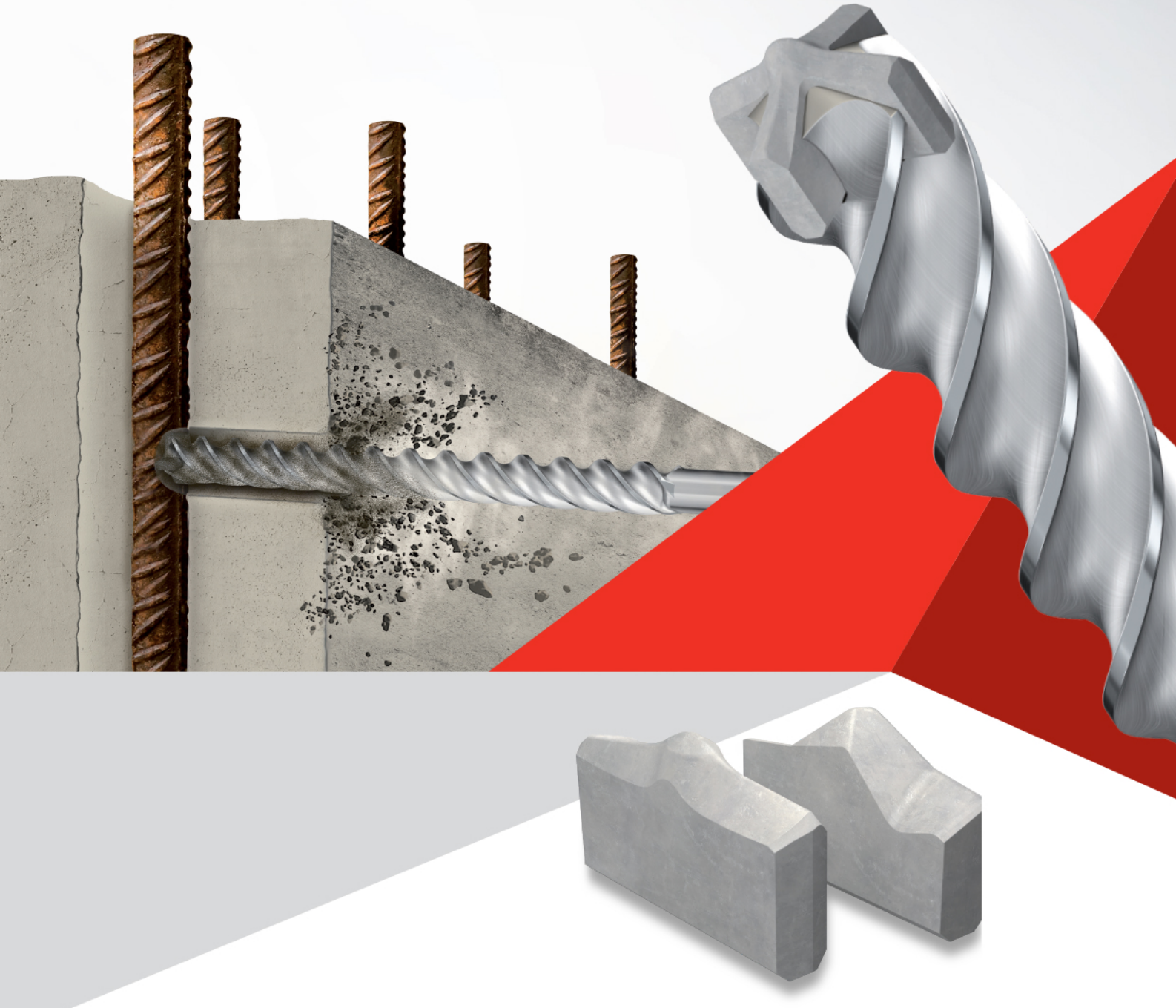
2020 EN

Solutions for
stone working



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

Tooling the Future

ceratizit.com

CERATIZIT GROUP

Dear valued customer,

We would like to present you with our new catalogue for stone working products. It contains all the standard products manufactured by CERATIZIT.

Toolmaker Solutions by CERATIZIT can offer you even more than our standard products range! Get a competitive head start, and benefit from decades of experience in the development of customised solutions for the machining of concrete, ferro-concrete, stone, masonry and other materials. Thanks to our engineering team, we offer everything tool manufacturers need. Innovation, new developments, high value and quality products and service are our core business.

Because your needs are important to us, we work together with you to find the ideal solution for your application and requirements. You can rest assured that with us you are not just a customer but a partner.

Yours,

the Toolmaker Solutions by CERATIZIT team

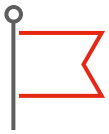
Content

CERATIZIT Group

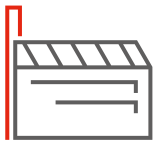
For over **95 years**, CERATIZIT has been a **pioneer** developing exceptional hard material products for cutting tools and wear protection. The privately owned company, based in Mamer, Luxembourg, develops and manufactures highly specialised carbide cutting tools, inserts and rods made of hard materials as well as wear parts.

The CERATIZIT Group is the **market leader** in several wear part application areas, and successfully develops new types of cemented carbide, cermet and ceramic grades which are used for instance in the wood, metal and stone working industry.

Facts and figures



1 headquarters
Mamer / Luxemburg



34
production sites

> 70
sales subsidiaries

> 9,000
employees

> 100,000
different products

> 1,000
patents and
utility models

> 200
employees in R&D

> 10
innovation awards

30%
of products developed
in the last 5 years

Cemented carbide

Cemented 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 0.2µm 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 to as much to 30%, whereas, for maximum wear resistance, the cobalt content is reduced and the grain size decreased to the nanocrystalline range of < 0.2µm.

CERATIZIT produces far more than 100 different cemented 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, shaping, sintering and finishing.

APT (ammonium para-tungstate)

Tungsten carbide production

The ammonium para-tungstate (APT) 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.

Yellow tungsten oxide

Blue tungsten oxide

Powder preparation

The tungsten carbide is intensely mixed with the binder metal cobalt, nickel or iron, various grain growth inhibitors and special alloys as well as 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.

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.

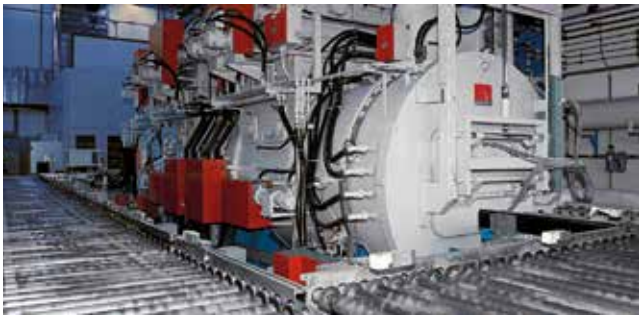
Extrusion pressing is mainly used to produce rectangular bar or cylindrical rod, with or without axial hole(s). A plasticiser is added to the powder. The resulting paste is pressed through an extrusion nozzle. Before sintering, the plasticiser must be evaporated in special drying furnaces.

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.

Sintering

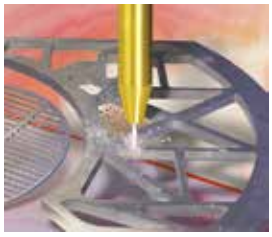
Sintering process

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.



Carbide properties depending on the Co contents and C grain size

Hardness (wear resistance)



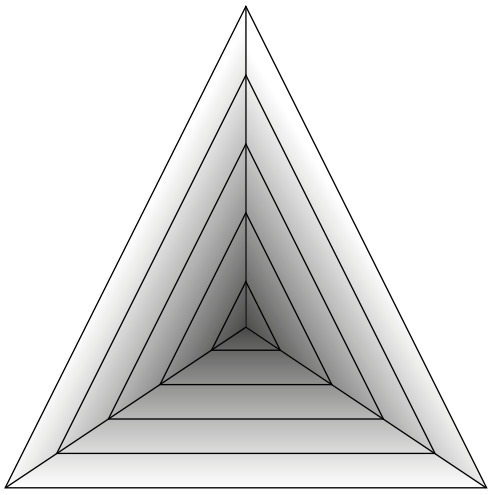
Nozzles for water jet cutting

Type of stress
- ▲ Wear
- ▲ Corrosion

Carbide grade
- ▲ Very high hardness: 2650 HV_{30}
- ▲ Small grain size: < 0.5 μm
- ▲ Low Co content: 0.4%
- ▲ Corrosion resistance when adding Cr_3C_2

Hardness

Cobalt content ↓ ↓
Grain size ↓ ↓

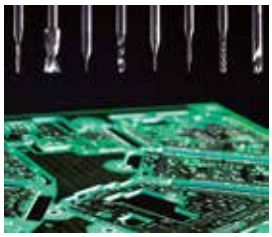


Transverse rupture strength

Cobalt content ↑ ↑
Grain size ↓ ↓

Toughness

Cobalt content ↑ ↑
Grain size ↑ ↑



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 HV_{30}

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 HV_{30}
- ▲ Medium grain size coarse or extra-coarse

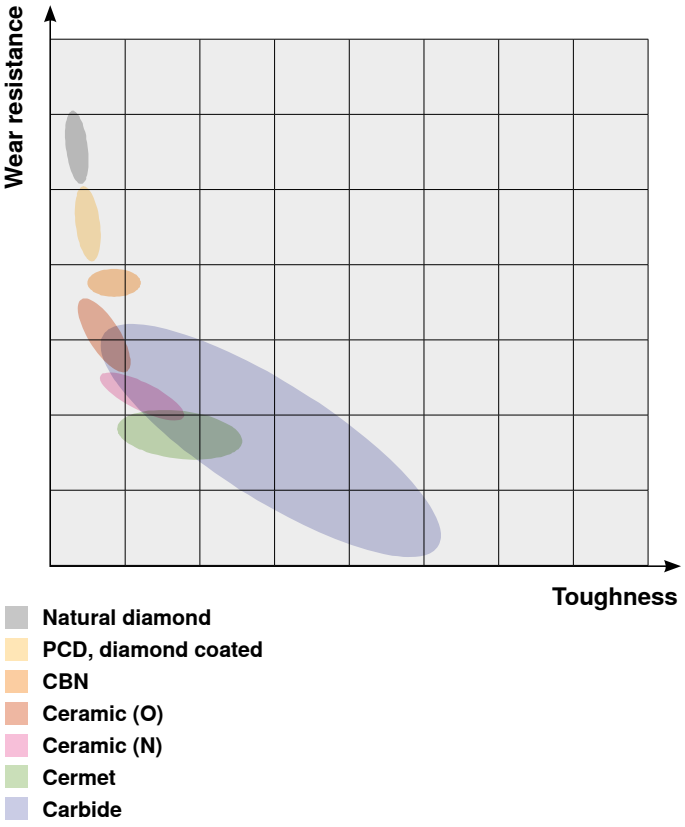
Production site

Mamer, Luxembourg

The CERATIZIT Group has its headquarters in Mamer, Luxembourg. Today the plant in Mamer has more than 1,300 employees and concentrates on industrial wear protection, wood, metal and stone working as well as inserts and tools.

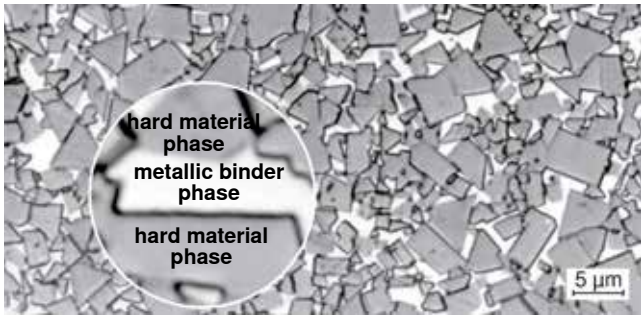
Grades for stone working
Sorten für Steinbearbeitung
Nuances pour les applications de la pierre
Gradi applicazioni pietra
Calidades para piedra

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

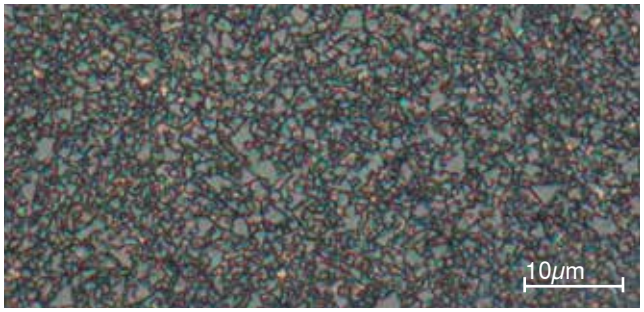
The metallic binder provides

- ▲ Toughness

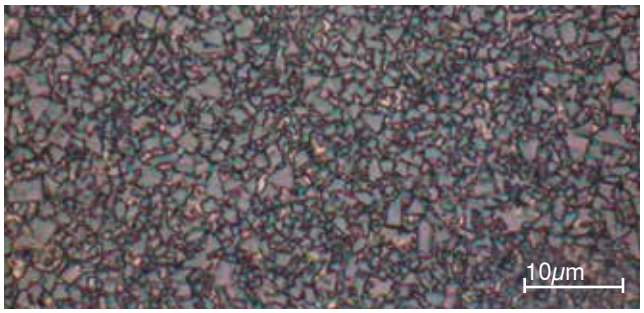
The graphic illustrations below show that the mechanical properties of the carbide mainly depend on the binder content (Co) and the TC grain size. Hardness, i.e. wear resistance, increases inversely proportional to the fracture toughness. This means that the harder the material the more it reacts to 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.

Ultrafine grain

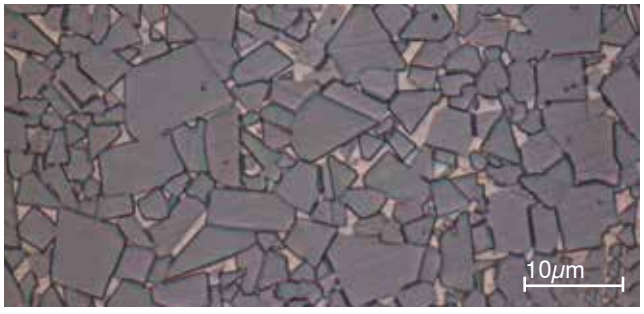
Submicron grain



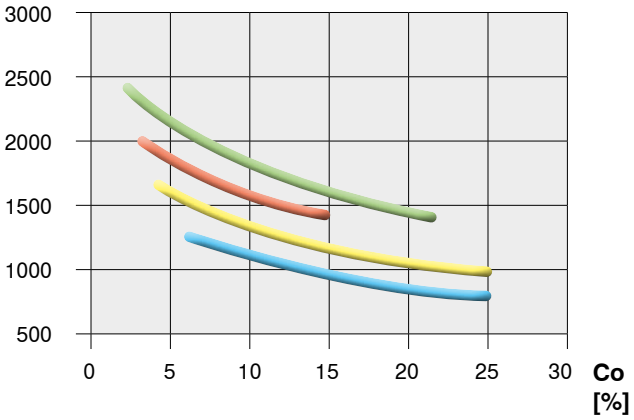
Fine / medium grain



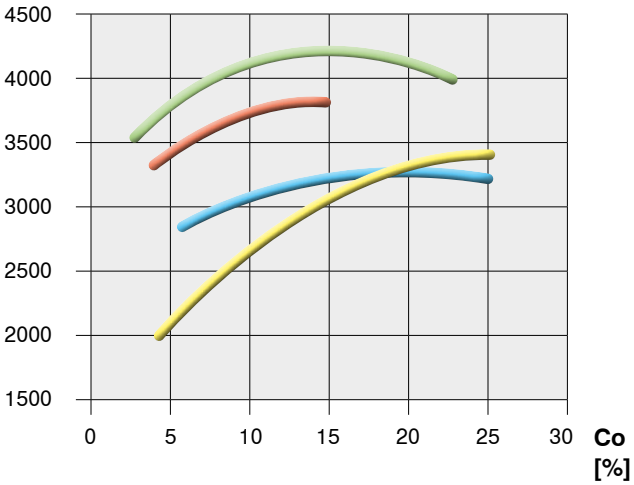
Coarse grain



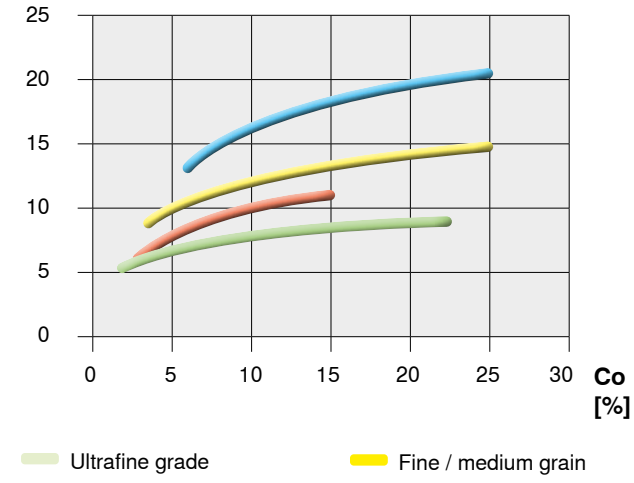
Hardness [HV30]



Transverse rupture strength [MPa]



K^{IC} value [MPa.$m_{1/2}$]



