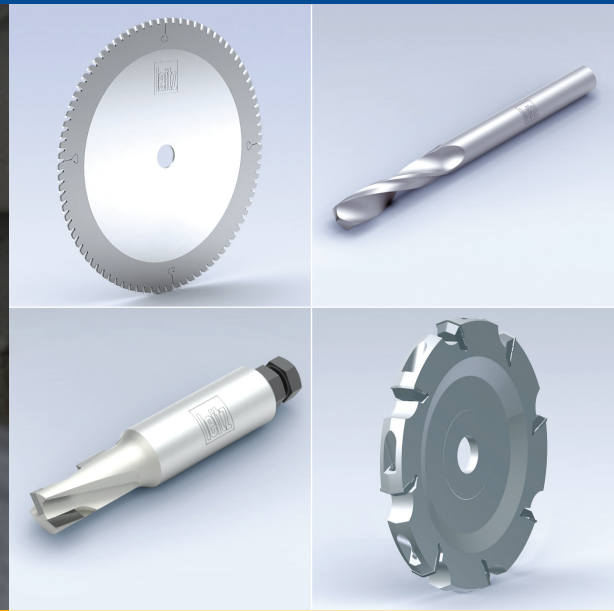
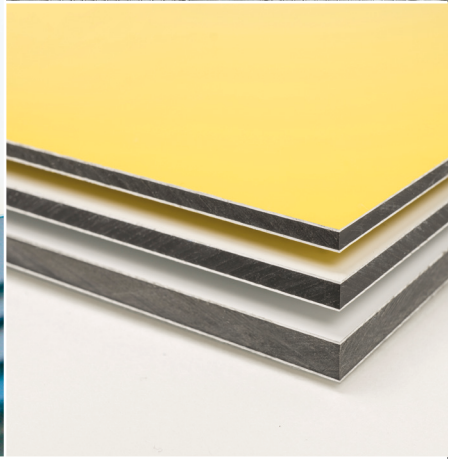
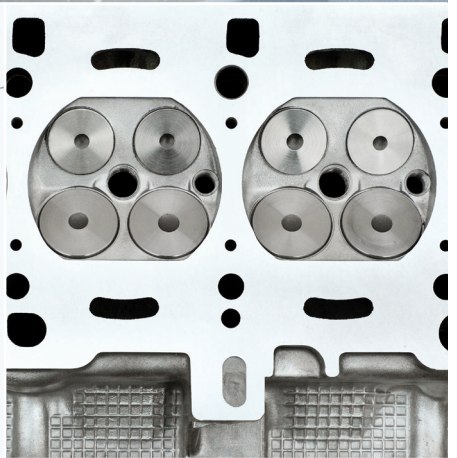


leitz

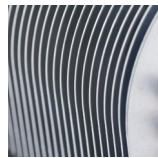


The Leitz full product range

**for professional machining
of aluminium**

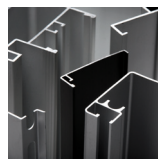


1. Processing hollow profiles



1.1 Wall thickness 0,3 - 2,0 mm

8



1.2 Wall thickness > 2,0 mm

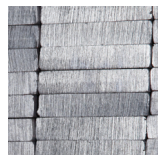
9-18



1.3 **Bespoke solutions**
Trimming and mitre cutting
in the window production

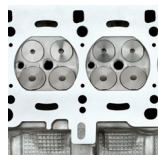
19

2. Processing solid materials



2.1 **Sizing**
Blocks, panels and metal sheets
up to a cutting height of 200 mm

22



2.2 **Bespoke solutions**
Processing cylinder heads
Panel processing

23

3. Routing and drilling



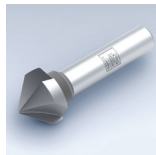
3.1 Sizing and grooving

26-34



3.2 Drilling

35

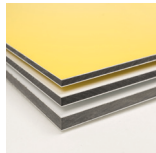


3.3 Countersinking

36

4. Aluminium compound panels

Alucobond®, Reynobond®, Dibond®, Alucopan®, Alupanel®, Alu-Dibond®



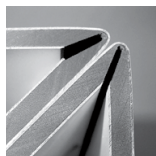
4.1 Sawing

40-48



4.2 CNC processing

49-50

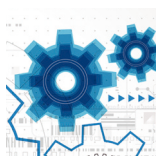


4.3 Bespoke solutions

Routing and folding techniques

51

5. Technical information



5.1 Materials science

54

5.2 Processing recommendations

55-57

5.3 Routing and folding technique

58

5.4 Cutting parameters, formulas and specifications

59





1. Processing hollow profiles

1.1 Wall thickness 0,3 - 2,0 mm

1.2 Wall thickness > 2,0 mm

1.3 Bespoke solutions
Trimming and mitre cutting
in window production

1. Processing hollow profiles

1.1 Wall thickness 0,3 - 2,0 mm



Trimming and mitre cutting hollow profile working from above - *Classic*

Application:

For trimming and mitre cutting for reduced cut width. For processing NF parts, fine mist lubrication is recommended. Due to negative cutting angle, particularly suitable for cuts working from above.

Machine:

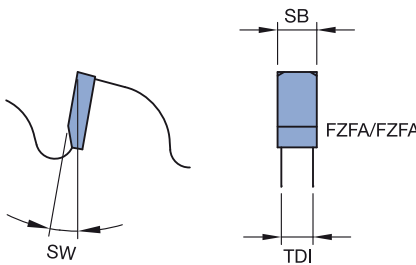
Trimming-, mitre cutting- and double cross cut sawing machines.

Workpiece material:

NF and plastic profiles (wall thickness 0,3 - 2,0 mm)

Technical information:

Due to the negative cutting angle, particularly suitable for cuts working from above. Reduced cut width and tool body thickness. Low noise tooth shape and tool body. Higher cutting performance through special coating of the tool body.



Circular saw blade - wall thickness 0,3 - 2,0 mm

WK 467-2

| D mm | SB mm | TDI mm | BO mm | NLA mm | Z | ZF | SW degree | ID |
|---------|----------|-----------|----------|-----------|-----|-----------|--------------|-----------------|
| 160 | 1,6 | 1,2 | 20 | | 60 | FZFA/FZFA | -5° | 060277 ● |
| 190 | 1,8 | 1,4 | 20 | | 72 | FZFA/FZFA | -5° | 060278 ● |
| 200 | 1,8 | 1,4 | 20 | 2/10/60 | 80 | FZFA/FZFA | -5° | 060274 ● |
| 250 | 2,0 | 1,6 | 30 | 2/7/42 | 100 | FZFA/FZFA | -5° | 060275 ● |
| 300 | 2,2 | 1,8 | 30 | 2/9/46 | 120 | FZFA/FZFA | -5° | 060276 ● |
| 350 | 2,4 | 2,0 | 30 | KNL | 140 | FZFA/FZFA | -5° | 060279 ● |



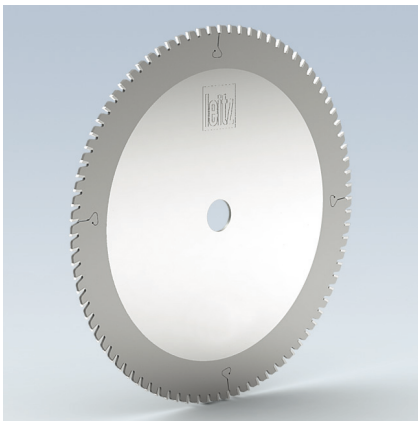
Example application: shutters



Example application: cooling fins



1. Processing hollow profiles
1.2 Wall thickness > 2,0 mm



**Trimming and mitre cutting
hollow profile working from above - *Excellent***

Application:

For low-noise sizing and mitre cutting, also on increasing dullness. For processing NF parts, fine mist lubrication is recommended.

Machine:

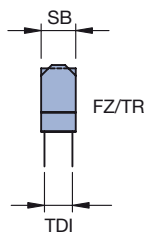
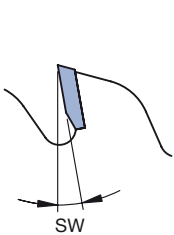
Trimming, sizing, mitre cutting and cross-cutting machines.

Workpiece material:

NF and plastic profiles (wall thickness > 5,0 mm, wall thickness > 2,0 mm for closed, solid profiles), polymer-compound panels.

Technical information:

AS Low Noise foil design - up to 10 dB(A) noise reduction during use. Vibration-damping composite construction of the tool body through steel foil.



Circular saw blade - AS Low Noise Foil

Wall thickness > 5,0 mm, Wall thickness > 2,0 mm for closed, solid profiles
WK 372-3

| D mm | SB mm | TDI mm | BO mm | NLA mm | Folie | Z | ZF | SW degree | ID |
|---------|----------|-----------|----------|-----------|--------|-----|-------|--------------|-----------------|
| 300 | 3,5 | 2,8 | 30 | KNL | links | 72 | FZ/TR | 5 | 065950 ● |
| 300 | 3,5 | 2,8 | 30 | KNL | rechts | 72 | FZ/TR | 5 | 065332 ● |
| 350 | 3,5 | 2,8 | 30 | KNL | links | 84 | FZ/TR | 5 | 065951 ● |
| 350 | 3,5 | 2,8 | 30 | KNL | rechts | 84 | FZ/TR | 5 | 065333 ● |
| 400 | 3,8 | 3,2 | 30 | KNL | links | 96 | FZ/TR | 5 | 741203 ● |
| 400 | 3,8 | 3,2 | 30 | KNL | rechts | 96 | FZ/TR | 5 | 741200 ● |
| 450 | 4,0 | 3,4 | 30 | KNL | links | 100 | FZ/TR | 5 | 741204 ● |
| 450 | 4,0 | 3,4 | 30 | KNL | rechts | 100 | FZ/TR | 5 | 741201 ● |
| 500 | 4,4 | 3,8 | 30 | KNL | links | 120 | FZ/TR | 5 | 741205 ● |
| 500 | 4,4 | 3,8 | 30 | KNL | rechts | 120 | FZ/TR | 5 | 741202 ● |



1. Processing hollow profiles
1.2 Wall thickness > 2,0 mm



**Trimming and mitre cutting
hollow profile working from below - Premium**

Application:

For low-noise sizing and mitre cutting, also on increasing dullness. For processing NF parts, fine mist lubrication is recommended.

Machine:

Trimming, sizing, mitre cutting and double cross-cut sawing machines.

Workpiece material:

NF and plastic profiles (wall thickness > 5,0 mm, wall thickness > 2,0 mm for closed, solid profiles), polymer-compound panels.

Technical information:

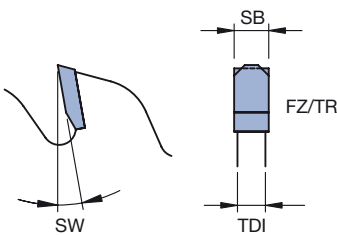
As OptiCut UT design - noise reduction in idle running up to 8dB(A). Tool body with laser ornaments and irregular tooth pitch. Higher cutting performance and less adhesion through a special coating on the tool body.



Circular saw blade - AS Opticut UT

Wall thickness > 5,0 mm, wall thickness > 2,0 mm for closed, solid profiles
WK 372-3

| D mm | SB mm | TDI mm | BO mm | NLA mm | Z | ZF | SW degree | ID |
|---------|----------|-----------|----------|-----------|-----|-------|--------------|-----------------|
| 300 | 3,4 | 2,8 | 30 | KNL | 72 | FZ/TR | 5 | 741600 ● |
| 350 | 3,4 | 2,8 | 30 | KNL | 84 | FZ/TR | 5 | 741601 ● |
| 400 | 3,8 | 3,2 | 30 | KNL | 96 | FZ/TR | 5 | 741602 ● |
| 450 | 4,0 | 3,4 | 30 | KNL | 100 | FZ/TR | 5 | 741603 ● |
| 500 | 4,4 | 3,8 | 30 | KNL | 120 | FZ/TR | 5 | 741604 ● |
| 550 | 4,4 | 3,8 | 30 | KNL | 120 | FZ/TR | 5 | 741605 ● |



1. Processing hollow profiles

1.2 Wall thickness > 2,0 mm



Trimming and mitre cutting hollow profile working from below - *Classic*

Application:

For sizing and mitre cutting. For processing NF-parts, fine mist lubrication is recommended.

Machine:

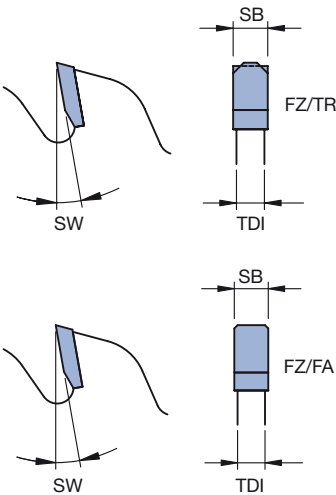
Trimming, mitre cutting, double cross-cut, sizing machines and panel sizing machines.

Workpiece material:

NF and plastic profiles (wall thickness > 5,0 mm, wall thickness > 2,0 mm for closed, solid profiles), polymer-compound panels and NF panels up to 20 mm thickness.

Technical information:

Reinforced tool body for increased, one-sided use. Noise-reducing tooth design and tool body.



Circular saw blade

Wall thickness > 5,0 mm, wall thickness > 2,0 mm for closed, stable profiles

WK 352-2, WK 452-2-36

| Machine | D mm | SB mm | TDI mm | BO mm | NLA mm | Z | ZF | SW degree | ID |
|--|---------|----------|-----------|----------|-------------------------------|-----|-------|--------------|----------|
| Ulmia | 160 | 3,2 | 2,6 | 16 | | 36 | FZ/TR | 5 | 059856 ● |
| Elu, Haffner, Holzher | 170 | 2,8 | 2,2 | 30 | KNL | 48 | FZ/TR | 5 | 740201 ● |
| | 180 | 3,2 | 2,6 | 16 | | 42 | FZ/TR | 5 | 059857 ● |
| Eisele, Elu/De- Walt, Eumenia, Haffner | 200 | 3,2 | 2,6 | 30 | | 48 | FZ/TR | 5 | 059860 ● |
| Makita | 250 | 3,4 | 2,8 | 30 | KNL | 60 | FZ/TR | 5 | 059884 ● |
| | 250 | 3,2 | 2,6 | 32 | | 60 | FZ/TR | 5 | 740206 ● |
| Eisele, Graule | 250 | 3,2 | 2,6 | 40 | 2/8/55 4/12/64 | 80 | FZ/TR | 5 | 760092 ● |
| Elumatec | 254 | 3,4 | 2,8 | 32 | | 68 | FZ/FA | 5 | 740209 ● |
| Eisele, Graule | 275 | 3,4 | 2,8 | 40 | 2/9/55 4/12/64 | 72 | FZ/TR | 5 | 059885 ● |
| | 300 | 3,4 | 2,8 | 30 | KNL | 72 | FZ/TR | 5 | 059886 ● |
| | 300 | 3,2 | 2,6 | 40 | 2/9/55 4/12/64 | 72 | FZ/TR | 5 | 740211 ● |
| | 350 | 3,4 | 2,8 | 30 | KNL | 84 | FZ/TR | 5 | 059887 ● |
| Emmegi, Pressta-Eisele | 350 | 3,6 | 2,8 | 32 | 2/11/63 | 84 | FZ/TR | 5 | 760015 ● |
| Kaltenbach | 370 | 3,8 | 3,2 | 50 | 4/15/80 | 96 | FZ/TR | 5 | 059867 ● |
| Elumatec | 380 | 3,8 | 3,2 | 32 | | 56 | FZ/TR | 5 | 740214 ● |
| Rapid | 400 | 3,8 | 3,2 | 30 | KNL | 96 | FZ/TR | 5 | 059854 ● |
| Emmegi | 400 | 3,8 | 3,2 | 32 | 2/11/63 | 96 | FZ/TR | 5 | 760023 ● |
| Eisele | 400 | 3,8 | 3,2 | 40 | 2/12/55 2/12/64 2/12/80 | 96 | FZ/TR | 5 | 760024 ● |
| Kaltenbach | 400 | 3,8 | 3,2 | 50 | 4/15/80 | 96 | FZ/TR | 5 | 059870 ● |
| Rapid | 420 | 3,8 | 3,2 | 30 | KNL | 96 | FZ/TR | 5 | 059855 ● |
| Rapid | 430 | 3,5 | 2,8 | 30 | KNL | 96 | FZ/TR | 5 | 059871 ● |
| Emmegi, Pressta-Eisele | 450 | 3,8 | 3,2 | 32 | 2/11/63 | 96 | FZ/TR | 5 | 760026 ● |
| Eisele | 450 | 4,0 | 3,4 | 40 | 2/12/80 4/12/64 | 100 | FZ/TR | 5 | 059872 ● |
| | 500 | 4,2 | 3,6 | 30 | KNL | 72 | FZ/TR | 5 | 740218 ● |
| Rapid, Elu | 500 | 4,4 | 3,8 | 30 | KNL | 120 | FZ/TR | 5 | 059874 ● |
| Emmegi | 500 | 4,0 | 3,4 | 32 | | 120 | FZ/TR | 5 | 760030 ● |

1. Processing hollow profiles

1.2 Wall thickness > 2,0 mm

| Machine | D mm | SB mm | TDI mm | BO mm | NLA mm | Z | ZF | SW degree | ID |
|---------------------------|---------|----------|-----------|----------|-----------|-----|-------|--------------|-----------------|
| Schirmer, Wegoma | 500 | 4,0 | 3,4 | 80 | 6/9/100 | 120 | FZ/TR | 5 | 760201 ● |
| | 520 | 4,4 | 3,8 | 30 | KNL | 120 | FZ/TR | 5 | 740221 ● |
| Elu | 550 | 4,4 | 3,8 | 30 | KNL | 110 | FZ/TR | 5 | 760033 ● |
| | 550 | 4,4 | 3,8 | 30 | KNL | 120 | FZ/TR | 5 | 059891 ● |
| Emmegi, Pressta-Eisele | 550 | 4,0 | 3,4 | 32 | 2/11/63 | 96 | FZ/TR | 5 | 760032 ● |
| Pressta-Eisele | 550 | 4,4 | 3,8 | 32 | 2/11/63 | 128 | FZ/TR | 5 | 760202 ● |
| | 550 | 4,4 | 3,8 | 40 | | 110 | FZ/TR | 5 | 740226 ● |
| | 550 | 4,4 | 3,8 | 50 | | 110 | FZ/TR | 5 | 740227 ● |
| Schirmer, Wegoma | 550 | 4,4 | 3,8 | 80 | 6/9/100 | 128 | FZ/TR | 5 | 760203 ● |
| Stegmaier | 600 | 4,6 | 4,0 | 30 | 2/11/63 | 140 | FZ/TR | 5 | 760204 ● |
| Emmegi | 600 | 5,0 | 4,4 | 32 | 2/11/63 | 100 | FZ/TR | 5 | 760034 ● |
| Pressta-Eisele | 600 | 4,6 | 4,0 | 32 | 2/11/63 | 140 | FZ/TR | 5 | 760205 ● |
| | 600 | 4,6 | 4,0 | 50 | 2/10,5/70 | 140 | FZ/TR | 5 | 740231 ● |
| | 600 | 5,0 | 4,4 | 80 | 6/8/100 | 120 | FZ/TR | 5 | 740232 ● |
| | 650 | 5,0 | 4,4 | 30 | 2/11/63 | 144 | FZ/TR | 5 | 760206 ● |
| Emmegi | 650 | 5,0 | 4,0 | 40 | 2/11/63 | 144 | FZ/TR | 5 | 760035 ● |



Trimming and mitre cutting hollow profile working from below - *Classic*

Application:

For sizing and mitre cutting. For processing of NF parts, fine mist lubrication is recommended.

