.0 | 12.0 | 1.5 | 14 | 80330524 | |
| 40.0 | 12.0 | 1.5 | 26 | 80330525 | |
| 50.0 | 12.0 | 1.5 | 26 | 80330526 | |
| 60.0 | 12.0 | 1.5 | 26 | 80330527 | |

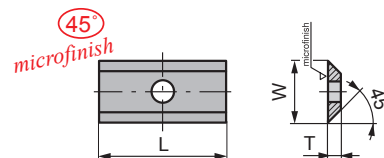
CTK FC.. 45°


| L [mm] | W [mm] | T [mm] | MG18 | |
|-----------|-----------|-----------|----------|--|
| 12.0 | 12.0 | 1.5 | 80330521 | |



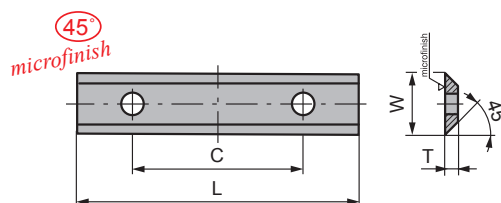


CTK ST.. MIC45°



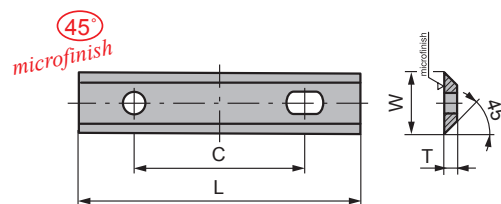
| L [mm] | W [mm] | T [mm] | MG18 | HE40 |
|--------|--------|--------|----------|----------|
| 9.6 | 12.0 | 1.5 | 80359051 | 80359044 |
| 15.0 | 12.0 | 1.5 | 80330537 | 80359045 |
| 20.0 | 12.0 | 1.5 | 80330538 | 80357973 |

CTK ST.. MIC45°

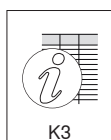


| L [mm] | W [mm] | T [mm] | C [mm] | MG18 | HE40 |
|--------|--------|--------|--------|----------|----------|
| 30.0 | 12.0 | 1.5 | 14 | 80330539 | 80357974 |
| 40.0 | 12.0 | 1.5 | 26 | 80330540 | 80359046 |
| 50.0 | 12.0 | 1.5 | 26 | 80330541 | 80357975 |
| 60.0 | 12.0 | 1.5 | 26 | 80330542 | 80359047 |

CTK ST.. MIC45°



| L [mm] | W [mm] | T [mm] | C [mm] | MG18 | HE40 |
|--------|--------|--------|--------|----------|----------|
| 80.0 | 13.0 | 2.2 | 60 | 80359052 | 80359048 |





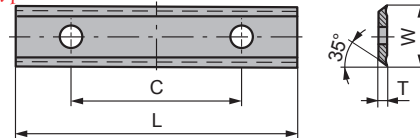
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STANDARD 45° – MICROFINISH

CTK ST.. CB

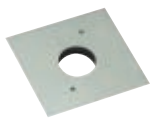


with chip breaker

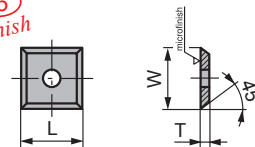


| L [mm] | W [mm] | T [mm] | C [mm] | HE40 |
|--------|--------|--------|--------|----------|
| 20.0 | 12.0 | 1.5 | 0 | 80357984 |
| 30.0 | 12.0 | 1.5 | 14 | 80357985 |
| 50.0 | 12.0 | 1.5 | 26 | 80357986 |

CTK FC.. MIC45°

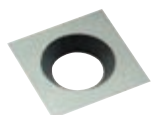


*45°
microfinish*

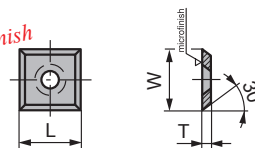


| L [mm] | W [mm] | T [mm] | MG18 | HE40 |
|--------|--------|--------|----------|----------|
| 12.0 | 12.0 | 1.5 | 80330536 | 80359049 |

CTK SC.. MIC



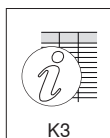
microfinish



| L [mm] | W [mm] | T [mm] | MG18 | HE40 |
|--------|--------|--------|----------|----------|
| 14.0 | 14.0 | 2.0 | 80332257 | 80359050 |

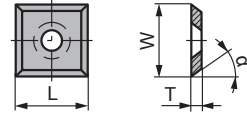
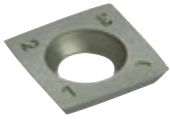
STANDARD 45° – MICROFINISH

KNIVES



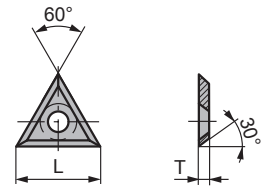


CTK SC..



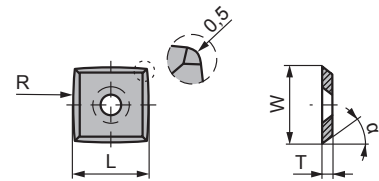
| L [mm] | W [mm] | T [mm] | α [°] | MG18 | SMG02 | KCR08 | HC05 | HC35 |
|--------|--------|--------|--------------|----------|----------|----------|----------|----------|
| 10.5 | 10.5 | 1.5 | 35 | 80330882 | | | | |
| 13.0 | 13.0 | 2.5 | 30 | 80357494 | | | | 82001035 |
| 13.4 | 13.4 | 1.5 | 30 | | | | | 80332547 |
| 13.6 | 13.6 | 2.0 | 45 | | | | | 80239418 |
| 14.0 | 14.0 | 1.2 | 30 | | | | | 80330669 |
| 14.0 | 14.0 | 1.7 | 30 | | | | | 80331749 |
| 14.0 | 14.0 | 2.0 | 30 | 80239725 | 80332539 | 80359802 | 80332394 | 80330668 |
| 14.6 | 14.6 | 2.5 | 30 | | | 11444230 | | |
| 15.0 | 15.0 | 2.5 | 30 | 82001124 | | | | |

CTK SC.. 3CUT

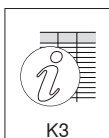


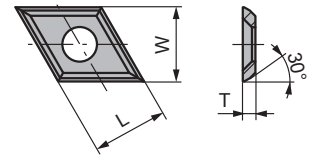
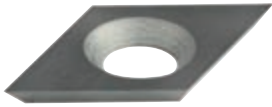
| L [mm] | T [mm] | α [°] | MG18 |
|--------|--------|--------------|----------|
| 22.0 | 2.0 | 30 | 80239466 |

CTK SC..R

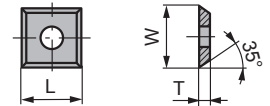
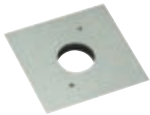


| L [mm] | W [mm] | T [mm] | R [mm] | α [°] | HC35 | SMG02 | KCR08 | HC05 | MG18 |
|--------|--------|--------|--------|--------------|----------|----------|----------|----------|----------|
| 14.0 | 14.0 | 2.0 | 100 | 30 | 80359039 | | | | |
| 15.0 | 15.0 | 2.5 | 115 | 30 | | | | 82003329 | 82023168 |
| 15.0 | 15.0 | 2.5 | 115 | 30 | | | 82019711 | | |
| 15.0 | 15.0 | 2.5 | 115 | 30 | | | | | |
| 15.0 | 15.0 | 2.5 | 150 | 30 | | | | 11281810 | 11225484 |
| 15.0 | 15.0 | 2.5 | | 30 | | 82018721 | 82022498 | 82018719 | |
| 15.0 | 15.0 | 2.5 | | 37 | | | | 82018720 | |

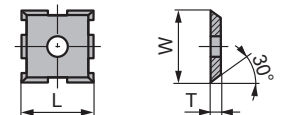



CTK SC.. RHO


| L [mm] | T [mm] | α [°] | HC05 | |
|-----------|-----------|-----------------|----------|--|
| 14.0 | 2.0 | 30.0 | 80332377 | |

CTK FC..


| L [mm] | W [mm] | T [mm] | β [°] | SMG02 | KCR08 | HC05 | |
|-----------|-----------|-----------|----------------|----------|----------|----------|--|
| 10.5 | 10.5 | 1.5 | 35 | | 80360027 | | |
| 12.0 | 12.0 | 1.5 | 35 | 80358314 | 80360030 | 80330657 | |
| 15.0 | 15.0 | 2.0 | 35 | | 11235079 | | |
| 17.0 | 17.0 | 2.0 | 35 | | 80360028 | 80239386 | |
| 19.0 | 19.0 | 2.0 | 35 | | 80360029 | 80239387 | |

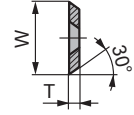
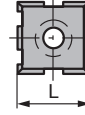
CTK FC.. CB


| L [mm] | T [mm] | α [°] | MG18 | |
|-----------|-----------|-----------------|----------|--|
| 15.0 | 2.0 | 30 | 80239392 | |



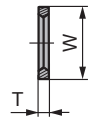
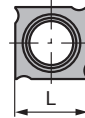


CTK FC.. CB/SH

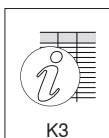


| L [mm] | T [mm] | α [°] | MG18 | |
|-----------|-----------|-----------------|----------|--|
| 15.0 | 2.0 | 30 | 82009817 | |

CTK GR..



| L [mm] | W [mm] | T [mm] | HC20 | |
|-----------|-----------|-----------|----------|--|
| 14.0 | 14.0 | 2.0 | 80359032 | |
| 14.0 | 14.0 | 2.5 | 80332764 | |
| 14.0 | 14.0 | 3.0 | 80359033 | |
| 18.0 | 18.0 | 1.95 | 80330658 | |
| 18.0 | 18.0 | 2.5 | 80330659 | |
| 18.0 | 18.0 | 2.95 | 80331492 | |
| 18.0 | 18.0 | 3.7 | 80239391 | |
| 18.0 | 18.0 | 4.0 | 80331493 | |

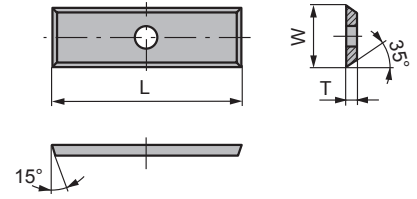
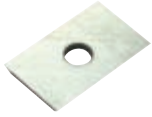




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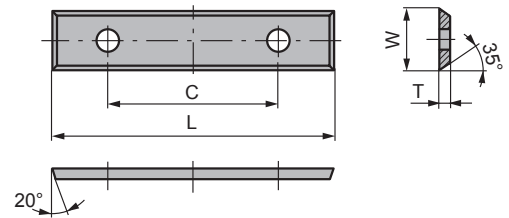
4 CUTTING EDGES

CTK FC..



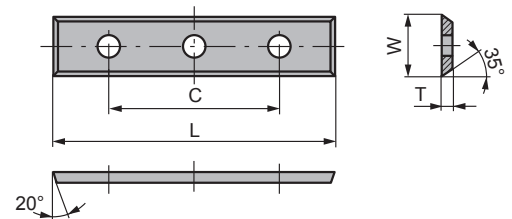
| L [mm] | W [mm] | T [mm] | SMG02 | HC05 |
|--------|--------|--------|----------|----------|
| 9.0 | 12.0 | 1.5 | | 80239376 |
| 10.0 | 12.0 | 1.5 | | 80239374 |
| 19.4 | 12.0 | 1.5 | 80359075 | |
| 19.5 | 12.0 | 1.5 | | 11935393 |

CTK FC..



| L [mm] | W [mm] | T [mm] | C [mm] | UMG04 | SMG02 | KCR08 | HC05 |
|--------|--------|--------|--------|----------|----------|----------|----------|
| 29.0 | 12.0 | 1.5 | 14 | | | | 80330711 |
| 29.5 | 12.0 | 1.5 | 14 | | 80359076 | 80360082 | 80331886 |
| 29.2 | 12.0 | 1.5 | 14 | 80359079 | | | |
| 29.5 | 9.0 | 1.5 | 14 | | | 80360081 | 80331173 |
| 49.2 | 12.0 | 1.5 | 26 | 80359080 | 80359077 | 80360089 | 80331887 |
| 49.2 | 9.0 | 1.5 | 26 | | | 80360083 | 80359034 |
| 59.2 | 12.0 | 1.5 | 26 | | 80359078 | | 80359035 |

CTK FC.. 3H



| L [mm] | W [mm] | T [mm] | C [mm] | SMG02 | KCR08 | HC05 |
|--------|--------|--------|--------|----------|----------|----------|
| 50.0 | 12.0 | 1.7 | 37 | 82004411 | 80358958 | 80419334 |

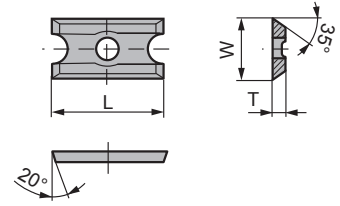
4 CUTTING EDGES

KNIVES



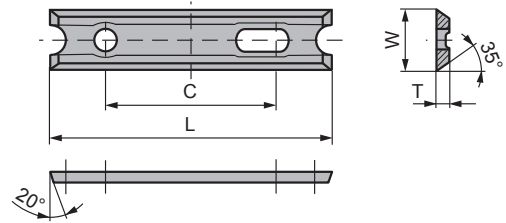


CTK ECO.. FC

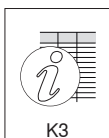


| L [mm] | W [mm] | T [mm] | KCR08 | |
|-----------|-----------|-----------|----------|--|
| 19.2 | 12.0 | 1.5 | 11507903 | |

CTK ECO.. FC



| L [mm] | W [mm] | T [mm] | C [mm] | KCR08 | |
|-----------|-----------|-----------|-----------|----------|--|
| 29.2 | 12.0 | 1.5 | 14 | 11507905 | |
| 49.2 | 12.0 | 1.5 | 26 | 11507910 | |

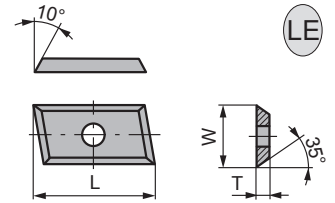




KNIVES

SLANTING KNIVES/BOSSED

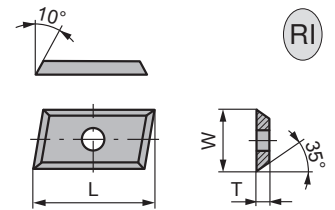
CTK SK.. LE..°



LE

| L [mm] | W [mm] | T [mm] | KCR08 | HC05 |
|-----------|-----------|-----------|----------|----------|
| 19.5 | 12.0 | 1.5 | 80360076 | 80239367 |

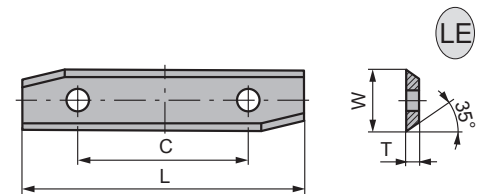
CTK SK.. RI..°



RI

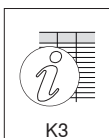
| L [mm] | W [mm] | T [mm] | KCR08 | HC05 |
|-----------|-----------|-----------|----------|----------|
| 19.5 | 12.0 | 1.5 | 80360075 | 80239366 |

CTK SK.. LE..°



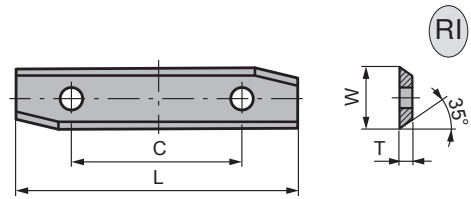
LE

| L [mm] | W [mm] | T [mm] | C [mm] | KCR08 | HC05 |
|-----------|-----------|-----------|-----------|----------|----------|
| 29.5 | 12.0 | 1.5 | 14 | 80360071 | 80330648 |
| 49.5 | 12.0 | 1.5 | 26 | 80360073 | 80359036 |



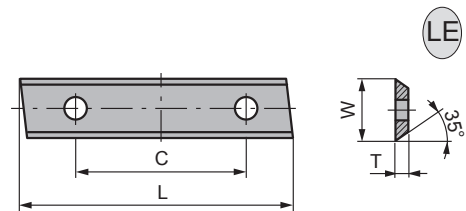


CTK SK.. RI..°



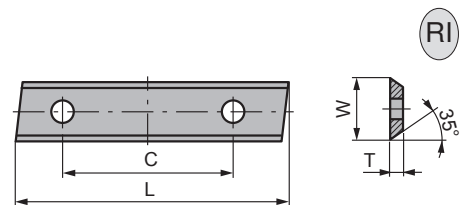
| L [mm] | W [mm] | T [mm] | C [mm] | KCR08 | HC05 |
|-----------|-----------|-----------|-----------|----------|----------|
| 29.5 | 12.0 | 1.5 | 14 | 80360070 | 80239365 |
| 49.5 | 12.0 | 1.5 | 26 | 80360072 | 80359037 |

CTK SK.. LE..°

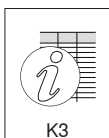


| L [mm] | W [mm] | T [mm] | C [mm] | KCR08 | HC05 |
|-----------|-----------|-----------|-----------|----------|----------|
| 29.5 | 12.0 | 1.5 | 14 | 80360077 | 80330646 |
| 49.5 | 12.0 | 1.5 | 26 | 80360079 | 80239361 |

CTK SK.. RI..°



| L [mm] | W [mm] | T [mm] | C [mm] | KCR08 | HC05 |
|-----------|-----------|-----------|-----------|----------|----------|
| 29.5 | 12.0 | 1.5 | 14 | 80360078 | 80330645 |
| 49.5 | 12.0 | 1.5 | 26 | 80360080 | 80239360 |

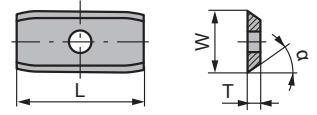




KNIVES

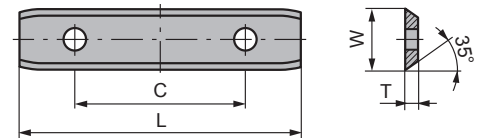
SLANTING KNIVES/BOSSED

CTK ST.. BO

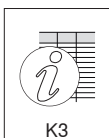


| L [mm] | W [mm] | T [mm] | α [°] | HC05 | |
|-----------|-----------|-----------|-----------------|----------|--|
| 20.0 | 12.0 | 1.5 | 35 | 80359038 | |
| 24.0 | 12.0 | 1.5 | 40 | 82000067 | |
| 24.7 | 12.0 | 1.5 | 40 | 80334040 | |

CTK ST.. BO

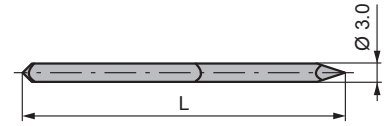


| L [mm] | W [mm] | T [mm] | C [mm] | HC05 | |
|-----------|-----------|-----------|-----------|----------|--|
| 30.0 | 12.0 | 1.5 | 14 | 80357890 | |
| 50.0 | 12.0 | 1.5 | 26 | 80357892 | |
| 40.0 | 12.0 | 1.5 | 26 | 82018841 | |



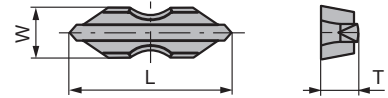


CTK CP..



| L [mm] | D [mm] | | HC35 | |
|-----------|-----------|--|----------|--|
| 33.5 | 3.0 | | 80162624 | |

CTK SC..

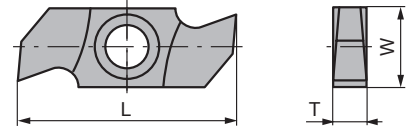


| L [mm] | W [mm] | T [mm] | HC20 | |
|-----------|-----------|-----------|----------|--|
| 18.0 | 6.0 | 3.5 | 80360002 | |



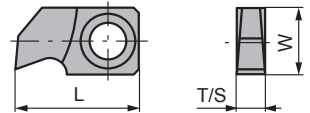


CTK GR..



| L [mm] | W [mm] | T [mm] | HC35 | CTOPP10 |
|-----------|-----------|-----------|----------|----------|
| 34.0 | 16.0 | 3.2 | 80239830 | 11921649 |
| 34.0 | 16.0 | 4.0 | 80239831 | 11921650 |
| 34.0 | 16.0 | 5.0 | 80239832 | 11921651 |

CTK GR..

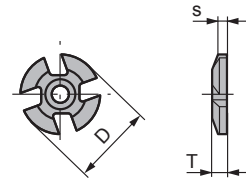


| L [mm] | W [mm] | T [mm] | MG18 | CTOPP10 |
|-----------|-----------|-----------|----------|----------|
| 24.5 | 13.0 | 3.0 | | 11921643 |
| 24.5 | 13.0 | 4.0 | 80357834 | 11921646 |
| 24.5 | 13.0 | 5.0 | 80358124 | 11921648 |



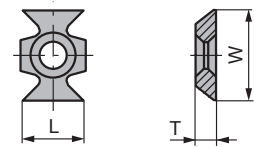


CTK CH..



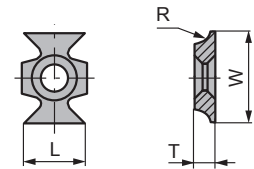
| T [mm] | D [mm] | S [mm] | HC20 | |
|-----------|-----------|-----------|----------|--|
| 4.6 | 25.0 | 2.8 | 80239567 | |

CTK CH.. 45°



| L [mm] | W [mm] | T [mm] | HC20 | CTOPP10 | KCR08 |
|-----------|-----------|-----------|----------|----------|----------|
| 16.0 | 22.0 | 5.0 | 80330575 | | 11498133 |
| 16.5 | 22.0 | 5.0 | | 11921629 | |

CTK CH.. R



| L [mm] | W [mm] | T [mm] | R [mm] | HC20 | CTOPP10 | KCR08 |
|-----------|-----------|-----------|-----------|----------|----------|----------|
| 16.0 | 22.0 | 5.0 | 1.0 | 80359041 | 11921631 | |
| 16.0 | 22.0 | 5.0 | 1.5 | 80330576 | | 11844764 |
| 16.0 | 22.0 | 5.0 | 2.0 | 80330577 | 11921635 | 11716752 |
| 16.0 | 22.0 | 5.0 | 2.5 | 80330579 | 11921636 | 11716750 |
| 16.0 | 22.0 | 5.0 | 3.0 | 80330578 | 11921638 | 11498136 |
| 16.0 | 22.0 | 5.0 | 5.0 | 80333980 | 11921640 | |
| 16.0 | 22.0 | 5.0 | 6.0 | 80359042 | | |

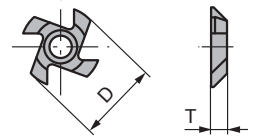




KNIVES

CHAMFER BREAKING TIPS AND CHAMFERING KNIVES

CTK CH.. RI/LE

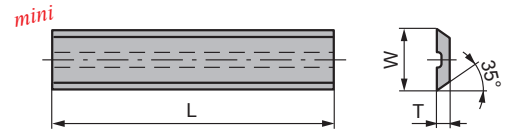


| | D [mm] | T [mm] | HC20 | |
|----|-----------|-----------|----------|--|
| RI | 25.0 | 5.0 | 80239423 | |
| LE | 25.0 | 5.0 | 80239424 | |



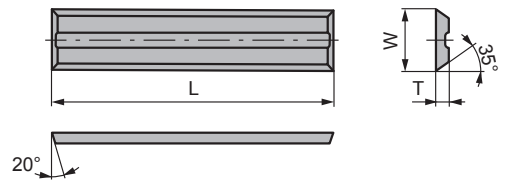


CTK MK..FG



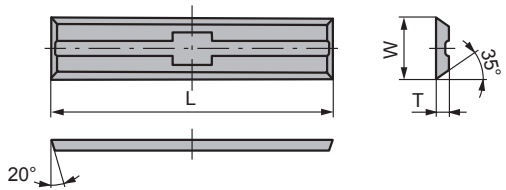
| L [mm] | W [mm] | T [mm] | HC05 |
|--------|--------|--------|----------|
| 12.0 | 5.5 | 1.1 | 80330662 |
| 20.0 | 5.5 | 1.1 | 80330660 |
| 30.0 | 5.5 | 1.1 | 80331568 |
| 40.0 | 5.5 | 1.1 | 80330661 |
| 50.0 | 5.5 | 1.1 | 80239396 |
| 60.0 | 5.5 | 1.1 | 80359040 |

CTK MK..BG



| L [mm] | W [mm] | T [mm] | HC05 |
|--------|--------|--------|----------|
| 12.0 | 5.5 | 1.1 | 80239398 |

CTK MK..BCG

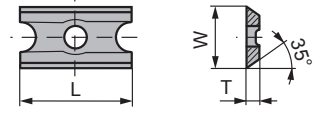


| L [mm] | W [mm] | T [mm] | HC05 |
|--------|--------|--------|----------|
| 20.0 | 4.1 | 1.1 | 80331404 |
| 20.0 | 5.5 | 1.1 | 80331406 |
| 25.0 | 5.5 | 1.1 | 80331408 |
| 30.0 | 5.5 | 1.1 | 80331407 |
| 40.0 | 5.5 | 1.1 | 80331381 |
| 50.0 | 5.5 | 1.1 | 80331409 |



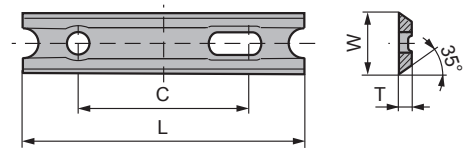


CTK ECO..



| L [mm] | W [mm] | T [mm] | KCR08 | |
|-----------|-----------|-----------|----------|--|
| 20.0 | 12.0 | 1.5 | 80359581 | |

CTK ECO..

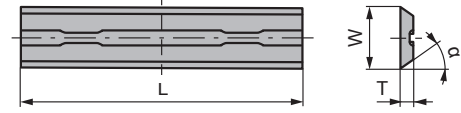


| L [mm] | W [mm] | T [mm] | C [mm] | KCR08 | |
|-----------|-----------|-----------|-----------|----------|--|
| 30.0 | 12.0 | 1.5 | 14 | 80359561 | |
| 50.0 | 12.0 | 1.5 | 26 | 80359562 | |





CTK PK..



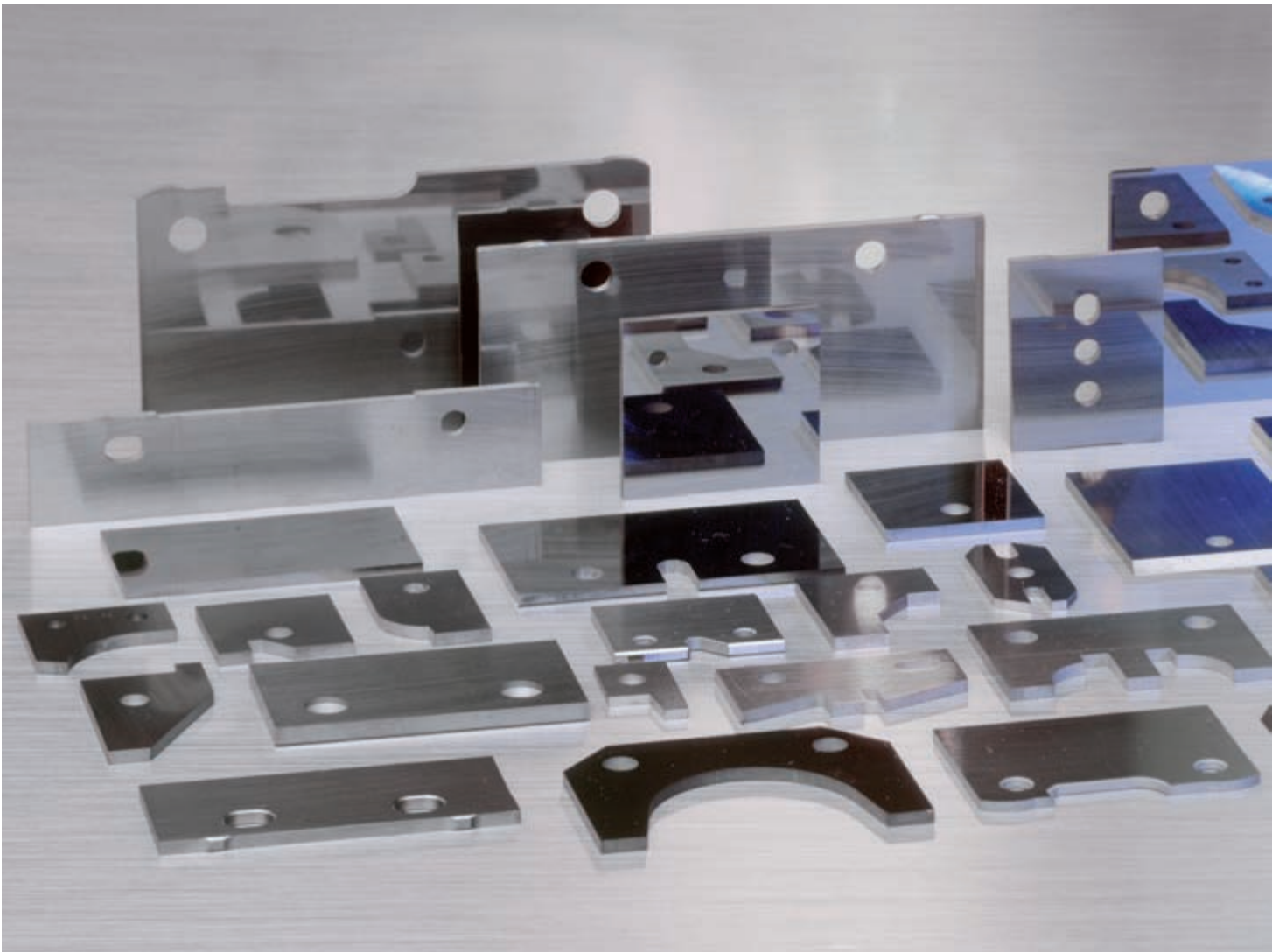
| L [mm] | W [mm] | T [mm] | HC35 | |
|-----------|-----------|-----------|----------|--|
| 56.0 | 5.5 | 1.1 | 80333440 | |
| 75.5 | 5.5 | 1.1 | 80330664 | |
| 78.0 | 5.5 | 1.1 | 80331436 | |
| 80.5 | 5.9 | 1.2 | 80330666 | |
| 82.0 | 5.5 | 1.1 | 80330665 | |
| 92.0 | 5.5 | 1.2 | 80332144 | |
| 102.0 | 5.5 | 1.1 | 80239410 | |





Blanks for profiling

A wide product range is available for tools with profiled blanks, including our leading carbide grades like KCR08. Other product innovations from CERATIZIT represent the market standard, such as 3-p blanks and multi-purpose blanks. In addition, we develop specific solutions together with our business partners.





