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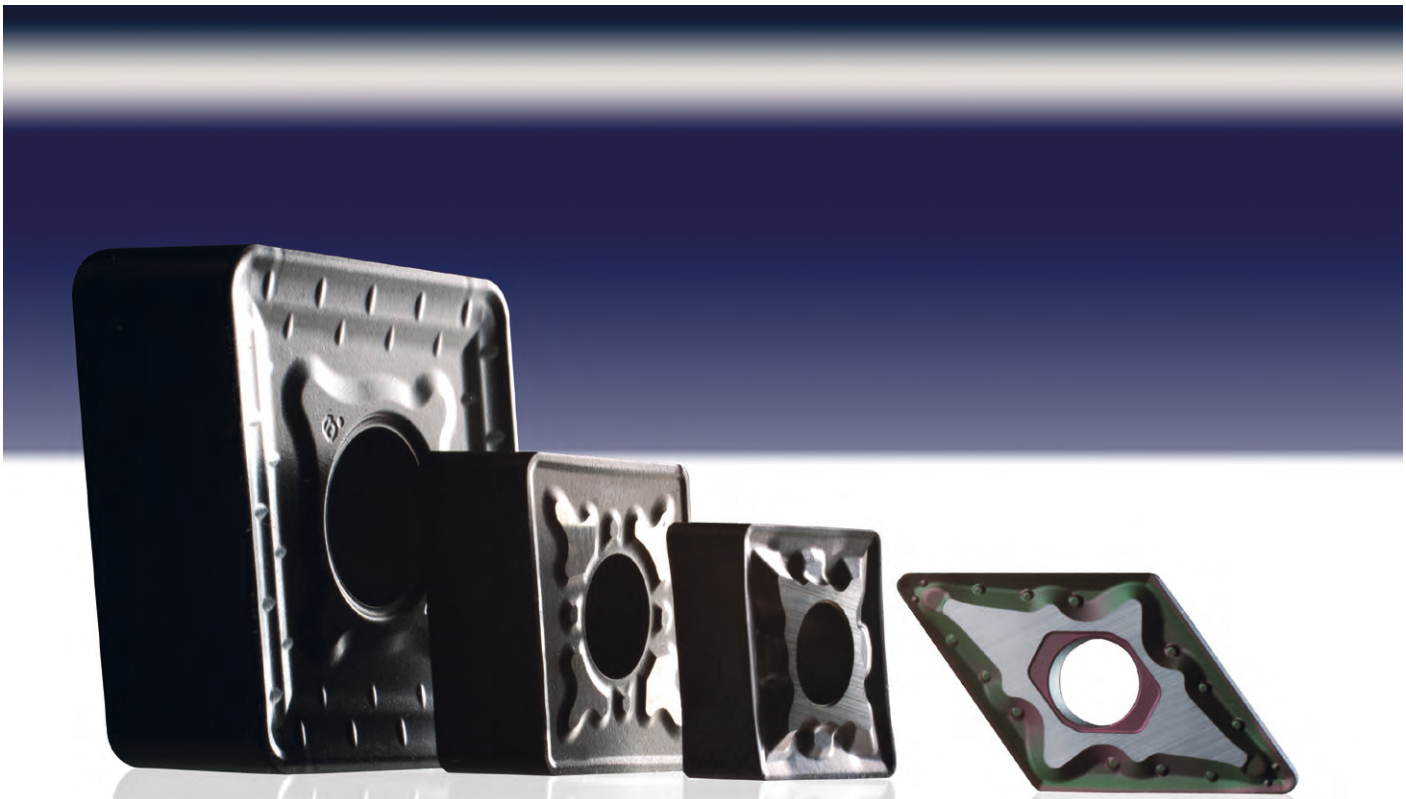
SARA® TURN

An Ace in any Application



SARA® TURN

ISO indexable cutting inserts

The SARATURN range offers an all-in-one solution, from extreme finishing to heavy-duty rough milling.

SARATURN offers solutions for virtually every application and any material.
Two outstanding features of this new range are its customer-oriented structure and demand-oriented development.

The latest high-end substrates and specially developed geometries combined with state-of-the-art coating technologies guarantee the highest standards in machining.

SARA® TURN

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SARATURN Type descriptions

INFO

ISO P

In the ISO-P range, general structural steel and unalloyed steel have up to 110 HB (Brinell hardness) and a carbon content of up to 0.55%. There is also low-alloy steel up to 180 HB and high-alloy steel from 200 HB – 400 HB and materials with a hardness of up to max. 48 HRc (Rockwell hardness).
The new turning grades with multilayer CVD layers are particularly suitable for cutting ISO-P materials.

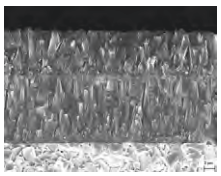
The **SC25PT** type is most suitable for entry-level machining. Thanks to its balance between toughness and wear resistance, which are both in the mid-range, it is the first choice for machining light to medium cuts at medium cutting speeds.
The **SC15PT** type is highly wear-resistant. It is only suitable for smooth cuts and is less tough. With significantly interrupted cuts or heavy roughing cuts, the tough **SC35PT** type should be used.

The **SC20UT** and **SC40UT** types have a thinner CVD coating and therefore a precisely defined cutting edge. They are therefore very well suited to use on conventional machines.

The cutting materials are complemented in the ISO-P area by the **ST10UT** CERMET type. They are especially suitable for long-chipping steel materials (usually low carbon content < 0.25%) with a tendency to difficult chip breaking properties.

SC15PT

- HC-P15
  HC-M10
  HC-K25
- Wear-resistant type highly efficient and productive



Toughness

1	2	3	4	5	6	7	8	9	10

Wear resistance

1	2	3	4	5	6	7	8	9	10

Composition
Co 5.8%, composite carbides 6.4% WC balance

Grain size
1 – 2 µm

Hardness
HV 1550

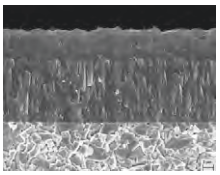
Coating
CVD, Ti(Cn)+Al_2O_3 18.5 µm

Applications

Continuous cut	Slightly interrupted cut	Significantly interrupted cut
●	○	–

SC25PT

- HC-P25
  HC-M20
  HC-K30
- Universal steel type efficient and productive



Toughness

1	2	3	4	5	6	7	8	9	10

Wear resistance

1	2	3	4	5	6	7	8	9	10

Composition
Co 7.0%, composite carbides 8.0% WC balance

Grain size
1 – 2 µm

Hardness
HV 1450

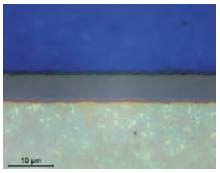
Coating
CVD, Ti(Cn)+Al_2O_3 15 µm

Applications

Continuous cut	Slightly interrupted cut	Significantly interrupted cut
●	●	●

SC35PT

- HC-P35
  HC-M30
  HC-K35
- Very tough type, for difficult conditions of use



Toughness

1	2	3	4	5	6	7	8	9	10

Wear resistance

1	2	3	4	5	6	7	8	9	10

Composition
Co 9.6%, composite carbides 6.8% WC rest

Grain size
1 – 2 µm

Hardness
HV 1460

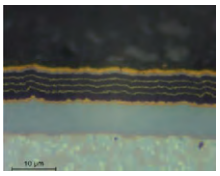
Coating
CVD, Ti(Cn)+Al_2O_3 13 µm

Applications

Continuous cut	Slightly interrupted cut	Significantly interrupted cut
○	●	●

SC20UT

- HC-P20
  HC-M20
  HC-K30



Toughness

1	2	3	4	5	6	7	8	9	10

Wear resistance

1	2	3	4	5	6	7	8	9	10

Composition
Co 7.0%, composite carbides 8.0% WC balance

Grain size
1 – 2 µm

Hardness
HV 1450

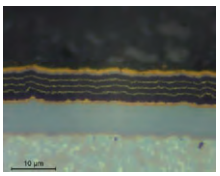
Coating
CVD, Ti(Cn)+Al_2O_3 13 µm

Applications

Continuous cut	Slightly interrupted cut	Significantly interrupted cut
●	○	–

SC40UT

- HC-P40
  HC-M35



Toughness
1 2 3 4 5 6 7 8 9 10

Wear resistance
1 2 3 4 5 6 7 8 9 10

Composition
Co 5.8%, composite carbides 6.4% WC balance

Grain size
1 - 2 µm

Hardness
HV 1300

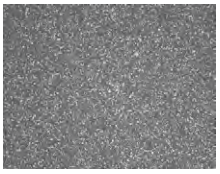
Coating
CVD, Ti(Cn)+Al_2O_3 13.0 µm

Applications

Continuous cut	Slightly interrupted cut	Significantly interrupted cut
●	○	○

ST10UT

- HT-P15
  HT-M10
  HT-K10
- **CERMET**



Toughness
1 2 3 4 5 6 7 8 9 10

Wear resistance
1 2 3 4 5 6 7 8 9 10

Composition
Co/Ni 12.2%, WC 15%,
TaNbC 10.0%, TiCn balance

Hardness
HV 1620

Applications

Continuous cut	Slightly interrupted cut	Significantly interrupted cut
●	–	–

ISO M

Indexable cutting inserts in the ISO-M area are mainly used in machining ferritic and martensitic stainless steel and austenitic stainless, usually acid-resistant steel (Ni content of over 20%). So-called duplex steel has a two-phase structure and consists of ferrite and austenite. Higher-alloyed duplex materials are also called super-duplex or hyper-duplex.

The new PVD-coated SP20MT, SP25MT and SP35MT turning types are ideal for ISO-M materials.

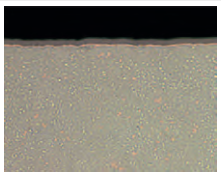
The **SP25MT** type is the universal type for stainless steel machining. With its extremely smooth PVD layer, the adhesion tendency when machining Cr-Ni steel is reduced massively.
In the secondary application, low-alloy structural steel can be cut with this type at moderate cutting speeds. The good toughness of the substrate rounds off this type.

The **SP20MT** type is used in finishing. It has a slightly more heat-resistant substrate, which allows higher cutting speeds than with the SP25MT.
The toughness is reduced as a result.

The **SP35MT** type complements the new turning types available for ISO-M materials with selected geometries. It tends to be used in machining processes with lower cutting speeds or difficult cutting conditions.

SP20MT

- HC-M20
  HC-K20
- Special substrate for stainless steel



Toughness
1 2 3 4 5 6 7 8 9 10

Wear resistance
1 2 3 4 5 6 7 8 9 10

Composition
Co 10.0%, composite carbides 2.0% WC balance

Grain size
1 µm

Hardness
HV 1560

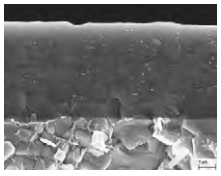
Coating
PVD, TiAlN, 2 - 5 µm

Applications

Continuous cut	Slightly interrupted cut	Significantly interrupted cut
●	–	–

SP25MT

- HC-P35
  HC-M25
- for high cutting speeds, high process reliability



Toughness
1 2 3 4 5 6 7 8 9 10

Wear resistance
1 2 3 4 5 6 7 8 9 10

Composition
Co 9.6%, composite carbides 7.8%, others,
WC balance

Grain size
1 - 2 µm

Hardness
HV 1460

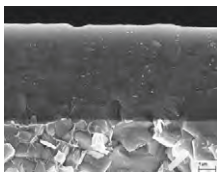
Coating
PVD, TiN / TiAlN, 6 µm

Applications

Continuous cut	Slightly interrupted cut	Significantly interrupted cut
●	○	–

SP35MT

- HC-P35
  HC-M35
- Universal substrate for stainless steel in difficult conditions of use



Toughness

1	2	3	4	5	6	7	8	9	10

Wear resistance

1	2	3	4	5	6	7	8	9	10

Composition
Co 8.0%, composite carbides 4.2% WC balance

Grain size
1.5 - 3 µm

Hardness
HV 1330

Coating
PVD, TiN / TiAlN, 6 µm

Applications

Continuous cut	Slightly interrupted cut	Significantly interrupted cut
○	●	●

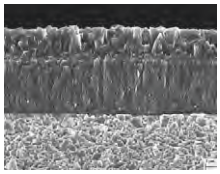
ISO K

Indexable cutting inserts for the ISO-K area are mainly used for cast iron that can be forged (GG) and spheroidal graphite iron (GGG), as well as for cast iron with vermicular graphite and bainitic cast iron with spheroidal graphite iron.

The new **SC20KT** turning type with its multilayer CVD layer was specially designed for machining cast iron materials. It has very good wear resistance with medium toughness.

SC20KT

- HC-P10
  HC-K20
- Heat-resistant universal type for cast iron machining



Toughness

1	2	3	4	5	6	7	8	9	10

Wear resistance

1	2	3	4	5	6	7	8	9	10

Composition
Co 6.0%, TaC 2.0% WC balance

Grain size
1 µm

Hardness
HV 1630

Coating
CVD, Ti(C,N)+Al_2O_3, 15.5 µm

Applications

Continuous cut	Slightly interrupted cut	Significantly interrupted cut
●	●	○

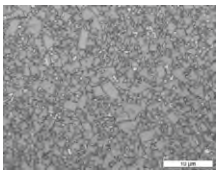
ISO N

Indexable cutting inserts for the ISO-N area are mainly used in machining aluminium and aluminium alloys (cast and forgeable alloys) with an Si content <13%.

Non-metallic materials such as thermosets and fibre-reinforced plastics can also be machined with this turning type. The new SW16NT and SP16NT SARATURN types have their main areas of application here.
The **SW16NT** type is an uncoated carbide type with polished cutting surfaces and is ideally suited for use with ISO-N materials because of the carbide composition.
The **SP16NT** type has a special PVD coating. This guarantees additional protection and higher wear resistance in the case of ISO-N materials with abrasive fillers. Because of the coating, it is very well suited for use with austenitic quenched ISO-M material.

SW16NT

- HW-K15
- Designed for machining aluminium, high heat-resistance, low adhesion tendency



Toughness

1	2	3	4	5	6	7	8	9	10

Wear resistance

1	2	3	4	5	6	7	8	9	10

Composition
Co 6.0%, WC balance

Grain size
1 µm

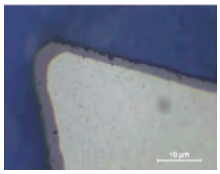
Hardness
HV 1630

Applications

Continuous cut	Slightly interrupted cut	Significantly interrupted cut
●	●	○

SP16NT

- HW-K15
- Designed for machining aluminium, high heat-resistance, low adhesion tendency



Toughness

1	2	3	4	5	6	7	8	9	10

Wear resistance

1	2	3	4	5	6	7	8	9	10

Composition
Co 6.0%, WC balance

Grain size
1 µm

Hardness
HV 1630

Coating
PVD, TiN/TiAlN, 6 µm

Applications

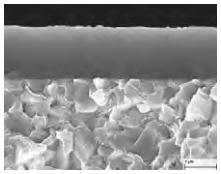
Continuous cut	Slightly interrupted cut	Significantly interrupted cut
●	●	○

ISO S

Indexable cutting inserts for the ISO-S area are mainly used in machining highly heat-resistant alloys based on nickel-iron and cobalt. Titanium in its pure form or in alpha and beta alloys complete this ISO-S area. These materials which are extremely difficult to machine require a machining strategy adapted to the component which also depends on the machine. The new **SP10ST** and **SP15ST** turning types with their PVD coating have been designed for use in these areas. The main application areas are light to medium cuts with a maximum of slight interruptions. These are supplemented with the new **SP40ST** type. This is characterised by an extremely tough basic substrate and a specially-developed multi-layer CVD coating for strong interrupted cutting.

SP10ST

- HC-M15
  HC-S15
- Especially for chrome-nickel steel, suitable for titanium machining



Toughness

1	2	3	4	5	6	7	8	9	10

Wear resistance

1	2	3	4	5	6	7	8	9	10

Composition
Co 6.0%, WC balance

Grain size
8 µm

Hardness
HV 1820

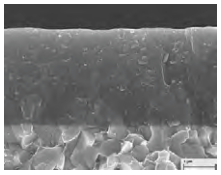
Coating
PVD (Ti, Al) N, 4 µm

Applications

Continuous cut	Slightly interrupted cut	Significantly interrupted cut
●	○	–

SP15ST

- HC-M15
  HC-S15
- Especially for chrome-nickel steel, suitable for titanium machining



Toughness

1	2	3	4	5	6	7	8	9	10

Wear resistance

1	2	3	4	5	6	7	8	9	10

Composition
Co 6.0%, WC balance

Grain size
8 µm

Hardness
HV 1820

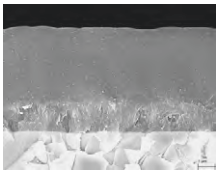
Coating
PVD TiN + (Ti, Al) N + TiN, 4 µm

Applications

Continuous cut	Slightly interrupted cut	Significantly interrupted cut
●	○	–

SP40ST

- HC-M40
  HC-S30
- Especially for chrome-nickel steel, suitable for titanium machining



Toughness

1	2	3	4	5	6	7	8	9	10

Wear resistance

1	2	3	4	5	6	7	8	9	10

Composition
10 % binder, otherwise WC

Grain size
2 µm

Hardness
HV 1330

Coating
CVD TiN-TiB_2 Multilayer

Applications

Continuous cut	Slightly interrupted cut	Significantly interrupted cut
○	●	●

SARATURN Overview of positive chip breakers

INFO

The new chip breakers from the SARATURN range for positive indexable cutting inserts (5° and 7°)

The newly calculated chip breakers for individual use have been adapted to users' needs. Guaranteeing optimal chip breaking properties in daily use was the priority here.

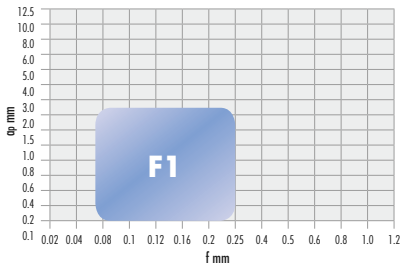
Adapted cutting edge preparation and enhanced surface treatment make the geometries even more efficient and more soft cutting. This is evident both in daily use and in series production as a result of an extended service life and lower machine loads. The latest insights in the development and modern cutting strategies of the individual ISO classes P, M, K, S and N were applied in the development of the chip breaker.

The benefits to the customer in terms of effectiveness, process reliability and material removal rate are the result. Elegant solutions are available for fine and ultra-fine finishing, medium machining and light roughing for positive geometries.
The best possible chip control even with small cutting depths and feeds, very good chip breaking properties, even with exotic materials with a significantly reduced tendency to form burs and the best possible surface quality are provided by the new SARATURN.

Chip breaker F1

ap	f
0.1 - 2.5 mm	0.07 - 0.25 mm/rev

- Long service life
- Optimised chip breaker for best possible chip control
- Soft chipping



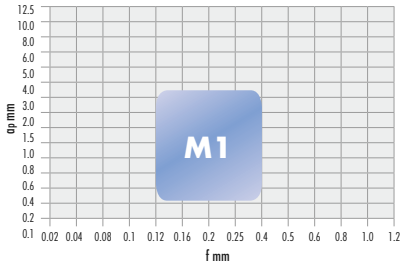
ISO P positive chip breaker

Continuous cut	Slightly interrupted cut	Significantly interrupted cut
●	○	–

Chip breaker M1

ap	f
0.25 - 3.5 mm	0.12 - 0.4 mm/rev

- Long service life
- Optimised chip breaker prevents crack formation and is temperature-resistant
- Universal application



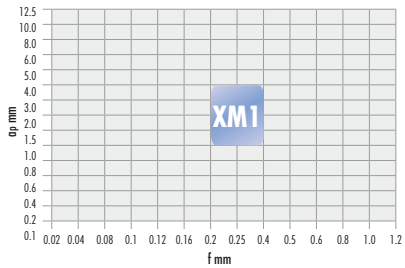
ISO P positive chip breaker

Continuous cut	Slightly interrupted cut	Significantly interrupted cut
●	○	–

Chip breaker XM1

ap	f
1.0 - 4.0 mm	0.2 - 0.4 mm/rev

- Long service life
- Optimised chip breaker prevents crack formation and is temperature-resistant
- Universal application



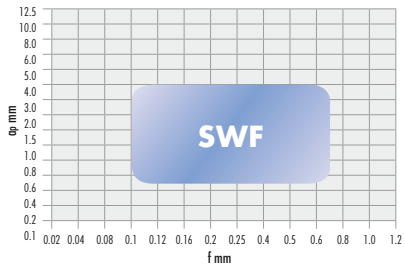
ISO P positive chip breaker

Continuous cut	Slightly interrupted cut	Significantly interrupted cut
●	●	–

Chip breaker SWF

ap	f
0.5 - 4.0 mm	0.1 - 0.7 mm/rev

- Maximum surface quality
- Double feed possible with the same Ra
- Soft cutting
- Also for non-rusting materials



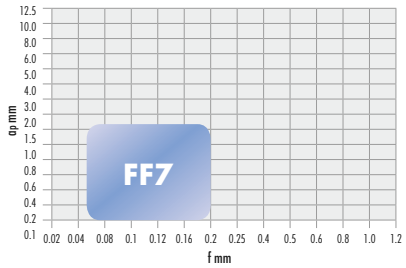
ISO P positive/negative chip breaker

Continuous cut	Slightly interrupted cut	Significantly interrupted cut
●	●	–

Chip breaker FF7, CERMET design

ap	f
0.1 – 1.65 mm	0.05 – 0.2 mm/rev

- Long service life
- Optimised chip breaker prevents crack formation and is temperature-resistant
- For best surface qualities

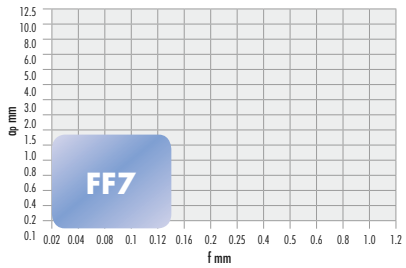


ISO P positive chip breaker		
ISO M positive chip breaker		
Continuous cut	Slightly interrupted cut	Significantly interrupted cut
●	–	–

Chip breaker FF7, stainless steel design

ap	f
0.05 – 1.35 mm	0.02 - 0.14 mm/rev

- Special chip breaker for chrome-nickel steel and titanium machining
- "Sharp" chip breaker
- Soft chipping
- Extremely good chip control

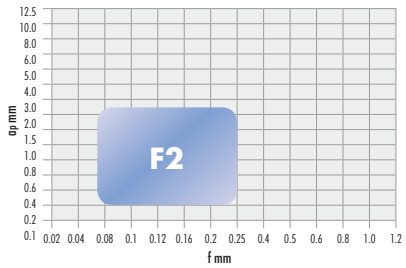


ISO M positive chip breaker		
Continuous cut	Slightly interrupted cut	Significantly interrupted cut
●	–	–

Chip breaker F2

ap	f
0.2 – 2.5 mm	0.07 - 0.25 mm/rev

- Long service life
- Optimised chip breaker for best possible chip control in stainless steel
- Soft chipping

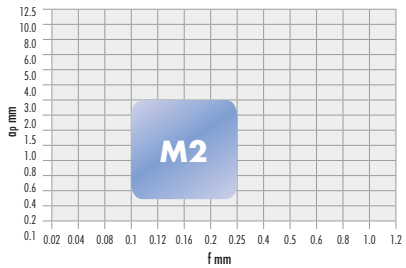


ISO M positive chip breaker		
Continuous cut	Slightly interrupted cut	Significantly interrupted cut
●	–	–

Chip breaker M2

ap	f
0.3 – 3.0 mm	0.1 - 0.25 mm/rev

- Long service life
- Optimised chip breaker prevents crack formation and is temperature-resistant
- Universal application

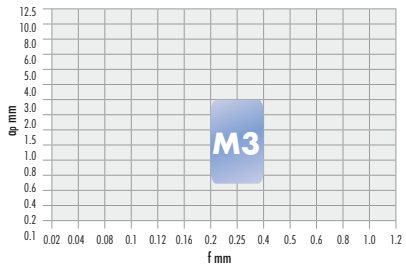


ISO M positive chip breaker		
Continuous cut	Slightly interrupted cut	Significantly interrupted cut
●	○	○

Chip breaker M3

ap	f
0.5 – 3.0 mm	0.2 - 0.4 mm/rev

- Long service life
- Optimised chip breaker prevents crack formation and is temperature-resistant
- Universal application

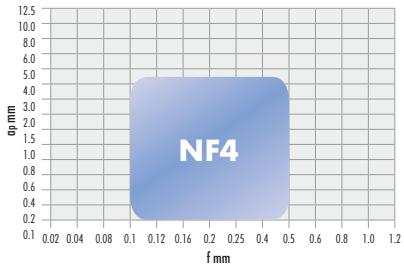


ISO K positive chip breaker		
Continuous cut	Slightly interrupted cut	Significantly interrupted cut
●	○	○

Chip breaker NF4

ap	f
0.1 – 4.5 mm	0.1 - 0.5 mm/rev

- Chip breaker for aluminium machining
- Also suitable for plastics and non-ferrous metals
- High rake angle
- Also suitable for austenitic quenched steel up to a chip depth of 0.4 mm



ISO N positive chip breaker

Continuous cut	Slightly interrupted cut	Significantly interrupted cut
●	●	●

SARATURN Overview of negative chip breakers

INFO

The new chip breakers from the SARATURN range for negative indexable cutting inserts (0°)

The newly calculated chip breakers for individual use have been adapted to users' needs. The guarantee of optimised chip breaking properties in daily use was the priority here.

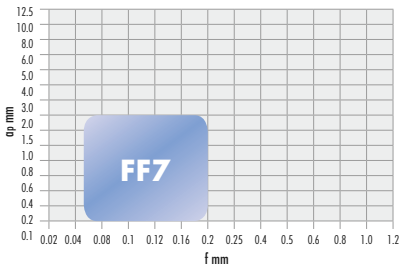
Adapted cutting edge preparation and enhanced surface treatment make the geometries even more efficient and more soft cutting. This is evident both in daily use and in series production as a result of an extended service life and lower machine loads. The latest insights in the development and modern cutting strategies of the individual ISO classes P, M, K, S and N were applied in the development of the chip breaker.