Machine:

Trimming, mitre cutting, double cross-cutting, sizing machines and panel sizing machines.

Workpiece material:

NF and plastic profiles (wall thickness 2,0 - 5,0 mm), polymer-compound panels up to 12 mm thickness.

Technical information:

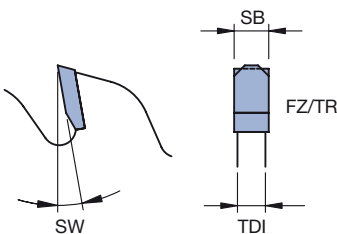
Noise-reducing tooth design and tool body.



Circular saw blade - wall thickness 2,0 - 5,0 mm

WK 352-2, WK 452-2, WK 452-2-37

| Machine | D mm | SB mm | TDI mm | BO mm | NLA mm | Z | ZF | SW degree | ID |
|---|---------|----------|-----------|----------|-----------|-----|-------|--------------|-----------------|
| Pressta-Eisele | 200 | 3,0 | 2,4 | 20 | | 64 | FZ/TR | 5 | 760048 ● |
| Emmegi | 200 | 2,8 | 2,2 | 20 | | 84 | FZ/TR | 5 | 760003 ● |
| | 200 | 3,2 | 2,6 | 32 | 2/11/63 | 80 | FZ/TR | 5 | 740207 ● |
| | 220 | 3,2 | 2,6 | 30 | | 64 | FZ/TR | 5 | 740204 ● |
| Elektra Beckum, Elu/DeWalt, Haffner, Mafell, Makita, Metabo, PHM, Rapid, Scheppach | 250 | 3,2 | 2,6 | 30 | KNL | 80 | FZ/TR | 5 | 059950 ● |
| Elu, Pressta- Eisele | 250 | 3,2 | 2,6 | 32 | 2/11/63 | 80 | FZ/TR | 5 | 760052 ● |
| | 250 | 3,2 | 2,6 | 40 | | 80 | FZ/TR | 5 | 740208 ● |
| Elumatec | 254 | 3,4 | 2,8 | 32 | | 100 | FZ/TR | 5 | 740210 ● |
| Elumatec | 280 | 3,3 | 2,6 | 32 | | 96 | FZ/TR | 5 | 762352 ● |
| | 300 | 3,2 | 2,6 | 30 | KNL | 96 | FZ/TR | 5 | 059951 ● |
| Emmegi | 300 | 3,4 | 2,8 | 32 | | 84 | FZ/TR | 5 | 760010 ● |





1. Processing hollow profiles

1.2 Wall thickness > 2,0 mm

| Machine | D mm | SB mm | TDI mm | BO mm | NLA mm | Z | ZF | SW degree | ID |
|----------------|---------|----------|-----------|----------|-------------------------------|-----|-------|--------------|-----------------|
| | 300 | 3,2 | 2,7 | 40 | 2/9/55 4/12/64 | 80 | FZ/TR | 5 | 760009 ● |
| | 300 | 3,2 | 2,6 | 40 | | 96 | FZ/TR | 5 | 740212 ● |
| Rapid | 320 | 3,2 | 2,6 | 30 | KNL | 84 | FZ/TR | 5 | 059960 ● |
| Rapid | 350 | 3,8 | 3,2 | 30 | 2/9/55 4/12/64 | 96 | FZ/TR | 5 | 760162 ● |
| Rapid | 350 | 3,2 | 2,6 | 30 | KNL | 108 | FZ/TR | 5 | 059952 ● |
| Eisele | 350 | 3,8 | 3,2 | 40 | 2/9/55 4/12/64 | 96 | FZ/TR | 5 | 760017 ● |
| | 350 | 3,4 | 2,8 | 40 | | 108 | FZ/TR | 5 | 740213 ● |
| Rapid | 370 | 3,8 | 3,2 | 30 | KNL | 96 | FZ/TR | 5 | 059964 ● |
| Kaltenbach | 370 | 4,0 | 3,4 | 50 | 4/15/80 | 96 | FZ/TR | 5 | 760021 ● |
| Eisele | 400 | 4,0 | 3,4 | 30 | 2/15/80 4/12/64 | 120 | FZ/TR | 5 | 760196 ● |
| | 450 | 4,2 | 3,6 | 30 | 2/11/63 | 110 | FZ/TR | 5 | 760027 ● |
| | 450 | 3,8 | 3,2 | 32 | | 96 | FZ/TR | 5 | 059966 ● |
| Pressta-Eisele | 450 | 3,8 | 3,2 | 32 | 2//11/63 | 110 | FZ/TR | 5 | 760199 ● |
| Eisele | 450 | 4,2 | 3,6 | 40 | 2/12/55 2/12/64 2/12/80 | 110 | FZ/TR | 5 | 760028 ● |
| | 500 | 4,0 | 3,4 | 80 | 6/9/100 | 144 | FZ/TR | 5 | 740219 ● |
| | 520 | 4,0 | 3,4 | 30 | KNL | 140 | FZ/TR | 5 | 740222 ● |
| | 550 | 4,4 | 3,8 | 80 | 6/9/100 | 144 | FZ/TR | 5 | 740229 ● |
| | 550 | 4,4 | 3,8 | 80 | 6/9/100 | 160 | FZ/TR | 5 | 740230 ● |



1. Processing hollow profiles
1.2 Wall thickness > 2,0 mm



**Trimming and mitre cutting
hollow profile working from above - Premium**

Application:

For low-noise sizing and mitre cutting, also on increasing dullness. For processing NF parts, fine mist lubrication is recommended.

Machine:

Trimming, mitre cutting, double cross-cutting and sizing machines.

Workpiece material:

NF and plastic profiles (wall thickness 2,0 - 5,0 mm), polymer compound material panels.

Technical information:

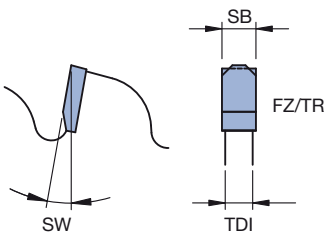
AS OptiCut UT design - noise reduction during idle running up to 8dB(A). Tool body with laser ornaments and irregular tooth pitch. Higher cutting performance and less adhesion through special coating on the tool body.



Circular saw blade - AS Opticut UT - wall thickness 2,0 - 5,0 mm

WK 382-2-87

| D mm | SB mm | TDI mm | BO mm | NLA mm | Z | ZF | SW degree | ID |
|---------|----------|-----------|----------|-----------|-----|-------|--------------|-----------------|
| 300 | 3,4 | 2,8 | 30 | KNL | 72 | FZ/TR | -5 | 741800 ● |
| 350 | 3,4 | 2,8 | 30 | KNL | 84 | FZ/TR | -5 | 741801 ● |
| 400 | 3,8 | 3,2 | 30 | KNL | 96 | FZ/TR | -5 | 741802 ● |
| 450 | 4,0 | 3,4 | 30 | KNL | 100 | FZ/TR | -5 | 741803 ● |
| 500 | 4,4 | 3,8 | 30 | KNL | 120 | FZ/TR | -5 | 741804 ● |
| 550 | 4,4 | 3,8 | 30 | KNL | 120 | FZ/TR | -5 | 741805 ● |



1. Processing hollow profiles

1.2 Wall thickness > 2,0 mm



Trimming and mitre cutting hollow profile working from above - *Classic*

Application:

For sizing and mitre cutting. For processing NF parts, fine mist lubrication is recommended. Especially suitable for cuts working from above due to the negative cutting angle.

Machine:

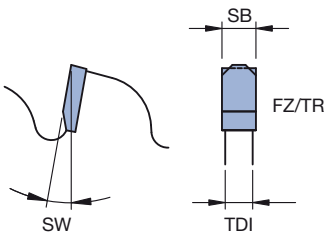
Trimming, mitre cutting and double cross-cutting machines.

Workpiece material:

NF- and plastic profiles (wall thickness > 5,0 mm)

Technical information:

Especially suitable for cuts working from above due to negative cutting angle. Reinforced tool body for higher, one-sided use. Noise-reducing tooth design and tool body.



Circular saw blade - wall thickness > 5,0 mm

WK 362-2, WK 462-2-36

| Machine | D mm | SB mm | TDI mm | BO mm | NLA mm | Z | ZF | SW degree | ID |
|--|---------|----------|-----------|----------|--------------------|-----|-------|--------------|-----------------|
| Haffner, Makita | 180 | 3,2 | 2,6 | 20 | 2/6/32 | 42 | FZ/TR | -5 | 740403 ● |
| | 180 | 3,2 | 2,6 | 30 | | 42 | FZ/TR | -5 | 060114 ● |
| Hitachi, Makita, Metabo | 210 | 2,8 | 2,2 | 30 | | 54 | FZ/TR | -5 | 740406 ● |
| Elu | 215 | 2,8 | 2,2 | 30 | | 60 | FZ/TR | -5 | 760210 ● |
| Elek. Beckum, Elu/DeWalt, Mafell, Makita, Metabo, PHM, Scheppach | 250 | 3,4 | 2,8 | 30 | KNL | 60 | FZ/TR | -5 | 060134 ● |
| Haffner, Elu, Kaltenbach, Ulmia | 250 | 3,4 | 2,8 | 32 | | 60 | FZ/TR | -5 | 060136 ● |
| | 275 | 3,4 | 2,8 | 40 | 2/10/55 | 72 | FZ/TR | -5 | 060137 ● |
| | 300 | 3,4 | 2,8 | 30 | KNL | 72 | FZ/TR | -5 | 060138 ● |
| | 300 | 3,4 | 2,8 | 32 | | 72 | FZ/TR | -5 | 060139 ● |
| Elu/DeWalt | 330 | 3,4 | 2,8 | 32 | 2/8/45 | 68 | FZ/TR | -5 | 060140 ● |
| Elu | 330 | 3,4 | 2,8 | 32 | | 84 | FZ/TR | -5 | 760213 ● |
| Haffner | 350 | 3,4 | 2,8 | 30 | KNL | 84 | FZ/TR | -5 | 060141 ● |
| | 350 | 3,8 | 3,2 | 30 | KNL | 84 | FZ/TR | -5 | 060106 ● |
| | 350 | 3,8 | 3,2 | 32 | | 84 | FZ/TR | -5 | 060107 ● |
| | 350 | 3,8 | 3,2 | 40 | 2/10/55 2/11/63 | 84 | FZ/TR | -5 | 060108 ● |
| Elu/DeWalt | 370 | 3,8 | 3,2 | 30 | KNL | 84 | FZ/TR | -5 | 060127 ● |
| Haffner, Rapid, Ulmia, Wegoma | 400 | 3,8 | 3,2 | 30 | KNL | 96 | FZ/TR | -5 | 060110 ● |
| Eisele | 400 | 3,8 | 3,2 | 40 | 2/12/80 4/12/64 | 96 | FZ/TR | -5 | 060111 ● |
| Kaltenbach | 400 | 3,8 | 3,2 | 50 | 4/15/80 | 96 | FZ/TR | -5 | 059883 ● |
| Rapid, Haffner, Wegoma, Ulmia | 420 | 4,0 | 3,4 | 30 | KNL | 96 | FZ/TR | -5 | 760222 ● |
| | 550 | 4,4 | 3,8 | 80 | 6/6,5/100 | 100 | FZ/TR | -5 | 740423 ● |
| | 650 | 4,6 | 4,0 | 80 | 6/8/100 | 128 | FZ/TR | -5 | 740426 ● |

Exemplary processing data ID 60110:

Trimming- and mitre cutting of aluminium hollow profiles
 RPM $n = 3500 \text{ min}^{-1}$
 Flange 140 mm
 Feed speed $v_f = 4 \text{ m/min}$
 Tooth feed speed $f_z = 0,012 \text{ mm}$
 Tool life 17000 - 25000 cuts

1. Processing hollow profiles

1.2 Wall thickness > 2,0 mm



Trimming and mitre cutting hollow profile working from above - *Classic*

Application:

For sizing and mitre cutting. For processing NF parts, fine mist lubrication is recommended. Especially suitable for cuts working from above due to negative chipping angle.

Machine:

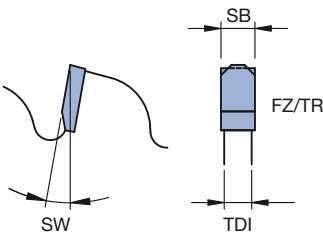
Sizing, trimming, mitre cutting and double cross-cutting machines.

Workpiece material:

NF and plastic profiles (wall thickness 2,0 - 5,0 mm)

Technical information:

Especially suitable for cuts working from above due to negative chipping angle. Noise-reducing tooth design and tool body.



Circular saw blade - wall thickness 2,0 - 5,0 mm

WK 362-2, WK 462-2, WK 462-2-37

| Machine | D mm | SB mm | TDI mm | BO mm | NLA mm | Z | ZF | SW degree | ID |
|---|---------|----------|-----------|----------|-------------------|-----|-------|--------------|----------|
| Ulmia | 160 | 2,8 | 2,2 | 16 | | 42 | FZ/TR | -5 | 060272 ● |
| | 170 | 2,8 | 2,2 | 30 | | 48 | FZ/TR | -5 | 740401 ● |
| | 190 | 2,8 | 2,2 | 30 | | 54 | FZ/TR | -5 | 740404 ● |
| Fezer | 200 | 3,2 | 2,6 | 18 | | 80 | FZ/TR | -5 | 060261 ● |
| Ulmia, Urban, Eisele | 200 | 3,2 | 2,6 | 30 | | 60 | FZ/TR | -5 | 060270 ● |
| Haffner Reich | 220 | 3,2 | 2,6 | 30 | | 72 | FZ/TR | -5 | 060271 ● |
| Elek. Beckum, Elu/DeWalt, Haffner, Mafell, Metabo, PHM, Scheppach | 250 | 3,2 | 2,6 | 30 | KNL | 80 | FZ/TR | -5 | 060250 ● |
| Elu/DeWalt Fezer, Pertici | 250 | 3,2 | 2,6 | 32 | 2/8/45 | 80 | FZ/TR | -5 | 060251 ● |
| Eisele, Graule | 250 | 3,2 | 2,6 | 40 | 2/8/55 4/12/64 | 80 | FZ/TR | -5 | 760211 ● |
| | 275 | 3,2 | 2,6 | 30 | KNL | 88 | FZ/TR | -5 | 740410 ● |
| Elek. Beckum, Elu/DeWalt, Fezer, Lurem, Rapid, Ulmia, Scheppach | 300 | 3,2 | 2,6 | 30 | KNL | 96 | FZ/TR | -5 | 060252 ● |
| Fezer, Rapid, Ulmia | 300 | 3,2 | 2,6 | 30 | KNL | 120 | FZ/TR | -5 | 060267 ● |
| Elu | 300 | 3,2 | 2,6 | 32 | | 96 | FZ/TR | -5 | 060253 ● |
| Eisele, Graule | 300 | 3,2 | 2,6 | 40 | 2/9/55 4/12/64 | 96 | FZ/TR | -5 | 760044 ● |
| | 310 | 3,2 | 2,6 | 30 | KNL | 96 | FZ/TR | -5 | 740413 ● |
| Haffner | 330 | 3,2 | 2,6 | 30 | KNL | 96 | FZ/TR | -5 | 060268 ● |
| Elumatec | 330 | 3,2 | 2,6 | 32 | | 96 | FZ/TR | -5 | 060259 ● |
| Haffner Ulmia | 350 | 3,2 | 2,6 | 30 | KNL | 108 | FZ/TR | -5 | 060255 ● |

