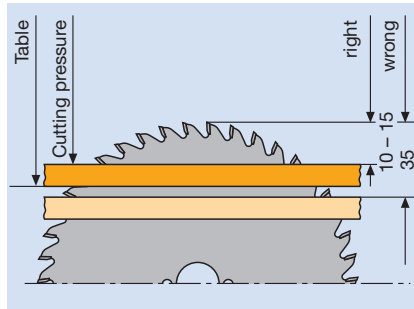


# 1. Sawing

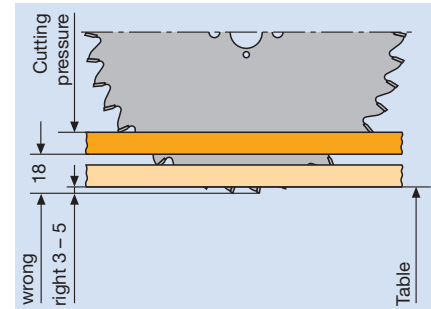
## 1.7 Length-cutting and mitre cutting

<b>Working process</b>	For splitting, mitre cutting and sizing. Spray lubrication is recommended when machining non-ferrous metal profiles.
<b>Workpiece materials</b>	Non-ferrous and plastic profiles, composites, insulating material and aluminium compound materials.
<b>Machines</b>	Splitting, trimming, mitre joint, double cross cutting and sizing machines.

**Application**



**Positive cutting angle:**  
 For circular sawblades with the tooth shape FZ/TR and the spindle below the workpiece for cross- and mitre cutting with material thickness > 2.5 mm. The positive cutting angle presses the material onto the table.



**Negative cutting angle:**  
 For circular sawblades with the tooth shape FZ/TR and the spindle above the workpieces for cross- and mitre cutting with material thickness < 2.5 mm. The negative cutting angle presses the material onto the table.

**Tooth shape**



**FZ/TR (square/trapezoidal teeth):**  
 Tooth shape for non-ferrous metals and plastic profiles and boards.

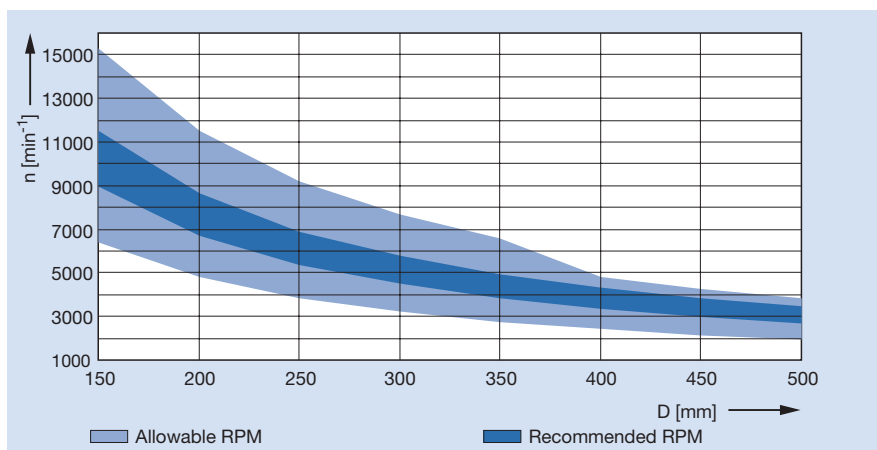


**TR/TR (trapezoidal/trapezoidal teeth):**  
 Tooth shape for better cutting quality with non-ferrous and plastic profiles. Is partly altered from the existing FZ/TR shape.

