Arntz

HSS - Circular Saw Blades

Fact Book

Welcome

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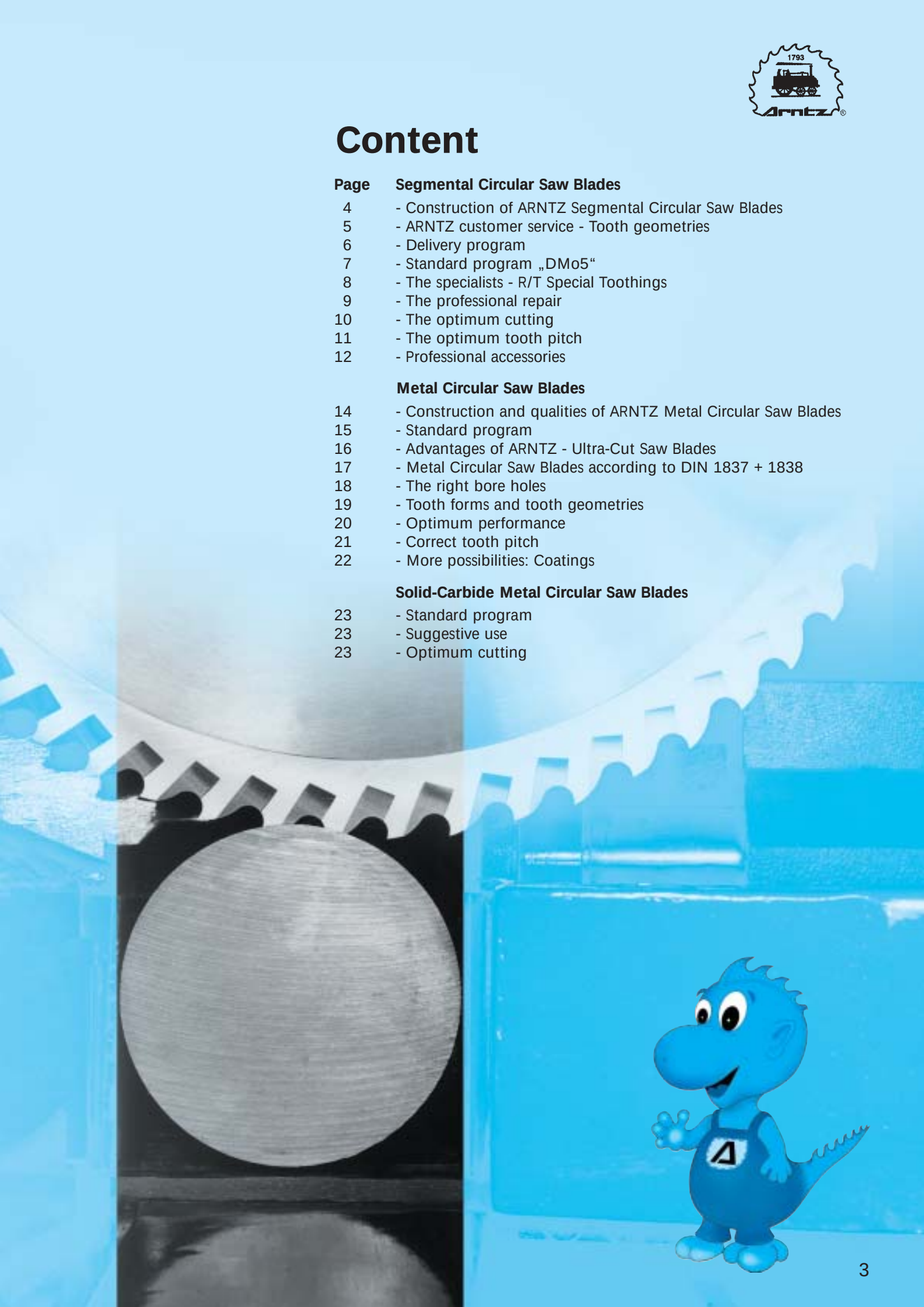
The ARNTZ company has more than 200 years of experience in tool production and there have been a great many changes in those 200 years.

Excellent saw blades demand excellent service which we at the ARNTZ company are constantly striving towards. Our service includes support for machine problems as well as blade applications. Just as technical excellence is important, our customers are our main concern. With that in mind we are at your disposal at any time for assistance.

Of course, you will also find us in the Internet*. You, the customer, will receive professional answers for your saw blade applications, plus additional tips to help optimize the life of your tools.

We are your problem solvers.

Content

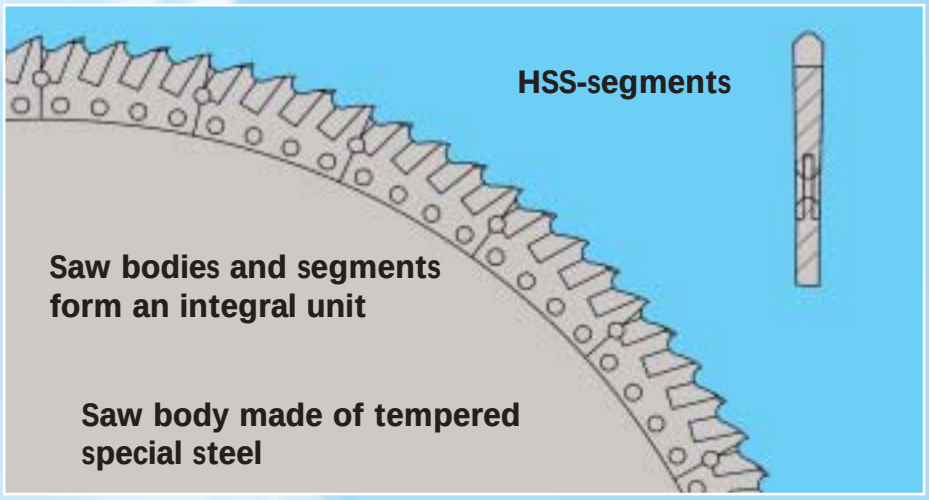


High Speed - Segmental Circular Saw Blades
Why are they so successful?

