ToolingBox®

HSS Circular Saw Blades

Index

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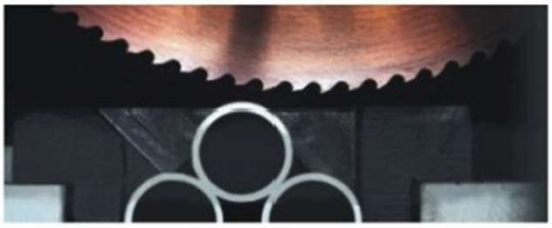
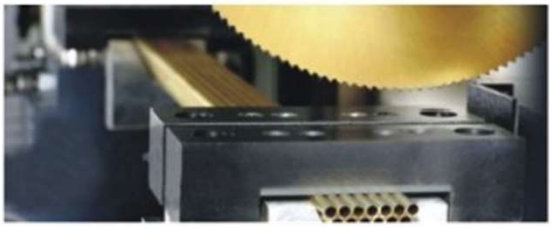
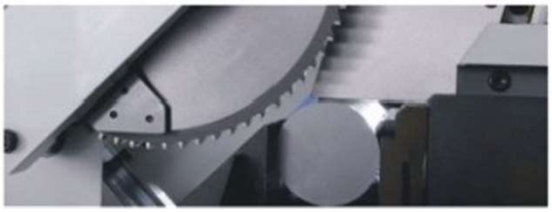
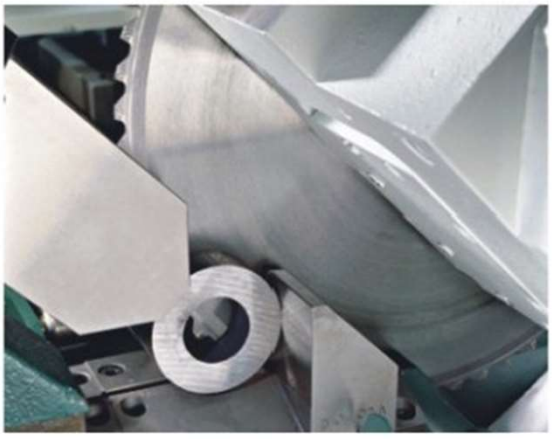








Company Profile

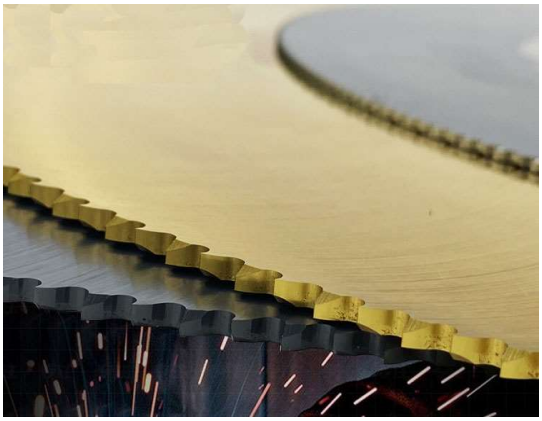
ToolingBox (Beijing) Industrial Technology Co.,Ltd is a Chinese professional manufacturer for cutting tools. We supply solid&brazed CBN tools, Tipped PCD inserts and tools, carbide inserts and tools, carbide/TCT/HSS saw blades for woodworking and metalworking industries.

With over a decade of dedicated expertise, our company specializes in the research, development, production, promotion, and technical service of tungsten carbide cutting tools. Our product range includes woodworking carbide reversible knives, molding knives, circular cutters, oscillating knives, carbide thin razor blades, carbide scrapers, and more. These products find extensive applications in wood processing, paper printing, film and fiber industries, electronic battery cutting, and various other sectors. Renowned for our outstanding product quality and prompt deliveries, we have garnered recognition from numerous customers, leading to a significant domestic market share and exports to countries and regions, including Europe, the United States, Russia ,Mid east ,India and Southeast Asia.

Our company possesses a comprehensive set of standardized testing equipment and processes to ensure product quality. We are supported by a professional team specializing in production, technology, and sales, capable of addressing various customer-related issues. With over 100 CNC grinding machines, end mills, surface grinders, and a variety of imported inspection devices, we stand as one of the industry's largest, highest-output, most diverse, and fully-equipped enterprises in China.

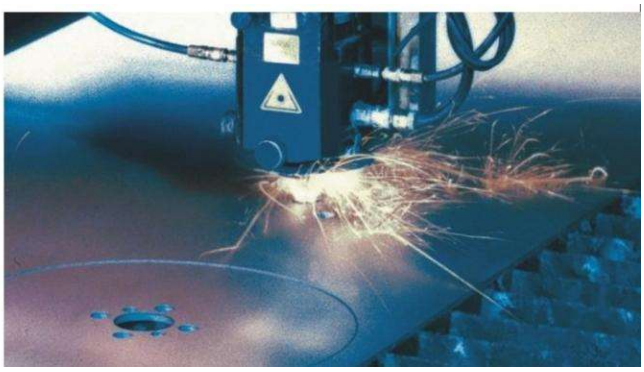
We adhere to the business philosophy of "integrity in operation, superior quality, and customer-first", continuously enhancing our corporate image and product quality, reducing overall costs, shortening delivery times, and consistently improving customer satisfaction.

ToolingBox, Professional makes values!