**Recommended feed rate**  
 $f_z$  (in mm)

$V_f = n \cdot Z \cdot f_z / 1000$   
 Profile thickness < 2.5 mm,  $f_z = 0.02 - 0.05$  mm  
 Profile thickness > 2.5 mm,  $f_z = 0.05 - 0.15$  mm

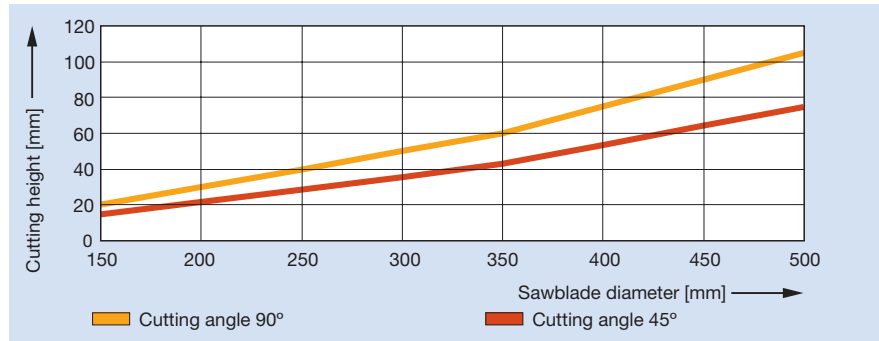
**RPM diagram**



1. Sawing

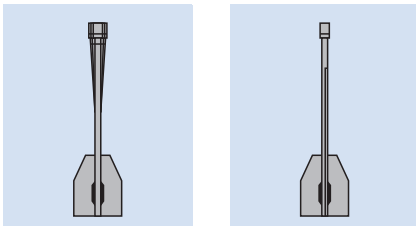
1.7 Length-cutting and mitre cutting

Cutting height diagram



Mitre cut – the cutting height depends on the sawblade diameter D and the cutting angle.

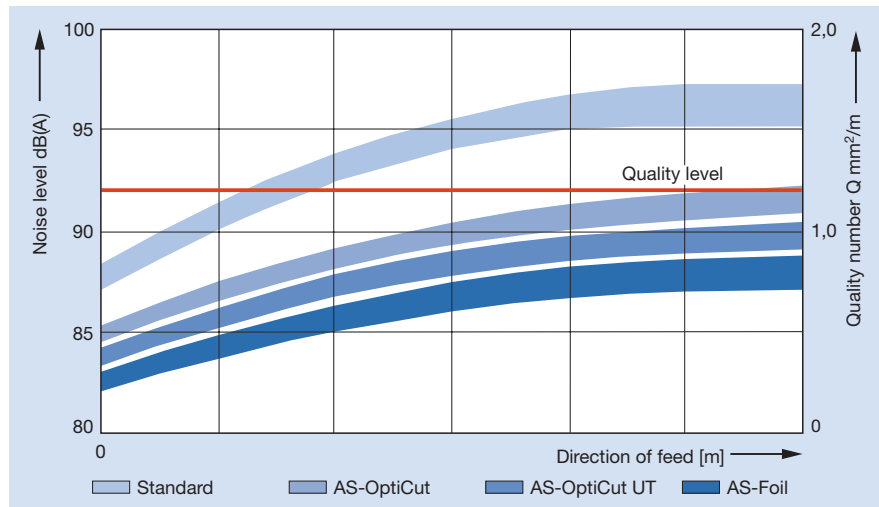
Low-noise sawblades



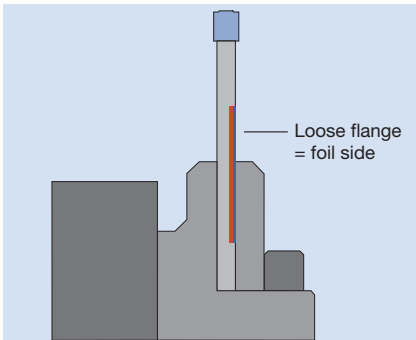
Sawblade without noise damping.

Sawblade with laminated noise damping.

Comparison of the noise reduction of different designs of sawblades and edge quality Q depending on the direction of feed.



Advantages of low-noise sawblades



Determination of the foil side

- Optimum noise reduction.
- Longer performance time from vibration damping.
- High cut quality, less wear and down time.
- Quiet running because of the high stability of the tool body.
- Reduced noise level of up to 10 dB(A) – 50% noise reduction – compared to standard sawblades.
- Increase in noise level due to blunting is hardly noticeable.
- Better operator working conditions from lower noise exposure.
- Can be resharpened on all popular makes of automatic saw sharpening machines.
- Note: Choose the sawblade so the foil is on the side of the workpiece not under pressure.