The benefits to the customer in terms of effectiveness, process reliability and material removal rate are the result. Elegant solutions are available for fine and ultra-fine finishing, medium machining and light roughing for negative geometries.
The best possible chip control even with small cutting depths and feeds, very good chip breaking properties, even with exotic materials with a significantly reduced tendency to form burs and the best possible surface quality are provided by the new SARATURN.

Chip breaker FF7, CERMET design

ap	f
0.1 – 2.0 mm	0.05 – 0.2 mm/rev

- Long service life
- Optimised chip breaker prevents crack formation and is temperature-resistant
- For best surface qualities



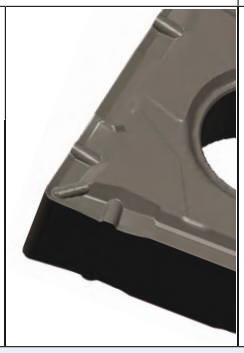
ISO P negative chip breaker

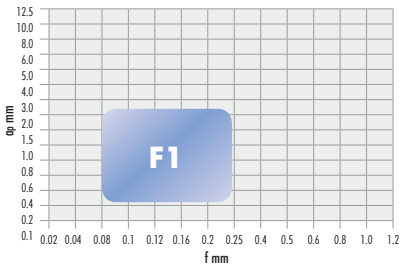
Continuous cut	Slightly interrupted cut	Significantly interrupted cut
●	–	–

Chip breaker F1

ap	f
0.25 – 2.4 mm	0.08 - 0.24 mm/rev

- Long service life
- Optimised chip breaker for best possible chip control
- Soft chipping





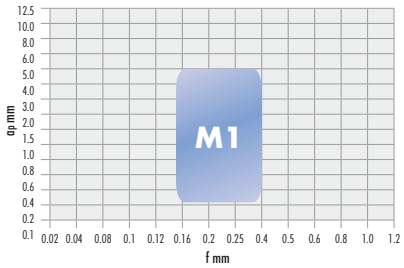
ISO P negative chip breaker

Continuous cut	Slightly interrupted cut	Significantly interrupted cut
●	●	–

Chip breaker M1

ap	f
0.25 – 5 mm	0.15 - 0.4 mm/rev

- Long service life
- Optimised chip breaker prevents crack formation and is temperature-resistant
- Universal application



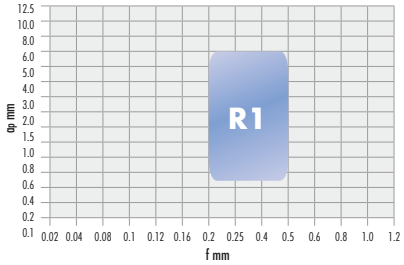
ISO P negative chip breaker

Continuous cut	Slightly interrupted cut	Significantly interrupted cut
●	○	–

Chip breaker R1

ap	f
0.5 – 6 mm	0.2 - 0.5 mm/rev

- Optimised chip breaker prevents crack formation and is temperature-resistant
- Improved cutting edge stability, prevents notching effect and notch impact
- Stabilised contact surfaces



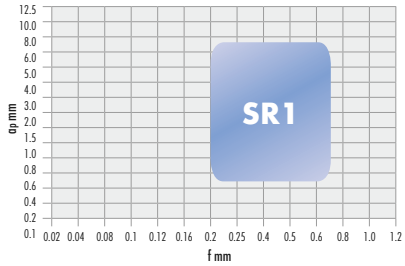
ISO P negative chip breaker

Continuous cut	Slightly interrupted cut	Significantly interrupted cut
●	○	○

Chip breaker SR1

ap	f
0.5 – 7.5 mm	0.2 - 0.7 mm/rev

- Optimised chip breaker prevents crack formation and is temperature-resistant
- Improved cutting edge stability, prevents notching effect and notch impact



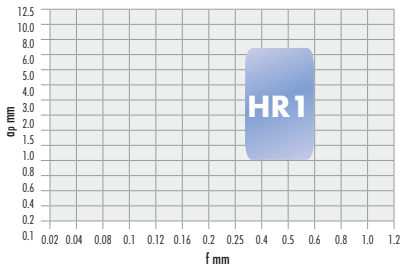
ISO P negative chip breaker

Continuous cut	Slightly interrupted cut	Significantly interrupted cut
●	●	○

Chip breaker HR1

ap	f
0.8 – 7.0 mm	0.3 - 0.6 mm/rev

- One-sided chip breaker
- Maximum machining reliability
- Chip breaker for difficult cuts
- Increased cutting force, temperature and vibration tendency



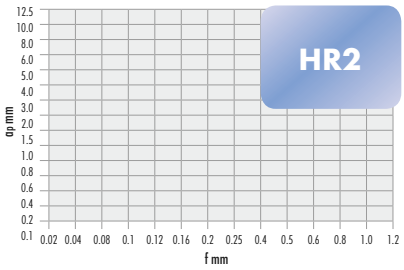
ISO P negative chip breaker

Continuous cut	Slightly interrupted cut	Significantly interrupted cut
●	●	●

Chip breaker HR 2

ap	f
2.5 – 13 mm	0.4 – 1.3 mm/rev

- One-sided chip breaker
- Maximum machining reliability
- Chip breaker for difficult cuts
- Increased cutting force, temperature and vibration tendency



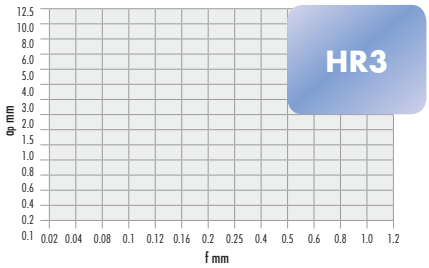
ISO P negative chip breaker

Continuous cut	Slightly interrupted cut	Significantly interrupted cut
●	●	●

Chip breaker HR3

ap	f
2.0 – 13 mm	0.5 – 1.5 mm/rev

- One-sided chip breaker
- Maximum machining reliability
- Chip breaker for difficult cuts
- Increased cutting force, temperature and vibration tendency



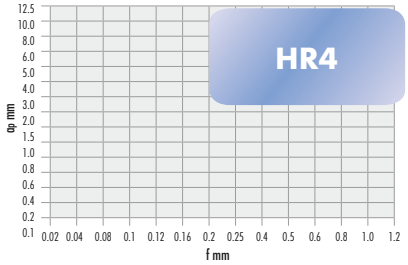
ISO P negative chip breaker

Continuous cut	Slightly interrupted cut	Significantly interrupted cut
●	●	●

Chip breaker HR4

ap	f
2.5 – 12 mm	0.2 – 1.3 mm/rev

- One-sided chip breaker
- Maximum machining reliability
- Chip breaker for difficult cuts
- Reduced cutting force, temperature and vibration tendency



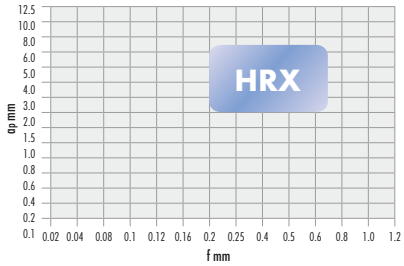
ISO P negative chip breaker

Continuous cut	Slightly interrupted cut	Significantly interrupted cut
●	●	●

Chip breaker HRX

ap	f
2.0 – 7.0 mm	0.2 - 0.7 mm/rev

- One-sided chip breaker
- Maximum machining reliability
- Increased cutting force, temperature and vibration tendency



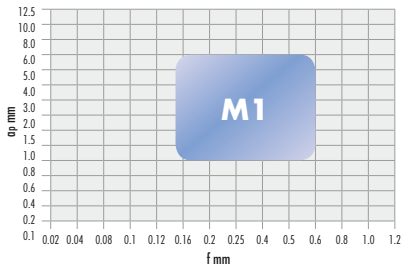
ISO P negative chip breaker

Continuous cut	Slightly interrupted cut	Significantly interrupted cut
●	●	●

Chip breaker M1

ap	f
0.8 – 6 mm	0.15 – 0.6 mm/rev

- Long service life
- Optimised chip breaker prevents crack formation and is temperature-resistant
- Universal application



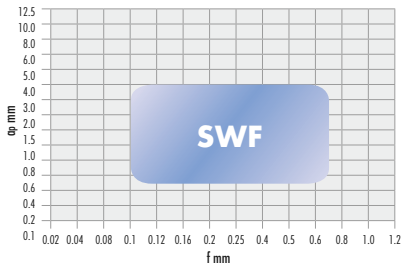
ISO P negative chip breaker

Continuous cut	Slightly interrupted cut	Significantly interrupted cut
○	●	●

Chip breaker SWF

ap	f
0.5 – 4.0 mm	0.1 - 0.7 mm/rev

- Maximum surface quality
- Double feed possible with the same Ra
- Soft cutting
- Also for non-rusting materials



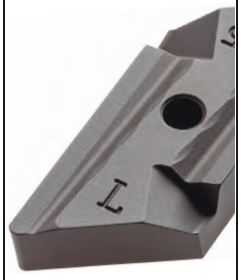
ISO P positive/negative chip breaker

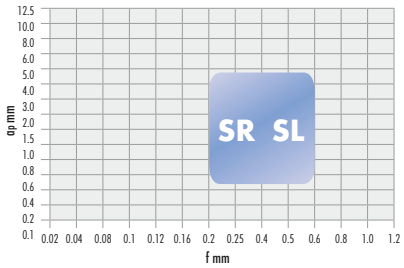
Continuous cut	Slightly interrupted cut	Significantly interrupted cut
●	●	–

Chip breaker SR and SL

ap	f
0.5 – 4.8 mm	0.2 – 0.6 mm/rev

- Soft chipping
- "Sharp" cutting edge
- Universal application
- Established chip level



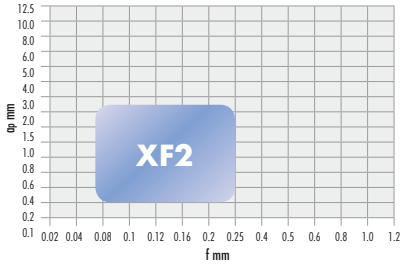


ISO P negative chip breaker / ISO M negative chip breaker		
Continuous cut	Slightly interrupted cut	Significantly interrupted cut
●	●	–

Chip breaker XF2

ap	f
0.2 – 2.5 mm	0.07 - 0.25 mm/rev

- Long service life
- Optimised chip breaker prevents crack formation and is temperature-resistant
- For best surface qualities

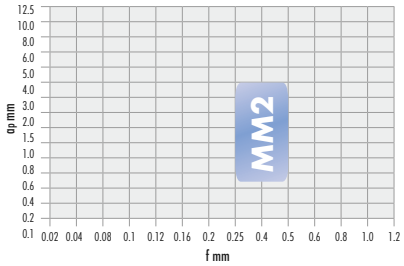


ISO M negative chip breaker		
Continuous cut	Slightly interrupted cut	Significantly interrupted cut
●	–	–

Chip breaker MM2

ap	f
0.5 – 4.0 mm	0.25 – 0.5 mm/rev

- Specially developed for low cutting forces
- Optimised chip breaker to prevent burr formation
- For best surface qualities

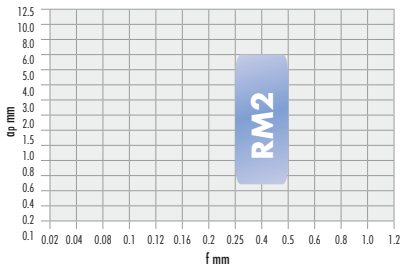


ISO M negative chip breaker		
Continuous cut	Slightly interrupted cut	Significantly interrupted cut
●	●	–

Chip breaker RM2

ap	f
0.5 – 6.0 mm	0.25 – 0.5 mm/rev

- Specially developed for low cutting forces
- Optimised chip breaker to prevent burr formation
- For best surface qualities
- For light to medium roughing

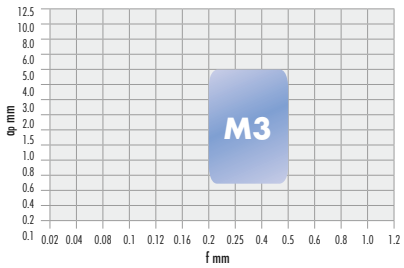


ISO M negative chip breaker		
Continuous cut	Slightly interrupted cut	Significantly interrupted cut
●	●	–

Chip breaker M3

ap	f
0.5 – 5.0 mm	0.2 - 0.5 mm/rev

- Long service life
- Optimised chip breaker prevents crack formation and is temperature-resistant
- Universal application

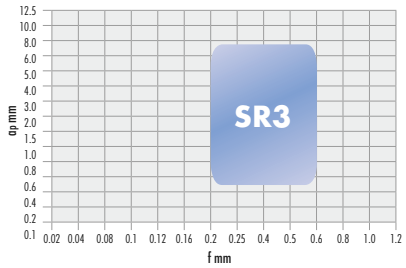


ISO K negative chip breaker		
Continuous cut	Slightly interrupted cut	Significantly interrupted cut
●	●	○

Chip breaker SR3

ap	f
0.5 – 7.5 mm	0.2 – 0.6 mm/rev

- Long service life
- Optimised chip breaker prevents crack formation and is temperature-resistant
- Light to medium roughing work



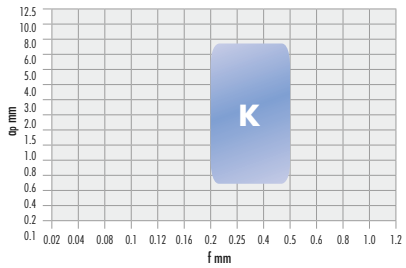
ISO K negative chip breaker

Continuous cut	Slightly interrupted cut	Significantly interrupted cut
●	●	○

Chip breaker K

ap	f
0.5 – 7.5 mm	0.2 - 0.5 mm/rev

- Prevents crack formation and is temperature-resistant
- Universal application



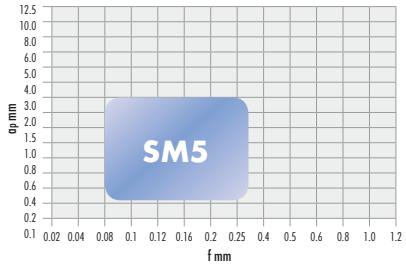
ISO K negative chip breaker

Continuous cut	Slightly interrupted cut	Significantly interrupted cut
●	●	●

Chip breaker SM5

ap	f
0.25 – 3.0 mm	0.08 – 0.3 mm/rev

- Especially for chrome-nickel steel
- Soft chipping
- "Sharp" cutting edge



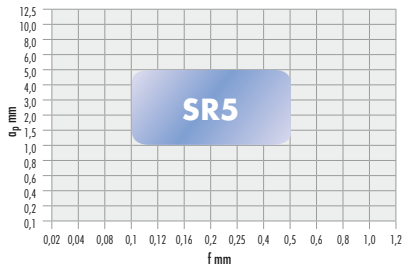
ISO S negative chip breaker

Continuous cut	Slightly interrupted cut	Significantly interrupted cut
●	–	–

Chip breaker SM5

ap	f
0.25 – 3.0 mm	0.08 – 0.3 mm/rev

- Especially for chrome-nickel steel
- Soft chipping
- "Sharp" cutting edge
- Roughing/medium machining



ISO S negative chip breaker

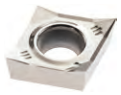
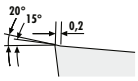
Continuous cut	Slightly interrupted cut	Significantly interrupted cut
●	●	○

CCGT ISO indexable cutting inserts, ground

- **80° rhombic, positive 7°, ground peripherally**
- One-sided chip breaker design
- Suitable for aluminium, plastic and non-ferrous metals
- **SW16NT** uncoated
- **SP16NT** coated, also suitable for finishing **stainless steel** (**austenitic, quenched**)
- **for stainless steel** max. ap = 0.4 mm at Vc max 140 m/min
- **SP16NT** for **titanium Rm 440 Vc 60-120 m/min**
- Minimum ap feed always 63% of the corner radius "r"
- Maximum ap feed 63% of the cutting edge length
- Cutting data recommendations apply for a corner radius **r = 0.4 mm**, if the radius changes, the cutting data must be adjusted

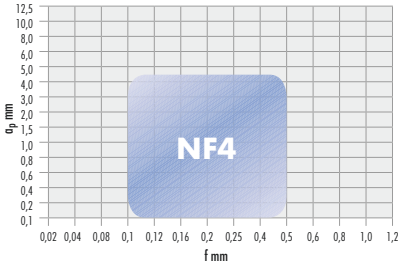
Especially for machining aluminium

Chip breaker NF4

F finishing ○	M medium ○	R roughing ○	SARATURN ISO designation	ISO P	ISO M	ISO K	ISO N	ISO S	ISO H	Quality		art.no.	€
 Universal application 			CCGT 060201-NF4			○	●	○		SW 16 NT	10	**366601** 0116	7,65
			CCGT 060202-NF4			○	●	○		SW 16 NT	10	366601 0216	7,65
					○	○	●	○		SP 16 NT	10	366601 0417	9,50
			CCGT 060204-NF4			○	●	○		SW 16 NT	10	366601 0316	7,65
					○	○	●	○		SP 16 NT	10	366601 0517	9,50
			CCGT 09T302-NF4			○	●	○		SW 16 NT	10	366601 0616	8,10
					○	○	●	○		SP 16 NT	10	366601 0717	9,90
			CCGT 09T304-NF4			○	●	○		SW 16 NT	10	366601 0816	8,10
					○	○	●	○		SP 16 NT	10	366601 0917	9,90
			CCGT 09T308-NF4			○	●	○		SW 16 NT	10	366601 1016	8,10
					○	○	●	○		SP 16 NT	10	366601 1117	9,90
			CCGT 120404-NF4			○	●	○		SW 16 NT	10	366601 1216	9,50
					○	○	●	○		SP 16 NT	10	366601 1317	11,35
			CCGT 120408-NF4			○	●	○		SW 16 NT	10	366601 1416	9,50
					○	○	●	○		SP 16 NT	10	366601 1517	11,35

3135

ISO	SP 16 NT	SW 16 NT
ISO M stainless steel	Vc = 50 - 140	
ISO K cast iron	Vc = 120 - 200	Vc = 120 - 200
ISO N Al/non-ferrous	Vc = 100 - 3000	Vc = 100 - 2000
ISO S superalloys	Vc = 18 - 45	Vc = 18 - 45
Vc = [m/min] f = [mm/U] ap = [mm]	f = 0.1 - 0.5 ap = 0.1 - 4.5	



CCMT - CCGT ISO indexable cutting inserts

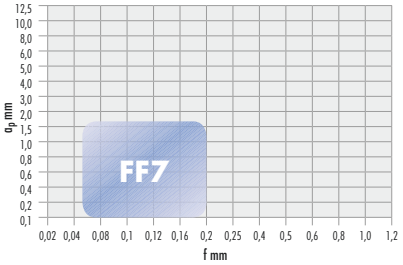
- **80° rhombic, positive 7°**
- One-sided chip breaker design
- Chip breaker **FF7 stainless steel design SP20MT** for **titanium** hardness Rm* 400, Vc up to 140 m/min possible
- **CCGT** ground peripherally
- Minimum ap feed always 63% of the corner radius "r"
- Maximum ap feed is 63% of the cutting edge length
- Cutting data recommendations apply for a corner radius **r = 0.4 mm**

Chip breaker FF7, CERMET design

F finishing ●	M medium -	R roughing -	SARATURN ISO designation	ISO P	ISO M	ISO K	ISO N	ISO S	ISO H	Quality		art.no.	€
Micro finishing machining			CCMT 060204-FF7	●	○	○				ST 10 UT	10	**366603** 0140	5,50
			CCMT 09T304-FF7	●	○	○				ST 10 UT	10	366603 0240	6,20

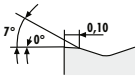
3135

ISO	ST 10 UT
ISO P steel	Vc = 160 - 270
ISO M stainless steel	Vc = 130 - 240
ISO K cast iron	Vc = 220 - 350
Vc = [m/min] f = [mm/U] ap = [mm]	f = 0.05 - 0.2 ap = 0.1 - 1.65



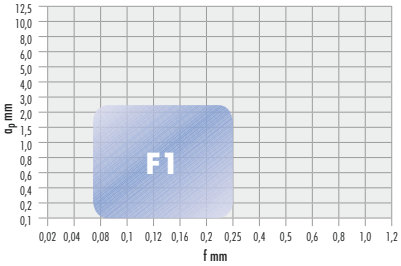
Continued on next page >>>

Chip breaker F1

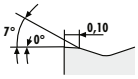
F finishing ●	M medium ○	R roughing -	SARATURN ISO designation	ISO P	ISO M	ISO K	ISO N	ISO S	ISO H	Quality		art.no.	€
Finishing 			CCMT 060202-F1	●	○	○				SC 25 PT	10	**366604** 0125	5,50
			CCMT 060204-F1	●		○				SC 15 PT	10	366604 0215	5,50
				●	○	○				SC 25 PT	10	366604 0325	5,50
			CCMT 09T302-F1	●	○	○				SC 25 PT	10	366604 0425	6,90
			CCMT 09T304-F1	●		○				SC 15 PT	10	366604 0515	6,90
				●	○	○				SC 25 PT	10	366604 0625	6,90
			CCMT 09T308-F1	●		○				SC 15 PT	10	366604 0715	6,90
				●	○	○				SC 25 PT	10	366604 0825	6,90
				●	○					SC 35 PT	10	366604 0915	6,90
			CCMT 120404-F1	●		○				SC 15 PT	10	366604 1015	9,15

3135

ISO	SC 15 PT	SC 25 PT	SC 35 PT
ISO P steel	Vc = 180 - 400	Vc = 100 - 240	Vc = 90 - 190
ISO M stainless steel		Vc = 70 - 200	Vc = 55 - 180
ISO K cast iron	Vc = 140 - 520	Vc = 120 - 250	
Vc = [m/min] f = [mm/U] ap = [mm]	f = 0.07 - 0.25 ap = 0.1 - 2.5		

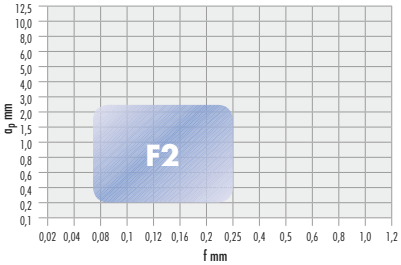


Chip breaker F2

F finishing ●	M medium ○	R roughing -	SARATURN ISO designation	ISO P	ISO M	ISO K	ISO N	ISO S	ISO H	Quality		art.no.	€
Finishing 			CCMT 060202-F2	○	●					SP 25 MT	10	**366605** 0121	5,50
			CCMT 060204-F2	○	●					SP 25 MT	10	366605 0221	5,50
			CCMT 09T302-F2	○	●					SP 25 MT	10	366605 0321	6,90
			CCMT 09T304-F2	○	●					SP 25 MT	10	366605 0421	6,90
			CCMT 09T308-F2	○	●					SP 25 MT	10	366605 0521	6,90

3135

ISO	SP 25 MT
ISO P steel	Vc = 60 - 250
ISO M stainless steel	Vc = 60 - 250
Vc = [m/min] f = [mm/U] ap = [mm]	f = 0.07 - 0.25 ap = 0.2 - 2.5

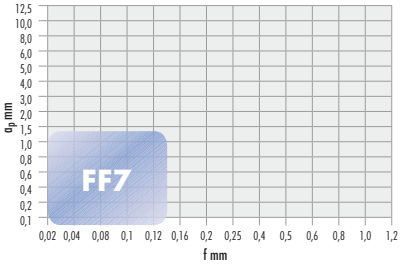


Chip breaker FF7, stainless steel design

F finishing ●	M medium -	R roughing -	SARATURN ISO designation	ISO P	ISO M	ISO K	ISO N	ISO S	ISO H	Quality		art.no.	€
Micro finishing machining			CCGT 060200-FF7		●	○	○	○		SP 20 MT	10	**366602** 0120	9,50
			CCGT 060201-FF7		●	○	○	○		SP 20 MT	10	366602 0220	9,50
			CCGT 09T300-FF7		●	○	○	○		SP 20 MT	10	366602 0320	9,90
			CCGT 09T301-FF7		●	○	○	○		SP 20 MT	10	366602 0420	9,90

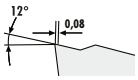
3135

ISO	SP 20 MT
ISO M stainless steel	Vc = 60 - 200
ISO K cast iron	Vc = 120 - 220
ISO N Al/non-ferrous	Vc = 100 - 600
ISO S superalloys	Vc = 20 - 50
Vc = [m/min] f = [mm/U] ap = [mm]	f = 0.02 - 0.14 ap = 0.05 - 1.35



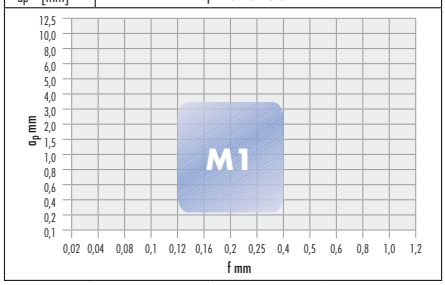
Continued on next page >>>

Chip breaker M1

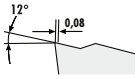
F finishing -	M medium ●	R roughing ○	SARATURN ISO designation	ISO P	ISO M	ISO K	ISO N	ISO S	ISO H	Quality		art.no.	€
Medium machining 			CCMT 060204-M1	●		○				SC 15 PT	10	**366606** 0115	5,50
				●	○	○				SC 25 PT	10	366606 0225	5,50
				●	○					SC 35 PT	10	366606 0335	5,50
			CCMT 060208-M1	●	○	○				SC 15 PT	10	366606 0415	5,50
				●	○	○				SC 25 PT	10	366606 0525	5,50
			CCMT 09T304-M1	●		○				SC 15 PT	10	366606 0615	6,90
				●	○	○				SC 25 PT	10	366606 0725	6,90
				●	○					SC 35 PT	10	366606 0835	6,90
			CCMT 09T308-M1	●		○				SC 15 PT	10	366606 0915	6,90
				●	○	○				SC 25 PT	10	366606 1025	6,90
				●	○					SC 35 PT	10	366606 1135	6,90
			CCMT 120404-M1	●	○	○				SC 25 PT	10	366606 1225	9,15
			CCMT 120408-M1	●	○	○				SC 25 PT	10	366606 1325	9,15
			CCMT 120412-M1	●	○	○				SC 25 PT	10	366606 1425	9,15