Composition and properties

| CERATIZIT grade code | ISO code | U.S. code | Binder [m %] | Density [g/cm ³] | Hardness | | | Transverse rupture strength | | Fracture toughness [MPa*m ^{1/2}] |
|-------------------------|-------------|--------------|-----------------|---------------------------------|----------|------|-----|--------------------------------|----------|--|
| | | | | | HV10 | HV30 | HRA | [MPa] | [P.S.I.] | |

Ultrafine grades

| | | | | | | | | | | |
|------|-----|-----|------|-------|------|------|------|------|--------|------|
| HE40 | K40 | N/A | 20,0 | 13,15 | 1250 | 1240 | 88,8 | 3500 | 508000 | 12,1 |
|------|-----|-----|------|-------|------|------|------|------|--------|------|

Submicron grain

| | | | | | | | | | | |
|---------|-----|-----|------|-------|------|------|------|------|--------|-----|
| KCR08 | N/A | N/A | 4,2 | 15,20 | 1920 | 1885 | 93,4 | 2300 | 331000 | 8,7 |
| MG18 | K20 | C2 | 10,0 | 14,45 | 1680 | 1660 | 92,3 | 3700 | 537000 | 9,4 |
| CTOPP10 | N/A | N/A | 10,0 | 14,45 | 1570 | 1550 | 91,6 | 3000 | 435000 | N/A |

Fine grain grades

| | | | | | | | | | | |
|------|-----|----|-----|-------|------|------|------|------|--------|-----|
| HC05 | K10 | C3 | 4,0 | 15,15 | 1730 | 1700 | 92,5 | 2200 | 319000 | 8,7 |
|------|-----|----|-----|-------|------|------|------|------|--------|-----|

Comment:

1. The data in this table are typical material parameters. We reserve the right to modify the data due to technical progress or due to further development within our company.

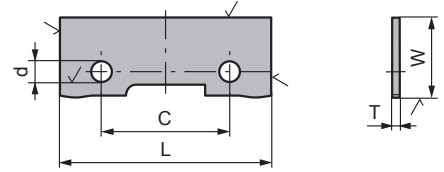
2. K_{IC}^* : The measured critical tension intensity factors (K_{IC}) depend to a high degree on the sample geometry and sample preparation. A direct comparison with parameters which have been determined by means of a different method is therefore not admissible.



BLANKS FOR PROFILING

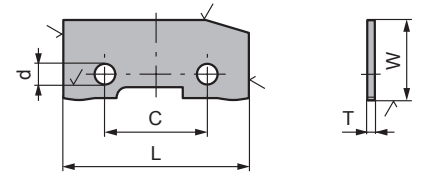
SUPERPROFILER

CTBL SP20..

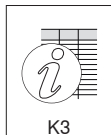


| L [mm] | W [mm] | T [mm] | C [mm] | d [mm] | KCR08 | HC05 | MG18 | HE40 |
|--------|--------|--------|--------|--------|----------|----------|----------|----------|
| 30.6 | 25.5 | 1.5 | 20 | 4.0 | 82002867 | | 80330712 | |
| 40.4 | 34.5 | 1.5 | 28 | 4.0 | 11509585 | | | |
| 40.4 | 34.5 | 2.0 | 28 | 4.0 | 82023341 | | | |
| 40.6 | 28.2 | 1.5 | 28 | 4.0 | 80301115 | 80166732 | 80330307 | |
| 40.6 | 28.2 | 2.0 | 28 | 4.0 | 80301116 | 80300300 | 80330308 | |
| 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 | 80330853 | 80330852 | |
| 50.7 | 34.5 | 1.5 | 35 | 4.0 | 11805260 | 80171145 | 82013237 | |
| 50.7 | 34.5 | 2.0 | 35 | 4.0 | 11286787 | | | |
| 60.6 | 30.2 | 2.0 | 48 | 4.0 | 11365817 | 80300301 | 80330310 | |
| 60.6 | 34.5 | 1.5 | 48 | 4.0 | 82031543 | | 82010789 | |
| 60.6 | 45.6 | 2.0 | 45 | 5.0 | 80301118 | 80167058 | 80330311 | |
| 60.8 | 30.2 | 1.5 | 48 | 4.0 | 80301117 | 80166733 | 80330309 | 80300304 |
| 80.6 | 45.6 | 2.0 | 65 | 6.0 | 80301119 | 80167987 | 80167988 | |

CTBL SP20..

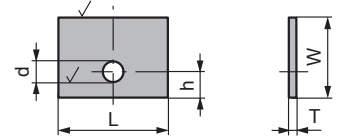


| L [mm] | W [mm] | T [mm] | C [mm] | d [mm] | KCR08 | HC05 |
|--------|--------|--------|--------|--------|----------|----------|
| 50.3 | 45.6 | 2.0 | 35 | 4.0 | 11964343 | 80171142 |



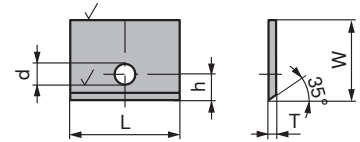


CTBL ST10..

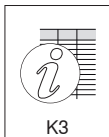


| L [mm] | W [mm] | T [mm] | h [mm] | d [mm] | KCR08 | HC05 | MG18 | HE40 |
|--------|--------|--------|--------|--------|----------|----------|----------|----------|
| 15.0 | 15.5 | 2.0 | 6.5 | 4.2 | 11342113 | 11342095 | | |
| 15.0 | 20.5 | 2.0 | 6.5 | 4.2 | 11342117 | | | |
| 15.0 | 25.5 | 2.0 | 6.5 | 4.2 | 11342115 | | | |
| 15.0 | 30.5 | 2.0 | 6.5 | 4.2 | 11342119 | 82009469 | | |
| 20.0 | 20.5 | 2.0 | 6.5 | 4.2 | 80301010 | 80332772 | 80300514 | 80300507 |
| 20.0 | 25.5 | 2.0 | 6.5 | 4.2 | 80301011 | 80331500 | 80300515 | 80300508 |
| 20.0 | 30.5 | 2.0 | 6.5 | 4.2 | 80301012 | | 80300516 | 80300509 |
| 20.0 | 35.5 | 2.0 | 6.5 | 4.2 | 80301013 | 80357654 | 82018614 | |
| 25.0 | 20.5 | 2.0 | 6.5 | 4.2 | 80301014 | 80332964 | 82016647 | |
| 25.0 | 25.5 | 2.0 | 6.5 | 4.2 | 80301015 | 80357660 | 80300517 | 80300510 |
| 25.0 | 30.5 | 2.0 | 6.5 | 4.2 | 80301016 | 80357661 | 80300518 | 80300511 |
| 25.0 | 35.5 | 2.0 | 6.5 | 4.2 | 80301017 | 80357662 | 82020108 | 80358372 |
| 30.0 | 20.5 | 2.0 | 6.5 | 4.2 | 80301018 | 80357664 | 80300519 | 80300512 |
| 30.0 | 25.5 | 2.0 | 6.5 | 4.2 | 80301019 | 80357665 | | 80358373 |
| 30.0 | 30.5 | 2.0 | 6.5 | 4.2 | 80301020 | 80357666 | 80300520 | 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 | 80332773 | | |
| 35.0 | 35.5 | 2.0 | 6.5 | 4.2 | 80357668 | | | |

CTBL ST11..



| L [mm] | W [mm] | T [mm] | h [mm] | d [mm] | KCR08 | HC05 | MG18 | HE40 |
|--------|--------|--------|--------|--------|----------|----------|----------|----------|
| 15.0 | 15.5 | 2.0 | 6.3 | 4.2 | 80301047 | | | |
| 15.0 | 20.5 | 2.0 | 6.3 | 4.2 | 80301048 | | 80300425 | 80300401 |
| 15.0 | 25.5 | 2.0 | 6.3 | 4.2 | 80301049 | | 80300426 | 80300402 |
| 15.0 | 30.5 | 2.0 | 6.3 | 4.2 | 80301050 | 80357688 | 80300427 | 80300403 |
| 20.0 | 20.5 | 2.0 | 6.3 | 4.2 | 80301051 | | 80300428 | 80300404 |
| 20.0 | 25.5 | 2.0 | 6.3 | 4.2 | 80301052 | | 80300429 | 80300405 |
| 20.0 | 30.5 | 2.0 | 6.3 | 4.2 | 80301053 | | 80300430 | 80300406 |
| 20.0 | 35.5 | 2.0 | 6.3 | 4.2 | 80301054 | 80357690 | 80300431 | 80300407 |
| 20.0 | 40.5 | 2.0 | 6.3 | 4.2 | 11965561 | | | |
| 25.0 | 20.5 | 2.0 | 6.3 | 4.2 | 80301055 | 80332288 | 80300432 | 80300408 |
| 25.0 | 25.5 | 2.0 | 6.3 | 4.2 | 80301056 | | 80300433 | 80300409 |
| 25.0 | 30.5 | 2.0 | 6.3 | 4.2 | 80301057 | | 80300434 | 80300410 |
| 25.0 | 35.5 | 2.0 | 6.3 | 4.2 | 80301058 | | 80300435 | 80300411 |
| 30.0 | 20.5 | 2.0 | 6.3 | 4.2 | 80301059 | 80357693 | 80300436 | 80300412 |

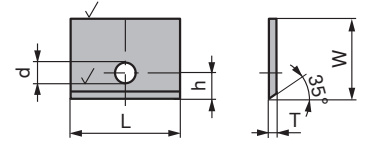




BLANKS FOR PROFILING

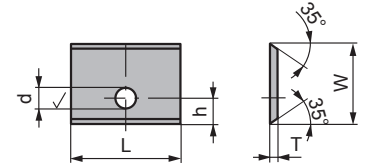
STANDARD – HOLE Ø 4.2 mm

CTBL ST11..



| L [mm] | W [mm] | T [mm] | h [mm] | d [mm] | KCR08 | HC05 | MG18 | HE40 |
|--------|--------|--------|--------|--------|----------|----------|----------|----------|
| 30.0 | 25.5 | 2.0 | 6.3 | 4.2 | 80301060 | 80332291 | 80300437 | 80300413 |
| 30.0 | 30.5 | 2.0 | 6.3 | 4.2 | 80301061 | 80332292 | 80300438 | 80300414 |
| 30.0 | 35.5 | 2.0 | 6.3 | 4.2 | 80301062 | 80357694 | 80300439 | 80300415 |
| 30.0 | 40.5 | 2.0 | 6.3 | 4.2 | 80301063 | 80300400 | 80300440 | 80300416 |
| 35.0 | 20.5 | 2.0 | 6.3 | 4.2 | 80301064 | 80357695 | 80300441 | 80300417 |
| 35.0 | 25.5 | 2.0 | 6.3 | 4.2 | 80301065 | 80357696 | 80300442 | 80300418 |
| 35.0 | 30.5 | 2.0 | 6.3 | 4.2 | 80301066 | 80357697 | 82021729 | 82002624 |
| 35.0 | 35.5 | 2.0 | 6.3 | 4.2 | 80301067 | | 80300443 | 80300419 |
| 35.0 | 40.5 | 2.0 | 6.3 | 4.2 | 80301068 | 80357698 | | 82011527 |
| 40.0 | 20.5 | 2.0 | 6.3 | 4.2 | 11964489 | | 80300444 | 80300420 |
| 40.0 | 25.5 | 2.0 | 6.3 | 4.2 | 80357699 | | 80300445 | 80300421 |
| 40.0 | 30.5 | 2.0 | 6.3 | 4.2 | 80357700 | | 80300446 | 80300422 |
| 40.0 | 35.5 | 2.0 | 6.3 | 4.2 | 80357701 | | 80300447 | 80300423 |
| 40.0 | 40.5 | 2.0 | 6.3 | 4.2 | 80357702 | | 80300448 | 80300424 |

CTBL ST12..



| L [mm] | W [mm] | T [mm] | h [mm] | d [mm] | KCR08 | HC05 | MG18 | HE40 |
|--------|--------|--------|--------|--------|----------|----------|----------|----------|
| 12.0 | 14.5 | 2.0 | 6.0 | 4.2 | 11964634 | 80330839 | | |
| 15.0 | 20.0 | 2.0 | 6.3 | 4.2 | | | 80300710 | 80300700 |
| 15.0 | 20.5 | 2.0 | 6.3 | 4.2 | 11964635 | | | |
| 20.0 | 20.0 | 2.0 | 6.3 | 4.2 | | 80357732 | 80300711 | 80300701 |
| 20.0 | 30.0 | 2.0 | 6.3 | 4.2 | | 80357733 | 80300712 | 80300702 |
| 25.0 | 20.0 | 2.0 | 6.3 | 4.2 | | 80357734 | 80300713 | 80300703 |
| 25.0 | 25.0 | 2.0 | 6.3 | 4.2 | | 80357735 | 80300714 | 80300704 |
| 25.0 | 30.0 | 2.0 | 6.3 | 4.2 | | 80357736 | 80300715 | 80300705 |
| 25.0 | 30.5 | 2.0 | 6.3 | 4.2 | 11964636 | | | |
| 30.0 | 25.0 | 2.0 | 6.3 | 4.2 | | 80357737 | 80300716 | 80300706 |
| 30.0 | 35.0 | 2.0 | 6.3 | 4.2 | | 80357738 | 80300717 | 80300707 |
| 35.0 | 30.0 | 2.0 | 6.3 | 4.2 | | 80357739 | 80300718 | 80300708 |
| 35.0 | 35.0 | 2.0 | 6.3 | 4.2 | | 80357740 | 80300719 | 80300709 |

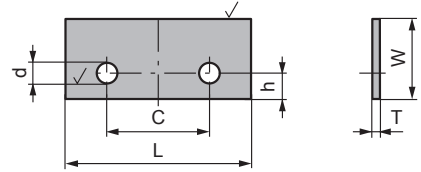
STANDARD – HOLE Ø 4.2 mm

BLANKS FOR PROFILING



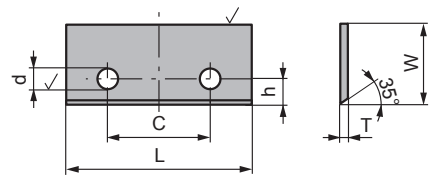


CTBL ST20..

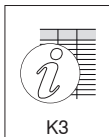


| L [mm] | W [mm] | T [mm] | C [mm] | h [mm] | d [mm] | KCR08 | HC05 | MG18 | HE40 |
|--------|--------|--------|--------|--------|--------|----------|----------|----------|----------|
| 30.0 | 20.5 | 2.0 | 14 | 6.5 | 4.2 | 80301022 | 80331501 | 82018921 | |
| 30.0 | 25.5 | 2.0 | 14 | 6.5 | 4.2 | 80301023 | 80331502 | 80300218 | 80300201 |
| 30.0 | 30.5 | 2.0 | 14 | 6.5 | 4.2 | 80301025 | 80357669 | 80300219 | 80300202 |
| 30.0 | 35.5 | 2.0 | 14 | 6.5 | 4.2 | 80301027 | 80357670 | 80300220 | 80300203 |
| 35.0 | 25.5 | 2.0 | 14 | 6.5 | 4.2 | 80301028 | 80357671 | 80300221 | 80300204 |
| 35.0 | 30.5 | 2.0 | 14 | 6.5 | 4.2 | 80301029 | 80300200 | | |
| 35.0 | 35.5 | 2.0 | 14 | 6.5 | 4.2 | 80301030 | 80357672 | 80300222 | 80300205 |
| 40.0 | 20.5 | 2.0 | 26 | 6.5 | 4.2 | 80301031 | 80332684 | 80300223 | 80300206 |
| 40.0 | 25.5 | 2.0 | 26 | 6.5 | 4.2 | 80301032 | 80357673 | 80300224 | 80300207 |
| 40.0 | 30.5 | 2.0 | 26 | 6.5 | 4.2 | 80301033 | 80331503 | 80300225 | 80300208 |
| 40.0 | 35.5 | 2.0 | 26 | 6.5 | 4.2 | 80301034 | 80357674 | 80300226 | 80300209 |
| 40.0 | 40.5 | 2.0 | 26 | 6.5 | 4.2 | 80301035 | 80357675 | 80300227 | 80300210 |
| 50.0 | 20.5 | 2.0 | 26 | 6.5 | 4.2 | | 80357676 | 80300228 | 80300211 |
| 50.0 | 25.5 | 2.0 | 26 | 6.5 | 4.2 | 80301037 | 80332578 | 80300229 | 80300212 |
| 50.0 | 30.5 | 2.0 | 26 | 6.5 | 4.2 | 80301038 | 80357677 | 82016794 | 82004972 |
| 50.0 | 32.3 | 2.0 | 24 | 6.0 | 4.2 | 80301039 | 80168834 | | |
| 50.0 | 35.5 | 2.0 | 26 | 6.5 | 4.2 | 80301040 | 80357678 | 80300230 | 80300213 |
| 50.0 | 40.5 | 2.0 | 26 | 6.5 | 4.2 | 80301041 | 80357679 | | |
| 60.0 | 35.5 | 2.0 | 26 | 6.5 | 4.2 | 80301042 | 80357680 | 80300231 | 80300214 |
| 60.0 | 40.5 | 2.0 | 26 | 6.5 | 4.2 | 80301043 | 80357681 | 80300232 | 80300215 |
| 60.0 | 45.5 | 2.0 | 26 | 6.5 | 4.2 | 80301044 | | | |
| 80.0 | 25.5 | 2.0 | 60 | 6.5 | 4.2 | 80301045 | | 80300233 | 80300216 |
| 80.0 | 35.5 | 2.0 | 60 | 6.5 | 4.2 | 80301046 | 80357684 | | |
| 80.0 | 40.5 | 2.0 | 60 | 6.5 | 4.2 | 80357685 | | 80300234 | 80300217 |

CTBL ST21..



| L [mm] | W [mm] | T [mm] | C [mm] | h [mm] | d [mm] | KCR08 | HC05 | MG18 | HE40 |
|--------|--------|--------|--------|--------|--------|----------|----------|----------|----------|
| 30.0 | 20.5 | 2.0 | 14 | 6.3 | 4.2 | 80301069 | 82009340 | | |
| 30.0 | 25.5 | 2.0 | 14 | 6.3 | 4.2 | 80301070 | 80357703 | 82026773 | |
| 30.0 | 30.5 | 2.0 | 14 | 6.3 | 4.2 | 80301071 | 80357704 | | |
| 30.0 | 30.5 | 2.0 | 14 | 6.3 | 4.2 | | | 82025457 | |
| 30.0 | 35.5 | 2.0 | 14 | 6.3 | 4.2 | 80301072 | | 82015150 | |
| 35.0 | 25.5 | 2.0 | 14 | 6.3 | 4.2 | 80301073 | | 82026992 | |
| 35.0 | 30.5 | 2.0 | 14 | 6.3 | 4.2 | 80301074 | 80357707 | | |
| 35.0 | 35.5 | 2.0 | 14 | 6.3 | 4.2 | 80301075 | 80357708 | | |
| 40.0 | 20.5 | 2.0 | 26 | 6.3 | 4.2 | 80301076 | 80331496 | 80300619 | 80300600 |

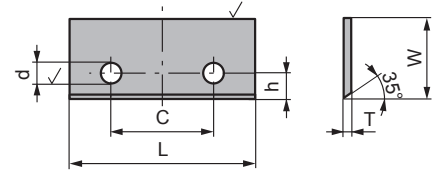




BLANKS FOR PROFILING

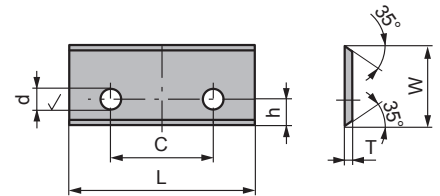
STANDARD – HOLE Ø 4.2 mm

CTBL ST21..

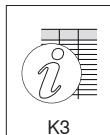


| L [mm] | W [mm] | T [mm] | C [mm] | h [mm] | d [mm] | KCR08 | HC05 | MG18 | HE40 |
|--------|--------|--------|--------|--------|--------|----------|----------|----------|----------|
| 40.0 | 25.5 | 2.0 | 26 | 6.3 | 4.2 | 80301077 | 80357710 | 80300621 | 80300602 |
| 40.0 | 30.5 | 2.0 | 26 | 6.3 | 4.2 | 80301078 | | 80300623 | 80300604 |
| 40.0 | 35.5 | 2.0 | 26 | 6.3 | 4.2 | 80301079 | 80357713 | 80300625 | 80300606 |
| 40.0 | 40.5 | 2.0 | 26 | 6.3 | 4.2 | 80301080 | 80357715 | 80300626 | 80300607 |
| 50.0 | 20.5 | 2.0 | 26 | 6.3 | 4.2 | 80301081 | | 80300627 | 80300608 |
| 50.0 | 25.5 | 2.0 | 26 | 6.3 | 4.2 | 80301082 | 80357716 | | 82015962 |
| 50.0 | 30.5 | 2.0 | 26 | 6.3 | 4.2 | 80301083 | 80357719 | 80300628 | 80300609 |
| 50.0 | 35.5 | 2.0 | 26 | 6.3 | 4.2 | 80301084 | 80357720 | | 80300610 |
| 50.0 | 40.5 | 2.0 | 26 | 6.3 | 4.2 | 80301085 | 80357721 | 80300629 | 80300611 |
| 51.0 | 26.5 | 2.0 | 26 | 6.3 | 4.2 | 80357718 | | | |
| 60.0 | 25.5 | 2.0 | 26 | 6.3 | 4.2 | 80301086 | | 80300630 | 80300612 |
| 60.0 | 30.5 | 2.0 | 26 | 6.3 | 4.2 | 80301087 | 80357722 | 80300631 | 80300613 |
| 60.0 | 35.5 | 2.0 | 26 | 6.3 | 4.2 | 80301088 | 80357723 | 80300632 | 82002631 |
| 60.0 | 39.5 | 2.0 | 44 | 6.0 | 4.2 | 80301089 | | | |
| 60.0 | 40.5 | 2.0 | 26 | 6.3 | 4.2 | 80301090 | 80331499 | 80300634 | 80300615 |
| 70.0 | 20.5 | 2.0 | 26 | 6.3 | 4.2 | 11424210 | | | |
| 70.0 | 25.5 | 2.0 | 26 | 6.3 | 4.2 | 80301091 | 80357724 | | |
| 70.0 | 30.5 | 2.0 | 26 | 6.3 | 4.2 | 80301092 | 80357725 | | 82002516 |
| 70.0 | 35.5 | 2.0 | 26 | 6.3 | 4.2 | 80301093 | 80357726 | 80300635 | 80300616 |
| 80.0 | 25.5 | 2.0 | 60 | 6.3 | 4.2 | 80301095 | 80357727 | 82019966 | 82002633 |
| 80.0 | 30.5 | 2.0 | 60 | 6.3 | 4.2 | 80301096 | 80357728 | | |
| 80.0 | 35.5 | 2.0 | 60 | 6.3 | 4.2 | 80301097 | 80357729 | 80300636 | 80300617 |
| 80.0 | 40.5 | 2.0 | 60 | 6.3 | 4.2 | 80301098 | 80357730 | 80300637 | 80300618 |

CTBL ST22..

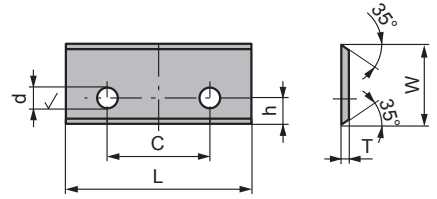


| L [mm] | W [mm] | T [mm] | C [mm] | h [mm] | d [mm] | KCR08 | HC05 | MG18 | HE40 |
|--------|--------|--------|--------|--------|--------|----------|----------|----------|----------|
| 40.0 | 20.0 | 2.0 | 26 | 6.3 | 4.2 | 11965983 | 80300800 | | |
| 40.0 | 25.0 | 2.0 | 26 | 6.3 | 4.2 | 11965986 | | 80300834 | 80300821 |
| 40.0 | 30.0 | 2.0 | 26 | 6.3 | 4.2 | 11965987 | | 80300835 | 80300822 |
| 40.0 | 32.0 | 2.0 | 26 | 6.3 | 4.2 | | 80300802 | | |
| 40.0 | 35.0 | 2.0 | 26 | 6.3 | 4.2 | 11965992 | 80300803 | 80300837 | 80300824 |
| 40.0 | 40.0 | 2.0 | 26 | 6.3 | 4.2 | 11965993 | 80300805 | 80300839 | 80300825 |
| 45.0 | 35.0 | 2.0 | 26 | 6.3 | 4.2 | 11965994 | 80300807 | | |
| 50.0 | 25.0 | 2.0 | 26 | 6.3 | 4.2 | 11965995 | 80300808 | | |
| 50.0 | 30.0 | 2.0 | 26 | 6.3 | 4.2 | 11965997 | 80300809 | 80300840 | 80300826 |
| 50.0 | 35.0 | 2.0 | 26 | 6.3 | 4.2 | | 80300810 | | |





CTBL ST22..



| L [mm] | W [mm] | T [mm] | C [mm] | h [mm] | d [mm] | KCR08 | HC05 | MG18 | HE40 |
|-----------|-----------|-----------|-----------|-----------|-----------|----------|----------|----------|----------|
| 50.0 | 40.0 | 2.0 | 26 | 6.3 | 4.2 | 11965998 | 80300811 | 80300841 | 80300827 |
| 60.0 | 25.0 | 2.0 | 26 | 6.3 | 4.2 | 11965999 | 80300816 | 80300842 | 80300828 |
| 60.0 | 30.0 | 2.0 | 26 | 6.3 | 4.2 | 11966000 | 80300818 | 80300843 | 80300829 |
| 60.0 | 35.0 | 2.0 | 26 | 6.3 | 4.2 | | 80300819 | 80300844 | 80300830 |
| 60.0 | 40.0 | 2.0 | 26 | 6.3 | 4.2 | 11966002 | | 80300845 | 80300831 |

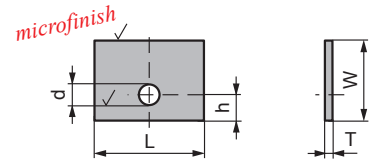




BLANKS FOR PROFILING

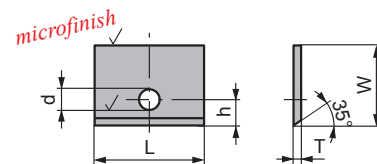
ITALIAN STYLE – HOLE Ø 4.5 mm

CTBL IT10..