HSS-segments

DMo5 (1.3343)
Hardness approx.
63 - 65 HRC

EMo5 Co5 (1.3243)
Hardness approx.
63 - 65 HRC
with high Cobalt content



HSS-segments: choice between hardened high speed steel of quality DMo5 or EMo5Co5. The hardness of approx. 63-65 HRC guarantees optimum protection of wear and high life time of the saw blade.

Steel body: made of alloyed steel, tensioned and straightened electronically and have a strength of approx. 1400 N/mm², size of bore hole = H7.

Compound: steel body with strong shoulder to receive segments as well as saw body and segment form an integral unit. The segments are securely held in their closing ring.

Advantages:

- optimum tempered HSS segments as well as precise manufactured steel bodies are the basis for „the“ ARNTZ High Speed Segmental Saw Blades.
- Precise tensioning and straightening is ARNTZ know-how.
- Side cutting clearance ensures best cutting.
- The tooth geometry is adapted according to the function of cutting.
- High precision of the segments guarantees competent repairing.

ARNTZ - Customer Service

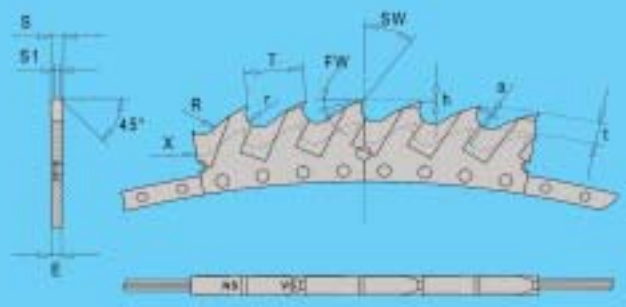
Due to specialized production facilities ARNTZ is not only an efficient supplier of new saw blades. We also offer you the best service for repairing and resharpening of your saw blades. This service includes tensioning and straightening of Segmental Saw Blades.

Only a competent repairing of your tools will guarantee constant and optimum cutting.

Sharpening of saw blades

Straightening and tensioning

Tooth geometry with standard values



VS	=	Roughing tooth	
NS	=	Finishing tooth	
S	=	Width of cut	
S1	=	Width of roughing tooth	(S/3-h)
E	=	Thickness of saw body	
T	=	Tooth pitch	
SW	=	Rake angle	(18°+/-1°)
FW	=	Clearance angle	(7°+/-1°)
a	=	Chamfer of rake angle	(0,08 x T)
h	=	High-Low difference	(table below)
t	=	Tooth depth	(0,40 x T)
r	=	Gullet radius	(0,25 x T)
R	=	Tooth back radius	(1,80 x T)
X	=	Limit of resharpening	

Tooth pitch in mm	High - Low difference in mm
4,5 - 8,5	0,20 - 0,30
8,6 - 16,5	0,25 - 0,35
16,6 - 28,5	0,40 - 0,50
28,6 - 48,5	0,50 - 0,60
48,6 - 88,8	0,60 - 0,70

Complete delivery program

Strong in all sizes

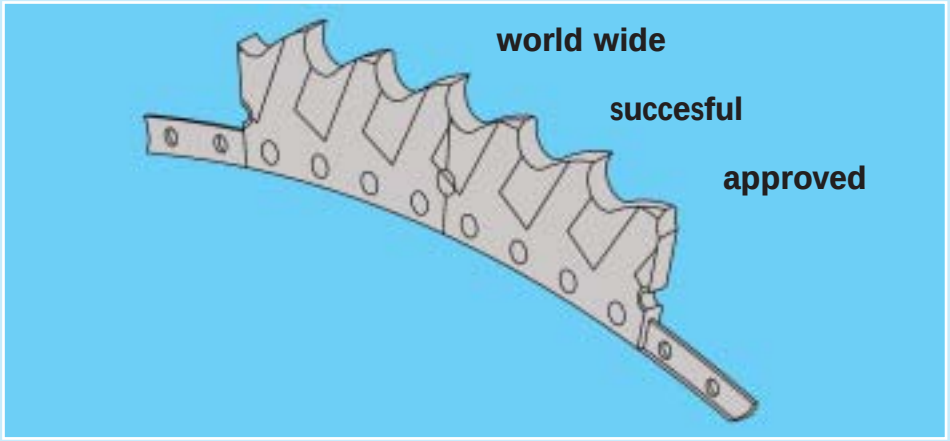
Diameter Ø mm	Cutting width mm	Thickness of saw body mm	Number of segments	Weight kg	Number of teeth Tooth pitch T =mm	Number of teeth per segment 2	3	4	5	6	8	10	12	HSS-segments available in DMo5 (1.3343)	EMo5 Co5 (1.3243)
275	3,0	2,2	12	1,3	Z T				**60** **14,4**	**72** **12,0**	**96** **9,0**	**120** **7,2**	**144** **6,0**	D	
315	3,6	3,0	14	1,7	Z T			**56** **17,7**	**70** **14,1**	**84** **11,8**	**112** **8,8**	**140** **7,1**	**168** **5,9**	D	
360	3,6	2,8	16	2,5	Z T			**64** **17,7**	**80** **14,1**	**96** **11,8**	**128** **8,8**	**160** **7,1**	**192** **5,9**	D	
370	3,6	2,8	16	2,6	Z T			**64** **18,2**	**80** **14,5**	**96** **12,1**	**128** **9,1**	**160** **7,3**	**192** **6,1**	D	
400	4,0	3,2	16	2,8	Z T			**64** **19,6**	**80** **15,7**	**96** **13,1**	**128** **9,8**	160 7,9	192 6,5	D	E
425	4,0	3,2	18	3,4	Z T			**72** **18,5**	**90** **14,8**	**108** **12,4**	**144** **9,3**	180 7,4	216 6,2	D	E
450	4,0	3,3	18	4,0	Z T			**72** **19,6**	**90** **15,7**	**108** **13,1**	**144** **9,8**	180 7,9		D	E
460	4,7	3,3	18	5,0	Z T			**72** **20,1**	**90** **16,1**	**108** **13,4**	**144** **10,0**	**180** **8,0**	216 6,7	D	
500	5,0	3,8	18	5,8	Z T		**54** **29,1**	**72** **21,8**	**90** **17,5**	**108** **14,5**	144 10,9	180 8,7	216 7,3	D	
520	5,7	4,0	18	6,7	Z T			**72** **22,7**	**90** **18,2**	**108** **15,1**	**144** **11,3**	180 9,1	216 7,6	D	
570	5,7	4,0	18	8,8	Z T			**72** **24,9**	**90** **19,9**	**108** **16,6**	**144** **12,4**	180 9,9	216 8,3	D	
630	6,0	4,0	20	10,8	Z T		**60** **33,0**	**80** **24,7**	**100** **19,8**	**120** **16,5**	160 12,4	200 9,9		D	E
660	6,0	4,0	20	11,5	Z T		**60** **34,6**	**80** **25,9**	**100** **20,7**	**120** **17,3**	**160** **13,0**	200 10,4	240 8,6	D	
710	6,0	4,5	24	13,5	Z T		**72** **31,0**	**96** **23,2**	**120** **18,6**	**144** **15,5**	192 11,6			D	E
760	6,0	4,5	24	16,5	Z T		**72** **33,2**	**96** **24,9**	**120** **19,9**	**144** **16,6**	192 12,4	240 9,9		D	
800	7,0	5,0	24	19,0	Z T		**72** **34,9**	**96** **26,2**	**120** **20,9**	**144** **17,5**	192 13,1	240 10,5		D	
910	7,0	5,0	30	27,5	Z T	**60** **47,6**	**90** **31,8**	**120** **23,8**	**150** **19,1**	**180** **15,9**	**240** **11,9**			D	
1020	8,3	6,2	30	35,0	Z T	**60** **53,4**	**90** **35,6**	**120** **26,7**	**150** **21,4**	**180** **17,8**	240 13,4			D	
1120	8,5	6,5	36	50,0	Z T	**72** **48,9**	**108** **32,6**	**144** **24,4**	**180** **19,5**	**216** **16,3**				D	
1250	9,0	7,0	36	65,0	Z T	72 54,5	**108** **36,4**	**144** **27,3**	**180** **21,8**	**216** **18,2**	288 13,6			D	
1320	9,0	7,0	36	75,0	Z T	**72** **57,6**	**108** **38,4**	**144** **28,8**	**180** **23,0**	**216** **19,2**	**288** **14,4**			D	
1430	9,5	7,0	36	93,0	Z T	72 62,4	**108** **41,6**	**144** **31,2**	**180** **25,0**	**216** **20,8**	288 15,6			D	
1510	10,5	8,5	36	112,0	Z T	**72** **65,9**	**108** **43,9**	**144** **32,9**	**180** **26,4**	**216** **22,0**				D	
1610	10,5	8,5	40	126,0	Z T	**80** **63,2**	**120** **42,1**	**160** **31,6**	**200** **25,3**	**240** **21,1**				D	E
1870	15,0	11,0	42	235,0	Z T	**84** **69,9**	**126** **46,6**							D	