Composition and properties

Chromium grade

CERATIZIT grade code	ISO code	U.S. code	Binder [m %]	Density [g/cm³]	Hardness HV10	Hardness HV30	Hardness HRA	Transverse Rupture Strength [MPa]	Transverse Rupture Strength [P.S.I.]
Submicron grain									
CTS06-KC	KCR06	–	3.0	15.30	1950	1910	93.6	2300	334.000

WC-Cobalt Grades

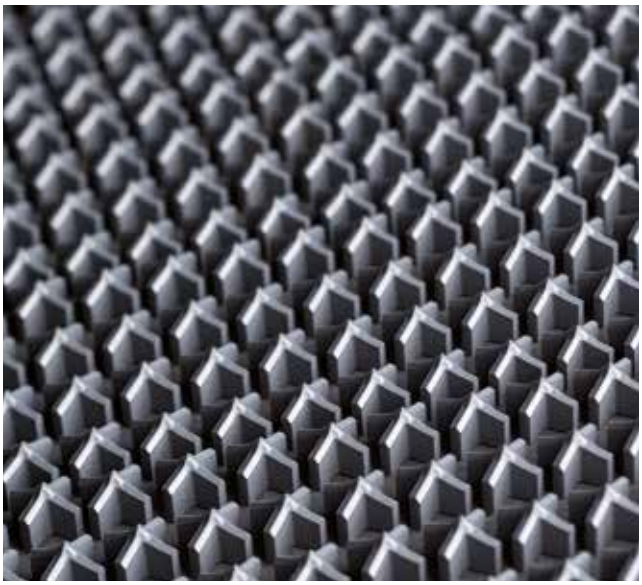
CERATIZIT grade code	ISO code	U.S. code	Binder [m %]	Density [g/cm³]	Hardness HV10	Hardness HV30	Hardness HRA	Transverse Rupture Strength [MPa]	Transverse Rupture Strength [P.S.I.]
Submicron grain									
CTS20-BC	MG18	–	10	14.45	1680	1660	92.3	3700	537.000
Fine grain									
CTF08-BC	BC01	–	4.0	15.15	1845	1815	93.1	2050	298.000
CTF11-BC	BC03	–	5.6	14.95	1760	1730	92.7	2150	312.000
CTF12-BC	BC05	C2	6.0	14.95	1640	1620	92.1	2200	319.000
CTF24-BC	BC30	C11	12.0	14.30	1330	1320	89.7	3000	435.000
CTF30-BC	BC40	C13	15.0	14.05	1250	1240	88.8	3100	450.000
Medium grain									
CTM14-BC	BC10	C2	7.0	14.90	1550	1530	91.5	2600	377.000
CTM17-BC	HC30/BC20	C1	8.5	14.65	1420	1400	90.4	2800	406.000
CTM18-BC	HC35	C1	9.0	14.60	1400	1380	90.3	2800	406.000
Coarse grain									
CTE20-BC	BC45	–	10.0	14.60	1130	1120	87.6	2600	377.000
CTE30-BC	BC50	C14	15.0	14.05	970	960	85.6	2800	406.000
CTE35-BC	BC55	–	17.5	13.80	920	910	85.0	2850	414.000

Note: BC: used for stone
HC: used for wood

Classification of the WC grain size

Average grain size [µm]	Classification	CERATIZIT-code
< 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**

Innovation
Innovation
Innovation
Innovazione
Innovación



Project management in collaboration with our customers

Welcome on board!

The Toolmaker Solutions by CERATIZIT team is happy to invite you to join us on an innovative journey!

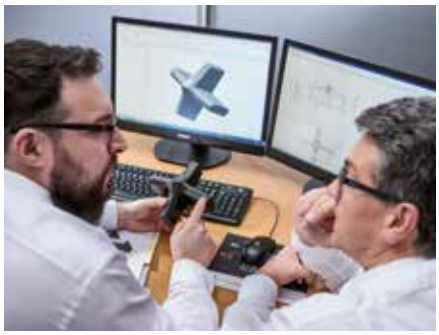
Let us guide you through all the project steps leading to your success. Thanks to our engineering expertise, we can take your ideas and concepts through to the desired destination – your customers. We will travel together through the different steps of this trip, from feasibility study to prototypes and finally to serial production.

Our target is to guide you all along the way in developing new products or improving existing ones. We will take care of your project thanks to our supreme carbide experience, ground production experts and our engineering team.

So on each step of the way you will be provided with innovative carbide solutions tailored to your own manufactured tools.

Let's go!

Prototype

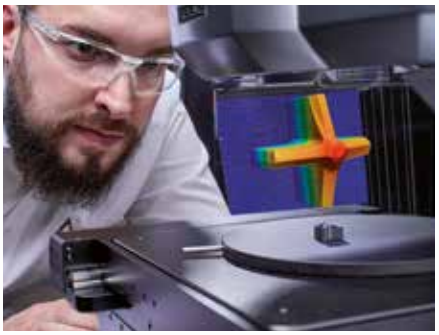


Feasibility study

Meeting between the customer and product managers

Serial production

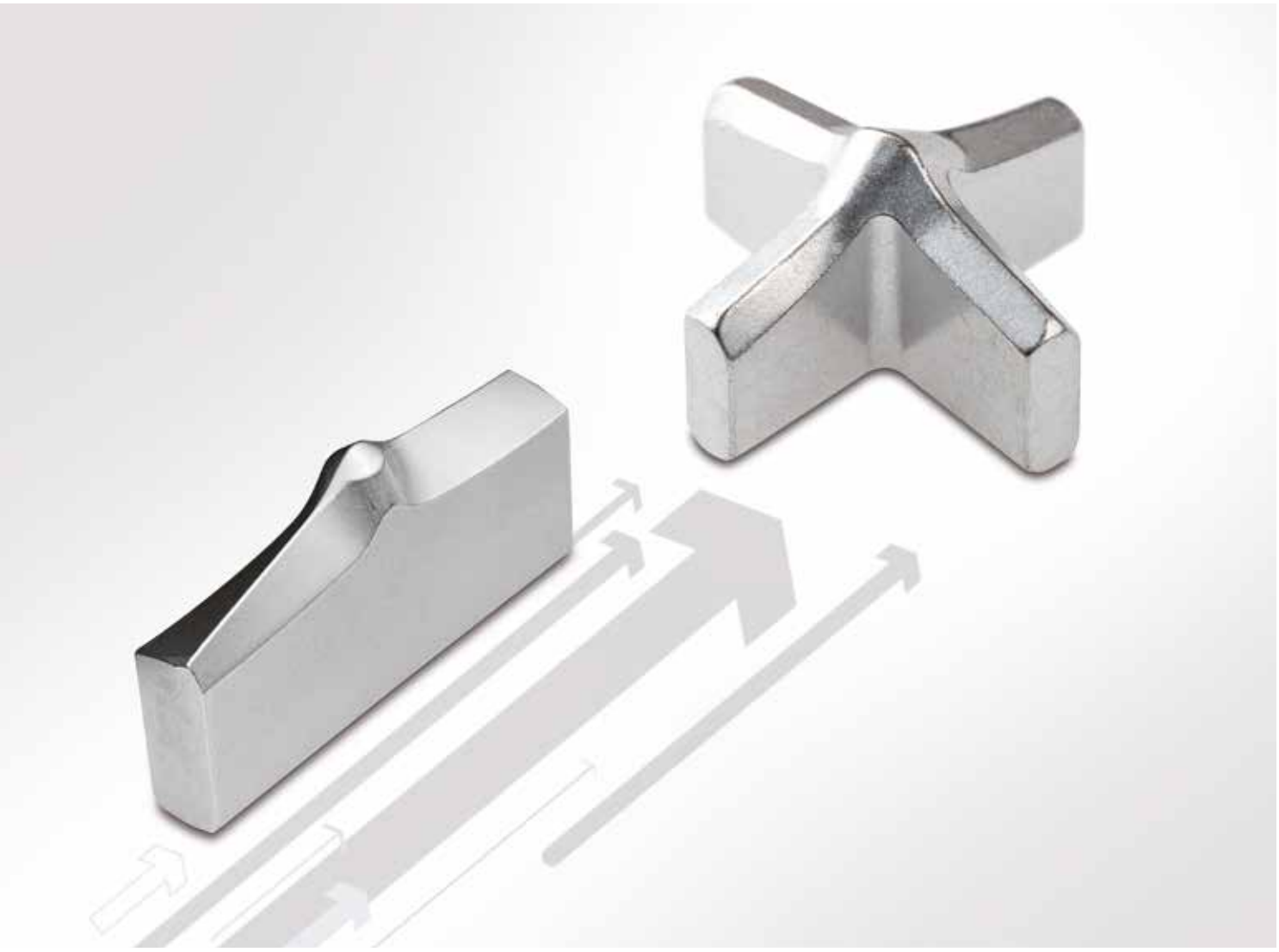
Customer test and approval



Quality control

A step ahead to your success

Hammer drill tips
Hammerbohrerplatten
Plaquettes pour mèche marteau
Placchette per punte a percussione
Puntas de brocas para percusion



Index

Grades for stone working – composition and properties

HAMMER	CERATIZIT grade code	ISO code	Grain	%Co	HV10	TRS
Small Diameter	CTM17-BC	BC20	M	8.5	1420	2900
Large Diameter	CTM17-BC	BC20	M	8.5	1420	2800
Special for low impact	CTM14-BC	BC10	M	7.0	1550	2600
Special for heavy duty	CTF24-BC	BC30	F	12.0	1330	3000

MASONRY	CERATIZIT grade code	ISO code	Grain	%Co	HV10	TRS
Small Diameter	CTF11-BC	BC03	F	5.6	1760	2300
Large Diameter	CTF12-BC	BC05	F	6.0	1640	2200
Special for low impact	CTF08-BC	BC01	F	4.0	1840	2200
Special for heavy duty	CTM14-BC	BC10	M	7.0	1550	2600

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

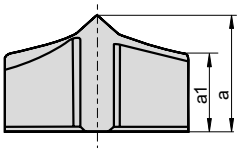
Applications

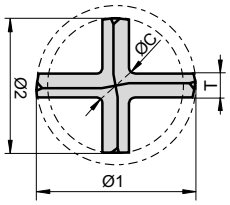
										
Type, description	**METRIC**	**ANSI**	**JAPAN**	**PGM**	**Rebar**	**Concrete**	**Stone & Rock**	**Bricks**	**Blocks**	**Granit & Marble**
CT4	✓	✓	✓			●	●	●	●	●
46000	✓			✓	●	●	●	●	●	
46600		✓			●	●	●	●	●	
47500			✓		●	●	●	●	●	
50850	✓			✓	●	●	●	●	●	
50850		✓			●	●	●	●	●	
11384	✓			✓	●	●	●	●	●	●
17871		✓			●	●	●	●	●	●
26000			✓		●	●	●	●	●	●
14444	✓				●	●	●	●	●	●
38500	✓				●	●	●	●	●	●
38911	✓				●	●	●	●	●	●
39742	✓				●	●	●	●	●	●
40429	✓				●	●	●	●	●	●

● Optimum
○ Not optimum

Hammer drill tips – METRIC

CT4



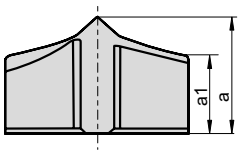


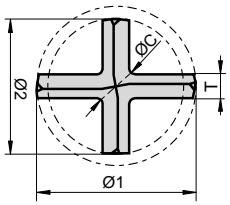
Ø [mm]	Height a [mm]	Height Tol. [mm]	Height a1 [mm]	Ø 1 [mm]	Ø1 Tol. [mm]	Ø 2 [mm]	Ø2 Tol. [mm]	Cent. Ø [mm]	Thickness [mm]
5.00	4.100	±0.10	2.980	5.285	±0.075	5.085	±0.075	1.590	0.950
5.50	4.550	±0.10	3.270	5.785	±0.075	5.585	±0.075	1.590	0.950
6.00	4.850	±0.10	3.530	6.285	±0.075	6.085	±0.075	1.960	1.150
6.50	5.200	±0.10	3.820	6.725	±0.075	6.525	±0.075	1.960	1.150
7.00	5.550	±0.10	4.090	7.285	±0.075	7.085	±0.075	1.960	1.150
8.00	5.650	±0.15	3.940	8.285	±0.075	8.085	±0.075	2.610	1.550
10.00	7.050	±0.15	4.850	10.300	±0.090	10.000	±0.090	2.890	1.750
12.00	8.500	±0.15	5.820	12.340	±0.090	12.040	±0.090	3.250	1.950
14.00	9.900	±0.15	6.770	14.355	±0.105	14.055	±0.105	3.500	2.125
16.00	9.650	±0.15	6.070	16.355	±0.105	16.055	±0.105	4.090	2.425
18.00	11.400	±0.25	6.950	18.355	±0.105	17.955	±0.105	4.800	2.925
20.00	12.550	±0.25	7.670	20.430	±0.120	20.030	±0.120	4.800	2.925
22.00	12.700	±0.25	7.330	22.380	±0.120	21.980	±0.120	5.640	3.400
23.00	13.100	±0.25	7.600	23.380	±0.120	22.880	±0.120	5.640	3.400
24.00	13.800	±0.25	7.920	24.380	±0.120	23.880	±0.120	5.640	3.400
25.00	14.300	±0.25	8.280	25.380	±0.120	24.880	±0.120	5.640	3.400
26.00	14.750	±0.25	8.600	26.380	±0.120	25.880	±0.120	5.640	3.400
28.00	15.950	±0.25	9.230	28.380	±0.120	27.880	±0.120	6.510	3.900
30.00	17.000	±0.25	9.870	30.380	±0.120	29.880	±0.120	6.510	3.900
32.00	18.150	±0.25	10.510	32.520	±0.150	31.770	±0.150	7.380	4.400
35.00	19.350	±0.25	11.460	35.520	±0.150	34.770	±0.150	7.380	4.400

Codification code example: CT4- 5.00 CTM17-BC

Hammer drill tips – ANSI

CT4



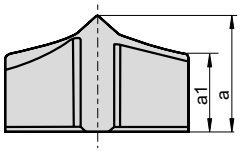


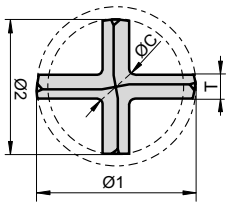
Ø [inch]	Height a [mm]	Height Tol. [mm]	Height a1 [mm]	Ø 1 [mm]	Ø1 Tol. [mm]	Ø 2 [mm]	Ø2 Tol. [mm]	Cent. Ø [mm]	Thickness [mm]
7/16”	8.30	±0.10	5.70	11.76	±0.10	11.56	±0.10	3.25	1.950
1/2”	9.15	±0.10	5.99	13.31	±0.10	12.90	±0.10	3.50	2.125
5/8”	9.85	±0.10	5.90	16.61	±0.10	16.20	±0.10	4.09	2.425
9/16”	10.25	±0.10	6.74	14.89	±0.10	14.50	±0.10	3.50	2.125
3/4”	11.55	±0.10	6.74	19.84	±0.15	19.44	±0.15	4.80	2.925
7/8”	12.15	±0.10	6.68	23.14	±0.15	22.64	±0.15	5.64	3.400
1”	13.25	±0.10	7.11	26.32	±0.15	25.82	±0.15	5.64	3.400
1 1/8”	14.70	±0.10	7.67	29.66	±0.19	29.16	±0.19	6.51	3.900
1 1/4”	16.80	±0.10	9.12	32.83	±0.19	32.08	±0.19	7.38	4.400
1 3/8”	16.80	±0.10	8.84	36.01	±0.19	35.26	±0.19	7.38	4.400

Codification code example: CT4- 1/2” CTM17-BC

Hammer drill tips – JAPAN

CT4





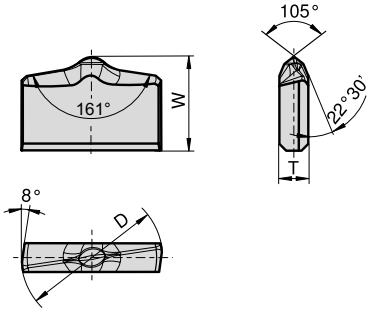
Ø [mm]	Height a [mm]	Height Tol. [mm]	Height a1 [mm]	Ø 1 [mm]	Ø1 Tol. [mm]	Ø 2 [mm]	Ø2 Tol. [mm]	Cent. Ø [mm]	Thickness [mm]
6.40	5.250	±0.10	3.780	6.525	±0.125	6.325	±0.125	1.960	1.150
8.00	5.950	±0.15	4.060	8.125	±0.125	7.925	±0.125	2.610	1.550
8.50	6.150	±0.15	4.180	8.625	±0.125	8.325	±0.125	2.610	1.550
10.50	7.400	±0.15	5.120	10.650	±0.15	10.350	±0.15	2.890	1.750
12.50	9.000	±0.15	6.050	12.650	±0.15	12.350	±0.15	3.250	1.950
12.70	9.100	±0.15	6.140	12.850	±0.15	12.550	±0.15	3.250	1.950
14.50	10.450	±0.15	6.970	14.650	±0.15	14.350	±0.15	3.500	2.125
16.50	10.100	±0.25	6.370	16.650	±0.15	16.350	±0.15	4.090	2.425