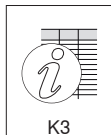


| L [mm] | W [mm] | T [mm] | h [mm] | d [mm] | HC05 | KCR08 |
|--------|--------|--------|--------|--------|----------|----------|
| 15.0 | 15.5 | 2.0 | 6.5 | 4.5 | 82030381 | 11965039 |
| 15.0 | 20.5 | 2.0 | 6.5 | 4.5 | 82030356 | 11965050 |
| 15.0 | 25.5 | 2.0 | 6.5 | 4.5 | 82029861 | 11965053 |
| 15.0 | 30.5 | 2.0 | 6.5 | 4.5 | 82029862 | 11965055 |
| 16.0 | 20.5 | 2.0 | 6.5 | 4.5 | 82029867 | 11482195 |
| 20.0 | 20.5 | 2.0 | 6.5 | 4.5 | 82029866 | 11965058 |
| 20.0 | 25.5 | 2.0 | 6.5 | 4.5 | 82029865 | 11965072 |
| 20.0 | 30.5 | 2.0 | 6.5 | 4.5 | 82029868 | 11965117 |
| 20.0 | 35.5 | 2.0 | 6.5 | 4.5 | 82030484 | 11965119 |
| 25.0 | 20.5 | 2.0 | 6.5 | 4.5 | 82029711 | 11965122 |
| 25.0 | 25.0 | 2.0 | 6.5 | 4.5 | | 11556261 |
| 25.0 | 25.5 | 2.0 | 6.5 | 4.5 | 82029712 | |
| 25.0 | 30.5 | 2.0 | 6.5 | 4.5 | 82029713 | 11965124 |
| 25.0 | 35.5 | 2.0 | 6.5 | 4.5 | 82029714 | 11965126 |
| 25.0 | 40.5 | 2.0 | 6.5 | 4.5 | 11844907 | 11965283 |
| 30.0 | 20.5 | 2.0 | 6.5 | 4.5 | 82029718 | 11965285 |
| 30.0 | 25.5 | 2.0 | 6.5 | 4.5 | 82029719 | 11965288 |
| 30.0 | 30.5 | 2.0 | 6.5 | 4.5 | 82029720 | 11965292 |
| 30.0 | 35.5 | 2.0 | 6.5 | 4.5 | 82029871 | 11827297 |
| 30.0 | 40.5 | 2.0 | 6.5 | 4.5 | 82029863 | 11965294 |
| 35.0 | 25.5 | 2.0 | 6.5 | 4.5 | 82029721 | 11965295 |
| 35.0 | 30.5 | 2.0 | 6.5 | 4.5 | 82029709 | 11965299 |
| 35.0 | 35.5 | 2.0 | 6.5 | 4.5 | 82029722 | 11965301 |
| 35.0 | 40.5 | 2.0 | 6.5 | 4.5 | 82029864 | 11965303 |

CTBL IT11..

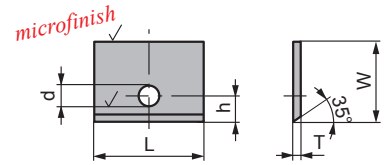


| L [mm] | W [mm] | T [mm] | h [mm] | d [mm] | HC05 | KCR08 |
|--------|--------|--------|--------|--------|----------|----------|
| 9.6 | 25.5 | 2.0 | 6.3 | 4.5 | 6228277 | 11965308 |
| 15.0 | 15.5 | 2.0 | 6.3 | 4.5 | 82029759 | 11965310 |
| 15.0 | 20.5 | 2.0 | 6.3 | 4.5 | 82029760 | 11965312 |
| 15.0 | 25.5 | 2.0 | 6.3 | 4.5 | 82029753 | 11965315 |
| 15.0 | 30.5 | 2.0 | 6.3 | 4.5 | 82029761 | 11965333 |
| 20.0 | 20.5 | 2.0 | 6.3 | 4.5 | 82029762 | 11965337 |
| 20.0 | 25.5 | 2.0 | 6.3 | 4.5 | 82029752 | 11965340 |
| 20.0 | 30.5 | 2.0 | 6.3 | 4.5 | 82030351 | 11965343 |
| 20.0 | 35.5 | 2.0 | 6.3 | 4.5 | 82029763 | 11965349 |



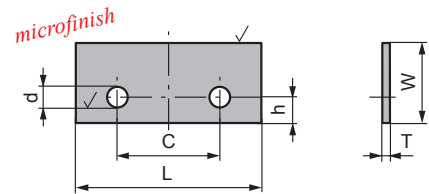


CTBL IT11..

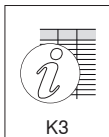


| L [mm] | W [mm] | T [mm] | h [mm] | d [mm] | HC05 | KCR08 |
|--------|--------|--------|--------|--------|----------|----------|
| 25.0 | 20.5 | 2.0 | 6.3 | 4.5 | 82029754 | 11965355 |
| 25.0 | 25.5 | 2.0 | 6.3 | 4.5 | 82030378 | 11965363 |
| 25.0 | 30.5 | 2.0 | 6.3 | 4.5 | 82029755 | 11965365 |
| 25.0 | 35.5 | 2.0 | 6.3 | 4.5 | 82029764 | 11965367 |
| 30.0 | 20.5 | 2.0 | 6.3 | 4.5 | 82030353 | 11965374 |
| 30.0 | 25.5 | 2.0 | 6.3 | 4.5 | 82029756 | 11965380 |
| 30.0 | 30.5 | 2.0 | 6.3 | 4.5 | 82029757 | 11965382 |
| 30.0 | 35.5 | 2.0 | 6.3 | 4.5 | 82029872 | 11965391 |
| 30.0 | 40.5 | 2.0 | 6.3 | 4.5 | 82029751 | 11965397 |
| 35.0 | 20.5 | 2.0 | 6.3 | 4.5 | 82029767 | 11965401 |
| 35.0 | 25.5 | 2.0 | 6.3 | 4.5 | 82029768 | 11965415 |
| 35.0 | 30.5 | 2.0 | 6.3 | 4.5 | 82029769 | 11965419 |
| 35.0 | 35.5 | 2.0 | 6.3 | 4.5 | 82029758 | 11965426 |
| 35.0 | 40.5 | 2.0 | 6.3 | 4.5 | 82029770 | 11965429 |

CTBL IT20..



| L [mm] | W [mm] | T [mm] | C [mm] | h [mm] | d [mm] | HC05 | KCR08 |
|--------|--------|--------|--------|--------|--------|----------|----------|
| 30.0 | 20.5 | 2.0 | 14 | 6.5 | 4.5 | 82029778 | 11965436 |
| 30.0 | 25.5 | 2.0 | 14 | 6.5 | 4.5 | 82029779 | 11965441 |
| 30.0 | 30.5 | 2.0 | 14 | 6.5 | 4.5 | 82029846 | 11965444 |
| 30.0 | 35.5 | 2.0 | 14 | 6.5 | 4.5 | 82029847 | 11965448 |
| 30.0 | 40.5 | 2.0 | 14 | 6.5 | 4.5 | 82029727 | 11844700 |
| 35.0 | 25.5 | 2.0 | 14 | 6.5 | 4.5 | 82029848 | 11965452 |
| 35.0 | 30.5 | 2.0 | 14 | 6.5 | 4.5 | 82029777 | 11965456 |
| 35.0 | 35.5 | 2.0 | 14 | 6.5 | 4.5 | 82029849 | 11965458 |
| 35.0 | 40.5 | 2.0 | 14 | 6.5 | 4.5 | 82029728 | 11965474 |
| 40.0 | 20.5 | 2.0 | 26 | 6.5 | 4.5 | 82029845 | 11965475 |
| 40.0 | 25.5 | 2.0 | 26 | 6.5 | 4.5 | 82029850 | 11965480 |
| 40.0 | 30.5 | 2.0 | 26 | 6.5 | 4.5 | 82030486 | 11965481 |
| 40.0 | 35.5 | 2.0 | 26 | 6.5 | 4.5 | 82029852 | 11965482 |
| 40.0 | 40.5 | 2.0 | 26 | 6.5 | 4.5 | 82029853 | 11965493 |
| 50.0 | 20.5 | 2.0 | 26 | 6.5 | 4.5 | 82029854 | 11965500 |
| 50.0 | 25.5 | 2.0 | 26 | 6.5 | 4.5 | 82029780 | 11965502 |
| 50.0 | 30.5 | 2.0 | 26 | 6.5 | 4.5 | 82029851 | 11965506 |
| 50.0 | 35.5 | 2.0 | 26 | 6.5 | 4.5 | 82029855 | 11965512 |
| 50.0 | 40.5 | 2.0 | 26 | 6.5 | 4.5 | 82029856 | 11965514 |

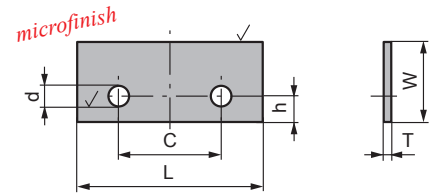




BLANKS FOR PROFILING

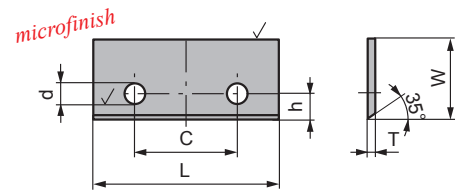
ITALIAN STYLE – HOLE Ø 4.5 mm

CTBL IT20..

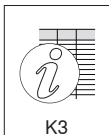


| L [mm] | W [mm] | T [mm] | C [mm] | h [mm] | d [mm] | HC05 | KCR08 |
|--------|--------|--------|--------|--------|--------|----------|----------|
| 50.0 | 45.5 | 2.0 | 26 | 6.5 | 4.5 | 82029729 | 11965517 |
| 60.0 | 20.5 | 2.0 | 26 | 6.5 | 4.5 | 82029730 | 11965518 |
| 60.0 | 25.5 | 2.0 | 26 | 6.5 | 4.5 | 82029731 | 11965521 |
| 60.0 | 30.5 | 2.0 | 26 | 6.5 | 4.5 | 82029732 | 11965522 |
| 60.0 | 35.5 | 2.0 | 26 | 6.5 | 4.5 | 82029857 | 11965527 |
| 60.0 | 40.5 | 2.0 | 26 | 6.5 | 4.5 | 82029870 | 11965530 |
| 60.0 | 45.5 | 2.0 | 26 | 6.5 | 4.5 | 82030487 | 11965531 |
| 70.0 | 30.5 | 2.0 | 26 | 6.5 | 4.5 | 82029733 | 11965535 |
| 80.0 | 25.5 | 2.0 | 60 | 6.5 | 4.5 | 82030488 | 11965537 |
| 80.0 | 30.5 | 2.0 | 60 | 6.5 | 4.5 | 82029734 | 11965541 |
| 80.0 | 35.5 | 2.0 | 60 | 6.5 | 4.5 | 82029859 | 11965546 |
| 80.0 | 40.5 | 2.0 | 60 | 6.5 | 4.5 | 82029860 | 11965548 |
| 80.0 | 50.5 | 2.0 | 60 | 6.5 | 4.5 | 82029776 | 11965551 |

CTBL IT21..

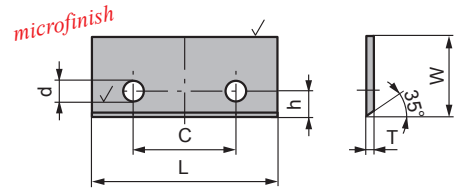


| L [mm] | W [mm] | T [mm] | C [mm] | h [mm] | d [mm] | HC05 | KCR08 |
|--------|--------|--------|--------|--------|--------|----------|----------|
| 30.0 | 25.5 | 2.0 | 14 | 6.3 | 4.5 | 82030355 | 11965552 |
| 30.0 | 30.5 | 2.0 | 14 | 6.3 | 4.5 | 82029737 | 11965601 |
| 30.0 | 35.5 | 2.0 | 14 | 6.3 | 4.5 | 82029738 | 11965602 |
| 35.0 | 25.5 | 2.0 | 18 | 6.3 | 4.5 | 6228274 | 11965603 |
| 35.0 | 30.5 | 2.0 | 18 | 6.3 | 4.5 | 6228275 | 11965605 |
| 35.0 | 35.5 | 2.0 | 18 | 6.3 | 4.5 | 6228276 | 11965636 |
| 40.0 | 20.5 | 2.0 | 26 | 6.3 | 4.5 | 82029773 | 11965638 |
| 40.0 | 25.5 | 2.0 | 26 | 6.3 | 4.5 | 82029739 | 11965641 |
| 40.0 | 30.5 | 2.0 | 26 | 6.3 | 4.5 | 82029740 | 11965647 |
| 40.0 | 35.5 | 2.0 | 26 | 6.3 | 4.5 | 82029742 | 11965648 |
| 40.0 | 40.5 | 2.0 | 26 | 6.3 | 4.5 | 82029744 | 11965650 |
| 50.0 | 20.5 | 2.0 | 26 | 6.3 | 4.5 | 82030349 | 11965657 |
| 50.0 | 25.5 | 2.0 | 26 | 6.3 | 4.5 | 82029775 | 11965659 |
| 50.0 | 30.5 | 2.0 | 26 | 6.3 | 4.5 | 82029745 | 11965667 |
| 50.0 | 35.5 | 2.0 | 26 | 6.3 | 4.5 | 82030380 | 11965670 |
| 50.0 | 40.5 | 2.0 | 26 | 6.3 | 4.5 | 82029746 | 11965678 |
| 60.0 | 25.5 | 2.0 | 26 | 6.3 | 4.5 | 82029774 | 11965680 |
| 60.0 | 30.5 | 2.0 | 26 | 6.3 | 4.5 | 82029747 | 11965682 |
| 60.0 | 35.5 | 2.0 | 26 | 6.3 | 4.5 | 82029748 | 11965683 |
| 60.0 | 40.5 | 2.0 | 26 | 6.3 | 4.5 | 82030350 | 11965700 |





CTBL IT21..



| L [mm] | W [mm] | T [mm] | C [mm] | h [mm] | d [mm] | HC05 | KCR08 |
|-----------|-----------|-----------|-----------|-----------|-----------|----------|----------|
| 60.0 | 45.5 | 2.0 | 26 | 6.3 | 4.5 | 82029771 | 11965721 |
| 70.0 | 25.5 | 2.0 | 26 | 6.3 | 4.5 | 82029749 | 11965726 |
| 70.0 | 30.5 | 2.0 | 26 | 6.3 | 4.5 | 82029724 | 11965743 |
| 70.0 | 35.5 | 2.0 | 26 | 6.3 | 4.5 | 82029725 | 11965744 |
| 70.0 | 40.5 | 2.0 | 26 | 6.3 | 4.5 | 82030382 | 11965745 |
| 80.0 | 25.5 | 2.0 | 60 | 6.3 | 4.5 | 82029869 | 11965747 |
| 80.0 | 30.5 | 2.0 | 60 | 6.3 | 4.5 | 82029750 | 11965749 |
| 80.0 | 35.5 | 2.0 | 60 | 6.3 | 4.5 | 82029772 | 11965751 |
| 80.0 | 40.5 | 2.0 | 60 | 6.3 | 4.5 | 82029726 | 11965752 |
| 100.0 | 30.5 | 2.0 | 60 | 6.3 | 4.5 | 82029723 | 11965753 |

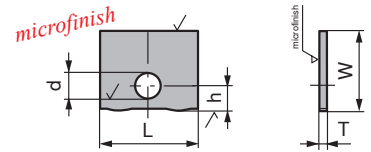




BLANKS FOR PROFILING

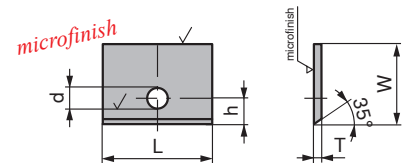
MULTIPURP – HOLE Ø 5.2 mm

CTBL MP10..

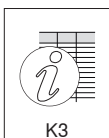


| L [mm] | W [mm] | T [mm] | h [mm] | d [mm] | KCR08 |
|--------|--------|--------|--------|--------|----------|
| 20.0 | 20.5 | 2.0 | 6.5 | 5.2 | 80302000 |
| 20.0 | 25.5 | 2.0 | 6.5 | 5.2 | 80302001 |
| 20.0 | 30.5 | 2.0 | 6.5 | 5.2 | 80302002 |
| 20.0 | 35.5 | 2.0 | 6.5 | 5.2 | 80302003 |
| 25.0 | 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 |
| 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 |
| 26.0 | 32.0 | 2.0 | 6.5 | 5.2 | 11803771 |

CTBL MP11..

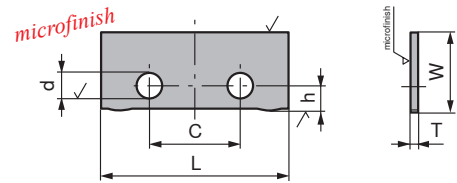


| L [mm] | W [mm] | T [mm] | h [mm] | d [mm] | KCR08 |
|--------|--------|--------|--------|--------|----------|
| 20.0 | 20.5 | 2.0 | 5.9 | 5.2 | 80302037 |
| 20.0 | 25.5 | 2.0 | 5.9 | 5.2 | 80302038 |
| 20.0 | 30.5 | 2.0 | 5.9 | 5.2 | 80302039 |
| 20.0 | 35.5 | 2.0 | 5.9 | 5.2 | 80302040 |
| 25.0 | 20.5 | 2.0 | 5.9 | 5.2 | 80302041 |
| 25.0 | 25.5 | 2.0 | 5.9 | 5.2 | 80302042 |
| 25.0 | 30.5 | 2.0 | 5.9 | 5.2 | 80302043 |
| 25.0 | 35.5 | 2.0 | 5.9 | 5.2 | 80302044 |
| 30.0 | 20.5 | 2.0 | 5.9 | 5.2 | 80302045 |
| 30.0 | 25.5 | 2.0 | 5.9 | 5.2 | 80302046 |
| 30.0 | 30.5 | 2.0 | 5.9 | 5.2 | 80302047 |
| 30.0 | 35.5 | 2.0 | 5.9 | 5.2 | 80302048 |
| 30.0 | 40.5 | 2.0 | 5.9 | 5.2 | 80302049 |
| 35.0 | 20.5 | 2.0 | 5.9 | 5.2 | 80302050 |
| 35.0 | 25.5 | 2.0 | 5.9 | 5.2 | 80302051 |
| 35.0 | 30.5 | 2.0 | 5.9 | 5.2 | 80302052 |
| 35.0 | 35.5 | 2.0 | 5.9 | 5.2 | 80302053 |
| 35.0 | 40.5 | 2.0 | 5.9 | 5.2 | 80302054 |



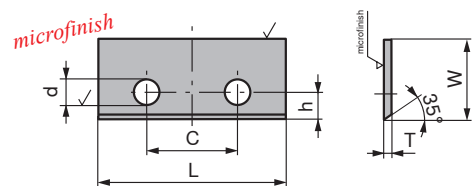


CTBL MP20..

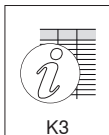


| L [mm] | W [mm] | T [mm] | C [mm] | h [mm] | d [mm] | KCR08 |
|--------|--------|--------|--------|--------|--------|----------|
| 30.0 | 20.5 | 2.0 | 14 | 6.5 | 5.2 | 80302012 |
| 30.0 | 25.5 | 2.0 | 14 | 6.5 | 5.2 | 80302013 |
| 30.0 | 30.5 | 2.0 | 14 | 6.5 | 5.2 | 80302015 |
| 30.0 | 35.5 | 2.0 | 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 | 45.5 | 2.0 | 26 | 6.5 | 5.2 | 80302034 |
| 80.0 | 35.5 | 2.0 | 60 | 6.5 | 5.2 | 80302036 |
| 60.0 | 40.5 | 2.0 | 26 | 6.5 | 5.2 | 80302033 |
| 80.0 | 25.5 | 2.0 | 60 | 6.5 | 5.2 | 80302035 |

CTBL MP21..



| L [mm] | W [mm] | T [mm] | C [mm] | h [mm] | d [mm] | KCR08 |
|--------|--------|--------|--------|--------|--------|----------|
| 30.0 | 20.5 | 2.0 | 14 | 5.9 | 5.2 | 80302055 |
| 30.0 | 25.5 | 2.0 | 14 | 5.9 | 5.2 | 80302056 |
| 30.0 | 30.5 | 2.0 | 14 | 5.9 | 5.2 | 80302057 |
| 30.0 | 35.5 | 2.0 | 14 | 5.9 | 5.2 | 80302058 |
| 35.0 | 25.5 | 2.0 | 14 | 5.9 | 5.2 | 80302059 |
| 35.0 | 30.5 | 2.0 | 14 | 5.9 | 5.2 | 80302060 |
| 35.0 | 35.5 | 2.0 | 14 | 5.9 | 5.2 | 80302061 |
| 40.0 | 20.5 | 2.0 | 26 | 5.9 | 5.2 | 80302062 |
| 40.0 | 25.5 | 2.0 | 26 | 5.9 | 5.2 | 80302063 |
| 40.0 | 30.5 | 2.0 | 26 | 5.9 | 5.2 | 80302064 |

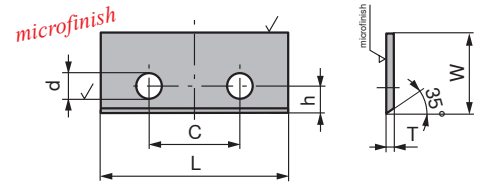




BLANKS FOR PROFILING

MULTIPURP – HOLE Ø 5.2 mm

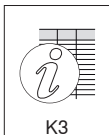
CTBL MP21..



| L [mm] | W [mm] | T [mm] | C [mm] | h [mm] | d [mm] | KCR08 | |
|--------|--------|--------|--------|--------|--------|----------|--|
| 40.0 | 35.5 | 2.0 | 26 | 5.9 | 5.2 | 80302065 | |
| 40.0 | 40.5 | 2.0 | 26 | 5.9 | 5.2 | 80302066 | |
| 50.0 | 20.5 | 2.0 | 26 | 5.9 | 5.2 | 80302067 | |
| 50.0 | 25.5 | 2.0 | 26 | 5.9 | 5.2 | 80302068 | |
| 50.0 | 30.5 | 2.0 | 26 | 5.9 | 5.2 | 80302069 | |
| 50.0 | 35.5 | 2.0 | 26 | 5.9 | 5.2 | 80302070 | |
| 50.0 | 40.5 | 2.0 | 26 | 5.9 | 5.2 | 80302071 | |
| 60.0 | 25.5 | 2.0 | 26 | 5.9 | 5.2 | 80302072 | |
| 60.0 | 30.5 | 2.0 | 26 | 5.9 | 5.2 | 80302073 | |
| 60.0 | 35.5 | 2.0 | 26 | 5.9 | 5.2 | 80302074 | |
| 60.0 | 40.5 | 2.0 | 26 | 5.9 | 5.2 | 80302076 | |
| 70.0 | 25.5 | 2.0 | 26 | 5.9 | 5.2 | 80302077 | |
| 70.0 | 30.5 | 2.0 | 26 | 5.9 | 5.2 | 80302078 | |
| 70.0 | 35.5 | 2.0 | 26 | 5.9 | 5.2 | 80302079 | |
| 80.0 | 25.5 | 2.0 | 60 | 5.9 | 5.2 | 80302081 | |
| 80.0 | 30.5 | 2.0 | 60 | 5.9 | 5.2 | 80302082 | |
| 80.0 | 35.5 | 2.0 | 60 | 5.9 | 5.2 | 80302083 | |
| 60.0 | 39.5 | 2.0 | 44 | 5.9 | 5.2 | 80302075 | |
| 80.0 | 40.5 | 2.0 | 60 | 5.9 | 5.2 | 80302084 | |

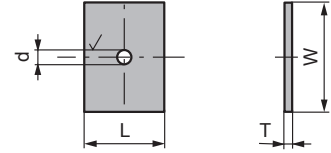
MULTIPURP – HOLE Ø 5.2 mm

BLANKS FOR PROFILING



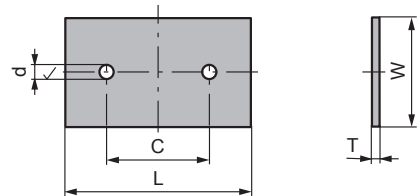


CTBL RV10..



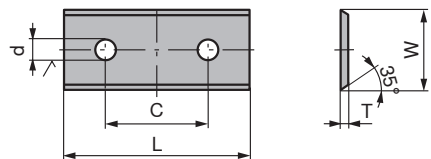
| L [mm] | W [mm] | T [mm] | d [mm] | HC05 | KCR08 |
|--------|--------|--------|--------|----------|----------|
| 12.0 | 20.4 | 2.0 | 4.2 | 81100001 | 11965758 |
| 24.0 | 22.0 | 2.0 | 4.2 | 80168821 | 80301107 |
| 28.0 | 24.0 | 2.0 | 4.2 | 80168822 | 11965760 |
| 32.0 | 24.0 | 2.0 | 4.2 | 80168823 | 11965765 |
| 36.0 | 28.0 | 2.0 | 4.2 | 80168824 | 80301108 |
| 40.0 | 26.0 | 2.0 | 4.2 | 80168825 | 11965767 |

CTBL RV20..

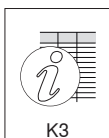


| L [mm] | W [mm] | T [mm] | C [mm] | d [mm] | HC05 | KCR08 |
|--------|--------|--------|--------|--------|----------|----------|
| 40.0 | 20.4 | 2.0 | 26 | 4.2 | 81100041 | 11965777 |
| 42.0 | 32.0 | 2.0 | 24 | 4.2 | 80168826 | 11965770 |
| 48.0 | 36.0 | 2.0 | 24 | 4.2 | 80168827 | 11965774 |

CTBL RV22..



| L [mm] | W [mm] | T [mm] | C [mm] | d [mm] | HC05 | KCR08 |
|--------|--------|--------|--------|--------|----------|----------|
| 30.0 | 25.0 | 2.0 | 20 | 4.2 | 80168871 | 11965780 |
| 40.0 | 30.0 | 2.0 | 20 | 4.2 | 80168872 | 80301099 |
| 40.0 | 32.62 | 2.0 | 20 | 4.2 | 80300900 | 11965781 |
| 40.0 | 35.0 | 2.0 | 20 | 4.2 | 80300901 | 11965785 |
| 40.0 | 35.0 | 2.0 | 26 | 4.2 | 80300902 | 80301100 |
| 40.0 | 37.82 | 2.0 | 20 | 4.2 | 80300903 | 11965792 |
| 40.0 | 42.86 | 2.0 | 20 | 4.2 | 80300904 | 80301101 |
| 42.0 | 32.0 | 2.0 | 26 | 4.2 | 80300905 | 11965812 |
| 45.0 | 35.0 | 2.0 | 26 | 4.2 | 80300906 | 11965821 |

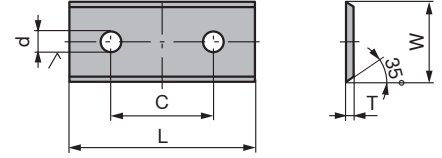




BLANKS FOR PROFILING

INDEXABLE BLANKS – HOLE Ø 4.2 mm

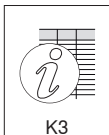
CTBL RV22..



| L [mm] | W [mm] | T [mm] | C [mm] | d [mm] | HC05 | KCR08 |
|-----------|-----------|-----------|-----------|-----------|----------|----------|
| 50.0 | 16.0 | 2.0 | 26 | 4.2 | 80300907 | 11965834 |
| 50.0 | 20.0 | 2.0 | 26 | 4.2 | 80300908 | 11965835 |
| 50.0 | 25.0 | 2.0 | 26 | 4.2 | 80300909 | 11965836 |
| 50.0 | 30.0 | 2.0 | 26 | 4.2 | 80300910 | 80301102 |
| 50.0 | 30.0 | 2.0 | 34 | 4.2 | 80300911 | 11965837 |
| 50.0 | 40.0 | 2.0 | 34 | 4.2 | 80300912 | 11965838 |
| 50.0 | 45.0 | 2.0 | 34 | 4.2 | 80168873 | 11965839 |
| 51.0 | 26.0 | 2.0 | 26 | 4.2 | 80300913 | 11965840 |
| 52.0 | 34.0 | 2.0 | 24 | 4.2 | 80168828 | 11965846 |
| 60.0 | 19.0 | 2.0 | 44 | 4.2 | 80168835 | 11965847 |
| 60.0 | 20.0 | 2.0 | 26 | 4.2 | 80300914 | 80301103 |
| 60.0 | 25.0 | 2.0 | 26 | 4.2 | 80168836 | 80301104 |
| 60.0 | 25.0 | 2.0 | 44 | 4.2 | 80300915 | 11965848 |
| 60.0 | 30.0 | 2.0 | 26 | 4.2 | 80300916 | 11965849 |
| 60.0 | 30.0 | 2.0 | 44 | 4.2 | 80300917 | 11965850 |
| 60.0 | 32.62 | 2.0 | 20 | 4.2 | 80300918 | 11965851 |
| 60.0 | 35.0 | 2.0 | 26 | 4.2 | 80357749 | 80301105 |
| 60.0 | 35.0 | 2.0 | 44 | 4.2 | 80168837 | 80301106 |
| 60.0 | 37.82 | 2.0 | 20 | 4.2 | 80300919 | 11965852 |
| 60.0 | 40.0 | 2.0 | 44 | 4.2 | 80300999 | 11965853 |
| 60.0 | 42.86 | 2.0 | 20 | 4.2 | 80300920 | 11965855 |

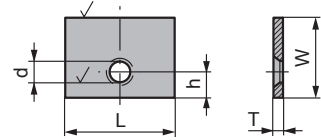
INDEXABLE BLANKS – HOLE Ø 4.2 mm

BLANKS FOR PROFILING



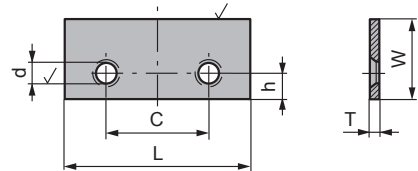


CTBL CH10..

