



### High Quality

System solutions  
Made in Germany

### Reliability

Reliable and repeatable  
cutting results

### Experience

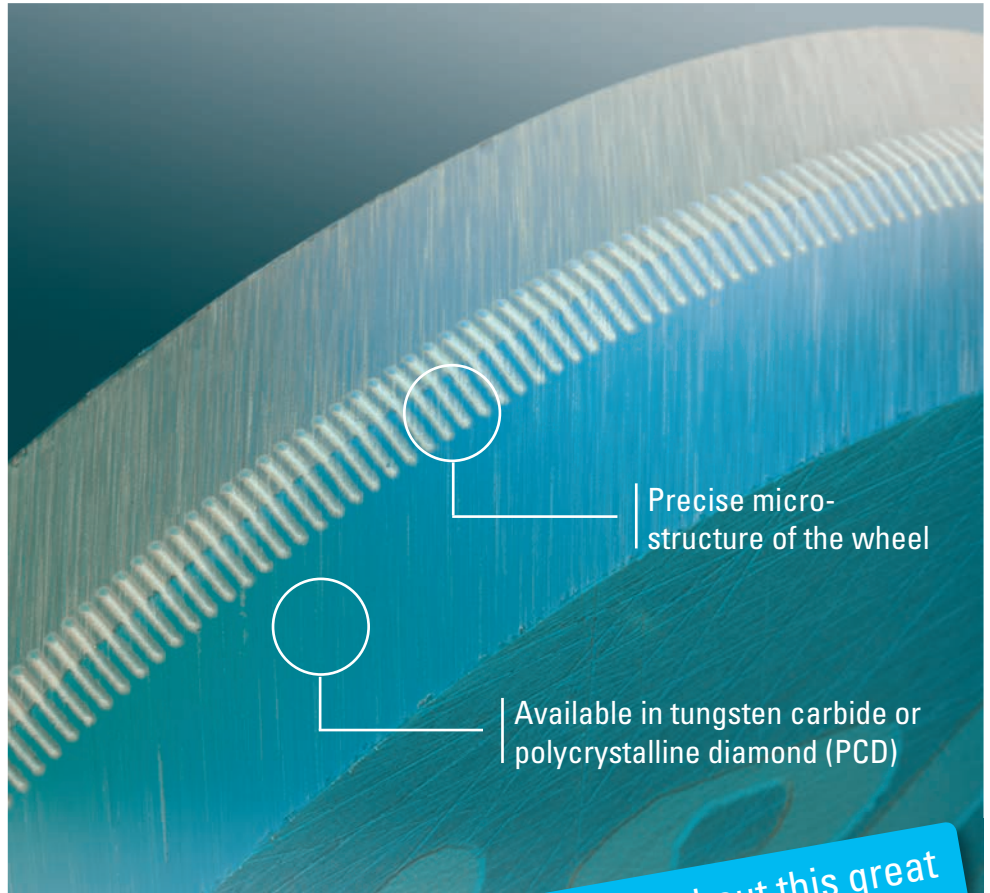
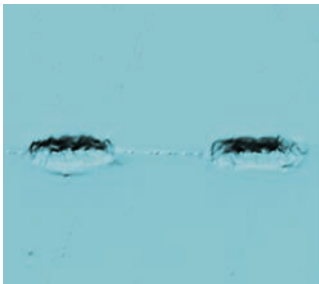
For more than 85 years  
our dedication has been  
to glass processing

*Fiberschnitt*

Automatic Cutting Technology  
Perfect Edge Quality

# Cutmaster® PLATINUM

A great innovation has a name



Precise micro-structure of the wheel

Available in tungsten carbide or polycrystalline diamond (PCD)

Learn more about this great innovation on page 10.