Technological Process

Raw material production



HSS blank production

Heat treatment

CNC cutting edge

Tooth shape griding

Coating for blades

Cleaning

Inspection before selling

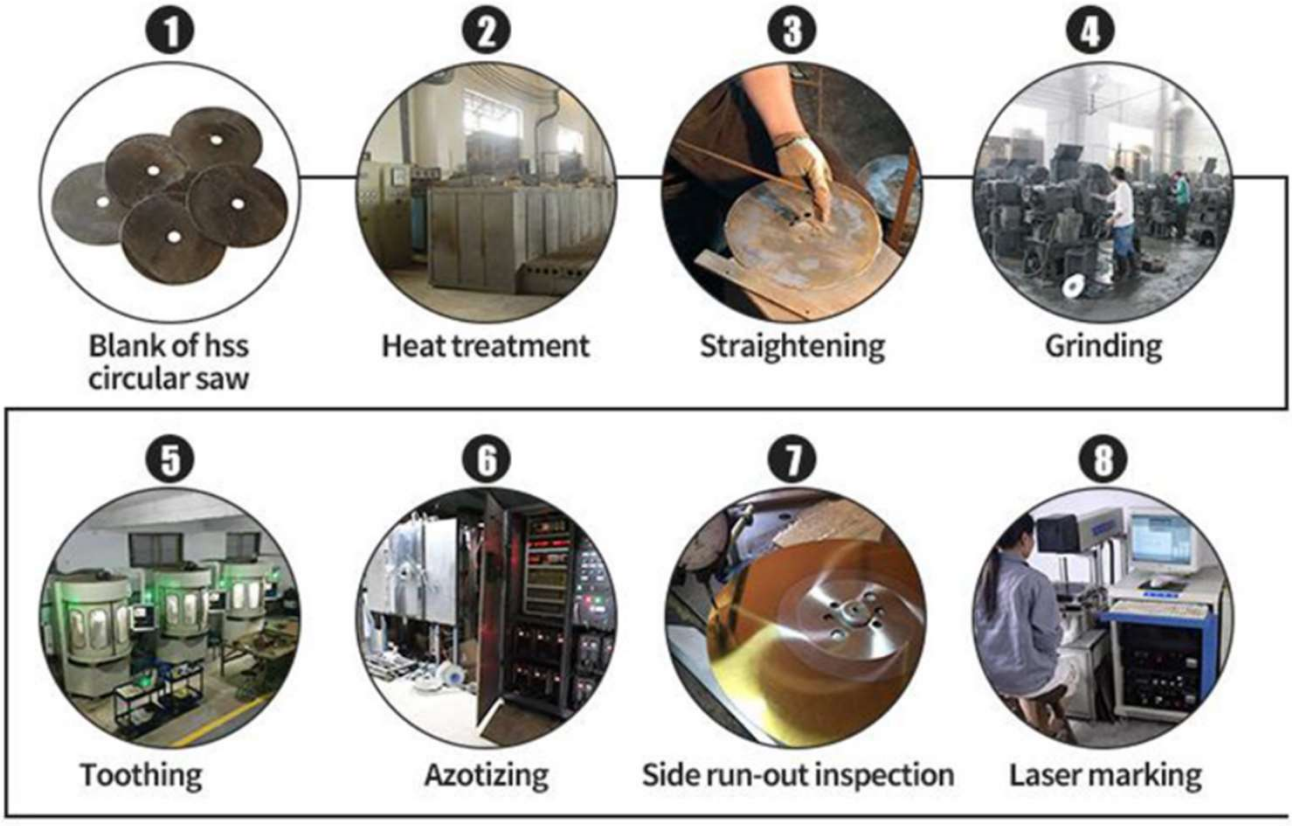
Why Us?

ToolingBox®

According to the different applications, ToolingBox can supply TBHSaw-G/H/S series HSS circular saw blades to our customers across many industries.We only use super high-speed steel manufactured by steel plants that are ISO 9001 approved. This guarantees the constant quality of the products supplied, which always come with a casting certificate and a detailed chemical analysis.

We have all standard items ready from stock, and we can also manufacture special tools to meet specific customer requirements.

- **Our Production Process of HSS Saw Blades**



ToolingBox®

TBHSaw-G/H/S series

HSS Saw Blade for high tensile strength and stainless steel materials cutting

Longer tool life and Reduced Cycle time

➢ High-quality high speed steel blanks:

Manufactured by high-quality HSS blanks from steel plants that are ISO 9001 approved.

➢ Standard Run-out:

The standard run-outs of our HSS saw blade can be controlled within 0.2-0.3 to keep cutting quality.

➢ Multiple specification options:

Blade Shapes are designed according to the customer's cutting condition, different tooth No. and thickness can be offered.

➢ Multiple Coating Choice for each specific application:

Different coating types including TiN, TiAlN, and so on are designed for each specific cutting application to achieve good performance.