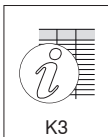


| L [mm] | W [mm] | T [mm] | h [mm] | d [mm] | KCR08 | MG18 |
|--------|--------|--------|--------|--------|----------|----------|
| 20.0 | 20.5 | 3.0 | 7.0 | 4.5 | 80301120 | |
| 20.0 | 25.5 | 3.0 | 7.0 | 4.5 | 80301121 | 80300543 |
| 20.0 | 30.5 | 3.0 | 7.0 | 4.5 | 80301122 | |
| 20.0 | 35.5 | 3.0 | 7.0 | 4.5 | 80301123 | |
| 25.0 | 25.5 | 3.0 | 7.0 | 4.5 | 80301125 | 80300547 |
| 25.0 | 30.5 | 3.0 | 7.0 | 4.5 | 80301126 | |
| 25.0 | 35.5 | 3.0 | 7.0 | 4.5 | 80301127 | 80300549 |
| 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 | |
| 20.0 | 40.5 | 3.0 | 7.0 | 4.5 | 80301124 | |

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 | |
| 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 | |

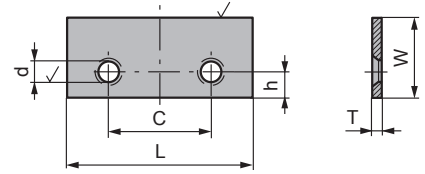




BLANKS FOR PROFILING

WITH COUNTERSUNK HOLE – HOLE Ø 4.5 mm

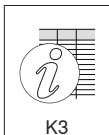
CTBL CH20..



| L [mm] | W [mm] | T [mm] | C [mm] | h [mm] | d [mm] | KCR08 | |
|-----------|-----------|-----------|-----------|-----------|-----------|----------|--|
| 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 | |

WITH COUNTERSUNK HOLE – HOLE Ø 4.5 mm

BLANKS FOR PROFILING

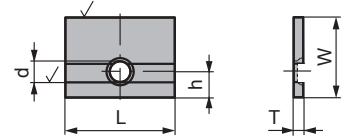


BLANKS FOR PROFILING

WITH COUNTERSUNK HOLE AND GROOVE – HOLE Ø 4.5 mm

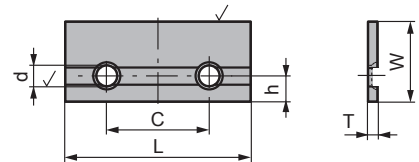


CTBL GR10..

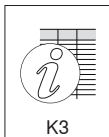


| L [mm] | W [mm] | T [mm] | h [mm] | d [mm] | CTOPP10 | KCR08 |
|--------|--------|--------|--------|--------|----------|----------|
| 20.0 | 20.5 | 3.0 | 7.0 | 4.5 | | 80301156 |
| 20.0 | 25.5 | 3.0 | 7.0 | 4.5 | | 80301157 |
| 20.0 | 30.5 | 3.0 | 7.0 | 4.5 | | 80301158 |
| 20.0 | 35.5 | 3.0 | 7.0 | 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 | 11778840 | 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 | 25.5 | 3.0 | 28 | 7.0 | 4.5 | 80301174 |
| 40.0 | 20.5 | 3.0 | 28 | 7.0 | 4.5 | 80301173 |
| 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 |
| 55.0 | 40.5 | 3.0 | 41 | 6.0 | 4.5 | 80301182 |
| 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 |

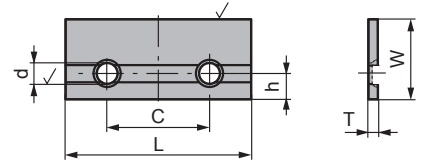




BLANKS FOR PROFILING

WITH COUNTERSUNK HOLE AND GROOVE – HOLE Ø 4.5 mm

CTBL GR20..



| L [mm] | W [mm] | T [mm] | C [mm] | h [mm] | d [mm] | KCR08 | |
|-----------|-----------|-----------|-----------|-----------|-----------|----------|--|
| 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 | |

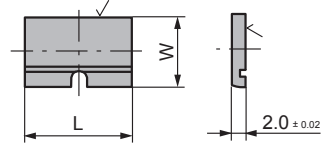
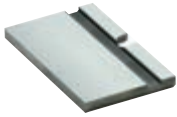
WITH COUNTERSUNK HOLE AND GROOVE – HOLE Ø 4.5 mm

BLANKS FOR PROFILING





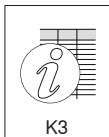
CTBL MC00..



| 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 | 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 | 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 | 35.5 | 2.0 | 11702317 |
| 150.0 | 30.5 | 2.0 | 11702318 |
| 150.0 | 20.5 | 2.0 | 11702320 |
| 150.0 | 15.5 | 2.0 | 11702321 |
| 150.0 | 25.5 | 2.0 | 11607971 |

WITH GROOVE

BLANKS FOR PROFILING

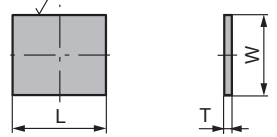
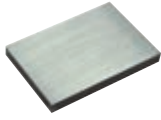




BLANKS FOR PROFILING

WITHOUT HOLE

CTBL WH00..



| L [mm] | W [mm] | T [mm] | HC05 | CTOPP10 | KCR08 | MG18 |
|-----------|-----------|-----------|----------|----------|----------|----------|
| 15.0 | 15.5 | 2.0 | 80300000 | | 11965858 | 82031757 |
| 15.0 | 20.5 | 2.0 | 80300001 | | 11965861 | 82013199 |
| 15.0 | 25.5 | 2.0 | | | 11965867 | 82008547 |
| 20.0 | 20.5 | 2.0 | 80300002 | 11776550 | 82023321 | 82019729 |
| 20.0 | 25.5 | 2.0 | 80300003 | | 82019119 | 82010599 |
| 20.0 | 30.5 | 2.0 | 80300004 | | 80301000 | 82010600 |
| 20.0 | 35.5 | 2.0 | 80300005 | | 11965873 | 82010601 |
| 25.0 | 20.5 | 2.0 | 80300006 | | 82021847 | 82019394 |
| 25.0 | 25.5 | 2.0 | 80300007 | | 82026075 | 82010602 |
| 25.0 | 30.5 | 2.0 | 80300008 | | 82026077 | 82021577 |
| 25.0 | 35.5 | 2.0 | 80300009 | | 80301001 | 82010612 |
| 30.0 | 15.5 | 2.0 | | | 82019728 | 82020309 |
| 30.0 | 20.5 | 2.0 | 80300010 | | 82022403 | 82010615 |
| 30.0 | 25.5 | 2.0 | 80300011 | | 82024505 | 82013140 |
| 30.0 | 30.5 | 2.0 | 80300012 | | 82021360 | 82013141 |
| 30.0 | 35.5 | 2.0 | 80300013 | | 80301002 | 82014358 |
| 30.0 | 40.5 | 2.0 | 80300014 | | 11965874 | 82012978 |
| 35.0 | 20.5 | 2.0 | 80300015 | 11776554 | 82026079 | 82020661 |
| 35.0 | 25.5 | 2.0 | 80300016 | 11792776 | 82022466 | 82019562 |
| 35.0 | 30.5 | 2.0 | | | 82021848 | 82019577 |
| 35.0 | 35.5 | 2.0 | 80300017 | | 82019712 | 82019397 |
| 35.0 | 40.5 | 2.0 | 80300018 | | 82027464 | 82030141 |
| 40.0 | 20.5 | 2.0 | 80300019 | | 82026080 | 82019396 |
| 40.0 | 25.5 | 2.0 | 80300020 | | 82019223 | 82012513 |
| 40.0 | 30.5 | 2.0 | 80300021 | | 82021543 | 82010250 |
| 40.0 | 35.5 | 2.0 | 80300022 | | 82019225 | 82015197 |
| 40.0 | 40.5 | 2.0 | 80300023 | | 80301003 | 82010623 |
| 45.0 | 20.5 | 2.0 | | | 82028692 | |
| 45.0 | 25.5 | 2.0 | | | 82026152 | 82019541 |
| 45.0 | 30.5 | 2.0 | 80300024 | | 11544440 | 82029279 |
| 45.0 | 35.5 | 2.0 | 80300025 | | 11965876 | 82029179 |
| 50.0 | 20.5 | 2.0 | 80300026 | | 82026548 | 82020980 |
| 50.0 | 25.5 | 2.0 | 80300027 | | 82023927 | 82019576 |
| 50.0 | 30.5 | 2.0 | 80300028 | | 80301004 | 82013697 |
| 50.0 | 35.5 | 2.0 | | | 82023784 | 82022404 |
| 50.0 | 40.5 | 2.0 | 80300029 | | 82023785 | 82019932 |
| 50.0 | 45.5 | 2.0 | 80300030 | | 11272525 | 82020364 |
| 50.0 | 50.5 | 2.0 | | | 82024736 | 82022227 |
| 60.0 | 20.5 | 2.0 | 80300031 | | 82026549 | 82027071 |
| 60.0 | 25.5 | 2.0 | 80300032 | | 82025828 | 82022738 |
| 60.0 | 30.5 | 2.0 | 80300033 | | 82028435 | 82021225 |
| 60.0 | 35.5 | 2.0 | 80300034 | | 11363187 | 82019220 |
| 60.0 | 40.5 | 2.0 | 80300035 | | 80301005 | 82014359 |
| 60.0 | 45.5 | 2.0 | | | 11965880 | 11253159 |
| 60.0 | 50.5 | 2.0 | | | 82024737 | 82024049 |
| 70.0 | 20.5 | 2.0 | | | 11965881 | 11231334 |
| 70.0 | 25.5 | 2.0 | | | 82026081 | 82019401 |
| 70.0 | 30.5 | 2.0 | | | 11495972 | 82023380 |
| 70.0 | 35.5 | 2.0 | | | 82026082 | 82019405 |

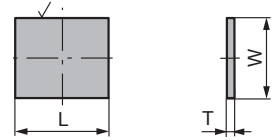
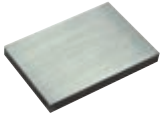
WITHOUT HOLE

BLANKS FOR PROFILING





CTBL WH00..



| L [mm] | W [mm] | T [mm] | HC05 | CTOPP10 | KCR08 | MG18 |
|-----------|-----------|-----------|----------|----------|----------|----------|
| 70.0 | 40.5 | 2.0 | | | 82026083 | 82021544 |
| 70.0 | 50.5 | 2.0 | | | 82024732 | 82024051 |
| 80.0 | 25.5 | 2.0 | 80300036 | | 11965882 | 82019726 |
| 80.0 | 35.5 | 2.0 | 80300037 | 11783958 | 80301006 | |
| 80.0 | 40.5 | 2.0 | | | 11790549 | |
| 80.0 | 45.5 | 2.0 | 80300038 | | 11284684 | |
| 80.0 | 60.5 | 2.0 | 11914940 | 11842060 | 11965884 | |
| 85.0 | 20.5 | 2.0 | | | 11965886 | 82031439 |
| 85.0 | 25.5 | 2.0 | | | 11965887 | 82019404 |
| 85.0 | 30.5 | 2.0 | | | 11495981 | |
| 85.0 | 35.5 | 2.0 | | | 11965890 | 82027072 |
| 85.0 | 40.5 | 2.0 | | | 11965894 | 11232689 |
| 85.0 | 50.5 | 2.0 | | | 11965897 | 82024052 |
| 100.0 | 25.5 | 2.0 | | | 11965898 | 82025347 |
| 100.0 | 30.5 | 2.0 | | | 11610153 | 82023479 |
| 100.0 | 35.5 | 2.0 | 82012458 | | 11610155 | 82025410 |
| 100.0 | 40.5 | 2.0 | | | 11965900 | 82025594 |
| 100.0 | 50.5 | 2.0 | | | 11965901 | 82022399 |
| 105.0 | 25.5 | 2.0 | | | 11965902 | 82022401 |
| 105.0 | 30.5 | 2.0 | | | 11965903 | 82028873 |
| 105.0 | 35.5 | 2.0 | | | 11278382 | 82028440 |
| 105.0 | 40.5 | 2.0 | | | 11965905 | 82024807 |

WITHOUT HOLE

BLANKS FOR PROFILING





Planer blades

CERATIZIT have developed three lines of blades for planer systems: HSS, HPS and carbide-tipped planer blades. HPS planer blades are the tried and tested alternative to HSS and offer improved tool life.

Planer blades with specially designed inlays made of carbide significantly reduce the weight of the finished tool. Carbide grades can be selected according to each cutting application.





Composition and properties

| CERATIZIT grade code | ISO code | U.S. code | Binder [m %] | Density [g/cm ³] | Hardness | | | Transverse rupture strength | | Fracture toughness [MPa*m ^{1/2}] |
|-------------------------|-------------|--------------|-----------------|---------------------------------|----------|------|-----|--------------------------------|----------|--|
| | | | | | HV10 | HV30 | HRA | [MPa] | [P.S.I.] | |

Submicron grain

| | | | | | | | | | | |
|------|-----|----|------|-------|------|------|------|------|--------|-----|
| MG18 | K20 | C2 | 10,0 | 14,45 | 1680 | 1660 | 92,3 | 3700 | 537000 | 9,4 |
|------|-----|----|------|-------|------|------|------|------|--------|-----|

Steel

| | | | | | | | | | | |
|---------|--|--|--------------------------------------|--|-----|--|----|--|--|--|
| HSS 18% | | | W 18.0, others 6.0, Fe balance | | 850 | | 64 | | | |
| HSS 6% | | | W 6.4, others 6.0, Fe balance | | 850 | | 64 | | | |
| HPS® | | | | | 790 | | 62 | | | |

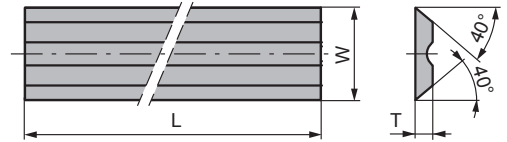
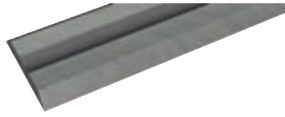
Comment:

1. The data in this table are typical material parameters. We reserve the right to modify the data due to technical progress or due to further development within our company.

2. K_{IC}^* : The measured critical tension intensity factors (K_{IC}) depend to a high degree on the sample geometry and sample preparation. A direct comparison with parameters which have been determined by means of a different method is therefore not admissible.



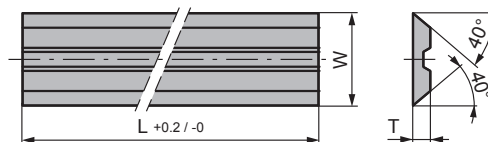
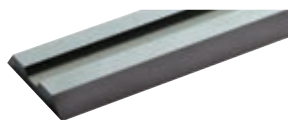
CTK TM..



| L [mm] | W [mm] | T [mm] | MG18 | |
|-----------|-----------|-----------|----------|--|
| 630 | 14.1 | 2.56 | 11852397 | |
| 640 | 14.1 | 2.56 | 11852399 | |
| 650 | 14.1 | 2.56 | 11852401 | |
| 350 | 14.1 | 2.56 | 11852379 | |
| 360 | 14.1 | 2.56 | 11852380 | |
| 400 | 14.1 | 2.56 | 11852382 | |
| 620 | 14.1 | 2.56 | 11852396 | |
| 410 | 14.1 | 2.56 | 11852386 | |
| 450 | 14.1 | 2.56 | 11852390 | |
| 510 | 14.1 | 2.56 | 11852392 | |
| 520 | 14.1 | 2.56 | 11852393 | |
| 530 | 14.1 | 2.56 | 11852394 | |
| 610 | 14.1 | 2.56 | 11852395 | |
| 100 | 14.1 | 2.56 | 11852107 | |
| 110 | 14.1 | 2.56 | 11852108 | |
| 120 | 14.1 | 2.56 | 11852109 | |
| 150 | 14.1 | 2.56 | 11852113 | |
| 160 | 14.1 | 2.56 | 11852115 | |
| 170 | 14.1 | 2.56 | 11852116 | |
| 180 | 14.1 | 2.56 | 11852118 | |
| 200 | 14.1 | 2.56 | 11852121 | |
| 220 | 14.1 | 2.56 | 11852124 | |
| 240 | 14.1 | 2.56 | 11852127 | |
| 250 | 14.1 | 2.56 | 11852128 | |
| 270 | 14.1 | 2.56 | 11852142 | |
| 300 | 14.1 | 2.56 | 11852145 | |
| 310 | 14.1 | 2.56 | 11852147 | |
| 210 | 14.1 | 2.56 | 11852123 | |
| 260 | 14.1 | 2.56 | 11852130 | |
| 80 | 14.1 | 2.56 | 11852103 | |
| 420 | 14.1 | 2.56 | 11852388 | |
| 430 | 14.1 | 2.56 | 11852389 | |
| 480 | 14.1 | 2.56 | 11852391 | |
| 130 | 14.1 | 2.56 | 11852112 | |
| 190 | 14.1 | 2.56 | 11852120 | |
| 230 | 14.1 | 2.56 | 11852126 | |
| 280 | 14.1 | 2.56 | 11852144 | |



CTK CL.. (CENTROLOCK)

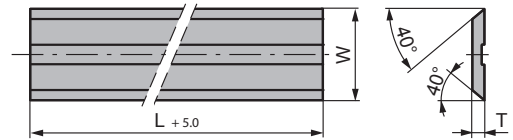


| L [mm] | W [mm] | T [mm] | MG18 | HSS 6 | HPS® |
|-----------|-----------|-----------|----------|---------|---------|
| 20 | 16.0 | 3.0 | 6270969 | 1343443 | 1343466 |
| 60 | 16.0 | 3.0 | 6270970 | 1343444 | 1343467 |
| 80 | 16.0 | 3.0 | 6270983 | 1343445 | 1343468 |
| 100 | 16.0 | 3.0 | 6270985 | 1343446 | 1343469 |
| 110 | 16.0 | 3.0 | 6270986 | | |
| 115 | 16.0 | 3.0 | 11270812 | 1343447 | 1343470 |
| 120 | 16.0 | 3.0 | 11609585 | 1343448 | 1343471 |
| 130 | 16.0 | 3.0 | 6270987 | 1343449 | 1343472 |
| 140 | 16.0 | 3.0 | | 1343450 | 1343473 |
| 150 | 16.0 | 3.0 | 6270988 | 1343451 | 1343474 |
| 160 | 16.0 | 3.0 | 6270989 | | |
| 170 | 16.0 | 3.0 | 6270990 | 1343452 | 1343475 |
| 180 | 16.0 | 3.0 | 6270991 | 1343453 | 1343476 |
| 190 | 16.0 | 3.0 | 6270992 | 1343454 | 1343477 |
| 200 | 16.0 | 3.0 | 6270994 | | |
| 210 | 16.0 | 3.0 | 6271212 | 1343455 | 1343478 |
| 220 | 16.0 | 3.0 | 6271213 | | |
| 230 | 16.0 | 3.0 | 6271214 | 1343456 | 1343479 |
| 235 | 16.0 | 3.0 | | 1343457 | 1343480 |
| 240 | 16.0 | 3.0 | 6271338 | 1343458 | 1343481 |
| 250 | 16.0 | 3.0 | 6271339 | | |
| 260 | 16.0 | 3.0 | 6271340 | 1343459 | 1343482 |
| 270 | 16.0 | 3.0 | 6271341 | 1343460 | 1343483 |
| 275 | 16.0 | 3.0 | 6271342 | | |
| 280 | 16.0 | 3.0 | 6271344 | | |
| 300 | 16.0 | 3.0 | 11444439 | 1343461 | 1343484 |
| 310 | 16.0 | 3.0 | 6271346 | 1343462 | 1343485 |
| 350 | 16.0 | 3.0 | 6271347 | | |
| 360 | 16.0 | 3.0 | 6271348 | 1343463 | 1343486 |
| 450 | 16.0 | 3.0 | 6271349 | | |
| 460 | 16.0 | 3.0 | 6271351 | 1343464 | 1343487 |
| 650 | 16.0 | 3.0 | | 1343465 | 1343488 |





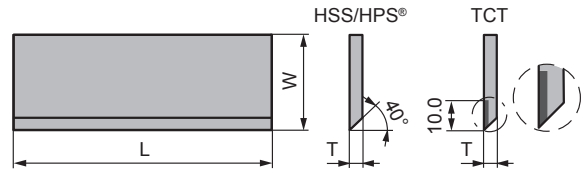
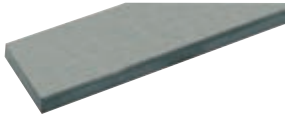
CTK BZ.. (BULLDOZER)



| L [mm] | W [mm] | T [mm] | MG18 | |
|-----------|-----------|-----------|----------|--|
| 100 | 13.6 | 1.8 | 11229423 | |
| 120 | 13.6 | 1.8 | 11198625 | |
| 130 | 13.6 | 1.8 | 11198626 | |
| 150 | 13.6 | 1.8 | 11245551 | |
| 160 | 13.6 | 1.8 | 11220634 | |
| 180 | 13.6 | 1.8 | 11220636 | |
| 190 | 13.6 | 1.8 | 11198627 | |
| 200 | 13.6 | 1.8 | 11229422 | |
| 210 | 13.6 | 1.8 | 11220639 | |
| 230 | 13.6 | 1.8 | 11198628 | |
| 240 | 13.6 | 1.8 | 11245557 | |
| 245 | 13.6 | 1.8 | 11220641 | |
| 265 | 13.6 | 1.8 | 11220643 | |



CTK TP..



| L [mm] | W [mm] | T [mm] | HSS 18 | HPS® | TCT (MG18) |
|-----------|-----------|-----------|---------|---------|------------|
| 40 | 30 | 3.0 | 1344719 | 1344540 | 1344618 |
| 60 | 30 | 3.0 | 1344720 | 1344541 | 1344620 |
| 60 | 35 | 3.0 | 1344769 | 1344579 | 1344657 |
| 80 | 30 | 3.0 | 1344721 | 1344542 | 1344621 |
| 80 | 35 | 3.0 | 1344770 | 1344580 | 1344658 |
| 100 | 30 | 3.0 | 1344722 | 1344543 | 1344622 |
| 100 | 35 | 3.0 | 1344771 | 1344581 | 1344659 |
| 110 | 30 | 3.0 | 1344723 | 1344544 | 1344623 |
| 110 | 35 | 3.0 | 1344772 | 1344582 | 1344660 |
| 120 | 30 | 3.0 | 1344724 | 1344545 | 1344812 |
| 120 | 35 | 3.0 | 1344773 | 1344583 | 1344661 |
| 130 | 30 | 3.0 | 1344725 | 1344546 | 1344624 |
| 130 | 35 | 3.0 | 1344774 | 1344584 | 1344662 |
| 140 | 30 | 3.0 | 1344726 | 1344547 | 1344625 |
| 150 | 30 | 3.0 | 1344727 | 1344548 | 1344626 |
| 150 | 35 | 3.0 | 1344775 | 1344585 | 1344663 |
| 160 | 30 | 3.0 | 1344728 | 1344549 | 1344627 |
| 170 | 30 | 3.0 | 1344738 | 1344550 | 1344628 |
| 180 | 30 | 3.0 | 1344739 | 1344551 | 1344629 |
| 180 | 35 | 3.0 | 1344776 | 1344586 | 1344664 |
| 190 | 30 | 3.0 | 1344740 | 1344552 | 1344630 |
| 200 | 30 | 3.0 | 1344741 | 1344553 | 1344631 |
| 200 | 35 | 3.0 | 1344777 | 1344587 | 1344665 |
| 210 | 30 | 3.0 | 1344742 | 1344554 | 1344632 |
| 210 | 35 | 3.0 | 1344778 | 1344588 | 1344666 |
| 230 | 30 | 3.0 | 1344743 | 1344555 | 1344633 |
| 230 | 35 | 3.0 | 1344779 | 1344589 | 1344667 |
| 240 | 30 | 3.0 | 1344744 | 1344556 | 1344634 |
| 260 | 30 | 3.0 | 1344745 | 1344557 | 1344635 |
| 260 | 35 | 3.0 | 1344780 | 1344593 | 1344668 |
| 270 | 30 | 3.0 | 1344746 | 1344558 | 1344636 |
| 300 | 30 | 3.0 | 1344749 | 1344559 | 1344637 |
| 300 | 35 | 3.0 | 1344781 | 1344594 | 1344669 |
| 310 | 30 | 3.0 | 1344751 | 1344560 | 1344638 |
| 310 | 35 | 3.0 | 1344782 | 1344595 | 1344670 |
| 330 | 35 | 3.0 | 1344783 | 1344596 | 1344671 |
| 350 | 30 | 3.0 | 1344752 | 1344561 | 1344639 |
| 400 | 30 | 3.0 | 1344753 | 1344562 | 1344640 |
| 400 | 35 | 3.0 | 1344784 | 1344597 | 1344672 |
| 410 | 30 | 3.0 | 1344754 | 1344563 | 1344641 |
| 410 | 35 | 3.0 | 1344785 | 1344598 | 1344673 |
| 480 | 35 | 3.0 | 1344786 | 1344599 | 1344674 |
| 500 | 30 | 3.0 | 1344755 | 1344564 | 1344642 |
| 500 | 35 | 3.0 | 1344787 | 1344600 | 1344675 |
| 510 | 25 | 3.0 | 1344716 | 1344538 | 1344616 |
| 510 | 30 | 3.0 | 1344756 | 1344565 | 1344643 |
| 510 | 35 | 3.0 | 1344788 | 1344601 | 1344676 |
| 520 | 30 | 3.0 | 1344757 | 1344566 | 1344644 |
| 520 | 35 | 3.0 | 1344789 | 1344602 | 1344677 |

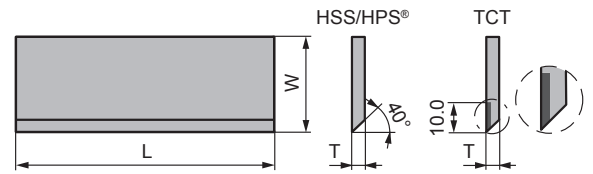
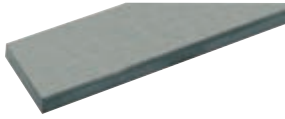




PLANER BLADES

THIN PLANERS – METRIC

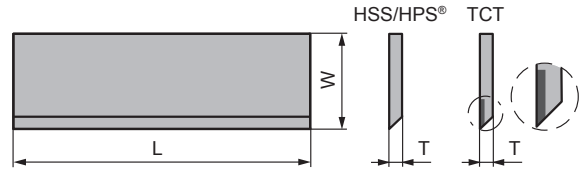
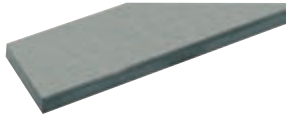
CTK TP..