Bolt print number of teeth = with cooling slots
Other toothings on request

Standard program

with segments made of HSS - DMo5, material no. 1.3343

tooth form: roughing tooth and finishing tooth geometry



Dia-meter Ø mm	Cutting-width mm	Thickness of-saw body mm	Number of-segments	Bore holes and pin holes mm	Number of teeth per segments							
					2	3	4	5	6	8	10	12
275	3,0	2,2	12	40 2-8-55 + 4-12-64					K	K	K	K
315	3,6	3,0	14	40 2-11-55 + 4-12-64			K	K	K	K	K	K
360	3,6	2,8	16	40 2-11-55 + 4-12-64				K	K	K	K	K
				50 4-15-80 + 4-15-85			K	K	K	K	K	
370	3,6	2,8	16	50 4-15-80 + 4-15-85				K	K	K	K	
400	4,0	3,2	16	50 4-15-80 + 4-15-85			K	K	K	K	O	O
425	4,0	3,2	18	50 4-15-80			K	K	K	K		
450	4,0	3,3	18	40 2-15-80 + 2-15-100			K	K	K	K		
				50 4-15-80 + 4-18-100			K	K	K	K		
460	4,7	3,3	18	50 4-15-80 + 4-18-100					K	K		
				60 8-16-90 + 4-18-100					K	K		
500	5,0	3,8	18	50 4-15-80 + 4-18-100		K	K	K	K	O	O	O
570	5,7	4,0	18	50 4-18-100				K	K	K		
				80 8-22-142				K	K	K		
630	6,0	4,0	20	80 4-23-120		K	K	K	K	O	O	
660	6,0	4,0	20	80 4-23-120			K	K	K	K		
				80 8-22-142				K	K	K	O	O
710	6,0	4,5	24	80 4-23-120		K	K	K	K	O	O	
760	6,0	4,5	24	80 4-23-120 + 4-27-160			K	K	K	O		
800	7,0	5,0	24	80 4-23-120 + 4-27-160			K	K	K			
910	7,0	5,0	30	80 4-23-120 + 4-27-160		K	K	K	K	K		
				100 8-27-186		K	K	K	K	K		
1020	8,3	6,2	30	100 4-32-200	K	K	K	K	K			
1120	8,5	6,5	36	100 4-32-200	K	K	K	K	K			
1250	9,0	7,0	36	100 4-32-250	O	K	K	K	K	O		
				100 4-32-220 + 4-32-250				K				
1320	9,0	7,0	36	100 4-32-250	K	K	K	K	K	K		
				160 8-32-270 + 4-42-315				K	K	K		
1430	9,5	7,0	36	100 4-32-250	O	K	K	K	K	O		

K = with cooling slots
O = without cooling slots
deviating executions on request.