ToolingBox®

TBHSaw-G/H/S series

HSS Saws Blade for Non-Metal and Metal cutting

Items	Main features	HSS Material	Strength of cutting steel (Mpa)	Application	Coating Color
TBHSaw-G™ Series	General Purpose	HSS-DMo5 (M2)	<550	cutting alloys and common steel	Gold
TBHSaw-H™ Series	High performance	HSS-Co5 (M35)	550-700	cutting stainless steel and medium hard steel	Colorful
TBHSaw-S™ Series	Super Hard Materials	Special HSS	650-850	cutting carbon steel and stainless steel	Dark Grey

Coating Grade Listing

Coating Color	Microhardness(HV0.05)	Friction Coefficient against Steel(Dry)(p)	Coating depth (um)	Key Characteristics	Primary Applications
Gold	2850	0.47	3	high hardness,very good oxidation resistance	cut medium steel and must always be used with plenty of lubrication. It is not suitable for copper, brass or bronze cutting.
Multicolor	3000	0.22	2.5	high performance with low wear	particularly suitable for cutting stainless steel, titanium, and hardened steel, along with brass and copper.
Dark Grey	3520	0.4	2.5	Can be cutting without coolant, or micro-nebulization, as well as for cutting with plenty of coolant	cutting high alloy steels up to 1000 N/mm2, stainless steel and all material developing a high thermal energy.

ToolingBox®

TBHSaw-G/H/S series

HSS Saws Blade for Non-Metal and Metal cutting

TBHSaw-G™ Series -HSS DMO5 Cut Off Circular saw blade

This is the most standard product for cutting ordinary steel <550 Mpa. All projects are made of high-speed steel with high content of tungsten and molybdenum. The composition of these elements ensures very high hardness and appropriate toughness after heat treatment. The correct percentage of tungsten is essential to create a correct amount of very wear-resistant carbides to extend tool life at high temperatures. Tungsten also increases the mechanical life of the tool, increases the cutting performance, and prevents the expansion of austenite grains. Tungsten is also essential to ensure the formation of a fine martensitic structure, which also increases tool toughness and maintains high mechanical resistance. Vanadium is the element that forms the hardest and most abrasive carbide of all other alloys.

P.V.D Coating with 3-micron depth titanium base, which is obtained at a process temperature of approximately 490° C. It guarantees a coefficient of friction of 0.47 and a maximum oxidation temperature of 640° . The hardness of the coated layer reaches 2,850 Vickers (Hv 0.05). Its low thermal conductivity guarantees a high heat shield which protects the hardened steel base. This coating is suitable to cut medium steel and must always be used with plenty of lubrication. It is not suitable for copper, brass or bronze cutting.

TBHSaw-H™ Series -HSS Co5 Cut Off Circular saw blade

This is our standard product for cutting stainless steel and medium hardness of 550-700 MPa. This is a high speed steel with a certain proportion of cobalt added to all the alloying elements already present in HIGH speed steel DMo5. Cobalt does not form carbides, but stabilizes critical grain growth and, most importantly, maintains high hardness at operating temperatures. This property is very important for cutting very thick materials such as stainless steel and very hard metals with high cutting temperatures. The range of production specifications and HSS Dmo5 products are the same.

Multilayer P.V.D coating with 2.5 micron depth. It is obtained from a plasma with a particular titanium, carbon, and acetylene composition. This composition gives the coating a very low friction coefficient of 0.22 together with a considerable hardness of deposited layer 3,200 Vickers. (HV 0.05). These two characteristics guarantee the circular blades will be high performance with low wear, and also ensure an improvement in the cut's finish. It is a coating with an oxidation temperature of 470° C and therefore must be used with abundant lubrication. It is particularly suitable for cutting stainless steel, titanium, and hardened steel, along with brass and copper.

TBHSaw-S™ Series -HSS Super Cut Off Circular saw blade

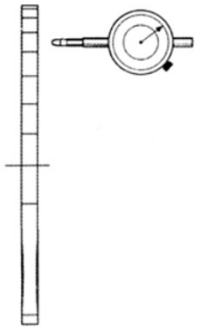
This is a updated product for a special saw blade, using high performance cutting machine to improve the cutting steel hardness of 650-850 MPa solid bar and pipe sawing solution is constantly improving and technological upgrading. This product recommends cutting carbon steel and stainless steel.

P.V.D Multi-layer coating with a thickness of 2,5 microns, opaque grey coloured. The particular composition and the innovative mix of noble elements developed by our R&D achieves a hardness which is higher than 3,520 Vickers (Hv 0,05), unattained by any other coating. This new coating is very tenacious and very resistant to high temperatures. These features are very important to guarantee long-life when using circular saw blades with high speed parameters. It is highly recommended for circular saw blades to work with critical cutting parameters on high performance machines. The friction coefficient of 0,40 allows the use of circular saws both for cutting without coolant, or micro-nebulization, as well as for cutting with plenty of coolant. It's suggested for cutting high alloy steels up to 1000 N/mm2, stainless steel and all material developing a high thermal energy.

Bore (Standard, mm)	Pin holes (Standard, mm)
32 mm	2/8/45+2/11/63 mm oder/or 4/9/50 mm
40 mm	2/8/55+4/12/64 mm oder/or 2/8/55+4/12/64+2/15/80 mm
50 mm	4/15/80+4/14/85 mm

Run-out

Ø	Standard
175 - 275	0,20
300 - 400	0,25
425 - 500	0,30



High Speed Steel qualities

HSS DMo5	M2	DIN1.3343
HSS-E Co5	M35	DIN1.3243

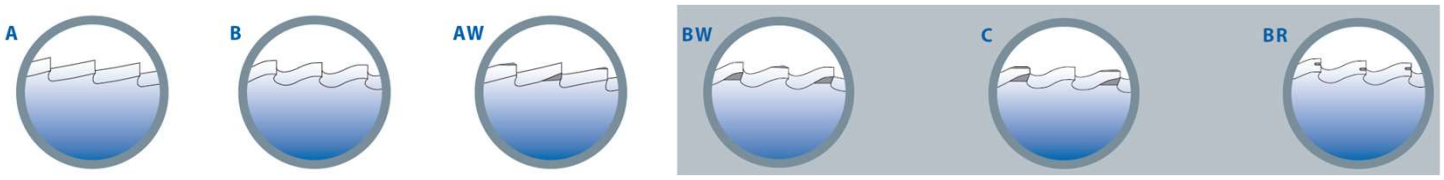
HSS/DMo5 vaporized

Vaporized circular saw blades do have a surface treatment by applying an oxide coating by steam. The special advantages are sliding ability and increased absorptive capacity for reception of the cooling liquid and avoiding the sticking up of material.