3135

ISO	SC 15 PT	SC 25 PT	SC 35 PT
ISO P steel	Vc = 180 - 400	Vc = 100 - 240	Vc = 90 - 200
ISO M stainless steel		Vc = 70 - 210	Vc = 55 - 200
ISO K cast iron	Vc = 140 - 520	Vc = 120 - 250	
Vc = [m/min] f = [mm/U] ap = [mm]	f = 0.12 - 0.4 ap = 0.25 - 3.5		

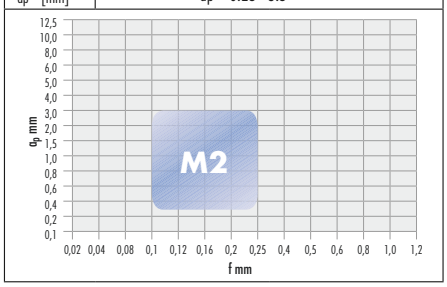


Chip breaker M2

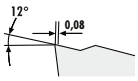
F finishing -	M medium ●	R roughing ○	SARATURN ISO designation	ISO P	ISO M	ISO K	ISO N	ISO S	ISO H	Quality		art.no.	€
Medium machining 			CCMT 060204-M2	○	●					SP 25 MT	10	**366607** 0121	5,50
			CCMT 060208-M2	○	●					SP 25 MT	10	366607 0221	5,50
			CCMT 09T304-M2	○	●					SP 25 MT	10	366607 0321	6,90
				○	●					SP 35 MT	10	366607 0422	6,90
			CCMT 09T308-M2	○	●					SP 25 MT	10	366607 0521	6,90
				○	●					SP 35 MT	10	366607 0622	6,90
			CCMT 120404-M2	○	●					SP 25 MT	10	366607 0721	9,15
			CCMT 120408-M2	○	●					SP 25 MT	10	366607 0821	9,15
			CCMT 120412-M2	○	●					SP 25 MT	10	366607 0921	9,15

3135

ISO	SP 25 MT	SP 35 MT
ISO P steel	Vc = 80 - 250	Vc = 90 - 200
ISO M stainless steel	Vc = 40 - 250	Vc = 55 - 200
Vc = [m/min] f = [mm/U] ap = [mm]	f = 0.12 - 0.3 ap = 0.25 - 3.5	

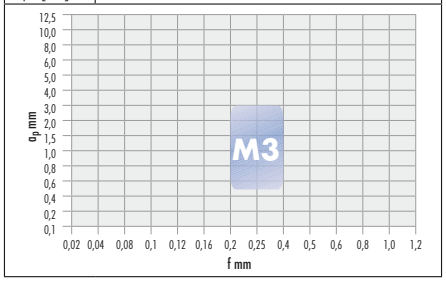


Chip breaker M3

F finishing -	M medium ●	R roughing ○	SARATURN ISO designation	ISO P	ISO M	ISO K	ISO N	ISO S	ISO H	Quality		art.no.	€
Universal application 			CCMT 060204-M3	○		●				SC 20 KT	10	**366608** 0130	5,50
			CCMT 09T304-M3	○		●				SC 20 KT	10	366608 0230	6,90
			CCMT 09T308-M3	○		●				SC 20 KT	10	366608 0330	6,90
			CCMT 120408-M3	○		●				SC 20 KT	10	366608 0430	9,15

3135

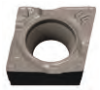
ISO	SC 20 KT
ISO P steel	Vc = 150 - 340
ISO K cast iron	Vc = 150 - 550
Vc = [m/min] f = [mm/U] ap = [mm]	f = 0.2 - 0.4 ap = 0.5 - 3.0



CCMX ISO indexable cutting inserts

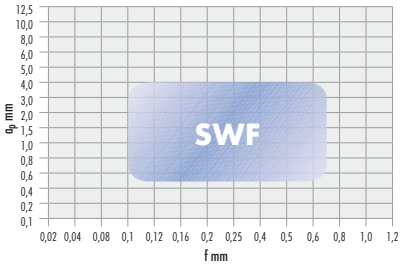
- **80° rhombic, positive 7°**
- One-sided chip breaker design
- Minimum ap feed always 63% of the corner radius "r"
- Special finishing geometry with smoothing effect when used at an angle of 93°
- Double feed achievable at the same Ra value as with conventional geometries
- When using the **SWF**, profile distortions may occur if long tapers and large balls are turned
- Cutting data recommendations apply for a corner radius **r = 0.4 mm**

Chip breaker SWF positive

F finishing	M medium	R roughing	SARATURN ISO designation	ISO P	ISO M	ISO K	ISO N	ISO S	ISO H	Quality		art.no.	€
●	-	-											
 Finishing			CCMX 09T304-SWF	●	○	○				**SC 25 PT**	10	**366708** 0125	8,95
				○	●					**SP 35 MT**	10	366708 0135	8,95
			CCMX 09T308-SWF	●	○	○				**SC 25 PT**	10	366708 0225	8,95
				○	●					**SP 35 MT**	10	366708 0235	8,95

3135

ISO	SC 25 PT	SP 35 MT
ISO P steel	Vc = 100 - 240	Vc = 90 - 200
ISO M stainless steel	Vc = 70 - 210	Vc = 55 - 200
ISO K cast iron	Vc = 130 - 250	
Vc = [m/min] f = [mm/U] ap = [mm]	f = 0.05 - 0.4 ap = 0.3 - 3.0	



CNGP - CNMA ISO indexable cutting inserts

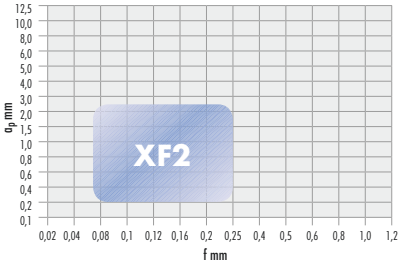
- **80° rhombic, negative 0°**
- Bilateral chip breaker design
- Chip breaker **XF2** for extreme finishing
- **SP20MT** range in **titanium** Vc max 140 m/min for Rm 440
- Minimum ap feed always 63% of the corner radius "r"
- Cutting data recommendations apply for a corner radius **r = 0.4 mm**

Chip breaker XF2 specially for stainless steel

F finishing	M medium	R roughing	SARATURN ISO designation	ISO P	ISO M	ISO K	ISO N	ISO S	ISO H	Quality		art.no.	€
●	-	-											
Micro finishing machining			CNGP 120402-XF2		●	○	○	○		**SP 20 MT**	10	**366609** 0120	12,75
			CNGP 120404-XF2		●	○	○	○		**SP 20 MT**	10	366609 0220	12,75
			CNGP 120408-XF2		●	○	○	○		**SP 20 MT**	10	366609 0320	12,75
			CNGP 120412-XF2		●	○	○	○		**SP 20 MT**	10	366609 0420	12,75

3135

ISO	SP 20 MT
ISO M stainless steel	Vc = 60 - 200
ISO K cast iron	Vc = 120 - 220
ISO N Al/non-ferrous	Vc = 100 - 600
ISO S superalloys	Vc = 20 - 50
Vc = [m/min] f = [mm/U] ap = [mm]	f = 0.08 - 0.25 ap = 0.2 - 2.5



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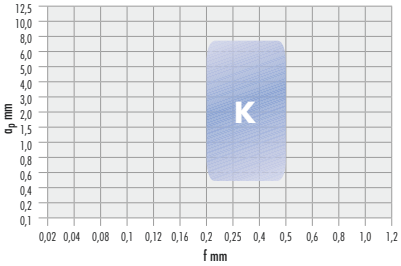
K smooth chip breaker

F finishing -	M medium ○	R roughing ●	SARATURN ISO designation	ISO P	ISO M	ISO K	ISO N	ISO S	ISO H	Quality		art.no.	€
Roughing/medium machining			CNMA 120408-K	○		●				SC 20 KT	10	**366610** 0130	7,10

3135

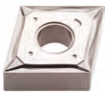
ISO	SC 20 KT
ISO P steel	Vc = 150 - 340
ISO K cast iron	Vc = 150 - 550
Vc = [m/min] f = [mm/U] ap = [mm]	f = 0.2 - 0.5 ap = 0.5 - 7.5



CNMG ISO indexable cutting inserts

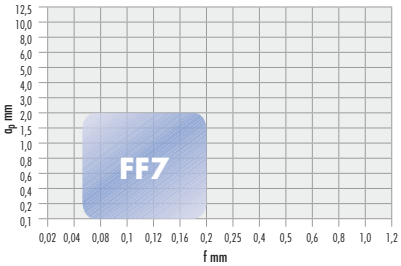
- **80° rhombic, negative 0°**
- Bilateral chip breaker design
- Minimum ap feed always 63% of the corner radius "r"
- Maximum ap feed is 63% of the cutting edge length
- Cutting data recommendations apply for a corner radius **r = 0.4 mm**, for **CNMG 16**... for a corner radius **r = 0.8 mm**, for **CNMG 19**.... for a corner radius **r = 1.2 mm**

Chip breaker FF7, CERMET negative design

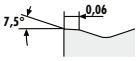
F finishing ●	M medium ○	R roughing ●	SARATURN ISO designation	ISO P	ISO M	ISO K	ISO N	ISO S	ISO H	Quality		art.no.	€
 Finishing / medium machining			CNMG 120404-FF7	●	○	○				ST 10 UT	10	**366612** 0140	7,10
			CNMG 120408-FF7	●	○	○				ST 10 UT	10	366612 0240	7,10

3135

ISO	ST 10 UT
ISO P steel	Vc = 160 - 270
ISO M stainless steel	Vc = 130 - 240
ISO K cast iron	Vc = 220 - 350
Vc = [m/min] f = [mm/U] ap = [mm]	f = 0.05 - 0.2 ap = 0.1 - 2.0

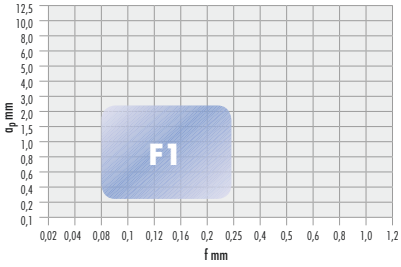


Chip breaker F1 negative

F finishing ●	M medium ○	R roughing -	SARATURN ISO designation	ISO P	ISO M	ISO K	ISO N	ISO S	ISO H	Quality		art.no.	€
Finishing 			CNMG 090304-F1	●		○				SC 15 PT	10	**366704** 0015	5,70
			CNMG 120404-F1	●		○				SC 15 PT	10	366704 0115	7,80
				●	○	○				SC 25 PT	10	366704 0225	7,80
			CNMG 120408-F1	●		○				SC 15 PT	10	366704 0315	7,80
				●	○	○				SC 25 PT	10	366704 0425	7,80

3135

ISO	SC 15 PT	SC 25 PT
ISO P steel	Vc = 180 - 400	Vc = 100 - 240
ISO M stainless steel		Vc = 70 - 210
ISO K cast iron	Vc = 140 - 520	Vc = 120 - 250
Vc = [m/min] f = [mm/U] ap = [mm]	f = 0.07 - 0.25 ap = 0.25 - 2.5	



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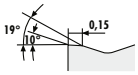
Chip breaker M1 negative

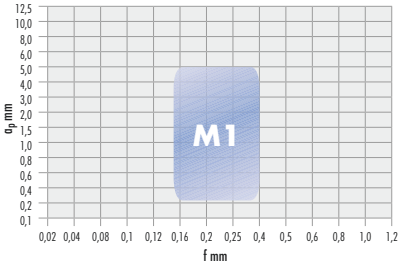
Medium machining



F finishing	M medium	R roughing	SARATURN ISO designation	ISO P	ISO M	ISO K	ISO N	ISO S	ISO H	Quality		art.no.	€
○	●	○	CNMG 120404-M1	●		○				SC 15 PT	10	**366613** 0115	7,10
				●	○	○				SC 25 PT	10	366613 0225	7,10
			CNMG 120408-M1	●		○				SC 15 PT	10	366613 0315	7,10
				●	○	○				SC 25 PT	10	366613 0425	7,10
				●	○					SC 35 PT	10	366613 0535	7,10
			CNMG 120412-M1	●		○				SC 15 PT	10	366613 0615	7,10
				●	○	○				SC 25 PT	10	366613 0725	7,10
				●	○					SC 35 PT	10	366613 0835	7,10

3135

ISO	SC 15 PT	SC 25 PT	SC 35 PT
ISO P steel	Vc = 180 - 400	Vc = 100 - 240	Vc = 90 - 200
ISO M stainless steel		Vc = 70 - 210	Vc = 55 - 200
ISO K cast iron	Vc = 140 - 520	Vc = 130 - 250	
Vc = [m/min] f = [mm/U] ap = [mm]	f = 0.15 - 0.4 ap = 0.25 - 5.0		



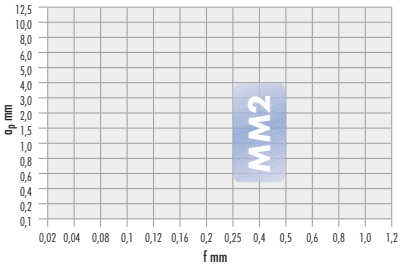
Chip breaker MM2 negative

Roughing/medium machining

F finishing	M medium	R roughing	SARATURN ISO designation	ISO P	ISO M	ISO K	ISO N	ISO S	ISO H	Quality		art.no.	€
-	●	○	CNMG 090304-MM2	○	●					SP 25 MT	10	**366615** 0021	5,70
			CNMG 120408-MM2	○	●					SP 25 MT	10	366615 0121	7,10

3135

ISO	SP 25 MT
ISO P steel	Vc = 60 - 250
ISO M stainless steel	Vc = 40 - 250
Vc = [m/min] f = [mm/U] ap = [mm]	f = 0.25 - 0.5 ap = 0.5 - 4.0



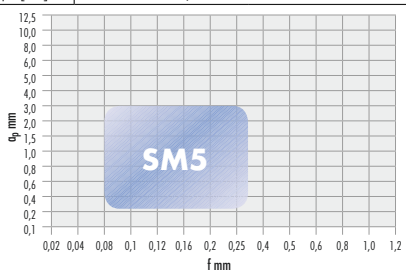
Chip breaker SM5 negative, especially for ISO-S

Finishing / medium machining

F finishing	M medium	R roughing	SARATURN ISO designation	ISO P	ISO M	ISO K	ISO N	ISO S	ISO H	Quality		art.no.	€
●	○	-	CNMG 120404-SM5		○			●		SP 10 ST	10	**366611** 0232	7,10
					○			●		SP 15 ST	10	366611 0131	7,10
			CNMG 120408-SM5		○			●		SP 10 ST	10	366611 0332	7,10
					○			●		SP 15 ST	10	366611 0231	7,10

3135

ISO	SP 10 ST	SP 15 ST
ISO M stainless steel	Vc = 60 - 230	Vc = 50 - 220
ISO S superalloys	Vc = 30 - 120	Vc = 30 - 120
Vc = [m/min] f = [mm/U] ap = [mm]	f = 0.08 - 0.3 ap = 0.25 - 3.0	



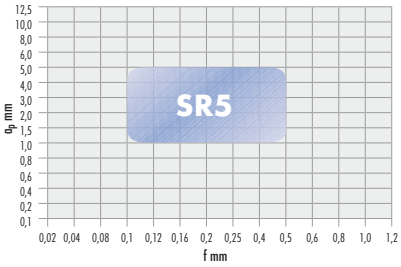
Chip breaker SR5 negative, specially for roughing ISO-S

Roughing/medium machining

F finishiF finishing	M medium	R roughing	SARATURN ISO designation	ISO P	ISO M	ISO K	ISO N	ISO S	ISO H	Quality		art.no.	€
-	○	●	CNMG 120408-SR5		●			●		SP 40 ST	10	**366716** 0140	9,40
			CNMG 120412-SR5		●			●		SP 40 ST	10	366716 0240	9,40
			CNMG 160612-SR5		●			●		SP 40 ST	10	366716 0540	17,50

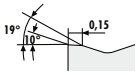
3135

ISO	SP 40 ST
ISO M stainless steel	Vc = 80 - 200
ISO S superalloys	Vc = 60 - 160
Vc = [m/min] f = [mm/U] ap = [mm]	f = 0.1 - 0.5 ap = 1.0 - 5.0



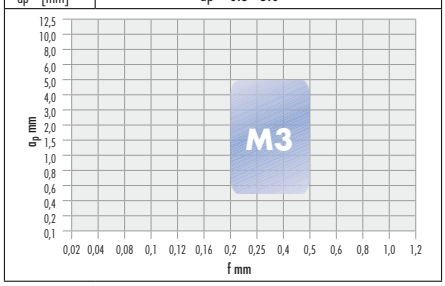
Continued on next page >>>

Chip breaker M3 negative ISO K

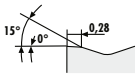
F finishing -	M medium ●	R roughing ○	SARATURN ISO designation	ISO P	ISO M	ISO K	ISO N	ISO S	ISO H	Quality		art.no.	€
Roughing/medium machining 			CNMG 120408-M3	○		●				SC 20 KT	10	**366617** 0130	7,10
			CNMG 120412-M3	○		●				SC 20 KT	10	366617 0230	7,10

3135

ISO	SC 20 KT
ISO P steel	Vc = 150 - 340
ISO K cast iron	Vc = 150 - 550
Vc = [m/min] f = [mm/U] ap = [mm]	f = 0.2 - 0.5 ap = 0.5 - 5.0

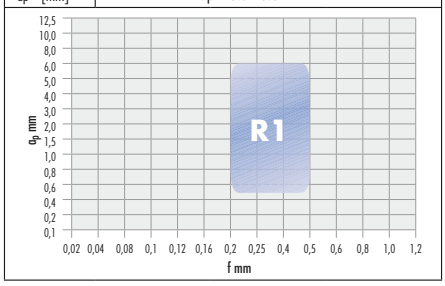


Chip breaker R1 negative

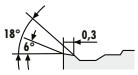
F finishing -	M medium ○	R roughing ●	SARATURN ISO designation	ISO P	ISO M	ISO K	ISO N	ISO S	ISO H	Quality		art.no.	€
Roughing 			CNMG 120408-R1	●		○				SC 15 PT	10	**366618** 0115	7,10
				●	○	○				SC 25 PT	10	366618 0225	7,10
			CNMG 120412-R1	●		○				SC 15 PT	10	366618 0215	7,10
				●	○	○				SC 25 PT	10	366618 0325	7,10
				●	○					SC 35 PT	10	366618 0235	7,10

3135

ISO	SC 15 PT	SC 25 PT	SC 35 PT
ISO P steel	Vc = 180 - 400	Vc = 100 - 240	Vc = 90 - 200
ISO M stainless steel		Vc = 70 - 210	Vc = 55 - 200
ISO K cast iron	Vc = 140 - 520	Vc = 120 - 250	
Vc = [m/min] f = [mm/U] ap = [mm]	f = 0.2 - 0.5 ap = 0.5 - 6.0		

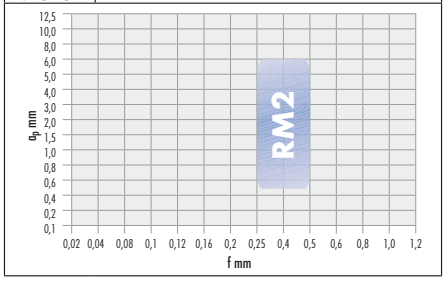


Chip breaker RM2 negative

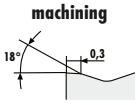
F finishing -	M medium ○	R roughing ●	SARATURN ISO designation	ISO P	ISO M	ISO K	ISO N	ISO S	ISO H	Quality		art.no.	€
Roughing/medium machining 			CNMG 120408-RM2	○	●					SP 25 MT	10	**366616** 0121	7,10
			CNMG 120412-RM2	○	●					SP 25 MT	10	366616 0221	7,10
			CNMG 160612-RM2	○	●					SP 25 MT	10	366616 0421	13,20

3135

ISO	SP 25 MT
ISO P steel	Vc = 80 - 250
ISO M stainless steel	Vc = 40 - 250
Vc = [m/min] f = [mm/U] ap = [mm]	f = 0.2 - 0.5 ap = 0.5 - 6.0

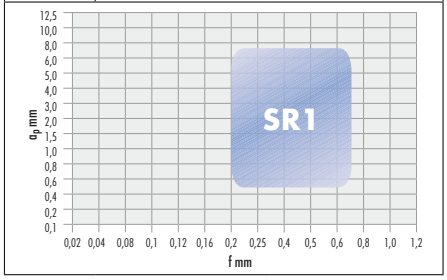


Chip breaker SR1 negative

F finishing -	M medium ○	R roughing ●	SARATURN ISO designation	ISO P	ISO M	ISO K	ISO N	ISO S	ISO H	Quality		art.no.	€
Roughing/medium machining 			CNMG 160608-SR1	●	○					SC 35 PT	10	**366620** 0335	13,20
			CNMG 160612-SR1	●	○	○				SC 25 PT	10	366620 0525	13,20
				●	○					SC 35 PT	10	366620 0635	13,20
			CNMG 160616-SR1	●	○	○				SC 25 PT	10	366620 0625	13,20
				●	○					SC 35 PT	10	366620 0735	13,20
			CNMG 190612-SR1	●	○	○				SC 25 PT	10	366620 0825	18,30
				●	○					SC 35 PT	10	366620 0935	18,30
			CNMG 190616-SR1	●	○	○				SC 25 PT	10	366620 1125	18,30
				●	○					SC 35 PT	10	366620 1235	18,30

3135

ISO	SC 25 PT	SC 35 PT
ISO P steel	Vc = 100 - 240	Vc = 90 - 200
ISO M stainless steel	Vc = 70 - 210	Vc = 55 - 200
ISO K cast iron	Vc = 120 - 250	
Vc = [m/min] f = [mm/U] ap = [mm]	f = 0.2 - 0.7 ap = 0.5 - 7.5	



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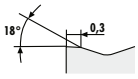
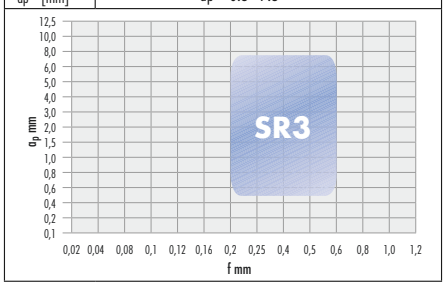
Chip breaker SR3 negative for ISO K

F finishing -	M medium ○	R roughing ●	SARATURN ISO designation	ISO P	ISO M	ISO K	ISO N	ISO S	ISO H	Quality		art.no.	€
Roughing/medium machining 			CNMG 120408-SR3	○		●				SC 20 KT	10	**366614** 0130	7,10
			CNMG 120412-SR3	○		●				SC 20 KT	10	366614 0230	7,10
			CNMG 160608-SR3	○		●				SC 20 KT	10	366614 0330	13,20
			CNMG 160612-SR3	○		●				SC 20 KT	10	366614 0430	13,20
			CNMG 190612-SR3	○		●				SC 20 KT	10	366614 0530	18,30

3135

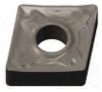
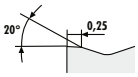
ISO	SC 20 KT
ISO P steel	Vc = 150 - 340
ISO K cast iron	Vc = 150 - 550
Vc = [m/min] f = [mm/U] ap = [mm]	f = 0.2 - 0.6 ap = 0.5 - 7.5



CNMM ISO indexable cutting inserts

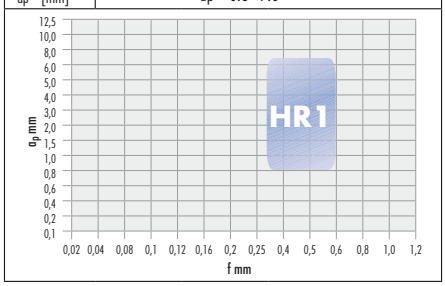
- **80° rhombic, negative 0°**
- One-sided chip breaker design
- Minimum ap feed always 63% of the corner radius "r"
- Maximum ap feed is 63% of the cutting edge length
- Cutting data recommendations apply for a corner radius **r = 0.8 mm**

Chip breaker HR1

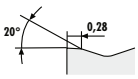
F finishing -	M medium ○	R roughing ●	SARATURN ISO designation	ISO P	ISO M	ISO K	ISO N	ISO S	ISO H	Quality		art.no.	€
 Roughing 			CNMM 120408-HR1	●		○				SC 15 PT	10	**366703** 0115	7,10
				●	○	○				SC 25 PT	10	366703 0225	7,10
				●	○					SC 35 PT	10	366703 0335	7,10
				○	●			○		SP 25 MT	10	366703 0121	7,10
			CNMM 120412-HR1	●		○				SC 15 PT	10	366703 0415	7,10
				●	○	○				SC 25 PT	10	366703 0525	7,10
				●	○					SC 35 PT	10	366703 0635	7,10
				○	●			○		SP 25 MT	10	366703 0221	7,10