Codification code example: CT4- 6.40 CTM17-BC

Hammer drill tips – METRIC

46000

Conforming to PGM

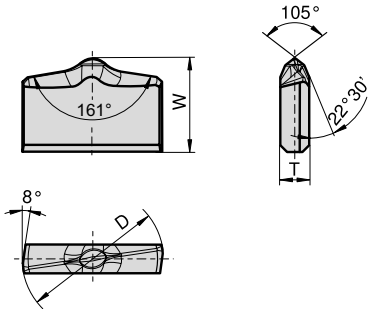


Ø [mm]	D [mm]	Tol. [mm]	W [mm]	Tol. [mm]	T [mm]	Tol. [mm]
4.00	4.285	±0.075	4.15	±0.10	0.950	±0.05
5.00	5.285	±0.075	4.65	±0.10	1.350	±0.05
5.50	5.785	±0.075	4.95	±0.10	1.350	±0.05
6.00	6.285	±0.075	4.85	±0.10	1.550	±0.05
6.50	6.725	±0.075	5.30	±0.10	1.550	±0.05
7.00	7.285	±0.075	5.35	±0.10	1.550	±0.05
8.00	8.285	±0.075	5.95	±0.15	1.950	±0.05
8.50	8.740	±0.09	6.30	±0.15	1.950	±0.05
9.00	9.300	±0.09	6.30	±0.15	1.950	±0.05
10.00	10.300	±0.09	6.85	±0.15	2.125	±0.075
10.50	10.800	±0.09	7.30	±0.15	2.125	±0.075
11.00	11.340	±0.09	7.70	±0.15	2.125	±0.075
12.00	12.340	±0.09	8.25	±0.15	2.425	±0.075
13.00	13.355	±0.105	8.70	±0.15	2.725	±0.075
14.00	14.355	±0.105	8.95	±0.15	2.925	±0.075
15.00	15.355	±0.105	9.35	±0.15	2.925	±0.075
16.00	16.355	±0.105	9.35	±0.15	2.925	±0.075
17.00	17.355	±0.105	9.35	±0.15	2.925	±0.075
18.00	18.355	±0.105	9.65	±0.25	3.400	±0.10
19.00	19.430	±0.12	10.40	±0.25	3.400	±0.10
20.00	20.430	±0.12	11.25	±0.25	3.400	±0.10
22.00	22.380	±0.12	12.30	±0.25	3.900	±0.10
23.00	23.380	±0.12	12.30	±0.25	3.900	±0.10
24.00	24.380	±0.12	13.30	±0.25	4.400	±0.10
25.00	25.380	±0.12	13.25	±0.25	4.400	±0.10
26.00	26.380	±0.12	13.25	±0.25	4.400	±0.10
28.00	28.380	±0.12	14.70	±0.25	4.900	±0.10
29.00	29.380	±0.12	14.70	±0.25	4.900	±0.10
30.00	30.380	±0.12	14.70	±0.25	4.900	±0.10
32.00	32.520	±0.15	16.80	±0.25	5.400	±0.10
35.00	35.520	±0.15	18.00	±0.25	5.900	±0.10
36.00	36.520	±0.15	18.25	±0.25	5.900	±0.10
38.00	38.570	±0.20	18.25	±0.25	5.900	±0.10
40.00	40.545	±0.225	19.75	±0.25	6.400	±0.10
42.00	42.545	±0.225	19.25	±0.25	6.400	±0.10
44.00	44.545	±0.225	20.75	±0.25	6.900	±0.10
45.00	45.545	±0.225	20.75	±0.25	6.900	±0.10
50.00	50.635	±0.265	22.75	±0.25	6.900	±0.10
52.00	52.635	±0.265	23.50	±0.25	6.900	±0.10

Codification code example: 46000- 4.0 CTM17-BC

Hammer drill tips – ANSI

46600

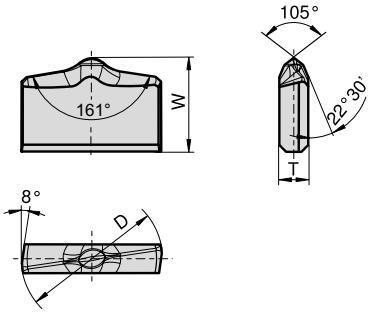


Ø [inch]	D [mm]	Tol. [mm]	W [mm]	Tol. [mm]	T [mm]	Tol. [mm]
1/8″	3.485	±0.075	4.00	±0.10	0.950	±0.050
5/32″	4.265	±0.075	4.15	±0.10	0.950	±0.050
11/64″	4.675	±0.075	4.65	±0.10	1.150	±0.050
3/16″	5.130	±0.10	4.65	±0.10	1.150	±0.050
13/64″	5.510	±0.10	5.25	±0.10	1.150	±0.050
7/32″	5.920	±0.10	5.30	±0.10	1.350	±0.050
15/64″	6.300	±0.10	5.30	±0.10	1.550	±0.050
1/4″	6.710	±0.10	5.30	±0.10	1.550	±0.050
17/64″	7.110	±0.10	6.15	±0.10	1.550	±0.050
9/32″	7.620	±0.10	6.15	±0.10	1.550	±0.050
5/16″	8.410	±0.10	6.45	±0.10	1.950	±0.050
3/8″	10.010	±0.10	6.85	±0.10	2.125	±0.075
7/16″	11.765	±0.125	7.70	±0.10	2.125	±0.075
1/2″	13.335	±0.125	8.70	±0.10	2.725	±0.075
9/16″	14.915	±0.125	9.10	±0.10	2.925	±0.075
5/8″	16.635	±0.125	9.40	±0.10	2.925	±0.075
11/16″	18.235	±0.125	9.65	±0.10	3.400	±0.100
3/4″	19.840	±0.150	11.55	±0.10	3.400	±0.100
13/16″	21.410	±0.150	11.55	±0.10	3.400	±0.100
27/32″	22.230	±0.150	12.15	±0.10	3.900	±0.100
7/8″	23.140	±0.150	12.15	±0.10	3.900	±0.100
15/16″	24.740	±0.150	13.25	±0.10	4.400	±0.100
1″	26.320	±0.150	13.25	±0.10	4.400	±0.100
1 1/16″	28.080	±0.190	14.70	±0.10	4.900	±0.100
1 1/8″	29.660	±0.190	14.70	±0.10	4.900	±0.100
1 1/4″	32.830	±0.190	16.80	±0.10	5.400	±0.100
1 5/16″	34.530	±0.190	16.80	±0.10	5.400	±0.100
1 3/8″	36.010	±0.190	16.80	±0.10	5.400	±0.100
1 7/16″	37.580	±0.190	17.35	±0.10	5.900	±0.100
1 1/2″	39.180	±0.190	17.35	±0.10	5.900	±0.100
1 9/16″	40.585	±0.255	19.75	±0.10	6.400	±0.100
1 3/4″	45.265	±0.255	20.75	±0.10	6.900	±0.100
2″	51.815	±0.255	23.50	±0.25	6.900	±0.100

Codification code example: 46600- 1/8” CTM17-BC

Hammer drill tips – JAPAN

47500



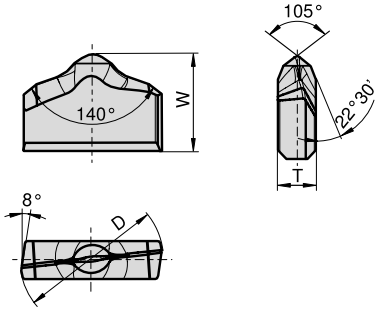
Ø [mm]	D [mm]	Tol. [mm]	W [mm]	Tol. [mm]	T [mm]	Tol. [mm]
3.4	3.500	±0.10	3.75	±0.10	0.950	±0.05
3.5	3.520	±0.10	3.75	±0.10	0.950	±0.05
3.8	3.900	±0.10	3.75	±0.10	0.950	±0.05
4.0	4.100	±0.10	3.95	±0.10	0.950	±0.05
4.3	4.400	±0.10	4.15	±0.10	0.950	±0.05
4.8	4.900	±0.10	4.45	±0.10	0.950	±0.05
5.0	5.100	±0.10	4.65	±0.10	1.150	±0.05
5.3	5.400	±0.10	4.65	±0.10	1.150	±0.05
5.4	5.500	±0.10	4.95	±0.10	1.350	±0.05
6.0	6.100	±0.10	4.85	±0.10	1.350	±0.05
6.4	6.525	±0.125	5.15	±0.10	1.350	±0.05
7.0	7.125	±0.125	5.35	±0.10	1.550	±0.05
8.0	8.125	±0.125	5.95	±0.15	1.950	±0.05
9.0	9.125	±0.125	6.30	±0.15	1.925	±0.075
9.5	9.625	±0.125	6.30	±0.15	1.925	±0.075
10.0	10.125	±0.125	6.85	±0.15	2.125	±0.075
10.5	10.650	±0.15	7.30	±0.15	2.125	±0.075
11.0	11.150	±0.15	7.70	±0.15	2.125	±0.075
12.0	12.150	±0.15	8.25	±0.15	2.425	±0.075
12.5	12.650	±0.15	8.25	±0.15	2.425	±0.075
12.7	12.850	±0.15	8.25	±0.15	2.425	±0.075
13.5	13.650	±0.15	8.70	±0.15	2.725	±0.075
14.3	14.450	±0.15	8.95	±0.15	2.925	±0.075
14.5	14.650	±0.15	8.95	±0.15	2.925	±0.075
15.0	15.150	±0.15	9.35	±0.25	2.925	±0.075
16.0	16.150	±0.15	9.35	±0.25	2.925	±0.075
16.5	16.650	±0.15	9.35	±0.25	2.925	±0.075
17.0	17.150	±0.15	9.35	±0.25	2.925	±0.075
17.5	17.650	±0.15	9.35	±0.25	2.925	±0.075
18.0	18.175	±0.175	9.65	±0.25	3.400	±0.10
19.0	19.175	±0.175	10.40	±0.25	3.400	±0.10
20.0	20.175	±0.175	11.25	±0.25	3.400	±0.10
21.5	21.675	±0.175	12.15	±0.25	3.900	±0.10
22.0	22.175	±0.175	12.30	±0.25	3.900	±0.10

Codification code example: 47500- 3.4 CTM17-BC

Hammer drill tips – METRIC

50850

Conforming to PGM

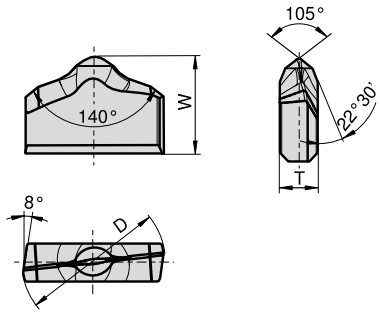


Ø [mm]	D [mm]	Tol. [mm]	W [mm]	Tol. [mm]	T [mm]	Tol. [mm]
4.0	4.285	±0.075	3.60	±0.10	1.350	±0.05
5.0	5.285	±0.075	4.10	±0.10	1.550	±0.05
5.5	5.785	±0.075	4.50	±0.10	1.550	±0.05
6.0	6.285	±0.075	4.90	±0.10	1.750	±0.05
6.5	6.785	±0.075	5.30	±0.10	1.750	±0.05
7.0	7.285	±0.075	5.70	±0.15	1.950	±0.05
8.0	8.285	±0.075	5.75	±0.15	2.250	±0.05
10.0	10.300	±0.090	7.15	±0.15	2.425	±0.075
12.0	12.340	±0.090	8.55	±0.15	2.725	±0.075
20.0	20.430	±0.120	12.25	±0.25	3.900	±0.100

Codification code example: 50850- 4.0 CTM17-BC

Hammer drill tips – ANSI

50850



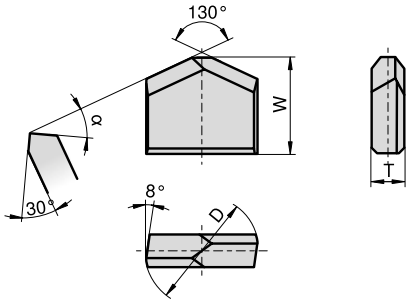
Ø [mm]	D [mm]	Tol. [mm]	W [mm]	Tol. [mm]	T [mm]	Tol. [mm]
5/32″	4.265	±0.075	3.60	±0.10	1.350	±0.05
3/16″	5.130	±0.100	4.10	±0.10	1.550	±0.05
7/32″	5.920	±0.100	4.50	±0.10	1.550	±0.05
5/16″	8.410	±0.100	5.75	±0.15	2.250	±0.05

Codification code example: 50850- 5/32” CTM17-BC

Hammer drill tips – METRIC

11384

Conforming to PGM

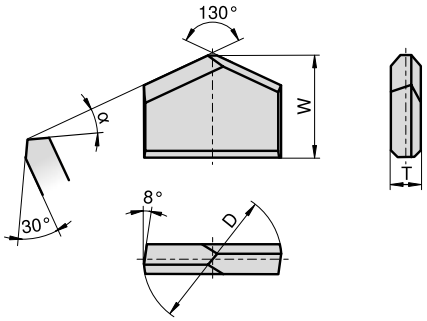


Ø [mm]	D [mm]	Tol. [mm]	W [mm]	Tol. [mm]	T [mm]	Tol. [mm]	α
4.0	4.21	+0.15	4.5	+0.20	1.0	-0.10	20°
5.0	5.21	+0.15	5.0	+0.20	1.2	-0.10	20°
5.5	5.71	+0.15	5.3	+0.20	1.4	-0.10	20°
6.0	6.21	+0.15	5.3	+0.20	1.4	-0.10	20°
6.5	6.65	+0.15	5.8	+0.20	1.4	-0.10	20°
7.0	7.21	+0.15	5.8	+0.20	1.6	-0.10	20°
8.0	8.21	+0.15	6.5	+0.30	2.0	-0.10	20°
8.5	8,65	+0.18	6.9	+0.30	2.0	-0.10	20°
9.0	9.21	+0.18	6.9	+0.30	2.0	-0.15	20°
10.0	10.21	+0.18	7.5	+0.30	2.2	-0.15	20°
10.5	10.71	+0.18	8.0	+0.30	2.2	-0.15	20°
11.0	11.25	+0.18	8.5	+0.30	2.2	-0.15	20°
12.0	12.25	+0.18	9.0	+0.30	2.5	-0.15	20°
13.0	13.25	+0.21	9.5	+0.30	2.8	-0.15	30°
14.0	14.25	+0.21	9.8	+0.30	3.0	-0.15	30°
15.0	15.25	+0.21	10.5	+0.50	3.0	-0.15	30°
16.0	16.25	+0.21	10.5	+0.50	3.0	-0.15	30°
17.0	17.25	+0.21	10.5	+0.50	3.0	-0.15	30°
18.0	18.25	+0.21	11.0	+0.50	3.5	-0.20	30°
19.0	19.31	+0.24	12.0	+0.50	3.5	-0.20	30°
20.0	20.31	+0.24	13.0	+0.50	3.5	-0.20	30°
22.0	22.26	+0.24	14.0	+0.50	4.0	-0.20	30°
23.0	23.26	+0.24	14.0	+0.50	4.0	-0.20	30°
24.0	24.26	+0.24	15.0	+0.50	4.5	-0.20	30°
25.0	25.26	+0.24	15.0	+0.50	4.5	-0.20	30°
26.0	26.26	+0.24	15.0	+0.50	4.5	-0.20	30°
28.0	28.26	+0.24	17.0	+0.50	5.0	-0.20	30°
29.0	29,26	+0.24	17.0	+0.50	5.0	-0.20	30°
30.0	30.26	+0.24	17.0	+0.50	5.0	-0.20	30°
32.0	32.37	+0.30	19.0	+0.50	5.5	-0.20	30°
35.0	35.37	+0.30	20.5	+0.50	6.0	-0.20	30°
36.0	36.37	+0.30	21.0	+0.50	6.0	-0.20	30°
37.0	37.27	+0.40	21.0	+0.50	6.0	-0.20	30°
38.0	38.37	+0.40	21.0	+0.50	6.0	-0.20	30°
40.0	40.32	+0.45	23.0	+0.50	6.5	-0.20	30°
42.0	42.32	+0.45	24.0	+0.50	6.5	-0.20	30°
44.0	44.32	+0.45	24.0	+0.50	7.0	-0.20	30°
45.0	45.32	+0.45	24.5	+0.50	7.0	-0.20	30°
50.0	50.37	+0.55	26.0	+0.50	7.0	-0.20	30°
52.0	52.37	+0.55	26.0	+0.50	7.0	-0.20	30°