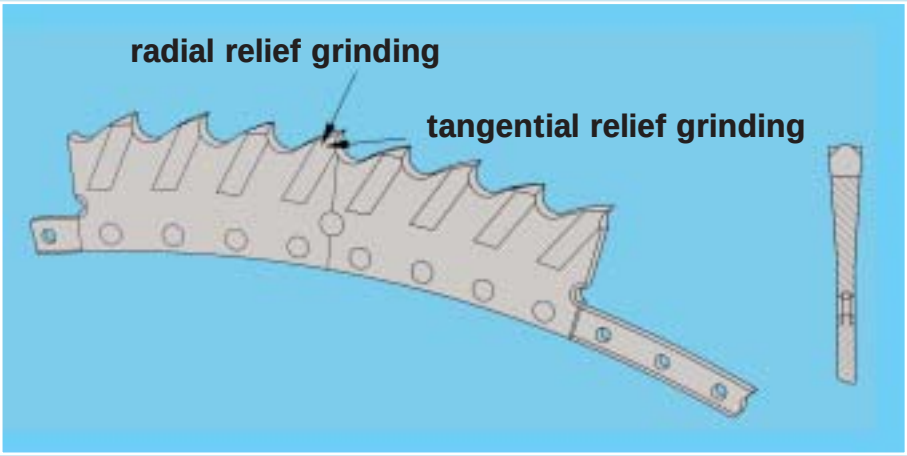
Segmental Circular Saw Blades R/T

SPECIAL - TOOTHING

The specialists for difficult cutting.

Why so successful? Special segments are ground radial and tangential. The relief grinding ensures good cutting clearance and avoids side pick-up on the tooth rim.

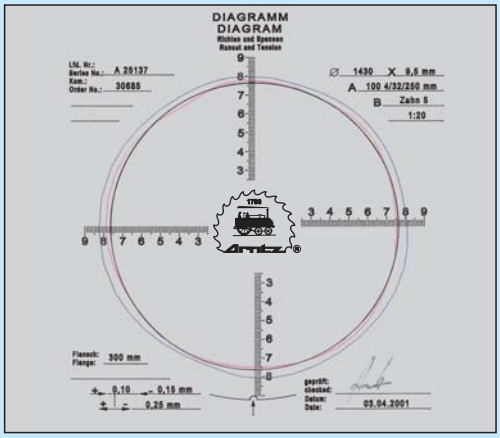
Solving problems for
- Large cross-sections
- Large H-beams
- Materials with own tension



- **with segments made of HSS-DMo5, material no. 1.3343**
- **with radial and tangential relief grinding**

Dia-meter Ø mm	Cutting-width mm	Thickness of saw body mm	Number of segments	Bore holes and pin holes mm	Number of teeth Z / Tooth pitch T = mm	COARSE II special	COARSE III special	COARSE IV special	COARSE V special
630	6,0	4,0	20	80 4/23/120	Z T		60 33,0	80 24,7	100 19,8
710	6,0	4,5	24	80 4/23/120	Z T		72 31,0	96 23,2	120 18,6
800	7,0	5,0	24	80 4/23/120 + 4/27/160	Z T		72 34,9	96 26,2	120 20,9
910	7,0	5,0	30	80 4/23/120 + 4/27/160 100 8/27/186	Z T	60 47,6	90 31,8	120 23,8	150 19,1
1020	8,3	6,2	30	100 4/32/200	Z T	60 53,4	90 35,6	120 26,7	150 21,4
1120	8,5	6,5	36	100 4/32/200	Z T	72 48,9	108 32,6	144 24,4	180 19,5
1250	9,0	7,0	36	100 4/32/220 + 4/32/250	Z T	72 54,5	108 36,4	144 27,3	180 21,8
1320	9,0	7,0	36	100 4/32/250 160 8/27/270 + 4/42/315	Z T	72 57,6	108 38,4	144 28,8	180 23,0
1430	9,5	7,0	36	100 4/32/250	Z T	72 62,4	108 41,6	144 31,2	180 25,0

The professional repair of Segmental Saw Blades



max. Runout of Segmental Circular Saw Blades	
Saw Blade Diameter	**max. max. Runout**
250 - 425 mm 450 - 1020 mm 1120 - 1430 mm	0,2 mm 0,3 mm 0,4 mm

Sharpening and Polishing of Rim of Teeth:
Only a professional repair of Segmental Saw Blades ensures a permanent optimum and profitable operation. Besides the right re-grinding of the toothing, also the condition of the rim of teeth must be checked.
If there is a side run-out, same must be removed by polishing of the rim before sharpening of the teeth.

Repair of Segments:
In case that HSS-Segments are damaged during cutting, these segments must be replaced. For this, only original HSS-Segments must be used which guarantee a high accuracy.

Tensioning and Straightening:
During the professional repair, each Circular Saw Blade must be checked and (if needed) rectified to its specific tension and straightening condition, as the values which have been given by the manufacturer can change during cutting.

Test of Tension:
As a Saw blade can loose its own tension during cutting, it sometimes happens that the Sawblades cannot run smoothly. Therefore, during repair, the Saw Blades must be tensioned again by a specialized company, in order to face the radial power in straight line.

Side Run-Out:
The maximum side run-out must be measured below the rim of teeth. The values acc. to enclosed schedule must not be exceeded. If the side run-out is outside of the maximum allowed value, the Sawblade must be straightened again by a specialized company in order to correct the side run-out.