HSS-E/EMo 5 Co5 vaporized

For the sawing of very hard steels and for extreme working conditions we recommend sawblades made of cobalt alloyed high speed steel.

In tooth production ToolingBox uses only CNC machines with a CBN grinding wheel to obtain a very low surface roughness that guarantees excellent chip removal, and avoids material sticking to the cutting surface of the gullet. Our technicians can advise on the best tooth shape for each specific application.



Tooth shape A is normally used on fine toothing (<T3) for applications such as brass alloy cutting, jewellery and screw slotting.

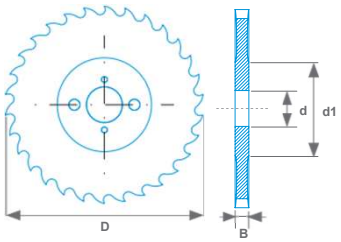
Tooth shape B is normally used for thin-walled pipes and the cutting of structural shapes, especially where chip removal is not an issue.

Tooth shape AW, unlike type A, is alternately bevelled, thus optimizing chip shredding.It is particularly suitable for precision cutting.

Tooth shape BW is primarily used for cutting pipes and sections.The tooth is alternately bevelled at 45° , breaks the chip in two and guarantees good chip evacuation.

Tooth shape C is used for solid sections or very thick pipes. The chip is shredded into three parts due to the presence of both a finishing tooth without chamfer and a pre-cutting tooth (longer than 0.25 mm) with two chamfers on each side.

Tooth shape BR has been successfully introduced for cutting pipes. It has double the number of cutting edges and guarantees a
higher number of cuts and a better finish to the section. It also improves tool durability by about 20% because it reduces the removed section per each single sharpening.



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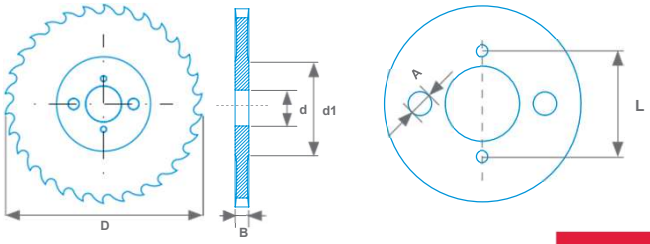
Toothing Sheet of HSS Saw Blades

D	B	d	d1	Z														
				T1.5	T2.5	T3	T4	T4.5	T5	T5.5	T6	T7	T8	T9	T10	T12	T14	T16	T18
				A	A	Bw	Bw	Bw	Bw	Bw	C	C	C	C	C	C	C	C	C
175	1,2	32	75	360	220	180	140	120	110	100	90	80	70	60					
	2,0	32	75																
200	1,0	32	100	420	250	200	160	140	130	120	100	90	80	70	60				
	1,2	32	100																
	1,5 / 1,6	32	90																
	1,8	32	90																
	2,0	25,4 / 32	90																
225	1,2	32	100	470	280	220	180	160	140	128	120	100	90	80	70	60			
	1,5 / 1,6	32	90																
	1,9 / 2,0	32 / 40	90																
250	1,2	32	100	520	320	250	200	180	160	140	128	110	100	90	80	66			
	1,5 / 1,6	32	100																
	2,0	25,4 / 32 / 40	100																
	2,5	25,4 / 32 / 40	100																
	3,0	32	100																
275	1,2	32	100		340	280	220	200	180	160	140	120	110	96	90	70	60		
	1,6	32	100																
	2,0	32 / 40	100																
	2,5	25,4 / 32 / 40	100																
	3,0	32 / 40	100																
300	1,6	32 / 40	100		380	300	220	210	180	170	160	140	120	104	90	80	68		
	2,0	32 / 40	100																
	2,5	32 / 38 / 40	100																
	3,0	32 / 40	100																
315	1,6	32 / 40	100		400	300	240	220	200	180	160	140	120	110	100	80	70	60	
	1,8	40	100																
	2,0	32 / 40	100																
	2,5	32 / 40	100																
	3,0	32 / 40	100																
325	2,0	32	120		410	320	250	220	200	190	170	150	128	110	100	80	72	64	
	2,5	32 / 40	120																
	3,0	40	120																
350	1,8	32 / 40 / 50	120		440	350	280	240	220	200	180	160	140	120	110	90	80	70	60
	2,0	32 / 40 / 50	120																
	2,5	32 / 40 / 50	120																
	3,0	32 / 40 / 50	120																
370	2,0	40	120			380	280	260	220	210	190	160	140	120	110	96	80	70	64
	2,5	40 / 50	120																
	3,0	32 / 40 / 50	120																
	3,5	40	120																
400	2,2	40 / 50	130 x 2,5				310	280	250	230	200	180	160	140	120	100	90	80	70
	2,5	32 / 40 / 50	120																
	3,0	32 / 40 / 50	120																
	3,5	40 / 50	120																
	4,0	50	120																
425	2,5	40 / 50	120				320	300	260	240	220	190	160	150	130	110	90	84	70
	3,0	40 / 50	120																
	3,5	50	120																
	4,0	50	120																
450	2,5	40 / 50	130				350	320	280	260	230	200	180	160	140	120	100	90	80
	3,0	40 / 50	130																
	3,5	40 / 50	130																
	4,0	40 / 50	130																
500	3,0	40 / 50	130				380	350	310	280	260	220	200	170	160	130	110	100	90
	3,5	40 / 50	130																
	4,0	40 / 50	130																
525	3,5	50	140				410	360	330	300	270	230	200	180	164	130	110	104	90
	4,0	50	140																
550	3,0	50 / 90 / 140	200 / 225				430	380	340	310	290	250	220	190	170	140	120	110	90
	3,5	50 / 90 / 140	140 / 200 / 225																
	4,0	50 / 90 / 140	140 / 200 / 225																
600	3,5	50 / 90 / 140	225				460	420	380	340	320	270	240	210	190	160	130	120	100
	4,0	50 / 90 / 140	200 / 225																
620	3,5	140	225				480	430	390	350	320	280	240	220	190	160	140	120	110
	4,0	140	225																
650	4,0	80	225				510	450	410	370	340	290	260	230	200	170	150	130	110
	5,0	80	225																
700	4,0	80	225				540	480	430	390	360	310	270	240	220	180	150	140	120
	5,0	80	225																