- ✓ Excellent edge quality
- ✓ Minimal cutting pressure
- ✓ Minimal splintering
- ✓ Longer service life
- ✓ Dry cutting
- ✓ Improved edge stability

# 3 Good Reasons to choose Bohle

MORE GOOD REASONS

Visit our Online-Shop  
[www.bohle-group.com](http://www.bohle-group.com)

Bohle is an international company – with German roots. The products are exported to almost every country in the world; exports account for over 60% our business. In order to best recognise requirements which vary from market to market, Bohle is close to the customer: with our network of field staff, numerous subsidiaries and over 100 agents worldwide.



## 01 | Selection

Bohle has all the products you need for your day-to-day business. Choose the best from 14 product fields such as glass cutting, UV-bonding, measuring tools, vacuum cups, sealants and glazing tools...

- ✓ We have all the supplies you need
- ✓ Constantly growing product range



## 02 | Quality

Bohle has always paid special attention to quality and is proud to provide you top quality products at fair prices.

- ✓ Production in Germany
- ✓ Latest technologies



## 03 | Experience

For more than 85 years, we have been involved with glass. Our innovations, solutions and expert workshops reflect this extensive know-how.

- ✓ In the business for over 85 years
- ✓ Free support from our application technicians



# 3 Good Reasons to choose Bohle ...

## ... for Automatic Glass Cutting



### 01 | High Quality Cutting Wheels

Equipped with state-of-the-art technology, Bohle produces cutting wheels for a wide variety of applications. Whether for float, drawn, thin or thick glass, special glass like display or borosilicate glass, Bohle provides carbide, PCD, coated and microstructured cutting wheels to meet your requirements. **High Quality - Made in Germany.**

- ✓ Know-how from more than 85 years
- ✓ Reliable and repeatable cutting results



### 02 | Complete System Solutions

Bohle has been developing and producing complete solutions for cutting machines for many years. By this we mean not only cutting wheels and axles, but also wheel holders and complete pillar posts. The range of pillar posts manufactured to customers' specific wishes is being continuously expanded.

- ✓ For all machinery brands
- ✓ Worldwide support



### 03 | Chemetall Cutting Fluids

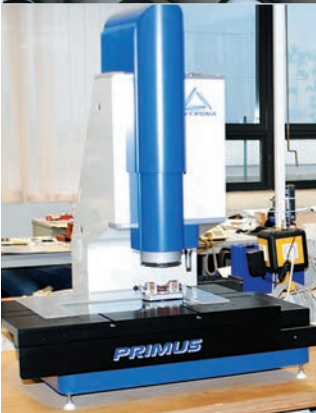
A comprehensive range of Chemetall products is available from Bohle. These products meet the needs of the glass industry perfectly and supplement our product range ideally. Together with the Silberschnitt® products for industrial glass processing we offer perfect system solutions for glass manufacturers and processors. Quality from a single source.

- ✓ Improved fracture characteristics
- ✓ Reduction of glass splintering/dust
- ✓ Significantly longer service life of the wheels

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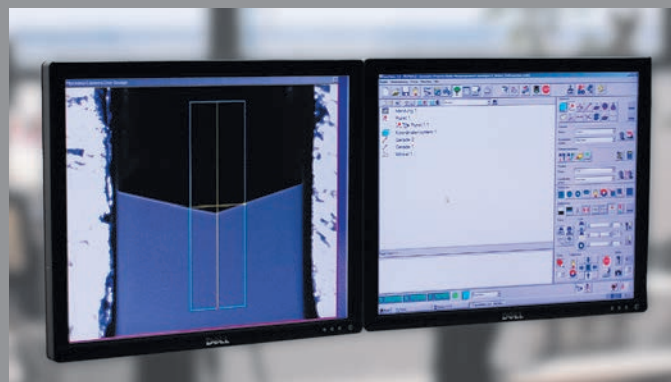
A faint, light-colored line drawing of a cutting tool, possibly a wheel holder or a specialized wheel, is positioned in the background of the table of contents. It features a cylindrical top section and a larger, curved base with various internal components and a central opening.