Approximate Technical Values

for economical use of Segmental Circular Saw Blades

Material groups	Material-specification	Material No.	Hardness N/mm²	Cutting speed Vc=m/min.	Feed per Tooth pair fz=mm/Zp	Cutting angle	Clearance angle	High-Speed-Steel of segments 1.3343 DMo5=D 1.3243 Emo5Co5=E
Structural Steels	ST33-1 ST37-3 ST42-3 ST50-2 ST52-3 ST60-2	1.0033 1.0116 1.0136 1.0050 1.0570 1.0060	300 - 500 350 - 450 400 - 500 500 - 600 500 - 600 600 - 700	24 - 40 18 - 40	0,18 - 0,28 0,15 - 0,25	18 - 20 16 - 20	7 - 10 6 - 9	D D
Case hardening steels	C15 16MnCr5 20CrMo2	1.0401 1.7131 1.7311	400 - 500 700 - 750	18 - 24	0,15 - 0,25	18 - 20	7 - 9	D
Free-Machining steels	9SMn28 45S20	1.0715 1.0727	400 - 600 600 - 750	18 - 24	0,15 - 0,25	18 - 20	7 - 9	D
Heat- treatable steels	C35 C60 30Mn5	1.0501 1.0601 1.1165	550 - 750 700 - 850 700 - 900	15 - 20	0,12 - 0,25	18 - 20	7 - 9	D
Steel castings	GS-38 GS-52 GS-60 GS-70	1.0416 1.0551 1.0553 1.0554	380 - 520 600 - 700	20 - 28 16 - 22	0,18 - 0,28 0,15 - 0,25	15 - 20	6 - 8	D
Cast irons	GG-15 GG-30 GGG-50 GTW-50 GTS-65	0.6015 0.6030 0.7050 0.8040 0.8165	150 - 500 600 - 700	16 - 25 15 - 18	0,18 - 0,28 0,15 - 0,25	18 - 20 15 - 18	6 - 8 6 - 8	D D
Ball bearing steels	100Cr6 100CrMn6	1.3505 1.3520	900 - 1000	10 - 12	0,08 - 0,12	14 - 16	6 - 8	E
Spring steels	55Si7 55Cr3	1.0904 1.7176	1200 - 1400	6 - 10	0,06 - 0,12	12	6	E
Unalloyed tool steels	C75W C80W1	1.1750 1.1525	600 - 700	10 - 12	0,08 - 0,15	14 -16	6	E
Alloyed tool steels	125Cr1 X210Cr12 X42Cr13 X165CrV12 X32CrMoV3 3 45WCrV7 56NiCrMoV7	1.2002 1.2080 1.2083 1.2201 1.2365 1.2542 1.2714	800 - 900	8 - 12	0,05 - 0,12	12 - 16	6 - 8	E
High speed steels	S-6-5-2-5	1.3243	800 - 900	8 - 12	0,08 - 0,15	13 - 16	6 - 8	E
Valvesteels	X45CrSi9 3 X45CrNiW18 9	1.4718 1.4873	900 - 1050 800 - 1000	8 - 12	0,10 - 0,15	10 - 12	6	E
Stainless steels	X10Cr13 X20Cr13	1.4006 1.4021	450 - 650 700 - 800	8 - 12	0,08 - 0,15	16 - 18	6 - 8	E
Light metals	Al99,5 AlMgSiPb MgAl6Zn	3.0255 3.0615 3.5612	100 - 300 100 - 500	800 -2000 200 - 600	0,05 - 0,10	25 - 28 22 - 25	10 - 12 10 - 12	D
Heavy metals Copper Bronze Brass Germansilver	 Cu CuSn CuZn CuNi		 150 - 200 50 - 150 200 - 400 -	 100 - 300 40 - 120 150 - 300 100 - 200	 0,07 - 0,15 0,10 - 0,16 0,10 - 0,16 0,07 - 0,15	 20 - 25 18 - 20 10 - 15 20 - 22	 10 - 12 8 - 10 8 - 10 10 - 12	 D D D D

For cutting material with high tensile strength and material that is difficult to cut, it is advisable to chamfer the edges of the finishing tooth. The data recommended in this table are intended only as a guide.

Correct tooth pitch
- optimum cutting process

Decisive for economical cutting, Segmental Circular Saw Blades are the right choice of tooth pitch in connection with the dimension of the material and the material quality.

Technical recommendation = T	Length of cutting arc - height of cutting material in mm = D for tooth pitch in mm																
D =	20	30	40	50	60	70	80	90	100	125	150	175	200	250	300	400	500	600
Light metals Copper Structural Steels Heat-treatable steels Nitriding steels Case hardening steels Steel castings  T =	8,0	10,5	12,5	14,5	16,5	18,0	19,5	21,0	22,5	26,0	29,5	32,5	35,5	40,5	45,5	55,5	58,0	64,0
Cast irons Spring steels Rolled steels Valve steels Tool steels High speed steels  T =	6,5	8,0	9,5	11,0	12,0	13,0	14,0	15,0	16,0	18,5	20,5	22,5	24,0	27,0	30,0	36,0	39,0	43,0
Profiles of all material qualities wall thickness = 0,1 x D  T =	5,5	6,5	7,5	8,5	9,5	10,5	11,0	11,5	12,0	13,5	15,0	16,5	17,5	19,5	21,5	23,5	25,0	27,0
Profiles of all material qualities wall thickness = 0,05 x D  T =	5,0	6,0	7,0	7,5	8,0	8,5	9,0	9,5	10,0	11,0	12,0	12,5	13,0	14,0	15,0	17,0	19,0	21,0
Profiles of all material qualities wall thickness = 0,025 x D  T =	4,0	4,5	5,0	5,5	6,0	6,3	6,5	6,8	7,0	7,5	8,0	8,5	9,0	9,5	10,0	11,0	12,0	13,0

The data recommended in this table are intended only as a guide.

Break-in procedure: for a long life time

Like all HSS tools, Segmental Circular Saw Blades have to follow special break-in procedures to guarantee long blade life and to save tool costs.Overload of the razor-sharp tooth tips should be avoided at the start of cutting operation.Aggressive cutting with a new blade will lead to premature tooth breakages. Correct break-in will control the gentle rounding of cutting edges.

Starting feed should be half of the optimum speed rate at the recommended cutting speed for the first „300-500 cm²“ cut surface. After that feed rate should be gradually increased for maximum rate as above mentioned.

Bore holes and pin holes

Register of modern
Circular Saw Blade machines with
information about dimensions
of the saw blades to be used or

What saw blade belongs to what type of machine?

