

OTT+HEUGEL



OTT+HEUGEL Solid Carbide Saw Blades

Solid Carbide Blades are used for the heavy duty sawing of tough materials or for the increasing of the tool life. These wear-resisting tools are set on high precision machines that work without any vibration and a rigid clamping of the material is assured. Therefore the requirements for these high precision tools are tightest tolerances for high cutting speeds and feeds, better tool life, and sharp cutting edges. The high precision and mirror finish of these blades guarantees a super cut surface which normally does not require any further finish operations.



The cutting speeds and feeds of CARBODUR® blades are approximately five times higher than blades made of HSS - the tool life is ten times compared to HSS-tools.

If standard tools are no longer capable of producing chips, CARBODUR® Saw Blades with hard wear resistant coatings (TIN, TiCN or TiAIN) are often still able to cut the material. The combination - Solid Carbide Blades plus a coating - is the utmost solution to get the best wear and temperature resistance, and hardness.

Solid Carbide Qualities

	O+H quality	ISO	AISI	Hardness approx.
1.	CARBODUR®	K10	C3	1700 HV
2.	CARBODUR®	K30	C3	1750 HV
3.	CARBODUR®	K40	C2	1580 HV

Special qualities on demand.

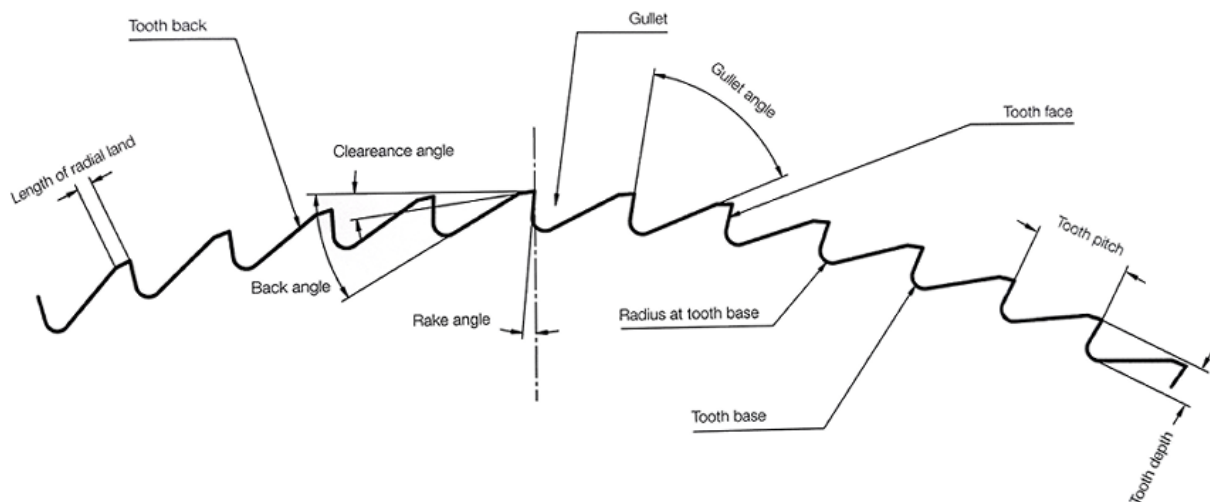
We reserve the right to make technical changes.

Chemical structure

ISO	WC	CO	WC grain size/um	Tensile strength N/mm ²
K10	92.5	6.0	0.7 - 1.0	1900
K30	89.0	9.0	1.0 - 1.5	2200
K40	86.0	12.0	1.0 - 1.5	2500

There can be variations of the above values depending on the raw material suppliers.

Tooth Definition

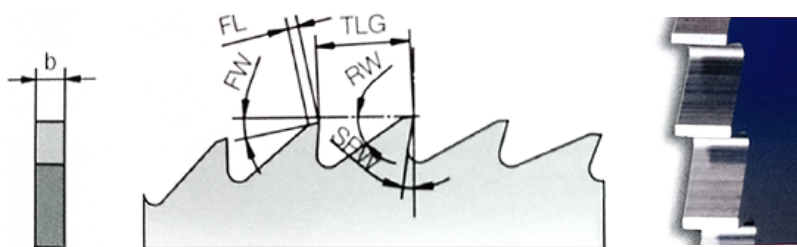


Tooth Form Definition

Tooth form A+AW with top land For small slitting depth and thin wall tubes.