Codification code example: 11384- 4.0 CTM17-BC

Hammer drill tips – ANSI

17871 Inch

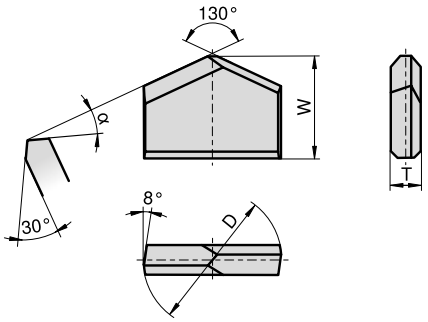


Ø [inch]	ANSI code	D [inch]	Tol. [inch]	W [inch]	Tol. [inch]	T [inch]	Tol. [inch]	α
1/8″	HDG 2	0.140	-0.006	0.165	+0.010	0.035	-0.004	20°
5/32″	HDG 2.5	0.171	-0.006	0.177	+0.008	0.039	-0.004	20°
11/64″	HDG 2.75	0.187	-0.006	0.197	+0.008	0.047	-0.004	20°
3/16″	HDG 3	0.206	-0.008	0.197	+0.008	0.047	-0.004	20°
13/64″	HDG 3.25	0.221	-0.008	0.220	+0.008	0.047	-0.004	20°
7/32″	HDG 3.5	0.237	-0.008	0.220	+0.008	0.055	-0.004	20°
15/64″	HDG 3.75	0.252	-0.008	0.220	+0.008	0.055	-0.004	20°
1/4″	HDG 4	0.268	-0.008	0.220	+0.008	0.055	-0.004	20°
17/64″	HDG 4.24	0.275	-0.008	0.256	+0.008	0.063	-0.004	20°
9/32″	HDG 4.5	0.304	-0.008	0.256	+0.008	0.063	-0.004	20°
5/16″	HDG 5	0.335	-0.008	0.256	+0.008	0.078	-0.004	20°
3/8″	HDG 6	0.398	-0.008	0.295	+0.008	0.086	-0.006	20°
7/16″	HDG 7	0.468	-0.010	0.334	+0.008	0.086	-0.006	20°
1/2″	HDG 8	0.530	-0.010	0.374	+0.008	0.110	-0.006	30°
9/16″	HDG 9	0.592	-0.010	0.374	+0.008	0.118	-0.006	30°
5/8″	HDG 10	0.660	-0.010	0.413	+0.008	0.118	-0.006	30°
11/16″	HDG 11	0.723	-0.010	0.433	+0.008	0.137	-0.008	30°
3/4″	HDG 12	0.787	-0.012	0.512	+0.008	0.137	-0.008	30°
13/16″	HDG 13	0.849	-0.012	0.512	+0.008	0.137	-0.008	30°
27/32″	HDG 13.5	0.881	-0.012	0.551	+0.008	0.157	-0.008	30°
7/8″	HDG 14	0.917	-0.012	0.551	+0.008	0.157	-0.008	30°
15/16″	HDG 15	0.980	-0.012	0.590	+0.008	0.177	-0.008	30°
1″	HDG 16	1.042	-0.012	0.590	+0.008	0.177	-0.008	30°
1 1/8″	HDG 18	1.175	-0.015	0.669	+0.008	0.196	-0.008	30°
1 1/4″	HDG 20	1.300	-0.015	0.748	+0.008	0.216	-0.008	30°
1 3/8″	HDG 22	1.425	-0.015	0.748	+0.008	0.216	-0.008	30°
1 1/2″	HDG 24	1.550	-0.015	0.827	+0.008	0.236	-0.008	30°
2″	–	2.050	-0.020	1.024	+0.020	0.276	-0.008	30°

Codification code example: 17871- 1/8″ CTM17-BC

Hammer drill tips – ANSI

17871

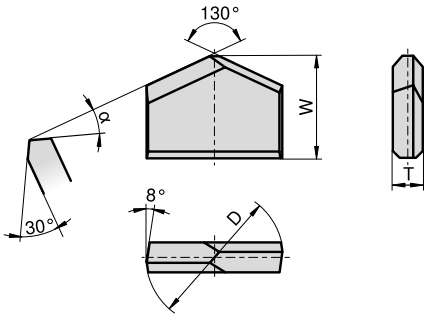


Ø [inch]	ANSI code	D [mm]	Tol. [mm]	W [mm]	Tol. [mm]	T [mm]	Tol. [mm]	α
1/8″	HDG 2	3.55	-0.15	4.16	+0.25	0.9	-0.10	20°
5/32″	HDG 2.5	4.34	-0.15	4.50	+0.20	1.0	-0.10	20°
11/64″	HDG 2.75	4.75	-0.15	5.00	+0.20	1.2	-0.10	20°
3/16″	HDG 3	5.23	-0.20	5.00	+0.20	1.2	-0.10	20°
13/64″	HDG 3.25	5.61	-0.20	5.60	+0.20	1.2	-0.10	20°
7/32″	HDG 3.5	6.02	-0.20	5.60	+0.20	1.4	-0.10	20°
15/64″	HDG 3.75	6.40	-0.20	5.60	+0.20	1.4	-0.10	20°
1/4″	HDG 4	6.81	-0.20	5.60	+0.20	1.4	-0.10	20°
17/64″	HDG 4.24	7.31	-0.20	6.60	+0.10	1.6	-0.10	20°
9/32″	HDG 4.5	7.72	-0.20	6.60	+0.20	1.6	-0.10	20°
5/16″	HDG 5	8.51	-0.20	6.60	+0.20	2.0	-0.10	20°
3/8″	HDG 6	10.11	-0.20	7.50	+0.20	2.2	-0.15	20°
7/16″	HDG 7	11.89	-0.25	8.50	+0.20	2.2	-0.15	20°
1/2″	HDG 8	13.46	-0.25	9.50	+0.20	2.8	-0.15	30°
9/16″	HDG 9	15.04	-0.25	9.50	+0.20	3.0	-0.15	30°
5/8″	HDG 10	16.76	-0.25	10.50	+0.20	3.0	-0.15	30°
11/16″	HDG 11	18.36	-0.25	11.00	+0.20	3.5	-0.20	30°
3/4″	HDG 12	19.99	-0.30	13.00	+0.20	3.5	-0.20	30°
13/16″	HDG 13	21.50	-0.30	13.00	+0.20	3.5	-0.20	30°
27/32″	HDG 13.5	22.38	-0.30	14.00	+0.20	4.0	-0.20	30°
7/8″	HDG 14	23.29	-0.30	14.00	+0.20	4.0	-0.20	30°
15/16″	HDG 15	24.89	-0.30	15.00	+0.20	4.5	-0.20	30°
1″	HDG 16	26.47	-0.30	15.00	+0.20	4.5	-0.20	30°
1 1/8″	HDG 18	29.85	-0.38	17.00	+0.20	5.0	-0.20	30°
1 1/4″	HDG 20	33.02	-0.38	19.00	+0.20	5.5	-0.20	30°
1 3/8″	HDG 22	36.20	-0.38	19.00	+0.20	5.5	-0.20	30°
1 1/2″	HDG 24	39.37	-0.38	21.00	+0.20	6.0	-0.20	30°
2″	–	52.07	-0.51	26.00	+0.50	7.0	-0.20	30°

Codification code example: 17871- 1/8″ CTM17-BC

Hammer drill tips – JAPAN

26000

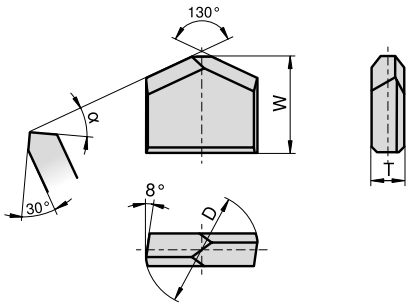


Ø [mm]	D [mm]	Tol. [mm]	W [mm]	Tol. [mm]	T [mm]	Tol. [mm]	α
4.0	4.0	+0.20	4.2	+0.20	1.0	-0.10	20°
4.3	4.3	+0.20	4.5	+0.20	1.0	-0.10	20°
4.8	4.8	+0.20	4.8	+0.20	1.0	-0.10	20°
5.0	5.0	+0.20	5.0	+0.20	1.2	-0.10	20°
6.0	6.0	+0.20	5.3	+0.20	1.4	-0.10	20°
6.4	6.4	+0.25	5.6	+0.20	1.4	-0.10	20°
7.0	7.0	+0.25	5.8	+0.20	1.6	-0.10	20°
8.0	8.0	+0.25	6.5	+0.30	2.0	-0.10	20°
9.0	9.0	+0.25	6.9	+0.30	2.0	-0.15	20°
9.5	9.5	+0.25	6.9	+0.30	2.0	-0.15	20°
10.0	10.0	+0.25	7.5	+0.30	2.2	-0.15	20°
10.5	10.5	+0.30	8.0	+0.30	2.2	-0.15	20°
11.0	11.0	+0.30	8.5	+0.30	2.2	-0.15	20°
12.0	12.0	+0.30	9.0	+0.30	2.5	-0.15	20°
12.5	12.5	+0.30	9.0	+0.30	2.5	-0.15	20°
12.7	12.7	+0.30	9.0	+0.30	2.5	-0.15	20°
13.5	13.5	+0.30	9.5	+0.30	2.8	-0.15	30°
14.5	14.5	+0.30	9.8	+0.30	3.0	-0.15	30°
15.0	15.0	+0.30	10.5	+0.50	3.0	-0.15	30°
16.0	16.0	+0.30	10.5	+0.50	3.0	-0.15	30°
16.5	16.5	+0.30	10.5	+0.50	3.0	-0.15	30°
17.0	17.0	+0.30	10.5	+0.50	3.0	-0.15	30°
17.5	17.5	+0.30	10.5	+0.50	3.0	-0.15	30°
18.0	18.0	+0.35	11.0	+0.50	3.5	-0.20	30°
19.0	19.0	+0.35	12.0	+0.50	3.5	-0.20	30°
20.0	20.0	+0.35	13.0	+0.50	3.5	-0.20	30°
22.0	22.0	+0.35	14.0	+0.50	4.0	-0.20	30°

Codification code example: 26000- 4.0 CTM17-BC

Hammer drill tips – METRIC

14444



Ø [mm]	D [mm]	Tol. [mm]	W [mm]	Tol. [mm]	T [mm]	Tol. [mm]	α
4.0	4.20	+0.10	5.0	+0.20	1.4	-0.10	30°
5.0	5.21	+0.15	5.0	+0.20	1.6	-0.10	30°
5.5	5.71	+0.15	5.3	+0.20	1.8	-0.10	30°
6.0	6.21	+0.15	5.3	+0.20	1.8	-0.10	30°
6.5	6.71	+0.15	5.8	+0.20	1.8	-0.10	30°
7.0	7.21	+0.15	6.0	+0.20	2.0	-0.10	30°
8.0	8.21	+0.15	6.5	+0.30	2.3	-0.10	30°

Codification code example: 14444- 4.0 CTM17-BC

38500

Ø [mm]	D [mm]	Tol. [mm]	W [mm]	Tol. [mm]	T [mm]	Tol. [mm]	α
3.0	3.15	+0.10	3.5	+0.20	0.8	-0.10	30°
3.5	3.65	+0.15	3.5	+0.20	1.2	-0.10	30°
4.5	4.65	+0.15	5.0	+0.20	1.4	-0.10	30°

Codification code example: 38500- 3.0 CTM17-BC

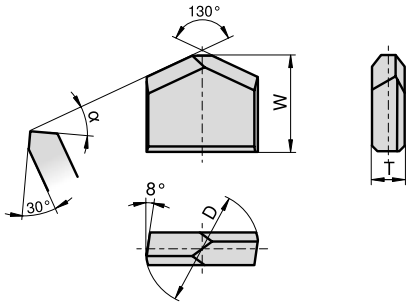
38911

Ø [mm]	D [mm]	Tol. [mm]	W [mm]	Tol. [mm]	T [mm]	Tol. [mm]	α
4.00	4.30	+0.15	5.1	±0.10	1.2	-0.07	20°
5.00	5.20	+0.15	5.1	±0.10	1.4	-0.07	20°
6.00	6.25	+0.15	5.4	±0.10	1.6	-0.07	20°

Codification code example: 38911- 4.0 CTM17-BC

Hammer drill tips – METRIC

39742



Ø [mm]	D [mm]	Tol. [mm]	W [mm]	Tol. [mm]	T [mm]	Tol. [mm]	α
3.5	3.5	+0.10	4.0	+0.25	0.8	-0.07	20°

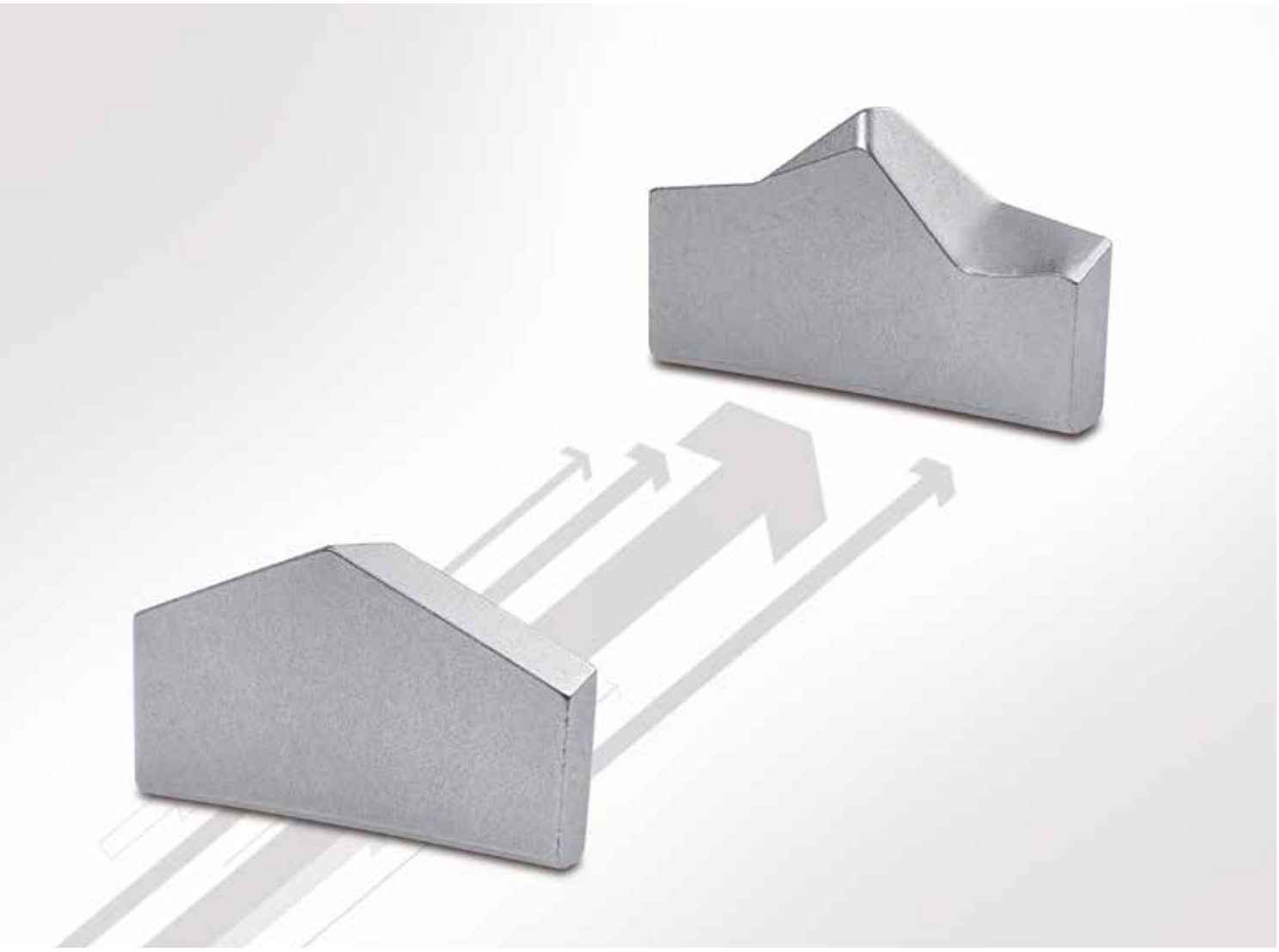
Codification code example: 39742- 3.5 CTM17-BC

40429

Ø [mm]	D [mm]	Tol. [mm]	W [mm]	Tol. [mm]	T [mm]	Tol. [mm]	α
3.5	3.5	+0.10	3.5	+0.20	1.2	-0.10	30°

Codification code example: 40429- 3.5 CTM17-BC

Masonry drill tips
Schlagbohrerplatten
Plaquettes pour mèche maconnerie
Placchette per punte a forare
Puntas de brocas para hormigon



Index

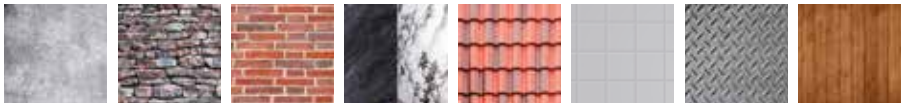
Grades for stone working – composition and properties

MASONRY	CERATIZIT grade code	ISO code	Grain	%Co	HV10	TRS
Small Diameter	CTF11-BC	BC03	F	5.6	1760	2300
Large Diameter	CTF12-BC	BC05	F	6.0	1640	2200
Special for low impact	CTF08-BC	BC01	F	4.0	1840	2200
Special for heavy duty	CTM14-BC	BC10	M	7.0	1550	2600

HAMMER	CERATIZIT grade code	ISO code	Grain	%Co	HV10	TRS
Small Diameter	CTM17-BC	BC20	M	8.5	1420	2900
Large Diameter	CTM17-BC	BC20	M	8.5	1420	2800
Special for low impact	CTM14-BC	BC10	M	7.0	1550	2600
Special for heavy duty	CTF24-BC	BC30	F	12.0	1330	3000