| L [mm] | W [mm] | T [mm] | HSS 18 | HPS® | TCT (MG18) | |
|-----------|-----------|-----------|---------|---------|------------|--|
| 530 | 30 | 3.0 | 1344758 | 1344567 | 1344645 | |
| 530 | 35 | 3.0 | 1344790 | 1344603 | 1344678 | |
| 600 | 30 | 3.0 | 1344759 | 1344568 | 1344646 | |
| 600 | 35 | 3.0 | 1344791 | 1344604 | 1344691 | |
| 610 | 30 | 3.0 | 1344760 | 1344569 | 1344647 | |
| 610 | 35 | 3.0 | 1344792 | 1344605 | 1344692 | |
| 630 | 30 | 3.0 | 1344761 | 1344570 | 1344648 | |
| 630 | 35 | 3.0 | 1344793 | 1344606 | 1344693 | |
| 640 | 30 | 3.0 | 1344762 | 1344571 | 1344649 | |
| 640 | 35 | 3.0 | 1344794 | 1344607 | 1344694 | |
| 680 | 35 | 3.0 | 1344795 | 1344608 | 1344695 | |
| 710 | 30 | 3.0 | 1344763 | 1344572 | 1344650 | |
| 710 | 35 | 3.0 | 1344796 | 1344609 | 1344696 | |
| 810 | 30 | 3.0 | 1344764 | 1344573 | 1344651 | |
| 810 | 35 | 3.0 | 1344797 | 1344610 | 1344697 | |
| 820 | 30 | 3.0 | 1344765 | 1344574 | 1344652 | |
| 820 | 35 | 3.0 | 1344798 | 1344611 | 1344698 | |
| 910 | 30 | 3.0 | 1344766 | 1344575 | 1344654 | |
| 1000 | 30 | 3.0 | 1344767 | 1344576 | 1344655 | |
| 1010 | 35 | 3.0 | 1344799 | 1344612 | 1344699 | |
| 1050 | 25 | 3.0 | 1344717 | 1344539 | 1344617 | |
| 1050 | 30 | 3.0 | 1344768 | 1344577 | 1344656 | |
| 1050 | 35 | 3.0 | 1344800 | 1344613 | 1344700 | |



CTK TP..



| L [inch] | W [inch] | T [inch] | HSS 18 | HPS® | TCT (MG18) |
|----------|----------|----------|---------|---------|------------|
| 4 | 0.625 | 0.094 | 1343368 | 1343287 | |
| 4 | 0.625 | 0.125 | 1343373 | 1343288 | 1343546 |
| 4 | 0.750 | 0.125 | 1343374 | 1343289 | 1343547 |
| 6 | 0.625 | 0.094 | 1343375 | 1343290 | |
| 6 | 0.625 | 0.125 | 1343376 | 1343291 | 1343548 |
| 6 | 0.750 | 0.094 | 1343377 | 1343292 | |
| 6 | 0.750 | 0.125 | 1343378 | 1343293 | 1343549 |
| 6 | 1.000 | 0.125 | 1343379 | 1343294 | 1343550 |
| 8 | 0.625 | 0.094 | 1343380 | 1343295 | |
| 8 | 0.625 | 0.125 | 1343381 | 1343296 | 1344050 |
| 8 | 0.750 | 0.094 | 1343382 | 1343297 | |
| 8 | 0.750 | 0.125 | 1343383 | 1343298 | 1344051 |
| 8 | 1.000 | 0.125 | 1343384 | 1343299 | 1344052 |
| 12 | 0.750 | 0.125 | 1343385 | 1343301 | 1344053 |
| 12 | 1.000 | 0.125 | 1343386 | 1343302 | 1344054 |
| 12 | 1.125 | 0.125 | 1343387 | 1343303 | 1344055 |
| 12 | 1.250 | 0.156 | 1343388 | 1343304 | 1344056 |
| 12.5 | 0.750 | 0.125 | 1343389 | 1343305 | 1344057 |
| 13 | 1.000 | 0.125 | 1343390 | 1343306 | 1344058 |
| 13 | 0.625 | 0.125 | 1343391 | 1343307 | 1344059 |
| 14 | 0.750 | 0.125 | 1343392 | 1343308 | 1344060 |
| 15 | 1.000 | 0.125 | 1343414 | 1343309 | 1344061 |
| 16 | 1.000 | 0.125 | 1343415 | 1343310 | 1344062 |
| 18 | 1.000 | 0.125 | 1343416 | 1343311 | 1344063 |
| 20 | 1.000 | 0.125 | 1343417 | 1343312 | 1344064 |
| 24.8 | 0.625 | 0.125 | 1343418 | 1343313 | 1344083 |
| 24.8 | 0.750 | 0.125 | 1343419 | 1343314 | 1344084 |
| 24.8 | 0.875 | 0.125 | 1343421 | 1343315 | 1344085 |
| 24.8 | 1.000 | 0.125 | 1343422 | 1343316 | 1344086 |
| 24.8 | 1.125 | 0.125 | 1343423 | 1343317 | 1344087 |
| 24.8 | 1.189 | 0.125 | 1343424 | 1343318 | 1344088 |
| 24.8 | 1.250 | 0.125 | 1343425 | 1343319 | 1344089 |
| 24.8 | 1.250 | 0.156 | 1343426 | 1343320 | 1344090 |
| 24.8 | 1.375 | 0.125 | 1343427 | 1343321 | 1344091 |
| 24.8 | 1.375 | 0.156 | 1343428 | 1343322 | 1344092 |
| 37 | 0.625 | 0.125 | 1343429 | 1343323 | 1344094 |
| 37 | 0.750 | 0.125 | 1343430 | 1343324 | 1344095 |
| 37 | 1.000 | 0.125 | 1343431 | 1343325 | 1344096 |
| 37 | 1.125 | 0.125 | 1343490 | 1343326 | 1344097 |
| 37 | 1.189 | 0.125 | 1343491 | 1343327 | 1344098 |
| 37 | 1.250 | 0.125 | 1343492 | 1343328 | 1344099 |
| 37 | 1.375 | 0.125 | 1343493 | 1343329 | 1344100 |
| 37 | 1.500 | 0.125 | 1343534 | 1343330 | 1344101 |
| 37 | 2 | 0.125 | 1343537 | 1343331 | 1344102 |
| 37 | 1.189 | 0.156 | 1343539 | 1343332 | 1344103 |
| 37 | 1.250 | 0.156 | 1343541 | 1343333 | 1344105 |
| 37 | 1.375 | 0.156 | 1343543 | 1343334 | 1344106 |
| 37 | 1.500 | 0.156 | 1343544 | 1343335 | 1344107 |
| 37 | 2 | 0.156 | 1343545 | 1343336 | 1344108 |





PLANER BLADES

CTE PAC AND CTE BP

A set includes

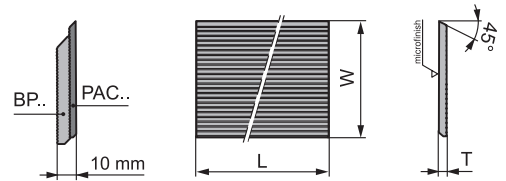
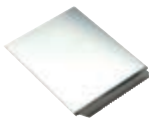
CTE PAC.. 40 x 38 x 3,18 (carbide knives)



CTE BP.. 40 x 35 x 7,1 (steel backing plate)

Total thickness of both parts: 10 mm

CTE PAC..



CTE PAC AND CTE BP

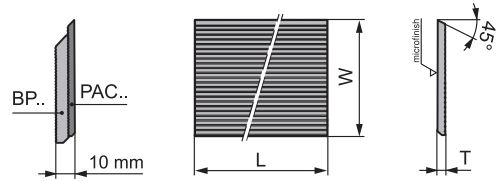
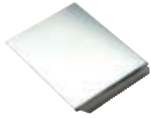
PLANER BLADES

| L [mm] | W [mm] | T [mm] | MG18 | |
|--------|--------|--------|----------|--|
| 40 | 38 | 3.18 | 11471490 | |
| 40 | 50 | 3.18 | 11471501 | |
| 40 | 60 | 3.18 | 11471503 | |
| 50 | 38 | 3.18 | 11471505 | |
| 50 | 50 | 3.18 | 11471510 | |
| 50 | 60 | 3.18 | 11471514 | |
| 60 | 38 | 3.18 | 11471515 | |
| 60 | 50 | 3.18 | 11471518 | |
| 60 | 60 | 3.18 | 11471520 | |
| 70 | 38 | 3.18 | 11471522 | |
| 70 | 50 | 3.18 | 11471524 | |
| 70 | 60 | 3.18 | 11471527 | |
| 80 | 38 | 3.18 | 11471531 | |
| 80 | 50 | 3.18 | 11471534 | |
| 80 | 60 | 3.18 | 11471537 | |
| 90 | 38 | 3.18 | 11471541 | |
| 90 | 50 | 3.18 | 11471542 | |
| 90 | 60 | 3.18 | 11471545 | |
| 100 | 38 | 3.18 | 11471670 | |
| 100 | 50 | 3.18 | 11471675 | |
| 100 | 60 | 3.18 | 11471676 | |
| 110 | 38 | 3.18 | 11471683 | |
| 110 | 50 | 3.18 | 11471684 | |
| 110 | 60 | 3.18 | 11471685 | |
| 120 | 38 | 3.18 | 11471687 | |
| 120 | 50 | 3.18 | 11471688 | |
| 120 | 60 | 3.18 | 11471689 | |
| 130 | 38 | 3.18 | 11471690 | |
| 130 | 50 | 3.18 | 11471691 | |
| 130 | 60 | 3.18 | 11471692 | |
| 150 | 38 | 3.18 | 11471693 | |
| 150 | 50 | 3.18 | 11471695 | |
| 150 | 60 | 3.18 | 11471698 | |
| 170 | 38 | 3.18 | 11471699 | |
| 170 | 50 | 3.18 | 11471700 | |
| 170 | 60 | 3.18 | 11471701 | |
| 180 | 38 | 3.18 | 11472202 | |
| 180 | 50 | 3.18 | 11472218 | |



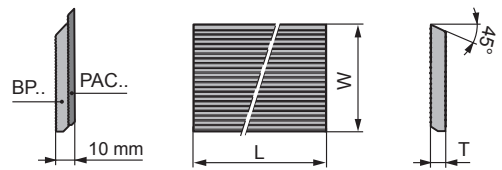
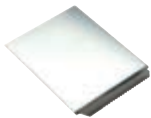


CTE PAC..



| L [mm] | W [mm] | T [mm] | MG18 |
|--------|--------|--------|----------|
| 180 | 60 | 3.18 | 11472219 |
| 200 | 38 | 3.18 | 11472220 |
| 200 | 50 | 3.18 | 11472221 |
| 200 | 60 | 3.18 | 11472224 |
| 210 | 38 | 3.18 | 11472225 |
| 210 | 50 | 3.18 | 11472227 |
| 210 | 60 | 3.18 | 11472228 |
| 230 | 38 | 3.18 | 11472247 |
| 230 | 50 | 3.18 | 11472249 |
| 230 | 60 | 3.18 | 11472256 |
| 240 | 38 | 3.18 | 11472258 |
| 240 | 50 | 3.18 | 11472259 |
| 240 | 60 | 3.18 | 11472260 |
| 260 | 38 | 3.18 | 11472262 |
| 260 | 50 | 3.18 | 11472264 |
| 260 | 60 | 3.18 | 11472265 |
| 310 | 38 | 3.18 | 11472267 |
| 310 | 50 | 3.18 | 11472268 |
| 310 | 60 | 3.18 | 11472271 |
| 650 | 38 | 3.18 | 11472272 |
| 650 | 50 | 3.18 | 11472273 |
| 650 | 60 | 3.18 | 11472274 |

CTE BP..



| L [mm] | W [mm] | T [mm] | Steel |
|--------|--------|--------|---------|
| 40 | 35 | 7.1 | 1343500 |
| 40 | 47 | 7.1 | 1343501 |
| 40 | 57 | 7.1 | 1343502 |
| 50 | 35 | 7.1 | 1343503 |
| 50 | 47 | 7.1 | 1343504 |
| 50 | 57 | 7.1 | 1343505 |
| 60 | 35 | 7.1 | 1343506 |
| 60 | 47 | 7.1 | 1343507 |
| 60 | 57 | 7.1 | 1343508 |
| 70 | 35 | 7.1 | 1343509 |
| 70 | 47 | 7.1 | 1343510 |

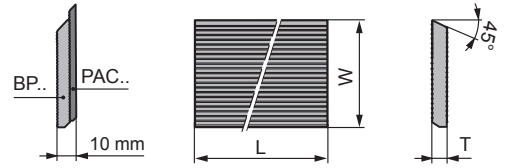
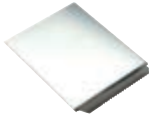




PLANER BLADES

CTE PAC AND CTE BP

CTE BP..



CTE PAC AND CTE BP

PLANER BLADES

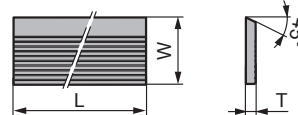
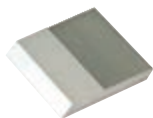
| L [mm] | W [mm] | T [mm] | Steel |
|--------|--------|--------|---------|
| 70 | 57 | 7.1 | 1343511 |
| 80 | 35 | 7.1 | 1343512 |
| 80 | 47 | 7.1 | 1343516 |
| 80 | 57 | 7.1 | 1343517 |
| 90 | 35 | 7.1 | 1343518 |
| 90 | 47 | 7.1 | 1343519 |
| 90 | 57 | 7.1 | 1343520 |
| 100 | 35 | 7.1 | 1343521 |
| 100 | 47 | 7.1 | 1343522 |
| 100 | 57 | 7.1 | 1343523 |
| 110 | 35 | 7.1 | 1343524 |
| 110 | 47 | 7.1 | 1343525 |
| 110 | 57 | 7.1 | 1343526 |
| 120 | 35 | 7.1 | 1343527 |
| 120 | 47 | 7.1 | 1343528 |
| 120 | 57 | 7.1 | 1343529 |
| 130 | 35 | 7.1 | 1343530 |
| 130 | 47 | 7.1 | 1343531 |
| 130 | 57 | 7.1 | 1343532 |
| 150 | 35 | 7.1 | 1343533 |
| 150 | 47 | 7.1 | 1343535 |
| 150 | 57 | 7.1 | 1343536 |
| 170 | 35 | 7.1 | 1343538 |
| 170 | 47 | 7.1 | 1343540 |
| 170 | 57 | 7.1 | 1343542 |
| 180 | 35 | 7.1 | 1343560 |
| 180 | 47 | 7.1 | 1343561 |
| 180 | 57 | 7.1 | 1343562 |
| 200 | 35 | 7.1 | 1343563 |
| 200 | 47 | 7.1 | 1343564 |
| 200 | 57 | 7.1 | 1343565 |
| 210 | 35 | 7.1 | 1343566 |
| 210 | 47 | 7.1 | 1343567 |
| 210 | 57 | 7.1 | 1343568 |
| 230 | 35 | 7.1 | 1343569 |
| 230 | 47 | 7.1 | 1343570 |
| 230 | 57 | 7.1 | 1343571 |
| 240 | 35 | 7.1 | 1343572 |
| 240 | 47 | 7.1 | 1343573 |
| 240 | 57 | 7.1 | 1343574 |
| 260 | 35 | 7.1 | 1343575 |
| 260 | 47 | 7.1 | 1343576 |
| 260 | 57 | 7.1 | 1343577 |
| 310 | 35 | 7.1 | 1343578 |
| 310 | 47 | 7.1 | 1343579 |
| 310 | 57 | 7.1 | 1343580 |
| 650 | 35 | 7.1 | 1343581 |
| 650 | 47 | 7.1 | 1343582 |
| 650 | 57 | 7.1 | 1343583 |





CTBL BCFB..

Thickness 4.0



| L [mm] | W [mm] | T [mm] | HSS 6 | HPS® |
|-----------|-----------|-----------|---------|----------|
| 40 | 30 | 4.0 | 1343844 | 1343882 |
| 40 | 35 | 4.0 | 1343862 | 1343902 |
| 50 | 30 | 4.0 | 1343845 | 1343883 |
| 50 | 35 | 4.0 | 1343864 | 1343903 |
| 60 | 30 | 4.0 | 1343846 | 1343884 |
| 60 | 35 | 4.0 | 1343865 | 1343904 |
| 70 | 30 | 4.0 | 1343847 | 1343885 |
| 70 | 35 | 4.0 | 1343866 | 1343905 |
| 80 | 30 | 4.0 | 1343848 | 1343886 |
| 80 | 35 | 4.0 | 1343867 | 1343906 |
| 90 | 30 | 4.0 | 1343849 | 1343887 |
| 90 | 35 | 4.0 | 1343868 | 1343907 |
| 100 | 30 | 4.0 | 1343850 | 1343888 |
| 100 | 35 | 4.0 | 1343869 | 1343908 |
| 110 | 30 | 4.0 | 1343851 | 1343889 |
| 110 | 35 | 4.0 | 1343870 | 1343909 |
| 120 | 30 | 4.0 | 1343852 | 1343890 |
| 120 | 35 | 4.0 | 1343871 | 1343910 |
| 130 | 30 | 4.0 | 1343853 | 1343891 |
| 130 | 35 | 4.0 | 1343872 | 1343911 |
| 150 | 30 | 4.0 | 1343854 | 1343892 |
| 150 | 35 | 4.0 | 1343873 | 1343912 |
| 170 | 30 | 4.0 | 1343855 | 1343893 |
| 170 | 35 | 4.0 | 1343874 | 1343915 |
| 180 | 30 | 4.0 | 1343856 | 1343894 |
| 180 | 35 | 4.0 | 1343875 | 1343916 |
| 190 | 30 | 4.0 | 1343857 | 1343895 |
| 190 | 35 | 4.0 | 1343876 | 1343917 |
| 210 | 30 | 4.0 | 1343858 | 1343896 |
| 210 | 35 | 4.0 | 1343878 | 1343918 |
| 230 | 30 | 4.0 | 1343859 | 1343897 |
| 230 | 35 | 4.0 | 1343879 | 1343919 |
| 240 | 30 | 4.0 | 1343860 | 1343898 |
| 240 | 35 | 4.0 | 1343880 | 1343920 |
| 250 | 30 | 4.0 | | 11663392 |
| 650 | 30 | 4.0 | 1343861 | 1343899 |
| 650 | 35 | 4.0 | 1343881 | 1343921 |

WITH SERRATED BACK – METRIC

PLANER BLADES



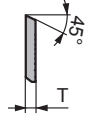
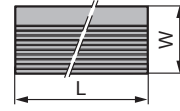
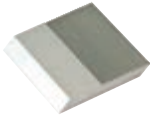


PLANER BLADES

WITH SERRATED BACK – METRIC

CTBL BCWC..

Thickness 5.0



WITH SERRATED BACK – METRIC

PLANER BLADES

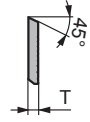
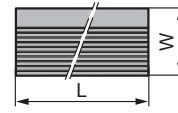
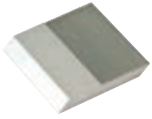
| L [mm] | W [mm] | T [mm] | HSS 6 | HPS® |
|--------|--------|--------|---------|---------|
| 40 | 27 | 5 | 1343758 | 1343684 |
| 40 | 38 | 5 | 1343776 | 1343702 |
| 40 | 45 | 5 | 1343798 | 1343720 |
| 40 | 50 | 5 | 1343817 | 1343738 |
| 50 | 27 | 5 | 1343759 | 1343685 |
| 50 | 38 | 5 | 1343777 | 1343703 |
| 50 | 45 | 5 | 1343799 | 1343721 |
| 50 | 50 | 5 | 1343818 | 1343743 |
| 60 | 27 | 5 | 1343760 | 1343686 |
| 60 | 38 | 5 | 1343778 | 1343704 |
| 60 | 45 | 5 | 1343800 | 1343722 |
| 60 | 50 | 5 | 1343819 | 1343740 |
| 70 | 27 | 5 | 1343761 | 1343687 |
| 70 | 38 | 5 | 1343779 | 1343705 |
| 70 | 45 | 5 | 1343801 | 1343723 |
| 70 | 50 | 5 | 1343820 | 1343741 |
| 80 | 27 | 5 | 1343762 | 1343688 |
| 80 | 38 | 5 | 1343780 | 1343706 |
| 80 | 45 | 5 | 1343802 | 1343724 |
| 80 | 50 | 5 | 1343821 | 1343742 |
| 90 | 27 | 5 | 1343763 | 1343689 |
| 90 | 38 | 5 | 1343781 | 1343707 |
| 90 | 45 | 5 | 1343803 | 1343725 |
| 90 | 50 | 5 | 1343822 | 1343744 |
| 100 | 27 | 5 | 1343764 | 1343690 |
| 100 | 38 | 5 | 1343782 | 1343708 |
| 100 | 45 | 5 | 1343804 | 1343726 |
| 100 | 50 | 5 | 1343823 | 1343745 |
| 110 | 27 | 5 | 1343765 | 1343691 |
| 110 | 38 | 5 | 1343783 | 1343709 |
| 110 | 45 | 5 | 1343805 | 1343727 |
| 110 | 50 | 5 | 1343824 | 1343746 |
| 120 | 27 | 5 | 1343766 | 1343692 |
| 120 | 38 | 5 | 1343784 | 1343710 |
| 120 | 45 | 5 | 1343806 | 1343728 |
| 120 | 50 | 5 | 1343825 | 1343747 |
| 130 | 27 | 5 | 1343767 | 1343693 |
| 130 | 38 | 5 | 1343785 | 1343711 |
| 130 | 45 | 5 | 1343807 | 1343729 |
| 130 | 50 | 5 | 1343826 | 1343748 |
| 150 | 27 | 5 | 1343768 | 1343694 |
| 150 | 38 | 5 | 1343786 | 1343712 |
| 150 | 45 | 5 | 1343808 | 1343730 |
| 150 | 50 | 5 | 1343827 | 1343749 |
| 170 | 27 | 5 | 1343769 | 1343695 |
| 170 | 38 | 5 | 1343787 | 1343713 |
| 170 | 45 | 5 | 1343809 | 1343731 |
| 170 | 50 | 5 | 1343828 | 1343750 |
| 180 | 27 | 5 | 1343770 | 1343696 |





CTBL BCWC..

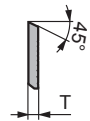
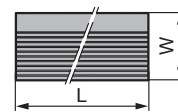
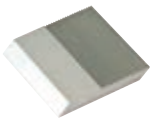
Thickness 5.0



| L [mm] | W [mm] | T [mm] | HSS 6 | HPS® |
|-----------|-----------|-----------|---------|----------|
| 180 | 38 | 5 | 1343788 | 1343714 |
| 180 | 45 | 5 | 1343811 | 1343732 |
| 180 | 50 | 5 | 1343829 | 1343751 |
| 190 | 27 | 5 | 1343771 | 1343697 |
| 190 | 38 | 5 | 1343789 | 1343715 |
| 190 | 45 | 5 | 1343812 | 1343733 |
| 190 | 50 | 5 | 1343830 | 1343752 |
| 210 | 27 | 5 | 1343772 | 1343698 |
| 210 | 38 | 5 | 1343790 | 1343716 |
| 210 | 45 | 5 | 1343813 | 1343734 |
| 210 | 50 | 5 | 1343831 | 1343753 |
| 230 | 27 | 5 | 1343773 | 1343699 |
| 230 | 38 | 5 | 1343791 | 1343717 |
| 230 | 45 | 5 | 1343814 | 1343735 |
| 230 | 50 | 5 | 1343832 | 1343754 |
| 240 | 27 | 5 | 1343774 | 1343700 |
| 240 | 38 | 5 | 1343792 | 1343718 |
| 240 | 45 | 5 | 1343815 | 1343736 |
| 240 | 50 | 5 | 1343833 | 1343755 |
| 270 | 50 | 5 | | 11790249 |
| 270 | 45 | 5 | | 11790296 |
| 650 | 27 | 5 | 1343775 | 1343701 |
| 650 | 38 | 5 | 1343793 | 1343719 |
| 650 | 45 | 5 | 1343816 | 1343737 |
| 650 | 50 | 5 | 1343834 | 1343756 |

CTBL BCWC..

Thickness 6.0



| L [mm] | W [mm] | T [mm] | HSS 6 | HPS® |
|-----------|-----------|-----------|---------|---------|
| 40 | 40 | 6 | 1344233 | 1344313 |
| 40 | 50 | 6 | 1344253 | 1344332 |
| 40 | 60 | 6 | 1344275 | 1344353 |
| 40 | 70 | 6 | 1344293 | 1344378 |
| 50 | 40 | 6 | 1344235 | 1344314 |
| 50 | 50 | 6 | 1344254 | 1344333 |
| 50 | 60 | 6 | 1344276 | 1344355 |
| 50 | 70 | 6 | 1344294 | 1344379 |



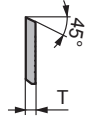
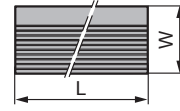
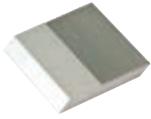


PLANER BLADES

WITH SERRATED BACK – METRIC

CTBL BCWC..

Thickness 6.0



WITH SERRATED BACK – METRIC

PLANER BLADES

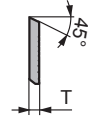
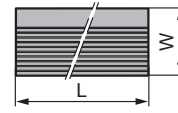
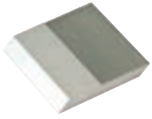
| L [mm] | W [mm] | T [mm] | HSS 6 | HPS® |
|--------|--------|--------|---------|---------|
| 60 | 40 | 6 | 1344236 | 1344315 |
| 60 | 50 | 6 | 1344255 | 1344334 |
| 60 | 60 | 6 | 1344277 | 1344356 |
| 60 | 70 | 6 | 1344295 | 1344380 |
| 70 | 40 | 6 | 1344237 | 1344316 |
| 70 | 50 | 6 | 1344256 | 1344335 |
| 70 | 60 | 6 | 1344278 | 1344357 |
| 70 | 70 | 6 | 1344296 | 1344381 |
| 80 | 40 | 6 | 1344238 | 1344317 |
| 80 | 50 | 6 | 1344257 | 1344336 |
| 80 | 60 | 6 | 1344279 | 1344358 |
| 80 | 70 | 6 | 1344297 | 1344382 |
| 90 | 40 | 6 | 1344239 | 1344318 |
| 90 | 50 | 6 | 1344258 | 1344337 |
| 90 | 60 | 6 | 1344280 | 1344359 |
| 90 | 70 | 6 | 1344298 | 1344383 |
| 100 | 40 | 6 | 1344240 | 1344319 |
| 100 | 50 | 6 | 1344259 | 1344338 |
| 100 | 60 | 6 | 1344281 | 1344360 |
| 100 | 70 | 6 | 1344299 | 1344384 |
| 110 | 40 | 6 | 1344241 | 1344320 |
| 110 | 50 | 6 | 1344260 | 1344339 |
| 110 | 60 | 6 | 1344282 | 1344362 |
| 110 | 70 | 6 | 1344300 | 1344385 |
| 120 | 40 | 6 | 1344242 | 1344321 |
| 120 | 50 | 6 | 1344261 | 1344340 |
| 120 | 60 | 6 | 1344283 | 1344363 |
| 120 | 70 | 6 | 1344301 | 1344386 |
| 130 | 40 | 6 | 1344243 | 1344322 |
| 130 | 50 | 6 | 1344262 | 1344341 |
| 130 | 60 | 6 | 1344284 | 1344365 |
| 130 | 70 | 6 | 1344302 | 1344387 |
| 150 | 40 | 6 | 1344244 | 1344323 |
| 150 | 50 | 6 | 1344267 | 1344342 |
| 150 | 60 | 6 | 1344285 | 1344367 |
| 150 | 70 | 6 | 1344303 | 1344388 |
| 170 | 40 | 6 | 1344245 | 1344324 |
| 170 | 50 | 6 | 1344268 | 1344343 |
| 170 | 60 | 6 | 1344286 | 1344369 |
| 170 | 70 | 6 | 1344304 | 1344389 |
| 180 | 40 | 6 | 1344246 | 1344325 |
| 180 | 50 | 6 | 1344269 | 1344344 |
| 180 | 60 | 6 | 1344287 | 1344372 |
| 180 | 70 | 6 | 1344306 | 1344390 |
| 200 | 40 | 6 | 1344247 | 1344326 |
| 200 | 50 | 6 | 1344270 | 1344345 |
| 200 | 60 | 6 | 1344288 | 1344373 |
| 200 | 70 | 6 | 1344307 | 1344391 |
| 210 | 40 | 6 | 1344248 | 1344327 |





CTBL BCWC..