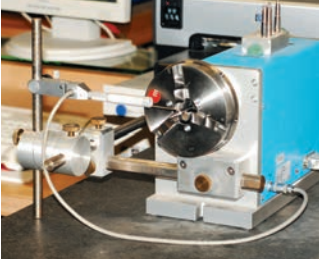
At an early stage, Bohle recognised the remarkable properties of carbide steel. One of the major benefits of the material is that it features a service life which is several times longer than the life of conventional steel wheels. Furthermore, the carbide cutting wheels have consistently good cutting properties which provide clean cut edges for different glass thicknesses. A similar development can be seen with PCD (polycrystalline diamond). Bohle is continuously investing in the research and development of glass cutting technology. New materials are being tested both in our own laboratory and in day-to-day practice in trial plants as well.

## Best raw materials and outstanding machining

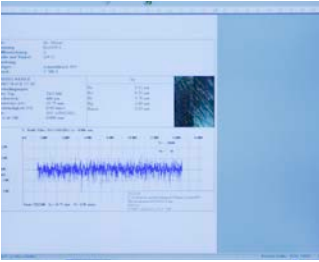
The careful selection and analysis of the raw material is the starting point for producing top quality glass cutting wheels. But not only the basic material is critical for the quality of the cutting wheel; tremendous know-how lies in the machining of the wheels. The wheels are ground to perfection on specially developed machines. The grind is adapted to suit the later application and results in consistently long service lives and optimal cutting results. The Silberschnitt cutting wheels obtain the best running qualities because the holes are hone processed and the side surfaces are fine polished and lapped. The majority of the world's well-known cutting machine manufacturers put their trust in Silberschnitt quality and standardly equip their systems with automatic cutting technology from Bohle.



*Results of the angle measurement*



Surface roughness measuring device



Result of surface roughness measurement

## A solution for every requirement

Equipped with the latest technology, Bohle manufactures cutting wheels for a wide variety of applications. In conjunction with our customers we develop wheels designed to meet the special demands of the final product being cut. No matter whether it is float glass, drawn glass, thin glass, thick glass, or special glass like display glass or borosilicate glass, Bohle develops the optimum solution for every requirement. Cutting angles as well as roughness of the grind are made to suit the intended application of the wheel. With the right combination of cutting angle, cutting pressure and cutting speed, it is ensured that the optimum tension is produced in the glass, significantly reducing splintering. Apart from special grinds for specific applications, Bohle produces three standard finishes which cover the majority of cutting requirements encountered.

As a company with high quality standards, Bohle naturally maintains their own test laboratory and is ISO 9001 certified.



## » Determine the cutting quality «

**Silberschnitt**  
ACTIVE

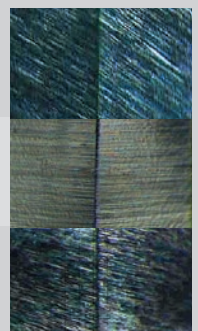
- For automatic cutting of shapes as well as laminated glass
- For open cuts in glass thicknesses of 2 to 6 mm in the automotive field
- For standard cutting with an angle from 145° and up
- For coated glass such as low-E

**Silberschnitt**  
BASIC

- For automatic cutting of float glass 2 to 8 mm thick

**Silberschnitt**  
CONTACT PLUS

- For thin glass where high edge quality is required
- For display glass as well as LCD, TFT and PDP



## Cutting angles

In the true sense of the word, glass is not cut, but rather broken. By scoring the surface of the glass with a cutting wheel, tension is built up in the glass. Bending the pane, either by hand or with a tool, results in a controlled break. In order to be able to cut glass of different thicknesses and coatings, the cutting wheel must have the optimum cutting angle. Only when the cutting angle is exactly suited to the glass can the best break quality be achieved and the edge damage be reduced to a minimum.