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**

Applications



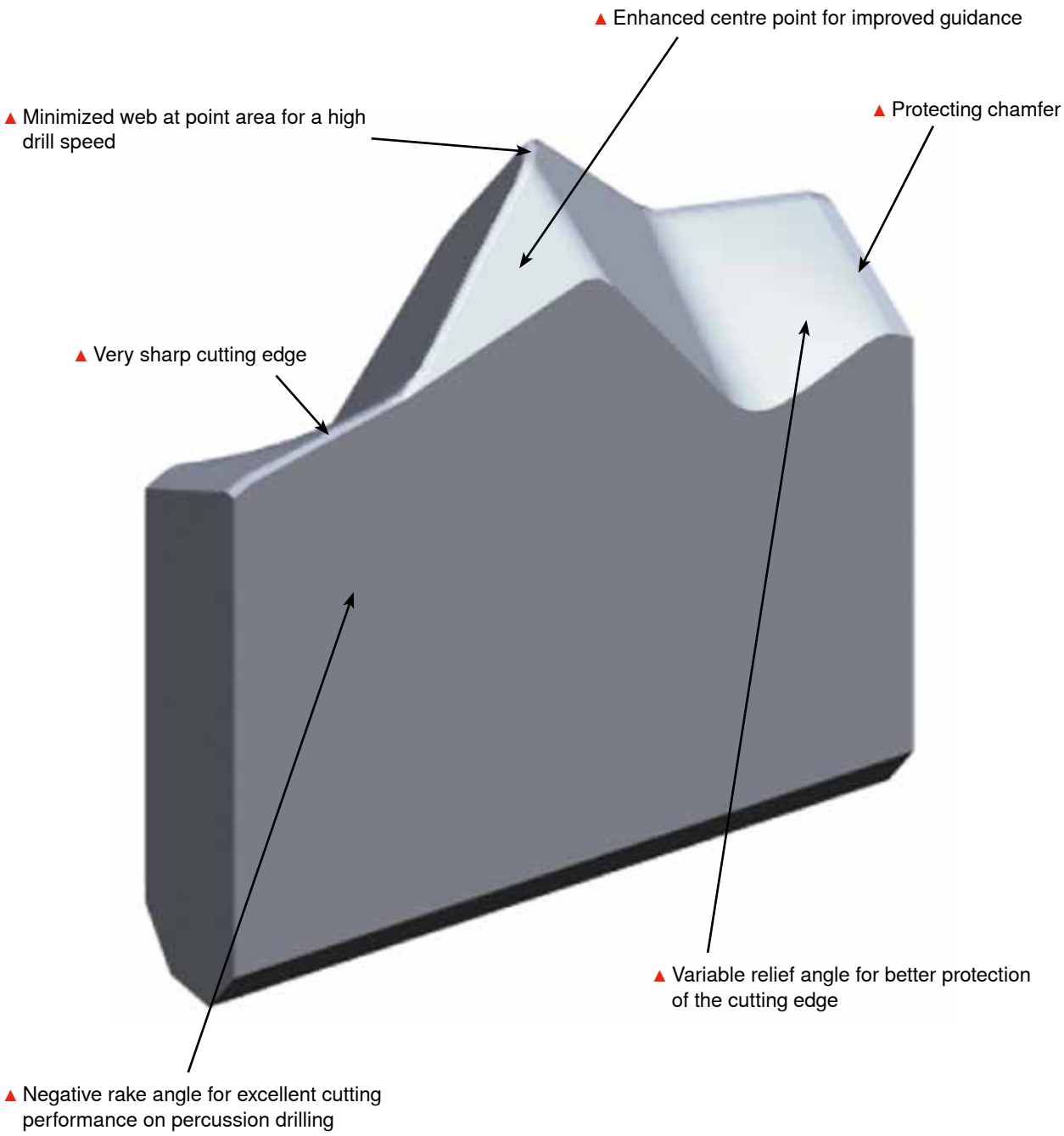
Type, description	METRIC	ANSI	PGM	Concrete	Stone	Bricks	Granit & Marble	Roofing tile	Tiles	Metal	Wood
58000	✓		✓	●	●	●	●	●			
58800		✓		●	●	●	●	●			
11400	✓		✓	●	●	●		○			
46973		✓		●	●	●		○			
32222	✓			○		●	●	●	●	●	●
37071	✓			●	●	●					
12500	✓		✓	○	●	●	●	●	●	●	●
22000		✓		○	●	●	●	●	●	●	●
16300	✓		✓	○	●	●	●	●	●	●	●
23500	✓		✓	○	●	●	●	●	●	●	●
24323	✓		✓	●	●	●		○	○		
43500	✓		✓	○	●	●	●	●	●	●	●
16000	✓		✓	●	●	●		○	○		
28500		✓		○		●	●	●	●	●	●
46716	✓			○		●	●	●	●	●	●
50210	✓		✓	●		●		○	○		

● Optimum
○ Not optimum

CERATIZIT Style 58000

Advantages of Style 58000

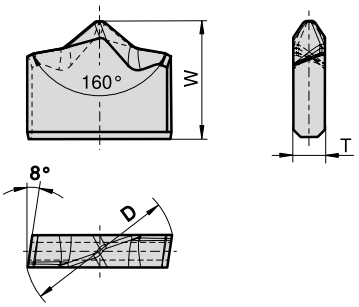
- ▲ Optimised CERATIZIT grade CTF12-BC with a hardness of 1640 HV10
- ▲ Especially well suited for cordless drills



Masonry drill tips – METRIC

58000

Conforming to PGM

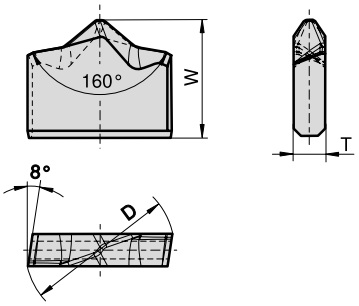


Ø [mm]	D [mm]	Tol. [mm]	W [mm]	Tol. [mm]	T [mm]	Tol. [mm]
4.0	4.18	+0.12	3.30	±0.10	1.00	-0.07
5.0	5.18	+0.12	4.15	±0.10	1.20	-0.07
5.5	5.68	+0.12	4.55	±0.10	1.20	-0.07
6.0	6.18	+0.12	4.95	±0.10	1.40	-0.10
6.5	6.68	+0.12	5.35	±0.10	1.40	-0.10
7.0	7.21	+0.15	5.75	±0.10	1.60	-0.10
8.0	8.21	+0.15	5.80	±0.15	1.80	-0.10
9.0	9.21	+0.15	6.50	±0.15	2.00	-0.10
10.0	10.21	+0.15	7.20	±0.15	2.20	-0.15
12.0	12.23	+0.20	8.60	±0.15	2.50	-0.15
13.0	13.23	+0.20	9.30	±0.15	2.50	-0.15
14.0	14.23	+0.20	10.00	±0.15	2.80	-0.18
16.0	16.23	+0.20	9.95	±0.25	2.80	-0.18
18.0	18.23	+0.20	11.15	±0.25	2.80	-0.18
20.0	20.24	+0.28	12.40	±0.25	3.00	-0.18

Codification code example: 58000- 4.0 CTF12-BC

Masonry drill tips – ANSI

58800



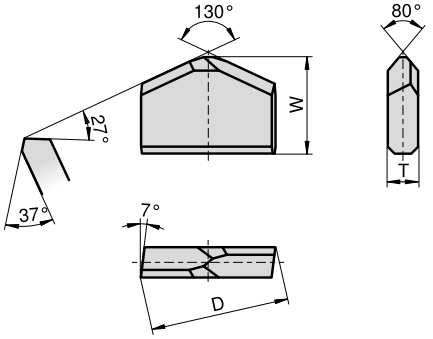
Ø [mm]	D [mm]	Tol. [mm]	W [mm]	Tol. [mm]	T [mm]	Tol. [mm]
1/8″	3.55	-0.15	2.70	±0.125	0.89	-0.07
5/32″	4.30	-0.12	3.30	±0.10	1.00	-0.07
3/16″	5.23	-0.20	4.00	±0.125	1.15	-0.07
7/32″	5.80	-0.12	4.55	±0.10	1.55	-0.07
1/4″	6.80	-0.20	5.30	±0.125	1.52	-0.07
5/16″	8.36	-0.15	5.80	±0.15	1.80	-0.10
3/8″	10.10	-0.20	6.85	±0.125	1.98	-0.07
7/16″	11.88	-0.25	8.05	±0.19	1.98	-0.07
5/8″	16.76	-0.25	9.90	±0.19	2.50	-0.15
3/4″	19.98	-0.30	11.80	±0.19	3.20	-0.18
7/8″	23.14	-0.30	13.20	±0.19	3.41	-0.12
1″	26.46	-0.30	14.40	±0.19	3.50	-0.18

Codification code example: 58800- 1/8″ CTF12-BC

Masonry drill tips – METRIC

11400

Conforming to PGM

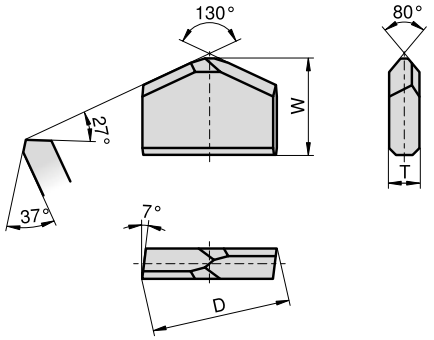


Ø [mm]	D [mm]	Tol. [mm]	W [mm]	Tol. [mm]	T [mm]	Tol. [mm]
3.0	3.0	+0.25 / +0.15	3.20	+0.20	0.8	-0.07
4.0	4.0	+0.30 / +0.18	3.20	+0.20	1.0	-0.07
4.5	4.5	+0.30 / +0.18	3.60	+0.20	1.0	-0.07
5.0	5.0	+0.30 / +0.18	4.00	+0.20	1.2	-0.07
5.5	5.5	+0.30 / +0.18	4.40	+0.20	1.2	-0.07
6.0	6.0	+0.30 / +0.18	4.80	+0.20	1.4	-0.10
6.5	6.5	+0.30 / +0.18	5.20	+0.20	1.4	-0.10
7.0	7.0	+0.36 / +0.21	5.60	+0.20	1.6	-0.10
7.5	7.5	+0.36 / +0.21	6.00	+0.30	1.6	-0.10
8.0	8.0	+0.36 / +0.21	5.60	+0.30	1.8	-0.10
9.0	9.0	+0.36 / +0.21	6.30	+0.30	2.0	-0.10
9.5	9.5	+0.36 / +0.21	6.70	+0.30	2.0	-0.10
10.0	10.0	+0.36 / +0.21	6.80	+0.30	2.2	-0.15
11.0	11.0	+0.43 / +0.23	7.70	+0.30	2.2	-0.15
12.0	12.0	+0.43 / +0.23	8.20	+0.30	2.5	-0.15
13.0	13.0	+0.43 / +0.23	8.90	+0.30	2.5	-0.15
14.0	14.0	+0.43 / +0.23	9.50	+0.30	2.8	-0.18
16.0	16.0	+0.43 / +0.23	9.60	+0.50	3.0	-0.18
18.0	18.0	+0.43 / +0.23	10.50	+0.50	3.0	-0.18
20.0	20.0	+0.52 / +0.24	11.65	+0.50	3.5	-0.20
22.0	22.0	+0.52 / +0.24	12.50	+0.50	3.5	-0.20
25.0	25.0	+0.52 / +0.24	13.80	+0.50	4.0	-0.20
28.0	28.0	+0.52 / +0.24	15.00	+0.50	4.5	-0.20
32.0	32.0	+0.52 / +0.24	17.00	+0.50	5.0	-0.20
35.0	35.0	+0.52 / +0.24	18.60	+0.50	5.5	-0.20

Codification code example: 11400- 3.0 CTF12-BC

Masonry drill tips – ANSI

46973

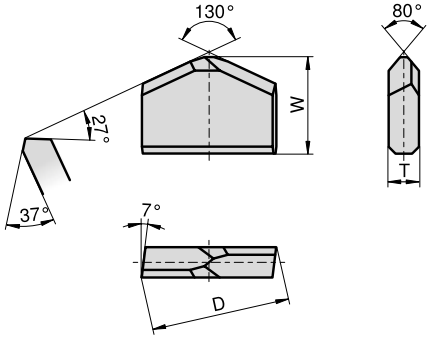


Ø [mm]	D [mm]	Tol. [mm]	W [mm]	Tol. [mm]	T [mm]	Tol. [mm]
1/8″	3.475	±0.075	4.285	±0.125	0.855	±0.035
3/16″	5.130	±0.100	5.125	±0.125	1.115	±0.035
5/16″	8.400	±0.100	6.725	±0.125	1.485	±0.035
3/8″	10.000	±0.100	8.245	±0.125	1.945	±0.035
7/16″	11.755	±0.125	9.710	±0.190	1.945	±0.035
5/8″	16.635	±0.125	13.140	±0.190	2.260	±0.050
3/4″	19.830	±0.150	15.370	±0.190	2.260	±0.050
7/8″	23.140	±0.150	16.700	±0.190	2.260	±0.050
1″	26.310	±0.150	18.420	±0.190	3.030	±0.050

Codification code example: 46973- 1/8″ CTF12-BC

Masonry drill tips – METRIC

32222

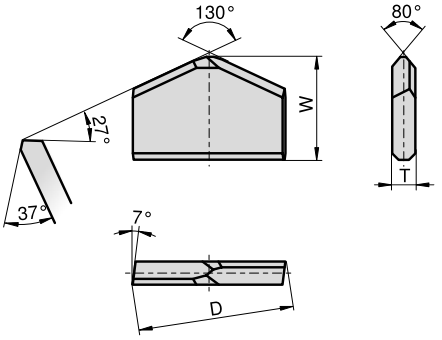


Ø [mm]	D [mm]	Tol. [mm]	W [mm]	Tol. [mm]	T [mm]	Tol. [mm]
3.0	3.0	+0.25 / +0.15	3.50	+0.20	0.80	-0.07
4.0	4.0	+0.30 / +0.18	3.30	+0.20	1.00	-0.07
5.0	5.0	+0.30 / +0.18	4.20	+0.20	1.20	-0.07
6.0	6.0	+0.30 / +0.18	4.70	+0.20	1.40	-0.10
6.5	6.5	+0.30 / +0.18	4.85	+0.20	1.40	-0.10
7.0	7.0	+0.36 / +0.21	5.15	+0.20	1.60	-0.10
8.0	8.0	+0.36 / +0.21	5.65	+0.30	1.80	-0.10
10.0	10.0	+0.36 / +0.21	6.55	+0.30	2.20	-0.15

Codification code example: 32222- 3.0 CTF12-BC

Masonry drill tips – METRIC

37071



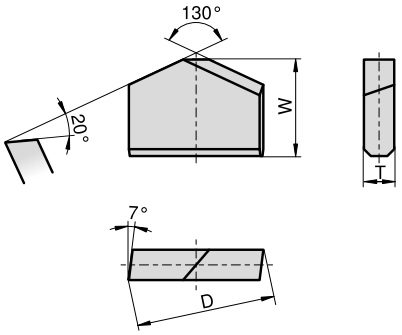
Ø [mm]	D [mm]	Tol. [mm]	W [mm]	Tol. [mm]	T [mm]	Tol. [mm]	α	β	γ
3.4	3.40	+0.15 / +0.05	4.16	+0.25	0.89	-0.07	20°	30°	9°
3.5	3.50	+0 / +0.20	4.20	+0.25	1.00	-0.10	20°	30°	9°

Codification code example: 37071- 3.40 CTF12-BC

Masonry drill tips – METRIC

12500

Conforming to PGM

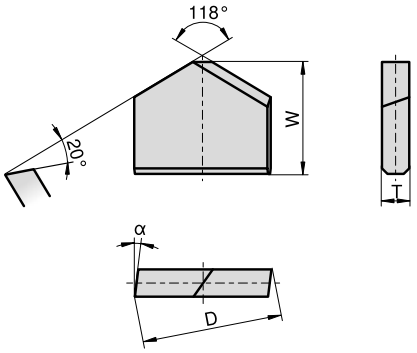


Ø [mm]	D [mm]	Tol. [mm]	W [mm]	Tol. [mm]	T [mm]	Tol. [mm]
3.0	3.0	+0.25 / +0.15	3.2	+0.20	0.8	-0.07
3.5	3.5	+0.25 / +0.15	3.6	+0.20	1.0	-0.07
4.0	4.0	+0.30 / +0.18	3.2	+0.20	1.0	-0.07
4.5	4.5	+0.30 / +0.18	3.6	+0.20	1.0	-0.07
5.0	5.0	+0.30 / +0.18	4.0	+0.20	1.2	-0.07
5.5	5.5	+0.30 / +0.18	4.4	+0.20	1.2	-0.07
6.0	6.0	+0.30 / +0.18	4.8	+0.20	1.4	-0.10
6.5	6.5	+0.30 / +0.18	5.2	+0.20	1.4	-0.10
7.0	7.0	+0.36 / +0.21	5.6	+0.20	1.6	-0.10
7.5	7.5	+0.36 / +0.21	6.0	+0.20	1.6	-0.10
8.0	8.0	+0.36 / +0.21	5.6	+0.30	1.8	-0.10
9.0	9.0	+0.36 / +0.21	6.3	+0.30	2.0	-0.10
9.5	9.5	+0.36 / +0.21	6.7	+0.30	2.0	-0.10
10.0	10.0	+0.36 / +0.21	6.7	+0.30	2.2	-0.15
11.0	11.0	+0.43 / +0.23	7.7	+0.30	2.2	-0.15
12.0	12.0	+0.43 / +0.23	8.2	+0.30	2.5	-0.15
13.0	13.0	+0.43 / +0.23	8.7	+0.30	2.5	-0.15
14.0	14.0	+0.43 / +0.23	9.3	+0.30	2.8	-0.18