1. Processing hollow profiles

1.2 Wall thickness > 2,0 mm

| Machine | D mm | SB mm | TDI mm | BO mm | NLA mm | Z | ZF | SW degree | ID |
|-----------------------|---------|----------|-----------|----------|--------------------|-----|-------|--------------|-----------------|
| | 350 | 3,6 | 3,0 | 32 | 2/9/55 4/12/64 | 108 | FZ/TR | -5 | 760050 ● |
| Eisele, Graule | 350 | 3,6 | 3,0 | 40 | 2/9/55 4/12/64 | 108 | FZ/TR | -5 | 060269 ● |
| Kaltenbach | 370 | 3,6 | 3,0 | 50 | 4/15/80 | 96 | FZ/TR | -5 | 760217 ● |
| Elumatec | 380 | 3,8 | 3,2 | 32 | | 110 | FZ/TR | -5 | 760334 ● |
| Haffner | 400 | 3,8 | 3,2 | 30 | KNL | 108 | FZ/TR | -5 | 760053 ● |
| | 400 | 3,8 | 3,2 | 32 | 2/11/63 | 96 | FZ/TR | -5 | 069929 ● |
| Elu/DeWalt | 420 | 3,8 | 3,2 | 30 | KNL | 108 | FZ/TR | -5 | 060257 ● |
| | 420 | 3,8 | 3,2 | 32 | | 108 | FZ/TR | -5 | 069927 ● |
| Graule | 420 | 3,8 | 3,2 | 40 | | 100 | FZ/TR | -5 | 760055 ● |
| Rapid | 450 | 3,8 | 3,2 | 30 | KNL | 108 | FZ/TR | -5 | 060258 ● |
| Pressta Eisele | 450 | 4,0 | 3,4 | 32 | 2/11/63 | 110 | FZ/TR | -5 | 760223 ● |
| Elu, Wegoma, Rapid | 500 | 4,4 | 3,8 | 30 | 2/11/63 6/9/100 | 120 | FZ/TR | -5 | 760057 ● |
| | 500 | 4,2 | 3,6 | 30 | KNL | 140 | FZ/TR | -5 | 740419 ● |
| Pressta Eisele | 500 | 4,4 | 3,8 | 32 | 2/11/63 6/9/100 | 120 | FZ/TR | -5 | 760224 ● |
| Wegoma, Schirmer | 500 | 4,4 | 3,8 | 80 | 6/9/100 | 120 | FZ/TR | -5 | 760058 ● |
| | 520 | 4,4 | 3,8 | 30 | KNL | 120 | FZ/TR | -5 | 740420 ● |
| | 520 | 4,4 | 3,8 | 50 | | 120 | FZ/TR | -5 | 740421 ● |
| Rapid | 550 | 4,0 | 3,4 | 30 | KNL | 132 | FZ/TR | -5 | 760060 ● |
| | 550 | 4,4 | 3,8 | 32 | 2/11/63 | 128 | FZ/TR | -5 | 740424 ● |
| Wegoma, Schirmer | 550 | 4,4 | 3,8 | 80 | 6/9/100 | 128 | FZ/TR | -5 | 760225 ● |
| Stürtz | 600 | 5,2 | 4,6 | 30 | KNL | 138 | FZ/TR | -5 | 760061 ● |
| | 650 | 4,6 | 4,0 | 40 | | 140 | FZ/TR | -5 | 740425 ● |

1. Processing hollow profiles

1.2 Wall thickness > 2,0 mm



Notching cut - *Classic*

Application:

For cutting single notches for NF- and plastic profiles. For processing of NF-parts, fine mist lubrication is recommended.

Machine:

Notching machine, two-blade mitre saws.

Workpiece material:

NF- and plastic profiles. Positive cutting angle for wall thickness > 5 mm.

Technical information:

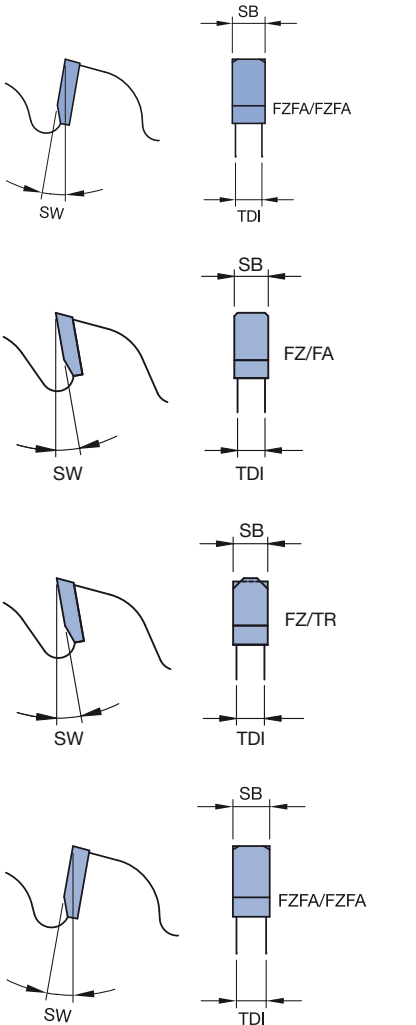
Noise-reducing design of the tool body.



Circular saw blade - positive, wall thickness > 5,0 mm

WK 352-2, WK 357-2

| Machine | D mm | SB mm | TDI mm | BO mm | Z | ZF | SW degree | ID |
|----------|---------|----------|-----------|----------|-----|-----------|--------------|----------|
| | 150 | 8,0 | 6,0 | 22 | 12 | FZFA/FZFA | 5 | 742000 ● |
| | 150 | 8,0 | 6,0 | 30 | 12 | FZFA/FZFA | 5 | 742001 ● |
| | 150 | 8,0 | 6,0 | 32 | 12 | FZFA/FZFA | 5 | 742002 ● |
| | 200 | 8,0 | 6,0 | 40 | 32 | FZFA/FZFA | 5 | 742003 ● |
| | 250 | 8,0 | 6,0 | 40 | 16 | FZFA/FZFA | 5 | 742004 ● |
| | 250 | 8,0 | 6,0 | 40 | 40 | FZFA/FZFA | 5 | 742005 ● |
| Elumatec | 254 | 3,4 | 2,8 | 32 | 68 | FZ/FA | 5 | 740209 ● |
| Elumatec | 254 | 3,4 | 2,8 | 32 | 100 | FZ/TR | 5 | 740210 ● |
| | 280 | 4,0 | 3,2 | 40 | 36 | FZFA/FZFA | 5 | 742006 ● |
| | 280 | 6,0 | 4,5 | 40 | 36 | FZFA/FZFA | 5 | 742007 ● |
| | 300 | 8,0 | 6,0 | 40 | 16 | FZFA/FZFA | 5 | 742009 ● |
| | 300 | 8,0 | 6,0 | 40 | 36 | FZFA/FZFA | 5 | 742008 ● |
| | 550 | 4,4 | 3,8 | 40 | 110 | FZ/TR | 5 | 740226 ● |
| | 550 | 4,4 | 3,8 | 50 | 110 | FZ/TR | 5 | 740227 ● |
| | 600 | 4,6 | 4,0 | 50 | 140 | FZ/TR | 5 | 740231 ● |



Workpiece material:

NF and plastic profiles. Negative cutting angle for wall thickness 1,0 - 5,0 mm.

Circular saw blade - negative, wall thickness 1,0 - 5,0 mm

WK 367-2

| Machine | D mm | SB mm | TDI mm | BO mm | Z | ZF | SW degree | ID |
|---------------|---------|----------|-----------|----------|----|-----------|--------------|----------|
| Rotox | 120 | 8,0 | 6,0 | 30 | 16 | FZFA/FZFA | -5 | 760146 ● |
| Rotox | 140 | 8,0 | 6,0 | 30 | 20 | FZFA/FZFA | -5 | 760147 ● |
| | 200 | 6,5 | 5,5 | 40 | 16 | FZFA/FZFA | -5 | 760148 ● |
| Graule | 200 | 6,5 | 5,0 | 40 | 32 | FZFA/FZFA | -5 | 760149 ● |
| Graule | 200 | 8,0 | 6,0 | 40 | 32 | FZFA/FZFA | -5 | 760150 ● |
| Rapid | 250 | 8,0 | 6,0 | 30 | 40 | FZFA/FZFA | -5 | 760152 ● |
| | 250 | 8,0 | 6,0 | 40 | 20 | FZFA/FZFA | -5 | 760151 ● |
| Rapid, Graule | 250 | 8,0 | 6,0 | 40 | 40 | FZFA/FZFA | -5 | 760153 ● |
| Elu | 280 | 8,0 | 6,0 | 40 | 40 | FZFA/FZFA | -5 | 760154 ● |
| Eisele | 300 | 8,0 | 6,0 | 40 | 16 | FZFA/FZFA | -5 | 760155 ● |



1. Processing hollow profiles

1.3 Bespoke solutions

Trimming and mitre cutting of window profiles and facing

Application:

For sizing and mitre cutting of window profiles (with or without GFK-frame) and facing.

Machine:

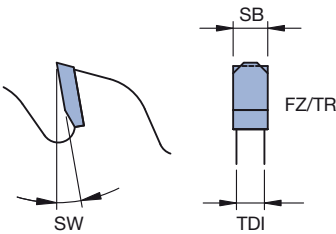
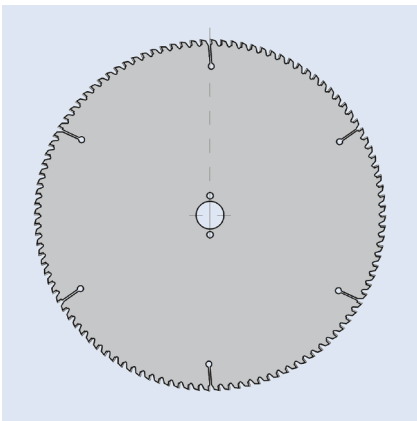
Trimming, mitre cutting and double cross-cutting machines.

Workpiece material:

NF and plastic profiles.

Technical information:

In case of greater production quantities, it is preferred to use diamond as the cutting material. It has a considerable higher performance time than tungsten carbide - in this application example ca. 30 times higher.



DP circular saw blade

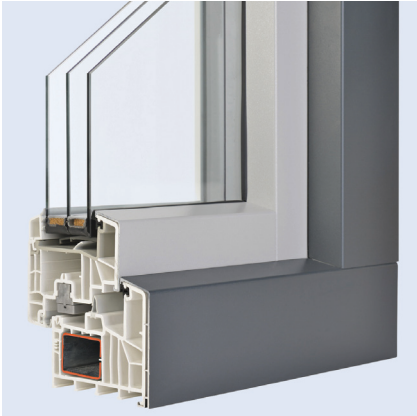
WK 452-2

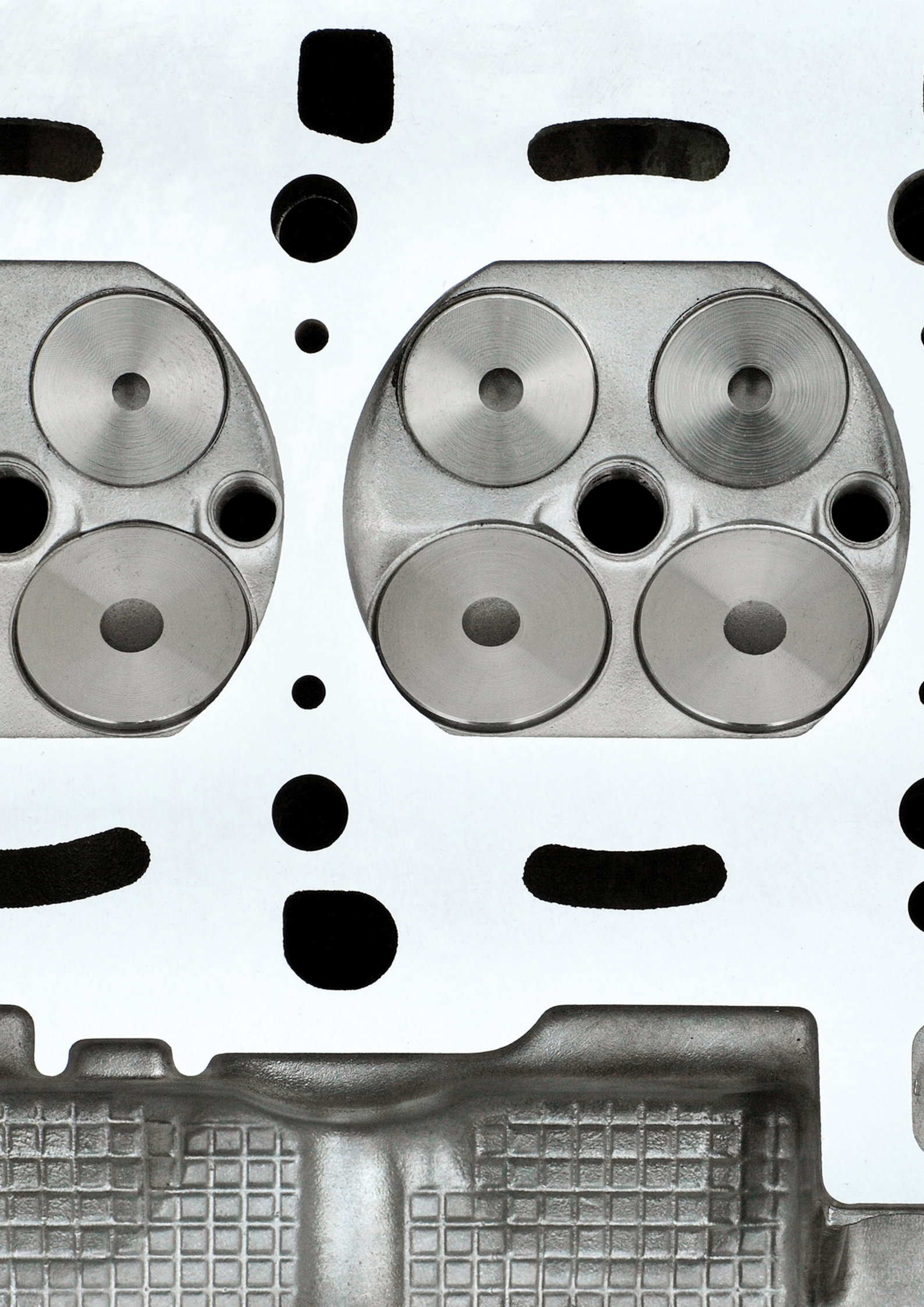
| D | SB | TDI | BO | NLA | Z | ZF | SW | ID |
|-----|-----|-----|----|---------|-----|-------|--------|--------------------|
| mm | mm | mm | mm | mm | | | degree | |
| 380 | 4,2 | 3,8 | 30 | 2/7/42 | 108 | FZ/TR | 5 | 472041392 ● |
| 550 | 4,4 | 3,8 | 40 | 4/10/60 | 150 | FZ/TR | 0 | 472032123 ● |

HW circular saw blade

WK 452-2

| D | SB | TDI | BO | NLA | Z | ZF | SW | ID |
|-----|-----|-----|----|--------|-----|-------|--------|--------------------|
| mm | mm | mm | mm | mm | | | degree | |
| 380 | 4,2 | 3,8 | 30 | 2/7/42 | 108 | FZ/TR | 5 | 470016930 ● |







2. Processing solid material

2.1 Sizing

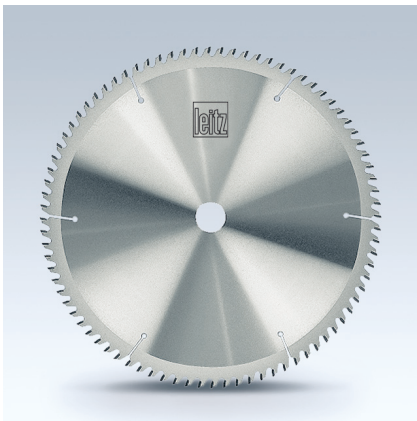
Stacks, panels and metal sheets
up to 200 mm cutting height

2.2 Bespoke solutions

Processing cylinder heads
Panel processing

2. Processing solid material

2.1 Sizing



Sizing cut

Application:

For sizing. For processing NF parts, fine mist lubrication is recommended.

Machine:

Sizing machines and panel sizing machines.

Workpiece material:

NF panels and NF stacks of metal sheets up 200 mm thickness.

Technical information:

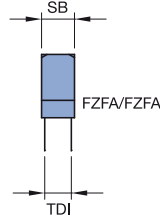
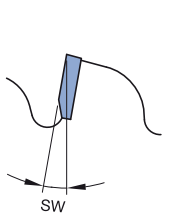
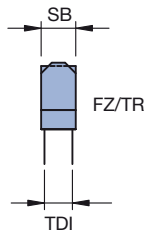
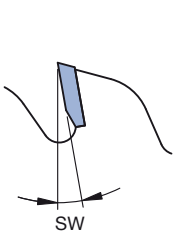
Reinforced tool body for higher, one-sided use. For **AS Low Noise Foils UT** version - noise reduction in use up to 10 dB(A). Vibration-damping composite construction with steel foil and irregular tooth pitch.