### Length-cutting and mitre cutting from below

**Application:**

For cutting, mitre cutting and sizing. When machining NE parts, spray lubrication is recommended.

**Machine:**

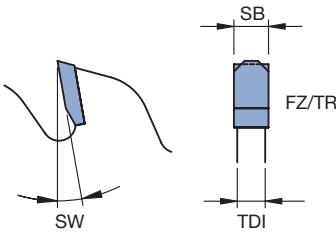
Length-cutting, trimming, mitre and double length-cutting and sizing saws and panel sizing units.

**Workpiece material:**

Non-ferrous and plastic profiles (wall thickness > 5 mm), polymer-bound material panels (Corian, Varicor, Noblan etc.) and non-ferrous panels up to 20 mm thick.

**Technical information:**

Reinforced tool body for higher, one-sided stress. Tool body tooth shape in noise-reduced design.



**Sawblade - Wall thickness > 5 mm**

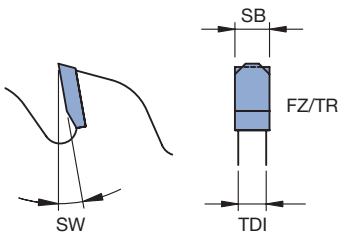
WK 452-2-36

Machine	D	SB	TDI	BO	BO <sub>max.</sub>	NLA	FLDZ	ZF	SW	ID	
	mm	mm	mm	mm	mm	mm	mm		Degree		
Ulmia	160	3,2	2,6	16			80	36	FZ/TR	5	059856 ●
	180	3,2	2,6	16	40		80	42	FZ/TR	5	059857 ●
Eisele	200	3,2	2,6	30	60		80	48	FZ/TR	5	059860 ●
Elu/DeWalt											
Eumenia											
Häfele											
Haffner											
Makita	250	3,4	2,8	30	80		100	60	FZ/TR	5	059884 ●
Eisele	275	3,4	2,8	40		2/9/55	120	72	FZ/TR	5	059885 ●
						4/12/64					
	300	3,4	2,8	30	80		120	72	FZ/TR	5	059886 ●
	350	3,4	2,8	30	80		120	84	FZ/TR	5	059887 ●
Kaltenbach	370	3,8	3,2	50		4/15/80	120	96	FZ/TR	5	059867 ●
Rapid	400	3,8	3,2	30			140	96	FZ/TR	5	059854 ●
Eisele	400	3,8	3,2	40		2/12/80	140	96	FZ/TR	5	059869 □
						4/12/64					
Kaltenbach	400	3,8	3,2	50		4/15/80	140	96	FZ/TR	5	059870 ●
Rapid	420	3,8	3,2	30	100		140	96	FZ/TR	5	059855 ●
Rapid	430	3,5	2,8	30	100		140	96	FZ/TR	5	059871 ●
Eisele	450	4,0	3,4	40		2/12/80	140	100	FZ/TR	5	059872 ●
						4/12/64					
Rapid	500	4,4	3,8	30	100		140	120	FZ/TR	5	059874 ●
	550	4,4	3,8	30	100			120	FZ/TR	5	059891 ●

## 1. Sawing

### 1.7 Length-cutting and mitre cutting

#### 1.7.1 Sawblades for length-cutting and mitre cutting



##### Workpiece material:

Non-ferrous and plastic profiles (wall thickness 2.00 to 5 mm), polymer-bound material panels (Corian, Varicor, Noblan etc.) up to 12 mm thick.

##### Technical information:

Tool body tooth shape in noise-reduced design.

##### Sawblade - Wall thickness 2-5 mm

WK 452-2-37

Machine	D mm	SB mm	TDI mm	BO mm	BO <sub>max.</sub> mm	FLD mm	Z	ZF	SW Degree	ID
Elektra Beckum, Elu/DeWalt Haffner, Mafell Makita, Metabo PHM, Rapid Scheppach	250	3,2	2,6	30	80	100	80	FZ/TR	5	<b>059950</b> ●
	300	3,2	2,6	30	80	120	96	FZ/TR	5	<b>059951</b> ●
Rapid	320	3,2	2,6	30	100	120	84	FZ/TR	5	<b>059960</b> ●
Rapid	350	3,2	2,6	30	100	120	108	FZ/TR	5	<b>059952</b> ●
Rapid	370	3,8	3,2	30	100	120	96	FZ/TR	5	<b>059964</b> ●



#### Length-cutting and mitre cutting from below - LowNoise design

##### Application:

For noise-reduced cutting, mitre cutting and sizing. When machining NE parts, spray lubrication is recommended.