3135

ISO	SC 15 PT	SC 25 PT	SC 35 PT	SP 25 MT
ISO P steel	Vc = 180 - 400	Vc = 100 - 240	Vc = 90 - 200	Vc = 60 - 250
ISO M stainless steel		Vc = 70 - 210	Vc = 55 - 200	Vc = 40 - 250
ISO K cast iron	Vc = 140 - 520	Vc = 120 - 250	Vc = 120 - 250	
ISO S superalloys				Vc = 20 - 80
Vc = [m/min] f = [mm/U] ap = [mm]	f = 0.3 - 0.6 ap = 0.8 - 7.0			



Chip breaker HR2 negative up to 16 mm

F finishing -	M medium ○	R roughing ●	SARATURN ISO designation	ISO P	ISO M	ISO K	ISO N	ISO S	ISO H	Quality		art.no.	€
Roughing 			CNMM 120412-HR2	●		○				SC 15 PT	10	**366619** 0415	7,10
				●	○	○				SC 25 PT	10	366619 0525	7,10
				●	○					SC 35 PT	10	366619 0635	7,10
			CNMM 120416-HR2	●	○	○				SC 25 PT	10	366619 0825	7,10
				●	○					SC 35 PT	10	366619 0935	7,10
			CNMM 160612-HR2	●		○				SC 15 PT	10	366619 1315	12,45
				●	○	○				SC 25 PT	10	366619 1425	12,45
				●	○					SC 35 PT	10	366619 1535	12,45

3135

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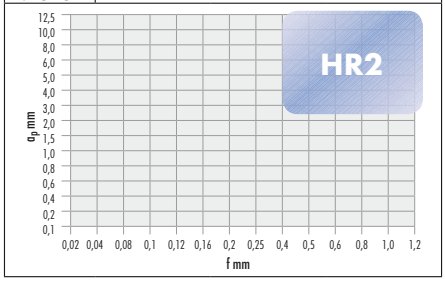
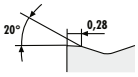
ISO	SC 15 PT	SC 25 PT	SC 35 PT
ISO P steel	Vc = 180 - 400	Vc = 100 - 240	Vc = 90 - 200
ISO M stainless steel		Vc = 70 - 210	Vc = 55 - 200
ISO K cast iron	Vc = 140 - 520	Vc = 120 - 250	
Vc = [m/min] f = [mm/U] ap = [mm]	f = 0.3 - 0.7 ap = 1.5 - 8.0		

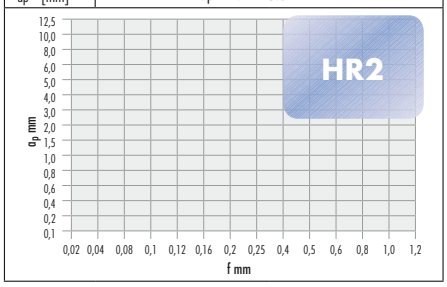


Chip breaker HR2 negative from 19 mm

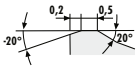
F finishing	M medium	R roughing	SARATURN ISO designation	ISO P	ISO M	ISO K	ISO N	ISO S	ISO H	Quality		art.no.	€
-	-	●											
Roughing 			CNMM 190612-HR2	●		○				SC 15 PT	10	**366621** 0115	18,30
				●	○	○				SC 25 PT	10	366621 0225	18,30
			CNMM 190616-HR2	●	○	○				SC 25 PT	10	366621 0525	18,30
			CNMM 250924-HR2	●	○	○				SC 25 PT	5	366621 1125	35,60

3135

ISO	SC 15 PT	SC 25 PT
ISO P steel	Vc = 180 - 400	Vc = 100 - 240
ISO M stainless steel		Vc = 70 - 210
ISO K cast iron	Vc = 140 - 520	Vc = 120 - 250
Vc = [m/min] f = [mm/U] ap = [mm]	f = 0.4 - 1.1 ap = 1.2 - 13.0	

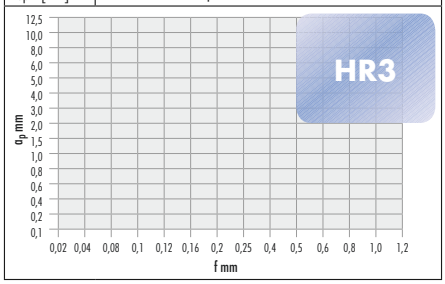


Chip breaker HR3 negative from 19 mm

F finishing	M medium	R roughing	SARATURN ISO designation	ISO P	ISO M	ISO K	ISO N	ISO S	ISO H	Quality		art.no.	€
-	-	●											
Roughing 			CNMM 190616-HR3	●	○	○				SC 25 PT	10	**366622** 0125	18,30
			CNMM 190624-HR3	●	○	○				SC 25 PT	10	366622 0225	18,30
			CNMM 250924-HR3	●	○	○				SC 25 PT	5	366622 0325	35,60
			CNMM 250932-HR2	●	○	○				SC 25 PT	5	366622 0425	35,60

3135

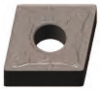
ISO	SC 25 PT
ISO P steel	Vc = 100 - 240
ISO M stainless steel	Vc = 70 - 210
ISO K cast iron	Vc = 120 - 250
Vc = [m/min] f = [mm/U] ap = [mm]	f = 0.5 - 1.5 ap = 2.0 - 13.0



CNMX ISO indexable cutting inserts

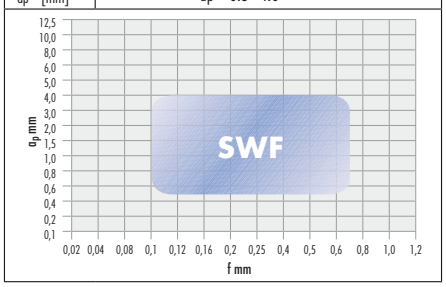
- **80° rhombic, negative 0°**
- One-sided chip breaker design
- Minimum ap feed always 63% of the corner radius "r"
- Special finishing geometry with smoothing effect when used at an angle of 93°
- When using the **SWF**, profile distortions may occur if long tapers and large balls are turned
- Double feed achievable at the same Ra value as with conventional geometries
- Cutting data recommendations apply for a corner radius **r = 0.4 mm**

Chip breaker SWF negative

F finishing	M medium	R roughing	SARATURN ISO designation	ISO P	ISO M	ISO K	ISO N	ISO S	ISO H	Quality		art.no.	€
●	○	-											
 Finishing			CNMX 120404-SWF	●		○				SC 15 PT	10	**366705** 0115	7,80
			CNMX 120408-SWF	●		○				SC 15 PT	10	366705 0215	7,80

3135

ISO	SC 15 PT
ISO P steel	Vc = 180 - 400
ISO K cast iron	Vc = 140 - 520
Vc = [m/min] f = [mm/U] ap = [mm]	f = 0.1 - 0.6 ap = 0.5 - 4.0



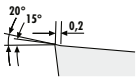
DCGT ISO indexable cutting inserts, ground

- **55° rhombic, positive 7°, ground peripherally**
- One-sided chip breaker design
- Suitable for aluminium, plastic and non-ferrous metals
- **SW16NT** uncoated
- **SP16NT** coated, also suitable for finishing **stainless steel** (**austenitic, quenched**)
- for **stainless steel** max. ap = 0.4 mm at Vc max 140 m/min
- **SP16NT** for **titanium** Rm* 440 **Vc 60-120 m/min**
- Minimum ap feed always 63% of the corner radius "r"
- Maximum ap feed is 63% of the cutting edge length
- Cutting data recommendations apply for a corner radius **r = 0.4 mm**

Chip breaker NF4

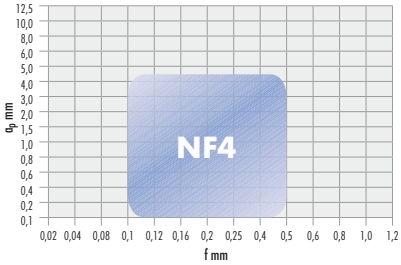
F finishing	M medium	R roughing	SARATURN ISO designation	ISO P	ISO M	ISO K	ISO N	ISO S	ISO H	Quality		art.no.	€
○	○	○	DCGT 070201-NF4			○	●	○		SW 16 NT	10	**366623** 0116	7,65
			DCGT 070202-NF4			○	●	○		SW 16 NT	10	366623 0216	7,65
					○	○	●	○		SP 16 NT	10	366623 0317	9,15
			DCGT 070204-NF4			○	●	○		SW 16 NT	10	366623 0416	7,65
					○	○	●	○		SP 16 NT	10	366623 0517	9,15
			DCGT 070208-NF4			○	●	○		SW 16 NT	10	366623 0616	7,65
			DCGT 11T302-NF4			○	●	○		SW 16 NT	10	366623 0716	9,15
					○	○	●	○		SP 16 NT	10	366623 0817	10,40
			DCGT 11T304-NF4			○	●	○		SW 16 NT	10	366623 0916	9,15
					○	○	●	○		SP 16 NT	10	366623 1017	10,40
			DCGT 11T308-NF4			○	●	○		SW 16 NT	10	366623 1116	9,15
					○	○	●	○		SP 16 NT	10	366623 1217	10,40

Universal application



3135

ISO	SP 16 NT	SW 16 NT
ISO M stainless steel	Vc = 50 - 140	
ISO K cast iron	Vc = 120 - 200	Vc = 120 - 200
ISO N Al/non-ferrous	Vc = 100 - 3000	Vc = 100 - 2000
ISO S superalloys	Vc = 18 - 120	Vc = 18 - 45
Vc = [m/min] f = [mm/U] ap = [mm]	f = 0.1 - 0.5 ap = 0.1 - 4.5	

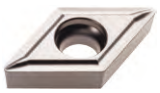


DCGT - *DCMT* ISO indexable cutting inserts

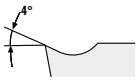
- **55° rhombic, positive 7°**
- One-sided chip breaker design
- Chip breaker **FF7 stainless steel design SP20MT** for **titanium** hardness Rm* 400, Vc up to 140 m/min possible
- **WCGT** ground peripherally
- Minimum ap feed always 63% of the corner radius "r"
- Maximum ap feed is 63% of the cutting edge length
- Cutting data recommendations apply for a corner radius **r = 0.4 mm**

Chip breaker FF7, CERMET design

F finishing	M medium	R roughing	SARATURN ISO designation	ISO P	ISO M	ISO K	ISO N	ISO S	ISO H	Quality		art.no.	€
●	-	-	DCMT 070204-FF7	●	○	○				ST 10 UT	10	**366627** 0140	5,80
			DCMT 11T304-FF7	●	○	○				ST 10 UT	10	366627 0240	7,60



Micro finishing machining



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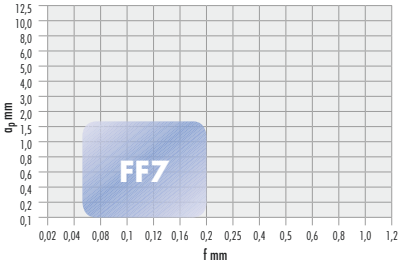
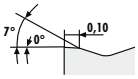
ISO	ST 10 UT
ISO P steel	Vc = 160 - 270
ISO M stainless steel	Vc = 130 - 240
ISO K cast iron	Vc = 220 - 350
Vc = [m/min] f = [mm/U] ap = [mm]	f = 0.05 - 0.2 ap = 0.1 - 1.65



Chip breaker F1

F finishing ●	M medium ○	R roughing -	SARATURN ISO designation	ISO P	ISO M	ISO K	ISO N	ISO S	ISO H	Quality		art.no.	€
Finishing 			DCMT 070202-F1	●		○				SC 15 PT	10	**366625** 0015	5,80
				●	○	○				SC 25 PT	10	366625 0125	5,80
			DCMT 070204-F1	●		○				SC 15 PT	10	366625 0415	5,80
				●	○	○				SC 25 PT	10	366625 0225	5,80
			DCMT 11T302-F1	●		○				SC 15 PT	10	366625 0715	7,60
				●	○	○				SC 25 PT	10	366625 0725	7,60
			DCMT 11T304-F1	●	○	○				SC 15 PT	10	366625 1015	7,60
				●	○	○				SC 25 PT	10	366625 1025	7,60
			DCMT 11T308-F1	●	○	○				SC 25 PT	10	366625 1325	7,60

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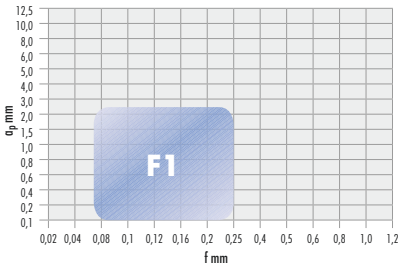
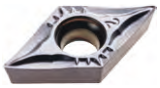
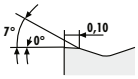
ISO	SC 15 PT	SC 25 PT
ISO P steel	Vc = 180 - 400	Vc = 100 - 240
ISO M stainless steel		Vc = 70 - 210
ISO K cast iron	Vc = 140 - 520	Vc = 120 - 250
Vc = [m/min] f = [mm/U] ap = [mm]	f = 0.07 - 0.25 ap = 0.5 - 2.5	



Chip breaker F2

F finishing ●	M medium ○	R roughing -	SARATURN ISO designation	ISO P	ISO M	ISO K	ISO N	ISO S	ISO H	Quality		art.no.	€
 Finishing / medium machining 			DCMT 070202-F2	○	●					SP 25 MT	10	**366626** 0125	5,80
			DCMT 070204-F2	○	●					SP 25 MT	10	366626 0225	5,80
			DCMT 11T302-F2	○	●					SP 25 MT	10	366626 0325	7,60
			DCMT 11T304-F2	○	●					SP 25 MT	10	366626 0425	7,60
			DCMT 11T308-F2	○	●					SP 25 MT	10	366626 0525	7,60

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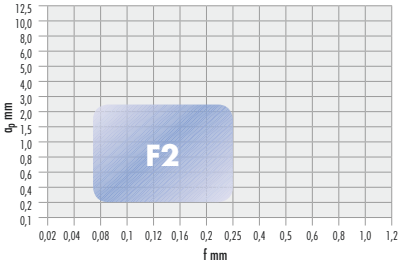
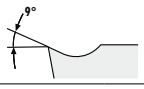
ISO	SP 25 MT
ISO P steel	Vc = 60 - 250
ISO M stainless steel	Vc = 40 - 250
Vc = [m/min] f = [mm/U] ap = [mm]	f = 0.07 - 0.25 ap = 0.2 - 2.5



Chip breaker FF7, stainless steel design

F finishing ●	M medium -	R roughing -	SARATURN ISO designation	ISO P	ISO M	ISO K	ISO N	ISO S	ISO H	Quality		art.no.	€
Micro finishing machining 			DCGT 070200-FF7		●	○	○	○		SP 20 MT	10	**366624** 0120	12,45
			DCGT 070201-FF7		●	○	○	○		SP 20 MT	10	366624 0220	12,45
			DCGT 11T300-FF7		●	○	○	○		SP 20 MT	10	366624 0320	12,45
			DCGT 11T301-FF7		●	○	○	○		SP 20 MT	10	366624 0420	12,45

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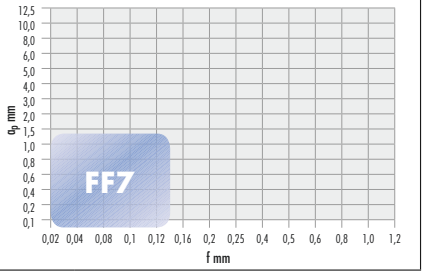
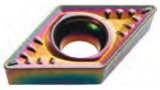
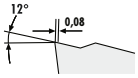
ISO	SP 20 MT
ISO M stainless steel	Vc = 60 - 200
ISO K cast iron	Vc = 120 - 220
ISO N Al/non-ferrous	Vc = 100 - 600
ISO S superalloys	Vc = 20 - 50
Vc = [m/min] f = [mm/U] ap = [mm]	f = 0.02 - 0.14 ap = 0.05 - 1.35



Chip breaker M1

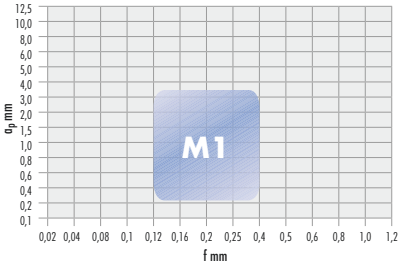
F finishing ○	M medium ●	R roughing -	SARATURN ISO designation	ISO P	ISO M	ISO K	ISO N	ISO S	ISO H	Quality		art.no.	€
			DCMT 070204-M1	●	○	○				SC 25 PT	10	**366630** 0125	5,80
				●	○					SC 35 PT	10	366630 0235	5,80
			DCMT 070208-M1	●	○	○				SC 25 PT	10	366630 0325	5,80
				●	○					SC 35 PT	10	366630 0435	5,80
			DCMT 11T304-M1	●		○				SC 15 PT	10	366630 0515	7,60
				●	○	○				SC 25 PT	10	366630 0625	7,60
				●	○					SC 35 PT	10	366630 0735	7,60
			DCMT 11T308-M1	●		○				SC 15 PT	10	366630 0815	7,60
				●	○	○				SC 25 PT	10	366630 0925	7,60
				●	○					SC 35 PT	10	366630 1035	7,60

Medium machining

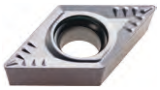


3135

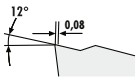
ISO	SC 15 PT	SC 25 PT	SC 35 PT
ISO P steel	Vc = 180 - 400	Vc = 100 - 240	Vc = 90 - 200
ISO M stainless steel		Vc = 70 - 210	Vc = 55 - 200
ISO K cast iron	Vc = 140 - 520	Vc = 120 - 250	
Vc = [m/min] f = [mm/U] ap = [mm]	f = 0.12 - 0.4 ap = 0.25 - 3.5		



Chip breaker M2

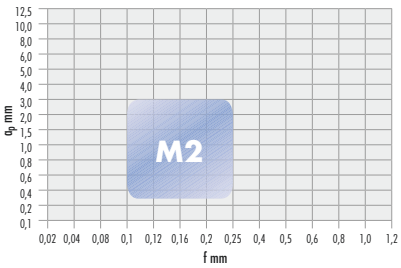
F finishing ○	M medium ●	R roughing -	SARATURN ISO designation	ISO P	ISO M	ISO K	ISO N	ISO S	ISO H	Quality		art.no.	€
			DCMT 070204-M2	○	●					SP 25 MT	10	**366629** 0121	5,80
			DCMT 070208-M2	○	●					SP 25 MT	10	366629 0221	5,80
			DCMT 11T304-M2	○	●					SP 25 MT	10	366629 0321	7,60
			DCMT 11T308-M2	○	●					SP 25 MT	10	366629 0521	7,60

Medium machining



3135

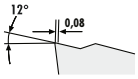
ISO	SP 25 MT
ISO P steel	Vc = 60 - 250
ISO M stainless steel	Vc = 40 - 250
Vc = [m/min] f = [mm/U] ap = [mm]	f = 0.12 - 0.3 ap = 0.25 - 3.5



Chip breaker M3

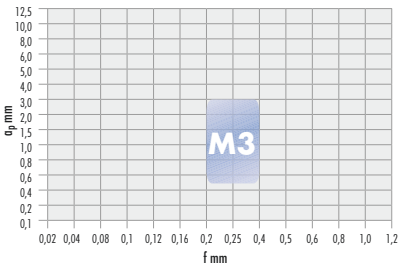
F finishing ○	M medium ●	R roughing -	SARATURN ISO designation	ISO P	ISO M	ISO K	ISO N	ISO S	ISO H	Quality		art.no.	€
			DCMT 070204-M3	○		●				SC 20 KT	10	**366628** 0130	5,80
			DCMT 11T304-M3	○		●				SC 20 KT	10	366628 0230	7,60

Medium machining



3135

ISO	SC 20 KT
ISO P steel	Vc = 150 - 340
ISO K cast iron	Vc = 150 - 550
Vc = [m/min] f = [mm/U] ap = [mm]	f = 0.2 - 0.4 ap = 0.5 - 3.5



DCMX ISO indexable cutting inserts

- **55° rhombic, positive 7°**
- One-sided chip breaker design
- Minimum ap feed always 63% of the corner radius "r"
- Special finishing geometry with smoothing effect when used at an angle of 93°
- When using the **SWF**, profile distortions may occur if long tapers and large balls are turned
- Double feed achievable at the same Ra value as with conventional geometries
- Cutting data recommendations apply for a corner radius **r = 0.4 mm**

Chip breaker SWF, positive

F finishing ●	M medium -	R roughing -	SARATURN ISO designation	ISO P	ISO M	ISO K	ISO N	ISO S	ISO H	Quality		art.no.	€
Finishing			DCMX 070204-SWF	●	○	○				SC 25 PT	10	**366709** 0125	6,50
			DCMX 11T304-SWF	○	●					SP 35 MT	10	366709 0135	8,35
				●	○	○				SC 25 PT	10	366709 0225	8,35
			DCMX 11T308-SWF	●	○	○				SC 25 PT	10	366709 0325	8,35

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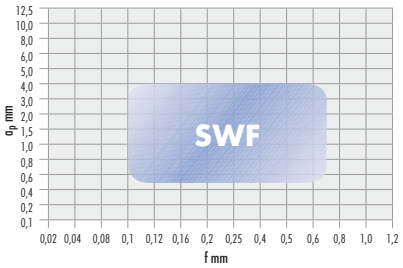
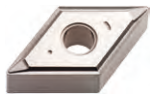
ISO	SC 25 PT	SP 35 MT
ISO P steel	Vc = 100 - 240	Vc = 90 - 200
ISO M stainless steel	Vc = 70 - 210	Vc = 55 - 200
ISO K cast iron	Vc = 120 - 250	
Vc = [m/min] f = [mm/U] ap = [mm]	f = 0.1 - 0.5 ap = 0.1 - 3.0	



DNMG - DNGP ISO indexable cutting inserts

- **55° rhombic, negative 0°**
- Bilateral chip breaker design
- **DNGP** are suitable for **ISO tool holders** for **DNMG ...**
- **Note:** Standard thickness of DNMG/DNGP is 15**06**... When using a DNMG/DNGP 15**04.., the** spacer must be replaced.
- Minimum ap feed always 63% of the corner radius "r"
- Maximum ap feed is 63% of the cutting edge length
- Cutting data recommendations apply for a corner radius **r = 0.4 mm**

Chip breaker FF7, CERMET negative design

F finishing ●	M medium -	R roughing -	SARATURN ISO designation	ISO P	ISO M	ISO K	ISO N	ISO S	ISO H	Quality		art.no.	€
 Micro finishing machining			DNMG 110404-FF7	●	○	○				ST 10 UT	10	**366635** 0140	7,90
			DNMG 150604-FF7	●	○	○				ST 10 UT	10	366635 0240	11,40

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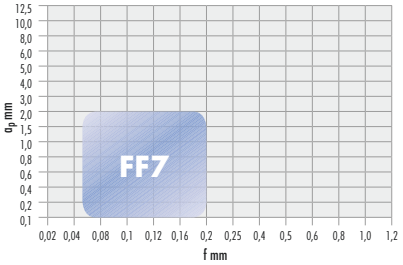
ISO	ST 10 UT
ISO P steel	Vc = 160 - 270
ISO M stainless steel	Vc = 130 - 240
ISO K cast iron	Vc = 220 - 350
Vc = [m/min] f = [mm/U] ap = [mm]	f = 0.05 - 0.2 ap = 0.1 - 2.0



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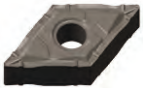
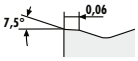
Chip breaker F1 negative

F finishing ●	M medium ○	R roughing -	SARATURN ISO designation	ISO P	ISO M	ISO K	ISO N	ISO S	ISO H	Quality		art.no.	€
 Micro finishing machining 			DNMG 110404-F1	●		○				SC 15 PT	10	**366633** 0115	7,90
				●	○	○				SC 25 PT	10	366633 0225	7,90
			DNMG 150604-F1	●		○				SC 15 PT	10	366633 0315	11,40
			DNMG 150608-F1	●		○				SC 15 PT	10	366633 0415	11,40

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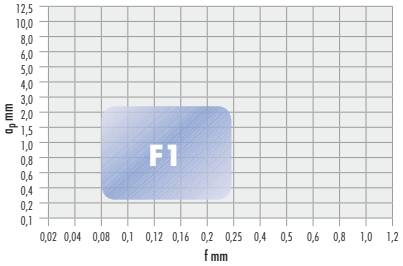
ISO	SC 15 PT	SC 25 PT
ISO P steel	Vc = 180 - 400	Vc = 100 - 240
ISO M stainless steel		Vc = 70 - 210
ISO K cast iron	Vc = 140 - 520	Vc = 140 - 520
Vc = [m/min] f = [mm/U] ap = [mm]	f = 0.07 - 0.25 ap = 0.25 - 2.5	



Chip breaker XF2 negative, especially for stainless steel

F finishing ●	M medium -	R roughing -	SARATURN ISO designation	ISO P	ISO M	ISO K	ISO N	ISO S	ISO H	Quality		art.no.	€
Micro finishing machining			DNGP 150602-XF2		●	○	○	○		SP 20 MT	10	**366631** 0220	14,55
			DNGP 150404-XF2		●	○	○	○		SP 20 MT	10	366631 0120	14,15
			DNGP 150604-XF2		●	○	○	○		SP 20 MT	10	366631 0320	14,55
			DNGP 150608-XF2		●	○	○	○		SP 20 MT	10	366631 0420	14,55

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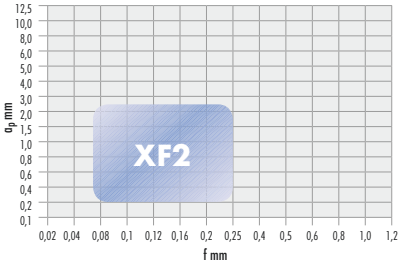
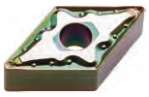
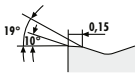
ISO	SP 20 MT
ISO M stainless steel	Vc = 60 - 200
ISO K cast iron	Vc = 120 - 220
ISO N Al/non-ferrous	Vc = 100 - 600
ISO S superalloys	Vc = 15 - 50
Vc = [m/min] f = [mm/U] ap = [mm]	f = 0.08 - 0.2 ap = 0.14 - 2.5