Circular saw blade - 150 mm cutting height

WK 452-2, WK 472-2

| Machine | D mm | SB mm | TDI mm | BO mm | NLA mm | Typ | Z | ZF | SW degree | ID |
|-----------|---------|----------|-----------|----------|----------------------|----------------|----|---------------|--------------|-----------------|
| Schelling | 450 | 4,4 | 3,5 | 30 | 2/13/94 | | 60 | FZ/TR | 10 | 059888 ● |
| Schelling | 620 | 5,5 | 4,5 | 40 | 2/13/114 2/13/140 | | 36 | FZFA/ FZFA | 10 | 059889 ● |
| Schelling | 620 | 5,5 | 4,5 | 40 | 2/13/114 2/13/140 | AS Folie UT | 60 | FZ/TR | 5 | 059890 ● |



Other dimensions - 160 mm cutting height

WK 452-2, WK 457-2, WK 472-2, WK 852-2

| D mm | SB mm | TDI mm | BO mm | NLA mm | Z | ZF | SW degree | ID |
|---------|----------|-----------|----------|----------------------|----|-----------|--------------|------------------|
| 600 | 5,6 | 4,6 | 85 | | 64 | FZ/TR | 8 | 182002035 |
| 620 | 5,5 | 4,5 | 40 | 2/13/114 2/13/140 | 60 | FZ/TR | 5 | 470036268 |
| 650 | 6,2 | 4,2 | 80 | 2/10,5/130 | 72 | FZ/TR | 20 | 470038654 |
| 670 | 6,0 | 4,5 | 40 | 2/16/80 | 48 | FZFA/FZFA | 10 | 470037607 |
| 670 | 6,5 | 5,0 | 40 | | 32 | FZFA/FZFA | 10 | 470041221 |
| 700 | 6,0 | 5,0 | 80 | | 72 | FZ/TR | 5 | 470014696 |

Processing data ID 59889:

RPM $n = 2800 \text{ min}^{-1}$

Feed speed $v_f = 0,5 \text{ m/min}$

Cutting height 160 mm

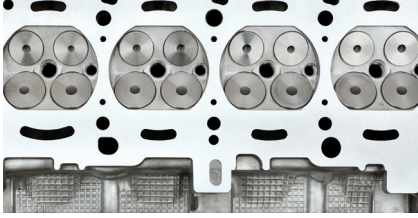
Other dimensions - 200 mm cutting height

WK 452-2, WK 457-2

| D mm | SB mm | TDI mm | BO mm | NLA mm | Z | ZF | SW degree | ID |
|---------|----------|-----------|----------|------------------------|----|-----------|--------------|------------------|
| 750 | 6,5 | 5,0 | 50 | 2/17/110 | 48 | FZFA/FZFA | 10 | 470015267 |
| 750 | 6,5 | 5,0 | 100 | 2/12,5/140 2/20/500 | 48 | FZFA/FZFA | 10 | 470042814 |
| 970 | 6,4 | 5,0 | 50 | 2/13/95 2/20/770 | 84 | FZ/TR | 10 | 470041943 |
| 1000 | 12,0 | 6,0 | 70 | 2/28/540 2/21/180 | 80 | FZ/TR | 12 | 470034078 |
| 1000 | 12,0 | 6,0 | 70 | 2/28/540 2/21/180 | 80 | FZFA/FZFA | 12 | 470039021 |

2. Processing solid material

2.2 Bespoke solutions



Cutting cylinder heads

Application:

For cutting cylinder heads for the production of engine blocks.

Technical information:

RPM $n = 1400 \text{ min}^{-1}$

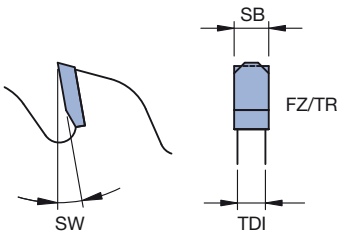
Feed speed $v_f = 2,1 \text{ m/min}$

Ca. 11500 cuts possible (note: the detailed performance time of the tool depends on a number of factors and therefore differs in each case of application)

HW circular saw blades

WK 452-2

| D mm | SB mm | TDI mm | BO mm | NLA mm | Z | ZF | SW degree | ID |
|---------|----------|-----------|----------|-----------|----|-------|--------------|-----------|
| 630 | 6,0 | 5,0 | 100 | 2/17/170 | 70 | FZ/TR | 5 | 470038737 |



Sizing aluminium plates

Application:

For sizing aluminium plates.

Technical information:

RPM $n = 2680 \text{ min}^{-1}$

Feed speed $v_f = 7 - 10 \text{ m/min}$ for 15 - 20 mm cutting height

Feed speed $v_f = 2 - 5 \text{ m/min}$ for 30 - 70 mm cutting height

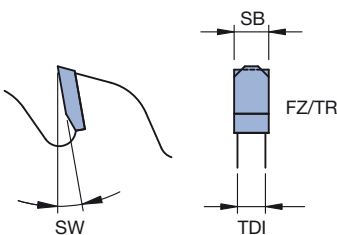
Feed speed $v_f = 1 - 1,3 \text{ m/min}$ for 120 mm cutting height

Performance time ca. 2 months (cutting quantity ca. 106 tons) for fine cutting quality. (note: the detailed performance time of the tool depends on a number of factors and therefore differs in each case of application).

DP circular saw blade - AS OptiCut UT

WK 452-2

| D mm | SB mm | TDI mm | BO mm | NLA mm | Z | ZF | SW degree | ID |
|---------|----------|-----------|----------|----------------------|----|-------|--------------|-----------|
| 620 | 6,0 | 4,5 | 40 | 2/13/114 2/13/140 | 60 | FZ/TR | 10 | 472031068 |







3. Routing and drilling

3.1 Sizing and grooving

3.2 Drilling

3.3 Countersinking

3. Routing and drilling

3.1 Sizing and grooving



Grooving cutter, straight cut

Application:

Router for sizing and grooving.

Machine:

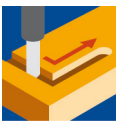
Moulding machine with/without CNC-control, machining centres, special milling machine with cutter spindle to adapt shank tools.

Workpiece material:

NF-metals (aluminium, copper, etc.) PVC-profiles.

Technical information:

Straight cut, ground on end for plunging. Large regrinding area. Long version for extreme cutting depths (recommended for several infeeds). Cutting aluminium requires suitable cooling lubrication.



HW solid, Z 2, short design

WO 120-1-16

| D mm | GL mm | NL mm | S mm | DRI | ID |
|---------|----------|----------|---------|-----|-----------------|
| 3 | 50 | 6 | 6x30 | RL | 041979 ● |
| 4 | 50 | 7 | 6x30 | RL | 041952 ● |
| 4,5 | 50 | 8 | 6x30 | RL | 041953 ● |
| 5 | 50 | 10 | 6x30 | RL | 041954 ● |
| 5,5 | 50 | 12 | 6x30 | RL | 041955 ● |
| 6 | 50 | 14 | 6x30 | RL | 041956 ● |
| 7 | 55 | 17 | 8x30 | RL | 041958 ● |
| 8 | 55 | 20 | 8x30 | RL | 041985 ● |
| 8,5 | 65 | 16 | 8x30 | RL | 041960 ● |
| 9 | 70 | 18 | 10x40 | RL | 041961 ● |
| 10 | 70 | 20 | 10x40 | RL | 041962 ● |
| 12 | 70 | 25 | 12x40 | RL | 041963 ● |

HW solid, Z 2, short design, reinforced shank

WO 120-1-16

| D mm | GL mm | NL mm | S mm | DRI | ID |
|---------|----------|----------|---------|-----|-----------------|
| 3 | 55 | 6 | 8x40 | RL | 041981 ● |
| 4 | 55 | 10 | 8x40 | RL | 041982 ● |
| 5 | 55 | 12 | 8x40 | RL | 041983 ● |
| 6 | 55 | 14 | 8x40 | RL | 041984 ● |

HW solid, Z 2, long design

WO 120-1-16

| D mm | GL mm | NL mm | S mm | DRI | ID |
|---------|----------|----------|---------|-----|-----------------|
| 3 | 60 | 12 | 6x30 | RL | 041964 ● |
| 4 | 60 | 12 | 6x40 | RL | 041965 ● |
| 5 | 80 | 18 | 6x40 | RL | 041966 ● |

RPM: $n_{\max} = 24000 \text{ min}^{-1}$



3. Routing and drilling

3.1 Sizing and grooving



Spiral finishing router cutter

Application:

Router for sizing and grooving.

Machine:

Moulding machines with/without CNC-control, machining centres, special milling machines with cutter spindles to adapt shank tools.

Workpiece material:

NF-metals (aluminium, copper, etc.)

Technical information:

Large twist angle for extreme shear cut. Max. cutting depth 1,0 - 1,5 x diameter. Short design with increased stability for low vibration cutting. Long design for large depth of cut (recommended for several infeeds). Cutting aluminium obligatorily requires suitable cooling lubrication.



HW solid, Z 1, short design

WO 160-2-03

| D mm | D in | GL mm | GL in | NL mm | NL in | S mm | S in | Twist | DRI | ID |
|---------|---------|----------|----------|----------|----------|---------|-------------|-------|-----|-----------------|
| 3 | | 50 | | 6 | | 6x30 | | RD | RL | 042723 ● |
| 4 | | 50 | | 8 | | 6x30 | | RD | RL | 042725 ● |
| 5 | | 50 | | 10 | | 6x30 | | RD | RL | 042727 ● |
| 6 | | 50 | | 14 | | 6x30 | | RD | RL | 042729 ● |
| 6,35 | 1/4" | 50,8 | 2" | 15,88 | 5/8" | 6,35x30 | 1/4"x1 1/8" | RD | RL | 240512 ● |
| 8 | | 65 | | 20 | | 8x40 | | RD | RL | 042731 ● |
| 10 | | 70 | | 20 | | 10x40 | | RD | RL | 042733 ● |
| 12 | | 70 | | 20 | | 12x40 | | RD | RL | 042735 ● |

RPM: $n_{max} = 16000 - 24000 \text{ min}^{-1}$

HW solid, Z 1, long design

WO 160-2-03

| D mm | GL mm | NL mm | S mm | Z | Twist | DRI | ID |
|---------|----------|----------|---------|---|-------|-----|-----------------|
| 4 | 60 | 12 | 6x40 | 1 | RD | RL | 042739 ● |
| 5 | 80 | 18 | 6x40 | 1 | RD | RL | 042741 ● |
| 6 | 80 | 22 | 6x40 | 1 | RD | RL | 042743 ● |
| 8 | 80 | 25 | 8x40 | 1 | RD | RL | 042745 ● |
| 10 | 90 | 32 | 10x40 | 1 | RD | RL | 042747 ● |
| 12 | 90 | 32 | 12x40 | 1 | RD | RL | 042749 ● |

RPM: $n_{max} = 16000 - 24000 \text{ min}^{-1}$



3. Routing and drilling

3.1 Sizing and grooving



Grooving cutter, water slot

Application:

Routers for grooving plastic and aluminium profiles. Designed to produce the drainage groove in window profiles.

Machine:

CNC-machining centres, rod machining centres, special milling machines with cutter spindles to adapt shank tools.

Workpiece material:

Plastic profiles, compound materials, aluminium profiles, NF-metals.

Technical information:

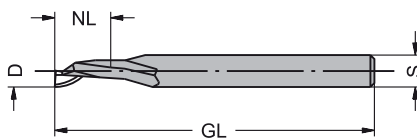
HS solid. spiral cutting edge for quiet running. Cutting aluminium requires a suitable cooling lubrication.



HS solid, Z 1, short design

WO 160-2

| D mm | GL mm | NL mm | S mm | Z | Twist | DRI | ID |
|---------|----------|----------|---------|---|-------|-----|----------|
| 3 | 60 | 12 | 8 | 1 | RD | RL | 780047 ● |
| 4 | 60 | 12 | 8 | 1 | RD | RL | 780048 ● |
| 5 | 60 | 14 | 8 | 1 | RD | RL | 780049 ● |
| 5 | 100 | 14 | 8 | 1 | RD | RL | 780183 ● |
| 5 | 100 | 20 | 8 | 1 | RD | RL | 780184 ● |
| 5 | 120 | 14 | 8 | 1 | RD | RL | 780185 ● |
| 6 | 60 | 14 | 8 | 1 | RD | RL | 780050 ● |
| 7 | 60 | 14 | 8 | 1 | RD | RL | 780051 ● |
| 8 | 80 | 14 | 8 | 1 | RD | RL | 780052 ● |
| 8 | 120 | 14 | 8 | 1 | RD | RL | 780053 ● |
| 8 | 120 | 25 | 8 | 1 | RD | RL | 780186 ● |
| 9 | 80 | 14 | 8 | 1 | RD | RL | 780054 ● |
| 10 | 80 | 14 | 8 | 1 | RD | RL | 780055 ● |
| 12 | 80 | 14 | 8 | 1 | RD | RL | 780056 ● |





3. Routing and drilling

3.1 Sizing and grooving



Grooving cutter, water slot

Application:

Routers for grooving plastic- and aluminium profiles. Designed to produce the drainage groove in window profiles.

Machine:

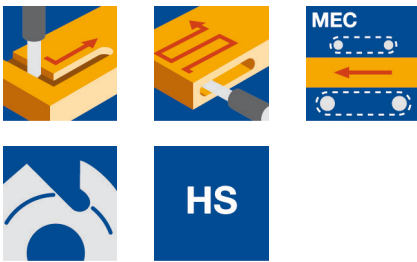
CNC-machining centres, rod machining centres, special milling machines with cutting spindles adapted for shank tools.

Workpiece material:

Plastic profiles, compound materials, aluminium profiles, NF-metals.

Technical information:

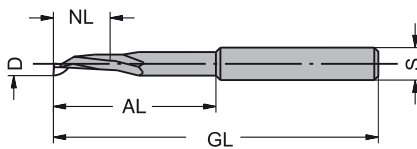
HS solid. spiral cutting edge for quiet running. Recessed flute for larger working depths in various infeeds. Cutting aluminium requires a suitable cooling lubrication.



HS solid, Z 1, recessed flute

WO 160-2

| D mm | GL mm | NL mm | AL mm | S mm | Z | Twist | DRI | ID |
|---------|----------|----------|----------|---------|---|-------|-----|-----------------|
| 4 | 90 | 16 | 43 | 8 | 1 | RD | RL | 780107 ● |
| 5 | 78 | 20 | 30 | 8 | 1 | RD | RL | 780101 ● |
| 5 | 80 | 14 | 33 | 8 | 1 | RD | RL | 780102 ● |
| 5 | 90 | 16 | 45 | 8 | 1 | RD | RL | 780108 ● |
| 5 | 100 | 20 | 45 | 8 | 1 | RD | RL | 780110 ● |
| 5 | 120 | 14 | 33 | 8 | 1 | RD | RL | 780114 ● |
| 6 | 80 | 14 | 35 | 8 | 1 | RD | RL | 780103 ● |
| 6 | 90 | 14 | 45 | 8 | 1 | RD | RL | 780109 ● |
| 6 | 100 | 14 | 35 | 8 | 1 | RD | RL | 780111 ● |
| 8 | 80 | 14 | 55 | 8 | 1 | RD | RL | 780104 ● |
| 8 | 100 | 30 | 70 | 8 | 1 | RD | RL | 780112 ● |
| 8 | 120 | 14 | 90 | 8 | 1 | RD | RL | 780115 ● |
| 10 | 80 | 14 | 60 | 10 | 1 | RD | RL | 780106 ● |
| 10 | 100 | 30 | 70 | 10 | 1 | RD | RL | 780113 ● |
| 10 | 120 | 14 | 95 | 10 | 1 | RD | RL | 780116 ● |



RPM: n = 10000 - 15000 min⁻¹



3. Routing and drilling

3.1 Sizing and grooving



Grooving cutter, water slot

Application:

Router for grooving plastic- and aluminium profiles. Designed for production of the drainage grooves in window profiles.

Machine:

CNC-machining centres, rod machining centres, special milling machines with cutting spindles adapted to shank tools.

Workpiece material:

Plastic profiles, compound materials, aluminium profiles.

Technical information:

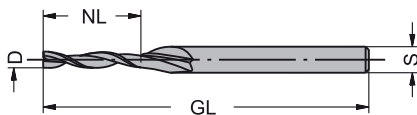
HS solid, spiral edges for quiet running. Cutting aluminium requires a suitable cooling lubricant.



HS solid, Z 2, spiral shape, long design

WO 160-2

| D mm | GL mm | NL mm | S mm | Z | Twist | DRI | ID |
|---------|----------|----------|---------|---|-------|-----|-----------------|
| 5 | 100 | 40 | 8 | 2 | RD | RL | 780172 ● |
| 8 | 120 | 20 | 8 | 2 | RD | RL | 780173 ● |





3. Routing and drilling

3.1 Sizing and grooving



Grooving cutter, water slot

Application:

Router for grooving plastic and aluminium profiles. Designed for production of the drainage grooves in window profiles.

Machine:

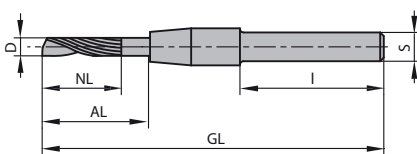
CNC-machining centres, rod machining centres, special milling machines with cutting spindles adapted to shank tools.

Workpiece material:

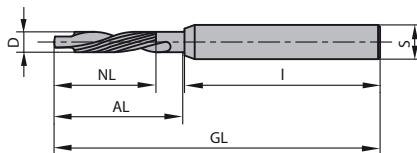
Plastic profiles, compound materials, aluminium profiles, NF-metals.

Technical information:

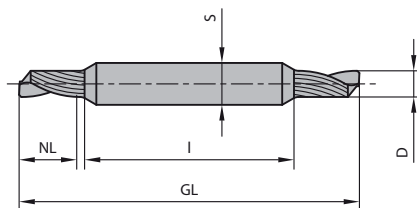
Spiral edges for quiet running. Good plunging reaction. Good chip removal. Cutting aluminium requires suitable lubrication (spray mist or minimal quantity lubrication).