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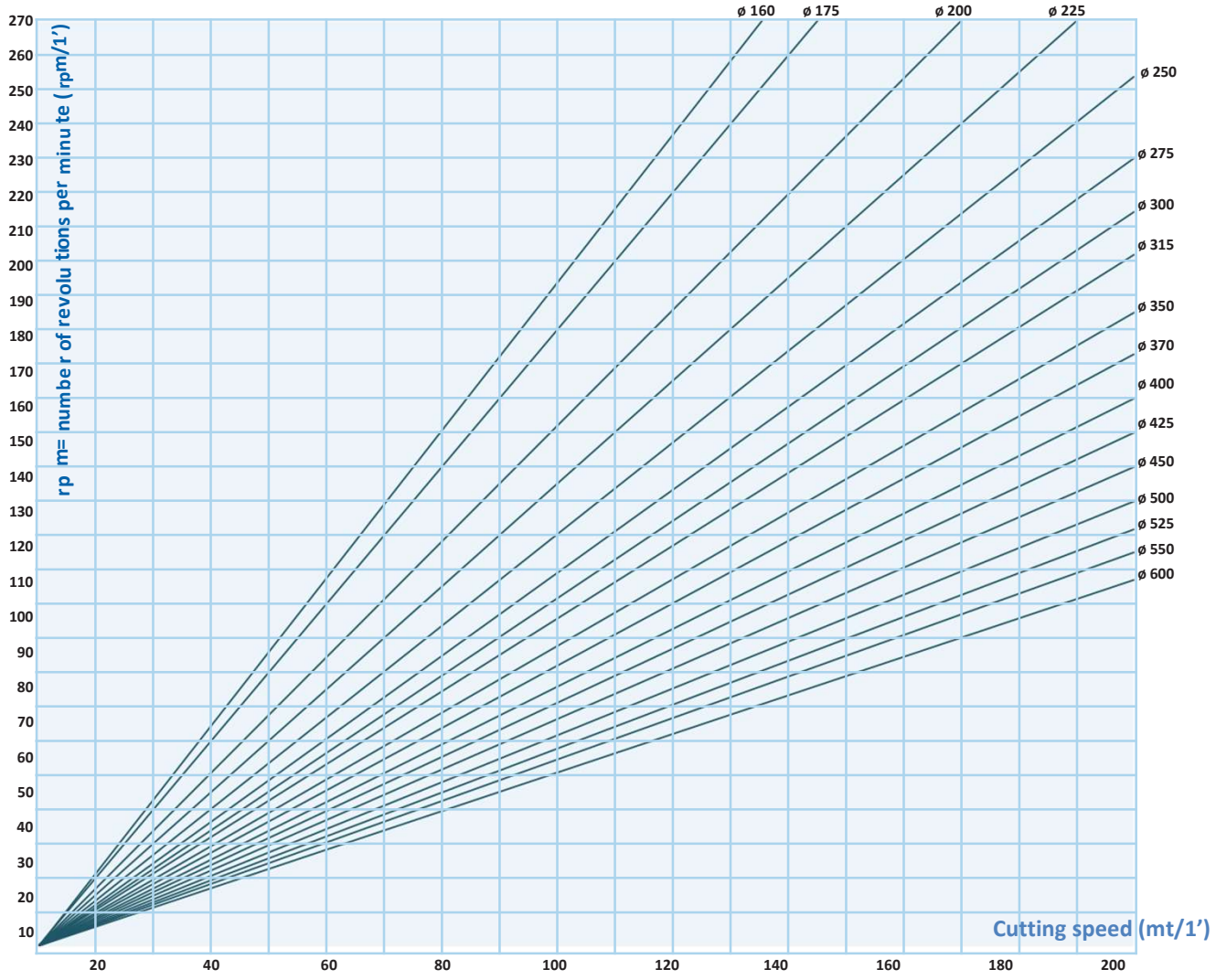
PINHOLES of HSS Saw Blades