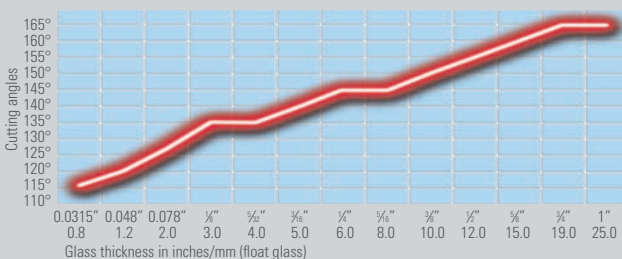
## Cutting pressure

When cutting glass, the right combination of cutting pressure and cutting angle is very important to keep the score as uniform and narrow as possible. A good score looks like a fine, silvery thread. Excessive cutting pressure increases the risk of glass splintering. In this case, the broken edge exhibits a rough pattern with irregularities. The diagram below can help determine the optimum cutting angle.

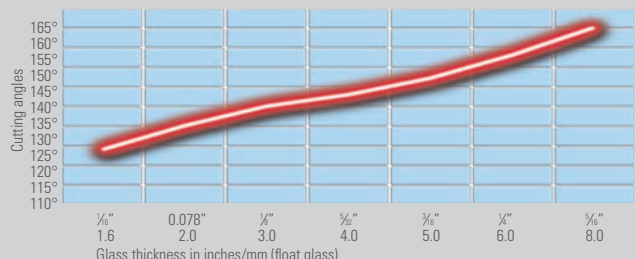
- $\alpha$  = Cutting angle  
( $\pm 1^\circ$ )
- D = Outside diameter  
(+0.15 mm/0.0059"  
-0.30 mm/0.0118")
- d = Inside diameter  
(+0.04 mm/0.0016")
- t = Wheel thickness  
( $\pm 0.01$  mm/0.0004")

## Cutting speed

Not only the cutting pressure but also the cutting speed is important for a good cut. In general we can say that it is better to cut quickly, because doing so reduces the cutting pressure and allows a blunter wheel angle to be selected. This in turn improves the buildup of tension along the score in the glass and results in better breaking quality.



Cutting angle diagram for straight cuts



Cutting angle diagram for shape cuts



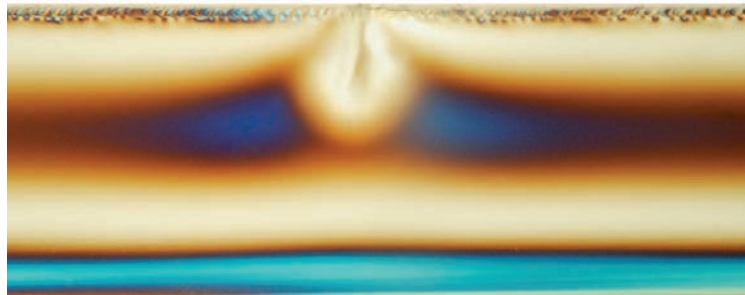
### Wheel choice

The smaller, the better. As a rule, wheels with the smallest possible diameter should be used because, in conjunction with the cutting speed, they allow the cutting pressure to be reduced.

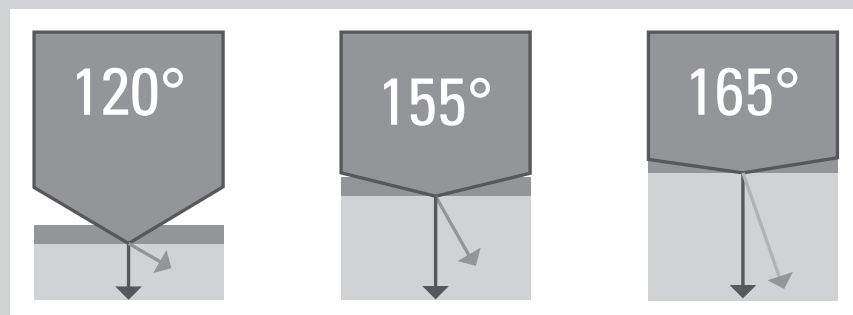
The cutting angle must be determined according to the glass thickness. The cutting geometry results in a force which creates tension in the glass. The more obtuse the cutting angle is, the greater the build-up of tension.

