

## 2 Knives

### 2.1 What you should know

#### 2.1.1 All the benefits at a glance

Zünd offers a broad palette of quality knives and blades, especially designed to perform with your cutting system and for your applications. This allows you to maintain the same high level of quality for everything you produce with your cutter. Zünd blades are expertly developed and manufactured to meet the specific requirements of many different markets.

Zünd blades offer the following critical benefits:

- Excellent cut quality
- Minimal waste
- Higher capacity utilisation and shorter order times thanks to fewer knife changes
- Increased productivity and shorter turnaround times with fewer blade changes
- Consistently high quality resulting from the stringent selection of materials used in manufacturing.

### Original Zünd quality

Zünd blades are manufactured to the highest quality standards. An engraved Zünd quality seal makes the blades easily identifiable as original Zünd blades.



- 1 Zünd quality seal
- 2 Batch number
- 3 Blade name

#### 2.1.2 Blade materials

The raw materials used to manufacture blades are crucial to their stability and longevity. Zünd blades are made from tungsten carbide (HM) or high-speed steel (HSS). Carbide blades offer significantly greater life expectancy than those made from high-speed steel; however, they are also much more susceptible to breakage from impact or vibration.

**Tip!** Never touch the cutting edge of carbide blades with your bare fingers or bring it in contact with any hard objects.

#### The benefits of Zünd carbide knives:

- Greater life expectancy than high-speed steel blades.
- Increased productivity with fewer blade changes .
- Higher cut quality and stability because of the precision finish of each blade.

Your Zünd Service Partner will be happy to help you choose the blades that best meet your cutting needs.

### 2.1.3 Knife shape and dimensions

#### Wedge angle $\alpha$



The wedge angle essentially determines how sharp the knife is. In theory, a very narrow wedge angle makes for a very sharp knife that exerts minimal drag force on the material being cut. At the same time, a small wedge angle also means that the cutting process puts a great deal of stress on a very thin cutting edge, which may affect stability. The narrower the wedge angle, the greater the instability. For this reason, the appropriate wedge angle is always a compromise between blade sharpness and stability. The geometry of any Zünd blade is carefully calculated to deliver the best-possible cutting results for different types of materials. Our blade specifications include a selection of suitable materials for each blade type.

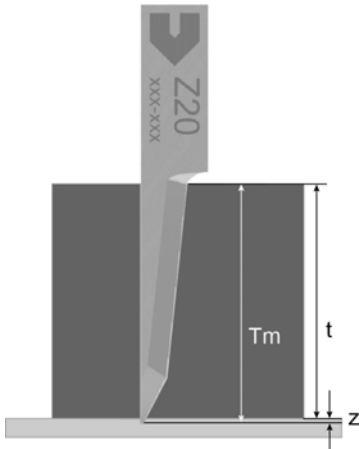
**Cutting angle  $\beta$** 

Another factor that significantly affects the cutting force of a blade is the cutting angle. With drag knives, a small cutting angle reduces the drag force on the material; on the other hand, a small cutting angle also results in larger overcuts.

**Drag knives****Oscillating knife, flat****Oscillating knife, pointed**

### Maximum cutting depth

For each blade, a maximum cutting depth is specified that corresponds to the length of the cutting edge. Naturally, the maximum thickness of material that can be processed with any particular blade also depends on the type of material being cut. Please note that the set base depth (the distance by which the material is through-cut) needs to be added to the material thickness when calculating maximum cutting depth.



t     Material thickness

z     Base depth

TM   Cutting depth = material thickness t + base depth z

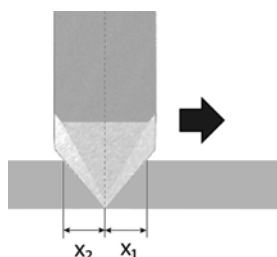
## Overcut x

The pre-cut  $x_1$  refers to the distance between the center of the blade (its axis of rotation) and the point of entry of the cutting edge into the material in the direction of travel. The post-cut  $x_2$  is the distance between the axis of rotation and the last point of contact between the edge of the blade and the material.

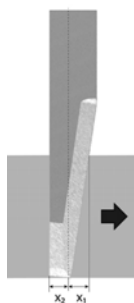
When oscillating, cutting occurs as the blade moves up and down while travelling through the material. With flat oscillating blades, the wide tip of the blade creates considerable overcuts; pointed oscillating blades are therefore better suited for cutting small radii and detailed contours.

**Tip!** Overcuts will cause distortions in contours. If necessary, there are steps that can be taken to minimize this effect. Overcuts can be minimized or eliminated by changing the direction of cut lines in the file, cutting from the back of the material, and by using blades that produce the smallest possible overcuts. Overcut information is provided in the technical data provided for each type of blade.

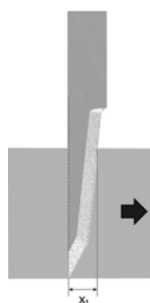
### Drag knives



### Oscillating knife – flat



### Oscillating knife – pointed

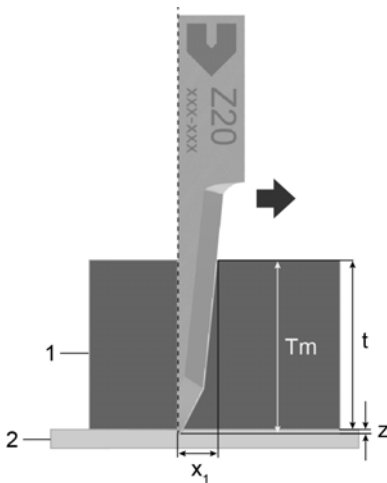


## Calculating the overcut

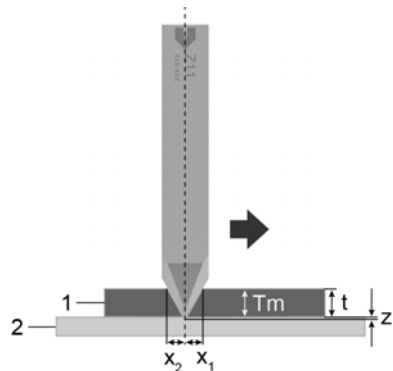
Blade geometry as well as cutting depth factor into the overcut. In this chapter, we will explain how to calculate overcuts for any blade and material thickness. The blades chosen in the examples below are the pointed oscillating blade and the drag knife Z11.

The cutting depth  $T_m$  is based on the material thickness  $t$  and the base depth  $z$ . Take the values specified in the product description for each knife and enter them into the formula given below. The result will be the applicable pre- and post-cuts in mm.

Example: Z20



Example: Z11



- 1 Material
- 2 Cutting underlay
- $t$  Material thickness
- $z$  Base depth
- $T_m$  Cutting depth = material thickness  $t$  + base depth  $z$
- $x_1$  Pre-cut
- $x_2$  Post-cut

**Sample calculation Z20**

**Formula**  $x_{1,2} = 1.2 + 0.11 \times TM$

**Cutting depth**  $TM = 10.2 \text{ mm}$

**Pre-cut**  $x_1 = 2.322 \text{ mm}$

**Sample calculation Z11**

**Formula**  $x_{1,2} = 0.58 \times TM$

**Cutting depth**  $TM = 5.2 \text{ mm}$

**Pre-cut**  $x_1 = 3.016 \text{ mm}$

**Post-cut**  $x_2 = 3.016 \text{ mm}$



### 2.1.4 Knife types

Based on the type of tool being used to hold the blade, we distinguish between the following knives and blades:

- **Drag knives:** Blades designed for use with the UCT, KCT, VCT, C2, insert sleeve 40
- **Oscillating knives:** Used in EOT/POT oscillating tools
- **Rotary knives:** 10-sided blade for DRT/PRT tools

#### Drag knives

Drag knives are used in all non-motorized tools (UCT, KCT, VCT, C2).

**Round-shafted knife**  
(e.g. Z1)



**Flat-shafted knife**  
(e.g. Z10)



**Passepartout/  
Mat-cutting knife**  
(e.g. Z34)



**V-cut knife (e.g. Z70)**



- Permit max. cutting speeds, generally very cost-effective
- Exert high cutting (drag) force on material
- Very well suited for films, vinyls, paper, thin carton, some types of banner materials
- Provides cost-effective cutting method because of the lower purchase price of non-motorized tooling (UCT, KCT, VCT, C2) compared to any of the motor-driven tool options.

**Oscillating knives**

Oscillated cutting is the recommended cutting method for thicker, tougher, and layered materials. The oscillation considerably reduces the cutting (or drag) force on the material in the direction of travel. To achieve the best cut quality, care must be taken to select an appropriate cutting speed for the chosen blade geometry and oscillation frequency. Selecting the right oscillating blade is largely a function of the shapes and contours that need to be cut:

- For large radii, straight lines, large parts, Zünd recommends using flat oscillating blades.
- The recommended use for fine, pointed oscillating blades is limited to cutting small radii. Cutting speeds must be reduced for achieving good edge quality!