WO 160-2-07 recessed flute



WO 160-2-07 recessed flute and small diameter drill



WO 160-2-07 recessed flute, double sided ground

HW solid, Z 1, recessed flute

WO 160-2-07

| D mm | GL mm | NL mm | AL mm | S mm | Z | Twist | DRI | ID |
|---------|----------|----------|----------|---------|---|-------|-----|-----------------|
| 5 | 70 | 15 | 25 | 8x48 | 1 | LD | RL | 780121 ● |
| 5 | 78 | 20 | 30 | 8x40 | 1 | RD | RL | 042539 ● |
| 5 | 80 | 25 | 35 | 8x48 | 1 | LD | RL | 780122 ● |
| 5 | 95 | 20 | 30 | 8x40 | 1 | RD | RL | 042540 ● |
| 5 | 100 | 30 | 50 | 8x48 | 1 | LD | RL | 780123 ● |
| 5 | 110 | 25 | 45 | 8x40 | 1 | RD | RL | 042541 ● |
| 8 | 90 | 35 | 50 | 8x40 | 1 | RD | RL | 780175 ● |
| 8 | 90 | 35 | 50 | 8x48 | 1 | LD | RL | 780176 ● |

HW solid, Z 1, recessed flute, with small diameter drill

WO 160-2-07

| D mm | GL mm | NL mm | AL mm | S mm | Z | Twist | DRI | ID |
|---------|----------|----------|----------|---------|---|-------|-----|-----------------|
| 5 | 70 | 10 | 15 | 8x40 | 1 | LD | RL | 780124 ● |
| 5 | 80 | 20 | 25 | 8x48 | 1 | LD | RL | 780125 ● |
| 5 | 100 | 25 | 45 | 8x48 | 1 | LD | RL | 780126 ● |

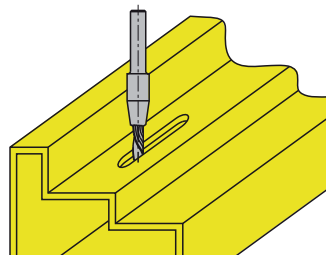
Diameter of small drill 2,7 mm

HW solid, Z 1, recessed flute, double sided ground

WO 160-2-07

| D mm | GL mm | NL mm | AL mm | S mm | Z | Twist | DRI | ID |
|---------|----------|----------|----------|---------|---|-------|-----|-----------------|
| 5 | 65 | 12 | 12 | 8x40 | 1 | RD | RL | 780187 □ |

RPM: $n_{max} = 10000 - 18000 \text{ min}^{-1}$



Slot mortising in hollow sections



3. Routing and drilling

3.1 Sizing and grooving



Grooving cutter, water slot

Application:

Router for grooving plastic and aluminium profiles. Designed for production of the drainage grooves in window profiles.

Machine:

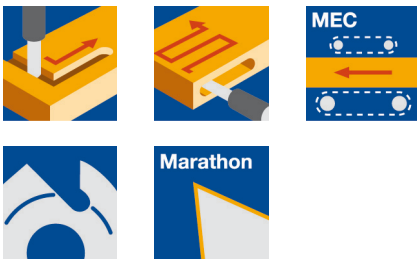
CNC-machining centres, rod machining centres, special milling machines with cutting spindles to adapt shank tools.

Workpiece material:

Plastic profiles, compound materials, aluminium profiles, NF-metals.

Technical information:

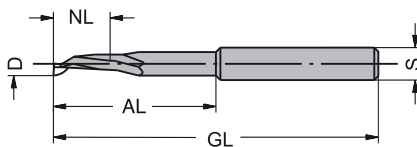
HS solid, Marathon-coating for increased performance time. Spiral edges for quiet running. Recessed flute for larger working depths in various infeeds. Cutting aluminium requires suitable cooling lubrication.



HS solid, Z 1, recessed flute

WO 160-2

| D mm | GL mm | NL mm | AL mm | S mm | Z | Twist | DRI | ID |
|---------|----------|----------|----------|---------|---|-------|-----|----------|
| 4 | 90 | 16 | 43 | 8 | 1 | RD | RL | 744200 ● |
| 5 | 80 | 14 | 33 | 8 | 1 | RD | RL | 744201 ● |
| 6 | 80 | 14 | 33 | 8 | 1 | RD | RL | 744202 ● |
| 8 | 100 | 30 | 70 | 8 | 1 | RD | RL | 744203 ● |
| 10 | 100 | 30 | 70 | 8 | 1 | RD | RL | 744204 ● |

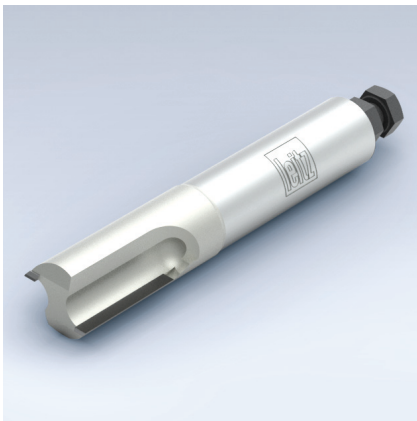


RPM: $n = 10000 - 15000 \text{ min}^{-1}$



3. Routing and drilling

3.1 Sizing and grooving



Diamaster PRO router

Application:

Router for sizing and grooving with an offset-free cut.

Machine:

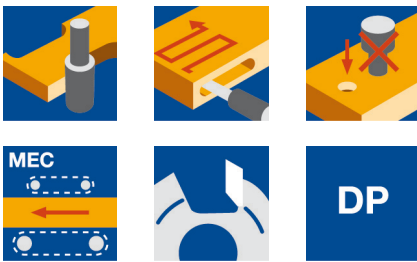
CNC-machining centres, rod machining centres, special milling machines with cutting spindles to adapt shank tools.

Workpiece material:

Aluminium profiles and -panels.

Technical information:

3- to 5 times resharpenable at normal dullness.



DP, Z 1 / Z 2
WO 140-2-50

| D mm | GL mm | NL mm | S mm | Z | DRI | ID |
|---------|----------|----------|---------|---|-----|-----------------|
| 8 | 60 | 12 | 12x40 | 1 | RL | 090154 ● |
| 10 | 70 | 12 | 12x40 | 2 | RL | 091158 ● |
| 18 | 90 | 25 | 16x50 | 2 | RL | 091190 ● |

RPM: $n = 16000 - 24000 \text{ min}^{-1}$

Feed speed (Z 2): $v_f = 4 - 6 \text{ m/min}$



3. Routing and drilling

3.1 Sizing and grooving

Diamaster PLUS / PRO router



Application:

Router for sizing and grooving.

Machine:

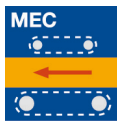
CNC-machining centres, rod machining centres, special milling machines with cutting spindles to adapt shank tools.

Workpiece material:

Aluminium profiles and -panels.

Technical information:

Edge arrangement with alternate shear angle and HW-plunging edge. 5 - 8 times resharpenable at normal wear.



DP, Z1+1

WO 140-2

| D mm | GL mm | NL mm | S mm | DRI | ID |
|---------|----------|----------|---------|-----|-----------------|
| 12 | 90 | 24 | 16x50 | RL | 090174 ● |
| 16 | 90 | 28 | 20x60 | RL | 090188 ● |
| 18 | 110 | 48 | 20x60 | RL | 091101 ● |
| 20 | 130 | 58 | 25x60 | RL | 090167 ● |

Workpiece material:

Aluminium sheet metal parts up to 6 mm material thickness max.

DP, Z 1 / Z 2

WO 120-2-50

| D mm | GL mm | NL mm | S mm | Z | DRI | ID |
|---------|----------|----------|---------|---|-----|------------------|
| 10 | 63 | 7 | 12x48 | 1 | RL | 130063954 |
| 10 | 65 | 7 | 12x45 | 2 | RL | 130058988 |

RPM: n = 16000 - 24000 min⁻¹



3. Routing and drilling

3.2 Drilling



HW solid, Z 2

Application:

For universal boring of blind holes and through holes.

Machine:

CNC-machining centres, hinge boring machines, boring aggregates, vertical boring machine, portable boring machine.

Workpiece material:

NF metals (aluminium, copper, etc.)

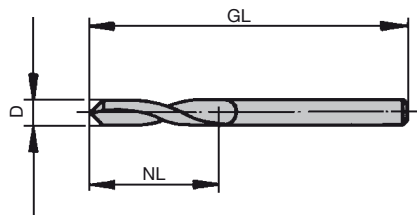
Technical information:

Flat V-point. Shank diameter identical with edge diameter. Cutting aluminium requires suitable cooling lubrication.



V-point 120°
WB 101-0-04

| D mm | GL mm | NL mm | QAL | ID LL | ID RL |
|---------|----------|----------|----------|----------|------------|
| 2 | 40 | 17,5 | HW solid | 034410 | ● 034411 ● |
| 2,5 | 40 | 18 | HW solid | 034412 | ● 034413 ● |
| 3 | 46 | 16 | HW solid | 034414 | ● 034415 ● |
| 3,2 | 49 | 18 | HW solid | 034420 | ● 034421 ● |
| 3,5 | 52 | 20 | HW solid | 034416 | ● 034417 ● |
| 4 | 55 | 22 | HW solid | 034418 | ● 034419 ● |
| 5 | 62 | 26 | HW solid | 034424 | ● 034425 ● |

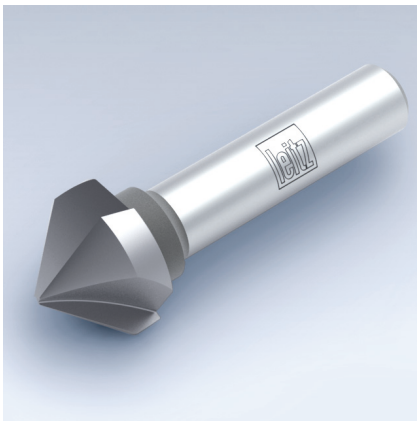


RPM: n = 3000 - 9000 min⁻¹



3. Routing and drilling

3.3 Countersinking



Shank 10 mm

Application:

For countersinking of bores.

Machine:

Boring aggregates, vertical boring machine, portable boring machine.

Workpiece material:

NF-metals (aluminium, copper, etc.).

Technical information:

Countersink 90°, Z 3 HW-solid. Specially ground for clean and chatter-free cross section. Cutting aluminium requires suitable cooling lubrication.

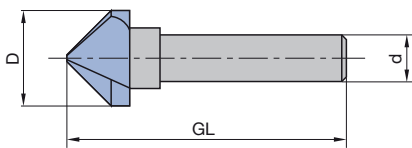


Countersink angle 90°

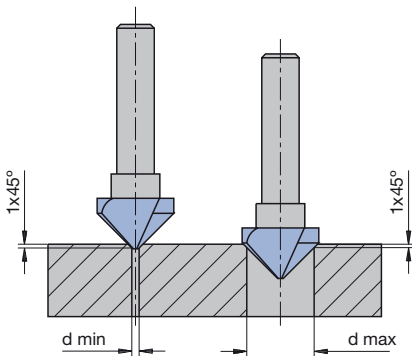
WB 702-0

| D mm | GL mm | S mm | QAL | DRI | ID |
|---------|----------|---------|----------|-----|-----------------|
| 20,5 | 58 | 10x40 | HW solid | RL | 036255 ● |

RPM: n = 16000 - 24000 min⁻¹



Cylindrical shank, without clamping area



The pictures show minimum and maximum possible hole diameters which even can be countersunk with bevel 1 x 45°:

Countersink90° HW:

$D_{min} = 2,00 \text{ mm}$, $D_{max} = 18,00 \text{ mm}$





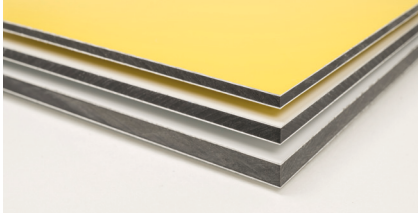
4. Aluminium compound panels

Alucobond®, Reynobond®, Dibond®,
Alucopan®, Alupanel®, Alu-Dibond®

4.1 Sawing

4.2 CNC processing

4.3 Exemplary specific solutions Routing and folding technique



4. Aluminium compound panels

4.1 Sawing



Sizing cut - *Excellent*

Application:

For sizing single panels and panel stacks.

Machine:

Sliding table saw machines and panel sizing machines with pre-scoring aggregate and pressure beam.

Workpiece material:

Aluminium compound panels (Alucobond®, Reynobond®, Dibond® etc.).

Technical information:

Solid saw blade body and optimized gullets for optimal cutting results.

AS Low Noise UT design - noise reduction in idle running up to 6 dB(A).

Basic body with vibration-damping irregular pitch.

Diamaster PLUS Design with 6 mm tipping height.

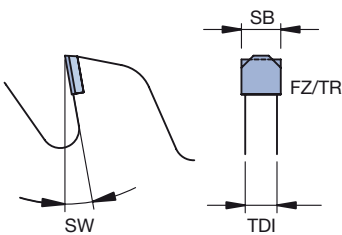


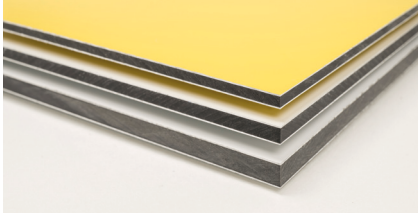
| D mm | SB mm | TDI mm | BO mm | NLA mm | Z | ZF | ZT | SW degree | ID |
|---------|----------|-----------|----------|----------------------|----|-------|-------|--------------|-----------------|
| 300 | 4,4 | 3,2 | 30 | 2/10/60 | 60 | FZ/TR | 15,70 | 15 | 190604 ● |
| 350 | 4,4 | 3,2 | 30 | 2/10/60 | 72 | FZ/TR | 15,26 | 15 | 190606 ● |
| 380 | 4,8 | 3,5 | 60 | 2/14/100 2/14/125 | 72 | FZ/TR | 16,57 | 15 | 190607 ● |
| 400 | 4,4 | 3,2 | 30 | 2/10/60 | 72 | FZ/TR | 17,44 | 15 | 190608 ● |

Application recommendation:

| Material | Alucobond® | Reynobond® | Dibond® |
|----------------------|-------------|-------------|-------------|
| f _z (mm) | 0,01 - 0,02 | 0,01 - 0,02 | 0,01 - 0,02 |
| v _c (m/s) | 50 - 70 | 50 - 70 | 50 - 70 |

| Panel thickness | ≤ 25 mm | > 25 mm |
|-----------------|---------|---------|
| ZT | ≤ 18 | > 15 |





4. Aluminium compound panels

4.1 Sawing



Sizing cut in finish cut quality - *Excellent*

Application:

For sizing single panels and panel stacks.

Machine:

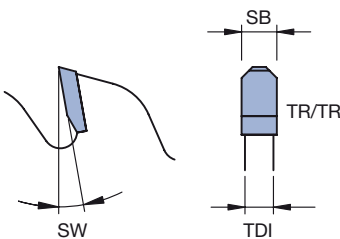
Sliding table saw machines and panel sizing machines with pre-scoring aggregate and pressure beam.

Workpiece material:

Aluminium compound panels (Alucobond®, Reynobond®, Dibond® etc.).

Technical information:

BrillianceCut design - Basic body with vibration-damping laser ornaments and special tooth geometry. Optimized for sizing cut with perfect cutting areas and nick-free cutting edges. Cutting area refinable with little additional effort to obtain gloss quality. Noise reduction in idle run- and operating cycle of up to 4 dB(A). Significant improvement of performance times resulting from the tool construction. Especially suitable for transparent thermoplastics.

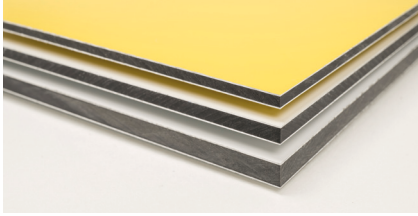


| D mm | SB mm | TDI mm | BO mm | NLA mm | Z | ZF | ZT | SW degree | ID |
|---------|----------|-----------|----------|-----------|----|-------|-------|--------------|-----------------|
| 300 | 3,2 | 2,2 | 30 | KNL | 60 | TR/TR | 15,70 | 15 | 161013 ● |
| 350 | 4,4 | 3,2 | 30 | KNL | 72 | TR/TR | 15,26 | 15 | 161014 ● |
| 380 | 4,8 | 3,5 | 60 | 2/14/100 | 84 | TR/TR | 14,20 | 15 | 161015 ● |
| 400 | 4,8 | 3,5 | 30 | KNL | 72 | TR/TR | 17,44 | 15 | 161016 ● |
| 450 | 4,8 | 3,5 | 30 | KNL | 72 | TR/TR | 19,63 | 15 | 161017 ● |

Application recommendation:

| Material | Alucobond® | Reynobond® | Dibond® |
|-------------|-------------|-------------|-------------|
| f_z (mm) | 0,01 - 0,02 | 0,01 - 0,02 | 0,01 - 0,02 |
| v_c (m/s) | 50 - 70 | 50 - 70 | 50 - 70 |

| Panel thickness | ≤ 25 mm | > 25 mm |
|-----------------|---------|---------|
| ZT | ≤ 18 | > 15 |



4. Aluminium compound panels

4.1 Sawing



Sizing cut - Classic

Application:

For sizing single panels and panel stacks.

Machine:

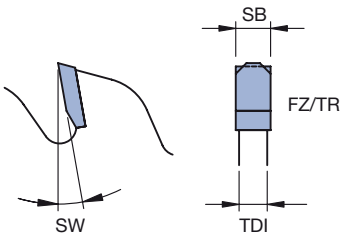
Sliding table saw machines and panel sizing machines with pre-scoring aggregate and pressure beam.

Workpiece material:

Aluminium compound panels (Alucobond®, Reynobond®, Dibond® etc.).

Technical information:

Solid basic body and optimized gullets for optimal cutting results.