### Customised solutions on the spot

In addition to standard solutions, Bohle will manufacture all Silberschnitt wheels in increments of  $1^\circ$  (from  $75^\circ$  to  $165^\circ$ ) on request. The Bohle professionals will also be happy to assist you on site to find solutions for your applications. Whether you need cutting wheels, wheel holders, complete solutions or other products for automatic glass cutting: by working closely with the customer we can find optimum solutions. Call us. We will be glad to help you.



Polarisation filtered photo of a glass edge:  
Snap-shot taken directly after cutting



*Cutting angle and build-up of tension in the glass*

### The perfect solution for cutting

The innovative cutting wheels of the Cutmaster® Platinum series have been developed by Bohle to produce especially high quality cutting edges. The different types of wheels are suitable to cut glass from 0.1 mm thick.

Due to their special micro-structured cutting edge, these wheels achieve excellent cutting results with minimal cutting pressure, especially when cutting high quality glass types such as sensoric and solar glass, optical filters and quartz glass.

In extensive tests, excellent results have also been achieved with borosilicate glass in various thicknesses. Furthermore, float glass as well as glass tubes can be precisely cut with the Cutmaster® Platinum.

In addition to the universal application fields, the Cutmaster® Platinum wheels are also suitable for dry cutting, thereby avoiding any contamination from cutting fluids and the resulting time-consuming cleaning.

Cutmaster® Platinum can be used in all common float lines – easily mounted and exchanged with the quick exchange system of Bohle. For standard requirements, carbide wheels are available – an even longer service life is achieved with wheels made of PCD.

### What effects does the micro-structure have?

The micro-structure allows tensions to be transmitted into the glass with minimal cutting pressure, resulting in a very easy break of the glass.

Due to the structure of the cutting edge, the cutting wheel penetrates as notches into the glass compared to standard wheels which score the glass using their whole circumference. As a result, micro-openings of the fissure are produced precisely in the cutting direction. Accompanying cracks and damages deviating from the score line are effectively avoided and edge damages reduced to a minimum.

All cutting wheels of the Cutmaster® Platinum series are imprinted with the cutting angle, thus avoiding confusion when they are used.