##### Machine:

Length-cutting, trimming, mitre and double length-cutting and sizing saws.

##### Workpiece material:

Non-ferrous and plastic profiles (wall thickness > 5 mm), polymer-bound material panels (Corian, Varicor, Noblan etc.) up to 20 mm thick.

##### Technical information:

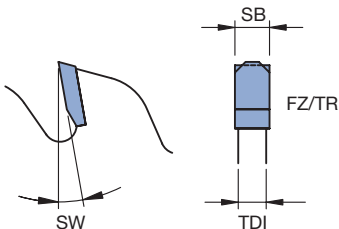
**AS LowNoise foil design** - Noise reduction during operation of up to 10 dB(A). Vibration damping tipped tool body design by steel foil.



##### Sawblade AS LowNoise foil design - Wall thickness > 5 mm

WK 372-3

D mm	SB mm	TDI mm	BO mm	BO <sub>max.</sub> mm	FLD mm	Dampfoil	Z	ZF	SW Degree	ID
300	3,5	2,8	30	60	120	left	72	FZ/TR	5	<b>065950</b> ●
300	3,5	2,8	30	60	120	right	72	FZ/TR	5	<b>065332</b> ●
350	3,5	2,8	30	60	120	left	84	FZ/TR	5	<b>065951</b> ●
350	3,5	2,8	30	60	120	right	84	FZ/TR	5	<b>065333</b> ●





### Length-cutting and mitre cutting from above

**Application:**

For cutting and mitre cutting. When machining NE parts, spray lubrication is recommended. The negative cutting angle is suited to cutting from above.

**Machine:**

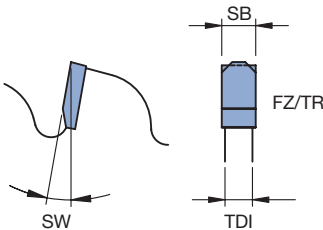
Length-cutting, trimming, mitre and double length-cutting saw machines.

**Workpiece material:**

Non-ferrous and plastic profiles (wall thickness > 5 mm).

**Technical information:**

The negative cutting angle is suited to cutting from above. Reinforced tool body for increased load on one side. Tool body tooth shape in noise-reduced design.