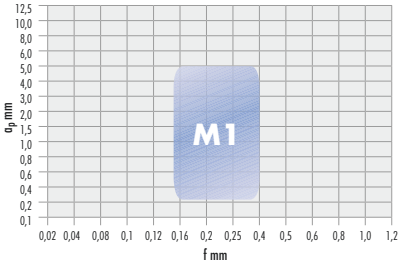
Chip breaker M1 negative

- **Note:** for DNMG 1104.. Reduction of max. feed ap = 3.0 mm, f = 0.1-0.35 mm/rev

F finishing ○	M medium ●	R roughing -	SARATURN ISO designation	ISO P	ISO M	ISO K	ISO N	ISO S	ISO H	Quality		art.no.	€
 Medium machining 			DNMG 110404-M1	●		○				SC 15 PT	10	**366637** 1215	7,90
				●	○	○				SC 25 PT	10	366637 1225	7,90
			DNMG 110408-M1	●		○				SC 15 PT	10	366637 0115	7,90
				●	○	○				SC 25 PT	10	366637 0225	7,90
				●	○					SC 35 PT	10	366637 0335	7,90
			DNMG 150404-M1	●	○	○				SC 25 PT	10	366637 1325	11,15
			DNMG 150408-M1	●	○	○				SC 25 PT	10	366637 1425	11,15
			DNMG 150604-M1	●		○				SC 15 PT	10	366637 0415	11,40
				●	○	○				SC 25 PT	10	366637 0525	11,40
			DNMG 150608-M1	●		○				SC 15 PT	10	366637 0615	11,40
				●	○	○				SC 25 PT	10	366637 0725	11,40
				●	○					SC 35 PT	10	366637 0835	11,40
			DNMG 150612-M1	●		○				SC 15 PT	10	366637 0915	11,40
				●	○	○				SC 25 PT	10	366637 1025	11,40
				●	○					SC 35 PT	10	366637 1135	11,40

3135

ISO	SC 15 PT	SC 25 PT	SC 35 PT
ISO P steel	Vc = 180 - 400	Vc = 100 - 240	Vc = 90 - 200
ISO M stainless steel		Vc = 70 - 210	Vc = 55 - 200
ISO K cast iron	Vc = 140 - 520	Vc = 120 - 250	
Vc = [m/min] f = [mm/U] ap = [mm]	f = 0.12 - 0.5 ap = 0.5 - 5.0		



Continued on next page >>>

Chip breaker MM2 negative, especially for stainless steel

- **Note:** for DNMG 1104.. Reduction of max. feed ap = 3.0 mm, f = 0.1-0.35 mm/rev

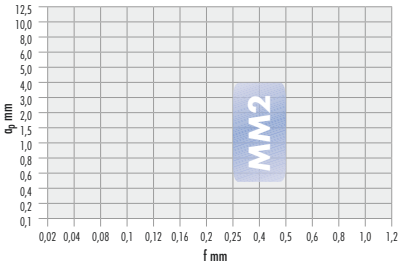
F finishing ○ | M medium ● | R roughing -

Medium machining

SARATURN ISO designation	ISO P	ISO M	ISO K	ISO N	ISO S	ISO H	Quality		art.no.	€
DNMG 110404-MM2	○	●					**SP 25 MT**	10	**366634** 0121	7,90
DNMG 110408-MM2	○	●					**SP 25 MT**	10	366634 0221	7,90
DNMG 150604-MM2	○	●					**SP 25 MT**	10	366634 0321	11,40
DNMG 150608-MM2	○	●					**SP 25 MT**	10	366634 0421	11,40

3135

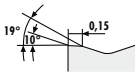
ISO	SP 25 MT
ISO P steel	Vc = 60 - 250
ISO M stainless steel	Vc = 40 - 250
Vc = [m/min] f = [mm/U] ap = [mm]	f = 0.14 - 0.4 ap = 0.25 - 4.0



Chip breaker M3 negative

F finishing ○ | M medium ● | R roughing -

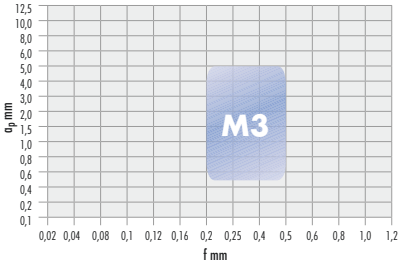
Medium machining



SARATURN ISO designation	ISO P	ISO M	ISO K	ISO N	ISO S	ISO H	Quality		art.no.	€
DNMG 150608-M3	○		●				**SC 20 KT**	10	**366632** 0130	11,40
DNMG 150612-M3	○		●				**SC 20 KT**	10	366632 0230	11,40

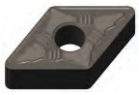
3135

ISO	SC 20 KT
ISO P steel	Vc = 150 - 340
ISO K cast iron	Vc = 150 - 550
Vc = [m/min] f = [mm/U] ap = [mm]	f = 0.12 - 0.5 ap = 0.25 - 5.0

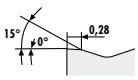


Chip breaker R1 negative

F finishing - | M medium ○ | R roughing ●



Roughing

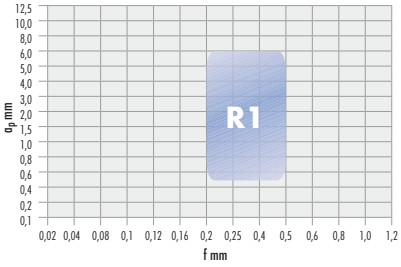


SARATURN ISO designation	ISO P	ISO M	ISO K	ISO N	ISO S	ISO H	Quality		art.no.	€
DNMG 150608-R1	●		○				**SC 15 PT**	10	**366641** 0115	11,40
	●	○	○				**SC 25 PT**	10	366641 0225	11,40
	●	○					**SC 35 PT**	10	366641 0335	11,40
DNMG 150612-R1	●		○				**SC 15 PT**	10	366641 0415	11,40
	●	○	○				**SC 25 PT**	10	366641 0525	11,40
	●	○					**SC 35 PT**	10	366641 0635	11,40

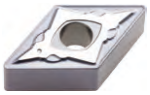
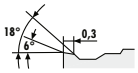
3135

Continued on next page >>>

ISO	SC 15 PT	SC 25 PT	SC 35 PT
ISO P steel	Vc = 180 - 400	Vc = 100 - 240	Vc = 90 - 200
ISO M stainless steel		Vc = 70 - 210	Vc = 55 - 200
ISO K cast iron	Vc = 140 - 520	Vc = 120 - 250	
Vc = [m/min] f = [mm/U] ap = [mm]	f = 0.15 - 0.5 ap = 0.5 - 6.0		

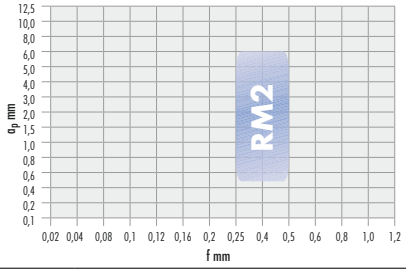


Chip breaker RM2 negative, especially for stainless steel

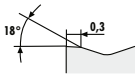
F finishing -	M medium ○	R roughing ●	SARATURN ISO designation	ISO P	ISO M	ISO K	ISO N	ISO S	ISO H	Quality		art.no.	€
 Roughing 			DNMG 150608-RM2	○	●					SP 25 MT	10	**366640** 0121	11,40
			DNMG 150612-RM2	○	●					SP 25 MT	10	366640 0221	11,40

3135

ISO	SP 25 MT
ISO P steel	Vc = 60 - 250
ISO M stainless steel	Vc = 40 - 250
Vc = [m/min] f = [mm/U] ap = [mm]	f = 0.25 - 0.5 ap = 0.5 - 6.0

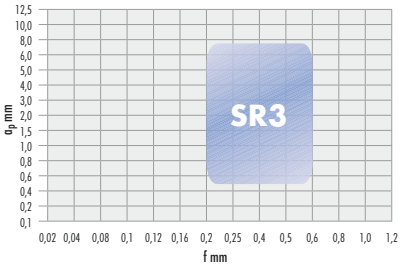


Chip breaker SR3 negative

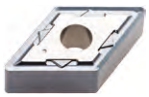
F finishing -	M medium ○	R roughing ●	SARATURN ISO designation	ISO P	ISO M	ISO K	ISO N	ISO S	ISO H	Quality		art.no.	€
Roughing 			DNMG 150608-SR3	○		●				SC 20 KT	10	**366638** 0130	11,40

3135

ISO	SC 20 KT
ISO P steel	Vc = 150 - 340
ISO K cast iron	Vc = 150 - 550
Vc = [m/min] f = [mm/U] ap = [mm]	f = 0.18 - 0.5 ap = 1.0 - 6.0

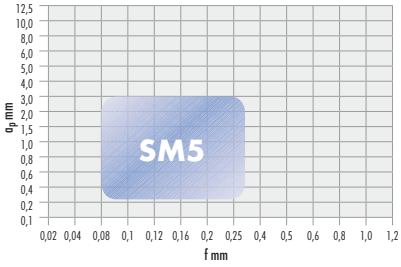


Chip breaker SM5 negative, especially for Cr-Ni alloys

F finishing ○	M medium ●	R roughing -	SARATURN ISO designation	ISO P	ISO M	ISO K	ISO N	ISO S	ISO H	Quality		art.no.	€
 Medium machining			DNMG 150608-SM5		○			●		SP 10 ST	10	**366639** 0132	11,40
					○			●		SP 15 ST	10	366639 0231	11,40

3135

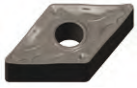
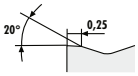
ISO	SP 10 ST	SP 15 ST
ISO M stainless steel	Vc = 60 - 230	Vc = 50 - 220
ISO S superalloys	Vc = 30 - 120	Vc = 30 - 120
Vc = [m/min] f = [mm/U] ap = [mm]	f = 0.1 - 0.3 ap = 0.4 - 3.0	



DNMM ISO indexable cutting inserts

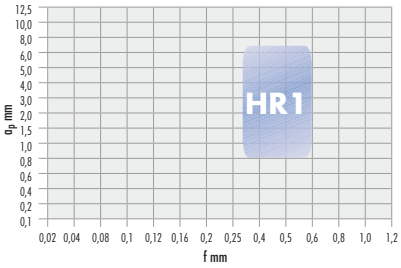
- **55° rhombic, negative 0°**
- One-sided chip breaker design
- Minimum ap feed always 63% of the corner radius "r"
- Maximum ap feed is 63% of the cutting edge length
- The cutting data recommendations apply for a corner radius **r = 0.8 mm**

Chip breaker HR1 negative

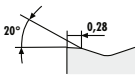
F finishing -	M medium ○	R roughing ●	SARATURN ISO designation	ISO P	ISO M	ISO K	ISO N	ISO S	ISO H	Quality		art.no.	€
 Roughing 			DNMM 150608-HR1	●		○				SC 15 PT	10	**366642** 0115	11,40
				●	○	○				SC 25 PT	10	366642 0225	11,40
				●	○					SC 35 PT	10	366642 0335	11,40

3135

ISO	SC 15 PT	SC 25 PT	SC 35 PT
ISO P steel	Vc = 180 - 400	Vc = 100 - 240	Vc = 90 - 200
ISO M stainless steel		Vc = 70 - 210	Vc = 55 - 200
ISO K cast iron	Vc = 140 - 520	Vc = 120 - 250	
Vc = [m/min] f = [mm/U] ap = [mm]	f = 0.3 - 0.7 ap = 0.5 - 7.0		

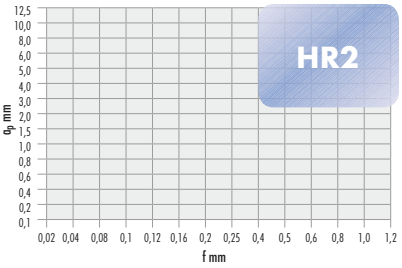


Chip breaker HR2 negative

F finishing -	M medium ○	R roughing ●	SARATURN ISO designation	ISO P	ISO M	ISO K	ISO N	ISO S	ISO H	Quality		art.no.	€
Roughing 			DNMM 150612-HR2	●		○				SC 15 PT	10	**366643** 0115	11,40
				●	○	○				SC 25 PT	10	366643 0225	11,40
				●	○					SC 35 PT	10	366643 0335	11,40

3135

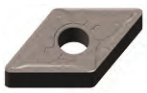
ISO	SC 15 PT	SC 25 PT	SC 35 PT
ISO P steel	Vc = 180 - 400	Vc = 100 - 240	Vc = 90 - 200
ISO M stainless steel		Vc = 70 - 210	Vc = 55 - 200
ISO K cast iron	Vc = 140 - 520	Vc = 120 - 250	
Vc = [m/min] f = [mm/U] ap = [mm]	f = 0.3 - 0.8 ap = 1.5 - 8.0		



DNMX ISO indexable cutting inserts

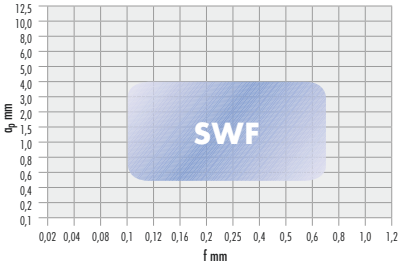
- **55° rhombic, negative 0°**
- Bilateral chip breaker design
- Minimum ap feed always 63% of the corner radius "r"
- Special finishing geometry with smoothing effect when used at an angle of 93°
- When using the **SWF**, profile distortions may occur if long tapers and large balls are turned
- Double feed achievable at the same Ra value as with conventional geometries
- Cutting data recommendations apply for a corner radius **r = 0.4 mm**

Chip breaker SWF negative

F finishing ●	M medium -	R roughing -	SARATURN ISO designation	ISO P	ISO M	ISO K	ISO N	ISO S	ISO H	Quality		art.no.	€
 Finishing			DNMG 150604-SWF	●		○				SC 15 PT	10	**366706** 0115	12,55
			DNMG 150608-SWF	●		○				SC 15 PT	10	366706 0225	12,55

3135

ISO	SC 15 PT
ISO P steel	Vc = 180 - 400
ISO K cast iron	Vc = 140 - 520
Vc = [m/min] f = [mm/U] ap = [mm]	f = 0.1 - 0.5 ap = 0.5 - 4.0



KNUX ISO indexable cutting inserts

- **55° rhombic, negative**
- Secondary applications in ISO **K** and ISO **S**
- One-sided chip breaker design
- Minimum ap feed always 63% of the corner radius "r"
- Maximum ap feed is 63% of the cutting edge length
- Easy-action operating principle of chip breaker
- Cutting data recommendations apply for a corner radius **r = 0.4 mm**

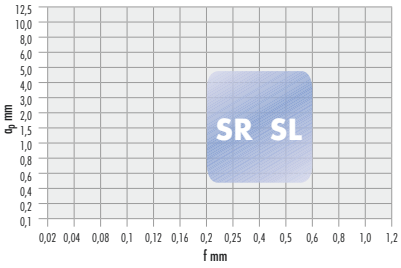
Chip breaker SR right-hand version

- **Note:**
- **RH** insert = **right-hand** tool holder or **left-hand** boring bar
- **LH** insert = **left-hand** tool holder or **right-hand** boring bar

F finishing ○	M medium ●	R roughing -	SARATURN ISO designation	ISO P	ISO M	ISO K	ISO N	ISO S	ISO H	Quality		art.no.	€
Universal application			KNUX 160405-SR	●	○	○				SC 25 PT	10	**366645** 0125	10,40
			KNUX 160410-SR	●	○	○				SC 25 PT	10	366645 0225	10,40
			KNUX 160405-SR	●	○					SC 20 UT	10	366645 0350	10,40
				●	○					SC 40 UT	10	366645 0455	10,40

3135

ISO	SC 20 UT	SC 25 PT	SC 40 UT
ISO P steel	Vc = 90 - 200	Vc = 100 - 240	Vc = 90 - 180
ISO M stainless steel	Vc = 90 - 180	Vc = 70 - 210	Vc = 50 - 160
ISO K cast iron		Vc = 130 - 250	
Vc = [m/min] f = [mm/U] ap = [mm]	f = 0.2 - 0.6 ap = 0.5 - 4.8		



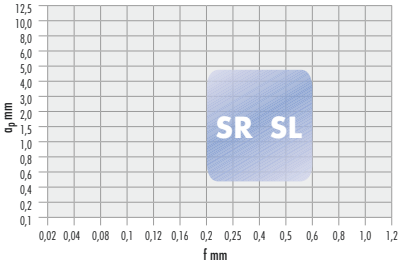
Chip breaker SL left-hand version

- **Note:**
- **RH** insert = **right-hand** tool holder or **left-hand** boring bar
- **LH** insert = **left-hand** external tool holder or **right-hand** boring bar

F finishing ○	M medium ●	R roughing -	SARATURN ISO designation	ISO P	ISO M	ISO K	ISO N	ISO S	ISO H	Quality		art.no.	€
Universal application			KNUX 160405-SL	●	○	○				SC 25 PT	10	**366644** 0125	10,40
			KNUX 160410-SL	●	○	○				SC 25 PT	10	366644 0225	10,40
			KNUX 160405-SL	●	○					SC 20 UT	10	366644 0350	10,40
				●	○					SC 40 UT	10	366644 0455	10,40

3135

ISO	SC 20 UT	SC 25 PT	SC 40 UT
ISO P steel	Vc = 90 - 200	Vc = 100 - 240	Vc = 90 - 180
ISO M stainless steel	Vc = 90 - 180	Vc = 70 - 210	Vc = 50 - 160
ISO K cast iron		Vc = 130 - 250	
Vc = [m/min] f = [mm/U] ap = [mm]	f = 0.2 - 0.6 ap = 0.5 - 4.8		



… with safety

ATORN®
High quality for great performance

RCMT ISO indexable cutting inserts

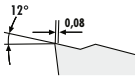
- **360° round, positive 7°**
- 2 chip breakers available **M1** and **HRX**
- One-sided chip breaker design
- Maximum ap feed is 50% of the indexable cutting insert diameter

Chip breaker M1

- For RCMT 08.. ap max. = 4.0 mm
- For RCMT 10.. ap max. = 5.0 mm

F finishing	M medium	R roughing
-	○	○

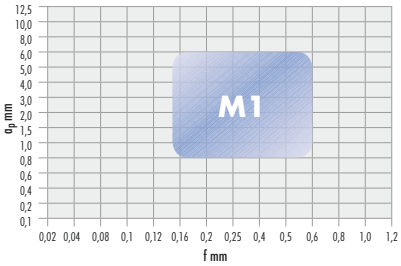
Roughing/medium machining



SARATURN ISO designation	ISO P	ISO M	ISO K	ISO N	ISO S	ISO H	Quality		art.no.	€
RCMT 0803MO-M1	●	○					SC 35 PT	10	**366646** 0135	5,–
RCMT 1003MO-M1	●	○					SC 35 PT	10	366646 0235	5,80
RCMT 1204MO-M1	●	○					SC 35 PT	10	366646 0335	8,15

3135

ISO	SC 35 PT
ISO P steel	Vc = 90 - 200
ISO M stainless steel	Vc = 55 - 200
Vc = [m/min] f = [mm/U] ap = [mm]	f = 0.15 - 0.6 ap = 0.8 - 6.0

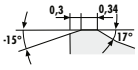


Chip breaker HRX

- With RCMT 2006MO.. ap up to 9.5 mm possible

F finishing	M medium	R roughing
-	○	●

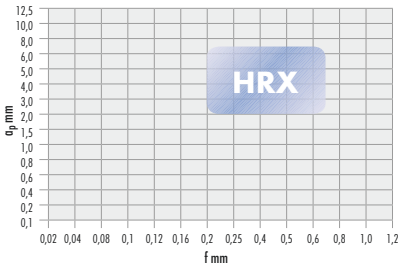
Roughing/medium machining



SARATURN ISO designation	ISO P	ISO M	ISO K	ISO N	ISO S	ISO H	Quality		art.no.	€
RCMT 1604MO-HRX	●	○	○				SC 25 PT	10	**366647** 0125	14,20
RCMT 2006MO-HRX	●	○	○				SC 25 PT	10	366647 0225	19,50
RCMT 1604MO-HRX	●	○					SC 35 PT	10	366647 0335	14,20
RCMT 2006MO-HRX	●	○					SC 35 PT	10	366647 0435	19,50

3135

ISO	SC 25 PT	SC 35 PT
ISO P steel	Vc = 100 - 240	Vc = 90 - 200
ISO M stainless steel	Vc = 70 - 210	Vc = 55 - 200
ISO K cast iron	Vc = 130 - 250	
Vc = [m/min] f = [mm/U] ap = [mm]	f = 0.2 - 0.7 ap = 2.0 - 7.0	



Safety in the workplace

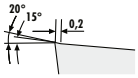
Please protect your eyes, ears and respiratory system!

ISO indexable cutting inserts *SCGT*, ground

- **90° square positive 7°, ground peripherally**
- One-sided chip breaker design
- Suitable for aluminium, plastic and non-ferrous metals
- **SW16NT** uncoated
- **SP16NT**coated, also suitable for finishing **stainless steel** (**austenitic, quenched**) for **stainless steel** max. ap = 0.4 mm at Vc max 140 m/min
- **SP16NT** for **titanium Rm 440*** Vc 60-120 m/min
- Minimum ap feed always 63% of the corner radius "r"
- Cutting data recommendations apply for a corner radius **r = 0.4 mm**

Especially for machining aluminium

Chip breaker NF4

F finishing ○	M medium ○	R roughing ○	SARATURN ISO designation	ISO P	ISO M	ISO K	ISO N	ISO S	ISO H	Quality		art.no.	€
Universal application 			SCGT 09T304-NF4			○	●	○		SW 16 NT	10	**366648** 0116	8,65
					○	○	●	○		SP 16 NT	10	366648 0217	10,80
			SCGT 09T308-NF4			○	●	○		SW 16 NT	10	366648 0316	8,65
					○	○	●	○		SP 16 NT	10	366648 0417	10,80
			SCGT 120408-NF4		○	○	●	○		SP 16 NT	10	366648 0617	10,80

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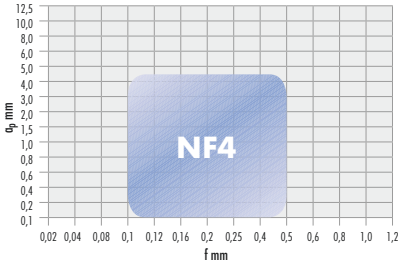
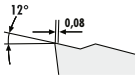
ISO	SP 16 NT	SW 16 NT
ISO M stainless steel	Vc = 50 - 140	
ISO K cast iron	Vc = 120 - 200	Vc = 120 - 200
ISO N Al/non-ferrous	Vc = 100 - 2000	Vc = 100 - 2000
ISO S superalloys	Vc = 18 - 120	Vc = 18 - 48
Vc = [m/min] f = [mm/U] ap = [mm]	f = 0.1 - 0.5 ap = 0.25 - 6.0	



SCMT ISO indexable cutting inserts

- **90° square positive 7°**
- One-sided chip breaker design
- Minimum ap feed always 63% of the corner radius "r"
- Maximum ap feed is 63% of the cutting edge length
- Cutting data recommendations apply for a corner radius **r = 0.4 mm**

Chip breaker M1

F finishing -	M medium ●	R roughing ○	SARATURN ISO designation	ISO P	ISO M	ISO K	ISO N	ISO S	ISO H	Quality		art.no.	€
Medium machining 			SCMT 09T304-M1	●	○	○				SC 25 PT	10	**366649** 0125	8,15
			SCMT 09T308-M1	●	○	○				SC 25 PT	10	366649 0225	8,15
				●	○					SC 35 PT	10	366649 0335	8,15
			SCMT 120404-M1	●		○				SC 15 PT	10	366649 0415	9,45
				●	○	○				SC 25 PT	10	366649 0525	9,45
			SCMT 120408-M1	●	○	○				SC 25 PT	10	366649 0625	9,45
				●	○					SC 35 PT	10	366649 0735	9,45
			SCMT 120412-M1	●	○	○				SC 25 PT	10	366649 0825	9,45
				●	○					SC 35 PT	10	366649 0935	9,45

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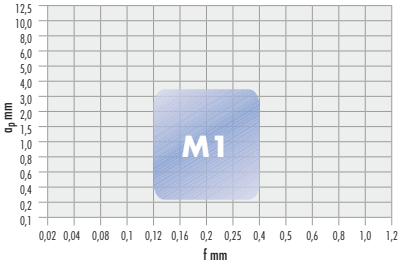
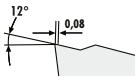
ISO	SC 15 PT	SC 25 PT	SC 35 PT
ISO P steel	Vc = 180 - 400	Vc = 100 - 240	Vc = 90 - 190
ISO M stainless steel		Vc = 70 - 210	Vc = 55 - 200
ISO K cast iron	Vc = 140 - 520	Vc = 120 - 250	
Vc = [m/min] f = [mm/U] ap = [mm]	f = 0.12 - 0.4 ap = 0.25 - 4.5		

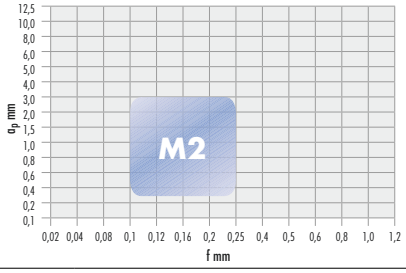


Chip breaker M2, especially for stainless steel

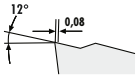
F finishing -	M medium ●	R roughing ○	SARATURN ISO designation	ISO P	ISO M	ISO K	ISO N	ISO S	ISO H	Quality		art.no.	€
Medium machining 			SCMT 09T304-M2	○	●					SP 25 MT	10	**366650** 0121	8,15
			SCMT 09T308-M2	○	●					SP 25 MT	10	366650 0221	8,15
			SCMT 120404-M2	○	●					SP 25 MT	10	366650 0321	9,45
			SCMT 120408-M2	○	●					SP 25 MT	10	366650 0421	9,45
			SCMT 120412-M2	○	●					SP 25 MT	10	366650 0521	9,45