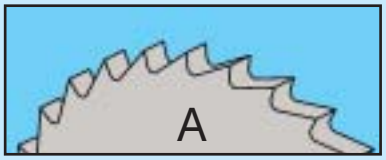
Type of machine	Saw blade Ø mm	Bore hole Ø mm	Pin hole mm
ADIGE SALA	200 - 250 275 - 315 315 - 350 400 - 425	32 32 40 50	4-9-50 2-11-63 + 2-9-50 4-12-64 4-15-80
BAIER	175 - 250	32	4 Keyway
BEWO	200 - 300 315 350	32 40 40	2-8-45 + 2-11-63 2-8-55 + 4-12-63 2-8-55 + 4-12-63
BIMAX	100 - 300	32	2-8-45
BONAK	250 - 350	40	2-8-55 + 4-12-64
BROBO WALDOWN	225 - 250 300 300 - 400 500	32 38 40 40	2-8-45 + 2-11-63 2-9-55 2-8-55 + 4-12-64 2-8-55 + 4-12-64 + 2-12-80
CONNI	400 - 425 400 - 500	40 50	4-11-63 4-15-80
DALLY	250 - 500	40	2-8-55 + 4-12-64 + 2-12-80
DEMURGER	160 - 300 200 - 250 225 - 350	25,4 32 40	without pin holes 2-8-45 + 2-11-63 2-8-55 + 4-12-64
DONG JIN	300 - 370	40	2-8-55 + 4-12-64
DORINGER	315 - 350	40	2-12-64
EISELE	110 210 - 220 250 - 350 370 - 450 500	22 40 40 40 40	without pin holes 2-8-55 2-8-55 + 4-12-64 2-12-64 + 2-15-80 2-12-80 + 2-15-100
EXACTCUT	250	32	4-9-50
FABRIS	225 - 350	32	2-8-45 + 2-11-63
FEMI	225 - 350	32	2-8-45 + 2-11-63
FONG-HO	250 - 275 300 - 400 360	32 32 40	2-8-45 + 2-9-50 + 2-11-63 4-11-63 2-11-63 + 3-11-65
GERNETTI	315 350 500	40 50 50	4-11-63 4-15-80 4-18-100
HÄBERLE	225 225 - 275 300 - 450	32 40 40	2-8-45 2-8-55 2-8-55 + 4-12-64
IBP PEDRAZZOLI	200 - 350 425 - 500	32 50	2-11-63 4-15-80
IMET	250 - 350 315 - 350	32 40	2-8-45 + 2-11-63 2-8-55 + 4-12-64
KALTENBACH	225 - 250 350 - 450	32 50	without pin holes 4-15-80
KASTO	425	50	4-15-80
KOSOKU	250 275 360 - 380	32 45 45	2-9-50 + 2-8-45 2-11-66 4-11-66
MAC	300 370 - 450	32 40	2-9-50 4-11-63
MACC	225 - 350 350 - 450	32 40	2-8-45 + 2-11-63 2-8-55 + 4-12-64
MACO	350 - 425	50	4-15-80
MAIR	300 - 350 300 - 350	32 40	2-8-45 + 2-11-63 2-8-55 + 4-12-64
MEP	225 - 350	32	2-8-45 + 2-11-63

Type of machine	Saw blade Ø mm	Bore hole Ø mm	Pin hole mm
METORA	250 - 350	32	2-11-80
MBM MERCURY	300 - 350	32	without pin holes
MTM	300 400 400 450 550 550	32 40 50 90 80 90	2-8-45 4-12-64 4-15-80 3-13-160 3-13-160 3-13-160
OMES	225 - 370	32	2-8-45 + 2-11-63
OMP	250 - 370 400 - 525	32 50	2-8-45 + 2-11-63 4-15-80
OTO MILLS	500 550	50 140	4-15-80 4-20-170
PEDRAZOLLI	250 - 315 300 - 350	32 22/30	4-11-63 without pin holes
RATTUNDE	400	50	4-15-80
RAYGOR	225 - 350 300 250 - 370	32 38 40	2-8-45 + 2-11-63 2-9-55 2-8-55 + 4-12-64
RGA	225 - 275 250 - 370	25,4 40	without pin holes 2-8-55 + 2-11-63
ROBEJO	250 - 350	32	2-8-45 + 2-12-64
ROHBI TSUNE	175 - 300 285 420	32 32 50	2-8-45 + 2-11-63 4-9-50 4-15-80
RSA	315	40	4-13-63
RURACK	225 250 - 315 370 300 - 350	32 32 40 40	2-8-45 + 2-11-63 2-8-45 + 4-9-50 + 2-12-84 4-12-64 + 2-15-80 2-8-55 - 4-12-64
SCOTCHMAN	250 - 300 275 - 350	32 40	2-8-45 + 2-11-63 2-8-55 + 4-12-64
SIMEC	250 - 350	32	2-8-45 + 2-11-63
SINICO	350	32	2-8-45 + 2-11-63
SOCO	250 - 350	32	2-8-45 + 2-11-63
STARTRITE	250 300 - 315	32 32	2-9-56 + 2-12-64 2-11-80
STAYER	225 300 - 350	32 32	without pin holes without pin holes
THOMAS	225 - 350	32	2-8-45 + 2-11-63
TOMET	225 - 350	32	2-8-45 + 2-11-63
TRENNJAEGER	250 250 - 315 315 - 450	32 40 50	2-9-50 4-11-63 4-14-85
ULMIA	160 - 300 250 - 400	32 40	without pin holes 4-11-63
VAI-SEUTHE	560	80	4-23-120
VIEMME	250 - 350 250 - 400	32 40	2-8-45 + 2-11-63 2-8-55 + 4-12-64
VOUCHER	275	35	2-13,5-57,2
WAGNER	200 - 315 350	32 50	4-9-50 4-15-80
WAHLEN	250 - 400	40	2-8-55 + 2-11-63
WEIDMAN	210 - 275	32	2-8-45 + 2-11-63
WINTER	250 - 315	40	2-8-55 + 4-12-64
WUNSCH	210 - 250 210 - 300 315 - 400	32 40 40	2-8-45 + 2-11-63 2-8-55 + 4-12-64 2-8-55 + 4-12-64

Tooth forms and tooth geometries

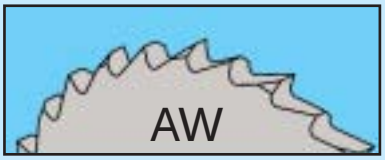
ARNTZ - Metal Circular Saw Blades are ground, according to their application, with different kinds of tooth forms.