**Flat knife (e.g. Z43)**

- Faster cutting speeds
- Large radii, straight lines, larger parts

**Pointed knife (e.g. Z20)**

- Slow cutting speeds
- Small radii, fine detail, small parts

## **Rotary knives**

### **Ten-sided knife**









- Very high cutting speeds
- Suitable for large radii, straight lines, larger parts
- Works well for cutting porous materials, textiles, carbon fiber, fiberglass
- Very large overcuts






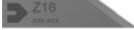



**2.2 Knife overview**

**2.2.1 Drag knives**



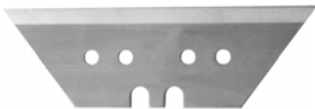
**Round-shafted knives (C2, C2P, KCT)**

Illustration	Item No.:	Knife	Cutting depth [mm]	Pack. units	Page
	3910105	Z1	1.0	5/10	
	3910110	Z2	1.0	5/10	
	3910115	Z3	1.0	5/10	
	3910116	Z4	2.1	5/10	
	3910154	W6	2.4	5/10	
	3910117	Z5	2.6	5/10	






**Flat-shafted knives (UCT, insert sleeve 40)**

Illustration	Item No.:	Knife	Cutting depth [mm]	Pack. units	Page
	3910303	Zünd Type 3	2.4/7.9	10	
	3910302	Zünd Type 2	2.7/4.9	10	
	3910301	Z10	4.8	1	
	3910309	Z11	6.9	1	
	3910310	Zünd Type 6	7.4	10	
	3910306	Z16	7.6	1	
	3910307	Z17	11.8	1	
	3910340	Z44	14.0	1	
	4800073	Z46	20.0	1	

V-Cut knives (VCT, T75)












Illustration	Item No.:	Knife	Cutting depth [mm]	Pack. units	Page
	5005642	Z70	10.0	1	
	5006045	Z71	16.0	1	
	5005572	Z73	16.0	5	

Passepartout/Mat-cutting knives (PPT)










Illustration	Item No.:	Knife	Cutting depth [mm]	Pack. units	Page
	3910330	Z30	2.0	1	
	3910331	Z31	2.0	1	
	3910333	Z33	5.0	1	
	3910334	Z34	5.0	1	
	4800071	Z35	5.0	1	

## 2.2.2 Oscillating knives (EOT, POT)

### Oscillating knife – pointed




Illustration	Item No.:	Knife	Cutting depth [mm]	Pack. units	Page
	3910310	Zünd Type 6	7.4	10	
	3910306	Z16	7.6	1	42
	3910307	Z17	11.8	1	43
	3910315	Z22	14.0	1	44
	3910313	Z20	14.3	1	45
	5201345	Z60	16.6	1	46
	3910314	Z21	17.4	1	47
	5005560	Z23	22.0	1	48
	3910318	Z28	26.0	1	49
	3910319	Z29	31.0	1	50
	5200479	Z66	55.0	1	51

## Oscillating knife – flat

Illustration	Item No.:	Knife	Cutting depth [mm]	Pack. units	Page
	3910324	Z42	7.8	1	52
	5203005	Z42c	7.8	1	53
	3910325	Z43	7.8	1	54
	3910317	Z26	8.7	1	55
	3910323	Z41	11.3	1	56
	5002488	Z62	13.2	1	57
	5201343	Z61	20.0	1	58
	5002637	Z63	29.0	1	58
	5002739	Z64	57.0	1	60



2.2.3 Rotary knives (DRT, PRT)

Illustration	Item No.:	Knife	Cutting depth [mm]	Pack. units	Page
	3910335	Z50	3.5	1	
	3910336	Z51	5.0	1	
	3910337	Z52	7.0	1	

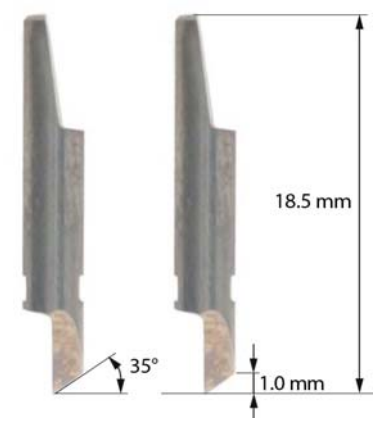
2.3 Product description

2.3.1 Drag knives

Z1

Item No.	3910105
Type	Round-shafted drag knife
Properties	Knife for cutting any standard self-adhesive vinyls.
Recommended materials	<div><div></div><div><ul style="list-style-type: none"><li>• Self-adhesive vinyls</li><li>• Masking film</li><li>• Model cardboard</li><li>• Pattern materials</li></ul></div></div>
Max. cutting depth	1.0 mm

Technical information



Knife material	Carbide
Pre-cut	1.43 x TM
Post-cut	-

Intended use

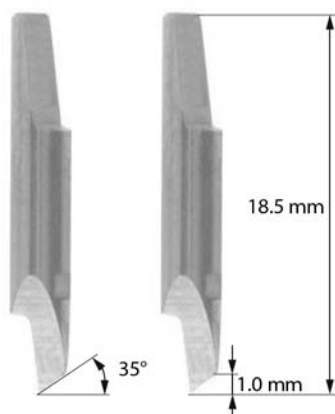


Recommended accessories



**Z2**

<b>Item No.</b>	3910110
<b>Type</b>	Round-shafted drag knife
<b>Properties</b>	Knife for cutting any standard self-adhesive vinyls. Similar to the Z1, but with smaller cutting force and a shorter life-expectancy.
<b>Recommended materials</b>	<ul style="list-style-type: none"><li>• Reflective vinyls</li><li>• Self-adhesive vinyls</li><li>• Masking film</li><li>• Model cardboard</li><li>• Pattern materials</li></ul>
<b>Max. cutting depth</b>	1.0 mm

**Technical information**

<b>Knife material</b>	Carbide
<b>Pre-cut</b>	1.43 x TM
<b>Post-cut</b>	-

**Intended use**

KCT,  
Insert sleeve  
40 for  
round-shafted  
drag knives



C2



C2P

**Recommended accessories**

Gliding disc for  
KCT and insert  
sleeve 40 for vinyl  
knives (3120021)



Knife holder with  
gliding disc for  
C2, C2P, KCM  
(3120012)

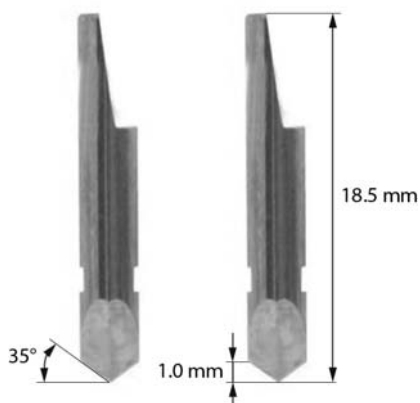
## Drag knives

Z3

### Z3

<b>Item No.</b>	3910115
<b>Type</b>	Round-shafted drag knife
<b>Properties</b>	Fine knife for machining small lettering. Stable and long-life double-edged knife.
<b>Recommended materials</b>	<ul style="list-style-type: none"> <li>• Self-adhesive vinyls</li> <li>• Masking film</li> </ul>
<b>Max. cutting depth</b>	1.0 mm

#### Technical information



<b>Knife material</b>	Carbide
<b>Pre-cut</b>	1.43 x TM
<b>Post-cut</b>	1.43 x TM

#### Intended use



KCT,  
Insert sleeve  
40 for  
round-shafted  
drag knives



C2



C2P

#### Recommended accessories



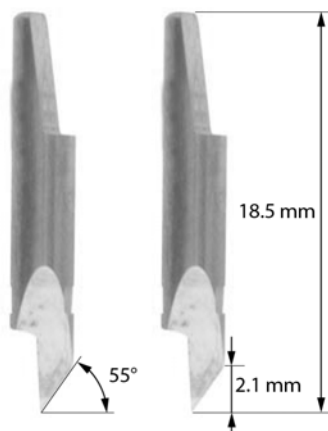
Gliding disc for  
KCT and insert  
sleeve 40 for vinyl  
knives (3120021)



Knife holder with  
gliding disc for  
C2, C2P, KCM  
(3120012)

**Z4**

<b>Item No.</b>	3910116
<b>Type</b>	Round-shafted drag knife
<b>Properties</b>	Fine blade tip with small overcut; therefore somewhat less stable
<b>Recommended materials</b>	<ul style="list-style-type: none"> <li>• Sandblast vinyls</li> <li>• Reflective vinyls</li> <li>• Model cardboard</li> <li>• Pattern materials</li> </ul>
<b>Max. cutting depth</b>	2.1 mm

**Technical information**

<b>Knife material</b>	Carbide
<b>Pre-cut</b>	0.7 x TM
<b>Post-cut</b>	-

**Intended use**

KCT,  
Insert sleeve  
40 for  
round-shafted  
drag knives



C2



C2P

**Recommended accessories**

Gliding disc for  
KCT and insert  
sleeve 40 for vinyl  
knives (3120021)