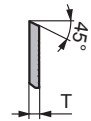
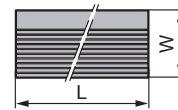
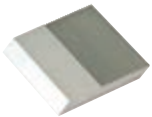
Thickness 6.0



| L [mm] | W [mm] | T [mm] | HSS 6 | HPS® |
|--------|--------|--------|---------|---------|
| 210 | 50 | 6 | 1344271 | 1344346 |
| 210 | 60 | 6 | 1344289 | 1344374 |
| 210 | 70 | 6 | 1344308 | 1344392 |
| 230 | 40 | 6 | 1344249 | 1344328 |
| 230 | 50 | 6 | 1344272 | 1344348 |
| 230 | 60 | 6 | 1344290 | 1344375 |
| 230 | 70 | 6 | 1344309 | 1344393 |
| 260 | 40 | 6 | 1344250 | 1344330 |
| 260 | 50 | 6 | 1344273 | 1344349 |
| 260 | 60 | 6 | 1344291 | 1344376 |
| 260 | 70 | 6 | 1344310 | 1344394 |
| 650 | 40 | 6 | 1344251 | 1344331 |
| 650 | 50 | 6 | 1344274 | 1344351 |
| 650 | 60 | 6 | 1344292 | 1344377 |
| 650 | 70 | 6 | 1344311 | 1344395 |

CTBL BCWC..

Thickness 8.0



| L [mm] | W [mm] | T [mm] | HSS 6 | HPS® |
|--------|--------|--------|---------|---------|
| 40 | 40 | 8 | 1344110 | 1343600 |
| 40 | 50 | 8 | 1344139 | 1343620 |
| 40 | 60 | 8 | 1344169 | 1343638 |
| 40 | 70 | 8 | 1344210 | 1343656 |
| 50 | 40 | 8 | 1344111 | 1343601 |
| 50 | 50 | 8 | 1344140 | 1343621 |
| 50 | 60 | 8 | 1344170 | 1343639 |
| 50 | 70 | 8 | 1344211 | 1343657 |
| 60 | 40 | 8 | 1344112 | 1343602 |
| 60 | 50 | 8 | 1344141 | 1343622 |
| 60 | 60 | 8 | 1344171 | 1343640 |
| 60 | 70 | 8 | 1344213 | 1343658 |
| 70 | 40 | 8 | 1344113 | 1343603 |
| 70 | 50 | 8 | 1344142 | 1343623 |
| 70 | 60 | 8 | 1344172 | 1343641 |
| 70 | 70 | 8 | 1344215 | 1343659 |
| 80 | 40 | 8 | 1344114 | 1343604 |
| 80 | 50 | 8 | 1344143 | 1343624 |



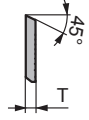
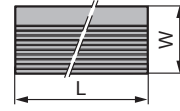
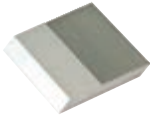


PLANER BLADES

WITH SERRATED BACK – METRIC

CTBL BCWC..

Thickness 8.0



WITH SERRATED BACK – METRIC

PLANER BLADES

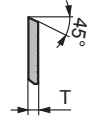
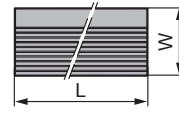
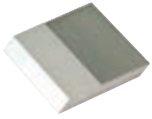
| L [mm] | W [mm] | T [mm] | HSS 6 | HPS® |
|-----------|-----------|-----------|---------|---------|
| 80 | 60 | 8 | 1344173 | 1343642 |
| 80 | 70 | 8 | 1344218 | 1343660 |
| 90 | 40 | 8 | 1344115 | 1343605 |
| 90 | 50 | 8 | 1344144 | 1343625 |
| 90 | 60 | 8 | 1344174 | 1343643 |
| 90 | 70 | 8 | 1344219 | 1343661 |
| 100 | 40 | 8 | 1344116 | 1343606 |
| 100 | 50 | 8 | 1344145 | 1343626 |
| 100 | 60 | 8 | 1344175 | 1343644 |
| 100 | 70 | 8 | 1344220 | 1343662 |
| 110 | 40 | 8 | 1344117 | 1343607 |
| 110 | 50 | 8 | 1344146 | 1343627 |
| 110 | 60 | 8 | 1344176 | 1343645 |
| 110 | 70 | 8 | 1344221 | 1343663 |
| 120 | 40 | 8 | 1344118 | 1343608 |
| 120 | 50 | 8 | 1344147 | 1343628 |
| 120 | 60 | 8 | 1344177 | 1343646 |
| 120 | 70 | 8 | 1344222 | 1343664 |
| 130 | 40 | 8 | 1344119 | 1343609 |
| 130 | 50 | 8 | 1344148 | 1343629 |
| 130 | 60 | 8 | 1344178 | 1343647 |
| 130 | 70 | 8 | 1344223 | 1343665 |
| 150 | 40 | 8 | 1344120 | 1343610 |
| 150 | 50 | 8 | 1344149 | 1343630 |
| 150 | 60 | 8 | 1344179 | 1343648 |
| 150 | 70 | 8 | 1344224 | 1343666 |
| 170 | 40 | 8 | 1344121 | 1343611 |
| 170 | 50 | 8 | 1344150 | 1343631 |
| 170 | 60 | 8 | 1344180 | 1343649 |
| 170 | 70 | 8 | 1344225 | 1343667 |
| 180 | 40 | 8 | 1344122 | 1343612 |
| 180 | 50 | 8 | 1344151 | 1343632 |
| 180 | 60 | 8 | 1344181 | 1343650 |
| 180 | 70 | 8 | 1344226 | 1343668 |
| 200 | 40 | 8 | 1344123 | 1343613 |
| 200 | 50 | 8 | 1344152 | 1343633 |
| 200 | 60 | 8 | 1344182 | 1343651 |
| 200 | 70 | 8 | 1344227 | 1343669 |
| 210 | 40 | 8 | 1344124 | 1343615 |
| 210 | 50 | 8 | 1344153 | 1343634 |
| 210 | 60 | 8 | 1344183 | 1343652 |
| 210 | 70 | 8 | 1344228 | 1343670 |
| 230 | 40 | 8 | 1344125 | 1343617 |
| 230 | 50 | 8 | 1344154 | 1343635 |
| 230 | 60 | 8 | 1344184 | 1343653 |
| 230 | 70 | 8 | 1344229 | 1343671 |
| 260 | 40 | 8 | 1344126 | 1343618 |
| 260 | 50 | 8 | 1344155 | 1343636 |
| 260 | 60 | 8 | 1344185 | 1343654 |





CTBL BCWC..

Thickness 8.0



| L [mm] | W [mm] | T [mm] | HSS 6 | HPS® |
|-----------|-----------|-----------|---------|---------|
| 260 | 70 | 8 | 1344231 | 1343672 |
| 650 | 40 | 8 | 1344127 | 1343619 |
| 650 | 50 | 8 | 1344156 | 1343637 |
| 650 | 60 | 8 | 1344186 | 1343655 |
| 650 | 70 | 8 | 1344232 | 1343673 |



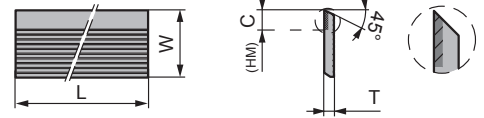
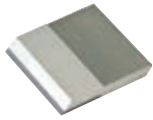


PLANER BLADES

WITH SERRATED BACK – METRIC

CTBL BCWC.. 15TCT

Thickness 5.0, carbide inlay 15.0



WITH SERRATED BACK – METRIC

PLANER BLADES

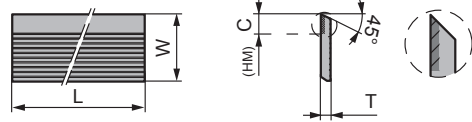
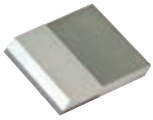
| L [mm] | W [mm] | T [mm] | C [mm] | TCT (MG18) |
|--------|--------|--------|--------|------------|
| 40 | 38 | 5 | 15 | 1343941 |
| 40 | 45 | 5 | 15 | 1343959 |
| 50 | 27 | 5 | 15 | 1343924 |
| 50 | 38 | 5 | 15 | 1343942 |
| 50 | 45 | 5 | 15 | 1343960 |
| 60 | 27 | 5 | 15 | 1343925 |
| 60 | 38 | 5 | 15 | 1343943 |
| 60 | 45 | 5 | 15 | 1343961 |
| 70 | 27 | 5 | 15 | 1343926 |
| 70 | 38 | 5 | 15 | 1343944 |
| 70 | 45 | 5 | 15 | 1343962 |
| 80 | 27 | 5 | 15 | 1343927 |
| 80 | 38 | 5 | 15 | 1343945 |
| 80 | 45 | 5 | 15 | 1343963 |
| 90 | 27 | 5 | 15 | 1343928 |
| 90 | 38 | 5 | 15 | 1343946 |
| 90 | 45 | 5 | 15 | 1343964 |
| 100 | 27 | 5 | 15 | 1343929 |
| 100 | 38 | 5 | 15 | 1343947 |
| 100 | 45 | 5 | 15 | 1343965 |
| 110 | 27 | 5 | 15 | 1343930 |
| 110 | 38 | 5 | 15 | 1343948 |
| 110 | 45 | 5 | 15 | 1343966 |
| 120 | 27 | 5 | 15 | 1343931 |
| 120 | 38 | 5 | 15 | 1343949 |
| 120 | 45 | 5 | 15 | 1343967 |
| 130 | 27 | 5 | 15 | 1343932 |
| 130 | 38 | 5 | 15 | 1343950 |
| 130 | 45 | 5 | 15 | 1343968 |
| 150 | 27 | 5 | 15 | 1343933 |
| 150 | 38 | 5 | 15 | 1343951 |
| 150 | 45 | 5 | 15 | 1343969 |
| 170 | 27 | 5 | 15 | 1343934 |
| 170 | 38 | 5 | 15 | 1343952 |
| 170 | 45 | 5 | 15 | 1343970 |
| 180 | 27 | 5 | 15 | 1343935 |
| 180 | 38 | 5 | 15 | 1343953 |
| 180 | 45 | 5 | 15 | 1343971 |
| 190 | 27 | 5 | 15 | 1343936 |
| 190 | 38 | 5 | 15 | 1343954 |
| 190 | 45 | 5 | 15 | 1343972 |
| 210 | 27 | 5 | 15 | 1343937 |
| 210 | 38 | 5 | 15 | 1343955 |
| 210 | 45 | 5 | 15 | 1343973 |
| 230 | 27 | 5 | 15 | 1343938 |
| 230 | 38 | 5 | 15 | 1343956 |
| 230 | 45 | 5 | 15 | 1343974 |
| 240 | 27 | 5 | 15 | 1343939 |





CTBL BCWC.. 15TCT

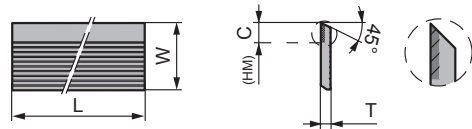
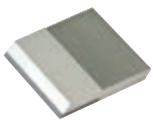
Thickness 5.0, carbide inlay 15.0



| L [mm] | W [mm] | T [mm] | C [mm] | TCT (MG18) |
|--------|--------|--------|--------|------------|
| 240 | 38 | 5 | 15 | 1343957 |
| 240 | 45 | 5 | 15 | 1343975 |
| 650 | 27 | 5 | 15 | 1343940 |
| 650 | 38 | 5 | 15 | 1343958 |
| 650 | 45 | 5 | 15 | 1343976 |

CTBL BCWC.. 20TCT

Thickness 8.0, carbide inlay 20.0



| L [mm] | W [mm] | T [mm] | C [mm] | TCT (MG18) |
|--------|--------|--------|--------|------------|
| 40 | 40 | 8 | 20 | 1344432 |
| 40 | 50 | 8 | 20 | 1344444 |
| 60 | 40 | 8 | 20 | 1344433 |
| 60 | 50 | 8 | 20 | 1344445 |
| 80 | 40 | 8 | 20 | 1344434 |
| 80 | 50 | 8 | 20 | 1344446 |
| 100 | 40 | 8 | 20 | 1344435 |
| 100 | 50 | 8 | 20 | 1344447 |
| 130 | 40 | 8 | 20 | 1344436 |
| 130 | 50 | 8 | 20 | 1344448 |
| 150 | 40 | 8 | 20 | 1344437 |
| 150 | 50 | 8 | 20 | 1344449 |
| 180 | 40 | 8 | 20 | 1344438 |
| 180 | 50 | 8 | 20 | 1344450 |
| 200 | 40 | 8 | 20 | 1344439 |
| 200 | 50 | 8 | 20 | 1344451 |
| 230 | 40 | 8 | 20 | 1344440 |
| 230 | 50 | 8 | 20 | 1344452 |
| 260 | 40 | 8 | 20 | 1344441 |
| 260 | 50 | 8 | 20 | 1344453 |
| 310 | 40 | 8 | 20 | 1344442 |
| 310 | 50 | 8 | 20 | 1344454 |
| 560 | 50 | 8 | 20 | 1344457 |
| 640 | 40 | 8 | 20 | 1344443 |
| 640 | 50 | 8 | 20 | 1344458 |



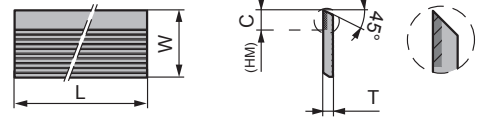
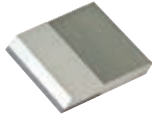


PLANER BLADES

WITH SERRATED BACK – METRIC

CTBL BCWC.. 25TCT

Thickness 8.0, carbide inlay 25.0



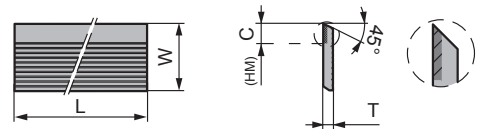
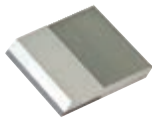
| L [mm] | W [mm] | T [mm] | C [mm] | TCT (MG18) |
|--------|--------|--------|--------|------------|
| 40 | 50 | 8 | 25 | 1344459 |
| 40 | 60 | 8 | 25 | 1344480 |
| 60 | 50 | 8 | 25 | 1344460 |
| 60 | 60 | 8 | 25 | 1344481 |
| 80 | 50 | 8 | 25 | 1344461 |
| 80 | 60 | 8 | 25 | 1344482 |
| 100 | 50 | 8 | 25 | 1344462 |
| 100 | 60 | 8 | 25 | 1344483 |
| 130 | 50 | 8 | 25 | 1344463 |
| 130 | 60 | 8 | 25 | 1344484 |
| 150 | 50 | 8 | 25 | 1344464 |
| 150 | 60 | 8 | 25 | 1344485 |
| 180 | 50 | 8 | 25 | 1344465 |
| 180 | 60 | 8 | 25 | 1344486 |
| 200 | 50 | 8 | 25 | 1344466 |
| 200 | 60 | 8 | 25 | 1344487 |
| 230 | 50 | 8 | 25 | 1344467 |
| 230 | 60 | 8 | 25 | 1344488 |
| 260 | 50 | 8 | 25 | 1344468 |
| 260 | 60 | 8 | 25 | 1344489 |
| 310 | 50 | 8 | 25 | 1344469 |
| 310 | 60 | 8 | 25 | 1344490 |
| 560 | 50 | 8 | 25 | 1344470 |
| 560 | 60 | 8 | 25 | 1344491 |
| 640 | 50 | 8 | 25 | 1344471 |
| 640 | 60 | 8 | 25 | 1344492 |

WITH SERRATED BACK – METRIC

PLANER BLADES

CTBL BCWC.. 35TCT

Thickness 8.0, carbide inlay 35.0



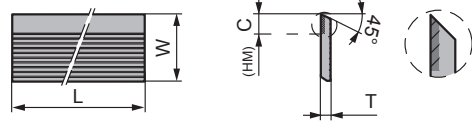
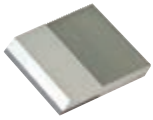
| L [mm] | W [mm] | T [mm] | C [mm] | TCT (MG18) |
|--------|--------|--------|--------|------------|
| 40 | 60 | 8 | 35 | 1344493 |
| 40 | 70 | 8 | 35 | 1344506 |
| 60 | 60 | 8 | 35 | 1344494 |
| 60 | 70 | 8 | 35 | 1344507 |
| 80 | 60 | 8 | 35 | 1344495 |
| 80 | 70 | 8 | 35 | 1344508 |
| 100 | 60 | 8 | 35 | 1344496 |





CTBL BCWC.. 35TCT

Thickness 8.0, carbide inlay 35.0



| L [mm] | W [mm] | T [mm] | C [mm] | TCT (MG18) | |
|-----------|-----------|-----------|-----------|------------|--|
| 100 | 70 | 8 | 35 | 1344509 | |
| 130 | 60 | 8 | 35 | 1344497 | |
| 130 | 70 | 8 | 35 | 1344510 | |
| 150 | 60 | 8 | 35 | 1344498 | |
| 150 | 70 | 8 | 35 | 1344511 | |
| 180 | 60 | 8 | 35 | 1344499 | |
| 180 | 70 | 8 | 35 | 1344512 | |
| 200 | 60 | 8 | 35 | 1344500 | |
| 200 | 70 | 8 | 35 | 1344513 | |
| 230 | 60 | 8 | 35 | 1344501 | |
| 230 | 70 | 8 | 35 | 1344514 | |
| 260 | 60 | 8 | 35 | 1344502 | |
| 260 | 70 | 8 | 35 | 1344515 | |
| 310 | 60 | 8 | 35 | 1344503 | |
| 310 | 70 | 8 | 35 | 1344516 | |
| 560 | 60 | 8 | 35 | 1344504 | |
| 560 | 70 | 8 | 35 | 1344517 | |
| 640 | 60 | 8 | 35 | 1344505 | |
| 640 | 70 | 8 | 35 | 1344518 | |



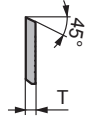
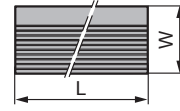
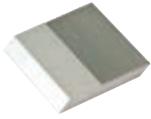


PLANER BLADES

WITH SERRATED BACK – INCH

CTBL BCWC..

Thickness 6.0



WITH SERRATED BACK – INCH

| L [inch] | W [inch] | T [inch] | HSS 6 | HPS® |
|-------------|-------------|-------------|---------|---------|
| 25 | 1.25 | 0.250 | 1344416 | 1343191 |
| 25 | 1.25 | 0.313 | 1344422 | 1343197 |
| 25 | 1.50 | 0.250 | 1344417 | 1343192 |
| 25 | 1.50 | 0.313 | 1344423 | 1343198 |
| 25 | 1.75 | 0.188 | 1344430 | 1343205 |
| 25 | 1.75 | 0.250 | 1344418 | 1343193 |
| 25 | 1.75 | 0.313 | 1344424 | 1343199 |
| 25 | 2.00 | 0.188 | 1344431 | 1343206 |
| 25 | 2.00 | 0.250 | 1344419 | 1343194 |
| 25 | 2.00 | 0.313 | 1344425 | 1343200 |
| 25 | 2.25 | 0.250 | 1344420 | 1343195 |
| 25 | 2.25 | 0.313 | 1344426 | 1343201 |
| 25 | 2.50 | 0.250 | 1344421 | 1343196 |
| 25 | 2.50 | 0.313 | 1344427 | 1343202 |
| 25 | 2.75 | 0.313 | 1344428 | 1343203 |
| 25 | 3.00 | 0.313 | 1344429 | 1343204 |

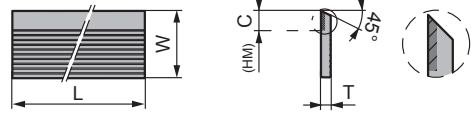
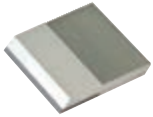
PLANER BLADES





CTBL BCFB.. TCT

Carbide inlay 20-35mm



| L [inch] | W [inch] | T [inch] | TCT (MG18) |
|-------------|-------------|-------------|------------|
| 25 | 1.250 | 0.250 | 1343211 |
| 25 | 1.500 | 0.250 | 1343212 |
| 25 | 1.750 | 0.250 | 1343213 |
| 25 | 2 | 0.250 | 1343214 |
| 25 | 2.250 | 0.250 | 1343215 |
| 25 | 2.500 | 0.250 | 1343216 |
| 25 | 1.250 | 0.313 | 1343217 |
| 25 | 1.500 | 0.313 | 1343218 |
| 25 | 1.750 | 0.313 | 1343219 |
| 25 | 2 | 0.313 | 1343220 |
| 25 | 2.250 | 0.313 | 1343221 |
| 25 | 2.500 | 0.313 | 1343222 |
| 25 | 2.500 | 0.313 | 1343223 |
| 25 | 2.750 | 0.313 | 1343224 |
| 25 | 3 | 0.313 | 1343225 |

WITH SERRATED BACK – INCH

PLANER BLADES







Technical information

How are our grades indicated on the products. Which common products can our carbide grades be compared to. What is the best way to grind carbide?
On the following pages you will receive information on grade designation, material comparisons and on the basics on how to grind carbide.





Grade designation for inserts, scorers and blanks

| Grade | Symbol | Embossed on the product |
|---------|--------|--|
| UMG04 | ○○○○ |  |
| SMG02 | ○○ |  |
| MG06 | ◻ |  |
| KCR08 | □ |  |
| HC05 | ▭ |  |
| MG18 | ○○ |  |
| HC20 | ◇ |  |
| HE40 | △ |  |
| CTOPP10 | x |  |



You can't find the product you need in our catalogue?

Our catalogue shows the product range frequently needed by our customers.

Of course we are also able to manufacture customised products or rather products to customers' specifications. In order to do so, we apply up-to-date production methods and sufficient capacities at our sites which allow us to manufacture special products within a short time.

Our long-standing experience and competence in the fields of research and development ensures that we can provide any support you may need to achieve the optimum results with your tools. We look forward to your requests for products we can put together according to your specifications.

Our qualified engineers will be glad to discuss the specifications with you, and will be placing their technical knowledge with regard to production possibilities and application fields at your disposal.

Should you have any further specific questions, or you require a particular customised product, do not hesitate to call us - we shall be glad to be of assistance.





| Germany DIN | Mat. no. | United Kingdom BS | France AFNOR | Sweden SS | United States AISI | Japan JIS | $K_{c1.1}$ N/mm ² | m_c | VDI 3323 group |
|----------------|-------------|----------------------|-----------------|--------------|-----------------------|---------------|---------------------------------|-------|----------------------|
| 10 SPb 20 | 1.0722 | | 10 PbF 2 | | 11 L 08 | | 1350 | 0,20 | 1 |
| 100 Cr 6 | 1.2067 | BL 3 | Y 100 C 6 | | L 3 | SUJ2 | 1775 | 0,24 | 6/9 |
| 105 WCr 6 | 1.2419 | | 105 WC 13 | | | SKS31 | 1775 | 0,24 | 6/9 |
| 12 CrMo 9 10 | 1.7380 | 1501-622 Gr. 31; 45 | 10 CD 9.10 | 2218 | A 182-F22 | SPVA,SCMV4 | 1675 | 0,24 | 6/7 |
| 12 Ni 19 | 1.5680 | | Z 18 N 5 | | 2515 | | 2450 | 0,23 | 10/11 |
| 13 CrMo 4 4 | 1.7335 | 1501-620 Gr. 27 | 15 CD 3.5 | 2216 | A 182-F11; F12 | SPVAF12 | 1675 | 0,24 | 6/7 |
| 14 MoV 6 3 | 1.7715 | 1503-660-440 | | | | | 1675 | 0,24 | 6/7 |
| 14 Ni 6 | 1.5622 | | 16 N 6 | | A 350-LF 5 | | 1675 | 0,24 | 6/7 |
| 14 NiCr 10 | 1.5732 | | 14 NC 11 | | 3415 | SNC415(H) | 1675 | 0,24 | 6/7 |
| 14 NiCr 14 | 1.5752 | 655 M 13 | 12 NC 15 | | 3310; 9314 | SNC815(H) | 1675 | 0,24 | 6/7 |
| 14 NiCrMo 13 4 | 1.6657 | | | | | | 1675 | 0,24 | 6/7 |
| 15 Cr 3 | 1.7015 | 523 M 15 | 12 C 3 | | 5015 | | 1675 | 0,24 | 6/7 |
| 15 CrMo 5 | 1.7262 | | 12 CD 4 | | | SCM415(H) | 1675 | 0,24 | 6/7 |
| 15 Mo 3 | 1.5415 | 1501-240 | 15 D 3 | 2912 | A 204 Gr. A | | 1675 | 0,24 | 6/7 |
| 16 MnCr 5 | 1.7131 | 527 M 17 | 16 MC 5 | 2511 | 5115 | SCR415 | 1675 | 0,24 | 6/7 |
| 16 Mo 5 | 1.5423 | 1503-245-420 | | | 4520 | SB450M | 1675 | 0,24 | 6/7 |
| 17 CrNiMo 6 | 1.6587 | 820 A 16 | 18 NCD 6 | | | | 1675 | 0,24 | 6/7 |
| 21 NiCrMo 2 | 1.6523 | 805 M 20 | 20 NCD 2 | 2506 | 8620 | SNCM220(H) | 1725 | 0,24 | 6/8 |
| 25 CrMo 4 | 1.7218 | 1717 CDS 110 | 25 CD 4 S | 2225 | 4130 | SM420;SCM430 | 1725 | 0,24 | 6/8 |
| 28 Mn 6 | 1.1170 | 150 M 28 | 20 M 5 | | 1330 | | 1500 | 0,22 | 2 |
| 32 CrMo 12 | 1.7361 | 722 M 24 | 30 CD 12 | 2240 | | | 1775 | 0,24 | 6/9 |
| 34 Cr 4 | 1.7033 | 530 A 32 | 32 C 4 | | 5132 | SCR430(H) | 1725 | 0,24 | 6/8 |
| 34 CrMo 4 | 1.7220 | 708 A 37 | 35 CD 4 | 2234 | 4135; 4137 | SCM432;SCCRM3 | 1775 | 0,24 | 6/9 |
| 34 CrNiMo 6 | 1.6582 | 817 M 40 | 35 NCD 6 | 2541 | 4340 | SNCM447 | 1775 | 0,24 | 6/9 |
| 35 S 20 | 1.0726 | 212 M 36 | 35 MF 4 | 1957 | 1140 | | 1525 | 0,22 | 2/3 |
| 36 CrNiMo 4 | 1.6511 | 816 M 40 | 40 NCD 3 | | 9840 | SNCM447 | 1775 | 0,24 | 6/9 |
| 36 Mn 5 | 1.1167 | | | | | | 1525 | 0,22 | 2/3 |
| 36 NiCr 6 | 1.5710 | 640 A 35 | 35 NC 6 | | 3135 | SNC236 | 1800 | 0,24 | 3/9 |
| 38 MnSi 4 | 1.5120 | | | | | | 1800 | 0,24 | 3/9 |
| 39 CrMoV 13 9 | 1.8523 | 897 M 39 | | | | | 1775 | 0,24 | 6/9 |
| 40 Mn 4 | 1.1157 | 150 M 36 | 35 M 5 | | 1039 | | 1525 | 0,22 | 2/3 |
| 40 NiCrMo 2 2 | 1.6546 | 311-Type 7 | 40 NCD 2 | | 8740 | SNCM240 | 1775 | 0,24 | 6/9 |
| 41 Cr 4 | 1.7035 | 530 M 40 | 42 C 4 | | 5140 | SCR440(H) | 1775 | 0,24 | 6/9 |
| 41 CrAlMo 7 | 1.8509 | 905 M 39 | 40 CAD 6.12 | 2940 | A 355 Cl. A | SACM645 | 1775 | 0,24 | 6/9 |
| 41 CrMo 4 | 1.7223 | 708 M 40 | 42 CD 4 TS | 2244 | 4142; 4140 | SCM440 | 1775 | 0,24 | 6/9 |
| 42 Cr 4 | 1.7045 | 530 A 40 | 42 C 4 TS | 2245 | 5140 | SCr440 | 1775 | 0,24 | 6/9 |
| 42 CrMo 4 | 1.7225 | 708 M 40 | 42 CD 4 | 2244 | 4142; 4140 | SCM440(H) | 1775 | 0,24 | 6/9 |
| 45 WCrV 7 | 1.2542 | BS 1 | | 2710 | S 1 | | 1775 | 0,24 | 6/9 |
| 50 CrV 4 | 1.8159 | 735 A 50 | 50 CV 4 | 2230 | 6150 | SUP10 | 1775 | 0,24 | 6/9 |
| 55 Cr 3 | 1.7176 | 527 A 60 | 55 C 3 | 2253 | 5155 | SUP9(A) | 1775 | 0,24 | 6/9 |
| 55 NiCrMoV 6 | 1.2713 | | 55 NCDV 7 | | L 6 | SKH1;SKT4 | 1775 | 0,24 | 6/9 |
| 55 Si 7 | 1.0904 | 250 A 53 | 55 S 7 | 2085; 2090 | 9255 | | 1775 | 0,24 | 6/9 |
| 58 CrV 4 | 1.8161 | | | | | | 1775 | 0,24 | 6/9 |
| 60 SiCr 7 | 1.0961 | | 60 SC 7 | | 9262 | | 1775 | 0,24 | 6/9 |
| 9 SMn 28 | 1.0715 | 230 M 07 | S 250 | 1912 | 1213 | SUM22 | 1350 | 0,21 | 1 |
| 9 SMn 36 | 1.0736 | 240 M 07 | S 300 | | 1215 | | 1350 | 0,21 | 1 |
| 9 SMnPb 28 | 1.0718 | | S 250 Pb | 1914 | 12 L 13 | SUM22L | 1350 | 0,21 | 1 |
| 9 SMnPb 36 | 1.0737 | | S 300 Pb | 1926 | 12 L 14 | | 1350 | 0,21 | 1 |
| Al99 | 3.0205 | | | | | | 700 | 0,25 | 21 |
| AlCuMg1 | 3.1325 | | | | | | 700 | 0,25 | 22 |