**Sawblade - Wall thickness > 5 mm**

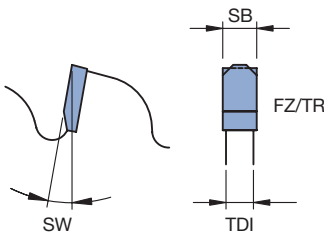
WK 462-2-36

Machine	D mm	SB mm	TDI mm	BO mm	BO <sub>max.</sub> mm	NLA mm	FLD mm	Z	ZF	SW Degree	ID
	180	3,2	2,6	30	40		80	42	FZ/TR	-5	<b>060114 ●</b>
Elek. Beckum, Elu/DeWalt Mafell, Makita Metabo, PHM Scheppach	250	3,4	2,8	30	60		100	60	FZ/TR	-5	<b>060134 ●</b>
	250	3,4	2,8	32	60		100	60	FZ/TR	-5	<b>060136 ●</b>
	275	3,4	2,8	40		2/10/55	120	72	FZ/TR	-5	<b>060137 ●</b>
	300	3,4	2,8	30	80		120	72	FZ/TR	-5	<b>060138 ●</b>
	300	3,4	2,8	32	80		120	72	FZ/TR	-5	<b>060139 ●</b>
Elu/DeWalt	330	3,4	2,8	32		2/8/45	120	68	FZ/TR	-5	<b>060140 ●</b>
Haffner	350	3,4	2,8	30	80		120	84	FZ/TR	-5	<b>060141 ●</b>
	350	3,8	3,2	30	80		120	84	FZ/TR	-5	<b>060106 ●</b>
	350	3,8	3,2	32	80		120	84	FZ/TR	-5	<b>060107 ●</b>
	350	3,8	3,2	40		2/10/55 2/11/63	120	84	FZ/TR	-5	<b>060108 ●</b>
Elu/DeWalt	370	3,8	3,2	30	100		120	84	FZ/TR	-5	<b>060127 ●</b>
	400	3,8	3,2	30	100		140	96	FZ/TR	-5	<b>060110 ●</b>
Eisele	400	3,8	3,2	40		2/12/80 4/12/64	140	96	FZ/TR	-5	<b>060111 ●</b>
Kaltenbach	400	3,8	3,2	50		4/15/80	140	72	FZ/TR	-5	<b>060128</b>
Kaltenbach	400	3,8	3,2	50	100	4/15/80	140	96	FZ/TR	-5	<b>059883 ●</b>

## 1. Sawing

### 1.7 Length-cutting and mitre cutting

#### 1.7.1 Sawblades for length-cutting and mitre cutting



##### Workpiece material:

Non-ferrous and plastic profiles (wall thickness 2.00 to 5.00 mm).

##### Technical information:

The negative cutting angle is suited to cutting from above. Tool body tooth shape in noise-reduced design.

##### Sawblade - Wall thickness 2-5 mm

WK 462-2-37

Maschine	D	SB	TDI	BO	BO <sub>max.</sub>	NLA	FLD	Z	ZF	SW	ID
	mm	mm	mm	mm	mm	mm	mm			Degree	
Ulmia	160	2,8	2,2	16	40		80	42	FZ/TR -5		<b>060272</b> ●
Fezer	200	3,2	2,6	18	40		80	80	FZ/TR -5		<b>060261</b> ●
Ulmia	200	3,2	2,6	30	40		80	60	FZ/TR -5		<b>060270</b> ●
Haffner	220	3,2	2,6	30	60		100	72	FZ/TR -5		<b>060271</b> ●
Reich											
Elek. Beckum,	250	3,2	2,6	30	80		100	80	FZ/TR -5		<b>060250</b> ●
Elu/DeWalt											
Mafell, Metabo											
PHM,											
Scheppach											
Elu/DeWalt	250	3,2	2,6	32		2/8/45	100	80	FZ/TR -5		<b>060251</b> ●
Fezer											
Elek. Beckum,	300	3,2	2,6	30	80		120	96	FZ/TR -5		<b>060252</b> ●
Elu/DeWalt											
Fezer, Lurem											
Rapid,											
Scheppach											
Ulmia											
Fezer	300	3,2	2,6	30	80		120	120	FZ/TR -5		<b>060267</b> ●
Rapid											
Ulmia											
	300	3,2	2,6	32	80		120	96	FZ/TR -5		<b>060253</b> ●
Striffler	330	3,2	2,6	20	80		120	96	FZ/TR -5		<b>060254</b> ●
Wegoma											
Haffner	330	3,2	2,6	30	80		120	96	FZ/TR -5		<b>060268</b> ●
	330	3,2	2,6	32	80		120	96	FZ/TR -5		<b>060259</b> ●
Haffner	350	3,2	2,6	30	100		120	108	FZ/TR -5		<b>060255</b> ●
Ulmia											
Graule	350	3,6	3,0	40		2/9/55 4/12/64	140	108	FZ/TR -5		<b>060269</b> ●
Elu/DeWalt	420	3,8	3,2	30	100		140	108	FZ/TR -5		<b>060257</b> ●
MGS											
Rapid	450	3,8	3,2	30	100		140	108	FZ/TR -5		<b>060258</b> ●



#### Length-cutting and mitre cutting from above

**Application:**

For cutting and mitre cutting at reduced cutting width. When machining NE parts, spray lubrication is recommended. The negative cutting angle is suited to cutting from above.