Knife holder with  
gliding disc for  
C2, C2P, KCM  
(3120012)

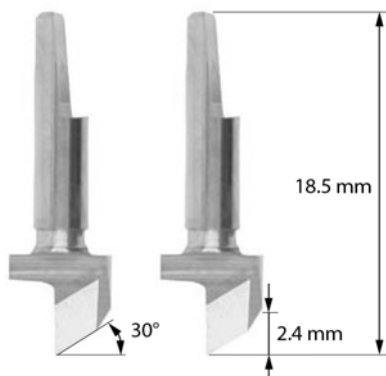
## Drag knives

W6

### W6

<b>Item No.</b>	3910154
<b>Type</b>	Round-shafted drag knife
<b>Properties</b>	Robust all-round knife with small cutting force for large radii.
<b>Recommended materials</b>	<ul style="list-style-type: none"> <li>• Paper</li> <li>• Model cardboard</li> <li>• Tarpaulin material</li> <li>• Plastic film</li> </ul>
<b>Max. cutting depth</b>	2.4 mm

### Technical information



<b>Knife material</b>	Carbide
<b>Pre-cut</b>	1.73 x TM
<b>Post-cut</b>	-

### Intended use



KCT,  
Insert sleeve  
40 for  
round-shafted  
drag knives



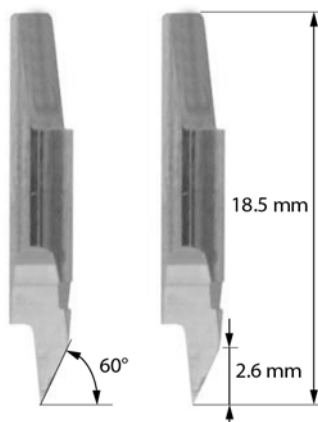
C2



C2P

**Z5**

<b>Item No.</b>	3910117
<b>Type</b>	Round-shafted drag knife
<b>Properties</b>	Very small overcut for vinyls and soft materials.
<b>Recommended materials</b>	<ul style="list-style-type: none"><li>• Sandblast vinyls</li><li>• Reflective vinyls</li><li>• Model cardboard</li><li>• Pattern materials</li></ul>
<b>Max. cutting depth</b>	2.6 mm

**Technical information**

<b>Knife material</b>	Carbide
<b>Pre-cut</b>	0.58 x TM
<b>Post-cut</b>	-

**Intended use**

KCT,  
Insert sleeve  
40 for  
round-shafted  
drag knives



C2



C2P

**Recommended accessories**

Gliding disc for  
KCT and insert  
sleeve 40 for vinyl  
knives (3120021)

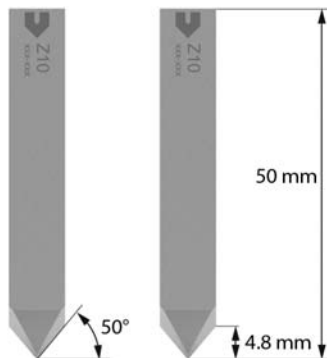


Knife holder with  
gliding disc for  
C2, C2P, KCM  
(3120012)

## Z10

<b>Item No.</b>	3910301
<b>Type</b>	Flat-shafted drag knife
<b>Properties</b>	Stable and robust double-edged drag knife. Similar to Z11, but with a larger overcut and longer life-expectancy.
<b>Recommended materials</b>	<ul style="list-style-type: none"><li>• Tarpaulin material</li><li>• PVC banners (frontlit/backlit)</li><li>• Polypropylene materials</li><li>• Polyester fabric; coated textiles</li><li>• Polycarbonate; PC</li><li>• Folding carton; 100 g -1500 g</li><li>• Vinyl</li><li>• Expanded PVC</li></ul>
<b>Max. cutting depth</b>	4.8 mm

### Technical information



<b>Knife material</b>	Carbide
<b>Knife thickness</b>	1.5 mm
<b>Pre-cut</b>	0.84 x TM
<b>Post-cut</b>	0.84 x TM

### Intended use



UCT,  
insert sleeve 40

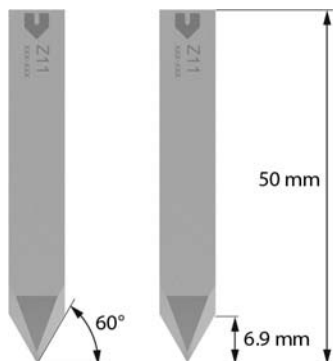


Knife holder type 1 silver  
(3960322)



**Z11**

<b>Item No.</b>	3910309
<b>Type</b>	Flat-shafted drag knife
<b>Properties</b>	Double-edged knife with universal applications. Similar to Z10, but with a smaller overcut and shorter life expectancy.
<b>Recommended materials</b>	<ul style="list-style-type: none"><li>• Tarpaulin material</li><li>• PVC banners (frontlit/backlit)</li><li>• Polypropylene materials</li><li>• Polyester fabric; coated textiles</li><li>• Polycarbonate</li><li>• Folding carton; 100 g -1500 g</li><li>• Vinyl</li><li>• Expanded PVC</li></ul>
<b>Max. cutting depth</b>	6.9 mm

**Technical information**

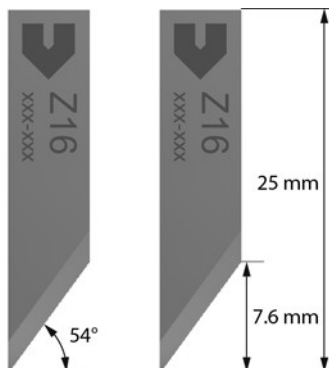
<b>Knife material</b>	Carbide
<b>Knife thickness</b>	1.5 mm
<b>Pre-cut</b>	0.58 x TM
<b>Post-cut</b>	0.58 x TM

**Intended use**UCT,  
insert sleeve 40Knife holder type 1 silver  
(3960322)

## Z16

Item No.	3910306
Type	Flat-shafted drag knife/pointed oscillating knife
Properties	Knife for soft materials. Universally applicable as a robust oscillating knife.
Recommended materials	<ul style="list-style-type: none"><li>• Magnetic media</li><li>• Polycarbonate</li><li>• Polyester film</li><li>• Coating blanket</li><li>• Paper; 100 - 400 g</li><li>• Folding carton; 100 g -1500 g</li></ul>
Max. cutting depth	7.6 mm

### Technical information



Knife material	Carbide
Knife thickness	0.63 mm
Pre-cut	0.73 x TM
Post-cut	-

### Intended use



UCT,  
insert  
sleeve 40

Knife  
holder  
type 3  
yellow  
(3960324)

EOT

POT,  
knife  
holder  
0.63 mm

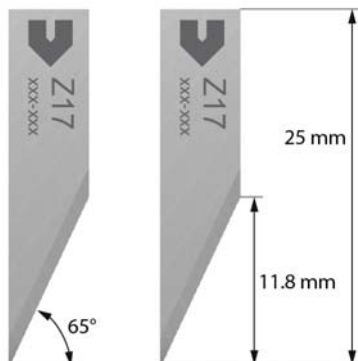
### Recommended accessories



Knife reduction 1.5/0.63 mm (5003138)  
for POT mit 1.5 mm knife holder

**Z17**

<b>Item No.</b>	3910307
<b>Type</b>	Flat-shafted drag knife/pointed oscillating knife
<b>Properties</b>	Knife for cutting thin materials. The overcut is smaller and with higher cutting force as the Z16. For best results, use as an oscillating knife.
<b>Recommended materials</b>	<ul style="list-style-type: none"> <li>• Magnetic media</li> <li>• Polycarbonate</li> <li>• Polyester film</li> <li>• Coating blanket</li> <li>• Paper; 100 - 400 g</li> <li>• Folding carton; 100 g -1500 g</li> </ul>
<b>Max. cutting depth</b>	11.8 mm

**Technical information**

<b>Knife material</b>	Carbide
<b>Knife thickness</b>	0.63 mm
<b>Pre-cut</b>	0.47 x TM
<b>Post-cut</b>	-

**Intended use**UCT,  
insert  
sleeve 40Knife  
holder  
type 3  
yellow  
(3960324)

EOT

POT,  
knife  
holder  
0.63 mm**Recommended accessories**Knife reduction 1.5/0.63 mm (5003138)  
for POT mit 1.5 mm knife holder

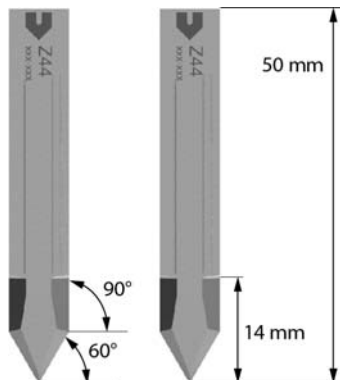
## Drag knives

Z44

### Z44

<b>Item No.</b>	3910340
<b>Type</b>	Flat-shafted drag knife
<b>Properties</b>	Double-sided knife for less tough, fibrous materials. This knife offers similar properties to Z11.
<b>Recommended materials</b>	<ul style="list-style-type: none"> <li>• Carpet</li> <li>• Tarpaulin material</li> </ul>
<b>Max. cutting depth</b>	14 mm