TECHNICAL INFORMATION

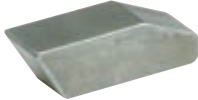

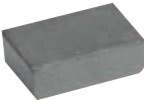



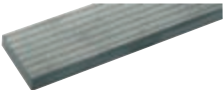





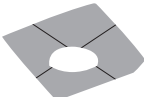



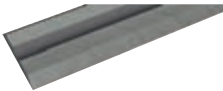

COMPARISON OF MATERIALS

| Germany DIN | Mat. no. | United Kingdom BS | France AFNOR | Sweden SS | United States AISI | Japan JIS | $K_{c1.1}$ N/mm ² | m_c | VDI 3323 group |
|----------------------|-------------|----------------------|-------------------|--------------|-----------------------|--------------|---------------------------------|-------|----------------------|
| AlMg1 | 3.3315 | | | | | | 700 | .25 | 21 |
| AlMgSi1 | 3.2315 | | | | | | 700 | .25 | 22 |
| C 105 W1 | 1.1545 | | Y1 105 | 1880 | W 110 | SK3 | 1675 | .24 | 3 |
| C 125 W | 1.1663 | | Y2 120 | | W 112 | | 1675 | .24 | 3 |
| C 15 | 1.0401 | 080 M 15 | AF3 7 C 12; XC 18 | 1350 | 1015 | S15C | 1350 | .21 | 1 |
| C 22 | 1.0402 | 050 A 20 | AF 42 C 20 | 1450 | 1020 | S20C, S22C | 1350 | .21 | 1 |
| C 35 | 1.0501 | 060 A 35 | AF 55 C 35 | 1550 | 1035 | S35C | 1525 | .22 | 2/3 |
| C 45 | 1.0503 | 080 M 46 | AF 65 C 45 | 1650 | 1045 | S45C | 1525 | .22 | 2/3 |
| C 55 | 1.0535 | 070 M 55 | | 1655 | 1055 | S55C | 1675 | .24 | 3 |
| C 60 | 1.0601 | 080 A 62 | CC 55 | | 1060 | S60C | 1675 | .24 | 3 |
| Cf 35 | 1.1183 | | | | | S35C | 1525 | .22 | 2/3 |
| Cf 53 | 1.1213 | | | | | S50C | 1525 | .22 | 2/3 |
| Ck 101 | 1.1274 | 060 A 96 | | 1870 | 1095 | | 1675 | .24 | 3 |
| Ck 15 | 1.1141 | 080 M 15 | XC 15; XC 18 | 1370 | 1015 | S15C | 1350 | .21 | 1 |
| Ck 55 | 1.1203 | 070 M 55 | XC 55 | | 1055 | S55C | 1675 | .24 | 3 |
| Ck 60 | 1.1221 | 080 A 62 | XC 60 | 1665; 1678 | 1060 | S58C | 1675 | .24 | 3 |
| CoCr20W15Ni | 2.4764 | | | | | | 3300 | .24 | 35 |
| CuZn15 | 2.0240 | | | | | | 700 | .27 | 27 |
| CuZn36Pb3 | 2.0375 | | | | | | 700 | .27 | 26 |
| E-Cu57 | 2.0060 | | | | | | 700 | .27 | 28 |
| G-AlSi10Mg | 3.2381 | | | | | | 700 | .25 | 24 |
| G-AlSi12 | 3.2581 | | | | | | 700 | .25 | 23 |
| G-AlSi9Cu3 | 3.2163 | | | | | | 700 | .25 | 23 |
| G-CuSn5ZnPb | 2.1096 | | | | | | 700 | .27 | 26 |
| G-CuZn40Fe | 2.0590 | | | | | | 700 | .27 | 28 |
| G-X 120 Mn 12 | 1.3401 | Z 120 M 12 | Z 120 M 12 | | A 128 (A) | | 3300 | .24 | 35 |
| G-X 20 Cr 14 | 1.4027 | 420 C 29 | Z 20 C 13 M | | | SCS2 | 1875 | .21 | 12/13 |
| G-X 40 NiCrSi 38 18 | 1.4865 | 330 C 40 | | | | | 2600 | .24 | 31 |
| G-X 45 CrSi 9 3 | 1.4718 | 401 S 45 | Z 45 CS 9 | | HNV 3 | | 2450 | .23 | 10/11 |
| G-X 5 CrNi 13 4 | 1.4313 | 425 C 11 | Z 5 CN 13.4 | 2385 | CA 6-NM | | 1875 | .21 | 12/13 |
| G-X 5 CrNiMoNb 18 10 | 1.4581 | 318 C 17 | Z 4 CNDNb 18.12 M | | | | 2150 | .2 | 14 |
| G-X 6 CrNi 18 9 | 1.4308 | 304 C 15 | Z 6 CN 18.10 M | 2333 | CF-8 | | 2150 | .2 | 14 |
| G-X 6 CrNiMo 18 10 | 1.4408 | | | | | | 2150 | .2 | 14 |
| G-X 7 Cr 13 | 1.4001 | | | | | | 1875 | .21 | 12/13 |
| GG-10 | .6010 | | Ft 10 D | 01 10-00 | A48-20 B | FC100 | 1150 | .2 | 15 |
| GG-15 | .6015 | Grade 150 | Ft 15 D | 01 15-00 | A48-25 B | FC150 | 1150 | .2 | 15 |
| GG-20 | .6020 | Grade 220 | Ft 20 D | 01 20-00 | A48-30 B | FC200 | 1150 | .2 | 15 |
| GG-25 | .6025 | Grade 260 | Ft 25 D | 01 25-00 | A48-40 B | FC250 | 1250 | .24 | 15/16 |
| GG-30 | .6030 | Grade 300 | Ft 30 D | 01 30-00 | A48-45 B | FC300 | 1350 | .28 | 16 |
| GG-35 | .6035 | Grade 350 | Ft 35 D | 01 35-00 | A48-50 B | FC350 | 1350 | .28 | 16 |
| GG-40 | .6040 | Grade 400 | Ft 40 D | 01 40-00 | A48-60 B | FC400 | 1350 | .28 | 16 |
| GGG-35.3 | .7033 | | | | | FCD350 | 1225 | .25 | 17 |
| GGG-40 | .7040 | SNG 420/12 | FGS 400-12 | 0717-02 | 60-40-18 | FCD400 | 1225 | .25 | 17 |
| GGG-40.3 | .7043 | SNG 370/17 | FGS 370-17 | 0717-15 | | FCD400 | 1225 | .25 | 17 |
| GGG-50 | .7050 | SNG 500/7 | FGS 500-7 | 0727-02 | 65-45-12 | FCD500 | 1350 | .28 | 18 |
| GGG-60 | .7060 | SNG 600/3 | FGS 600-3 | 0732-03 | 80-55-06 | FCD600 | 1350 | .28 | 18 |
| GGG-70 | .7070 | SNG 700/2 | FGS 700-2 | 0737-01 | 100-70-03 | FCD700 | 1350 | .28 | 18 |
| GGG-NiCr 20 2 | .7660 | S-NiCr 20 2 | S-NC 20 2 | | A 439 Type D-2 | | 1350 | .28 | 18 |
| GGG-NiMn 13 7 | .7652 | S-NiMn 13 7 | S-NM 13 7 | | | | 1350 | .28 | 18 |
| GS-Ck 45 | 1.1191 | 080 M 46 | XC 42 | 1672 | 1045 | S45C | 1525 | .22 | 2/3 |



| Germany DIN | Mat. no. | United Kingdom BS | France AFNOR | Sweden SS | United States AISI | Japan JIS | $K_{e1.1}$ N/mm ² | m_e | VDI 3323 group |
|----------------------|-------------|----------------------|----------------------|--------------|-----------------------|-----------------|---------------------------------|-------|----------------------|
| GTS-35-10 | .8135 | B 340/12 | MN 35-10 | | | | 1225 | .25 | 19 |
| GTS-45-06 | .8145 | P 440/7 | | | | | 1420 | .3 | 20 |
| GTS-55-04 | .8155 | P 510/4 | MP 50-5 | | | | 1420 | .3 | 20 |
| GTS-65-02 | .8165 | P 570/3 | MP 60-3 | | | | 1420 | .3 | 20 |
| GTS-70-02 | .8170 | P 690/2 | IP 70-2 | | | | 1420 | .3 | 20 |
| NiCr20TiAl | 2.4631 | HR 401; 601 | Nimonic 80 A | | | | 3300 | .24 | 33 |
| NiCr22Mo9Nb | 2.4856 | | Inconel 625 | | | | 3300 | .24 | 33 |
| NiCu30Al | 2.4375 | | Monel K 500 | | | | 3300 | .24 | 34 |
| NiFe25Cr20NbTi | 2.4955 | | | | | | 3300 | .24 | 34 |
| S 18-0-1 | 1.3355 | BT 1 | Z 80 WCV 18-04-01 | | T 1 | | 2450 | .23 | 10/11 |
| S 18-1-2-5 | 1.3255 | BT 4 | Z 80 WKCV 18-05-04-0 | | T 4 | | 2450 | .23 | 10/11 |
| S 2-9-2 | 1.3348 | | Z 100 DCWV 09-04-02- | 2782 | M 7 | | 2450 | .23 | 10/11 |
| S 6-5-2 | 1.3343 | BM 2 | Z 85 WDCV 06-05-04-0 | 2722 | M 2 | SKH9; SKH51 | 2450 | .23 | 10/11 |
| S 6-5-2-5 | 1.3243 | | Z 85 WDKCV 06-05-05- | 2723 | | SKH55 | 2450 | .23 | 10/11 |
| TiAl6V4 | 3.7165 | TA 10 bis TA 13 | T-A 6 V | | | | 2110 | .22 | 37 |
| X 10 Cr 13 | 1.4006 | 410 S 21 | Z 12 C 13 | 2302 | 410; CA-15 | SUS410 | 1875 | .21 | 12/13 |
| X 10 CrNiMoNb 18 12 | 1.4583 | | | | 318 | | 2150 | .2 | 14 |
| X 10 CrNiS 18 9 | 1.4305 | 303 S 21 | Z 10 CNF 18.09 | 2346 | 303 | | 2150 | .2 | 14 |
| X 100 CrMoV 5 1 | 1.2363 | BA 2 | Z 100 CDV 5 | 2260 | A 2 | | 2450 | .23 | 10/11 |
| X 12 CrMoS 17 | 1.4104 | | Z 10 CF 17 | 2383 | 430 F | SUS430F | 1875 | .21 | 12/13 |
| X 12 CrNi 17 7 | 1.4310 | 301 S 21 | Z 12 CN 17.07 | | 301 | | 2150 | .2 | 14 |
| X 12 CrNi 22 12 | 1.4829 | | | | | SUS301 | 1350 | .28 | 16 |
| X 12 CrNi 25 21 | 1.4845 | 310 S24 | Z 12 CN 25.20 | 2361 | 310 S | SUH310; SUS310S | 2150 | .2 | 14 |
| X 12 CrNiTi 18 9 | 1.4878 | 321 S 20 | Z 6 CNT 18.12 (B) | 2337 | 321 | | 2150 | .2 | 14 |
| X 12 NiCrSi 36 16 | 1.4864 | NA 17 | Z 12 NCS 37.18 | | 330 | SUH330 | 2600 | .24 | 31 |
| X 15 CrNiSi 20 12 | 1.4828 | 309 S 24 | Z 15 CNS 20.12 | | 309 | SUH309 | 1350 | .28 | 16 |
| X 165 CrMoV 12 | 1.2601 | | | 2310 | | | 2450 | .23 | 10/11 |
| X 2 CrNiMo 18 13 | 1.4440 | | | | | | 2150 | .2 | 14 |
| X 2 CrNiMoN 17 13 3 | 1.4429 | 316 S 62 | Z 2 CND 17.13 Az | 2375 | 316 LN | SUS316LN | 2150 | .2 | 14 |
| X 2 CrNiN 18 10 | 1.4311 | 304 S 62 | Z 2 CN 18 .10 | 2371 | 304 LN | SUS304LN | 2150 | .2 | 14 |
| X 20 CrNi 17 2 | 1.4057 | 431 S 29 | Z 15 CN 16.02 | 2321 | 431 | SUS431 | 1875 | .21 | 12/13 |
| X 210 Cr 12 | 1.2080 | BD 3 | Z 200 C 12 | | D 3 | | 2450 | .23 | 10/11 |
| X 210 CrW 12 | 1.2436 | | | 2312 | | | 2450 | .23 | 10/11 |
| X 30 WCrV 9 3 | 1.2581 | BH 21 | Z 30 WCV 9 | | H 21 | SKD5 | 2450 | .23 | 10/11 |
| X 40 CrMoV 5 1 | 1.2344 | BH 13 | Z 40 CDV 5 | 2242 | H 13 | SKD61 | 2450 | .23 | 10/11 |
| X 46 Cr 13 | 1.4034 | 420 S 45 | Z 40 C 14 | | | | 1875 | .21 | 12/13 |
| X 5 CrNi 18 9 | 1.4301 | 304 S 15 | Z 6 CN 18.09 | 2332; 2333 | 304; 304 H | SUS304 | 2150 | .2 | 14 |
| X 5 CrNiMo 17 13 3 | 1.4436 | 316 S 16 | Z 6 CND 17.12 | 2343 | 316 | SUS316 | 2150 | .2 | 14 |
| X 5 CrNiMo 18 10 | 1.4401 | 316 S 16 | Z 6 CND 17.11 | 2347 | 316 | SUS316 | 2150 | .2 | 14 |
| X 53 CrMnNiN 21 9 | 1.4871 | 349 S 54 | Z 52 CMN 21.09 | | EV 8 | | 1875 | .21 | 12/13 |
| X 6 Cr 13 | 1.4000 | 403 S 17 | Z 6 C 13 | 2301 | 403 | SUS403 | 1875 | .21 | 12/13 |
| X 6 Cr 17 | 1.4016 | 430 S 15 | Z 8 C 17 | 2320 | 430 | SUS430 | 1875 | .21 | 12/13 |
| X 6 CrMo 17 | 1.4113 | 434 S 17 | Z 8 CD 17.01 | 2325 | 434 | SUS434 | 1875 | .21 | 12/13 |
| X 6 CrNiMoTi 17 12 2 | 1.4571 | 320 S 31 | Z 6 CNT 17.12 | 2350 | 316 Ti | | 2150 | .2 | 14 |
| X 6 CrNiNb 18 10 | 1.4550 | 347 S 17 | Z 6 CNNb 18.10 | 2338 | 347 | | 2150 | .2 | 14 |
| X 6 CrNiTi 18 10 | 1.4541 | 321 S 12 | Z 6 CNT 18.10 | 2337 | 321 | | 2150 | .2 | 14 |
| X2 CrNi 18-8 | 1.4317 | | | | | | 2150 | .2 | 14 |


Packaging

| Page(s) | Product | Packaging |
|---------|--|---|
| B4-B36 |  <p>Saw tips for wood</p> |  |
| C4-C15 |  <p>Saw tips for metal</p> |  |
| D4-D5 |  <p>Strobe blanks</p> |  |
| E4-E14 |  <p>Rectangular strips</p> |  |
| F4-F8 |  <p>Rods</p> |  |
| G4-G10 |  <p>Blanks for wood machining</p> |  |
| H4-H25 |  <p>Indexable knives</p> |  |
| I4-I23 |  <p>Blanks for profiling</p> |  |
| J4-J25 |  <p>Planer blades</p> |  |



Basics of carbide grinding

Carbide is exclusively ground with diamond grinding wheels.



Diamond

Diamond types

- synthetic
- natural

Properties

Hardness: 80 kN/mm²

Density: 3520 kg/m³

Thermal stability: up to approx. 700°C

Colour: transparent to green-yellowish

Highly reactive regarding the formation of carbides

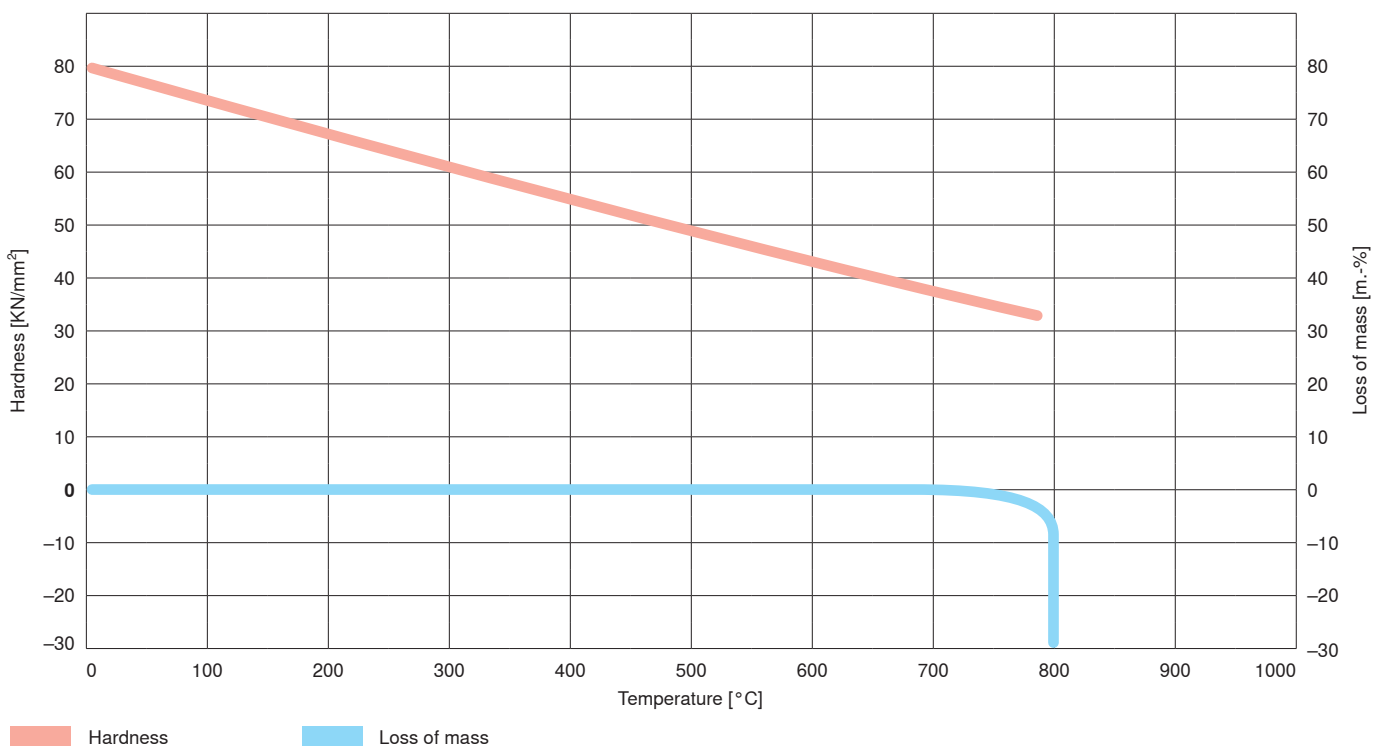
Application fields

Machining of carbides, ceramic, cermets, PCD, PCBN (polycrystalline cubic boron nitride), glass

Application in grinding wheels

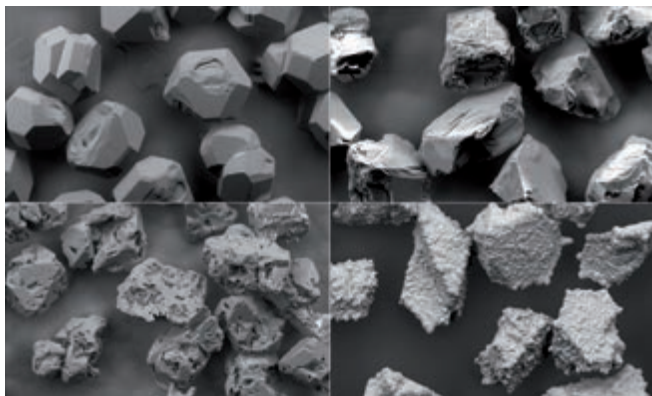
- in all types of bonds
- but mainly in synthetic resin and metal bonds

Thermal stability





Diamond abrasive grit



Types of grit

- block-like
- micro-crystalline
- splintering
- grit with coating

Coated abrasive grit

- lightly or strongly covered
- mostly with metal cover
 - abrasive grit with a metal cover achieves longer tool life and better thermal conductivity
 - abrasive grit without metal cover cuts better and is smoother

Grit size designation and grit size comparison for diamond grit (1)

| D... | %> | FEPA grit sizes | | | | Mesh (USA) | JIS (Japan) | grits/ct | Medium grit size [mm] |
|------|----|-----------------|-----------|-----|----|------------|-------------|----------|-----------------------|
| | | μm | % between | μm | %< | | | | |
| 251 | 8 | 271 | 90 | 213 | 8 | 60/80 | 8.000 | | |
| 213 | 8 | 227 | 90 | 181 | 8 | | 17.000 | | |
| 181 | 10 | 197 | 87 | 151 | 10 | 80/100 | 25.000 | | |
| 151 | 10 | 165 | 87 | 127 | 10 | 100/120 | 50.000 | 0,151 | |
| 126 | 10 | 139 | 87 | 107 | 10 | 120/140 | 80.000 | 0,126 | |
| 107 | 11 | 116 | 85 | 90 | 11 | 140/170 | 130.000 | 0,107 | |
| 91 | 11 | 97 | 85 | 75 | 11 | 170/200 | 240.000 | 0,091 | |
| 76 | 11 | 85 | 85 | 65 | 11 | 200/230 | 400.000 | 0,076 | |
| 64 | 11 | 75 | 85 | 57 | 11 | 230/270 | 800.000 | 0,064 | |
| 54 | 15 | 65 | 80 | 49 | 15 | 270/325 | 130.000 | 0,054 | |
| 46 | 15 | 57 | 80 | 41 | 15 | 325/400 | 200.000 | 0,046 | |

< 46: micron -> no screening

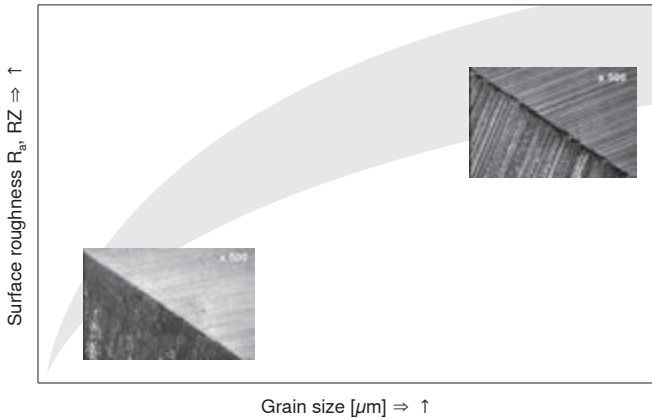
Grit size designation and grit size comparison for diamond grit (2)

| Europe (metric) D... | Macro-grit size (screened) | |
|-------------------------|----------------------------|---------------|
| | mesh size [μm] | USA [mesh] |
| 1.180 | 1.180–1.000 | 16/18 |
| 1.001 | 1.000–850 | 18/20 |
| 851 | 850–710 | 20/25 |
| 711 | 710–600 | 25/30 |
| 601 | 600–500 | 30/35 |
| 501 | 500–425 | 35/40 |
| 426 | 425–355 | 40/45 |
| 356 | 355–300 | 45/50 |
| 301 | 300–250 | 50/60 |
| 251 | 250–212 | 60/70 |
| 213 | 212–180 | 70/80 |
| 181 | 180–150 | 80/100 |
| 151 | 150–125 | 100/120 |
| 126 | 125–106 | 120/140 |
| 107 | 106–90 | 140/170 |
| 91 | 90–75 | 170/200 |
| 76 | 75–63 | 200/230 |
| 64 | 63–53 | 230/270 |
| 54 | 53–45 | 270/325 |
| 46 | 45–38 | 325/400 |

| Designation | Micro-grit size | |
|-------------|-----------------|---------------|
| | FEPA [μm] | US [mesh] |
| MD40 | 27–53 | 500/600 |
| MD25 | 16–34 | 600/800 |
| MD16 | 10–22 | 800/1.200 |
| MD10 | 6–14 | 1.200/1.800 |
| MD6,3 | 4–9 | 1.400/3.000 |
| MD4,0 | 2,5–5,5 | 3.000/8.000 |
| MD2,5 | 1,5–4 | 8.000/12.000 |
| MD1,6 | 1,0–2,5 | 12.000/13.000 |
| MD1,0 | 0,5–1,5 | |



Influence of grit size on ground surface and edge quality



Selection of diamond grit size is important when considering the final surface quality that needs to be achieved.

Coarser grit mesh sizes reduce the achievable surface quality

and finer will improve the surface.