D	B	d	N° x A x L
175	1,2 / 2,0	32	2/8/45 + 2/11/63
200	1,0 / 1,2 / 1,5 / 1,6 / 1,8 / 2,0	32	2/8/45 + 2/11/63
225	1,2 / 1,5 / 1,6 / 1,9 / 2,0	32	2/8/45 + 2/11/63
	1,9 / 2,0	40	2/8/55 + 4/12/64
250	1,2 / 1,5 / 1,6 / 2,0 / 2,5 / 3,0	32	2/8/45 + 2/11/63
			2/8/45 + 2/9/50 + 2/11/63
	2,0 / 2,5	40	2/8/55 + 4/12/64
275	1,2 / 1,6 / 2,0 / 2,5 / 3,0	32	2/8/45 + 2/11/63
			2/8/45 + 2/9/50 + 2/11/63
	1,6 / 2,0 / 2,5 / 3,0	40	2/8/55 + 4/12/64
300	1,6 / 2,0 / 2,5 / 3,0	32	2/8/45 + 2/11/63
			2/8/45 + 2/9/50 + 2/11/63
	1,6 / 2,0 / 2,5 / 3,0	40	2/8/55 + 4/12/64
315	1,6 / 1,8 / 2,0 / 2,5 / 3,0	32	2/8/45 + 2/11/63
			2/8/45 + 2/9/50 + 2/11/63
	1,6 / 1,8 / 2,0 / 2,5 / 3,0	40	2/8/55 + 4/12/64
325	2,0 / 2,5	32	2/8/45 + 2/11/63
	2,5 / 3,0	40	2/8/55 + 4/12/64
350	1,8 / 2,0 / 2,5 / 3,0	32	2/8/45 + 2/11/63
			2/8/45 + 2/9/50 + 2/11/63
	1,8 / 2,0 / 2,5 / 3,0	40	2/8/55 + 4/12/64
	1,8 / 2,0 / 2,5 / 3,0	50	4/15/80 + 4/14/85
370	2,5 / 3,0 / 3,5	32	2/8/45 + 2/11/63
	2,0 / 2,5 / 3,0 / 3,5	40	2/8/55 + 4/12/64
	2,5 / 3,0	50	4/15/80 + 4/14/85
400	2,5 / 3,0	32	2/8/45 + 2/9/50 + 2/11/63 + 2/12/64
	2,2 / 2,5 / 3,0 / 3,5	40	2/8/55 + 4/12/64
	2,2 / 2,5 / 3,0 / 3,5 / 4,0	50	4/15/80 + 4/14/85
425	2,5 / 3,0 / 3,5	40	2/8/55 + 4/12/64
	2,5 / 3,0 / 3,5 / 4,0	50	4/15/80 + 4/14/85
450	2,5 / 3,0 / 3,5 / 4,0	40	2/8/55 + 4/12/64
	2,5 / 3,0 / 3,5 / 4,0	50	4/15/80
			4/15/80 + 4/14/85
500	3,0 / 3,5 / 4,0	40	2/8/55 + 4/12/64
	3,0 / 3,5 / 4,0	50	4/15/80 + 4/14/85
525	3,5 / 4,0	50	4/15/80 + 4/14/85
550	3,0 / 3,5 / 4,0	50	4/15/80 + 4/14/85
	3,0 / 3,5 / 4,0	90	3/12,5/160
	3,0 / 3,5 / 4,0	140	4/17,5/170
600	3,5 / 4,0	50	4/15/80 + 4/14/85
	3,5 / 4,0	90	3/12,5/160
	3,5 / 4,0	140	4/17,5/170
620	3,5 / 4,0	140	4/17,5/170
650	4,0 / 5,0	80	4/23/120
700	4,0 / 5,0	80	4/23/120

Recommended Cutting Speed and Feed Rate

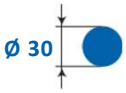
Formula $rpm = \frac{V \times 1000}{D_1 \times 3{,}14}$ $Av = Avz \times Z \times rpm$



V Cutting speed (mt/1')	D1 Saw blade diameter (mm)	Av Feed rate (mm/1')	Avz Feed rate per tooth (mm/Z)	Z Number of teeth	rpm Number of revolutions/minute

EXAMPLES FOR THE CALCULATION OF CUTTING PARAMETERS

Steel to be cut: **38NCD4 R = 1000 N/mm**
Section to be cut: **ø 30 mm**
Circular saw diameter: **D_1 = 350 mm**



Vt	=	15 - 25 mt/1'	= 25 mt/1'
Avz	=	0,02 - 0,06 mm	= 0,03 mm
T	=	7	**Z** = 160

The parameters are:

$$Rpm = \frac{Vt \times 1000}{3{,}14 \times D_1} = \frac{25 \times 1000}{3{,}14 \times 350} = \textbf{23 giri/min}$$

Av = Avz x Z x Rpm = 0,03 x 160 x 23 = 110 mm/1'

• Cutting Speed for Different cutting materials

Material	V (mt/1')	Avz (mm/Z)
Steel (UTS < 450 MPa)	50 - 110	0,04 - 0,08
Steel (UTS < 650 MPa)	30 - 80	0,03 - 0,07
Steel (UTS < 900 MPa)	15 - 40	0,03 - 0,06
Stainless steel	12 - 30	0,02 - 0,05
Cast iron	20 - 30	0,03 - 0,05
Titanium	10 - 25	0,02 - 0,05
Brass	400 - 600	0,04 - 0,07
Copper	200 - 300	0,04 - 0,06
Bronze	200 - 400	0,05 - 0,07
Aluminium	500 - 700	0,05 - 0,08