### » Advantages of Cutmaster® Platinum at a glance «

*Excellent edge quality*

*Minimal cutting pressure*

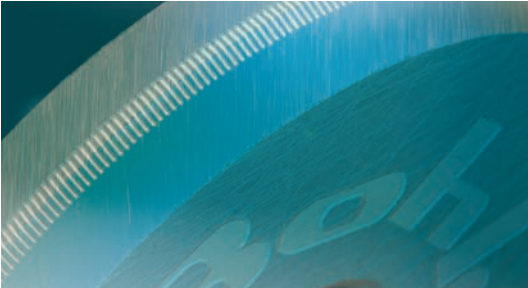
*Minimal splintering*

*Longer service life*

■ *Dry cutting*

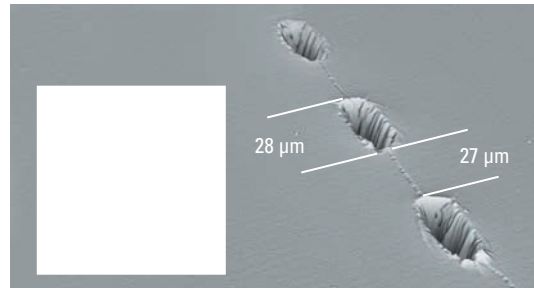
■ *Improved edge stability*

01 Cutmaster® Platinum



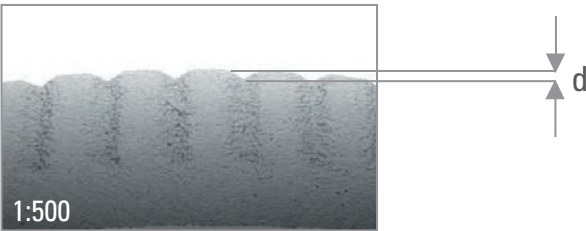
1:125

02 Surfaces after cutting

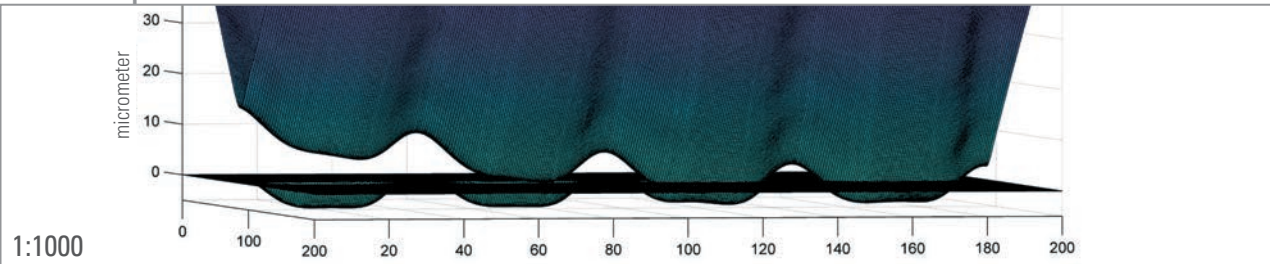


1:250

03 Wheel structure

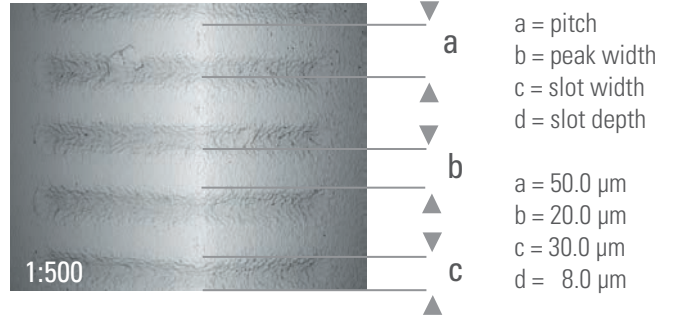


05 Glass penetration



1:1000

04 Details of wheel structure



The plastic version of wheel holders, types 416 and 417, are also available with carbide cutting wheels in the Cutmaster® Platinum version.  
 When ordering, please be sure to specify the desired cutting angle.  
 for example: 416BXXP\* 135°

The cutting wheels of the Cutmaster® Platinum version are available in tungsten carbide or PCD.  
 Please note the available types listed on page 12.

## Sample applications

## Float glass

Slitting cutting of float glass from 0.1 to 19 mm;

Shape cutting of float glass from 0.1 to 2 mm

## Special glass

Medical glass; optical glass; solar glass / photovoltaic glass

Slitting cutting of borosilicate glass up to 25 mm, slitting cutting of glass ceramic (Ceran, NeoCeran, Robax), slitting cutting of leaded glass up to 30 mm.

## Thin glass

Shape cutting of 0.1 to 2.0 mm glass · slitting cutting of 0.05 to 3 mm glass

## Cutmaster® Platinum carbide cutting wheels

Art. No.	Dimensions in mm (inch)	Slots
06BXXXP*	∅ 2.5 x 0.80 x ∅ 0.65 mm (∅ 0.0984" x 0.0256" x ∅ 0.0315")	157
66BXXXP*	∅ 3.0 x 0.80 x ∅ 0.65 mm (∅ 0.1181" x 0.0256" x ∅ 0.0315")	188
12AXXXP*	∅ 4.1 x 1.08 x ∅ 1.42 mm (∅ 0.1614" x 0.0425" x ∅ 0.0059")	257
02AXXXP*	∅ 5.0 x 1.00 x ∅ 1.30 mm (∅ 0.1969" x 0.00394" x ∅ 0.0512")	314
03AXXXP*	∅ 5.6 x 1.08 x ∅ 1.42 mm (∅ 0.2205" x 0.0425" x ∅ 0.0059")	351