Codification code example: 12500- 3.0 CTF12-BC

Masonry drill tips – ANSI

22000 Inch

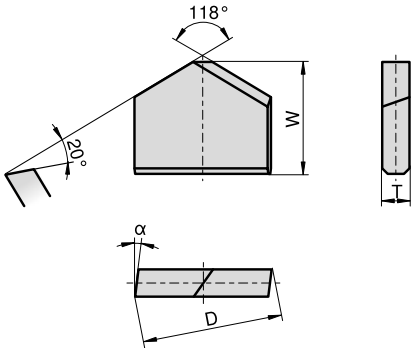


Ø [inch]	ANSI code	D [inch]	Tol. [inch]	W [inch]	Tol. [inch]	T [inch]	Tol. [inch]	α
1/8″	MDG 2	0.140	-0.006	0.164	+0.010	0.035	-0.003	9°
5/32″	MDG 2.5	0.171	-0.006	0.180	+0.010	0.035	-0.003	9°
3/16″	MDG 3	0.206	-0.008	0.197	+0.010	0.045	-0.003	8°
7/32″	MDG 3.5	0.237	-0.008	0.220	+0.010	0.045	-0.003	8°
1/4″	MDG 4	0.268	-0.008	0.220	+0.010	0.060	-0.003	8°
9/32″	MDG 4.5	0.304	-0.008	0.260	+0.010	0.060	-0.003	7°
5/16″	MDG 5	0.335	-0.008	0.260	+0.010	0.060	-0.003	7°
3/8″	MDG 6	0.398	-0.008	0.320	+0.010	0.078	-0.003	7°
7/16″	MDG 7	0.468	-0.010	0.375	+0.015	0.078	-0.003	7°
1/2″	MDG 8	0.530	-0.010	0.430	+0.015	0.091	-0.004	7°
9/16″	MDG 9	0.592	-0.010	0.472	+0.015	0.091	-0.004	7°
5/8″	MDG 10	0.660	-0.010	0.510	+0.015	0.091	-0.004	7°
3/4″	MDG 12	0.787	-0.012	0.598	+0.015	0.091	-0.004	7°
7/8″	MDG 14	0.917	-0.012	0.650	+0.015	0.091	-0.004	7°
1″	MDG 16	1.042	-0.012	0.718	+0.015	0.122	-0.005	7°
1 1/8″	MDG 18	1.175	-0.018	0.758	+0.020	0.122	-0.008	7°
1 1/4″	MDG 20	1.300	-0.018	0.758	+0.020	0.122	-0.008	7°
1 3/8″	MDG 22	1.425	-0.018	0.843	+0.020	0.122	-0.008	7°
1 1/2″	MDG 24	1.550	-0.018	0.843	+0.020	0.122	-0.008	7°

Codification code example: 22000- 1/8″ CTF12-BC

Masonry drill tips – ANSI

22000



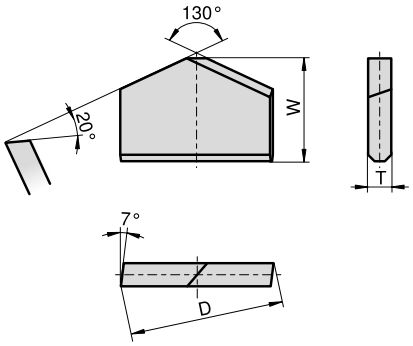
Ø [inch]	ANSI code	D [mm]	Tol. [mm]	W [mm]	Tol. [mm]	T [mm]	Tol. [mm]	α
1/8″	MDG 2	3.55	-0.15	4.16	+0.25	0.89	-0.07	9°
5/32″	MDG 2.5	4.34	-0.15	4.57	+0.25	0.89	-0.07	9°
3/16″	MDG 3	5.23	-0.20	5.00	+0.25	1.15	-0.07	8°
7/32″	MDG 3.5	6.01	-0.20	5.58	+0.25	1.15	-0.07	8°
1/4″	MDG 4	6.80	-0.20	5.58	+0.25	1.52	-0.07	8°
9/32″	MDG 4.5	7.72	-0.20	6.60	+0.25	1.52	-0.07	7°
5/16″	MDG 5	8.50	-0.20	6.60	+0.25	1.52	-0.07	7°
3/8″	MDG 6	10.10	-0.20	8.12	+0.25	1.98	-0.07	7°
7/16″	MDG 7	11.88	-0.25	9.52	+0.38	1.98	-0.07	7°
1/2″	MDG 8	13.46	-0.25	10.92	+0.38	2.31	-0.10	7°
9/16″	MDG 9	15.03	-0.25	11.98	+0.38	2.31	-0.10	7°
5/8″	MDG 10	16.76	-0.25	12.95	+0.38	2.31	-0.10	7°
3/4″	MDG 12	19.98	-0.30	15.18	+0.38	2.31	-0.10	7°
7/8″	MDG 14	23.29	-0.30	16.51	+0.38	2.31	-0.10	7°
1″	MDG 16	26.46	-0.30	18.23	+0.38	3.09	-0.12	7°
1 1/8″	MDG 18	29.84	-0.45	19.25	+0.50	3.09	-0.20	7°
1 1/4″	MDG 20	33.02	-0.45	19.25	+0.50	3.09	-0.20	7°
1 3/8″	MDG 22	36.19	-0.45	21.41	+0.50	3.09	-0.20	7°
1 1/2″	MDG 24	39.37	-0.45	21.41	+0.50	3.09	-0.20	7°

Codification code example: 22000- 1/8″ CTF12-BC

Masonry drill tips – METRIC

16300

Conforming to PGM



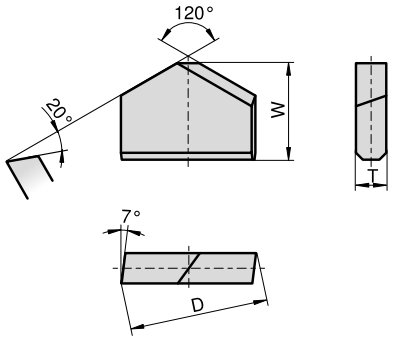
Ø [mm]	D [mm]	Tol. [mm]	W [mm]	Tol. [mm]	T [mm]	Tol. [mm]
12.0	12.0	+0.43 / +0.23	8.0	+0.30	1.8	-0.15
13.0	13.0	+0.43 / +0.23	8.7	+0.30	2.0	-0.15
14.0	14.0	+0.43 / +0.23	9.3	+0.30	2.1	-0.18
15.0	15.0	+0.43 / +0.23	9.6	+0.30	2.2	-0.18
16.0	16.0	+0.43 / +0.23	9.6	+0.50	2.2	-0.18
17.0	17.0	+0.43 / +0.23	10.5	+0.50	2.2	-0.18
18.0	18.0	+0.43 / +0.23	10.5	+0.50	2.2	-0.18
19.0	19.0	+0.43 / +0.23	11.5	+0.50	2.5	-0.18
20.0	20.0	+0.52 / +0.24	11.5	+0.50	2.5	-0.20
22.0	22.0	+0.52 / +0.24	12.5	+0.50	2.5	-0.20
24.0	24.0	+0.52 / +0.24	15.0	+0.50	3.0	-0.20
25.0	25.0	+0.52 / +0.24	15.0	+0.50	3.0	-0.20
26.0	26.0	+0.52 / +0.24	15.0	+0.50	3.0	-0.20
30.0	30.0	+0.52 / +0.24	16.0	+0.50	4.0	-0.20

Codification code example: 16300- 12.0 CTM17-BC

Masonry drill tips – METRIC

23500

Conforming to PGM



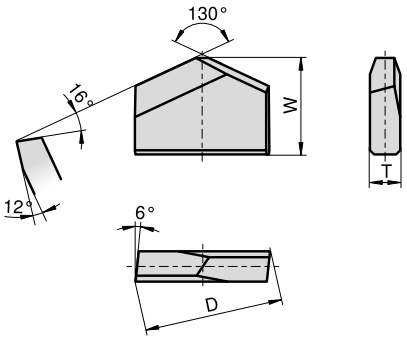
Ø [mm]	D [mm]	Tol. [mm]	W [mm]	Tol. [mm]	T [mm]	Tol. [mm]
3.0	3.0	+0.25 / +0.15	3.2	+0.20	0.8	-0.07
3.5	3.5	+0.25 / +0.15	3.6	+0.20	1.0	-0.07
4.0	4.0	+0.30 / +0.18	3.2	+0.20	1.0	-0.07
4.5	4.5	+0.30 / +0.18	3.6	+0.20	1.0	-0.07
5.0	5.0	+0.30 / +0.18	4.0	+0.20	1.2	-0.07
5.5	5.5	+0.30 / +0.18	4.4	+0.20	1.2	-0.07
6.0	6.0	+0.30 / +0.18	4.8	+0.20	1.4	-0.10
6.5	6.5	+0.30 / +0.18	5.2	+0.20	1.4	-0.10
7.0	7.0	+0.36 / +0.21	5.6	+0.20	1.6	-0.10
8.0	8.0	+0.36 / +0.21	5.6	+0.30	1.8	-0.10
9.0	9.0	+0.36 / +0.21	6.3	+0.30	2.0	-0.10
10.0	10.0	+0.36 / +0.21	7.0	+0.30	2.2	-0.15
11.0	11.0	+0.43 / +0.23	7.7	+0.30	2.2	-0.15
12.0	12.0	+0.43 / +0.23	8.4	+0.30	2.5	-0.15
13.0	13.0	+0.43 / +0.23	9.1	+0.30	2.5	-0.15
14.0	14.0	+0.43 / +0.23	9.3	+0.30	2.8	-0.18
16.0	16.0	+0.43 / +0.23	9.6	+0.50	3.0	-0.18
18.0	18.0	+0.43 / +0.23	10.50	+0.50	3.0	-0.18
20.0	20.0	+0.52 / +0.25	11.50	+0.50	3.5	-0.20

Codification code example: 23500- 3.0 CTF12-BC

Masonry drill tips – METRIC

24323

Conforming to PGM



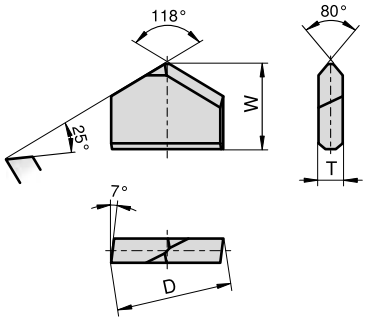
Ø [mm]	D [mm]	Tol. [mm]	W [mm]	Tol. [mm]	T [mm]	Tol. [mm]
4.0	4.0	+0.30 / +0.18	3.2	+0.20	1.0	-0.07
5.0	5.0	+0.30 / +0.18	4.0	+0.20	1.2	-0.07
5.5	5.5	+0.30 / +0.18	4.4	+0.20	1.2	-0.07
6.0	6.0	+0.30 / +0.18	4.8	+0.20	1.4	-0.10
6.5	6.5	+0.36 / +0.21	5.2	+0.20	1.4	-0.10
7.0	7.0	+0.36 / +0.21	5.6	+0.20	1.6	-0.10
8.0	8.0	+0.36 / +0.21	5.6	+0.30	1.8	-0.10
9.0	9.0	+0.36 / +0.21	6.3	+0.30	2.0	-0.10
10.0	10.0	+0.36 / +0.21	7.0	+0.30	2.2	-0.15
12.0	12.0	+0.43 / +0.23	8.4	+0.30	2.5	-0.15
14.0	14.0	+0.43 / +0.23	9.75	+0.30	2.8	-0.18
16.0	16.0	+0.43 / +0.23	9.6	+0.50	3.0	-0.18

Codification code example: 24323- 4.0 CTM14-BC

Masonry drill tips – METRIC

43500

Conforming to PGM



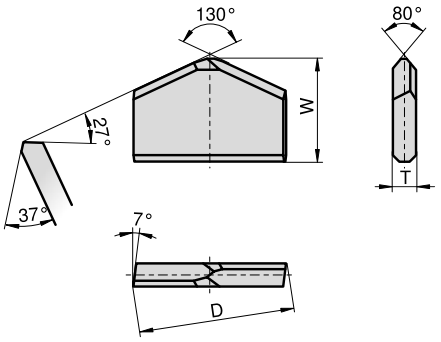
Ø [mm]	D [mm]	Tol. [mm]	W [mm]	Tol. [mm]	T [mm]	Tol. [mm]
3.0	3.0	+0.25 / +0.15	3.2	+0.20	0.8	-0.07
4.0	4.0	+0.30 / +0.18	3.2	+0.20	1.0	-0.07
5.0	5.0	+0.30 / +0.18	4.0	+0.20	1.2	-0.07
5.5	5.5	+0.30 / +0.18	4.4	+0.20	1.2	-0.07
6.0	6.0	+0.30 / +0.18	4.8	+0.20	1.4	-0.10
6.5	6.5	+0.30 / +0.18	5.2	+0.20	1.4	-0.10
7.0	7.0	+0.36 / +0.21	5.6	+0.20	1.6	-0.10
8.0	8.0	+0.36 / +0.21	5.6	+0.30	1.8	-0.10
9.0	9.0	+0.36 / +0.21	6.3	+0.30	2.0	-0.10
10.0	10.0	+0.36 / +0.21	7.0	+0.30	2.2	-0.15
11.0	11.0	+0.43 / +0.23	7.7	+0.30	2.2	-0.15
12.0	12.0	+0.43 / +0.23	8.4	+0.30	2.5	-0.15
14.0	14.0	+0.43 / +0.23	9.8	+0.30	2.1	-0.18
16.0	16.0	+0.43 / +0.23	9.8	+0.50	2.2	-0.18

Codification code example: 43500- 3.0 CTF11-BC

Masonry drill tips – METRIC

16000

Conforming to PGM

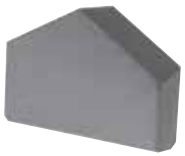


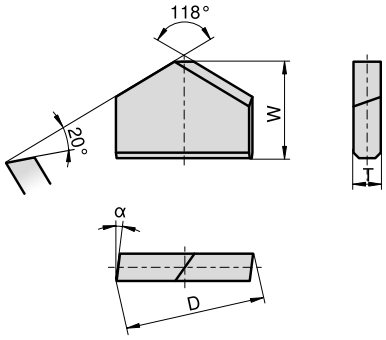
Ø [mm]	D [mm]	Tol. [mm]	W [mm]	Tol. [mm]	T [mm]	Tol. [mm]	α	β	γ
12.0	12.0	+0.43 / +0.23	8.2	+0.30	1.8	-0.15	27°	37°	7°
13.0	13.0	+0.43 / +0.23	8.7	+0.30	2.0	-0.15	27°	37°	7°
14.0	14.0	+0.43 / +0.23	9.3	+0.30	2.1	-0.18	27°	37°	7°
15.0	15.0	+0.43 / +0.23	9.6	+0.30	2.2	-0.18	27°	37°	7°
16.0	16.0	+0.43 / +0.23	9.6	+0.50	2.2	-0.18	27°	37°	7°
17.0	17.0	+0.43 / +0.23	10.5	+0.50	2.2	-0.18	27°	37°	7°
18.0	18.0	+0.43 / +0.23	10.5	+0.50	2.2	-0.18	27°	37°	7°
19.0	19.0	+0.43 / +0.23	11.5	+0.50	2.5	-0.18	27°	37°	7°
20.0	20.0	+0.52 / +0.24	11.5	+0.50	2.5	-0.20	27°	37°	7°
22.0	22.0	+0.52 / +0.24	12.5	+0.50	2.5	-0.20	27°	37°	7°
24.0	24.0	+0.52 / +0.24	15.0	+0.50	3.0	-0.20	27°	37°	7°
25.0	25.0	+0.52 / +0.24	15.0	+0.50	3.0	-0.20	27°	37°	7°
26.0	26.0	+0.52 / +0.24	15.0	+0.50	3.0	-0.20	27°	37°	7°
28.0	28.0	+0.52 / +0.24	15.0	+0.50	4.0	-0.20	27°	37°	7°
30.0	30.0	+0.52 / +0.24	16.0	+0.50	4.0	-0.20	27°	37°	7°

Codification code example: 16000- 12.0 CTM17-BC

Masonry drill tips – ANSI

28500 Inch





Ø [inch]	D [inch]	Tol. [inch]	W [inch]	Tol. [inch]	T [inch]	Tol. [inch]	α
1/8″	0.140	-0.006	0.138	+0.010	0.035	-0.003	9°
5/32″	0.171	-0.006	0.158	+0.010	0.035	-0.003	9°
3/16″	0.206	-0.008	0.177	+0.010	0.045	-0.003	8°
1/4″	0.268	-0.008	0.197	+0.010	0.060	-0.003	8°
5/16″	0.335	-0.008	0.236	+0.010	0.060	-0.003	7°
3/8″	0.398	-0.008	0.276	+0.010	0.078	-0.003	7°
1/2″	0.530	-0.010	0.335	+0.015	0.091	-0.004	7°
5/8″	0.660	-0.010	0.394	+0.015	0.091	-0.004	7°
3/4″	0.787	-0.012	0.473	+0.015	0.091	-0.004	7°
7/8″	0.917	-0.012	0.532	+0.015	0.091	-0.004	7°
1″	1.042	-0.012	0.575	+0.015	0.122	-0.005	7°
1 1/8″	1.175	-0.018	0.630	+0.020	0.122	-0.008	7°
1 1/4″	1.300	-0.018	0.650	+0.020	0.122	-0.008	7°
1 3/8″	1.425	-0.018	0.689	+0.020	0.122	-0.008	7°
1 1/2″	1.550	-0.018	0.709	+0.020	0.122	-0.008	7°