• Pitch Selection

PIPES AND STRUCTURAL SHAPES					SOLID BAR	
		Avz ≈ 0,05 mm/z				Avz ≈ 0,04 mm/z
d	s	T	s	T	d	T
20,0	≤ 2	4,5	> 2	5,0	≤ 20	6
30,0	≤ 2	5,0	> 2	6,0	≤ 30	8
40,0	≤ 3	6,0	> 3	8,0	≤ 40	10
50,0	≤ 3	7,0	> 3	8,0	≤ 50	12
60,0	≤ 3	7,0	> 3	8,0	≤ 60	14
70,0	≤ 3	7,0	> 3	9,0	≤ 70	16
80,0	≤ 4	8,0	> 4	9,0	≤ 80	18
90,0	≤ 4	9,0	> 4	10,0	≤ 90	20
100,0	≤ 4	9,0	> 4	12,0	≤ 100	20
110,0	≤ 5	10,0	> 5	14,0	≤ 110	22
120,0	≤ 6	12,0	> 6	14,0	≤ 120	24

Cutting Speed for different materials and Pitch Selection

ToolingBox®

D1 350 x 2,5		Steel ≤ 500 N/mm² INOX		Steel ≤ 800 N/mm² INOX		Steel ≤ 1200 N/mm²	
		○	●	○	●	○	●
		V = 75 m/min.	V = 50 m/min.	V = 35 m/min.	V = 25 m/min.	V = 18 m/min.	V = 12 m/min.
		Avz = 0,06 mm/Z		Avz = 0,06 mm/Z		Avz = 0,06 mm/Z	
T	Z	Av = mm/min.	Av = mm/min.	Av = mm/min.	Av = mm/min.	Av = mm/min.	Av = mm/min.
3	350	1428	-	670		290	190
4	280	1140	765	535	380	230	150
5	220	900	600	420	300	180	120
6	180	735	490	345	245	147	98
7	160	650	435	305	220	130	87
8	140	570	380	265	190	115	75
9	120	490	330	230	165	100	65
10	110	450	300	210	150	90	60
12	90	365	245	170	120	74	50
14	80	325	220	150	110	66	45
16	70	285	190		95	57	38
18	60	-	165		80	50	33

● Solid ○ Pipe

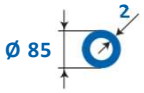
D1 350 x 2,5		BRASS		BRONZE COPPER		ALUMINIUM	
		○	●	○	●	○	●
		V = 600 m/min.	V = 400 m/min.	V = 400 m/min.	V = 200 m/min.	V = 800 m/min.	V = 500 m/min.
		Avz = 0,05 mm		Avz = 0,05 mm		Avz = 0,05 mm	
T	Z	Av = mm/min.	Av = mm/min.	Av = mm/min.	Av = mm/min.	Av = mm/min.	Av = mm/min.
3	350	9100		6000		13300	
4	280	7300		4800		10600	
5	220	6100	4000	4000	2000	8350	5940
6	180	4800	3200	3200	1600	6840	4860
7	160	4200	2800	2800	1400	6080	4320
8	140	3600	2400	2400	1200	5320	3780
9	120	3300	2200	2200	1100	4560	3240
10	110	3000	2000	2000	1000	4180	2970
12	90	2400	1600	1600	800	3420	2430
14	80	1400		700			2160
16	70	1200		600			1890
18	60	1100		550			1620

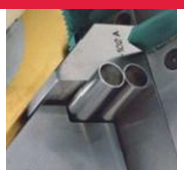
● Solid ○ Pipe

Case 1 STATIC CUT

Material
Inox AISI 304 800 N/mm²
Section to be cut:

Machine cost per hour:
50 USD/h = 0,83 USD/min



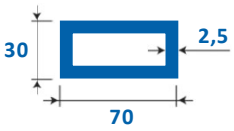


Parameters used and client's results	Results obtained with ToolingBox's HSS saw blades
CIRCULAR SAW 400 x 2,5 x 32 Z 200 C • Vt = 16 mt/min • Rpm = 13 giri/min • Av = 160 mm/min • t = 32" • N° = 1132 pz • T = 13h 15' • S = 0,70' • C = 0,70 x 0,83 = **0,58 USD**/pz	CIRCULAR SAW 400 x 2,5 x 32 Z 250 BW TBHSaw-G™ Series • Vt = 30 mt/min • Rpm = 24 giri/min • Av = 260 mm/min • t = 19" • N° = 2740 pz • T = 18h 40' • S = 0,40' • C = 0,40 x 0,83 = **0,33 USD**/pz

Case 2 FLYING CUT

Material
S 235 450 N/mm²
Section to be cut:

Machine cost per hour:
50 USD/h = 0,83 USD/min

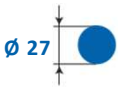


Parameters used and client's results	Results obtained with ToolingBox saw blades
CIRCULAR SAW 550 x 3,5 x 50 Z 220 C • Vt = 150 mt/min • Rpm = 87 giri/min • Av = 2400 mm/min • t = 1,75" • N° = 3600 pz • T = 2h 25' • S = 0,04' • C = 0,04 x 0,83 = **0,033 USD**/pz	CIRCULAR SAW 550 x 3,5 x 50 Z 240 C TBHSaw-H™ Series • Vt = 185 mt/min • Rpm = 106 giri/min • Av = 3100 mm/min • t = 1,35" • N° = 5650 pz • T = 2h 45' • S = 0,029' • C = 0,029 x 0,83 = **0,024 USD**/pz