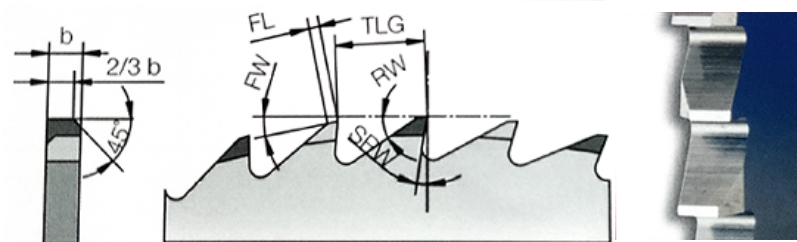
Characteristic tooth form A with top land:

Straight tooth (A) for normal sawing operations.



Characteristic tooth form AW with top land:

Straight tooth with alternating bevel (AW) for double chip breaking.



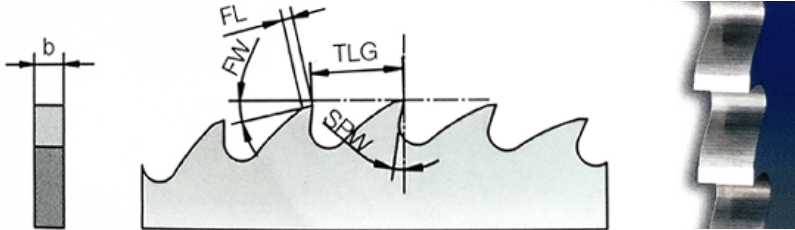
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Tooth form B+BW For solid material, heavy slitting depth and tubes with wall thickness over 2.5mm.

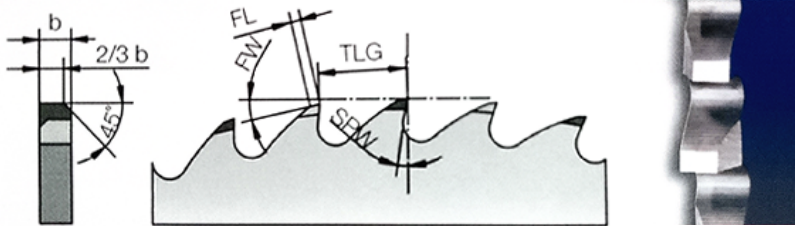
Characteristic tooth form B:

Curved tooth (B) for normal sawing operations.



Characteristic tooth form BW:

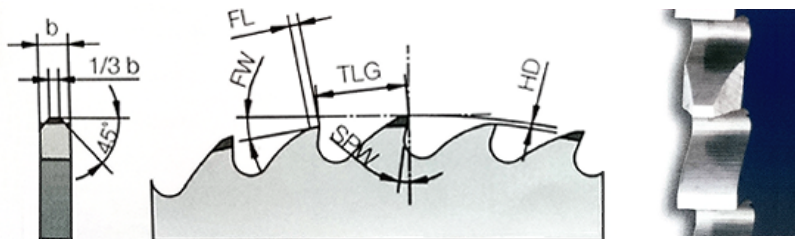
Curved tooth with alternating bevel (BW) for double chip breaking.



Tooth form C For solid material, heavy sawing operations and tubes with wall thickness over 2.5mm.

Characteristic tooth form C:

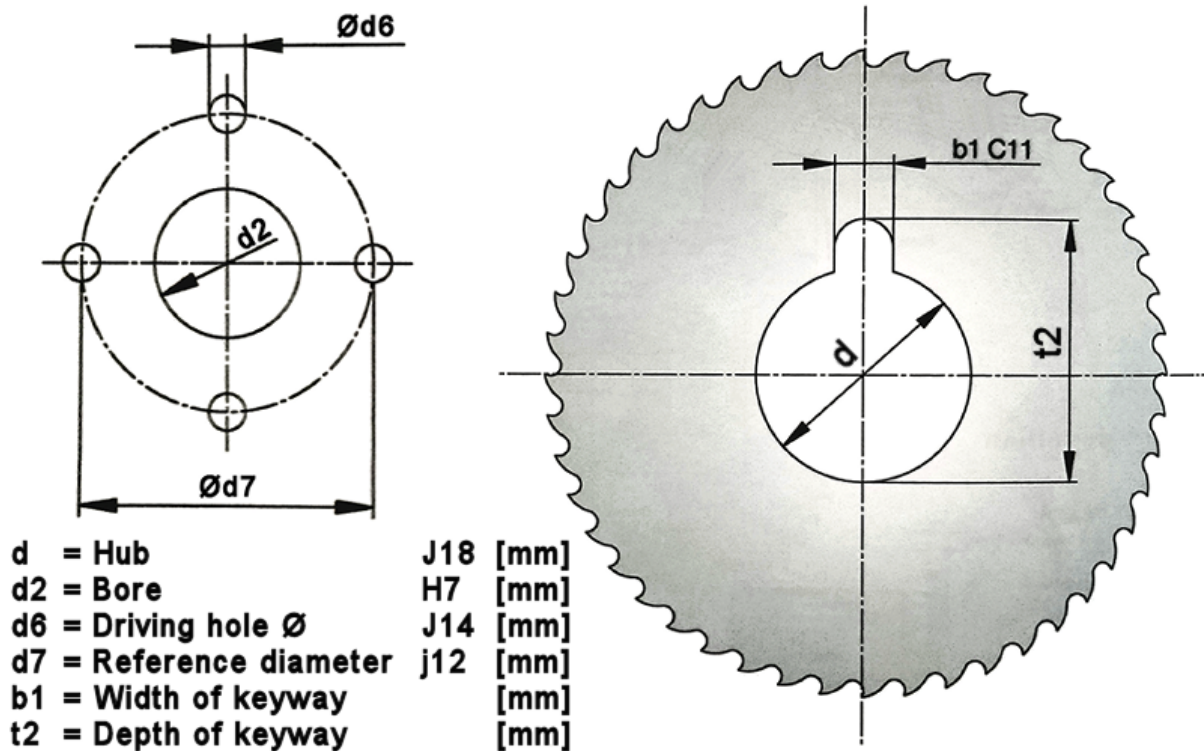
Curved tooth with high-low design (C) for triple chip breaking per tooth pair.



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Driving Holes Definition

The driving holes of saw blades made of solid carbide are defined through a keyway or pinholes. The technical execution of the keyway is based on OTT+HEUGEL's working standard form F. The technical execution of the pinholes is based on the sawing or rotary index machine standards.



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Surface Technology

OTT+HEUGEL surface technology is defined by the roughness value and the treatment of the surface. The surface of tools made of solid carbide is available in high polished mirror grinding or unpolished precision grinding.

The execution of the surface is determined by the application of the tool.

The roughness value is between 0.01 and 0.2 μm .



High Polished Mirror Grinding

The standard surface of the CARBODUR® tools is characterized by a high polished mirror grinding. Low friction and excellent sliding value are guaranteeing an excellent cutting performance and long tool life.



Unpolished Precision Grinding

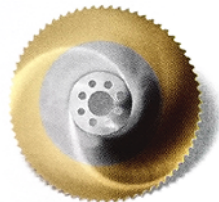
The unpolished precision surface is excellent when using flood coolant. The oil or emulsion will stick excellent to the saw blade surface and is often used in rotary index machines.

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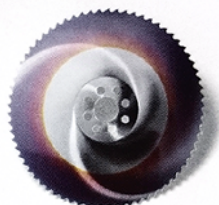
Thin Coating Technology

OTT+HEUGEL offers various coatings in order to optimize tool performance. Wear shortens the life time of the saw blades. Since more and more production processes are being automated the wear of the tool is a steadily rising cost factor. Therefore wear protection is becoming increasingly important from the economic point of view. This is the point where the thin coating technology starts. Coatings with thin layers have been proved successful in the past years.



CONCEPT

Character *PVD coating based on titanium nitrid process for general sawing application in order to reduce weariness.*
Hardness 2500 HV
Friction Value 0.65
Colour gold
Material *Steel unalloyed, Tempering steel*



ADVANTAGE

Character *Multi layer coating with low friction value. Excellent coating for high performance and for material with a tensile strength over 800 N/mm² as well as stainless steel.*
Hardness 2800 HV
Friction Value 0.45
Colour gray
Material *Steel alloyed/unalloyed, Tempering steel, Stainless steel*



SPORTIVE

Character *This coating is recommended for very hard materials above 800 N/mm² and stainless steel in combination with high speed and feed.*
Hardness 3000 HV
Friction Value 0.55
Colour gray - black
Material *Steel alloyed, Stainless steel, Titanium alloyed/unalloyed, Cast Iron*



EVOLUTION

Character *Excellent coating for extreme conditions and demanding applications, good for all hard materials, stainless, titanium, etc.*
Hardness 3300 HV
Friction Value 0.65
Colour silver - gold
Material *Steel alloyed, Stainless steel, Titanium alloyed/unalloyed*



EXTREME

Character *PVD coating suitable for standard steels and copper, brass etc. with a low friction value.*
Hardness 2300 HV
Friction Value 0.50
Colour grey
Material *Copper, Bronze, Brass, Aluminium*

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