Codification code example: 28500- 1/8″ CTM17-BC

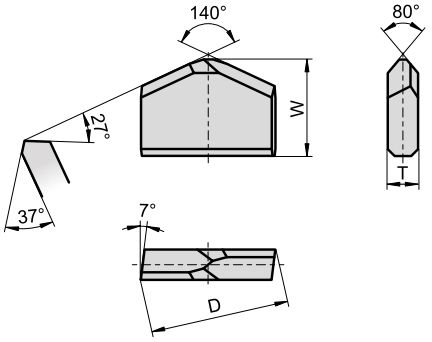
28500

Ø [inch]	D [mm]	Tol. [mm]	W [mm]	Tol. [mm]	T [mm]	Tol. [mm]	α
1/8″	3.55	-0.15	3.5	+0.25	0.89	-0.07	9°
5/32″	4.34	-0.15	4.0	+0.25	0.89	-0.07	9°
3/16″	5.23	-0.20	4.5	+0.25	1.15	-0.07	8°
1/4″	6.80	-0.20	5.0	+0.25	1.52	-0.07	8°
5/16″	8.50	-0.20	6.0	+0.25	1.52	-0.07	7°
3/8″	10.10	-0.20	7.0	+0.25	1.98	-0.07	7°
1/2″	13.46	-0.25	8.5	+0.38	2.31	-0.10	7°
5/8″	16.76	-0.25	10.0	+0.38	2.31	-0.10	7°
3/4″	19.98	-0.30	12.0	+0.38	2.31	-0.10	7°
7/8″	23.29	-0.30	13.5	+0.38	2.31	-0.10	7°
1″	26.46	-0.30	14.6	+0.38	3.09	-0.12	7°
1 1/8″	29.84	-0.45	16.0	+0.50	3.09	-0.20	7°
1 1/4″	33.02	-0.45	16.5	+0.50	3.09	-0.20	7°
1 3/8″	36.19	-0.45	17.5	+0.50	3.09	-0.20	7°
1 1/2″	39.37	-0.45	18.0	+0.50	3.09	-0.20	7°

Codification code example: 28500- 1/8″ CTM17-BC

Masonry drill tips – METRIC

46716



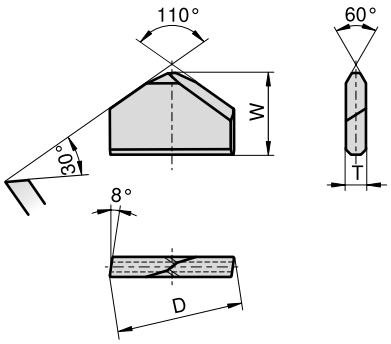
Ø [mm]	D [mm]	Tol. [mm]	W [mm]	Tol. [mm]	T [mm]	Tol. [mm]
6.0	6.240	±0.060	3.90	±0.10	1.050	±0.050
6.5	6.740	±0.060	4.40	±0.10	1.050	±0.050
8.0	8.285	±0.075	5.15	±0.15	1.125	±0.050
10.0	10.285	±0.075	5.55	±0.15	1.325	±0.075

Codification code example: 46716- 6.0 CTM14-BC

Masonry drill tips – METRIC

50210

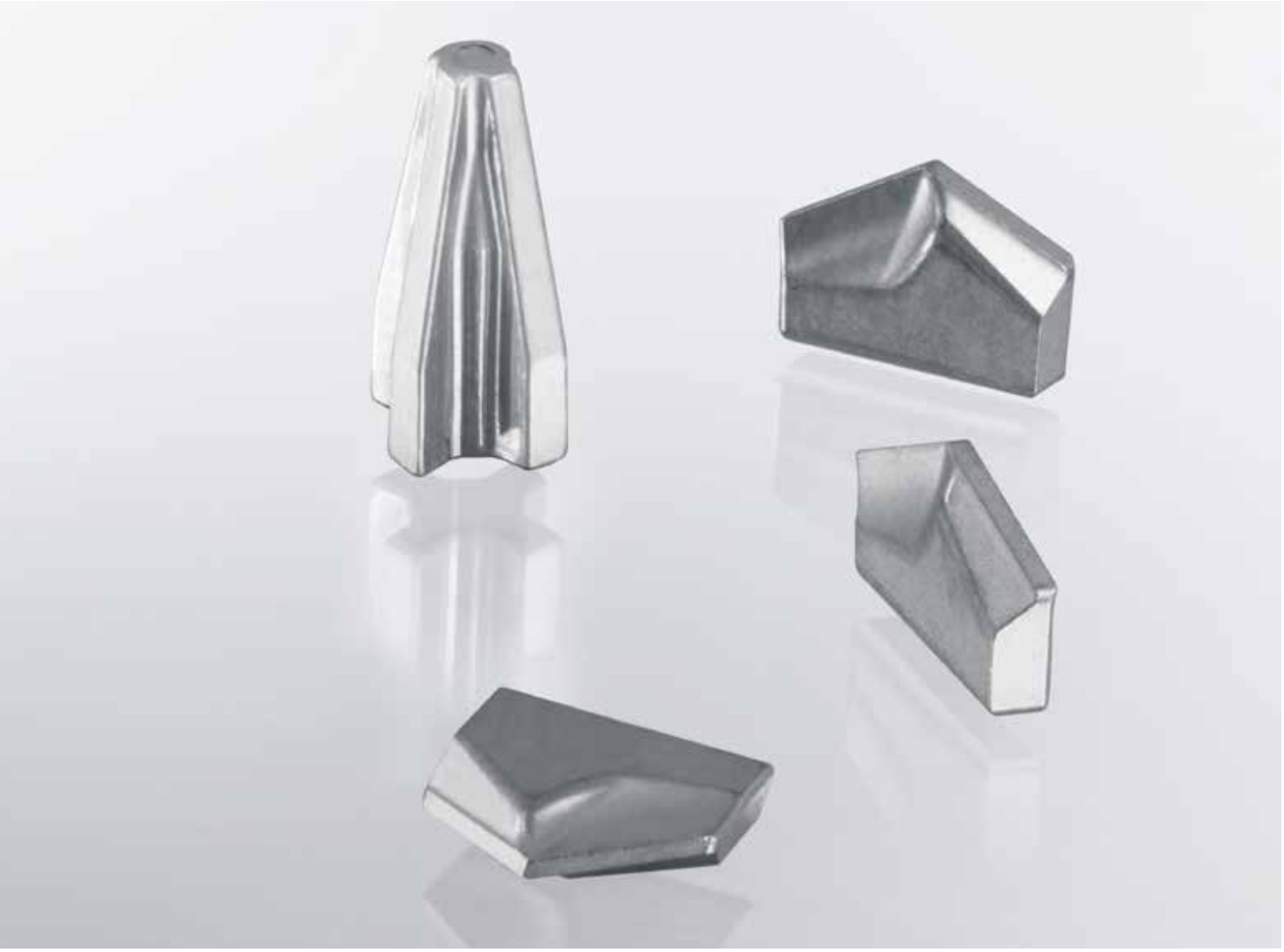
Conforming to PGM



Ø [mm]	D [mm]	Tol. [mm]	W [mm]	Tol. [mm]	T [mm]	Tol. [mm]
4.0	4.0	+0.40 / +0.15	3.40	+0.20	1.0	-0.07
4.5	4.5	+0.40 / +0.15	3.90	+0.20	1.0	-0.07
5.0	5.0	+0.40 / +0.15	4.30	+0.20	1.2	-0.07
5.5	5.5	+0.40 / +0.15	4.70	+0.20	1.2	-0.07
6.0	6.0	+0.40 / +0.15	5.20	+0.20	1.4	-0.10
6.5	6.5	+0.40 / +0.15	5.70	+0.20	1.4	-0.10
7.0	7.0	+0.45 / +0.20	6.10	+0.20	1.6	-0.10
8.0	8.0	+0.45 / +0.20	6.05	+0.30	1.8	-0.10
10.0	10.0	+0.45 / +0.20	7.60	+0.30	2.2	-0.15
12.0	12.0	+0.50 / +0.20	9.35	+0.30	2.0	-0.15
13.0	13.0	+0.50 / +0.20	10.05	+0.30	2.2	-0.15
14.0	14.0	+0.50 / +0.20	10.85	+0.30	2.5	-0.18
16.0	16.0	+0.50 / +0.20	10.90	+0.50	2.5	-0.18
18.0	18.0	+0.50 / +0.20	12.10	+0.50	3.0	-0.18
20.0	20.0	+0.55 / +0.20	13.45	+0.50	3.2	-0.20
22.0	22.0	+0.55 / +0.20	13.70	+0.50	3.5	-0.20
25.0	25.0	+0.55 / +0.20	15.50	+0.50	4.1	-0.20

Codification code example: 50210- 4.0 CTF11-BC

Special tips
Sonderplatten
Plaquettes spéciales
Plachette non standard
Puntas especiales



Index

Metal cutting tips
Metallbohrerplatten
Plaquettes pour coupe métaux
Plaquette per punte per lavorazione metall
Puntas de broca para metallo

Applications

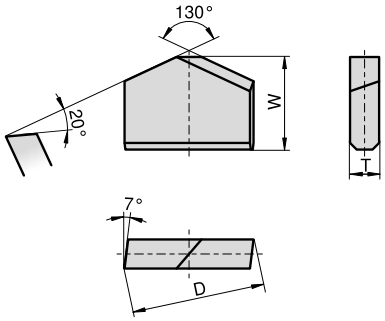
Type, description	METRIC	Metal
12500	✓	○
14818	✓	●

● Optimum
○ Not optimum

Metal cutting tips – METRIC

12500

Grade recommendation:
CTS20-BC
CTS18D

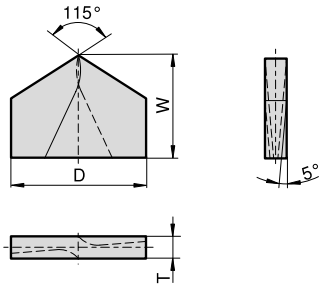


Ø [mm]	D [mm]	Tol. [mm]	W [mm]	Tol. [mm]	T [mm]	Tol. [mm]
3.0	3.0	+0.25 / +0.15	3.2	+0.20	0.8	-0.07
3.5	3.5	+0.25 / +0.15	3.6	+0.20	1.0	-0.07
4.0	4.0	+0.30 / +0.18	3.2	+0.20	1.0	-0.07
4.5	4.5	+0.30 / +0.18	3.6	+0.20	1.0	-0.07
5.0	5.0	+0.30 / +0.18	4.0	+0.20	1.2	-0.07
5.5	5.5	+0.30 / +0.18	4.4	+0.20	1.2	-0.07
6.0	6.0	+0.30 / +0.18	4.8	+0.20	1.4	-0.10
6.5	6.5	+0.30 / +0.18	5.2	+0.20	1.4	-0.10
7.0	7.0	+0.36 / +0.21	5.6	+0.20	1.6	-0.10
7.5	7.5	+0.36 / +0.21	6.0	+0.20	1.6	-0.10
8.0	8.0	+0.36 / +0.21	5.6	+0.30	1.8	-0.10

Codification code example: 12500- 3.0 CTS18-D

14818

Grade recommendation:
CTS20-BC
CTS18D



Ø [mm]	D [mm]	Tol. [mm]	W [mm]	T [mm]	Tol. [mm]
8.0	8.5	+0.5	7.1	1.6	-0.15
8.5	9.0	+0.5	8.0	2.0	-0.15
9.0	9.5	+0.5	8.0	2.0	-0.15
9.5	10.0	+0.5	8.5	2.0	-0.15
10.0	10.5	+0.5	8.5	2.0	-0.20
10.5	11.3	+0.5	9.5	2.2	-0.20
11.0	11.8	+0.5	9.5	2.2	-0.20
11.5	12.3	+0.6	10.6	2.5	-0.20
12.0	12.8	+0.6	10.6	2.5	-0.20
13.0	13.8	+0.6	12.5	2.5	-0.20
14.0	14.8	+0.7	12.5	2.5	-0.20
15.0	15.8	+0.7	14.0	2.8	-0.25
16.0	16.8	+0.7	14.0	2.8	-0.25
17.0	17.8	+0.7	16.0	3.0	-0.25
18.0	18.8	+0.7	16.0	3.0	-0.25
19.0	19.8	+0.7	18.0	3.5	-0.30
20.0	20.8	+0.8	18.0	3.5	-0.30
21.0	22.8	+0.8	18.0	3.5	-0.30
22.0	23.0	+0.8	19.0	4.0	-0.30
23.0	24.0	+0.8	19.0	4.0	-0.30

Codification code example: 14818- 8.0 CTS18-D

Blanks for wood machining drill tips
Rohlinge für Holzbohrer
Ébauches pour mèches à bois
Placchette per punte per cerniere
Preformados para brocas de madera

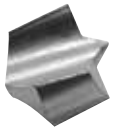
Applications

Type, description	METRIC	Wood
CTDD RI / LE	✓	●
CTDD RI / LE	✓	●
CTDP	✓	●
CTDP	✓	●

● Optimum
○ Not optimum

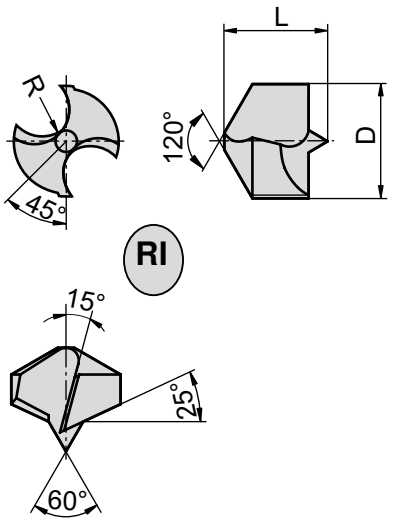
Blanks for wood machining drill tips – METRIC

CTDD RI



Grade recommendation:
HC35

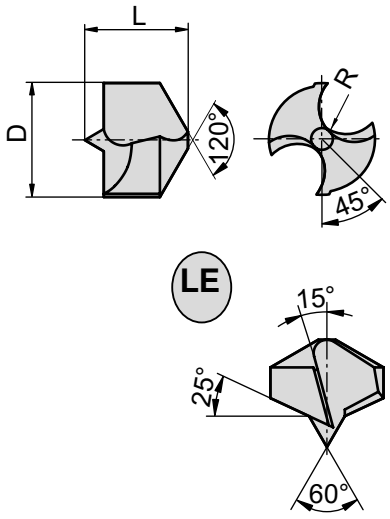
Ø [mm]	D [mm]	Tol. [mm]	L [mm]	Tol. [mm]	R [mm]
4.0	4.6	x	6.9	x	1.3
5.0	5.6	x	7.1	x	1.8
6.0	6.6	x	7.1	x	2.2
6.5	7.1	x	7.7	x	2.7
7.0	7.6	x	7.9	x	2.7
8.0	8.6	x	9.1	x	3.2
9.0	9.6	x	10.1	x	3.7
10.0	10.6	x	11.0	x	4.2
11.0	11.6	x	11.9	x	4.2
12.0	12.6	x	12.8	x	4.3
13.0	13.6	x	13.6	x	4.5
14.0	14.6	x	14.4	x	4.7
15.0	15.6	x	15.2	x	5.0
16.0	16.6	x	16.0	x	5.2
18.0	18.6	x	16.2	x	5.6
19.0	19.6	x	17.5	x	6.1
20.0	20.6	x	19.1	x	6.7



CTDD LE

Grade recommendation:
HC35

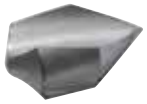
Ø [mm]	D [mm]	Tol. [mm]	L [mm]	Tol. [mm]	R [mm]
4.0	4.6	x	6.9	x	1.3
5.0	5.6	x	7.1	x	1.8
6.0	6.6	x	7.1	x	2.2
6.5	7.1	x	7.7	x	2.7
7.0	7.6	x	7.9	x	2.7
8.0	8.6	x	9.1	x	3.2
9.0	9.6	x	10.1	x	3.7
10.0	10.6	x	11.0	x	4.2
11.0	11.6	x	11.9	x	4.2
12.0	12.6	x	12.8	x	4.3
13.0	13.6	x	13.6	x	4.5
14.0	14.6	x	14.4	x	4.7
15.0	15.6	x	15.2	x	5.0
16.0	16.6	x	16.0	x	5.2
18.0	18.6	x	16.2	x	5.6
19.0	19.6	x	17.5	x	6.1
20.0	20.6	x	19.1	x	6.7



Codification code example: CTDD..RI- 4.0 CTS18-D

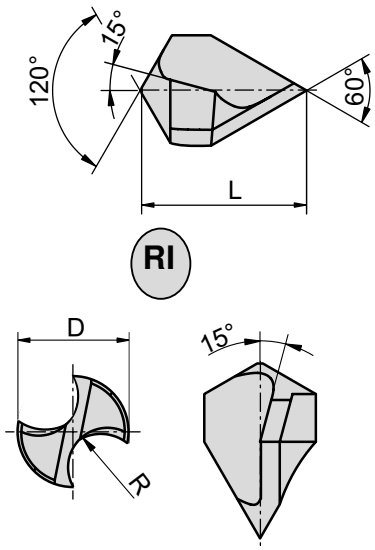
Blanks for wood machining drill tips – METRIC