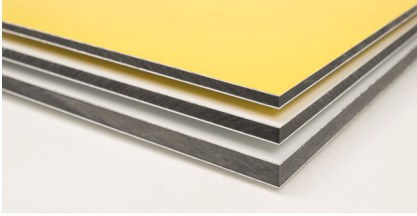


| Machine | D mm | SB mm | TDI mm | BO mm | NLA mm | Z | ZF | ZT | SW degree | ID |
|--|---------|----------|-----------|----------|-----------|----|-------|-------|--------------|-----------------|
| Höfer, Langzauner, Panhans | 300 | 4,4 | 3,2 | 30 | KNL | 60 | FZ/TR | 15,70 | 15 | 059250 ● |
| Höfer, Langzauner, Panhans, Schelling | 350 | 4,4 | 3,2 | 30 | KNL | 72 | FZ/TR | 15,26 | 15 | 059252 ● |
| Holzma | 350 | 4,4 | 3,2 | 60 | 2/14/100 | 72 | FZ/TR | 15,26 | 15 | 059693 ● |
| Homag | 350 | 4,4 | 3,2 | 75 | | 72 | FZ/TR | 15,26 | 15 | 059253 ● |
| Höfer, Panhans, Scher, Schelling | 400 | 4,4 | 3,2 | 30 | KNL | 72 | FZ/TR | 17,44 | 15 | 059256 ● |
| Homag | 400 | 4,4 | 3,2 | 75 | | 72 | FZ/TR | 17,44 | 15 | 059260 ● |
| Schelling | 430 | 4,4 | 3,2 | 30 | | 72 | FZ/TR | 18,75 | 15 | 059551 ● |
| Diverse | 450 | 4,4 | 3,2 | 30 | | 72 | FZ/TR | 19,63 | 15 | 059553 ● |
| Holzma | 450 | 4,8 | 3,5 | 60 | 2/14/125 | 72 | FZ/TR | 19,63 | 15 | 059261 ● |

Application recommendation:

| Material | Alucobond® | Reynobond® | Dibond® |
|----------------------|-------------|-------------|-------------|
| f _z (mm) | 0,01 - 0,02 | 0,01 - 0,02 | 0,01 - 0,02 |
| v _c (m/s) | 50 - 70 | 50 - 70 | 50 - 70 |

| Panel thickness | ≤ 25 mm | > 25 mm |
|-----------------|---------|---------|
| ZT | ≤ 18 | > 15 |



4. Aluminium compound panels

4.1 Sawing



Scoring - Excellent

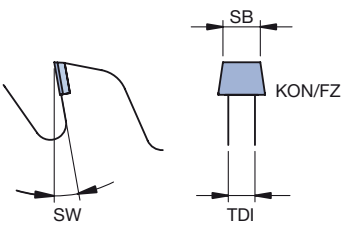
Application:
For scoring.

Machine:
Sliding table saw machines and panel sizing machines with pre-scoring aggregate and pressure beam.

Workpiece material:
Aluminium compound panels (Alucobond®, Reynobond®, Dibond® etc.).

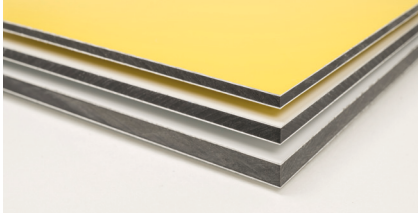
Technical information:

The cutting width of the scoring saw blade must be selected by 0,10 mm smaller than the cutting width of the main saw blade. **AS Low Noise UT** design - noise reduction in idle run up to 3 dB(A). Tool body with irregular tooth pitch. **Diamaster PLUS** design with 6,0 mm tipping height.



| D mm | SB mm | TDI mm | BO mm | NLA mm | Z | ZF | ZT | SW degree | ID |
|---------|----------|-----------|----------|-----------|----|--------|-------|--------------|----------|
| 125 | 3,1 | 2,5 | 20 | | 20 | KON/FZ | 19,63 | 10 | 190564 ● |
| 125 | 3,1 | 2,5 | 22 | | 20 | KON/FZ | 19,63 | 10 | 190614 □ |
| 150 | 4,3 | 3,2 | 20 | | 24 | KON/FZ | 19,63 | 10 | 190577 ● |
| 150 | 4,3 | 3,2 | 30 | | 24 | KON/FZ | 19,63 | 10 | 190565 ● |
| 150 | 4,3 | 3,2 | 45 | | 24 | KON/FZ | 19,63 | 10 | 190578 □ |
| 160 | 4,3 | 3,5 | 30 | | 30 | KON/FZ | 16,75 | 10 | 190579 ● |
| 160 | 4,3 | 3,2 | 45 | 3/11/70 | 30 | KON/FZ | 16,75 | 10 | 190580 |
| 160 | 4,3 | 3,5 | 55 | 3/7/66 | 30 | KON/FZ | 16,75 | 10 | 190566 ● |
| 180 | 4,3 | 3,5 | 20 | 2/10/60 | 30 | KON/FZ | 18,84 | 10 | 190581 ● |
| 180 | 4,3 | 3,5 | 30 | 2/10/60 | 30 | KON/FZ | 18,84 | 10 | 190567 ● |
| 180 | 4,3 | 3,5 | 45 | | 30 | KON/FZ | 18,84 | 10 | 190568 ● |
| 180 | 4,7 | 3,5 | 45 | | 30 | KON/FZ | 18,84 | 10 | 190569 ● |
| 180 | 4,3 | 3,2 | 50 | 3/13/80 | 30 | KON/FZ | 18,84 | 10 | 190582 |
| 200 | 4,3 | 3,5 | 20 | 2/11/66 | 30 | KON/FZ | 20,93 | 10 | 190570 ● |
| 200 | 4,3 | 3,5 | 30 | 2/10/60 | 30 | KON/FZ | 20,93 | 10 | 190571 ● |
| 200 | 4,3 | 3,5 | 45 | 2/9/110 | 30 | KON/FZ | 20,93 | 10 | 190572 ● |
| | | | | 2/9/100 | | | | | |
| | | | | 2/14/110 | | | | | |
| 200 | 4,7 | 3,5 | 45 | | 30 | KON/FZ | 20,93 | 10 | 190573 ● |
| 200 | 4,3 | 3,2 | 60 | 3/13/80 | 30 | KON/FZ | 20,93 | 10 | 190583 □ |
| 200 | 4,3 | 3,5 | 65 | 2/9/100 | 30 | KON/FZ | 20,93 | 10 | 190615 □ |
| | | | | 2/9/110 | | | | | |
| 200 | 4,7 | 3,5 | 65 | 2/9/110 | 30 | KON/FZ | 20,93 | 10 | 190574 ● |
| 200 | 4,3 | 3,5 | 80 | 2/9/110 | 30 | KON/FZ | 20,93 | 10 | 190616 □ |
| | | | | 2/9/100 | | | | | |
| | | | | 2/14/110 | | | | | |
| 215 | 4,3 | 3,2 | 50 | 3/15/80 | 36 | KON/FZ | 18,75 | 10 | 190575 ● |
| 250 | 4,3 | 3,5 | 30 | 2/10/60 | 36 | KON/FZ | 21,81 | 10 | 190576 ● |

Further scoring saw blades you can find in the Leitz Lexicon.



4. Aluminium compound panels

4.1 Sawing



Scoring - Classic

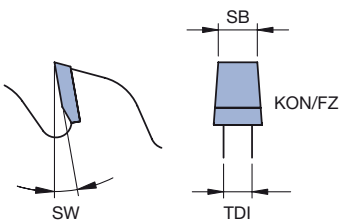
Application:
For scoring.

Machine:
Sliding table saw machine and panel sizing machine with pre-scoring aggregate and pressure beam.

Workpiece material:
Aluminium compound panels (Alucobond®, Reynobond®, Dibond® etc.).

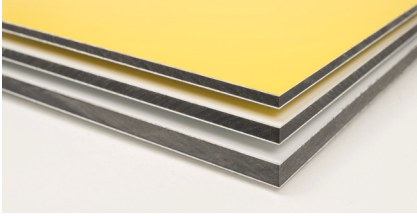
Technical information:

The cutting width of the scoring saw blade must be the same as the cutting width of the main saw blade. Type AS LowNoise UT design has a noise reduction in the idle run up to 3 dB(A). Basic body with irregular tooth pitch.



| Machine | D mm | SB mm | TDI mm | BO mm | NLA mm | Z | ZF | ZT | SW degree | ID |
|------------------------|---------|----------|-----------|----------|-----------|----|--------|-------|--------------|----------|
| SCM | 100 | 3,2 | 2,5 | 20 | | 20 | KON/FZ | 15,70 | 5 | 061556 ● |
| | 100 | 3,2 | 2,5 | 22 | | 20 | KON/FZ | 15,70 | 5 | 061557 ● |
| | 120 | 3,2 | 2,5 | 20 | | 24 | KON/FZ | 15,70 | 5 | 061552 ● |
| Panhans | 125 | 4,4 | 3,5 | 20 | | 24 | KON/FZ | 16,35 | 5 | 061516 ● |
| Holz Her | 125 | 4,4 | 3,5 | 45 | | 24 | KON/FZ | 16,35 | 5 | 061518 □ |
| Holz Her | 140 | 4,4 | 3,5 | 45 | 1/8/58 | 24 | KON/FZ | 18,31 | 5 | 061519 |
| Panhans, Teutomatic | 180 | 4,4 | 3,5 | 30 | 2/10/60 | 30 | KON/FZ | 18,84 | 5 | 061517 ● |
| Holzma | 180 | 4,8 | 3,5 | 45 | | 36 | KON/FZ | 15,70 | 5 | 061526 ● |
| Holzma | 180 | 3,8 | 3,5 | 45 | | 36 | KON/FZ | 15,70 | 5 | 061566 ● |
| Holzma | 180 | 3,8 | 3,0 | 45 | | 54 | KON/FZ | 10,46 | 5 | 061568 ● |
| Scheer | 200 | 4,8 | 3,5 | 30 | 2/10/60 | 36 | KON/FZ | 17,44 | 5 | 061561 ● |
| Holzma | 200 | 4,8 | 3,5 | 45 | | 36 | KON/FZ | 17,44 | 5 | 061527 ● |
| SCM | 200 | 4,4 | 3,5 | 80 | 2/14/110 | 36 | KON/FZ | 17,44 | 5 | 061542 ● |
| Panhans | 220 | 3,2 | 2,5 | 30 | | 36 | KON/FZ | 19,19 | 5 | 061535 ● |
| Panhans | 250 | 4,4 | 3,5 | 30 | 2/10/60 | 42 | KON/FZ | 18,69 | 5 | 061537 ● |
| Panhans | 280 | 4,4 | 3,0 | 30 | 2/10/60 | 48 | KON/FZ | 18,31 | 5 | 061540 ● |
| Holzma | 280 | 3,8 | 3,0 | 45 | 2/10/60 | 48 | KON/FZ | 18,31 | 5 | 061567 ● |

Further scoring saw blades you can find in the Leitz Lexicon.



4. Aluminium compound panels

4.1 Sawing

Sizing cut - *Excellent*



Application:

For sizing panels of various thickness.

Machine:

Circular saw bench, sliding table saw machines, cross-cut sawing machines and panel sizing machines with pre-scoring aggregate.

Workpiece material:

Aluminium compound panels (Alucobond®, Reynobond®, Dibond® etc.).

Technical information:

Solid saw body and optimized gullets for optimal cutting results.

Diamaster PRO design.

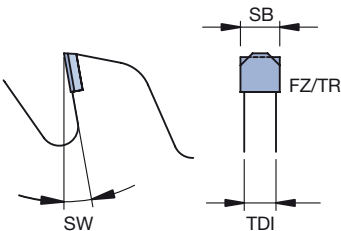


| D mm | SB mm | TDI mm | BO mm | NLA mm | Z | ZF | ZT | SW degree | ID |
|---------|----------|-----------|----------|-----------|----|-------|-------|--------------|-----------------|
| 303 | 3,2 | 2,2 | 30 | KNL | 60 | FZ/TR | 15,70 | 10 | 190673 • |
| 303 | 3,2 | 2,2 | 30 | KNL | 96 | FZ/TR | 9,81 | 10 | 190674 • |

Application recommendation:

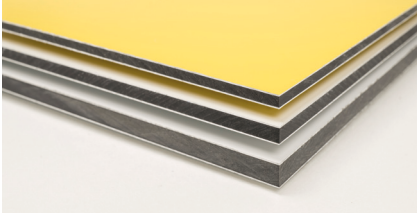
| Material | Alucobond® | Reynobond® | Dibond® |
|-------------|-------------|-------------|-------------|
| f_z (mm) | 0,01 - 0,02 | 0,01 - 0,02 | 0,01 - 0,02 |
| v_c (m/s) | 50 - 70 | 50 - 70 | 50 - 70 |

| Panel thickness | ≤ 10 mm | > 10 mm |
|-----------------|---------|---------|
| ZT | ≤ 12 | > 10 |



4. Aluminium compound panels

4.1 Sawing



Sizing cut in finish cut quality - *Excellent*



Application:

For sizing panels of various thickness.

Machine:

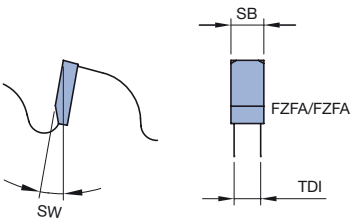
Circular saw benches, sliding table saw machines and portable circular saw machines.

Workpiece material:

Aluminium compound panels (Alucobond®, Reynobond®, Dibond® etc.).

Technical information:

GlossCut design - Basic body with vibration-damping laser ornaments and special tooth geometry. Optimized for sizing cuts with perfect cutting areas and nick-free cutting edges. Noise reduction in the idle run- and operating cycle of up to 4 dB(A). Significant improvement of performance times resulting from the tool construction.



| D mm | SB mm | TDI mm | BO mm | NLA mm | Z | ZF | ZT | SW degree | ID |
|---------|----------|-----------|----------|-----------|----|-----------|-------|--------------|-----------------|
| 160 | 2,2 | 1,6 | 20 | | 48 | FZFA/FZFA | 10,47 | +5/-5 | 161008 ● |
| 165 | 2,2 | 1,6 | 20 | | 48 | FZFA/FZFA | 10,79 | +5/-5 | 161009 ● |
| 190 | 2,4 | 1,8 | 20 | | 58 | FZFA/FZFA | 10,29 | +5/-5 | 161010 ● |
| 210 | 2,4 | 1,8 | 30 | | 68 | FZFA/FZFA | 9,70 | +5/-5 | 161011 ● |
| 250 | 2,8 | 2,2 | 30 | KNL | 72 | FZFA/FZFA | 10,90 | +5/-5 | 161012 ● |
| 300 | 3,0 | 2,4 | 30 | KNL | 72 | FZFA/FZFA | 13,08 | +5/-5 | 161005 ● |
| 300 | 3,0 | 2,4 | 30 | KNL | 96 | FZFA/FZFA | 9,81 | +5/-5 | 161006 ● |
| 350 | 3,5 | 2,8 | 30 | KNL | 96 | FZFA/FZFA | 11,45 | +5/-5 | 161007 ● |

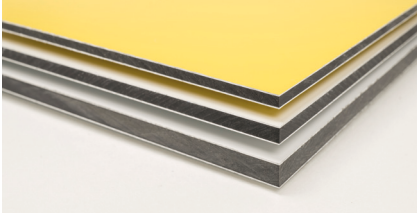
Application recommendation:

| Material | Alucobond® | Reynobond® | Dibond® |
|-------------|-------------|-------------|-------------|
| f_z (mm) | 0,01 - 0,02 | 0,01 - 0,02 | 0,01 - 0,02 |
| v_c (m/s) | 50 - 70 | 50 - 70 | 50 - 70 |

| Panel thickness | ≤ 10 mm | > 10 mm |
|-----------------|---------|---------|
| ZT | ≤ 12 | > 10 |

4. Aluminium compound panels

4.1 Sawing



Sizing cut - Premium

Application:

For sizing panels of various thickness.

Machine:

Circular saw benches, sliding table saw machines, cross-cut sawing machines and panel sizing machines with/without pre-scoring aggregate.

Workpiece material:

Aluminium compound panels (Alucobond®, Reynobond®, Dibond® etc.).

Technical information:

AS OptiCut design - Noise reduction in the idle run of up to 5 dB(A).

Basic body with vibration-damping laser ornaments.

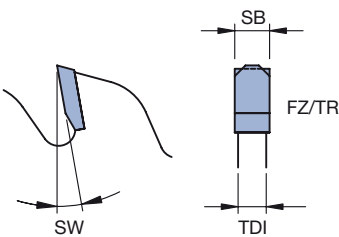


| D mm | SB mm | TDI mm | BO mm | NLA mm | Z | ZF | ZT | SW degree | ID |
|---------|----------|-----------|----------|-----------|-----|-------|-------|--------------|-----------------|
| 220 | 3,2 | 2,2 | 30 | 2/7/42 | 64 | FZ/TR | 10,79 | 10 | 061375 ● |
| 250 | 3,2 | 2,2 | 30 | KNL | 72 | FZ/TR | 10,90 | 10 | 162000 ● |
| 300 | 3,2 | 2,2 | 30 | KNL | 42 | FZ/TR | 22,43 | 10 | 068411 ● |
| 300 | 3,2 | 2,2 | 30 | KNL | 72 | FZ/TR | 13,08 | 10 | 162001 ● |
| 300 | 3,2 | 2,2 | 30 | KNL | 96 | FZ/TR | 9,81 | 10 | 162002 ● |
| 350 | 3,5 | 2,5 | 30 | KNL | 48 | FZ/TR | 22,90 | 10 | 068413 ● |
| 350 | 3,2 | 2,4 | 30 | KNL | 108 | FZ/TR | 10,18 | 10 | 162003 ● |
| 400 | 3,8 | 2,5 | 30 | KNL | 54 | FZ/TR | 23,26 | 10 | 068415 ● |

Application recommendation:

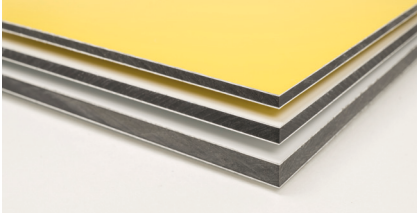
| Material | Alucobond® | Reynobond® | Dibond® |
|-------------|-------------|-------------|-------------|
| f_z (mm) | 0,01 - 0,02 | 0,01 - 0,02 | 0,01 - 0,02 |
| v_c (m/s) | 50 - 70 | 50 - 70 | 50 - 70 |

| Panel thickness | ≤ 10 mm | > 10 mm |
|-----------------|---------|---------|
| ZT | ≤ 12 | > 10 |



4. Aluminium compound panels

4.1 Sawing



Trimming cut - *Classic*

Application:

For sizing panels of various thickness.