Influence of grit size and concentration

| fine | ← | Grit size | ⇒ | coarse |
|------|---|---------------------|---|--------|
| ↓ | | service life | | ↑ |
| ↓ | | cutting performance | | ↑ |
| ↑ | | grinding pressure | | ↓ |
| ⚡ | | surface quality | | ⚡ |

| low | ← | Concentration | ⇒ | high |
|-----|---|---------------------|---|------|
| ↓ | | service life | | ↑ |
| ↑ | | cutting performance | | ↓ |
| ↓ | | grinding pressure | | ↑ |
| ⚡ | | surface quality | | ⚡ |

| Grit | | Concentration | | | | |
|------------|------|-------------------------------|------|------|------|------|
| USA [mesh] | FEPA | C50 | C75 | C100 | C150 | C200 |
| 325/400 | D46 | 2481 | 3721 | 4962 | 7443 | 9923 |
| 270/325 | D54 | 1534 | 2300 | 3067 | 4601 | 6134 |
| 230/270 | D64 | 921 | 1382 | 1842 | 2763 | 3685 |
| 200/230 | D76 | 550 | 825 | 1100 | 1650 | 2200 |
| 170/200 | D91 | 320 | 481 | 641 | 961 | 1282 |
| 140/170 | D107 | 197 | 296 | 394 | 591 | 788 |
| 120/140 | D126 | 120 | 181 | 241 | 362 | 482 |
| 100/120 | D151 | 70 | 105 | 140 | 210 | 280 |
| 80/100 | D181 | 40 | 60 | 81 | 120 | 160 |
| 60/80 | D252 | 15 | 23 | 30 | 45 | 60 |
| | | = grit volume/mm ³ | | | | |

Types of bonds in grinding wheels

| Advantages and disadvantages | Metal | Ceramic | Resin | Galvanic |
|------------------------------|-------|---------|-------|----------|
| Cutting performance | ○○ | ○○○ | ○○○ | ○○○ |
| Deformation resistance | ○○○ | ○○ | ○○ | ○○ |
| Thermal stability | ○○○ | ○○○ | ○○ | ○○ |
| Conductivity | ○○○ | ○ | ○○ | ○○○ |
| Dressing characteristics | ○○ | ○○○ | ○○○ | ○ |

Metal (Cu, Co)

Ceramic

Galvanic

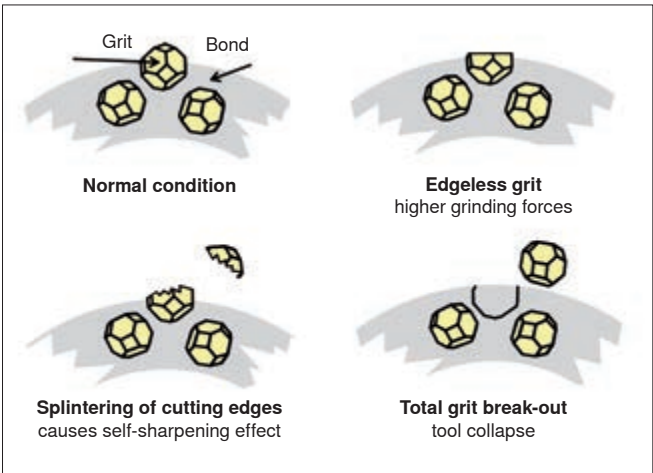
Resin

in addition the bond is characterised by filler materials and porosity

- optimal
- good suitability
- not suitable



Wear mechanisms on grinding wheels



Grit wear

- Grit flattening ⇨ Grinding pressure ↑
- Grit splintering ⇨ Self-sharpening effect
- Grit chipping ⇨ Tool failure

Bond wear

- In materials with chip formation/cutting materials ⇨ Wear of the bond
- In chipless materials/work piece materials ⇨ Powdery abrasion of the work piece (very low wear of bond)

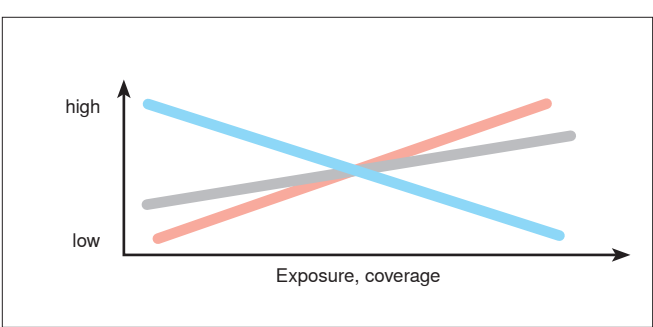
Influence of modifying grinding parameters

| | Modifying parameters | | | | | |
|-------------------------|----------------------------------|--|--------------------------|-------------------|---|------------------------------------|
| | Machine and operation parameters | | Grinding wheel | | Contact face | |
| | Cutting speed v_c [m/s] | Metal removal rate Q_w [mm ³ /s] | Coolant [oil content] | Grit size [μm] | Concentration [grit amount/cm ³] | Contact face [cm ²] |
| Grinding force F | ↓ | ↑ | ↑ | ↑ | ↑ | ↑ |
| Wear rate G | ↑ | ↓ | ↑ | ↑ | ↑ | ↑ |
| Roughness R_a | ↓ | ↑ | ↓ | ↑ | ↓ | ↓ |
| Temperature ϑ | ↑ | ↑ | ↓ | ↑ | ↑ | ↑ |

Influence of cutting conditions on grinding result



$$\frac{Q_w, \text{ grit size}}{v_c, l_g}$$



$$\frac{l_g}{v_w}$$

- █ Internal pressure and tension
- █ Surface quality
- █ Cutting edge quality



Cooling lubricant for grinding



Applying a cooling lubricant when grinding is extremely important

- it influences the removal of the heat generated during the grinding process and the evacuation of the chips produced

Therefore, the use of the coolant has to be adapted with regard to

- the type of coolant (oil, emulsion)
- the viscosity of the coolant
- the flashpoint of the coolant
- pressure, flow rate, speed and direction of the coolant jet

The coolant achieves an optimal effect only when it is correctly filtered

- without filtering the fine abrasive material can be recirculated and become re-attached to the grinding wheel
- the abrasive material from grinding refuse sticks to the work piece and to the grinding wheel
- blocks the grinding wheel, generates excessive heat and destroys the bond of the grinding wheel and the carbide part which is to be ground
- leads to early wear of the wheel
- contaminated coolant decreases the service life and precision of the machine

Influence of cooling lubricant

Potential properties of cooling lubricants

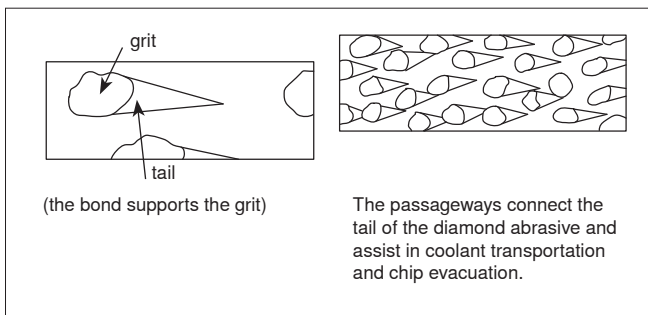
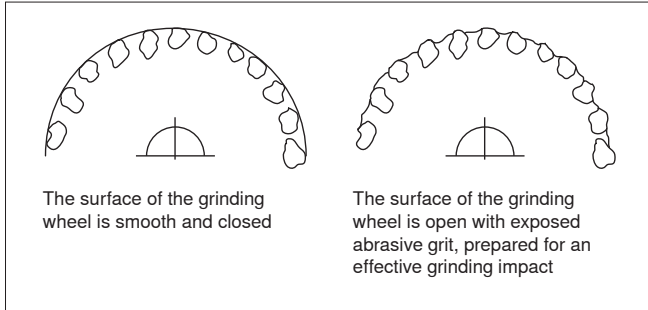
| | Grinding oil | Emulsion |
|----------------------|--------------|----------|
| Lubricating effect | ↓ | ↓ |
| Thermal conductivity | ↓ | ↑ |
| Thermal capacity | ↓ | ↑ |
| Viscosity | ↑ | ↓ |
| Costs | ↑ | ↓ |

Comparison of potential process influence of cooling lubricants

| | Grinding oil | Emulsion |
|-----------------|--------------|----------|
| Heat generation | ↓ | ↑ |
| Heat removal | ↓ | ↑ |
| Tool wear | ↓ | ↑ |
| Cleaning effect | ↓ | ↑ |
| Costs | ↑ | ↓ |



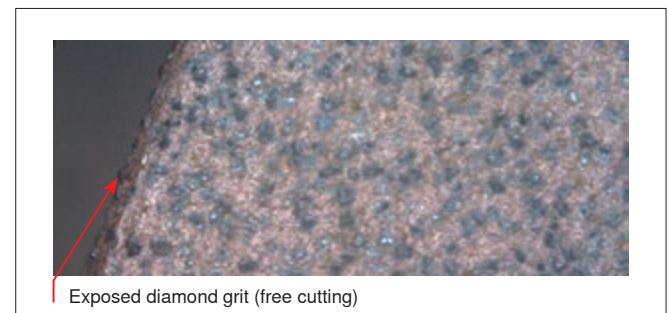
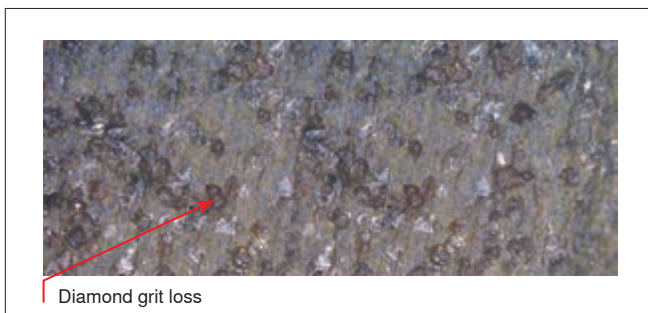
Dressing of the grinding wheel



When dressing the grinding wheels the following has to be considered

- Hardness and grit types of the dresser and grinding wheel sharpening stick
 - dressing stick must be approx. 1 to 2 grit sizes finer than the abrasive grit size of the grinding wheel
 - medium grit is good for resin-bonded grinding wheels
 - for metal bonds the same grit size or 1 x class coarser than the grinding wheel
 - ceramic bonds generally do not require wheel dressing
- Rotation speed of the grinding wheel during the dressing process
- Material of the dressing stick (SiC, Al₂O₃)
- Procedure
 - dressing and 'sharpening' of the grinding wheel, The surface of the grinding wheel is smooth and closed.
 - sharpening of the rim The grinding wheel surface is open with exposed abrasive diamond grit, prepared for an effective grinding impact.
- Verification method of the grinding wheel's sharpness after dressing

How to establish if grinding wheel is correctly dressed

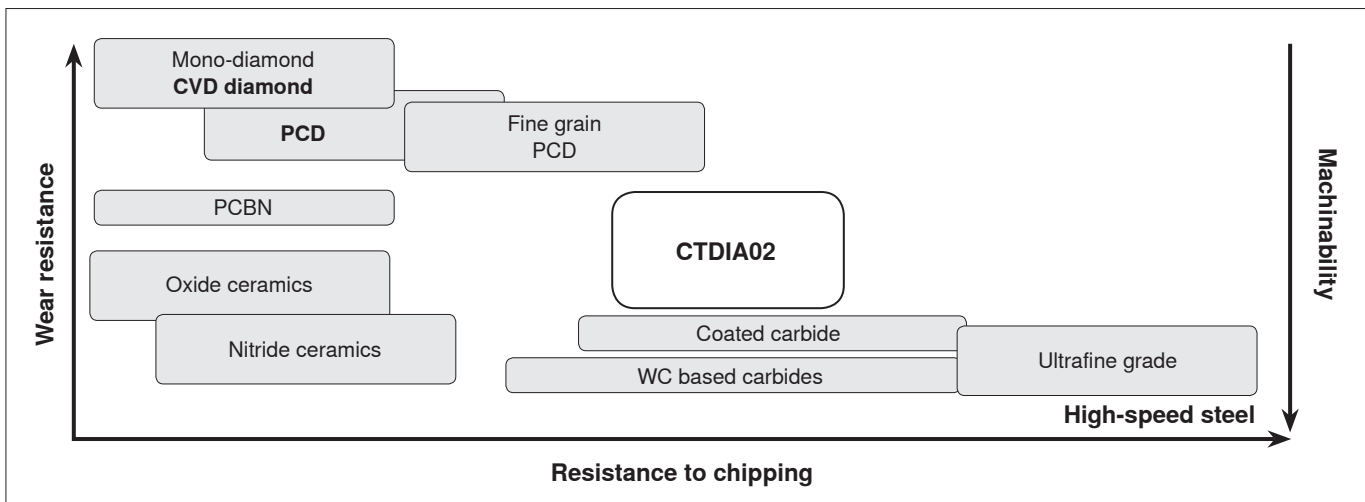




Special properties of CTDIA02

CERATIZIT has launched an absolute highlight on the market: the saw tip CTDIA02. It is characterised by an extremely innovative layer structure and a self-sharpening tip. On MDF particle boards, CTDIA02 achieves a cutting performance of 250 kilometres, surpassing that of conventional saw tips many times over and providing excellent surface quality on the work piece.

Tool materials performance comparison

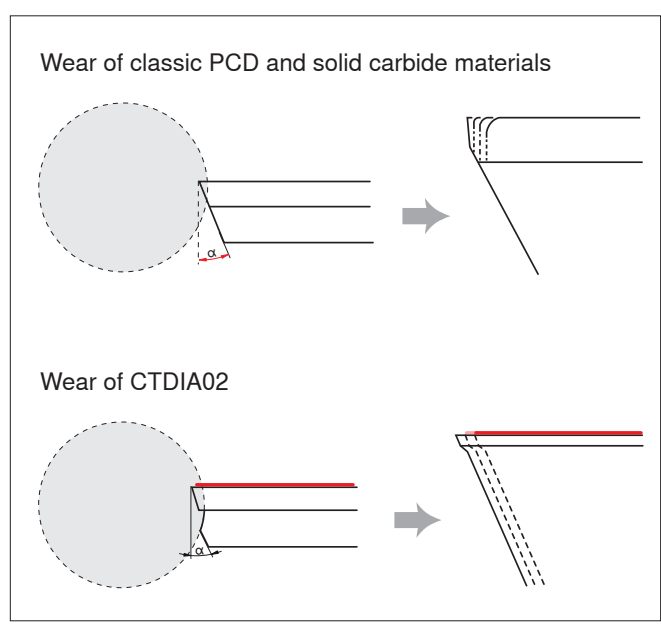


Innovative coating structure

- New ductile coating
- Excellent chipping resistance
- Extra-thin PCD layer
- Improved machinability
- Carbide

Machinability on standard machines

- No process change required for a majority of users
- Brazing and grinding possible on conventional machinery
- No new investment needed
- No complicated training/learning curve
- Machining information available upon request

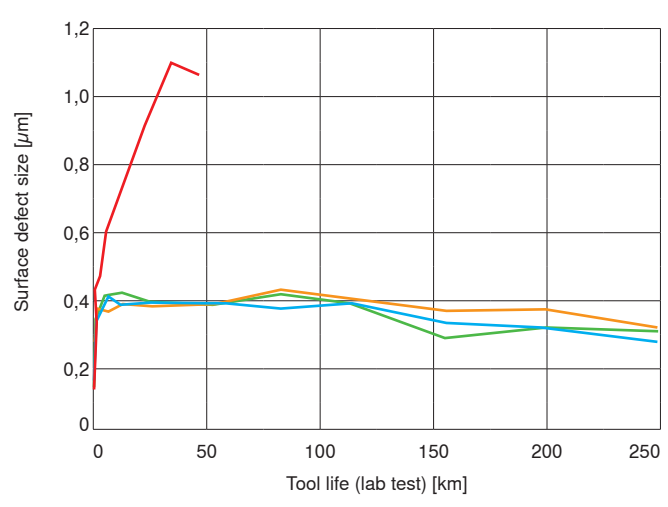


Performance characteristics

Wear resistance

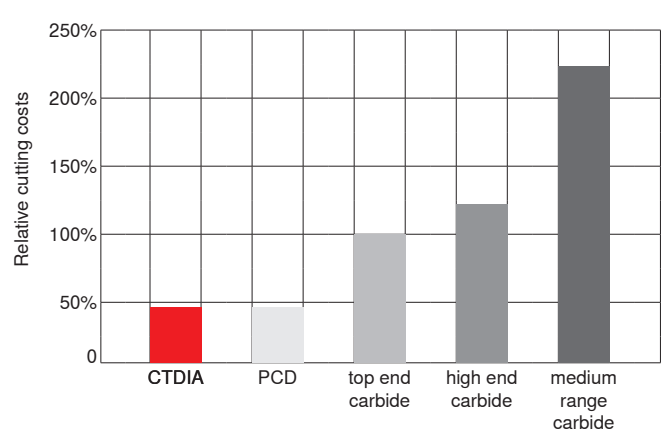
- Structure of CTDIA02
 - Multi-layer product with specifically developed properties
- Excellent wear resistance
 - Totally different from solid carbide cutting materials and classic PCD
- Self-sharpening
 - The layers show different wear levels, thus causing the self-sharpening effect of the cutting edges

Quality of cut surface (MDF)



- High end carbide
- CTDIA type 1
- CTDIA type 2
- CTDIA type 3

Relative cutting costs

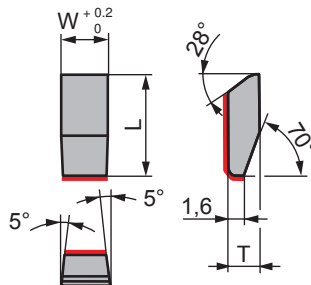




Products with a braze alloy

Today CERATIZIT is able to add braze alloys in-house and therefore offers customers 100% quality.

Addition of a braze alloy to saw tips

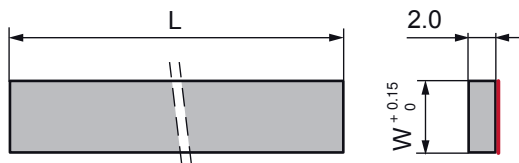
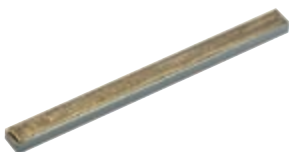


| Braze alloy addition min. size [L x W x T mm] | Braze alloy addition max. size [L x W x T mm] |
|---|---|
| 6,5 x 2,5 x 2,0 | 16 x 11 x 4,0 |

Minimum order quantity

For non-stock articles, please enquire about minimum order quantities.

Stroke blanks with an added brazing alloy



| Braze alloy addition min. size [L x W mm] | Braze alloy addition max. size [L x W mm] |
|---|---|
| 20 x 2,0 | 80 x 6,0 |

Minimum order quantity

For non-stock articles, please enquire about minimum order quantities.



TECHNICAL INFORMATION

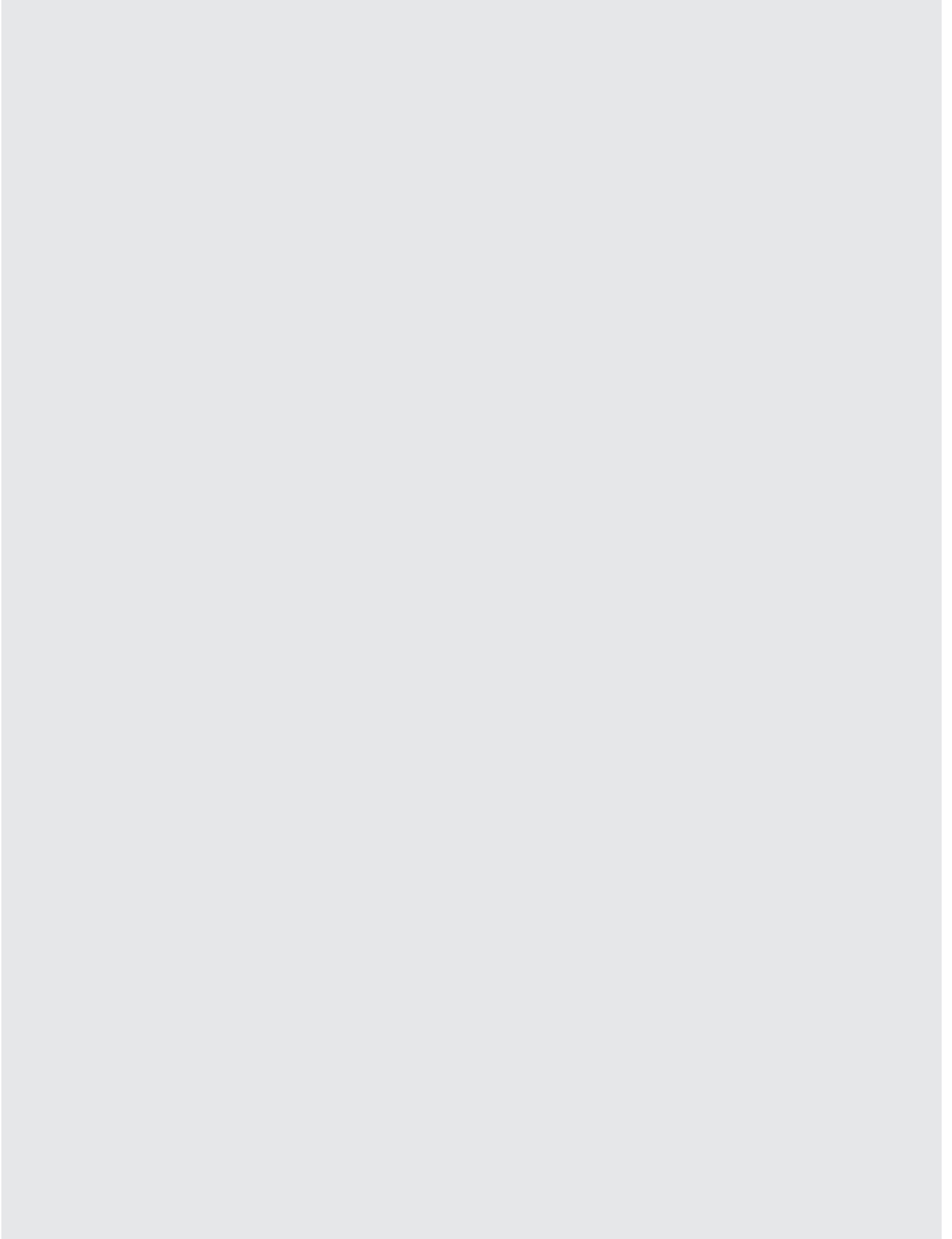
INDEX

| | | | |
|----------------|-------------------------|--|--|
| 1 | | | |
| 10529.. | B15 | | |
| 10529.. DA | B27 | | |
| 10975.. | B11, C5 | | |
| 10975.. DA | B25, C13 | | |
| 11460.. | B9 | | |
| 11460.. DA | B23 | | |
| 11748.. | B14 | | |
| 11748.. DA | B26 | | |
| 11963.. | B11 | | |
| 11963.. DA | B24 | | |
| 12154.. | B13 | | |
| 12356.. DA | B26 | | |
| 12365.. | B14 | | |
| 13651.. | C4 | | |
| 15705.. | B10 | | |
| 15705.. DA | B23 | | |
| 16015.. | G10 | | |
| 16387.. | B8 | | |
| 16387.. DA | B22 | | |
| 17037.. | B10, C5 | | |
| 17037.. DA | B24, C13 | | |
| 17109.. | B18 | | |
| 18160.. | B17 | | |
| 18160.. DA | B29 | | |
| 18246.. | B17 | | |
| 19975.. | B15 | | |
| 2 | | | |
| 20769.. | C6 | | |
| 20771 .. DA | C13, C14 | | |
| 20771.. | C10, C11, C7, C8, C9 | | |
| 22180.. | B13 | | |
| 22974.. | B12 | | |
| 22974.. DA | B25 | | |
| 24150.. | B16 | | |
| 24150.. DA | B27 | | |
| 24466.. | B12 | | |
| 24467.. | B13 | | |
| 25374.. | B8 | | |
| 25374.. DA | B22 | | |
| 25375.. | B7 | | |
| 25618.. | B12 | | |
| 25618.. DA | B25 | | |
| 26014.. | B10 | | |
| 26014.. DA | B24 | | |
| 26457.. | B14 | | |
| 26457.. DA | B27 | | |
| 28601.. | B7 | | |
| 29984.. | B9 | | |
| 29984.. DA | B23 | | |
| 3 | | | |
| | | | |
| 31440.. | B8, C4 | | |
| 31440.. DA | B22 | | |
| 31450.. | B9 | | |
| 31450.. DA | B22 | | |
| 31591.. | B13 | | |
| 31591.. DA | B26 | | |
| 37800.. | G10 | | |
| 38111.. | C12 | | |
| 38376.. | B16 | | |
| 38376.. DA | B28 | | |
| 4 | | | |
| 40330.. | G10 | | |
| 41884.. | B11 | | |
| 41884.. DA | B25 | | |
| 43368.. | C6 | | |
| 44092.. | B17 | | |
| 44092.. DA | B28 | | |
| 44246.. | B12 | | |
| 44670.. | B7 | | |
| 44671.. | B9 | | |
| 44671.. DA | B23 | | |
| 44800.. | D4 | | |
| 44800.. DA | D7 | | |
| 44814.. | B10 | | |
| 45757.. | G11 | | |
| 46623.. | B16 | | |
| 46623.. DA | B27 | | |
| 47015.. | B8 | | |
| 47978.. | B15 | | |
| 5 | | | |
| 50208.. | B15 | | |
| 50208.. DA | B26 | | |
| 50212.. | B17 | | |
| 50212.. DA | B28 | | |
| 50661.. | C12 | | |
| 50811.. | C6 | | |
| 50811.. DA | C14 | | |
| 50812.. | C5 | | |
| 50838.. | C6 | | |
| 50884.. | B16 | | |
| 50884.. DA | B28 | | |
| 50966.. | C5 | | |
| 50966.. DA | C13 | | |
| 50973.. | B19 | | |
| 51064.. | B6 | | |
| 51224.. | B14 | | |
| 51229.. | B19 | | |
| 51230.. | B19 | | |
| 51231.. | B20 | | |
| 51232.. | B20 | | |
| 51233.. | B20 | | |
| 51242.. | B21 | | |
| 51500.. | C4 | | |
| 51508.. | C4 | | |
| 6 | | | |
| 60000.. | B4, B5 | | |
| 6071.. | B11 | | |
| 6071.. DA | B24 | | |
| C | | | |
| CTBL BCFB.. | J13 | | |
| CTBL BCFB-inch | J25 | | |
| CTBL BCWC.. | J14, J15, J17 | | |
| CTBL BCWC.. | J20 | | |
| 15TCT | | | |
| CTBL BCWC.. | J21 | | |
| 20TCT | | | |
| CTBL BCWC.. | J22 | | |
| 25TCT | | | |
| CTBL BCWC.. | J22 | | |
| 35TCT | | | |
| CTBL BCWC-inch | J24 | | |
| CTBL CH10.. | I19 | | |
| CTBL CH20.. | I19 | | |
| CTBL GR10.. | I21 | | |
| CTBL GR20.. | I21 | | |
| CTBL IT10.. | I10 | | |
| CTBL IT11.. | I10 | | |
| CTBL IT20.. | I11 | | |
| CTBL IT21.. | I12 | | |
| CTBL MC00.. | I23 | | |
| CTBL MP10.. | I14 | | |
| CTBL MP11.. | I14 | | |
| CTBL MP20.. | I15 | | |
| CTBL MP21.. | I15 | | |
| CTBL RV10.. | I17 | | |
| CTBL RV20.. | I17 | | |
| CTBL RV22.. | I17 | | |
| CTBL SP20.. | I4 | | |
| CTBL ST10.. | I5 | | |
| CTBL ST11.. | I5 | | |
| CTBL ST12.. | I6 | | |
| CTBL ST20.. | I7 | | |
| CTBL ST21.. | I7 | | |
| CTBL ST22.. | I8 | | |
| CTBL WH00.. | I24 | | |
| CTCY ST.. | C15 | | |
| CTDB.. LE | G6 | | |
| CTDB.. RI | G6 | | |
| CTDB..-R | G8 | | |
| CTDB..-S | G7 | | |
| CTDB..-Z | G7 | | |
| CTDB..-ZF | G8 | | |
| CTDD LE.. | G4 | | |
| CTDD RI.. | G4 | | |
| CTDT LE.. | G5 | | |



| | |
|--------------------|----------|
| CTDT RI.. | G5 |
| CTE BP | J11 |
| CTE PAC | J10 |
| CTK BZ.. | J6 |
| CTK CH.. | H21 |
| CTK CH.. 45° | H21 |
| CTK CH.. R | H21 |
| CTK CH.. RI/LE | H22 |
| CTK CL.. | J5 |
| CTK CP.. | H19 |
| CTK ECO.. | H24 |
| CTK ECO..FC | H15 |
| CTK FC.. | H12, H14 |
| CTK FC.. 3H | H14 |
| CTK FC.. 45° | H8 |
| CTK FC.. CB | H12 |
| CTK FC.. CB/SH | H13 |
| CTK FC.. MIC45° | H10 |
| CTK GR.. | H13 |
| CTK GR.. (Type3) | H20 |
| CTK GR.. (Type4) | H20 |
| CTK MK.. BG | H23 |
| CTK MK.. FG | H23 |
| CTK MK..BCG | H23 |
| CTK PK.. | H25 |
| CTK SC.. | H19 |
| CTK SC.. 3CUT | H11 |
| CTK SC.. MIC | H10 |
| CTK SC.. RHO | H12 |
| CTK SH.. | H7 |
| CTK SK..LE (Type1) | H16 |
| CTK SK..LE (Type2) | H16 |
| CTK SK..LE (Type3) | H17 |
| CTK SK..RI (Type1) | H16 |
| CTK SK..RI (Type2) | H17 |
| CTK SK..RI (Type3) | H17 |
| CTK ST.. 45° | H8 |
| CTK ST.. BO | H18 |
| CTK ST.. CB | H10 |
| CTK ST.. MIC45° | H9 |
| CTK ST.. (Type1) | H6 |
| CTK ST.. (Type2) | H6 |
| CTK ST.. (Type3) | H7 |
| CTK TM.. | J4 |
| CTK TP.. | J7 |
| CTK TP-inch | J9 |
| CTRG W00.. inch | F5 |
| CTRG W00.. mm | F4 |
| CTRG W01.. inch | F8 |
| CTRG W01.. mm | F6 |
| CTS 00.. | E4 |
| CTS 01.. | E9 |

| | |
|--------------|-----|
| CTS 02.. | E12 |
| CTS BE01.. | E11 |
| CTS BE02.. | E14 |
| CTS RE00.. | E5 |
| CTSM.. | G9 |
| CTSO.. | G9 |
| E | |
| EL CTK PK.. | H5 |
| EL CTK SC..R | H4 |
| EL CTK ST.. | H4 |
| S | |
| STB.. | E7 |
| W | |
| WA.. | B30 |
| WA.. PT | B32 |
| WB.. | B30 |
| WBC.. | B33 |
| WBC.. PT | B35 |
| WC.. | B30 |
| WD.. | B30 |
| WD.. PT | B32 |
| WDC.. | B33 |
| WDC.. PT | B35 |
| WE.. | B31 |
| WE.. PT | B32 |
| WEC.. | B33 |
| WEC.. PT | B35 |
| WF.. | B31 |
| WF.. PT | B32 |
| WFC.. | B33 |
| WFC.. PT | B35 |
| WG.. | B31 |
| WGC.. | B34 |
| WGC.. PT | B36 |
| WHC.. | B34 |
| WHC.. PT | B36 |
| WQ.. | B31 |
| WXC.. | B34 |
| WXC.. PT | B36 |





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Subject to technical changes and improvements in production.



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