#### Technical information



<b>Knife material</b>	Carbide
<b>Knife thickness</b>	1.5 mm
<b>Pre-cut</b>	0.58 x TM
<b>Post-cut</b>	0.58 x TM

#### Intended use



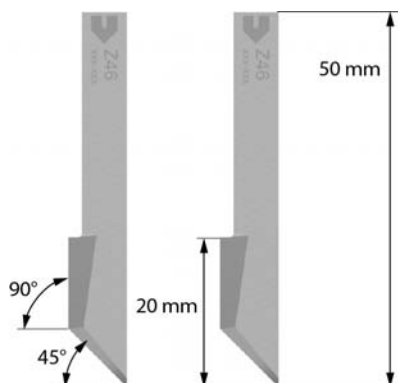
UCT,  
insert sleeve 40



Knife holder type 1  
silver (3960322)

**Z46**

<b>Item No.</b>	4800073
<b>Type</b>	Flat-shafted drag knife
<b>Properties</b>	Knife for light, soft materials. Good stability, but a larger overcut.
<b>Recommended materials</b>	<ul style="list-style-type: none"><li>• Carpet</li><li>• Corrugated plastic</li><li>• Foam board</li><li>• PVC banners (frontlit/backlit)</li></ul>
<b>Max. cutting depth</b>	20 mm

**Technical information**

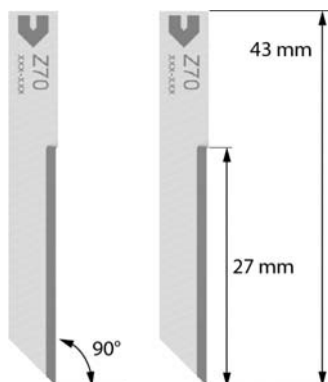
<b>Knife material</b>	Carbide
<b>Knife thickness</b>	1.5 mm
<b>Pre-cut</b>	1.0 x TM
<b>Post-cut</b>	-

**Intended use**UCT,  
insert sleeve 40Knife holder type 5 black  
(3960320)

## Z70

Item No.	5005642
Type	V-cut drag knife
Properties	Knife for a 45° cut.
Recommended materials	<ul style="list-style-type: none"><li>• Corrugated cardboard; sandwich board</li><li>• Foam board</li><li>• Corrugated cardboard; BCA-flute</li><li>• Carpet</li><li>• Corrugated plastic</li></ul>
Max. cutting depth	Insert for V-cut (3102186): 15.6 mm Insert for V-cut (3102186), knife holder (5005782): 11.9 mm

### Technical information



Knife material	Carbide
Knife thickness	0.63 mm

### Intended use



T75

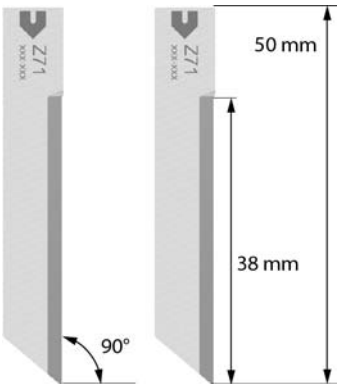


Insert for V-cut (3102186),  
knife holder (5005782)

Z71

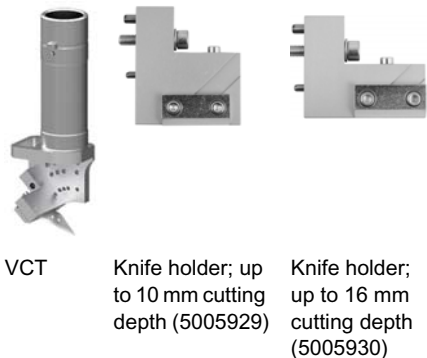
Item No.	5006045
Type	V-cut drag knife
Properties	Stable, long-life carbide knife.
Recommended materials	<ul style="list-style-type: none"><li>• Corrugated cardboard; sandwich board</li><li>• Foam board</li><li>• Corrugated cardboard; BCA-flute</li><li>• Carpet</li><li>• Corrugated plastic</li></ul>
Max. cutting depth	Knife holder 5005929: 11.8 mm knife holder 5005930: 18.4 mm

Technical information



Knife material	Carbide
Knife thickness	1 mm

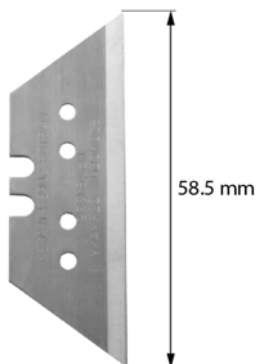
Intended use



## Z73

Item No.	5005572
Type	V-cut drag knife
Properties	Stable high speed steel knife
Recommended materials	<ul style="list-style-type: none"><li>• Corrugated cardboard; sandwich board</li><li>• Foam board</li><li>• Corrugated cardboard; BCA-flute</li><li>• Carpet</li><li>• Corrugated plastic</li></ul>
Max. cutting depth	Knife holder (5005928): 18.2 mm Insert for V-cut (3102186): 18.2 mm

### Technical information



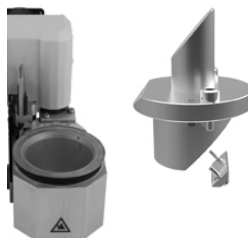
Knife material	HSS
Knife thickness	0.9 mm

### Intended use



VCT

Knife holder; up to 16 mm cutting depth (5005928)



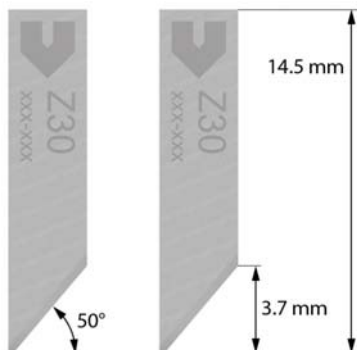
T75

Insert for V-cut (3102186)



**Z30**

<b>Item No.</b>	3910330
<b>Type</b>	Passepartout/Mat-cutting knife
<b>Properties</b>	Small passepartout/mat-cutting knife for cutting straight lines and sharp corners from the back of the cardboard/matboard.
<b>Recommended materials</b>	Passepartout cardboard/matboard
<b>Max. cutting depth</b>	2 mm

**Technical information**

<b>Knife material</b>	Carbide
<b>Knife thickness</b>	0.63 mm

**Intended use**

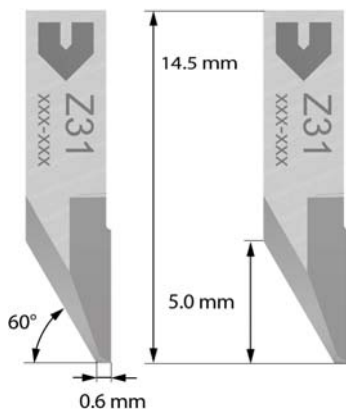
PPT

Knife holder; up to 2 mm cutting depth (3960331)

## Z31

<b>Item No.</b>	3910331
<b>Type</b>	Passepartout/Mat-cutting knife
<b>Properties</b>	Small passepartout//mat-cutting knife; multifunctional with 2 cutting edges to cut straight lines from the back and radii from the front of cardboard/matboard.
<b>Recommended materials</b>	Passepartout cardboard/matboard
<b>Max. cutting depth</b>	2 mm

### Technical information



<b>Knife material</b>	Carbide
<b>Knife thickness</b>	0.63 mm

### Intended use

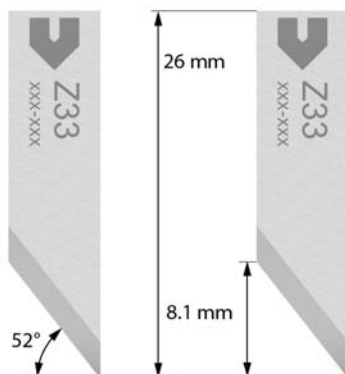


PPT

Knife holder; up to 2 mm cutting depth (3960331)

**Z33**

<b>Item No.</b>	3910333
<b>Type</b>	Passepartout/Mat-cutting knife
<b>Properties</b>	Large passepartout/mat-cutting knife for cutting straight lines and sharp corners on the back of cardboard/matboard.
<b>Recommended materials</b>	Passepartout cardboard/matboard
<b>Max. cutting depth</b>	5 mm

**Technical information**

<b>Knife material</b>	Carbide
<b>Knife thickness</b>	0.63 mm

**Intended use**

PPT

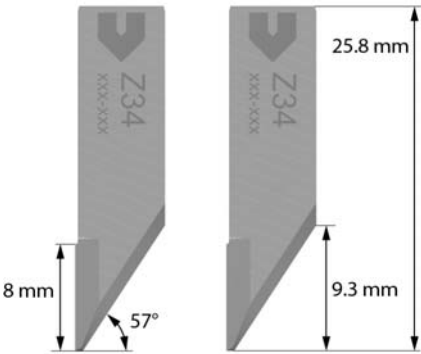


Knife holder; up to 5 mm cutting depth (3960328)