Machine:

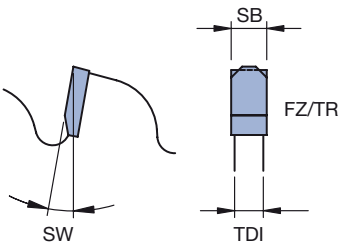
Portable circular saws, cross-cut- and mitre saws, underfloor sawing machine, circular saw benches and sliding saws.

Workpiece material:

Aluminium compound panels (Alucobond®, Reynobond®, Dibond® etc.).

Technical information:

Solid saw body and special gullet design for optimal cutting results.

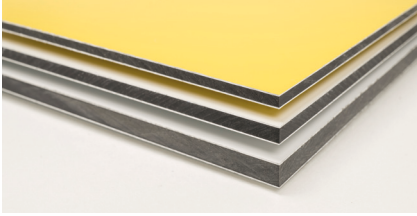


| D mm | SB mm | TDI mm | BO mm | Z | ZF | ZT | SW degree | ID |
|---------|----------|-----------|----------|----|-------|-------|--------------|-----------------|
| 160 | 2,5 | 1,8 | 20 | 56 | FZ/TR | 8,97 | -5 | 070047 ● |
| 190 | 2,6 | 1,8 | 20 | 54 | FZ/TR | 11,05 | -5 | 060707 ● |
| 190 | 2,8 | 2,2 | 30 | 68 | FZ/TR | 8,77 | -5 | 070054 ● |
| 210 | 2,8 | 2,0 | 30 | 60 | FZ/TR | 10,99 | -5 | 070067 ● |
| 210 | 2,4 | 1,6 | 30 | 64 | FZ/TR | 10,30 | -5 | 070105 ● |
| 216 | 3,0 | 2,4 | 30 | 64 | FZ/TR | 10,60 | -5 | 060686 ● |
| 225 | 2,6 | 1,8 | 30 | 68 | FZ/TR | 10,39 | -5 | 070041 ● |
| 235 | 3,2 | 2,6 | 25 | 54 | FZ/TR | 13,66 | -5 | 070732 ● |
| 240 | 2,8 | 2,2 | 30 | 80 | FZ/TR | 9,42 | -5 | 070062 ● |
| 250 | 3,4 | 2,8 | 30 | 60 | FZ/TR | 13,08 | -5 | 060134 ● |
| 250 | 2,8 | 2,0 | 30 | 80 | FZ/TR | 9,81 | -5 | 070119 ● |
| 250 | 3,2 | 2,6 | 30 | 80 | FZ/TR | 9,81 | -5 | 060250 ● |
| 300 | 3,2 | 2,6 | 30 | 96 | FZ/TR | 9,81 | -5 | 060252 ● |

Application recommendation:

| Material | Alucobond® | Reynobond® | Dibond® |
|-------------|-------------|-------------|-------------|
| f_z (mm) | 0,01 - 0,02 | 0,01 - 0,02 | 0,01 - 0,02 |
| v_c (m/s) | 50 - 70 | 50 - 70 | 50 - 70 |

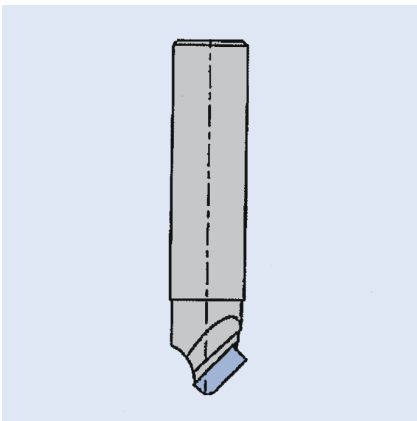
| Panel thickness | ≤ 25 mm | > 25 mm |
|-----------------|---------|---------|
| ZT | ≤ 18 | > 15 |



4. Aluminium compound panels

4.2 CNC processing

Folding cutter Diamaster PLUS



Application:

For cutting V-grooves for cutting edge technology.

Machine:

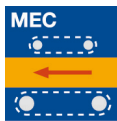
CNC-machining centres, rod machining centres, special milling machines with cutting spindles adapted for shank tools.

Workpiece material:

Aluminium compound panels (Alucobond®, Reynobond®, Dibond® etc.).

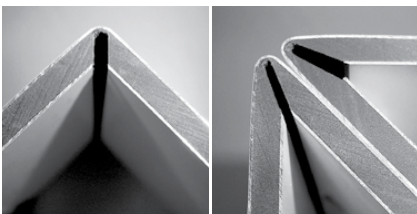
Technical information:

5 to 8 times resharpenable at normal dullness.

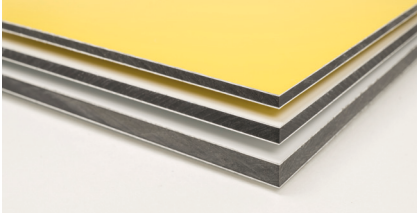


DP, Z1, V-groove 90°
WO 311-2

| D | GL | NL | S | DRI | ID |
|----|----|-----|-------|-----|------------------|
| mm | mm | mm | mm | | |
| 18 | 75 | 7,4 | 16x55 | RL | 130071538 |



Routing and folding technique on aluminium compound panels (see chapter Technical information)



4. Aluminium compound panels

4.2 CNC processing

Starter pack for CNC technology

Application:

For grooving of cutting edge technology as well as sizing and milling.

Machine:

CNC-machining centres, rod machining centres, special milling machines with cutting spindles to adapt shank tools.

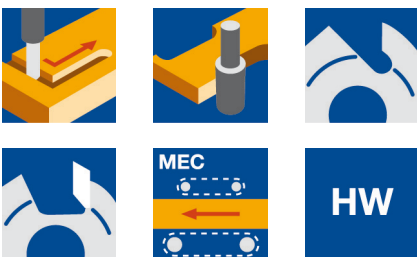
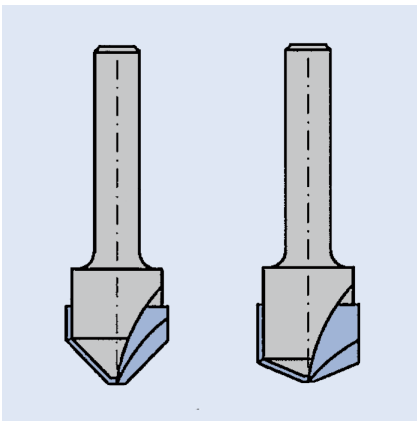
Workpiece material:

Aluminium compound panels (Alucobond®, Reynobond®, Dibond® etc.).

Components of CNC starter pack (ID 130062813)

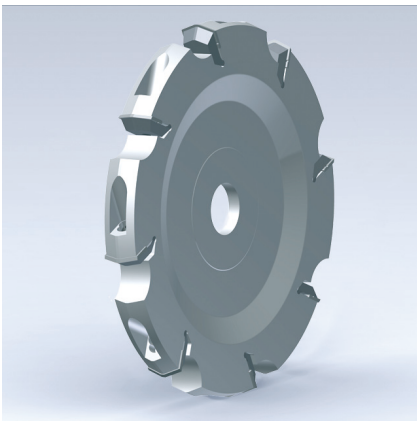
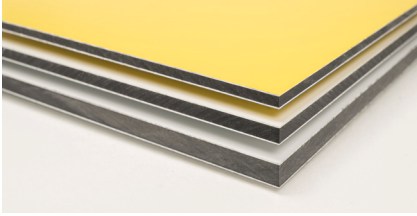
AH 999 2

| BEZ | D mm | NL mm | GL mm | S mm | Z | ID |
|-------------------------------|---------|----------|----------|---------|---|------------------|
| Grooving cutter 90° RL | 18 | | 59 | 8x39 | 2 | 130047766 |
| Grooving cutter 135° RL | 18 | | 59 | 8x39 | 2 | 130047769 |
| Spiral-finishing cutter RE RD | 4 | 8 | 50 | 6x40 | 1 | 42725 |
| Turnblade planing cutter RL | 80 | 12 | 100 | 25x60 | 3 | 41551 |
| Turnblade knife 12x12x1,5 mm | | | | | | 05081 |



4. Aluminium compound panels

4.3 Exemplary specific solutions



Grooving of aluminium compound panels for routing and folding technique

Application:

Cutting V-grooves for cutting edge technology.

Machine:

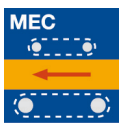
Vertical panel saw with cutting unit, milling machine.

Workpiece material:

Aluminium compound panels (Alucobond®, Reynobond®, Dibond® etc.).

Technical information:

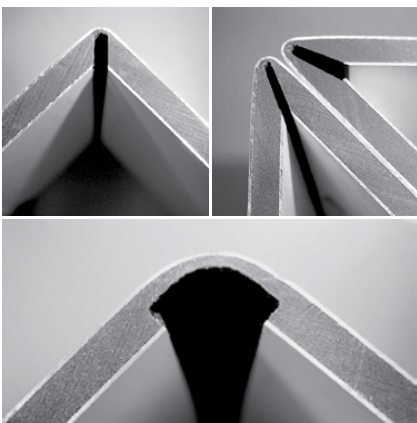
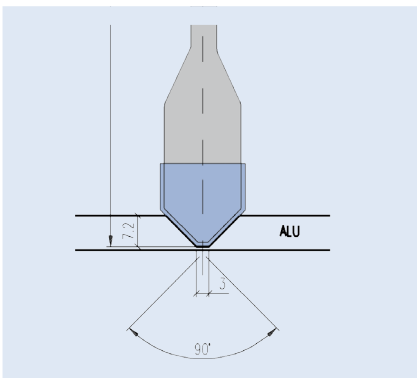
Profile cutterhead system ProfilCut Q with changeable knives.



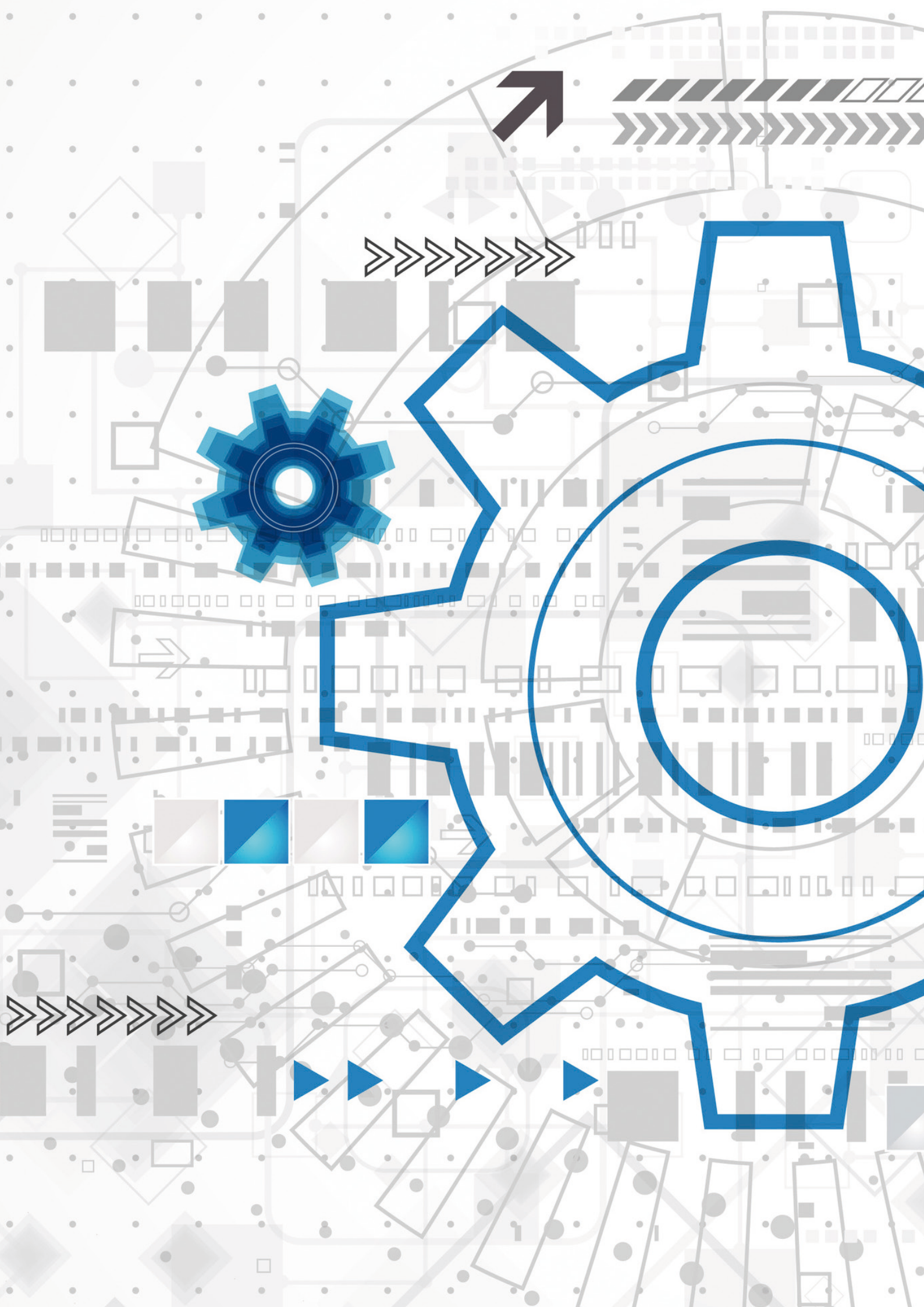
Profile cutterhead ProfilCut Q

WE 500-2-53

| Groove | D mm | SB mm | BO mm | Z | ID |
|--------|---------|----------|----------|---|------------------|
| 90° | 220 | 18 | 30 | 8 | 166056492 |
| 135° | 220 | 18 | 30 | 8 | 166056494 |
| 14 mm | 219 | 14 | 30 | 8 | 166056496 |



Routing and folding technique on aluminium compound panels (see chapter Technical information)



The background features a complex technical illustration. It includes several large, stylized blue gears of varying sizes, some with concentric circles in their centers. A prominent blue line, resembling a circuit trace or a stylized gear tooth, winds across the page. The background is filled with a light gray grid of dots and lines, suggesting a technical drawing or a digital interface. There are also several small blue triangles pointing right and a series of white arrows pointing right at the bottom left.

5. Technical information

5.1 Materials science

5.2 Processing recommendations

5.3 Routing and folding technique

5.4 Cutting parameters, formulas and descriptions

5. Technical information

5.1 Materials science



Aluminium solid material

Aluminium

Aluminium is a typical representative of NF metals (Non-Ferrous-Metals). They are divided into cast alloys and wrought alloys. Wrought alloys are more ductile than cast alloys and are easier to machine. These can be machined with tools similar to those used in woodworking.

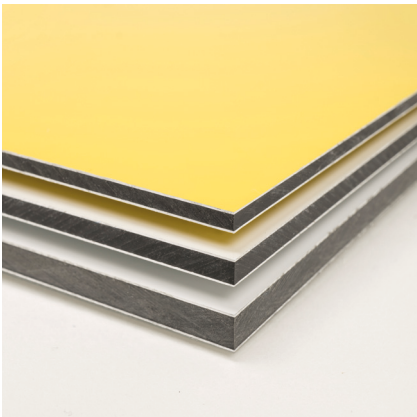
Wrought aluminium alloys are the most common examples of non-ferrous metals. They exist as hollow or full profiles, as sheets or as surface layers or intermediate layers in wood materials. Silicon is added to increase machinability. Si content $\geq 12\%$ leads to increased cutting edge wear which is why diamond cutting edges are recommended. If the Si content $\geq 12\%$, the aluminium tends to „fuse“ to the cutting edge during machining and this quickly leads to build up on the edges. Tungsten carbide should be used, if possible, together with coolants. Tools with diamond cutting edges (PCD) are particularly suitable for dry machining. Build up on edges are avoided and better machining quality is achieved due to the extremely high thermal conductivity and low friction values of diamond. Sawblades with specially shaped teeth and small cutting angles (some negative) are employed in cutting hollow profiles to avoid the teeth hooking the thin web. Foil saws are particularly suited for scratch-free trim and mitre cuts due to their good vibration damping properties.



Aluminium hollow profiles

Alucobond®

Alucobond® is a composite panel consisting of two aluminium cover plates Peraluman-100, EN AW-5005 (AlMg1) as per EN 485-2 and a plastic- or mineral core. Alucobond® is produced in a continuous production process with variable core thickness according to the panel thickness and cut to size. The laquered panels are supplied in a protection foil.



Aluminium compound panels

5. Technical information

5.2 Processing recommendations

Processing aluminium sheets on CNC OF without the use of lubricants or coolants

1. Working material

The working material to be processed primarily are aluminium sheets Al Mg 3 as per DIN 485-2, AW 5754 H12 (lime-consolidated - ¼ hard) or AW 5754 H22 (lime-consolidated and re-annealed - ¼ hard). This processing description refers to working materials of a thickness of $t \leq 6$ mm.

2. Processing tasks

The most important processing tasks are:

1. Sizing – freeform cuts
2. Cutouts (angular, round or freeform)
3. Bores $d < 4$ mm
4. Profiles in form of pre-cut bevels or radii

3. Processing basics

The use of DP as cut material basically is recommended. This especially is valid for tool diameters $D \geq 8$ mm. For drills and smaller shank cutters also HW can be used.

The machine should be equipped if possible with a spindle allowing RPMs of $n=24.000$ U/min or more.

The untreated sheets must be clamped if possible over the full area through the vacuum on the machine table. This can be implemented by means of MDF-suction plates or alternatively by means of corresponding clamping templates. When using MDF as suction plate (wear plate), then this must be covered with a tarpaulin from time to time (at the latest after the change of the respective cutting programs/cutting contours). For this purpose corresponding planing tools must be used ($D 180-220$ mm) in order to keep the time required as low as possible.