**Machine:**

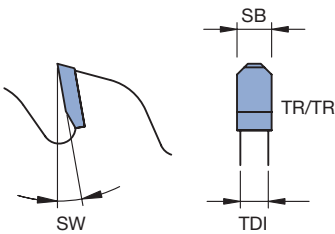
Length-cutting, trimming, mitre and double length-cutting saw machines.

**Workpiece material:**

Non-ferrous and plastic profiles (wall thickness 1.0 to 2.0 mm)

**Technical information:**

The negative cutting angle is suited to cutting from above. Reduced cutting width and tool body thickness. Tool body tooth shape in noise-reduced design. Increased cutting performance from special tool body coating.



**Sawblade - Wall thickness 1,0 - 2,0 mm**

WK 462-2

D	SB	TDI	BO	BO <sub>max.</sub>	NLA	FLD	Z	ZF	SW	ID
mm	mm	mm	mm	mm	mm	mm			Degree	
200	1,8	1,4	20	40	2/10/60	80	80	TR/TR	-5	<b>060274</b> ●
250	2,0	1,6	30	50	2/ 7/42	80	100	TR/TR	-5	<b>060275</b> ●
300	2,2	1,8	30	50	2/ 9/46	80	120	TR/TR	-5	<b>060276</b> ●

## 1. Sawing

### 1.7 Length-cutting and mitre cutting

#### 1.7.3 Circular sawblades for sizing



#### Sizing cuts

**Application:**

For sizing. When machining NE parts, spray lubrication is recommended.

**Machine:**

Sizing saw machines and panel sizing units.

**Workpiece material:**

Non-ferrous panels and non-ferrous sheet metal stacks up to 150 mm thick.

**Technical information:**

Reinforced tool body for increased loads on one side. If type **AS LowNoise foil UT** design is used - Noise reduction during operation by up to 10 dB(A).

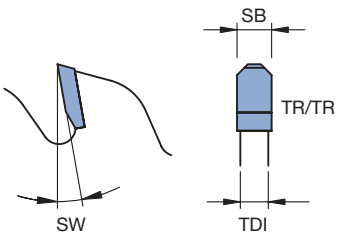
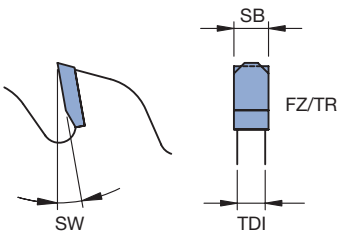
Vibration damping tipped tool body design by steel foil and irregular tooth pitch.



**Sawblade - 150 mm cutting height**

WK 452-2, WK 472-2

Machine	D mm	SB mm	TDI mm	BO mm	NLA mm	Type	Z	ZF	SW Degree	ID
Schelling	450	4,4	3,5	30	2/13/94		60	FZ/TR	10	<b>059888</b> ●
Schelling	620	5,5	4,5	40	2/13/114 2/13/140		36	TR/TR	10	<b>059889</b> ●
Schelling	620	5,5	4,5	40	2/13/114 2/13/140	AS foil UT	60	FZ/TR	5	<b>059890</b> ●







#### Sizing cuts in finish quality - LowNoise design

**Application:**

For noise-reduced sizing and cutting to length. Finish cut quality which is suitable for subsequent flame scarfing after acrylic glass machining.

**Machine:**

Circular saw benches and sizing saw machines.

**Workpiece material:**

Plastics (transparent thermoplastics, e.g. PMMA, PC), plastic/aluminium compound materials (e.g. Alucobond).

**Technical information:**

**GlossCut** design - noise reduction during no-load operation by up to 4 dB(A).

Tool body with new vibration damping laser ornaments and special tooth geometry.



**Sawblade - GlossCut**

WK 357-2

D mm	SB mm	TDI mm	BO mm	NLA mm	Z	ZF	SW Degree	ID
300	3,0	2,4	30	2/7/42 2/10/60	60	TR/TR	5	<b>761033</b> ●
300	3,0	2,4	30	2/7/42 2/10/60	96	TR/TR	5	<b>761034</b> ●
350	3,0	2,4	30	2/7/42 2/10/60	96	TR/TR	5	<b>761035</b> ●