Z34

Item No.	3910334
Type	Passepartout/Mat-cutting knife
Properties	Large passepartout/mat-cutting knife; multifunctional with 2 cutting edges to cut straight lines from the back and radii from the front of the cardboard/matboard.
Recommended materials	Passepartout cardboard/matboard
Max. cutting depth	5 mm

Technical information



Knife material	Carbide
Knife thickness	0.63 mm

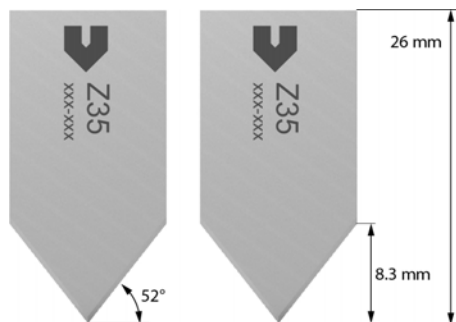
Intended use



PPT	Knife holder; up to 5 mm cutting depth (3960328)	Knife holder; up to 2.5 mm cutting depth (3960329)
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**Z35**

<b>Item No.</b>	4800071
<b>Type</b>	Passepartout/Mat-cutting knife
<b>Properties</b>	Large passepartout/mat-cutting knife for cutting straight lines and sharp corners from the front of cardboard/matboard.
<b>Recommended materials</b>	Passepartout cardboard/matboard
<b>Max. cutting depth</b>	5 mm

**Technical information**

<b>Knife material</b>	Carbide
<b>Knife thickness</b>	0.63 mm

**Intended use**

PPT



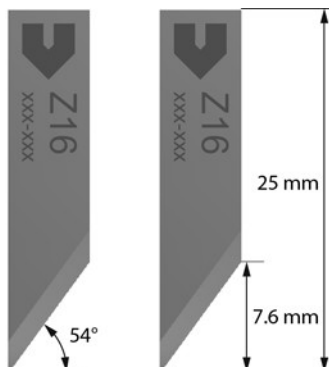
Knife holder; up to 5 mm  
cutting depth (3960330)

## 2.3.2 Oscillating knives

### Z16

<b>Item No.</b>	3910306
<b>Type</b>	Flat-shafted drag knife/pointed oscillating knife
<b>Properties</b>	For soft materials. Universally applicable as a robust oscillating knife.
<b>Recommended materials</b>	<ul style="list-style-type: none"> <li>Folding carton; 100 g -1500 g</li> <li>Gasket materials</li> <li>Foam</li> <li>Leather</li> </ul>
<b>Max. cutting depth</b>	7.6 mm

#### Technical information



<b>Knife material</b>	Carbide
<b>Knife thickness</b>	0.63 mm
<b>Pre-cut</b>	0.73 x TM
<b>Post-cut</b>	-

#### Intended use



UCT,  
insert  
sleeve 40



Knife  
holder  
type 3  
yellow  
(3960324)



EOT



POT,  
knife  
holder  
0.63 mm

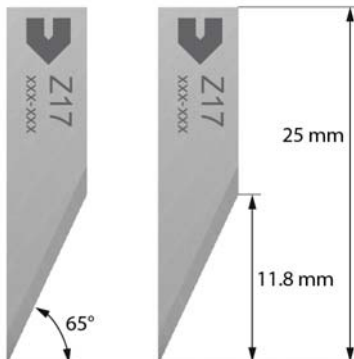
#### Recommended accessories



Knife reduction 1.5/0.63 mm (5003138)  
for POT mit 1.5 mm knife holder

**Z17**

<b>Item No.</b>	3910307
<b>Type</b>	Flat-shafted drag knife/pointed oscillating knife
<b>Properties</b>	Knife for cutting thin materials. The overcut is smaller and with higher cutting forces as the Z16. For best results, use as an oscillating knife.
<b>Recommended materials</b>	<ul style="list-style-type: none"><li>• Folding carton; 100 g -1500 g</li><li>• Gasket materials</li><li>• Foam</li><li>• Leather</li></ul>
<b>Max. cutting depth</b>	11.8 mm

**Technical information**

<b>Knife material</b>	Carbide
<b>Knife thickness</b>	0.63 mm
<b>Pre-cut</b>	0.47 x TM
<b>Post-cut</b>	-

**Intended use**

UCT,  
insert  
sleeve 40



Knife  
holder  
type 3  
yellow  
(3960324)



EOT



POT,  
knife  
holder  
0.63 mm

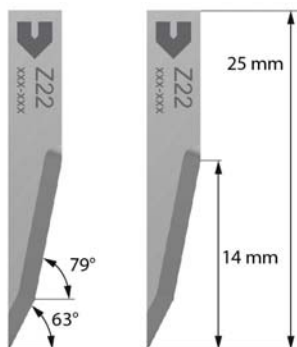
**Recommended accessories**

Knife reduction 1.5/0.63 mm (5003138) for  
POT mit 1.5 mm knife holder

## Z22

<b>Item No.</b>	3910315
<b>Type</b>	Oscillating knife – pointed
<b>Properties</b>	Fine, robust knife with low overcut; designed to cut small radii and intricate detail. Similar to Z20, but more robust and with a larger overcut.
<b>Recommended materials</b>	<ul style="list-style-type: none"> <li>• Corrugated cardboard; B-, C-, BC-, Eb- and E-flute</li> <li>• Foam board</li> <li>• Foam</li> <li>• Folding carton; 100 g -1500 g</li> <li>• Polyester fabric; coated textiles</li> <li>• Rubber; ejection rubber</li> <li>• Magnetic media</li> <li>• Corrugated plastic</li> <li>• Felt</li> </ul>
<b>Max. cutting depth</b>	14 mm

### Technical information



<b>Knife material</b>	Carbide
<b>Knife thickness</b>	0.63 mm
<b>Pre-cut</b>	1.2 + 0.2 x TM
<b>Post-cut</b>	-

### Intended use



EOT



POT, knife holder 0.63 mm

### Recommended accessories

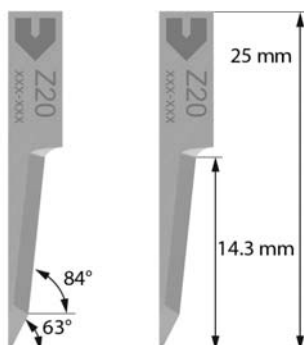


Knife reduction 1.5/0.63 mm (5003138)  
for POT mit 1.5 mm knife holder



**Z20**

<b>Item No.</b>	3910313
<b>Type</b>	Oscillating knife – pointed
<b>Properties</b>	Very fine, delicate knife with minimal overcut; designed to cut small radii and intricate detail.
<b>Recommended materials</b>	<ul style="list-style-type: none"><li>• Corrugated cardboard; B-, C-, BC-, Eb- and E-flute</li><li>• Folding carton; 100 g -1500 g</li><li>• Foam board</li><li>• Foam</li><li>• Ejection rubber</li><li>• Felt</li></ul>
<b>Max. cutting depth</b>	14.3 mm

**Technical information**

<b>Knife material</b>	Carbide
<b>Knife thickness</b>	0.63 mm
<b>Pre-cut</b>	$1.2 + 0.11 \times TM$
<b>Post-cut</b>	-

**Intended use**

EOT



POT, knife holder 0.63 mm

**Recommended accessories**

Knife reduction 1.5/0.63 mm (5003138) for POT mit 1.5 mm knife holder

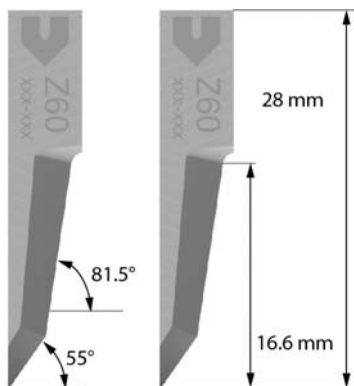
## Oscillating Knives

Z60

### Z60

<b>Item No.</b>	5201345
<b>Type</b>	Oscillating knife – pointed
<b>Properties</b>	Strong knife for tough materials; similar to Z21.
<b>Recommended materials</b>	<ul style="list-style-type: none"> <li>• Saddle leather; leather</li> <li>• Rubber</li> <li>• Corrugated plastic</li> </ul>
<b>Max. cutting depth</b>	16.6 mm

#### Technical information



#### Intended use

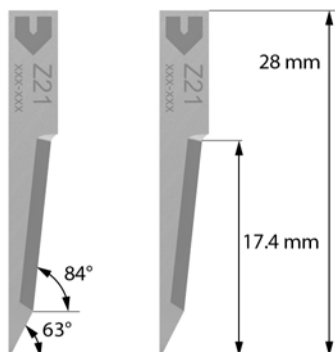


POT, knife holder 1.5 mm

<b>Knife material</b>	Carbide
<b>Knife thickness</b>	1.5 mm
<b>Pre-cut</b>	2.2 + 0.15 x TM
<b>Post-cut</b>	-