3135

ISO	SP 25 MT
ISO P steel	Vc = 60 - 250
ISO M stainless steel	Vc = 40 - 250
Vc = [m/min] f = [mm/U] ap = [mm]	f = 0.12 - 0.4 ap = 0.25 - 3.5

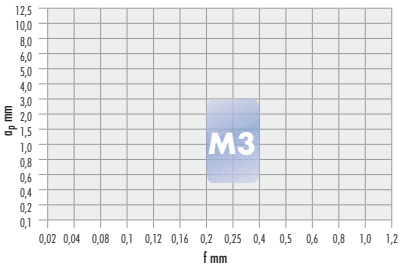


Chip breaker M3

F finishing -	M medium ●	R roughing ○	SARATURN ISO designation	ISO P	ISO M	ISO K	ISO N	ISO S	ISO H	Quality		art.no.	€
Medium machining 			SCMT 09T308-M3	○		●				SC 20 KT	10	**366651** 0130	8,15
			SCMT 120408-M3	○		●				SC 20 KT	10	366651 0230	9,45

3135

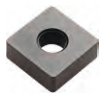
ISO	SC 20 KT
ISO P steel	Vc = 150 - 340
ISO K cast iron	Vc = 150 - 550
Vc = [m/min] f = [mm/U] ap = [mm]	f = 0.15 - 0.5 ap = 0.5 - 5.0



SNMA - SNMG **ISO indexable cutting inserts**

- **90° square negative 0°**
- Bilateral chip breaker design **SNMG**
- Without chip breaker **SNMA**
- Minimum ap feed always 63% of the corner radius "r"
- Maximum ap feed is 63% of the cutting edge length
- Cutting data recommendations apply for a corner radius **r = 0.4 mm**

Chip breaker K negative

F finishing -	M medium ○	R roughing ●	SARATURN ISO designation	ISO P	ISO M	ISO K	ISO N	ISO S	ISO H	Quality		art.no.	€
 Roughing			SNMA 120408-K	○		●				SC 20 KT	10	**366652** 0130	8,25

3135

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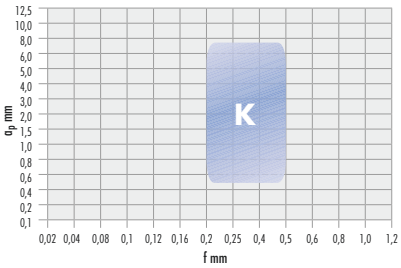
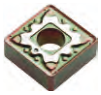
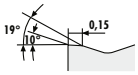
ISO	SC 20 KT
ISO P steel	Vc = 150 - 340
ISO K cast iron	Vc = 150 - 550
Vc = [m/min] f = [mm/U] ap = [mm]	f = 0.2 - 0.5 ap = 0.5 - 7.0

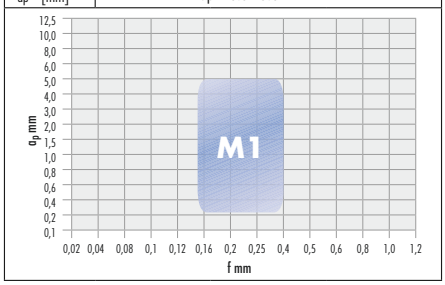


Chip breaker M1 negative

F finishing -	M medium ●	R roughing ○	SARATURN ISO designation	ISO P	ISO M	ISO K	ISO N	ISO S	ISO H	Quality		art.no.	€
 Medium machining 			SNMG 120408-M1	●		○				SC 15 PT	10	**366655** 0435	8,25
				●	○	○				SC 25 PT	10	366655 0225	8,25
				●	○					SC 35 PT	10	366655 0235	8,25
			SNMG 120412-M1	●		○				SC 15 PT	10	366655 0115	8,25
				●	○	○				SC 25 PT	10	366655 0325	8,25
				●	○					SC 35 PT	10	366655 0535	8,25

3135

ISO	SC 15 PT	SC 25 PT	SC 35 PT
ISO P steel	Vc = 180 - 400	Vc = 100 - 240	Vc = 90 - 200
ISO M stainless steel		Vc = 70 - 210	Vc = 55 - 200
ISO K cast iron	Vc = 140 - 520	Vc = 120 - 250	
Vc = [m/min] f = [mm/U] ap = [mm]	f = 0.18 - 0.4 ap = 0.5 - 5.0		

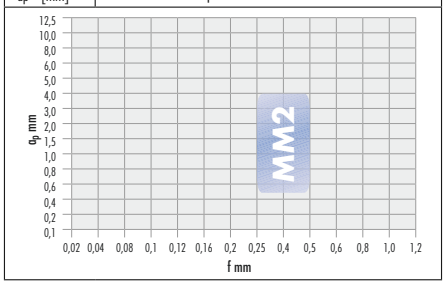


Chip breaker MM2 negative, especially for stainless steel

F finishing -	M medium ●	R roughing ○	SARATURN ISO designation	ISO P	ISO M	ISO K	ISO N	ISO S	ISO H	Quality		art.no.	€
Medium machining			SNMG 120408-MM2	○	●					SP 25 MT	10	**366656** 0121	8,25

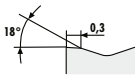
3135

ISO	SP 25 MT
ISO P steel	Vc = 60 - 250
ISO M stainless steel	Vc = 40 - 250
Vc = [m/min] f = [mm/U] ap = [mm]	f = 0.18 - 0.4 ap = 0.5 - 5.0



Chip breaker SR1 negative

- ap up to 11 mm possible for SNMG 1906..

F finishing -	M medium ○	R roughing ●	SARATURN ISO designation	ISO P	ISO M	ISO K	ISO N	ISO S	ISO H	Quality		art.no.	€
Roughing/medium machining 			SNMG 150612-SR1	●	○	○				SC 25 PT	10	**366658** 0125	13,10
				●	○					SC 35 PT	10	366658 0235	13,10
			SNMG 190612-SR1	●	○	○				SC 25 PT	10	366658 0325	18,30
				●	○					SC 35 PT	10	366658 0435	18,30

3135

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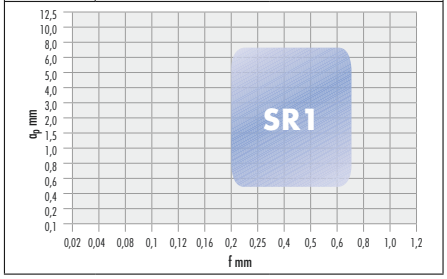
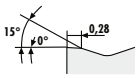
ISO	SC 25 PT	SC 35 PT
ISO P steel	Vc = 100 - 240	Vc = 90 - 200
ISO M stainless steel	Vc = 70 - 210	Vc = 55 - 200
ISO K cast iron	Vc = 120 - 250	
Vc = [m/min] f = [mm/U] ap = [mm]	f = 0.2 - 0.7 ap = 1.0 - 7.5	

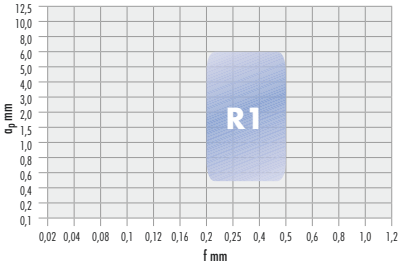


Chip breaker R1 negative

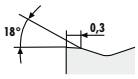
F finishing -	M medium ○	R roughing ●	SARATURN ISO designation	ISO P	ISO M	ISO K	ISO N	ISO S	ISO H	Quality		art.no.	€
Roughing/medium machining 			SNMG 120408-R1	●	○	○				SC 25 PT	10	**366657** 0125	8,25

3135

ISO	SC 25 PT
ISO P steel	Vc = 100 - 240
ISO M stainless steel	Vc = 70 - 210
ISO K cast iron	Vc = 120 - 250
Vc = [m/min] f = [mm/U] ap = [mm]	f = 0.2 - 0.5 ap = 0.5 - 6.0

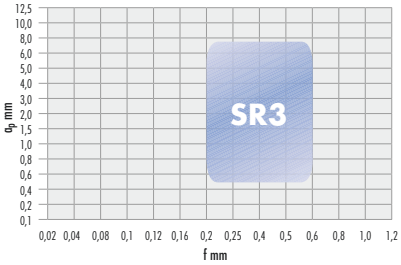


Chip breaker SR3 negative

F finishing -	M medium ○	R roughing ●	SARATURN ISO designation	ISO P	ISO M	ISO K	ISO N	ISO S	ISO H	Quality		art.no.	€
Roughing/medium machining 			SNMG 120408-SR3	○		●				SC 20 KT	10	**366653** 0130	8,25

3135

ISO	SC 20 KT
ISO P steel	Vc = 150 - 340
ISO K cast iron	Vc = 150 - 550
Vc = [m/min] f = [mm/U] ap = [mm]	f = 0.2 - 0.6 ap = 0.5 - 7.5

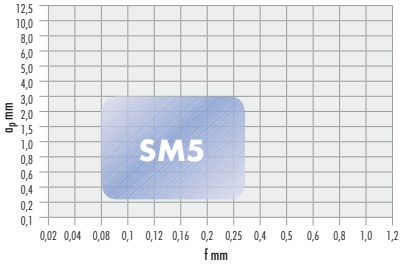


Chip breaker SM5 negative, especially for ISO S

F finishing -	M medium ●	R roughing ○	SARATURN ISO designation	ISO P	ISO M	ISO K	ISO N	ISO S	ISO H	Quality		art.no.	€
Medium machining			SNMG 120408-SM5		○			●		SP 10 ST	10	**366654** 0132	8,25
					○			●		SP 15 ST	10	366654 0231	8,25

3135

ISO	SP 10 ST	SP 15 ST
ISO M stainless steel	Vc = 60 - 230	Vc = 50 - 220
ISO S superalloys	Vc = 30 - 120	Vc = 30 - 120
Vc = [m/min] f = [mm/U] ap = [mm]	f = 0.1 - 0.3 ap = 0.5 - 3.0	



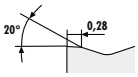
SNMM ISO indexable cutting inserts

- **90° square negative 0°**
- One-sided chip breaker design, starting values in the diagram for SNMM 1906..
- For **HR2** f = 0.3-1.2 mm/rev. ap = 1.5-16.00 mm for SNMM 2509...
- For **HR3** f = 0.5-1.5 mm/rev. ap = 2.5-18.00 mm for SNMM 2509...
- For **HR4** f = 0.2-1.3 mm/rev. ap = 2.5-12.00 mm for SNMM 1906 For SNMM 2509 ap up to 19.00 possible..

Chip breaker HR2 negative

F finishing - | M medium ○ | R roughing ●

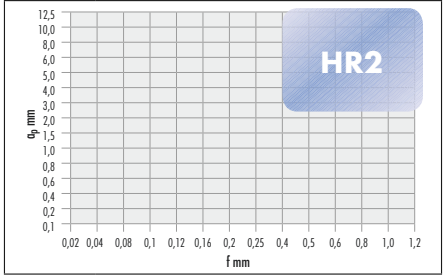
Roughing



SARATURN ISO designation	ISO P	ISO M	ISO K	ISO N	ISO S	ISO H	Quality		art.no.	€
SNMM 190612-HR2	●	○	○				SC 25 PT	10	**366659** 0125	18,30
SNMM 190616-HR2	●	○	○				SC 25 PT	10	366659 0225	18,30
SNMM 250724-HR2	●	○	○				SC 25 PT	5	366659 0325	35,60
SNMM 250924-HR2	●	○	○				SC 25 PT	5	366659 0425	39,30

3135

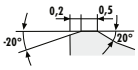
ISO	SC 25 PT
ISO P steel	Vc = 100 - 240
ISO M stainless steel	Vc = 70 - 210
ISO K cast iron	Vc = 120 - 250
Vc = [m/min] f = [mm/U] ap = [mm]	f = 0.3 - 0.8 ap = 1.5 - 10.5



Chip breaker HR3 negative

F finishing - | M medium - | R roughing ●

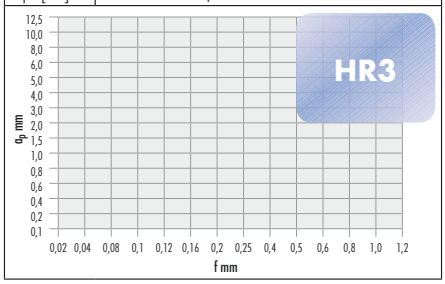
Roughing



SARATURN ISO designation	ISO P	ISO M	ISO K	ISO N	ISO S	ISO H	Quality		art.no.	€
SNMM 190616-HR3	●	○	○				SC 25 PT	10	**366660** 0125	18,30
SNMM 190624-HR3	●	○	○				SC 25 PT	10	366660 0225	18,30
SNMM 250924-HR3	●	○	○				SC 25 PT	5	366660 0325	39,30
SNMM 250932-HR3	●	○	○				SC 25 PT	5	366660 0425	39,30

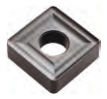
3135

ISO	SC 25 PT
ISO P steel	Vc = 100 - 240
ISO M stainless steel	Vc = 70 - 210
ISO K cast iron	Vc = 120 - 250
Vc = [m/min] f = [mm/U] ap = [mm]	f = 0.3 - 1.4 ap = 2.5 - 13.0

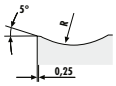


Chip breaker HR4 negative

F finishing - | M medium - | R roughing ●



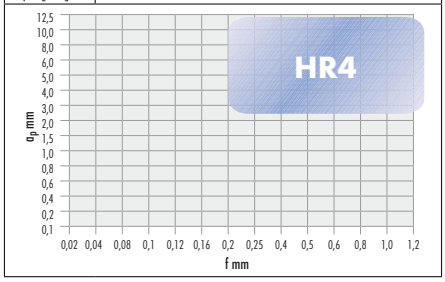
Roughing



SARATURN ISO designation	ISO P	ISO M	ISO K	ISO N	ISO S	ISO H	Quality		art.no.	€
SNMM 190616-HR4	●	○	○				SC 25 PT	10	**366661** 0125	18,30
SNMM 250924-HR4	●	○	○				SC 25 PT	5	366661 0225	39,30

3135

ISO	SC 25 PT
ISO P steel	Vc = 70 - 210
ISO M stainless steel	Vc = 70 - 210
ISO K cast iron	Vc = 120 - 250
Vc = [m/min] f = [mm/U] ap = [mm]	f = 0.3 - 1.2 ap = 2.5 - 12.0



TCGT ISO indexable cutting inserts, ground

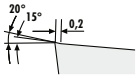
- **60° triangular, positive 7°, ground peripherally**
- One-sided chip breaker design
- Suitable for aluminium, plastic and non-ferrous metals
- **SW16NT uncoated**
- **SP16NT** coated, also suitable for finishing **stainless steel** (**austenitic, quenched**)
- for **stainless steel** max. ap = 0.4 mm at Vc max 140 m/min
- **SP16NT** for **titanium** Rm 440* Vc 60 - 120 m/min
- Minimum ap feed always 63% of the corner radius "r"
- Maximum feed is 40% of the cutting edge length
- Cutting data recommendations apply for a corner radius **r = 0.4 mm**

Especially for machining aluminium

Chip breaker NF4

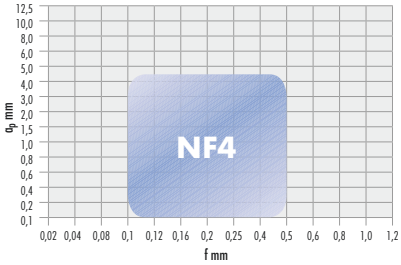
F finishing	M medium	R roughing	SARATURN ISO designation	ISO P	ISO M	ISO K	ISO N	ISO S	ISO H	Quality		art.no.	€
○	○	○	TCGT 110204-NF4			○	●	○		SW 16 NT	10	**366662** 0116	8,10
					○	○	●	○		SP 16 NT	10	366662 0217	10,60
			TCGT 16T304-NF4			○	●	○		SW 16 NT	10	366662 0316	9,80
			TCGT 16T308-NF4			○	●	○		SW 16 NT	10	366662 0416	9,80

Universal application



3135

ISO	SP 16 NT	SW 16 NT
ISO M stainless steel	Vc = 50 - 140	
ISO K cast iron	Vc = 120 - 200	Vc = 120 - 200
ISO N Al/non-ferrous	Vc = 100 - 2000	Vc = 100 - 2000
ISO S superalloys	Vc = 60 - 120	Vc = 18 - 45
Vc = [m/min] f = [mm/U] ap = [mm]	f = 0.1 - 0.4 ap = 0.1 - 4.5	



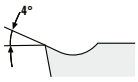
TCMT ISO indexable cutting inserts

- **60° triangular, positive 7°**
- One-sided chip breaker design
- Minimum ap feed always 63% of the corner radius "r"
- Maximum ap feed is 40% of the cutting edge length
- Cutting data recommendations apply for a corner radius **r = 0.4 mm**

Chip breaker FF7, CERMET design

F finishing	M medium	R roughing	SARATURN ISO designation	ISO P	ISO M	ISO K	ISO N	ISO S	ISO H	Quality		art.no.	€
●	-	-	TCMT 110202-FF7	●	○	○				ST 10 UT	10	**366666** 0140	9,45
			TCMT 110204-FF7	●	○	○				ST 10 UT	10	366666 0240	5,80

Micro finishing machining



3135

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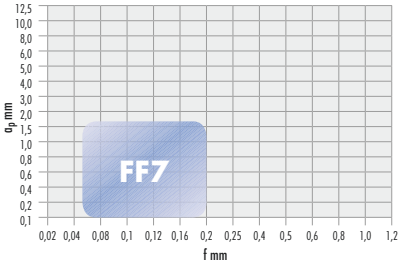
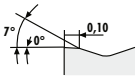
ISO	ST 10 UT
ISO P steel	Vc = 160 - 300
ISO M stainless steel	Vc = 130 - 240
ISO K cast iron	Vc = 220 - 350
Vc = [m/min] f = [mm/U] ap = [mm]	f = 0.05 - 0.2 ap = 0.1 - 1.65

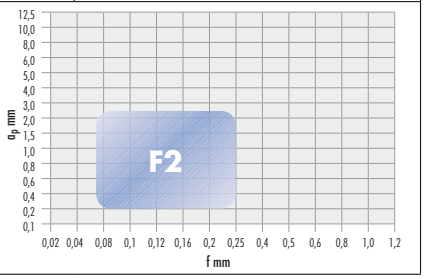


Chip breaker F2

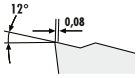
F finishing ●	M medium ○	R roughing -	SARATURN ISO designation	ISO P	ISO M	ISO K	ISO N	ISO S	ISO H	Quality		art.no.	€
Finishing 			TCMT 110204-F2	○	●					SP 25 MT	10	**366667** 0121	5,80

3135

ISO	SP 25 MT
ISO P steel	Vc = 60 - 250
ISO M stainless steel	Vc = 40 - 250
Vc = [m/min] f = [mm/U] ap = [mm]	f = 0.08 - 0.2 ap = 0.25 - 3.0

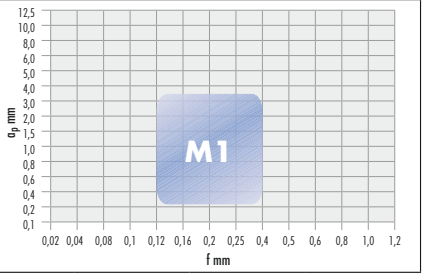


Chip breaker M1

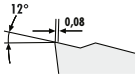
F finishing -	M medium ●	R roughing ○	SARATURN ISO designation	ISO P	ISO M	ISO K	ISO N	ISO S	ISO H	Quality		art.no.	€
Medium machining 			TCMT 090204-M1	●	○	○				SC 25 PT	10	**366665** 0025	5,80
			TCMT 110204-M1	●		○				SC 15 PT	10	366665 0115	5,80
				●	○	○				SC 25 PT	10	366665 0225	5,80
				●	○					SC 35 PT	10	366665 0325	5,80
			TCMT 110208-M1	●	○	○				SC 25 PT	10	366665 0425	5,80
				●	○					SC 35 PT	10	366665 0535	5,80
			TCMT 16T304-M1	●	○	○				SC 25 PT	10	366665 0625	7,35
				●	○					SC 35 PT	10	366665 0735	7,35
			TCMT 16T308-M1	●	○	○				SC 25 PT	10	366665 0825	7,35
				●	○					SC 35 PT	10	366665 0935	7,35
			TCMT 16T312-M1	●	○	○				SC 25 PT	10	366665 1025	7,35

3135

ISO	SC 15 PT	SC 25 PT	SC 35 PT
ISO P steel	Vc = 180 - 400	Vc = 100 - 240	Vc = 90 - 200
ISO M stainless steel		Vc = 70 - 210	Vc = 55 - 200
ISO K cast iron	Vc = 140 - 520	Vc = 120 - 250	
Vc = [m/min] f = [mm/U] ap = [mm]	f = 0.12 - 0.4 ap = 0.25 - 4.5		

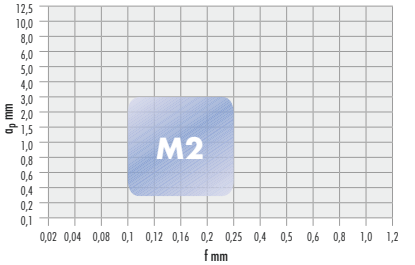


Chip breaker M2

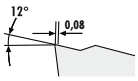
F finishing -	M medium ●	R roughing ○	SARATURN ISO designation	ISO P	ISO M	ISO K	ISO N	ISO S	ISO H	Quality		art.no.	€
Medium machining 			TCMT 090204-M2	○	●					SP 25 MT	10	**366664** 0121	5,80
			TCMT 110204-M2	○	●					SP 25 MT	10	366664 0122	5,80
				○	●					SP 35 MT	10	366664 0222	5,80
			TCMT 110208-M2	○	●					SP 25 MT	10	366664 0321	5,80
				○	●					SP 35 MT	10	366664 0322	5,80
			TCMT 16T304-M2	○	●					SP 25 MT	10	366664 0421	7,35
			TCMT 16T308-M2	○	●					SP 25 MT	10	366664 0621	7,35
			TCMT 16T312-M2	○	●					SP 25 MT	10	366664 0721	7,35

3135

ISO	SP 25 MT	SP 35 MT
ISO P steel	Vc = 60 - 250	Vc = 90 - 200
ISO M stainless steel	Vc = 40 - 250	Vc = 55 - 200
Vc = [m/min] f = [mm/U] ap = [mm]	f = 0.12 - 0.4 ap = 0.25 - 4.0	

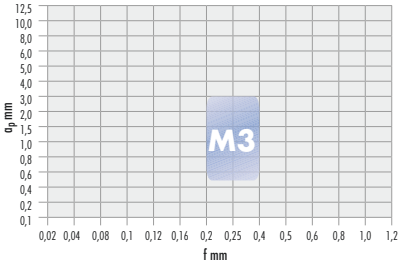


Chip breaker M3

F finishing -	M medium ●	R roughing ○	SARATURN ISO designation	ISO P	ISO M	ISO K	ISO N	ISO S	ISO H	Quality		art.no.	€
Medium machining 			TCMT 090204-M3	○		●				SC 20 KT	10	**366663** 0130	5,80
			TCMT 110204-M3	○		●				SC 20 KT	10	366663 0230	5,80
			TCMT 110208-M3	○		●				SC 20 KT	10	366663 0330	5,80
			TCMT 16T304-M3	○		●				SC 20 KT	10	366663 0430	7,35
			TCMT 16T308-M3	○		●				SC 20 KT	10	366663 0530	7,35

3135

ISO	SC 20 KT
ISO P steel	Vc = 150 - 350
ISO K cast iron	Vc = 150 - 550
Vc = [m/min] f = [mm/U] ap = [mm]	f = 0.18 - 0.5 ap = 0.25 - 4.0



TNMA ISO indexable cutting inserts

- **60° triangular, negative 0°**
- Without chip breaker version
- Cutting data recommendations apply for a corner radius **r = 0.4 mm**

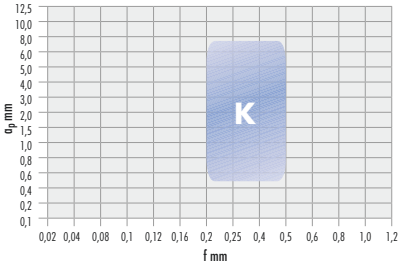
Chip breaker K

- **60° triangular, negative 0°**
- **Without chip breaker version**

F finishing -	M medium ○	R roughing ●	SARATURN ISO designation	ISO P	ISO M	ISO K	ISO N	ISO S	ISO H	Quality		art.no.	€
Roughing			TNMA 160408-K	○		●				SC 20 KT	10	**366668** 0130	8,15

3135

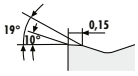
ISO	SC 20 KT
ISO P steel	Vc = 150 - 340
ISO K cast iron	Vc = 150 - 550
Vc = [m/min] f = [mm/U] ap = [mm]	f = 0.2 - 0.5 ap = 0.5 - 7.0



TNMG ISO indexable cutting inserts

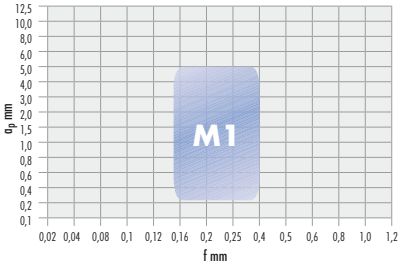
- **60° triangular, negative 0°**
- Bilateral chip breaker design
- Minimum ap feed always 63% of the corner radius "r"
- Maximum ap feed is 50% of the cutting edge length
- Cutting data recommendations apply for a corner radius **r = 0.4 mm**