CTDT RI

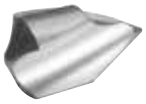


Grade recommendation:
HC35

Ø [mm]	D [mm]	Tol. [mm]	L [mm]	Tol. [mm]	R [mm]
4.0	4.5	x	9.0	x	1.3
5.0	5.6	x	10.5	x	1.8
6.0	6.6	x	11.5	x	2.2
6.5	7.1	x	12.2	x	2.7
7.0	7.6	x	13.0	x	2.7
8.0	8.6	x	14.5	x	3.2
9.0	9.6	x	16.8	x	3.7
9.5	10.1	x	17.7	x	3.7
10.0	10.6	x	18.7	x	4.2
11.0	11.6	x	21.0	x	4.2
12.0	12.6	x	22.1	x	4.3
13.0	13.6	x	24.3	x	4.5
14.0	14.6	x	25.5	x	4.7
15.0	15.6	x	26.0	x	5.0
16.0	16.6	x	27.0	x	5.2
18.0	18.6	x	28.0	x	5.6
20.0	20.6	x	33.5	x	6.7

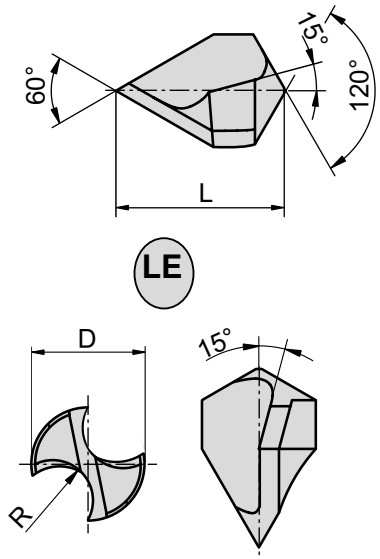


CTDT LE



Grade recommendation:
HC35

Ø [mm]	D [mm]	Tol. [mm]	L [mm]	Tol. [mm]	R [mm]
4.0	4.5	x	9.0	x	1.3
5.0	5.6	x	10.5	x	1.8
6.0	6.6	x	11.5	x	2.2
6.5	7.1	x	12.2	x	2.7
7.0	7.6	x	13.0	x	2.7
8.0	8.6	x	14.5	x	3.2
9.0	9.6	x	16.8	x	3.7
9.5	10.1	x	17.7	x	3.7
10.0	10.6	x	18.7	x	4.2
11.0	11.6	x	21.0	x	4.2
12.0	12.6	x	22.1	x	4.3
13.0	13.6	x	24.3	x	4.5
14.0	14.6	x	25.5	x	4.7
15.0	15.6	x	26.0	x	5.0
16.0	16.6	x	27.0	x	5.2
18.0	18.6	x	28.0	x	5.6
20.0	20.6	x	33.5	x	6.7



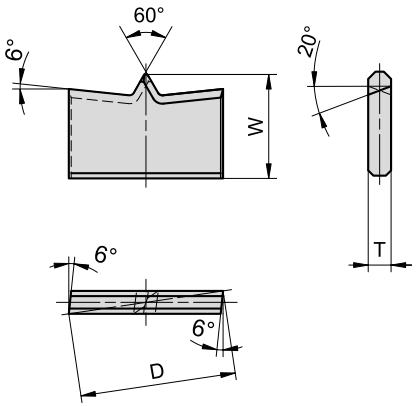
Codification code example: CTDT..RI- 4.0 CTS18-D

Blanks for wood machining drill tips – METRIC

CTDP

Grade recommendation:
HC30

Hole Ø [mm]	D [mm]	Tol. [mm]	W [mm]	Tol. [mm]	T [mm]
5	5.20	x	4.5	x	1.2
6	6.20	x	5.0	x	1.2
8	8.25	x	6.0	x	1.5
10	10.25	x	7.0	x	1.8
12	12.30	x	8.0	x	2.0
14	14.30	x	9.0	x	2.2
15	15.30	x	10.0	x	2.2
16	16.30	x	10.0	x	2.5

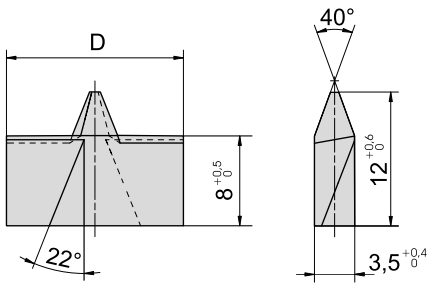


Codification code example: CTDP- 5.0 CTS18-D

CTDT

Grade recommendation:
HC30

Hole Ø [mm]	D [mm]
15	16
20	21
25	26
30	31
35	36
40	41
50	51
60	61



Codification code example: CTDT- 15.0 CTS18-D

Glass drill tips
Glasbohrerplatten
Plaquettes mèche pour le travail du verre
Placchette per punte per lavorazione vetro
Puntas de broca para vidrio

Applications

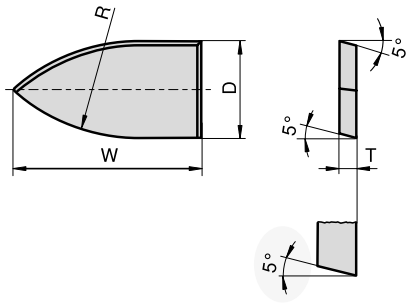

Type, description	METRIC	Glass	Tiles
17353	✓	●	●
50278	✓	●	●

● Optimum
○ Not optimum

Glass drill tips – METRIC

17353

Grade recommendation:
CHROMIUM GRADE:
CTS06-KC
WC-Cobalt GRADE:
CTF12-BC
CTS15-E

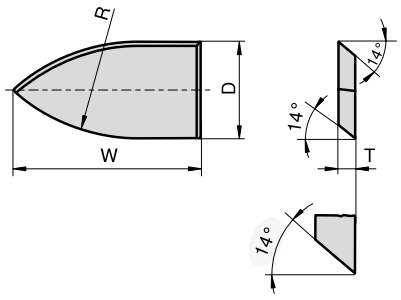


Ø [mm (inch)]	D [mm]	Tol. [mm]	W [mm]	Tol. [mm]	T [mm]	Tol. [mm]	R [mm]
3.0	3.4	-0.20	6.2	±0.20	1.1	-0.10	6
4.0	4.4	-0.20	8.2	±0.20	1.1	-0.10	8
5.0	5.4	-0.20	10.2	±0.20	1.3	-0.10	10
6.0	6.4	-0.20	12.2	±0.20	1.3	-0.10	12
6.5 (1/4″)	6.8	-0.20	12.2	±0.20	1.5	-0.10	13
7.0	7.4	-0.25	14.2	±0.20	1.5	-0.10	14
8.0	8.4	-0.25	16.2	±0.20	1.8	-0.10	16
9.0	9.4	-0.25	18.2	±0.20	1.8	-0.10	18
10.0 (3/8″)	10.4	-0.25	20.2	±0.20	1.8	-0.10	20
12.0	12.4	-0.25	24.2	±0.20	2.3	-0.10	24
13.0 (1/2″)	13.4	-0.30	26.2	±0.20	2.3	-0.10	26

Codification code example: 17353- 3.0 CTF12-BC

50278

Grade recommendation:
CHROMIUM GRADE:
CTS06-KC
WC-Cobalt GRADE:
CTF12-BC
CTS15-E



Ø [mm]	D [mm]	Tol. [mm]	W [mm]	Tol. [mm]	T [mm]	Tol. [mm]	R [mm]
4.0	4.4	-0.20	8.2	±0.10	1.1	-0.10	8
5.0	5.4	-0.20	10.2	±0.10	1.3	-0.10	10
6.0	6.4	-0.20	12.2	±0.15	1.3	-0.10	12
8.0	8.4	-0.30	16.2	±0.15	1.8	-0.10	16
10.0	10.4	-0.30	20.2	±0.20	1.8	-0.10	20

Codification code example: 50278- 4.0 CTF12-BC

Core drill tips
Bohrkronenplatten
Plaquettes pour trépan
Placchette per punte a corona
Plaquitas para trepano

Index

Grades for stone working – composition and properties

WC-Cobalt Grades

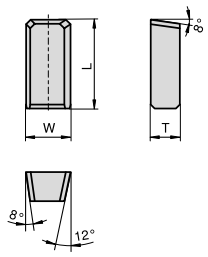
CERATIZIT grade code	ISO code	U.S. code	Binder [m %]	Density [g/cm³]	Hardness HV10	Hardness HV30	Hardness HRA	Transverse Rupture Strength [MPa]	Transverse Rupture Strength [P.S.I.]
Fine grain									
CTF12-BC	BC05	C2	6.0	14.95	1640	1620	92.1	2200	319.000
CTF24-BC	BC30	C11	12.0	14.30	1330	1320	89.7	3000	435.000
CTF30-BC	BC40	C13	15.0	14.05	1250	1240	88.8	3100	450.000
Medium grain									
CTM14-BC	BC10	C2	7.0	14.90	1550	1530	91.5	2600	377.000
CTM17-BC	BC20	C1	8.5	14.65	1420	1400	90.4	2800	406.000

Classification of the WC grain size

Average grain size [µm]	Classification	CERATIZIT-code
< 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

Core drill tips – METRIC

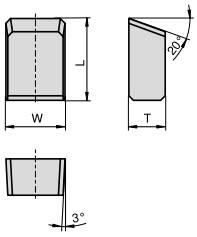
12083



Codification [mm]	L [mm]	Tol. [mm]	W [mm]	Tol. [mm]	T [mm]	Tol. [mm]
9.0 x 4.5 x 3.0	9.0	±0.10	4.5	±0.05	3.0	-0.10

Codification code example: 12083- 9.0x4.5x3.0 CTM17-BC

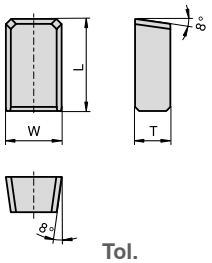
12641



Codification [mm]	L [mm]	Tol. [mm]	W [mm]	Tol. [mm]	T [mm]	Tol. [mm]
9.0 x 6.5 x 4.0	9.0	±0.10	6.5	±0.07	4.0	±0.05
10.0 x 6.5 x 4.0	10.0	±0.10	6.5	±0.07	4.0	±0.05

Codification code example: 12641- 9.0x6.5x4.0 CTM17-BC

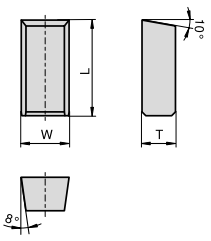
13326



Codification [mm]	L [mm]	Tol. [mm]	W [mm]	Tol. [mm]	T [mm]	Tol. [mm]
9.0 x 5.5 x 3.5	9.0	±0.10	5.5	-0.10	3.5	-0.10

Codification code example: 13326- 9.0x5.5x3.5 CTM17-BC

14420

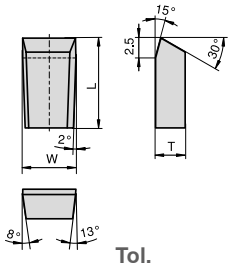


Codification [mm]	L [mm]	Tol. [mm]	W [mm]	Tol. [mm]	T [mm]	Tol. [mm]
10.0 x 5.0 x 3.5	10.0	±0.10	5.0	±0.10	3.5	±0.15

Codification code example: 14420- 10.0x5.0x3.5 CTM17-BC

Core drill tips – METRIC

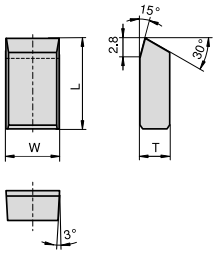
14157



Codification [mm]	L [mm]	Tol. [mm]	W [mm]	Tol. [mm]	T [mm]	Tol. [mm]
12.0 x 7.0 x 4.0	12.0	±0.10	7.0	+0.20	4.0	-0.10

Codification code example: 14157- 12.0x7.0x4.0 CTF12-BC

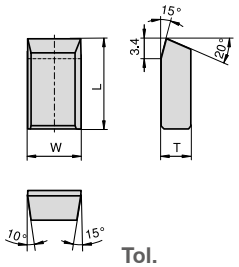
23985



Codification [mm]	L [mm]	Tol. [mm]	W [mm]	Tol. [mm]	T [mm]	Tol. [mm]
8.0 x 6.6 x 4.1	8.0	±0.10	6.6	±0.10	4.15	-0.15

Codification code example: 23985- 8.0x6.6x4.1 CTF12-BC

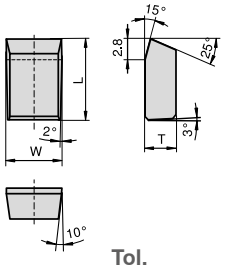
28537



Codification [mm]	L [mm]	Tol. [mm]	W [mm]	Tol. [mm]	T [mm]	Tol. [mm]
12.5 x 7.2 x 4.1	12.5	±0.15	7.2	±0.20	4.1	-0.10

Codification code example: 28537- 12.5x7.2x4.1 CTF12-BC

30838

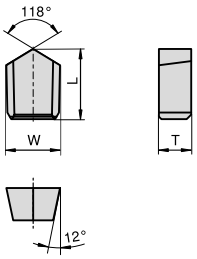


Codification [mm]	L [mm]	Tol. [mm]	W [mm]	Tol. [mm]	T [mm]	Tol. [mm]
8.1 x 7.1 x 4.1	8.1	±0.10	7.1	±0.10	4.1	-0.10

Codification code example: 30838- 8.1x7.1x4.1 CTF12-BC

Core drill tips – METRIC

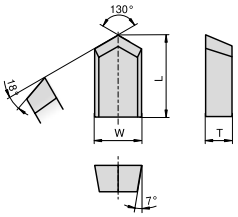
16623



Codification [mm]	L [mm]	Tol. [mm]	W [mm]	Tol. [mm]	T [mm]	Tol. [mm]
8.5 x 6.5 x 3.9	8.5	±0.10	6.25	±0.05	3.915	±0.035

Codification code example: 16623- 8.5x6.5x3.9 CTM17-BC

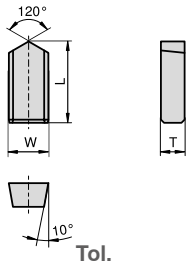
39241



Codification [mm]	L [mm]	Tol. [mm]	W [mm]	Tol. [mm]	T [mm]	Tol. [mm]
8.0 x 4.0 x 3.0	8.0	±0.10	4.0	±0.10	3.0	±0.05
8.0 x 5.5 x 3.6	8.0	±0.10	5.5	±0.10	3.6	±0.05

Codification code example: 39241- 8.0x4.0x3.0 CTM17-BC

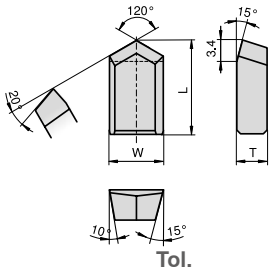
42067



Codification [mm]	L [mm]	Tol. [mm]	W [mm]	Tol. [mm]	T [mm]	Tol. [mm]
10.3 x 5.0 x 3.0	10.3	±0.10	5.0	±0.10	3.0	±0.07

Codification code example: 42067- 10.3x5.0x3.0 CTM17-BC

50809

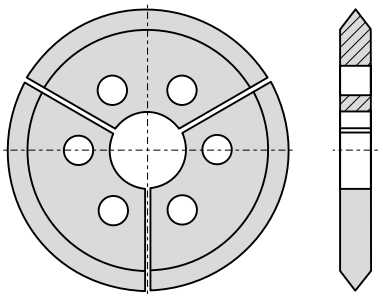


Codification [mm]	L [mm]	Tol. [mm]	W [mm]	Tol. [mm]	T [mm]	Tol. [mm]
8.0 x 7.2 x 4.0	8.0	±0.10	7.2	+0.20	4.1	-0.10
12.5 x 7.2 x 4.0	12.55	±0.15	7.2	+0.20	4.1	-0.10

Codification code example: 50809- 8.0x7.2x4.0 CTM17-BC

Fluterolls for drill production
Nutwalzrollen für Bohrerfertigung
Outils pour la fabrication de cannelures des forêts
Utensili per scanalatura per punte a forare
Rueda párrafo los taladros de la torcedura

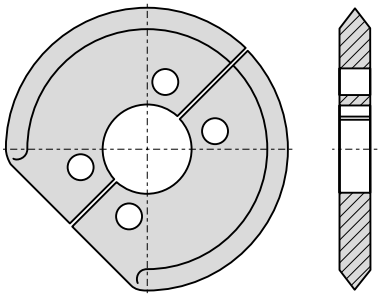
SW5
SW6
SW10



Codification

SW5
SW6
SW10

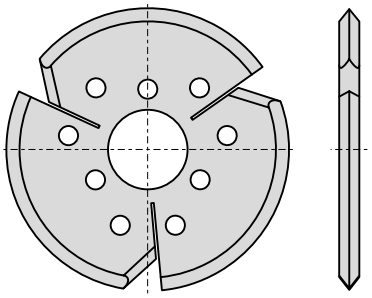
SW13
SW16



Codification

SW13
SW16

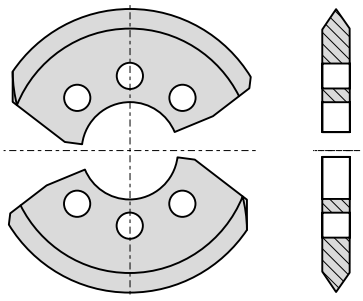
SW20



Codification

SW20

SPECIAL



Codification

SPECIAL

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