**Z21**

<b>Item No.</b>	3910314
<b>Type</b>	Oscillating knife – pointed
<b>Properties</b>	Fine knife with low overcut; designed to cut small radii and intricate detail.
<b>Recommended materials</b>	<ul style="list-style-type: none"><li>• Corrugated cardboard</li><li>• Foam board</li><li>• Foam</li><li>• Rubber; ejection rubber</li><li>• Felt</li></ul>
<b>Max. cutting depth</b>	17.4 mm

**Technical information**

<b>Knife material</b>	Carbide
<b>Knife thickness</b>	0.63 mm
<b>Pre-cut</b>	$1.6 + 0.11 \times TM$
<b>Post-cut</b>	-

**Intended use**

EOT



POT, knife holder 0.63 mm

**Recommended accessories**

Knife reduction 1.5/0.63 mm (5003138) for POT mit 1.5 mm knife holder

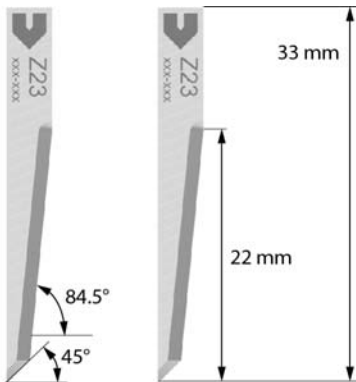
## Oscillating Knives

Z23

### Z23

<b>Item No.</b>	5005560
<b>Type</b>	Oscillating knife – pointed
<b>Properties</b>	Fine, long knife; designed to cut small radii and intricate detail.
<b>Recommended materials</b>	<ul style="list-style-type: none"> <li>• Foam</li> <li>• Insulating mat</li> <li>• Sandwich board</li> </ul>
<b>Max. cutting depth</b>	22 mm

#### Technical information



<b>Knife material</b>	Carbide
<b>Knife thickness</b>	0.63 mm
<b>Pre-cut</b>	$1.8 + 0.1 \times TM$
<b>Post-cut</b>	-

#### Intended use



EOT



POT, knife holder 0.63 mm

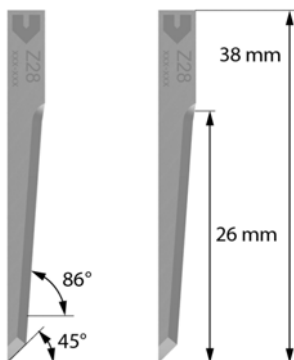
#### Recommended accessories



Knife reduction 1.5/0.63 mm (5003138)  
for POT mit 1.5 mm knife holder

**Z28**

<b>Item No.</b>	3910318
<b>Type</b>	Oscillating knife – pointed
<b>Properties</b>	Long oscillating knife for soft, thick materials.
<b>Recommended materials</b>	<ul style="list-style-type: none"><li>• Foam</li><li>• Insulating mat</li></ul>
<b>Max. cutting depth</b>	26 mm

**Technical information**

<b>Knife material</b>	Carbide
<b>Knife thickness</b>	0.63 mm
<b>Pre-cut</b>	$1.9 + 0.07 \times \text{TM}$
<b>Post-cut</b>	-

**Intended use**

EOT



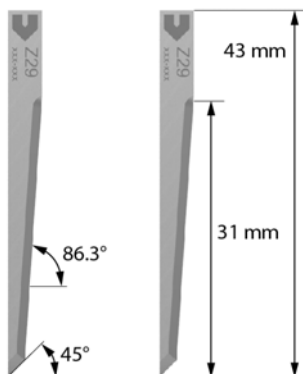
POT, knife holder 0.63 mm

**Recommended accessories**Knife reduction 1.5/0.63 mm (5003138)  
for POT mit 1.5 mm knife holder

## Z29

<b>Item No.</b>	3910319
<b>Type</b>	Oscillating knife – pointed
<b>Properties</b>	Long oscillating knife for soft, thick materials. Similar to Z28, but longer.
<b>Recommended materials</b>	<ul style="list-style-type: none"> <li>• Foam</li> <li>• Insulating mat</li> </ul>
<b>Max. cutting depth</b>	31 mm

### Technical information



<b>Knife material</b>	Carbide
<b>Knife thickness</b>	0.63 mm
<b>Pre-cut</b>	$1.9 + 0.06 \times TM$
<b>Post-cut</b>	-

### Intended use



EOT



POT, knife holder 0.63 mm

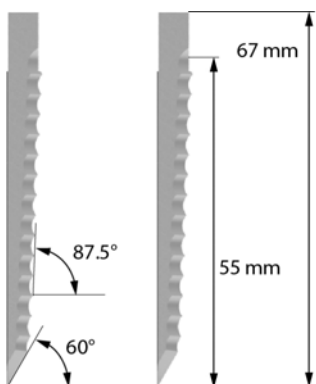
### Recommended accessories



Knife reduction 1.5/0.63 mm  
(5003138) for POT mit 1.5 mm knife holder

**Z66**

<b>Item No.</b>	5200479
<b>Type</b>	Oscillating knife – pointed
<b>Properties</b>	Long knife with serrated cutting edge.
<b>Recommended materials</b>	<ul style="list-style-type: none"><li>• Foam</li><li>• Insulating mat</li><li>• Thick, special corrugated cardboard - multiple flute design</li></ul>
<b>Max. cutting depth</b>	55 mm

**Technical information**

<b>Knife material</b>	Carbide
<b>Knife thickness</b>	1.5 mm
<b>Pre-cut</b>	$3.9 + 0.04 \times TM$
<b>Post-cut</b>	-

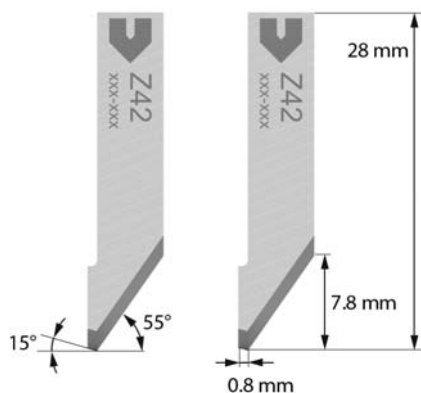
**Intended use**

POT, knife holder 1.5 mm

## Z42

<b>Item No.</b>	3910324
<b>Type</b>	Oscillating knife – flat
<b>Properties</b>	Robust oscillating knife with small pre-cut. Similar to Z26.
<b>Recommended materials</b>	<ul style="list-style-type: none"> <li>• Leather</li> <li>• Woven materials; fabrics</li> <li>• Corrugated cardboard</li> </ul>
<b>Max. cutting depth</b>	7.8 mm

### Technical information



<b>Knife material</b>	Carbide
<b>Knife thickness</b>	0.63 mm
<b>Pre-cut</b>	$0.05 + 0.7 \times TM$
<b>Post-cut</b>	0.80 mm

### Intended use



EOT



POT, knife holder 0.63 mm

### Recommended accessories

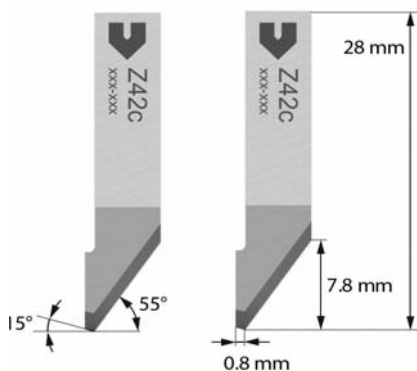


Knife reduction 1.5/0.63 mm (5003138) for POT mit 1.5 mm knife holder



**Z42c (coated)**

<b>Item No.</b>	5203005
<b>Type</b>	Oscillating knife – flat
<b>Properties</b>	Robust oscillating knife with the same geometry as Z42. The knife is specially coated to increase life expectancy for leather cutting!
<b>Recommended materials</b>	• Leather
<b>Max. cutting depth</b>	7.8 mm

**Technical information**

<b>Knife material</b>	Carbide
<b>Knife thickness</b>	0.63 mm
<b>Pre-cut</b>	0.05 + 0.7 x TM
<b>Post-cut</b>	0.80 mm

**Intended use**

EOT



POT, knife holder 0.63 mm

**Recommended accessories**

Knife reduction 1.5/0.63 mm  
(5003138) for POT mit 1.5 mm knife holder

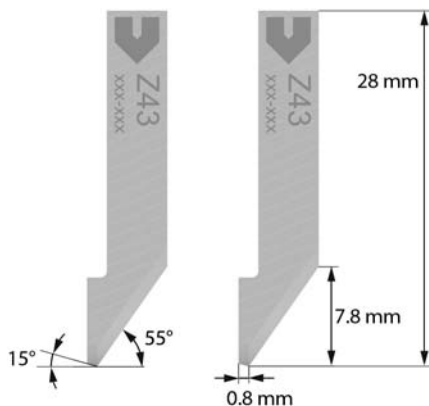
## Oscillating Knives

Z43

### Z43

<b>Item No.</b>	3910325
<b>Type</b>	Oscillating knife – flat
<b>Properties</b>	Robust oscillating knife. Similar to Z42, but with smaller pre-cut and larger post-cut.
<b>Recommended materials</b>	<ul style="list-style-type: none"> <li>• Leather</li> <li>• Woven materials; fabrics</li> <li>• Corrugated cardboard</li> </ul>
<b>Max. cutting depth</b>	7.8 mm