4. Machining procedure

Sizing – freeform cuts

Sizing means to process the total workpiece thickness in one infeed. For that purpose the following tools are used:

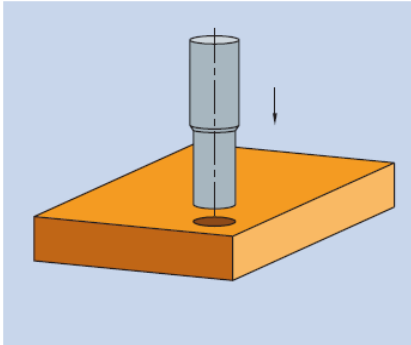
| D | Cutting material Z | |
|--------|--------------------|-------|
| < 8 mm | HW solid | 1 |
| > 8 mm | DP | 2 (3) |

The tool design has to be selected that way that axial plunging is possible. Hereby the tool bodies and/or edges of these tools are to be designed accordingly.

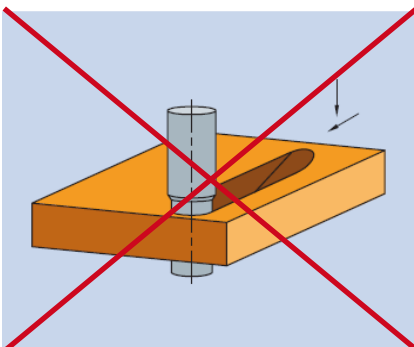
If DP is used as cut material, then HW obligatorily is recommended as tool body material. Thus the processing quality is increased and the risk of a tool break is considerably minimized.

As plunging method only should be used axial plunging in contrast to the processing of wood- and wood derived materials. The methods of overhung plunging as well as spiral-shaped plunging cause very unfavourable chip formation with significant risk of smearing up the cutting tools in the face area. Some situations require to pre-cut a starting hole for the sizing tool by means of a smaller VHW-shank cutter.

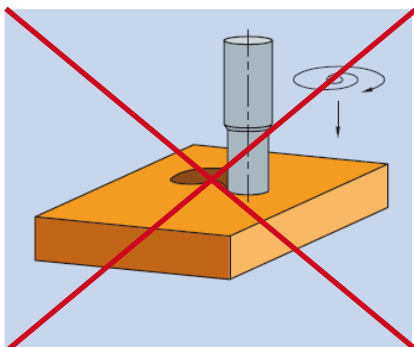
The machine control is that way adjusted that it is worked with corner deceleration allowing reduced acceleration of the feed motion especially for corners in the area between 0° and 135° . Moreover the workpiece contour always has to be approached tangentially from the outside, not at all directly in an 90° angle. By this, the risk of tool overuse through suddenly occurring forces considerably is reduced.



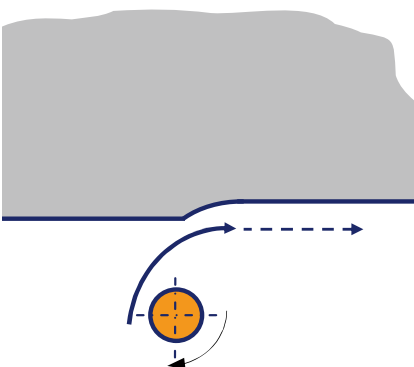
Axial plunging



Ramp plunging



Spiral plunging



5. Technical information

5.2 Processing recommendation

Processing parameter for sizing:

| D | Cutting material | Z | RPM | Feed rate lengthwise | Feed rate plunging |
|-------|------------------|---|-------------------------------|----------------------|--------------------|
| 4 mm | HW solid | 1 | $n = 24.000 \text{ min}^{-1}$ | 0,5-2,0 m/min | 0,5-1,0 m/min |
| 12 mm | DP | 2 | $n = 24.000 \text{ min}^{-1}$ | 4,0-6,0 m/min | 1,0-1,5 m/min |

Characteristics of small parts:

When sizing small parts, holding bars must be used. These prevent that the workpiece is hit by the cutter and inevitably results in damaging or destruction.

Bars also can be formed by sizing in partial areas not down to the total workpiece depth. i.e. the tool is axially retracted in partial areas. This should be used if the parts shall be deburred/rounded by means of profile cutters.

After cutting, the parts normally can removed out of the holding bars. Subsequent rework, however, is required in many cases.

Cutting of cutouts (angular, round and freeform)

During the processing of cutouts, process engineering itself has to be observed especially. For this purpose, the functions, pre-defined on many machines for pocket milling or like that, are only restrictedly suitable.

The standard pocket functions in many machine controls dissolve a round pocket/circle sector in rectangular cycles. Even these cycles cause high load on the tools, when changing direction of motion (axial direction).

If the edge length/diameter of the cutout is $< 70 \text{ mm}$ than it is recommendable to cut these cutouts completely. Thus, the problem of cutting residual parts or cutting holding bars can be prevented.

On this occasion, it should be tried to process these cutouts always as spiral-shaped contour with constant infeed. The infeed value should be in this case not exceed the amount of $1/2 D$. This is the only way to process with low load on the tools. First it is important to plunge again axially into the workpiece with the respective tool.

Internal corners of 90° must be finish-milled with a smaller tool. For this purpose a solid tungsten carbide shank cutter D4 can be used for example.

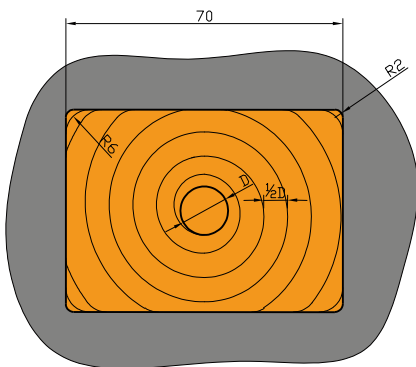
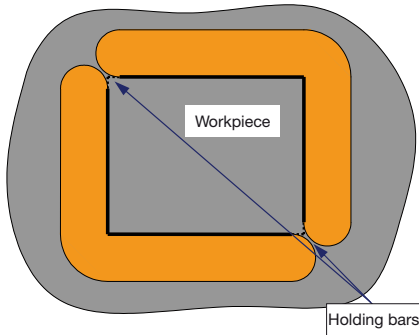
Bores with $D < 4 \text{ mm}$

Bores with very small diameters ideally are produced by boring bits of the metal processing sector. Solid tungsten carbide tools have proven here. The corresponding ident numbers are ID 34410 - ID 34417.

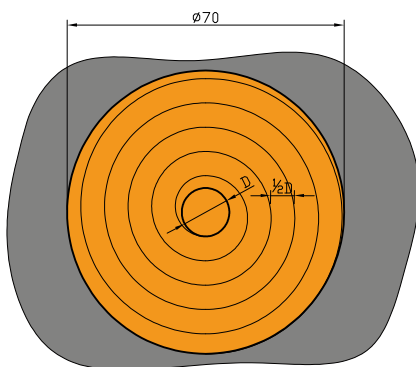
Boreholes of diameter $D = 4 \text{ mm}$ and higher, also can be cut. For that purpose solid tungsten carbide cutting tools are suitable. From $D = 8 \text{ mm}$ on, this also can be done with specific DP boring tools.

The application data can be taken from the following table:

| D | Cutting material | Z | RPM | Feed rate plunging | Feed rate scarifying |
|------------|-----------------------|---|-------------------------------|--------------------|----------------------|
| 1,5-3,5 mm | HW solid spiral drill | 2 | $n = 24.000 \text{ min}^{-1}$ | 0,5-1,5 m/min | - |
| 4 mm | HW solid shank cutter | 1 | $n = 24.000 \text{ min}^{-1}$ | 1,0-1,5 m/min | 0,5-2,0 m/min |



Angular cutout



Round cutout

5. Technical information

5.2 Processing recommendation

Profiling in form of precut bevels or radii

Profile processings always must be made, if the cut parts must be deburred or provided with defined radii for subsequent further processing.

For these processing tasks only tools with DP-tipping are possible. Z2 versions can realize feed speeds of about 6 - 8 m/min with 24.000 U/min.

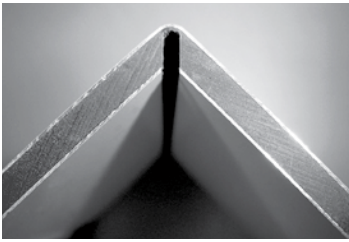
Please note that the zero diameter of the profile tools should not be bigger as the tool be used for sizing as otherwise heavy loads would occur due to the profile depth.

In order to allow a regular profile formation, the support of the workpieces must be plane accordingly. This means that MDF supports in every case must be milled for plane surface before first use.

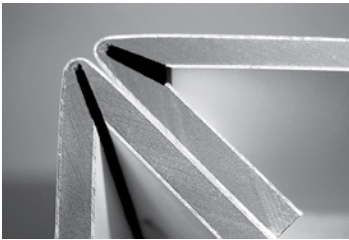
Uneven aluminium plates also causes these profile deviations. Correspondingly increased discharge angles of the profiles through to the panel plane can reduce this effect.

5. Technical information

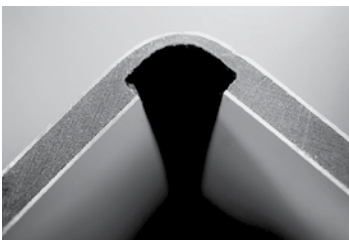
5.3 Routing and folding technique



90° cutting groove (V-shape) for foldings up to 90°, r ~ 2-3 mm



135° cutting groove (V-shape) for foldings up to 135°, r ~ 2-3 mm



Rectangular cutting groove for foldings up to 180° depending on the panel thickness, r ~ 7 mm

General information

Aluminium compound panels can be shaped with a very simple processing technology. The procedure, the routing and folding technique, allows the production of folding sections for all types and sizes.

On the backside of the aluminium compound panels, V-shaped or rectangular grooves are cut with disc cutters or form cutters. In this process, the aluminium-cover plate of the front face and a part of the plastic core is maintained. The low thickness of the remaining material allows trimming „by hand“. A bending bench is not required. The groove shape defines the chamfer radius. The production of the grooves can be made both through a vertical panel saw with cutting device of aluminium compound panels on a CNC machining centre and also through a milling machine or a hand router. The routing and folding technique is suitable for composite panels with all standard finishes.

Advantages

The advantages of the routing and folding technique are:

- minimal investments
- easy working technology
- the trimming hasn't to be made in the workshop but can be made on site – low transportation costs
- cost-effective production of shaped construction parts, as e.g. facade elements, transoms, roof border coverings and fascia claddings, corner elements etc.
- iverse design possibilities
- high efficiency
- chamfers are not restricted by machine dimensions
- stress-free chamfering, thus no warping in the corner section and thus plane elements

5. Technical information

5.4 Cutting parameters, formulas and descriptions

Cutting parameters for circular saw blades

| Working material group | Working material examples | Cutting speed m/s | Feed rate per tooth mm/z |
|-----------------------------|--|----------------------|---|
| Al-wrought alloys | AlMn (AlMn1Cu(3003), AlMg (AlMg2) (5251) AlCuMg (AlZnMg3Cu) (7022) | 30 - 80 30 - 70 | Profile: 0,005 - 0,03 Solid: 0,02 - 0,07 |
| Al-casting alloys | AlMg3 (51300), AlMg5Si (51400) | 30 - 70 | Profile: 0,005 - 0,03 Solid: 0,02 - 0,07 |
| Al-casting alloys Si | AlSi12 | 30 - 40 | Solid: 0,01 - 0,05 |

Aluminium with silicon content >10% is difficult to process.

| | |
|---------------------------------|---|
| Cutting speeds (m/s) | $V_c = \pi \cdot D \cdot n / (1000 \cdot 60)$ |
| RPM (U/min) | $n = v_c / (\pi \cdot D) \cdot (1000 \cdot 60)$ |
| Feed speed (m/min) | $v_f = f_z \cdot n \cdot Z / 1000$ |
| Feed rate per tooth (mm) | $f_z = v_f \cdot 1000 / n \cdot Z$ |

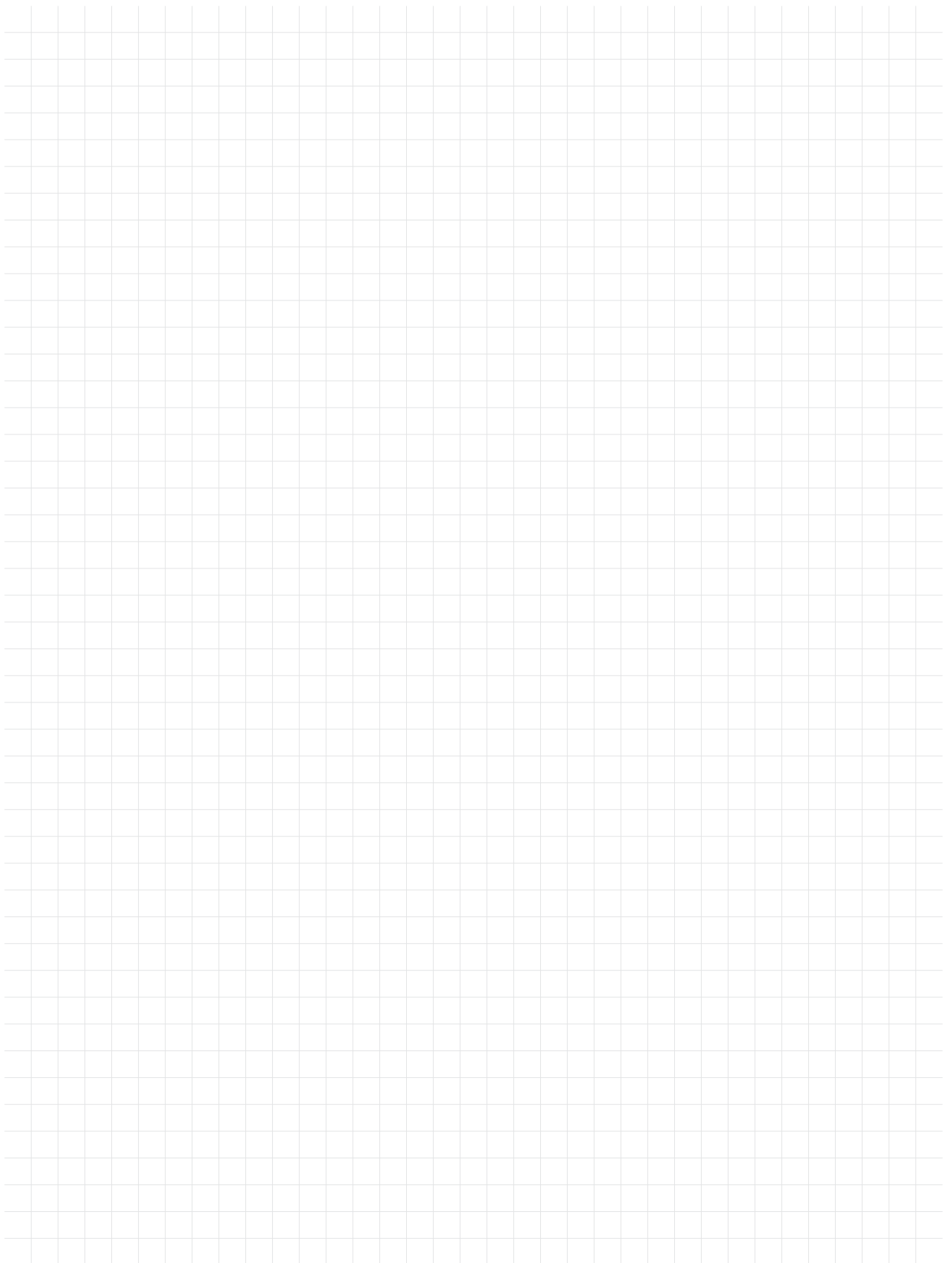
- v_c = Cutting speed (m/s)
- n = RPM (U/min)
- v_f = Feed speed (m/min)
- f_z = Feed rate per tooth (mm)
- Z = Number of teeth
- D = Saw blade diameter (mm)

These formulas are numerical value equations.
All values have to be used with the scale unit enclosed in brackets.

The Leitz App provides the option to calculate important operating data of your tools.

This is available for download on the Leitz Homepage.

www.leitz.org/leitz-app.html

A large grid of small squares, typical of a graph paper or a structured note-taking page. The grid is composed of thin, light gray lines forming a uniform pattern of squares across the page.

Description of pictograms

| | | | | | | | | | |
|--|-----------------------------------|--|-------------------------|--|------------------|--|------------------------|--|-------------------------------|
| | Sawing, universal | | Drilling blind holes | | Grooving, sizing | | Solid metal tool | | Alloyed tool steel |
| | Scoring, sawing | | Drilling, through holes | | Finish sizing | | Tipped tool | | High-speed steel |
| | Scoring and sawing stacks | | Counter-sinking | | Profiling | | Light alloy body | | Tungsten carbide |
| | Sawing hollow sections | | Slotting | | Mechanical feed | | Interchangeable knives | | Polycrystalline diamond (PCD) |
| | Grooving, horizontal and vertical | | Non-axial boring | | Manual feed | | Low noise | | Carbide metal coating |

Description of abbreviations

| | |
|-----|--------------------------------------|
| AL | = working length |
| AS | = anti sound (low noise design) |
| BO | = bore diameter |
| D | = cutting circle diameter |
| DRI | = direction of rotation |
| DP | = polycrystalline diamond (PCD) |
| GL | = total length |
| HW | = tungsten carbide |
| ID | = ident number |
| LD | = lefthand twist |
| LL | = lefthand rotation |
| n | = RPM |
| NL | = working length |
| NLA | = pinhole dimensions |
| QAL | = cutting material quality |
| RD | = righthand twist |
| RL | = righthand rotation |
| S | = shank dimension |
| SB | = cut width |
| SW | = chip angle |
| TDI | = thickness of tool body |
| UT | = cutting edges with irregular pitch |
| Z | = number of teeth |
| ZF | = tooth shape (cutting edge shape) |

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