How to choose the right tooth form?



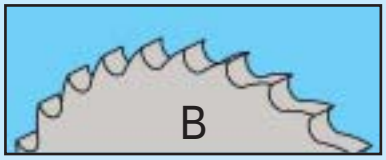
Tooth form „A“ and „AW“

For thin Metal Slitting Saw Blades with a tooth pitch up to approx. 3,0 mm.



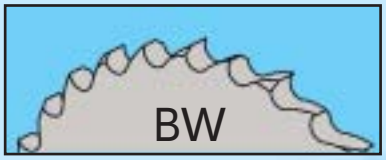
Advisable for brass, tooth form „A“ is suitable for slotting materials.

All teeth of tooth form „AW“ are bevelled alternatively.



Tooth form „B” and „BW”

Suitable for cutting tubes and profiles made of steel or non-ferrous metals. Tooth form „B” is specialized for cutting very thin-walled pipes and profiles.



All teeth of tooth form „BW” are bevelled alternatively.

Tooth form „HZ“

This tooth is also known as form „C“. Teeth are ground according to the roughing and finishing tooth system. A tooth pair is consisting of one roughing tooth (1/3 cutting width) and one finishing tooth (2x1/3 cutting width). According to the triple chip geometry the roughing tooth is approx. 0,2 - 0,3 mm higher compared with the finishing tooth. Tooth form „HZ“ is suitable for cutting solid materials.

Tooth form „BR“

Tooth form „BR“ is a parrot tooth with chip breaker. This tooth form is suitable for cutting pipes under high performance conditions because the teeth are side cutting.

Technical Recommendations

for an economical cutting of Metal Slitting Saw Blades

Materials	Cutting speed Vc = m/min	Feeding per tooth fz = mm/Z	Cutting angle SW	Clearance angle FW	HSS type + surface
Steel (solid material) up to 500 N/mm²	30 - 50	0,05 - 0,08	18 - 20°	8 - 12°	DMo 5 + steam-treated execution
Steel (pipes + profiles) up to 500 N/mm²	- 240	0,08 - 0,12	18 - 20°	8 - 12°	DMo 5 + multi-layer coating
Steel (solid material) up to 800 N/mm²	20 - 40	0,03 - 0,06	15 - 17°	6 - 8°	DMo 5 + steam-treated execution
Steels (pipes + profiles) up to 800 N/mm²	- 120	0,05 - 0,08	15 - 18°	6 - 8°	DMo 5 + multi-layer coating
Steels up to 1200 N/mm²	12 - 25	0,03 - 0,05	14 - 16°	6 - 8°	EMo 5 + steam-treated execution
Stainless steels (solid material)	10 - 25	0,04 - 0,07	14 - 16°	6 - 8°	EMo 5 + steam-treated execution
Stainless steels (pipes + profiles)	- 50	0,06 - 0,10	16 - 18°	6 - 8°	EMo 5 + multi-layer coating
Cast irons	15 - 25	0,07 - 0,12	16 - 18°	6 - 8°	DMo 5 + steam-treated execution
Aluminum + aluminum alloys (solid material)	600 - 900	0,05 - 0,10	22 - 25°	10 - 12°	DMo 5 + blank execution
Aluminum + aluminum alloys (pipes + profiles)	800 - 1200	0,07 - 0,12	22 - 25°	10 - 12°	DMo 5 + blank execution
Bronze	40 - 120	0,04 - 0,06	16 - 18°	8 - 10°	DMo 5 + steam-treated execution
Copper	100 - 400	0,04 - 0,06	20 - 22°	10 - 12°	DMo 5 + steam-treated execution
Brass	150 - 400	0,05 - 0,08	14 - 16°	8 - 10°	DMo 5 + steam-treated

The data recommended in this table are intended only as a guide.

The choice for optimal cutting and the choice of tools is decisive to optimise the sawing process as well as the economical use of saw blade tools.

It is important to observe the right proportion between the feed rate and the cutting speed. A cutting speed that is too high combined with a too low feed causes premature wear of the saw blade. A cutting speed that is too low combined with a too high feed can lead to overstrain and breakage of the saw blade.

Correct tooth pitch - optimum performance

The choice of the right tooth pitch is vital to achieve the optimum performance for Metal Slitting Saw Blades in order to cut the relevant cross section combined with the quality of material.

Material	Steel up to 500 N/mm²	Steel up to 800 N/mm²	Steel up to 1200 N/mm²	Stainless steels	Cast irons	Light metals	Copper and Bronze	Brass
Solid material diam. (mm)	Tooth pitch T (mm)							
10 - 20	8	6	5	5	5	8	6	8
20 - 40	10	8	6	6	6	10	8	10
40 - 60	12	10	8	8	8	12	10	12
60 - 90	15	13	10	11	11	16	13	14
90 - 110	18	16	12	14	14	18	16	18
110 - 130	22	18	14	16	16	22	18	20
130 - 150	25	20	16	18	18	25	20	22
Pipes and profiles Wall thickness (mm)	Tooth pitch T (mm)							
< 1	3	3	3	3	-	4	4	4
1 - 1,5	4	4	3	4	-	5	5	5
1,5 - 2	5	4	4	5	-	6	6	6
2 - 3	6	5	5	5	-	7	7	7
> 3	7	6	5	6	-	8	8	8

The data recommended in this table are intended only as a guide.

Break-in procedures: For long blade life.

For extended blade life, less blade changes and best payback of your tool cost, special break-in procedures should be adhered to.

Overload of the razor-sharp tooth tips should be avoided at the start of cutting operation. Aggressive cutting with new blades will lead to premature tooth breakage.