#### Technical information



<b>Knife material</b>	Carbide
<b>Knife thickness</b>	0.63 mm
<b>Pre-cut</b>	-0.8 + 0.7 x TM
<b>Post-cut</b>	1.55 mm

#### Intended use



EOT



POT, knife holder 0.63 mm

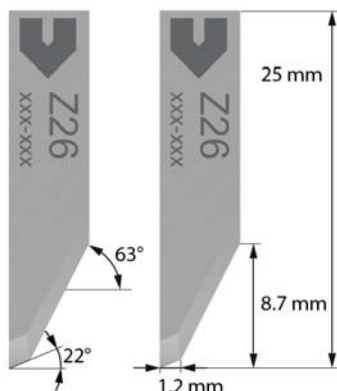
#### Recommended accessories



Knife reduction 1.5/0.63 mm (5003138)  
for POT mit 1.5 mm knife holder

**Z26**

<b>Item No.</b>	3910317
<b>Type</b>	Oscillating knife – flat
<b>Properties</b>	Simple, robust oscillating knife.
<b>Recommended materials</b>	<ul style="list-style-type: none"> <li>• Woven materials; fabrics</li> <li>• Leather</li> <li>• Corrugated cardboard</li> <li>• Felt</li> <li>• Rubber</li> <li>• Sandwich board</li> </ul>
<b>Max. cutting depth</b>	8.7 mm

**Technical information**

<b>Knife material</b>	Carbide
<b>Knife thickness</b>	0.63 mm
<b>Pre-cut</b>	1.2 + 0.51 x TM
<b>Post-cut</b>	-

**Intended use**

EOT



POT, knife holder 0.63 mm

**Recommended accessories**

Knife reduction 1.5/0.63 mm (5003138) for POT mit 1.5 mm knife holder

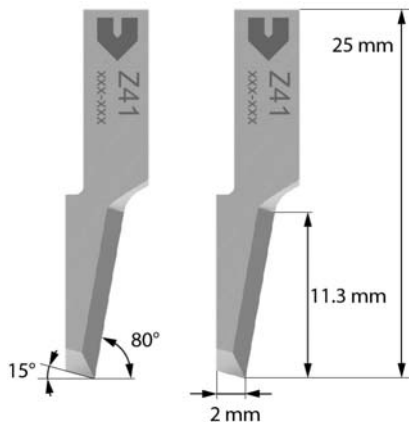
## Oscillating Knives

Z41

### Z41

<b>Item No.</b>	3910323
<b>Type</b>	Oscillating knife – flat
<b>Properties</b>	Oscillating knife with small pre-cut.
<b>Recommended materials</b>	<ul style="list-style-type: none"> <li>• Leather</li> <li>• Corrugated cardboard</li> <li>• Woven materials; fabrics</li> <li>• Felt</li> <li>• Foam</li> </ul>
<b>Max. cutting depth</b>	11.3 mm

#### Technical information



<b>Knife material</b>	Carbide
<b>Knife thickness</b>	0.63 mm
<b>Pre-cut</b>	$0.8 + 0.18 \times \text{TM}$
<b>Post-cut</b>	1.20 mm

#### Intended use



EOT



POT, knife holder 0.63 mm

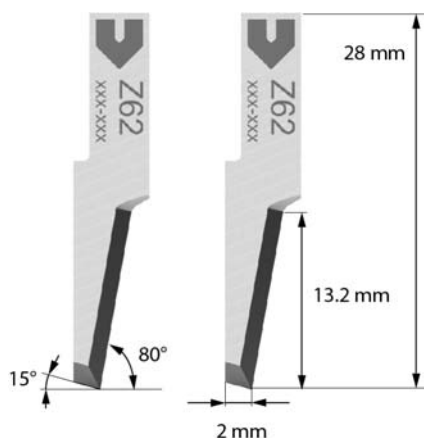
#### Recommended accessories



Knife reduction 1.5/0.63 mm (5003138) for POT mit 1.5 mm knife holder

**Z62**

<b>Item No.</b>	5002488
<b>Type</b>	Oscillating knife – flat
<b>Properties</b>	Oscillating knife with small pre-cut. Similar to Z41, but longer.
<b>Recommended materials</b>	<ul style="list-style-type: none"> <li>• Leather</li> <li>• Corrugated cardboard</li> <li>• Woven materials; fabrics</li> <li>• Felt</li> <li>• Foam</li> </ul>
<b>Max. cutting depth</b>	13.2 mm

**Technical information**

<b>Knife material</b>	Carbide
<b>Knife thickness</b>	0.63 mm
<b>Pre-cut</b>	$0.8 + 0.18 \times \text{TM}$
<b>Post-cut</b>	1.20 mm

**Intended use**

EOT



POT, knife holder 0.63 mm

**Recommended accessories**

Knife reduction 1.5/0.63 mm  
(5003138) for POT mit 1.5 mm knife  
holder

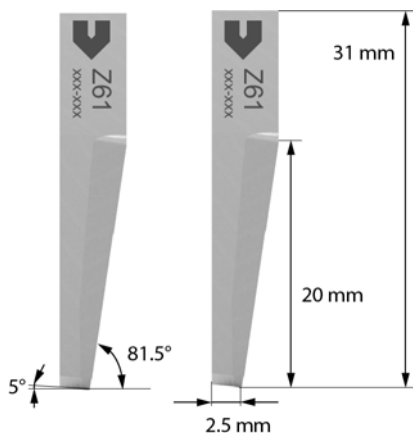
## Oscillating Knives

Z61

### Z61

<b>Item No.</b>	5201343
<b>Type</b>	Oscillating knife – flat
<b>Properties</b>	Very robust, heavy-duty oscillating knife.
<b>Recommended materials</b>	<ul style="list-style-type: none"> <li>• Sandwich board</li> <li>• Corrugated cardboard</li> <li>• Corrugated plastic</li> </ul>
<b>Max. cutting depth</b>	20 mm

#### Technical information



#### Intended use

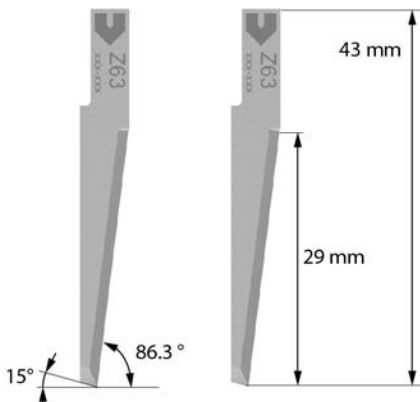


POT, knife holder 1.5 mm

<b>Knife material</b>	Carbide
<b>Knife thickness</b>	1.5 mm
<b>Pre-cut</b>	$2.5 + 0.15 \times TM$
<b>Post-cut</b>	-

**Z63**

<b>Item No.</b>	5002637
<b>Type</b>	Oscillating knife – flat
<b>Properties</b>	Oscillating knife with small pre-cut. Similar to Z62, but longer and therefore a little less stable.
<b>Recommended materials</b>	<ul style="list-style-type: none"><li>• Foam</li><li>• Insulating mat</li></ul>
<b>Max. cutting depth</b>	29 mm

**Technical information**

<b>Knife material</b>	Carbide
<b>Knife thickness</b>	0.63 mm
<b>Pre-cut</b>	$0.8 + 0.12 \times TM$
<b>Post-cut</b>	1.20 mm

**Intended use**

EOT

POT, knife holder 0.63 mm

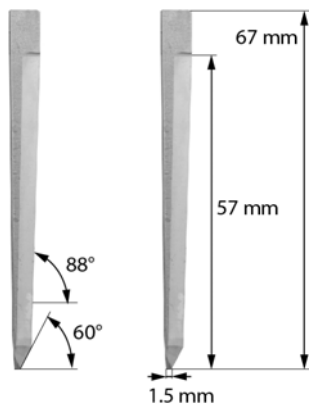
**Recommended accessories**

Knife reduction 1.5/0.63 mm (5003138) for  
POT mit 1.5 mm knife holder

## Z64

<b>Item No.</b>	5002739
<b>Type</b>	Oscillating knife – flat
<b>Properties</b>	Cost-effective knife for soft, thick materials. Low life expectancy!
<b>Recommended materials</b>	<ul style="list-style-type: none"> <li>• Foam</li> <li>• Insulating mat</li> </ul>
<b>Max. cutting depth</b>	57 mm

### Technical information



### Intended use



POT, knife holder 1.5 mm

<b>Knife material</b>	HSS
<b>Knife thickness</b>	1.5 mm
<b>Pre-cut</b>	$3.5 + 0.03 \times \text{TM}$
<b>Post-cut</b>	-