Chip breaker M1 negative

F finishing -	M medium ●	R roughing ○	SARATURN ISO designation	ISO P	ISO M	ISO K	ISO N	ISO S	ISO H	Quality		art.no.	€
Medium machining 			TNMG 160404-M1	●		○				SC 15 PT	10	**366670** 0115	8,15
				●	○	○				SC 25 PT	10	366670 0225	8,15
			TNMG 160408-M1	●		○				SC 15 PT	10	366670 0415	8,15
				●	○	○				SC 25 PT	10	366670 0525	8,15
				●	○					SC 35 PT	10	366670 0635	8,15
			TNMG 160412-M1	●		○				SC 15 PT	10	366670 0715	8,15
				●	○	○				SC 25 PT	10	366670 0825	8,15
			TNMG 220404-M1	●	○	○				SC 25 PT	10	366670 0925	11,20
			TNMG 220408-M1	●	○	○				SC 25 PT	10	366670 1025	11,20

3135

ISO	SC 15 PT	SC 25 PT	SC 35 PT
ISO P steel	Vc = 180 - 400	Vc = 100 - 240	Vc = 90 - 200
ISO M stainless steel		Vc = 70 - 210	Vc = 55 - 200
ISO K cast iron	Vc = 140 - 520	Vc = 120 - 250	
Vc = [m/min] f = [mm/U] ap = [mm]	f = 0.12 - 0.4 ap = 0.25 - 4.5		

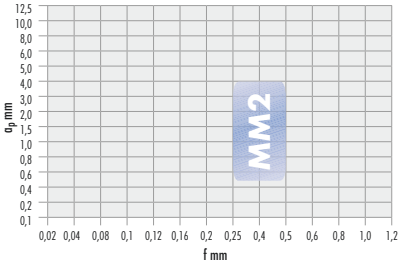


Chip breaker MM2 negative

F finishing -	M medium ●	R roughing ○	SARATURN ISO designation	ISO P	ISO M	ISO K	ISO N	ISO S	ISO H	Quality		art.no.	€
Roughing/medium machining			TNMG 160404-MM2	○	●					SP 25 MT	10	**366669** 0121	8,15
			TNMG 160408-MM2	○	●					SP 25 MT	10	366669 0221	8,15

3135

ISO	SP 25 MT
ISO P steel	Vc = 60 - 250
ISO M stainless steel	Vc = 40 - 250
Vc = [m/min] f = [mm/U] ap = [mm]	f = 0.18 - 0.4 ap = 0.5 - 5.0



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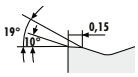
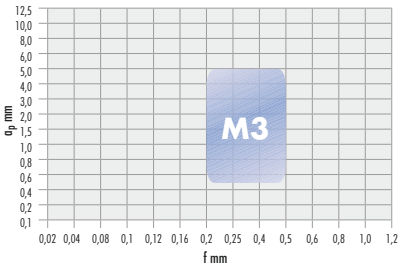
Chip breaker M3 negative

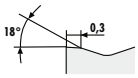
F finishing -	M medium ●	R roughing ○	SARATURN ISO designation	ISO P	ISO M	ISO K	ISO N	ISO S	ISO H	Quality		art.no.	€
Roughing/medium machining 			TNMG 160408-M3	○		●				SC 20 KT	10	**366673** 0130	8,15
			TNMG 160612-M3	○		●				SC 20 KT	10	366673 0230	8,15
			TNMG 220408-M3	○		●				SC 20 KT	10	366673 0330	11,20

3135

ISO	SC 20 KT
ISO P steel	Vc = 150 - 340
ISO K cast iron	Vc = 150 - 550
Vc = [m/min] f = [mm/U] ap = [mm]	f = 0.12 - 0.5 ap = 0.25 - 4.0

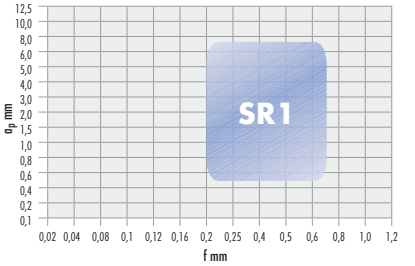


Chip breaker SR1 negative

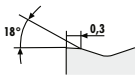
F finishing -	M medium ○	R roughing ●	SARATURN ISO designation	ISO P	ISO M	ISO K	ISO N	ISO S	ISO H	Quality		art.no.	€
Roughing 			TNMG 220408-SR1	●	○	○				SC 25 PT	10	**366676** 0125	11,20

3135

ISO	SC 25 PT
ISO P steel	Vc = 100 - 240
ISO M stainless steel	Vc = 70 - 210
ISO K cast iron	Vc = 130 - 250
Vc = [m/min] f = [mm/U] ap = [mm]	f = 0.18 - 0.5 ap = 0.5 - 5.0

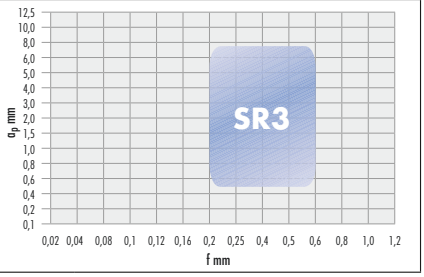


Chip breaker SR3 negative

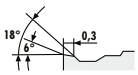
F finishing -	M medium ○	R roughing ●	SARATURN ISO designation	ISO P	ISO M	ISO K	ISO N	ISO S	ISO H	Quality		art.no.	€
Roughing/medium machining 			TNMG 160408-SR3	○		●				SC 20 KT	10	**366671** 0130	8,15

3135

ISO	SC 20 KT
ISO P steel	Vc = 150 - 340
ISO K cast iron	Vc = 150 - 550
Vc = [m/min] f = [mm/U] ap = [mm]	f = 0.18 - 0.5 ap = 0.5 - 6.0



Chip breaker RM2 negative

F finishing -	M medium ○	R roughing ●	SARATURN ISO designation	ISO P	ISO M	ISO K	ISO N	ISO S	ISO H	Quality		art.no.	€
Roughing/medium machining 			TNMG 160408-RM2	○	●					SP 25 MT	10	**366675** 0221	8,15
			TNMG 160412-RM2	○	●					SP 25 MT	10	366675 0121	8,15

3135

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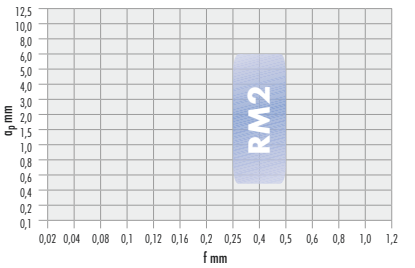
ISO	SP 25 MT
ISO P steel	Vc = 60 - 250
ISO M stainless steel	Vc = 40 - 250
Vc = [m/min] f = [mm/U] ap = [mm]	f = 0.2 - 0.6 ap = 0.5 - 6.0

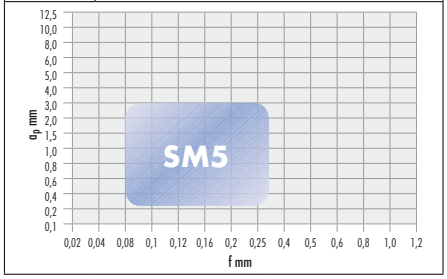


Chip breaker SM5 negative

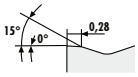
F finishing ○	M medium ●	R roughing -	SARATURN ISO designation	ISO P	ISO M	ISO K	ISO N	ISO S	ISO H	Quality		art.no.	€
Finishing / medium machining	TNMG 160408-SM5				○			●		SP 10 ST	10	**366672** 0132	8,15
					○			●		SP 15 ST	10	366672 0231	8,15

3135

ISO	SP 10 ST	SP 15 ST
ISO M stainless steel	Vc = 60 - 230	Vc = 50 - 220
ISO S superalloys	Vc = 30 - 120	Vc = 30 - 120
Vc = [m/min] f = [mm/U] ap = [mm]	f = 0.1 - 0.3 ap = 0.5 - 3.0	

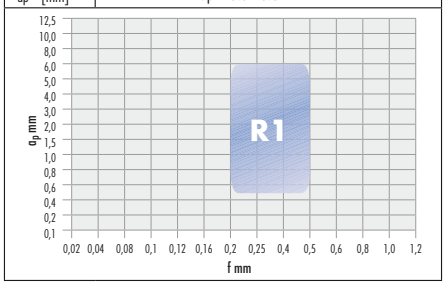


Chip breaker R1 negative

F finishing -	M medium ○	R roughing ●	SARATURN ISO designation	ISO P	ISO M	ISO K	ISO N	ISO S	ISO H	Quality		art.no.	€
Roughing 	TNMG 160408-R1			●	○	○				SC 25 PT	10	**366674** 0125	8,15
	TNMG 160412-R1			●	○	○				SC 25 PT	10	366674 0325	8,15

3135

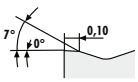
ISO	SC 25 PT
ISO P steel	Vc = 100 - 240
ISO M stainless steel	Vc = 70 - 210
ISO K cast iron	Vc = 120 - 250
Vc = [m/min] f = [mm/U] ap = [mm]	f = 0.2 - 0.5 ap = 0.5 - 6.0



VBMT ISO indexable cutting inserts

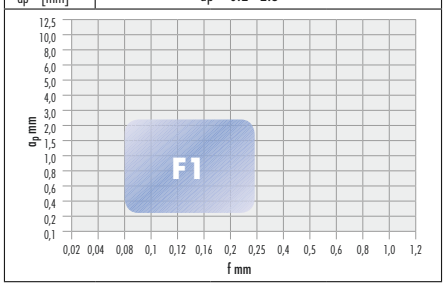
- **55° rhombic, positive 5°**
- One-sided chip breaker design
- Minimum ap feed always 63% of the corner radius "r"
- Maximum ap feed is 30% of the cutting edge length
- Cutting data recommendations apply for a corner radius **r = 0.4 mm**

Chip breaker F1

F finishing ●	M medium ○	R roughing -	SARATURN ISO designation	ISO P	ISO M	ISO K	ISO N	ISO S	ISO H	Quality		art.no.	€
Finishing 	VBMT 160404-F1			●		○				SC 15 PT	10	**366711** 0115	11,50
				●	○					SC 25 PT	10	366711 0125	11,50
				●	○					SC 35 PT	10	366711 0135	11,50
	VBMT 160408-F1			●		○				SC 15 PT	10	366711 0215	11,50
				●	○	○				SC 25 PT	10	366711 0225	11,50
				●	○					SC 35 PT	10	366711 0235	11,50

3135

ISO	SC 15 PT	SC 25 PT	SC 35 PT
ISO P steel	Vc = 180 - 400	Vc = 100 - 240	Vc = 90 - 200
ISO M stainless steel		Vc = 70 - 210	Vc = 55 - 200
ISO K cast iron	Vc = 140 - 520	Vc = 120 - 250	
Vc = [m/min] f = [mm/U] ap = [mm]	f = 0.07 - 0.25 ap = 0.2 - 2.5		

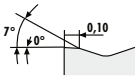


Continued on next page >>>

Chip breaker F2

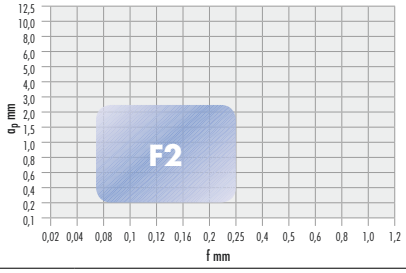
F finishing	M medium	R roughing	SARATURN ISO designation	ISO P	ISO M	ISO K	ISO N	ISO S	ISO H	Quality		art.no.	€
●	○	-											
			VBMT 160404-F2	○	●					SP 25 MT	10	**366714** 0121	11,50
			VBMT 160408-F2	○	●					SP 25 MT	10	366714 0221	11,50

Finishing



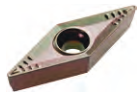
3135

ISO	SP 25 MT
ISO P steel	Vc = 60 - 250
ISO M stainless steel	Vc = 40 - 250
Vc = [m/min] f = [mm/U] ap = [mm]	f = 0.07 - 0.25 ap = 0.2 - 2.5

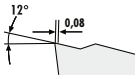


Chip breaker M1

F finishing	M medium	R roughing	SARATURN ISO designation	ISO P	ISO M	ISO K	ISO N	ISO S	ISO H	Quality		art.no.	€
-	●	-											
			VBMT 160404-M1	●		○				SC 15 PT	10	**366712** 0115	11,50
				●	○	○				SC 25 PT	10	366712 0125	11,50
				●	○					SC 35 PT	10	366712 0135	11,50
			VBMT 160408-M1	●		○				SC 15 PT	10	366712 0215	11,50
				●	○	○				SC 25 PT	10	366712 0225	11,50
				●	○					SC 35 PT	10	366712 0235	11,50

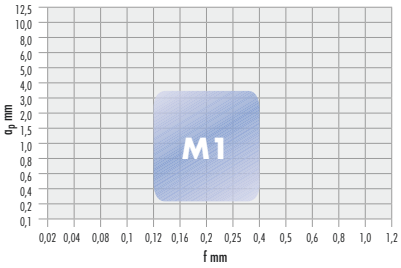


Medium machining



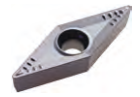
3135

ISO	SC 15 PT	SC 25 PT	SC 35 PT
ISO P steel	Vc = 180 - 400	Vc = 100 - 240	Vc = 90 - 200
ISO M stainless steel		Vc = 70 - 210	Vc = 55 - 200
ISO K cast iron	Vc = 140 - 520		
Vc = [m/min] f = [mm/U] ap = [mm]	f = 0.12 - 0.3 ap = 0.25 - 3.5		

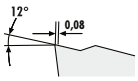


Chip breaker M2

F finishing	M medium	R roughing	SARATURN ISO designation	ISO P	ISO M	ISO K	ISO N	ISO S	ISO H	Quality		art.no.	€
○	●	-											
			VBMT 160404-M2	○	●					SP 25 MT	10	**366713** 0121	11,50
			VBMT 160408-M2	○	●					SP 25 MT	10	366713 0221	11,50

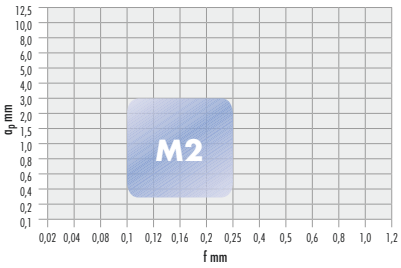


Medium machining



3135

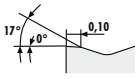
ISO	SP 25 MT
ISO P steel	Vc = 60 - 250
ISO M stainless steel	Vc = 40 - 250
Vc = [m/min] f = [mm/U] ap = [mm]	f = 0.12 - 0.3 ap = 0.25 - 3.5



Chip breaker XM1 universal

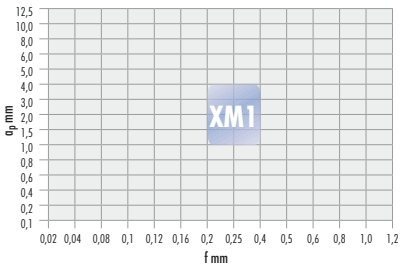
F finishing	M medium	R roughing	SARATURN ISO designation	ISO P	ISO M	ISO K	ISO N	ISO S	ISO H	Quality		art.no.	€
-	●	○											
			VBMT 160404-XM1	●		○				SC 15 PT	10	**366677** 0115	10,70
				●	○	○				SC 25 PT	10	366677 0125	10,70
			VBMT 160408-XM1	●		○				SC 15 PT	10	366677 0215	10,70
				●	○	○				SC 25 PT	10	366677 0225	10,70

Medium machining



3135

ISO	SC 15 PT	SC 25 PT
ISO P steel	Vc = 180 - 400	Vc = 100 - 240
ISO M stainless steel		Vc = 70 - 210
ISO K cast iron	Vc = 140 - 520	
Vc = [m/min] f = [mm/U] ap = [mm]	f = 0.2 - 0.4 ap = 1.0 - 4.0	



VCGT ISO indexable cutting inserts, ground

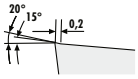
- **55° rhombic, positive 7°**
- One-sided chip breaker design
- Suitable for aluminium, plastic and non-ferrous metals
- **SW16NT** uncoated
- **SP16NT** coated, also suitable for finishing **stainless steel** (**austenitic, quenched**)
- for **stainless steel** max. ap = 0.4 mm at Vc max 140 m/min
- **SP16NT** for **titanium** Rm* 440 Vc 60 - 120 m/min
- Minimum ap feed always 63% of the corner radius "r"
- Maximum ap feed is 35% of the cutting edge length
- Cutting data recommendations apply for a corner radius **r = 0.4 mm**

Especially for machining aluminium

Chip breaker NF4

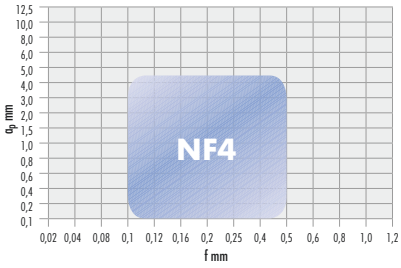
F finishing	M medium	R roughing	SARATURN ISO designation	ISO P	ISO M	ISO K	ISO N	ISO S	ISO H	Quality		art.no.	€
○	○	○	VCGT 110302-NF4			○	●	○		SW 16 NT	10	**366680** 0116	10,50
					○	○	●	○		SP 16 NT	10	366680 0317	12,35
			VCGT 110304-NF4		○	○	●	○		SP 16 NT	10	366680 0417	12,35
						○	●	○		SW 16 NT	10	366680 0216	10,50
			VCGT 130302-NF4			○	●	○		SW 16 NT	10	366680 0616	10,80
			VCGT 130304-NF4			○	●	○		SW 16 NT	10	366680 0516	10,80
			VCGT 160404-NF4			○	●	○		SW 16 NT	10	366680 0717	12,75
					○	○	●	○		SP 16 NT	10	366680 0917	14,40
			VCGT 160408-NF4			○	●	○		SW 16 NT	10	366680 1017	12,75
					○	○	●	○		SP 16 NT	10	366680 1217	14,40
			VCGT 160412-NF4		○	○	●	○		SP 16 NT	10	366680 1317	14,40
			VCGT 220530-NF4		○	○	●	○		SP 16 NT	10	366680 1417	17,30

Universal application



3135

ISO	SP 16 NT	SW 16 NT
ISO M stainless steel	Vc = 50 - 140	
ISO K cast iron	Vc = 120 - 200	Vc = 120 - 200
ISO N Al/non-ferrous	Vc = 100 - 3000	Vc = 100 - 2000
ISO S superalloys	Vc = 18 - 120	Vc = 18 - 45
Vc = [m/min] f = [mm/U] ap = [mm]	f = 0.1 - 0.5 ap = 0.1 - 4.5	



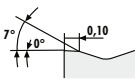
VCGT - VCMT ISO indexable cutting inserts

- **35° rhombic, positive 7°**
- One-sided chip breaker design
- For **FF7** corner radius r = 00 and r = 01 for extreme finishing
- Minimum ap always 63 % of the corner radius "r"
- Maximum ap is 30 % of the cutting edge length
- Cutting data recommendations apply for a corner radius **r = 0.4 mm**

Chip breaker F1

F finishing	M medium	R roughing	SARATURN ISO designation	ISO P	ISO M	ISO K	ISO N	ISO S	ISO H	Quality		art.no.	€
●	○	-	VCMT 110302-F1	●		○				SC 15 PT	10	**366679** 0115	9,40
				●	○	○				SC 25 PT	10	366679 0125	9,40
			VCMT 110304-F1	●		○				SC 15 PT	10	366679 0215	9,40
				●	○	○				SC 25 PT	10	366679 0225	9,40
			VCMT 160408-F1	●	○	○				SC 25 PT	10	366679 0425	12,60
			VCMT 160404-F1	●		○				SC 15 PT	10	366679 0315	11,75
				●	○	○				SC 25 PT	10	366679 0325	11,75

Finishing



3135

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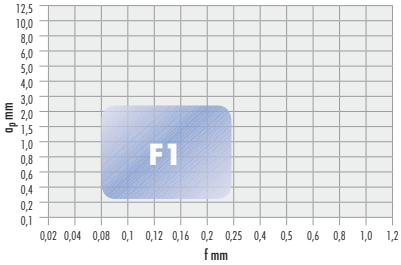
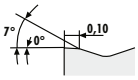
ISO	SC 15 PT	SC 25 PT
ISO P steel	Vc = 180 - 400	Vc = 100 - 240
ISO M stainless steel		Vc = 70 - 210
ISO K cast iron	Vc = 140 - 520	Vc = 120 - 520
Vc = [m/min] f = [mm/U] ap = [mm]	f = 0.07 - 0.25 ap = 0.2 - 2.5	f = 0.07 - 0.25 ap = 0.2 - 2.5



Chip breaker F2

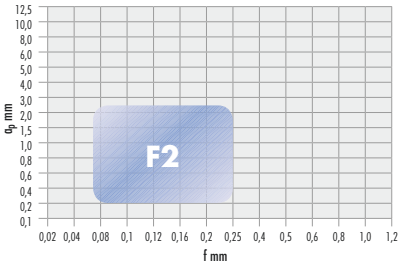
F finishing	M medium	R roughing	SARATURN ISO designation	ISO P	ISO M	ISO K	ISO N	ISO S	ISO H	Quality		art.no.	€
●	○	-											
			VCMT 110302-F2	○	●					**SP 25 MT**	10	**366681** 0121	9,40
			VCMT 110304-F2	○	●					**SP 25 MT**	10	366681 0221	9,40
			VCMT 160604-F2	○	●					**SP 25 MT**	10	366681 0321	11,75

Finishing



3135

ISO	SP 25 MT
ISO P steel	Vc = 60 - 250
ISO M stainless steel	Vc = 40 - 250
Vc = [m/min] f = [mm/U] ap = [mm]	f = 0.07 - 0.25 ap = 0.2 - 2.5



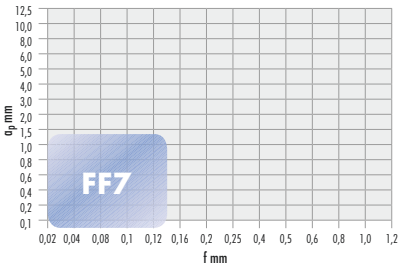
Chip breaker FF7, stainless steel design

F finishing	M medium	R roughing	SARATURN ISO designation	ISO P	ISO M	ISO K	ISO N	ISO S	ISO H	Quality		art.no.	€
●	-	-											
			VCGT 110300-FF7		●	○	○	○		**SP 20 MT**	10	**366678** 0120	12,35
			VCGT 110301-FF7		●	○	○	○		**SP 20 MT**	10	366678 0220	12,35
			VCGT 160400-FF7		●	○	○	○		**SP 20 MT**	10	366678 0320	15,40
			VCGT 160401-FF7		●	○	○	○		**SP 20 MT**	10	366678 0420	15,40

Micro finishing machining

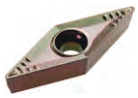
3135

ISO	SP 20 MT
ISO M stainless steel	Vc = 60 - 200
ISO K cast iron	Vc = 120 - 220
ISO N Al/non-ferrous	Vc = 100 - 600
ISO S superalloys	Vc = 15 - 50
Vc = [m/min] f = [mm/U] ap = [mm]	f = 0.02 - 0.14 ap = 0.05 - 1.35

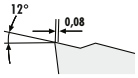


Chip breaker M1

F finishing	M medium	R roughing	SARATURN ISO designation	ISO P	ISO M	ISO K	ISO N	ISO S	ISO H	Quality		art.no.	€
-	●	-											
			VCMT 110304-M1	●	○	○				**SC 25 PT**	10	**366682** 0125	9,40
				●	○					**SC 35 PT**	10	366682 0235	9,40
			VCMT 110308-M1	●	○	○				**SC 25 PT**	10	366682 0325	9,40
				●	○					**SC 35 PT**	10	366682 0435	9,40
			VCMT 160404-M1	●	○	○				**SC 25 PT**	10	366682 0525	11,75
				●	○					**SC 35 PT**	10	366682 0635	11,75
			VCMT 160408-M1	●	○	○				**SC 25 PT**	10	366682 0725	11,75
				●	○					**SC 35 PT**	10	366682 0835	11,75



Medium machining



3135

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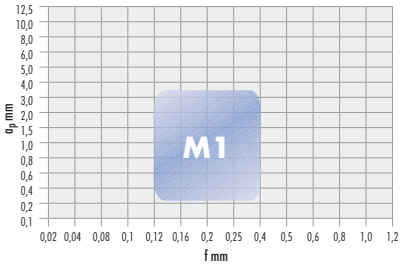
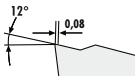
ISO	SC 25 PT	SC 35 PT
ISO P steel	Vc = 100 - 240	Vc = 90 - 200
ISO M stainless steel	Vc = 70 - 210	Vc = 55 - 200
ISO K cast iron	Vc = 120 - 250	
Vc = [m/min] f = [mm/U] ap = [mm]	f = 0.12 - 0.4 ap = 0.25 - 3.5	

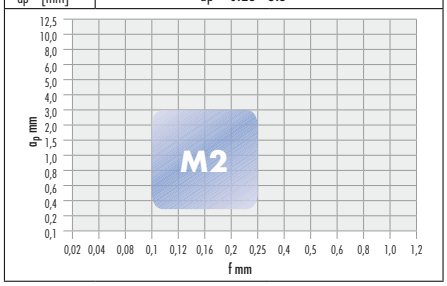


Chip breaker M2

F finishing	M medium	R roughing	SARATURN ISO designation	ISO P	ISO M	ISO K	ISO N	ISO S	ISO H	Quality		art.no.	€
-	●	-											
Medium machining 			VCMT 110304-M2	○	●					SP 25 MT	10	**366683** 0121	9,40
				○	●					SP 35 MT	10	366683 0222	9,40
			VCMT 110308-M2	○	●					SP 25 MT	10	366683 0321	9,40
				○	●					SP 35 MT	10	366683 0422	9,40
			VCMT 160404-M2	○	●					SP 25 MT	10	366683 0521	11,75
			VCMT 160408-M2	○	●					SP 25 MT	10	366683 0621	11,75