Case 3 STATIC CUT

Material
SMn Pb 37 500 N/mm²
Section to be cut:

Machine cost per hour:
50 USD/h = 0,83 USD/min



Parameters used and client's results	Results obtained with ToolingBox saw blades
CIRCULAR SAW 300 X 2,0 X 32 Z 150 C • Vt = 30 mt/min • Rpm = 32 giri/min • Av = 230 mm/min • t = 7,05" • N° = 3200 pz • T = 8h 10' • S = 0,153' • C = 0,153 x 0,83 = **0,127 USD**/pz	CIRCULAR SAW 300 X 2,0 X 32 Z 140 C TBHSaw-S™ Series • Vt = 44 mt/min • Rpm = 47 giri/min • Av = 350 mm/min • t = 4,63" • N° = 4200 pz • T = 7h 05' • S = 0,101' • C = 0,101 x 0,83 = **0,084 USD**/pz

Problems and Solutions

There are many factors that influence cutting procedure.Sometimes we think that everything depends on the piece to be cut and the cutting tool. A more careful analysis indicates there are other factors.

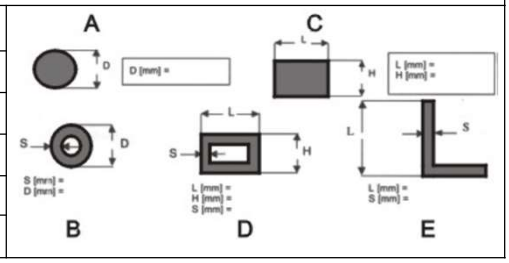
The most important are: the quality of the circular saw blade, the quality of the material being cut, the correct clamping of the piece, the quality and quantity of the lubricant, the stiffness of the cut-off machine, the control of feed rate, the quality of resharpening, etc.

Sometimes the problems which arise during the cutting operation are the sum of several different factors, and it's particularly difficult to find a solution.We have indicated below some of the most common problems we have encountered, and some possible solutions.

PROBLEMS	POSSIBILE CAUSE	SOLUTION
Clogged tooth gullet	Pitch too law	Reduce number of teeth
	Cutting speed too high	Reduce the number of revolutions
Poor quality of the cut surface	Wrong tooth form	Contact our technicians
	Wrong cutting parameters	Verify cutting parameters on the chart
Poor cutting performance	Cutting speed too high	Reduce the number of revolutions
	Insufficient lubrication	Increase pressure and flow rate of the coolant
	Wrong feed rate per tooth	Verify feed rate with charts
	Wrong cutting angles	Verify cutting angles
Filling material at the tip of the tooth	Poor sharpening	Verify sharpening quality
	Vibration during cutting	Verify stability of piece
Filling material on the sides of the tooth	Insufficient lubrication	Verify flow rate of coolant
	Excessive disc side run-out	Use reduced side run-out sawblades
Blade breakage during cutting	High working parameters	Verify parameters with the charts
	Poor clamping of the piece being cut	Verify the quality and strength of clamp
	Unsteady feed rate	Verify feeding system of the cut-off machine
	Wrong pitch	Verify parameters against the charts
Burn marks on the piece being cut	Worn saw blade	Blade must be resharpened
	Insufficient lubrication	Increase coolant flow / Check concentration

Checklist for Circular Saw Blades

ToolingBox®

The Material To Be Cut			
Diameter		mm	
Thickness		mm	
Material			
Type			
Tension strength		N/mm²	
metal together cut			

☐ TCT Circular saw blade ☐ SC Circular saw blade ☐ HSS Circular saw blade

Diameter		mm	Diameter		mm
Tooth Thickness		mm	Thickness		mm
Body Thickness		mm	Hub Thickness		mm
Central hole		mm	Central hole		mm
Teeth/Shape		Teeth	Teeth/Shape		Teeth
Driving holes		mm	Driving holes		mm
Coating of the sawblades			Coating of the saw blades		
Blades code:		Code	Blades code:		Code

Machine information and parameters

Item	parameters	unit
Machine brand model:		
N.B.of machine:		pcs
Equipment status	Feed mode of equipment	Device feed mode
Manual ☐ Semi-automatic ☐ Automatic ☐	Pneumatic ☐ hydraulic ☐ Servo feed ☐	Turbine reducer ☐ Gear drive ☐ Servo driver ☐
★Machine R.P.M:		RPM
★Machine cutting speed:		(V/m/min)
★Cut one material cost time:		s
★Cuting time:		s
★Total feed(average):		mm/min
★Feed per tooth(start);		mm
★Feed per tooth(mid);		mm
★Feed per tooth(end);		mm
If you are flycutting machine customer,our need know!		
1) line speed		m/min
2) length of the machine guide		m
3) lengthof the material		m
★(Cutting life)(cut/time):		(cut/time)
Other brand blades can cut:		m²
Use ToolingBox can cut:		m²
Reaction of customer to saw blade):		
1)		
2)		

Person in charge:

Date

★Five corner center,please be sure to fill in

Please sand back to E-mall: sales@toolingbox.com

ToolingBox®

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