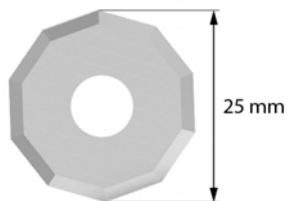


### 2.3.3 Rotary knives

#### Z50

<b>Item No.</b>	3910335
<b>Type</b>	Rotary knife
<b>Properties</b>	10-sided blade similar to Z51/Z52, but with smaller overcut and greater cutting power.
<b>Recommended materials</b>	<ul style="list-style-type: none"><li>• Textiles</li><li>• Technical textiles</li><li>• Carbon fibre</li><li>• Glass fibre</li><li>• Aramid fibre</li></ul>
<b>Max. cutting depth</b>	3.5 mm

#### Technical information



<b>Knife material</b>	Carbide
<b>Knife thickness</b>	0.6 mm

#### Intended use



DRT



PRT

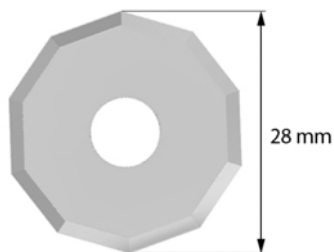
## Rotary knives

Z51

### Z51

<b>Item No.</b>	3910336
<b>Type</b>	Rotary knife
<b>Properties</b>	10-sided blade.
<b>Recommended materials</b>	<ul style="list-style-type: none"> <li>• Textiles</li> <li>• Technical textiles</li> <li>• Carbon fibre</li> <li>• Glass fibre</li> <li>• Aramid fibre</li> </ul>
<b>Max. cutting depth</b>	5.0 mm

#### Technical information



**Knife material** Carbide

**Knife thickness** 0.6 mm

#### Intended use



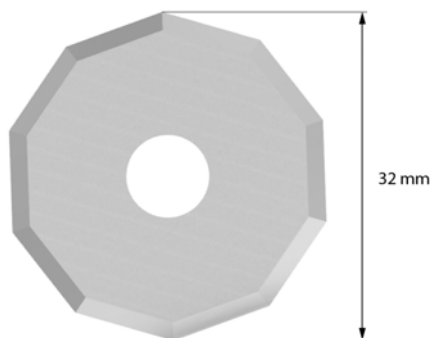
DRT



PRT

**Z52**

<b>Item No.</b>	3910337
<b>Type</b>	Rotary knife
<b>Properties</b>	10-sided blade similar to Z50/Z51, but with larger overcut and lower cutting power.
<b>Recommended materials</b>	<ul style="list-style-type: none"><li>• Textiles</li><li>• Technical textiles</li><li>• Carbon fibre</li><li>• Glass fibre</li><li>• Aramid fibre</li></ul>
<b>Max. cutting depth</b>	7.0 mm

**Technical information**

<b>Knife material</b>	Carbide
<b>Knife thickness</b>	0.6 mm



**Intended use**

## 2.4 Wild knives

Item No.	Knife
3910151	W1 40/35° single-edged
3910152	W2 30/35° single-edged
3910153	W5 30/30° double-edged
3910155	W7 30/35° single-edged long
3910156	W8 30/30° double-edged long
3910157	W9 30/45° single-edged long
3910158	WILD type 1 40/35° single-edged
3910159	WILD type 2 30/35° single-edged
1506292	Osc. knife WILD type 2 for small radii and holes 30° double-edged
3910160	WILD type 3 40/30° double-edged
3910161	WILD type 4 30/55° single-edged
3910322	Z40 HSS for EOT/POT tools




### 3.3 Shaft Ø 4.0 mm

#### 3.3.1 Plastics, plexiglass



Illustration	Item No.	Bit	Bit Ø [mm]	Flutes	Routing depth [mm]
	3910441	R51	4	1	20.0
	3910451	R61	4	2	20.0

### 3.4 Shaft Ø 6 mm (1kW milling spindle)

#### 3.4.1 Light foams < 52 kg/m<sup>3</sup> – double-fluted

Illustration	Item No.	Bit	Bit Ø [mm]	Routing depth [mm]	Max. rotation speed [rpm]
	3910726	R118	6	27	48000
	3910727	R119	6	40	48000
	3910728	R120	6	53	25000

#### 3.4.2 Acrylics, aluminium – single-fluted

Illustration	Item No.	Bit	Bit Ø [mm]	Routing depth [mm]	Max. rotation speed [rpm]
	3910742	R102	2	6	50000
	3910743	R103	3	11	50000





Shaft Ø 6 mm (1kW milling spindle)

Illustration	Item No.	Bit	Bit Ø [mm]	Routing depth [mm]	Max. rotation speed [rpm]
	3910744	R104	4	14	46600
	3910745	R105	5	16	37200
	3910746	R106	6	22	31000





### 3.4.3 Forex, MDF, wood, Dibond – single-fluted

Illustration	Item No.	Bit	Bit Ø [mm]	Routing depth [mm]	Max. rotation speed [rpm]
	3910762	R112	2	6	50000
	3910763	R113	3	11	50000
	3910764	R114	4	12	46600
	3910758	R115	5	16	50000
	3910759	R116	6	22	50000
	3910771	R117	6	28	50000


**3.4.4 Aluminium, wood, MDF, plastics, left-hand twist – single-fluted**

Illustration	Item No.	Bit	Bit Ø [mm]	Routing depth [mm]	Max. rotation speed [rpm]
	3910747	R123	3	11	50000
	3910748	R124	4	12	46600
	3910749	R125	5	12	37200
	3910750	R126	6	22	31000


**3.4.5 Acrylics, soft materials, FoamX, wood, left-hand twist – single-fluted**

Illustration	Item No.	Bit	Bit Ø [mm]	Routing depth [mm]	Max. rotation speed [rpm]
	3910767	R133	3	11	50000
	3910768	R134	4	14	46600
	3910769	R135	5	16	37200
	3910770	R136	6	22	31000

**3.4.6 V slot-milling router – single-fluted**

Illustration	Item No.	Bit	Bit Ø [mm]	Routing depth [mm]	Max. rotation speed [rpm]
	3910760	R140	10	4.1	20000

3.4.7 Polisher – single-fluted

Illustration	Item No.	Bit	Bit Ø [mm]	Routing depth [mm]	Max. rotation speed [rpm]
	3910780	P106	6	6.0	41000

3.5 Collets

3.5.1 Collets for 1 kW milling spindle


Illustration	Item No.	Description
	3910498	Ø 3.0 mm
	3910499	Ø 4.0 mm
	3910496	Ø 6 mm
	3910500	Ø 1/8 " (3.175 mm)
	3910497	Ø 1/4 " (6.35 mm)



### 3.5.2 Collets for 150/450 W milling spindle

Illustration	Item No.	Description
	3910492	Ø 1/8 " (3.175 mm)
	3910494	Ø 2.0 mm
	1527491	Ø 2.5 mm
	3910491	Ø 3.0 mm
	3910493	Ø 4.0 mm



### 3.6 Accessories

Illustration	Item No.	Item
	3621213	Brush for milling head type Rz-P






## 4 Engraving bits




### 4.1 Shaft Ø 1/8 " (3.175 mm)

Illustration	Item No.	Item	Angle (°)
	3910504	E4 for plexiglass, plastic	90
	3910505	E5 for plexiglass	60

### 4.2 Shaft Ø 3.0 mm

Illustration	Item No.	Item	Angle (°)
	3910501	E1 for plexiglass	90
	3910502	E2 for brass	90
	3910503	E3 for engraving material	36








### 4.3 Shaft Ø 6.0 mm

Illustration	Item No.	Item	Angle (°)
	3910506	E6: polished, balanced; for acrylic, plastics	92
	3910507	E7: polished, balanced; for acrylic, plastics	60
	3910508	E8: polished, balanced; for acrylic, plastics	40



## 6 Punching tools

### 6.1 HSS punching bits

Illustration	Item No.	Punch Ø [mm]	Tool holder Ø [mm]
	3999211	0.5	7
	3999213	0.8	7
	3999201	1	7
	3999200	1.2	7
	3999202	1.5	7
	3999203	2	7
	3999204	2.5	7

**Punching tools**



HSS punching bits

Illustration	Item No.	Punch Ø [mm]	Tool holder Ø [mm]
	3999205	3	7
	3999206	3.5	7
	3999207	4	7
	3999208	4.5	7
	3999209	5	7
	3999210	5.5	7

## 6.2 Carbide punching bits

Illustration	Item No.	Punch Ø [mm]	Tool holder Ø [mm]
	3999101	1	4.5
	3999102	1.5	4.5
	3999103	2	4.5
	3999104	2.5	4.5
	3999105	3	7
	3999106	3.5	7
	3999107	4	7
	3999108	4.5	7
	3999109	5	7

6.3 Punching pins

Illustration	Item No.	Tool holder Ø [mm]
	3999111	4.5
	3999112	7