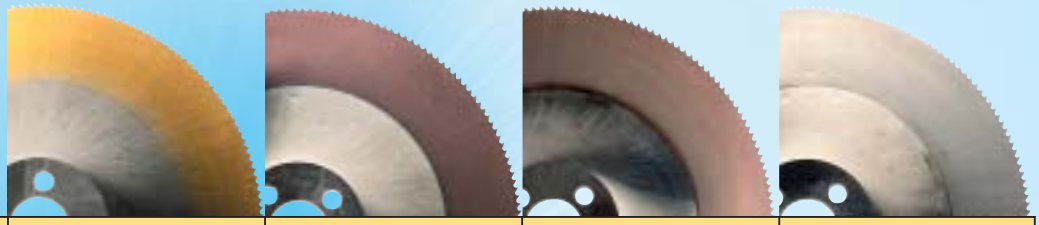
Correct break-in will control the gentle rounding of the cutting edges.

Starting feed should be half of the final feed rate at the recommended cutting speed for the first 150-200 cm² cut surface. After that, feed rate should be gradually increased for maximum cutting rate as mentioned above.

PVD - coatings
The secret of high life time

Advantages:

- High cutting speed
- Increased feed
- Excellent protection of wear
- Lower friction coefficient
- Avoidance of side pick-up
- Increasing productivity
- Reduced production costs



Sort of coatings	***TIN-*** **coating**	***TICN-*** **coating**	***TIALN-*** **coating**	***CrN-*** **coating**
	Metal Circular Saw Blades Segmental Saw Blades	Metal Circular Saw Blades Segmental Saw Blades	Metal Circular Saw Blades Segmental Saw Blades	Metal Circular Saw Blades Segmental Saw Blades
Surface	Titan - Nitrid	Titan - Carbo - Nitrid	Titan - Aluminium - Nitrid	Chrom - Nitrid
Process	PVD	PVD	PVD	PVD
Coating temperature	200 - 500° C	300 - 500° C	300 - 450° C	200 - 550° C
Constancy of temperature	500 - 600° C	500 - 600° C	600 - 800° C	400 - 500° C
Hardness of surface	2200 - 2400 HV	3000 - 3300 HV	3300 - 3500 HV	2000 - 2500 HV
Colour of coating	golden - yellow	violet	blac - violet	metallic - grey
Thickness of coating	2 - 4 µm	3 - 4 µm	3 - 4 µm	4 - 12 µm
Friction	0,4 - 0,5	0,2 - 0,3	0,3 - 0,4	0,3 - 0,4
Operation	Structual steel Alloyed steels Steel pipes and profiles Pipes and profiles out non ferrous metals	Steel pipes and profiles Hard steels Non ferrous steels Titanium-alloys	Very hard steels Non ferrous steels Titanium-alloys Aluminum-silicum cast alloys Copper and brass	Non ferrous metals like Aluminum Copper and brass and similar alloys
Technical recommendation	Raising of the coating hardness by reducing the friction. Universal coating for better saw blade lifetime 50-100% higher speed and feed rates prevention of side pick-ups	Multilayer-coating Extreme low friction coefficient and also high surface hardness Over 100% higher cutting and feed rates when sawing steel tubes and profiles	Low friction coefficient and high surface hardness Good saw blade lifetime at high cutting temperature Special for drycutting or with insuffient cooling conditions	Good saw blade life because of high surface hardness Good surface finish without side pick-ups due to smooth coating surface

Solid-Carbide Metal - Circular Saw Blades

The unbeatable

Suitable for steel - aluminum - copper - brass - plastic

Standard program

Diameter Ø mm	Bore hole Ø mm	Cutting width mm	COARSE Toothform B Number of teeth	Fine toothing Toothform A Number of teeth	Extra fine toothing Toothform A Number of teeth
15	5	0,10 - 6,0	20	64 48 40 32 24	80
20	5/6	0,10 - 6,0	20	80 64 48 40 32 24	80
25	5/6/8	0,10 - 6,0	20	80 64 48 40 32 24	100 80
30	8	0,10 - 6,0	30 24	100 80 64 48 40 32	100
32	8	0,10 - 6,0			80
35	8	0,10 - 6,0			96
40	8/10	0,10 - 6,0	48 40 32 24 20	128 100 80 64 48 40	160 100
45	8	0,15 - 6,0			160 100
50	10/13	0,25 - 6,0	48 40 32 24	128 100 80 64 48 40	120100
63	16	0,25 - 6,0	64 48 40 32 24	160 128 100 80 64 48	120
80	22	0,25 - 6,0	80 64 48 40 32	160 128 100 80 64	128
100	22	0,50 - 6,0	80 64 48 40 32	160 128 100 80 64	
125	22	0,60 - 6,0	80 64 48 40	160 128 100	
150	32	1,00 - 4,0		160 128 100	
160	32	1,00 - 4,0		160 128 100	
200	32	1,20 - 4,0		200 160 128	

Other executions on request

Suggestive usage:

ARNTZ Solid-Carbide Metal Circular Saw Blades should only be used on stable and low vibration sawing and milling machines. Carbide blades should be used on automatic machines and adjusted to minimum and maximum recommended feed rates only.
Manual feed machines are not recommended.

Soluble cutting oils are recommended for cutting steel. Spray-mist systems may be used for non-ferrous applications. Plastic and cast iron should be cut dry.

Technical Recommendations for an economic use of Carbide Metal Circular Saw Blades

Materials	Cooling liquids	Cutting speed Vc = m/min	Feed per tooth fz = mm/Z
Steel up to 500 N/mm²	Emulsion 1:20	100 - 180	0,010 - 0,030
Steel up to 800 N/mm²	Emulsion 1:15	50 - 90	0,007 - 0,025
Steel up to 1300 N/mm²	Emulsion 1:12	30 - 50	0,005 - 0,020
Stainless steels	Emulsion 1:10	30 - 70	0,005 - 0,015
Alloyed tool steels	Emulsion 1:10	15 - 40	0,005 - 0,012
Titanium alloys	Cutting oil	35 - 55	0,003 - 0,008
Cast irons	Dry cutting	30 - 90	0,005 - 0,010
Copper	Emulsion or spray cooling	200 - 500	0,020 - 0,040
Brass	Emulsion or spray cooling	300 - 500	0,010 - 0,040
Aluminum	Emulsion or spray cooling	400 - 2000	0,010 - 0,040

The data recommended in this table are intended only as a guide

Good results with Arntz Metal Circular Saw Blades. Your Arntz team!

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