3135

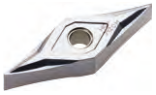
ISO	SP 25 MT	SP 35 MT
ISO P steel	Vc = 60 - 250	Vc = 90 - 200
ISO M stainless steel	Vc = 40 - 250	Vc = 55 - 200
Vc = [m/min] f = [mm/U] ap = [mm]	f = 0.12 - 0.4 ap = 0.25 - 3.5	



VNGP ISO indexable cutting inserts

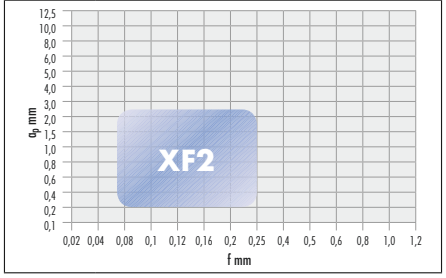
- **35° rhombic, negative 0°**
- Bilateral chip breaker design
- **VNGP** are suitable for **ISO tool holder** for **VNMG....**
- Minimum ap feed always 63% of the corner radius "r"
- Maximum ap feed is 30% of the cutting edge length
- Cutting data recommendations apply for a corner radius **r = 0.4 mm**

Chip breaker XF2 negative

F finishing	M medium	R roughing	SARATURN ISO designation	ISO P	ISO M	ISO K	ISO N	ISO S	ISO H	Quality		art.no.	€
●	-	-											
 Micro finishing machining			VNGP 160402-XF2		●	○	○	○		SP 20 MT	10	**366684** 0120	19,30
			VNGP 160404-XF2		●	○	○	○		SP 20 MT	10	366684 0220	19,30

3135

ISO	SP 20 MT
ISO M stainless steel	Vc = 60 - 200
ISO K cast iron	Vc = 120 - 220
ISO N Al/non-ferrous	Vc = 100 - 600
ISO S superalloys	Vc = 20 - 50
Vc = [m/min] f = [mm/U] ap = [mm]	f = 0.08 - 0.2 ap = 0.14 - 2.5



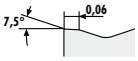
… for special measurement tasks

ATORN®
High quality for great performance

VNMG ISO indexable cutting inserts

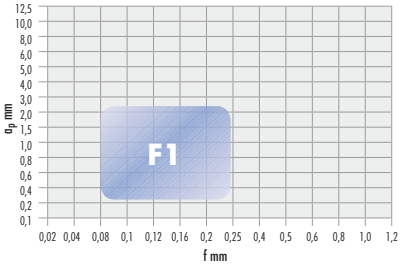
- **35° rhombic, negative 0°**
- Bilateral chip breaker design
- Minimum ap feed always 63% of the corner radius "r"
- Maximum ap feed is 30% of the cutting edge length
- Cutting data recommendations apply for a corner radius **r = 0.4 mm**

Chip breaker F1 negative

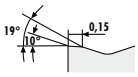
F finishing	M medium	R roughing	SARATURN ISO designation	ISO P	ISO M	ISO K	ISO N	ISO S	ISO H	Quality		art.no.	€
●	○	-											
Finishing 			VNMG 160404-F1	●		○				SC 15 PT	10	**366686** 0115	12,60

3135

ISO	SC 15 PT
ISO P steel	Vc = 180 - 400
ISO K cast iron	Vc = 140 - 520
Vc = [m/min] f = [mm/U] ap = [mm]	f = 0.07 - 0.25 ap = 0.2 - 2.5

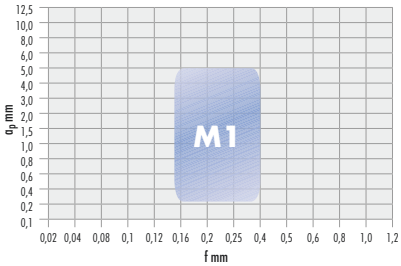


Chip breaker M1 negative

F finishing	M medium	R roughing	SARATURN ISO designation	ISO P	ISO M	ISO K	ISO N	ISO S	ISO H	Quality		art.no.	€
○	●	-											
Medium machining 			VNMG 160404-M1	●		○				SC 15 PT	10	**366685** 0115	12,60
			VNMG 160408-M1	●		○				SC 15 PT	10	366685 0415	12,60
			VNMG 160404-M1	●	○	○				SC 25 PT	10	366685 0225	12,60
			VNMG 160408-M1	●	○	○				SC 25 PT	10	366685 0525	12,60

3135

ISO	SC 15 PT	SC 25 PT
ISO P steel	Vc = 180 - 400	Vc = 180 - 400
ISO M stainless steel		Vc = 70 - 210
ISO K cast iron	Vc = 140 - 520	Vc = 130 - 250
Vc = [m/min] f = [mm/U] ap = [mm]	f = 0.12 - 0.4 ap = 0.25 - 3.5	



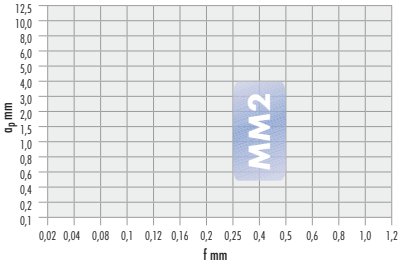
Chip breaker MM2 negative

F finishing	M medium	R roughing	SARATURN ISO designation	ISO P	ISO M	ISO K	ISO N	ISO S	ISO H	Quality		art.no.	€
○	●	-											
Medium machining			VNMG 160408-MM2	○	●					SP 25 MT	10	**366688** 0121	12,60

3135

Continued on next page >>>

ISO	SP 25 MT
ISO P steel	Vc = 60 - 250
ISO M stainless steel	Vc = 40 - 250
Vc = [m/min] f = [mm/U] ap = [mm]	f = 0.14 - 0.4 ap = 0.25 - 4.0

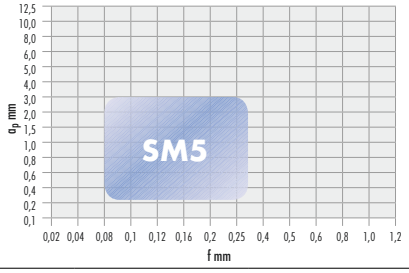


Chip breaker SM5 negative

F finishing ○	M medium ●	R roughing -	SARATURN ISO designation	ISO P	ISO M	ISO K	ISO N	ISO S	ISO H	Quality		art.no.	€
Medium machining	VNMG 160408-SM5				○			●		SP 10 ST	10	**366687** 0132	12,60
					○			●		SP 15 ST	10	366687 0231	12,60

3135

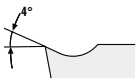
ISO	SP 10 ST	SP 15 ST
ISO M stainless steel	Vc = 60 - 230	Vc = 60 - 220
ISO S superalloys	Vc = 30 - 120	Vc = 30 - 120
Vc = [m/min] f = [mm/U] ap = [mm]	f = 0.1 - 0.3 ap = 0.4 - 3.0	



WCGT - WCMT ISO indexable cutting inserts

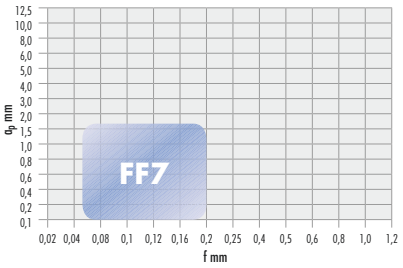
- **80° trigonometric, positive 7°**
- One-sided chip breaker design
- **WCGT** ground peripherally
- Minimum ap feed always 63% of the corner radius "r"
- Maximum ap feed is 63% of the cutting edge length
- Cutting data recommendations apply for a corner radius **r = 0.4 mm**

Chip breaker FF7, CERMET design

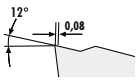
F finishing ●	M medium -	R roughing -	SARATURN ISO designation	ISO P	ISO M	ISO K	ISO N	ISO S	ISO H	Quality		art.no.	€
Micro finishing machining 	WCGT 040204-FF7			●	○	○				ST 10 UT	10	**366689** 0140	11,20

3135

ISO	ST 10 UT
ISO P steel	Vc = 160 - 270
ISO M stainless steel	Vc = 130 - 240
ISO K cast iron	Vc = 220 - 350
Vc = [m/min] f = [mm/U] ap = [mm]	f = 0.05 - 0.2 ap = 0.1 - 1.65



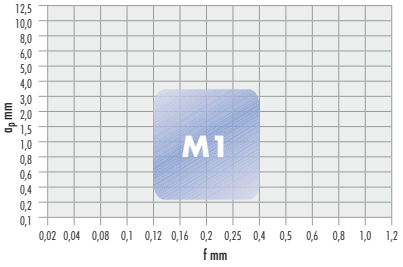
Chip breaker M1

F finishing -	M medium ●	R roughing -	SARATURN ISO designation	ISO P	ISO M	ISO K	ISO N	ISO S	ISO H	Quality		art.no.	€
Medium machining 	WCMT 040204-M1			●	○	○				SC 25 PT	10	**366690** 0125	7,–
	WCMT 040208-M1			●	○	○				SC 25 PT	10	366690 0225	7,–
	WCMT 06T304-M1			●	○	○				SC 25 PT	10	366690 0325	8,40
	WCMT 06T308-M1			●	○	○				SC 25 PT	10	366690 0425	8,40
	WCMT 080404-M1			●	○	○				SC 25 PT	10	366690 0525	9,85
	WCMT 080408-M1			●	○	○				SC 25 PT	10	366690 0625	9,85
	WCMT 080412-M1			●	○	○				SC 25 PT	10	366690 0725	9,85

3135

Continued on next page >>>

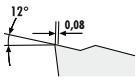
ISO	SC 25 PT
ISO P steel	Vc = 100 - 240
ISO M stainless steel	Vc = 70 - 210
ISO K cast iron	Vc = 120 - 250
Vc = [m/min] f = [mm/U] ap = [mm]	f = 0.12 - 0.4 ap = 0.25 - 3.5



Chip breaker M2

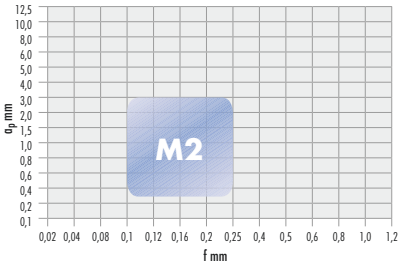
F finishing	M medium	R roughing	SARATURN ISO designation	ISO P	ISO M	ISO K	ISO N	ISO S	ISO H	Quality		art.no.	€
-	●	-	WCMT 040204-M2	○	●					SP 25 MT	10	**366691** 0121	7,–
			WCMT 040208-M2	○	●					SP 25 MT	10	366691 0221	7,–
			WCMT 06T304-M2	○	●					SP 25 MT	10	366691 0321	8,40
			WCMT 06T308-M2	○	●					SP 25 MT	10	366691 0421	8,40
			WCMT 080404-M2	○	●					SP 25 MT	10	366691 0521	9,85
			WCMT 080408-M2	○	●					SP 25 MT	10	366691 0621	9,85
			WCMT 080412-M2	○	●					SP 25 MT	10	366691 0721	9,85

Medium machining



3135

ISO	SP 25 MT
ISO P steel	Vc = 60 - 250
ISO M stainless steel	Vc = 40 - 250
Vc = [m/min] f = [mm/U] ap = [mm]	f = 0.12 - 0.4 ap = 0.25 - 3.5



WNMA - WNGP ISO indexable cutting inserts

- **80° trigonometric, negative 0°**
- Bilateral chip breaker design **WNGP**
- Without chip breaker design **WNMA**
- **WNGP** and **WNMA** are suitable for **ISO tool holder** for **WNMG....**
- Chip breaker **XF2** especially for **stainless steel**
- Minimum ap feed always 63% of the corner radius "r"
- Maximum feed from is 63% of the cutting edge length for **WNMA**
- Cutting data recommendations apply for a corner radius **r = 0.4 mm**

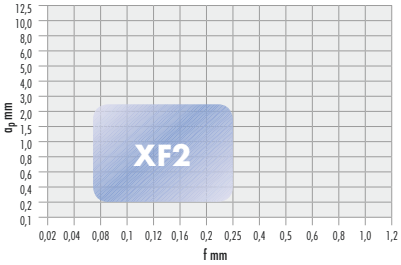
Chip breaker XF2 negative

F finishing	M medium	R roughing	SARATURN ISO designation	ISO P	ISO M	ISO K	ISO N	ISO S	ISO H	Quality		art.no.	€
●	-	-	WNGP 080404-XF2		●	○	○	○		SP 20 MT	10	**366692** 0120	12,35
			WNGP 080408-XF2		●	○	○	○		SP 20 MT	10	366692 0220	12,35

Micro finishing machining

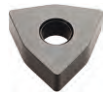
3135

ISO	SP 20 MT
ISO M stainless steel	Vc = 60 - 200
ISO K cast iron	Vc = 120 - 220
ISO N Al/non-ferrous	Vc = 100 - 600
ISO S superalloys	Vc = 20 - 50
Vc = [m/min] f = [mm/U] ap = [mm]	f = 0.08 - 0.2 ap = 0.14 - 2.5



Chip breaker K negative

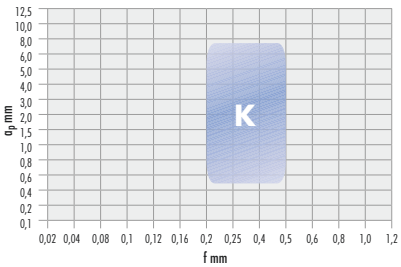
F finishing	M medium	R roughing	SARATURN ISO designation	ISO P	ISO M	ISO K	ISO N	ISO S	ISO H	Quality		art.no.	€
-	○	●	WNMA 080408-K	○		●				SC 20 KT	10	**366693** 0130	8,95



Roughing/medium machining

3135

ISO	SC 20 KT
ISO P steel	Vc = 150 - 340
ISO K cast iron	Vc = 150 - 550
Vc = [m/min] f = [mm/U] ap = [mm]	f = 0.2 - 0.5 ap = 0.25 - 5.5



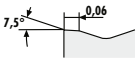
WNMG ISO indexable cutting inserts

- **80° trigonometric, negative 0°**
- Bilateral chip breaker design
- Minimum ap feed always 63% of the corner radius "r"
- Maximum ap feed is 63% of the cutting edge length
- Cutting data recommendations apply for a corner radius **r = 0.4 mm**

Chip breaker F1 negative

F finishing ● | M medium ○ | R roughing -

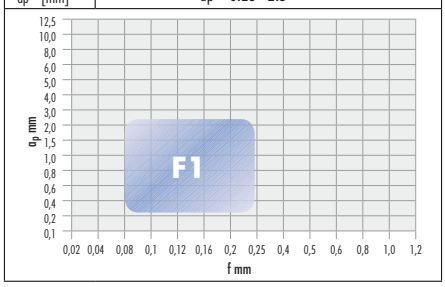
Finishing



SARATURN ISO designation	ISO P	ISO M	ISO K	ISO N	ISO S	ISO H	Quality		art.no.	€
WNMG 060404-F1	●		○				SC 15 PT	10	**366696** 0115	7,35
WNMG 080404-F1	●		○				SC 15 PT	10	366696 0215	8,95

3135

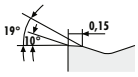
ISO	SC 15 PT
ISO P steel	Vc = 180 - 400
ISO K cast iron	Vc = 140 - 520
Vc = [m/min] f = [mm/U] ap = [mm]	f = 0.08 - 0.25 ap = 0.25 - 2.5



Chip breaker M1 negative

F finishing - | M medium ● | R roughing -

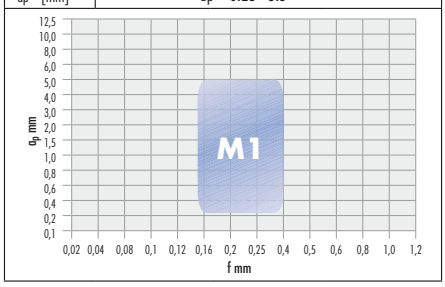
Medium machining



SARATURN ISO designation	ISO P	ISO M	ISO K	ISO N	ISO S	ISO H	Quality		art.no.	€
WNMG 060404-M1	●		○				SC 15 PT	10	**366695** 0115	7,35
	●	○	○				SC 25 PT	10	366695 0225	7,35
WNMG 060408-M1	●		○				SC 15 PT	10	366695 0415	7,35
	●	○	○				SC 25 PT	10	366695 0525	7,35
WNMG 080404-M1	●		○				SC 15 PT	10	366695 0715	8,95
	●	○	○				SC 25 PT	10	366695 0825	8,95
WNMG 080408-M1	●		○				SC 15 PT	10	366695 1015	8,95
	●	○	○				SC 25 PT	10	366695 1125	8,95
	●	○					SC 35 PT	10	366695 1235	8,95
WNMG 080412-M1	●		○				SC 15 PT	10	366695 1315	8,95
	●	○	○				SC 25 PT	10	366695 1425	8,95
	●	○					SC 35 PT	10	366695 1535	8,95

3135

ISO	SC 15 PT	SC 25 PT	SC 35 PT
ISO P steel	Vc = 180 - 400	Vc = 100 - 240	Vc = 90 - 200
ISO M stainless steel		Vc = 70 - 210	Vc = 55 - 200
ISO K cast iron	Vc = 140 - 520	Vc = 120 - 250	
Vc = [m/min] f = [mm/U] ap = [mm]	f = 0.12 - 0.4 ap = 0.25 - 3.5		



Chip breaker MM2 negative

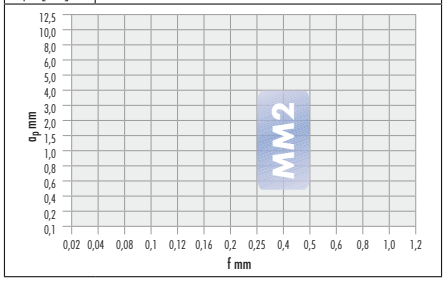
F finishing - | M medium ● | R roughing -

Medium machining

SARATURN ISO designation	ISO P	ISO M	ISO K	ISO N	ISO S	ISO H	Quality		art.no.	€
WNMG 060404-MM2	○	●					SP 25 MT	10	**366694** 0121	7,35
WNMG 060408-MM2	○	●					SP 25 MT	10	366694 0221	7,35
WNMG 080404-MM2	○	●					SP 25 MT	10	366694 0321	8,95
WNMG 080408-MM2	○	●					SP 25 MT	10	366694 0421	8,95
WNMG 080412-MM2	○	●					SP 25 MT	10	366694 0521	8,95

3135

ISO	SP 25 MT
ISO P steel	Vc = 60 - 250
ISO M stainless steel	Vc = 40 - 250
Vc = [m/min] f = [mm/U] ap = [mm]	f = 0.12 - 0.4 ap = 0.25 - 3.5



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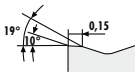
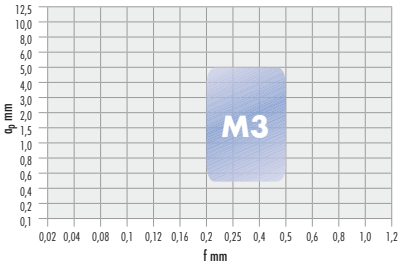
Chip breaker M3 negative

F finishing ○	M medium ●	R roughing -	SARATURN ISO designation	ISO P	ISO M	ISO K	ISO N	ISO S	ISO H	Quality		art.no.	€
Medium machining 			WNMG 080408-M1	○		●				SC 20 KT	10	**366701** 0130	8,95
			WNMG 080412-M1	○		●				SC 20 KT	10	366701 0230	8,95

3135

ISO	SC 20 KT
ISO P steel	Vc = 150 - 340
ISO K cast iron	Vc = 150 - 550
Vc = [m/min] f = [mm/U] ap = [mm]	f = 0.12 - 0.5 ap = 0.25 - 5.0

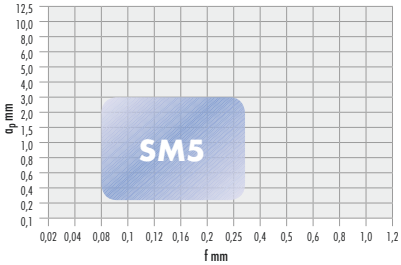


Chip breaker SM5 negative

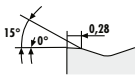
F finishing ○	M medium ●	R roughing -	SARATURN ISO designation	ISO P	ISO M	ISO K	ISO N	ISO S	ISO H	Quality		art.no.	€
Medium machining			WNMG 080408-SM5		○			●		SP 10 ST	10	**366698** 0132	8,95
					○			●		SP 15 ST	10	366698 0231	8,95

3135

ISO	SP 10 ST	SP 15 ST
ISO M stainless steel	Vc = 60 - 230	Vc = 60 - 220
ISO S superalloys	Vc = 30 - 120	Vc = 30 - 120
Vc = [m/min] f = [mm/U] ap = [mm]	f = 0.08 - 0.3 ap = 0.25 - 3.0	



Chip breaker R1 negative

F finishing -	M medium ○	R roughing ●	SARATURN ISO designation	ISO P	ISO M	ISO K	ISO N	ISO S	ISO H	Quality		art.no.	€
Roughing/medium machining 			WNMG 080408-R1	●	○	○				SC 25 PT	10	**366702** 0125	8,95
			WNMG 080412-R1	●	○	○				SC 25 PT	10	366702 0225	8,95

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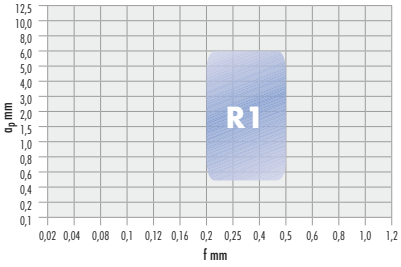
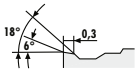
Continued on next page >>>

ISO	SC 25 PT
ISO P steel	Vc = 100 - 240
ISO M stainless steel	Vc = 70 - 210
ISO K cast iron	Vc = 120 - 250
Vc = [m/min] f = [mm/U] ap = [mm]	f = 0.2 - 0.5 ap = 0.5 - 6.0



Chip breaker RM2 negative

F finishing -	M medium ○	R roughing ●	SARATURN ISO designation	ISO P	ISO M	ISO K	ISO N	ISO S	ISO H	Quality		art.no.	€
Roughing/medium machining 			WNMG 080408-RM2	○	●					SP 25 MT	10	**366699** 0121	8,95
			WNMG 080412-RM2	○	●					SP 25 MT	10	366699 0321	8,95

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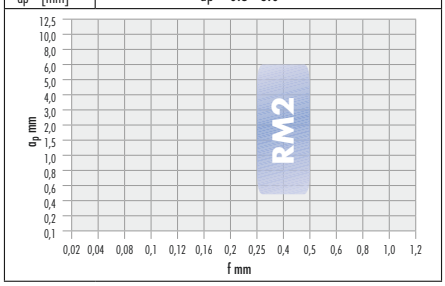
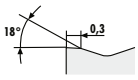
ISO	SP 25 MT
ISO P steel	Vc = 60 - 250
ISO M stainless steel	Vc = 40 - 250
Vc = [m/min] f = [mm/U] ap = [mm]	f = 0.2 - 0.5 ap = 0.5 - 6.0



Chip breaker SR3 negative

F finishing -	M medium ○	R roughing ●	SARATURN ISO designation	ISO P	ISO M	ISO K	ISO N	ISO S	ISO H	Quality		art.no.	€
Roughing/medium machining 			WNMG080408-SR3	○		●				SC 20 KT	10	**366697** 0130	8,95

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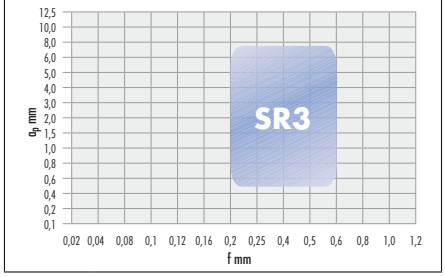
ISO	SC 20 KT
ISO P steel	Vc = 150 - 340
ISO K cast iron	Vc = 150 - 550
Vc = [m/min] f = [mm/U] ap = [mm]	f = 0.2 - 0.6 ap = 0.5 - 5.0



WNMX **ISO indexable cutting inserts**

- **80° trigonometric, negative 0°**
- One-sided chip breaker design
- Minimum ap feed always 63% of the corner radius "r"
- Special finishing geometry with smoothing effect when used at an angle of 93°
- When using the **SWF**, profile distortions may occur if long tapers and large balls are turned
- Double feed achievable at the same Ra value as with conventional geometries
- Cutting data recommendations apply for a corner radius r = 1.2 mm

Chip breaker SWF negative

F finishing ●	M medium ○	R roughing -	SARATURN ISO designation	ISO P	ISO M	ISO K	ISO N	ISO S	ISO H	Quality		art.no.	€
Finishing			WNMX 080404-SWF	●		○				SC 15 PT	10	**366707** 0115	9,85
			WNMX 080408-SWF	●		○				SC 15 PT	10	366707 0215	9,85

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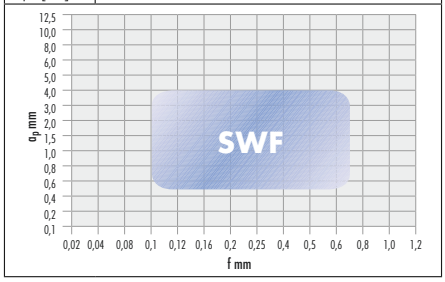
ISO	SC 15 PT
ISO P steel	Vc = 180 - 400
ISO K cast iron	Vc = 140 - 520
Vc = [m/min] f = [mm/U] ap = [mm]	f = 0.1 - 0.8 ap = 0.5 - 5.0



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