## Cutmaster® Platinum PCD cutting wheels

Art. No.	Dimensions in mm (inch)	Slots
82DXXXP *	∅ 2.0 x 0.65 x ∅ 0.80 mm (∅ 0.0787" x 0.0256" x ∅ 0.0315")	125 - 300
81DXXXP *	∅ 2.5 x 0.65 x ∅ 0.80 mm (∅ 0.0984" x 0.0256" x ∅ 0.0315")	157 - 375
85DXXXP*	∅ 3.0 x 0.65 x ∅ 0.80 mm (∅ 0.1181" x 0.0256" x ∅ 0.0315")	188
87DXXXP *	∅ 4.1 x 1.08 x ∅ 1.40 mm (∅ 0.1575" x 0.0394" x ∅ 0.0512")	257
83DXXXP*	∅ 5.0 x 1.08 x ∅ 1.51 mm (∅ 0.1969" x 0.0394" x ∅ 0.0594")	314
88DXXXP *	∅ 5.6 x 1.08 x ∅ 1.40 mm (∅ 0.2205" x 0.0394" x ∅ 0.0512")	351

All other wheels in the Bohle range can be produced on request with the special Cutmaster® Platinum micro-structure and with any cutting angle desired.

"XXX" please indicate the required cutting angle

When ordering, please indicate the desired cutting angle at the end of the article number.

Standard cutting angles in the carbide version are listed on page 18.



### Cutmaster® Gold carbide cutting wheels with 10-fold service life

The innovative Cutmaster® Gold carbide cutting wheels achieve what the glass processing industry has long been waiting for: the balance between cost reduction and quality improvement at the same time. Cutmaster® Gold, the newest member of the Silberschnitt family of products, reduces costs due to its very long service life. Especially when cutting laminated safety glass as well as edge cutting at float glass facilities, service lives can be achieved which are at least ten times as long as that of standard cutting wheels.

At float glass facilities Cutmaster® Gold achieves over 250 km of cutting performance, which until now was only possible with higher priced wheels made of polycrystalline diamond (PCD). Furthermore, significant savings can be attained in maintenance: As a result of the long service lives, cutting wheels and wheel holders don't need to be exchanged as frequently as usual. Moreover, the adjustment of cutting pressure which is needed when wheels are exchanged is required less often.

The quality improvement of the cutting result is achieved by the special material configuration of the wheel coating. Contrary to standard carbide cutting wheels, the cutting quality remains at the same high level over the entire operating time. Especially when cutting laminated glass, this excellent quality significantly reduces the danger of glass breakage. To ensure the ultimate cutting performance and service life, Cutmaster® Gold wheels are used only in metal inserts/metal holder.

To ensure the ultimate cutting performance and service life, Cutmaster® Gold wheels are used only in metal inserts/metal holder. Standard glass cutting machines manufactured by Bavelloni, Benteler, Bottero, Bystronic, Grenzebach, Hegla, Intermac, Lisee, Macotec and Rohmer + Stimpfig can therefore easily be equipped with Cutmaster® Gold.

### *» Reduce costs, improve cutting quality «*

- *10-fold service life*
- *Less frequent wheel changing results in cost savings*
- *Consistently high cutting quality over the entire time in use*



Type	02	12	03	
D in mm (")	5.0 (0.1969")	4.1 (0.1614")	5.6 (0.1614")	
t in mm (")	1.0 (0.0394")	1.08 (0.0425")	1.08 (0.0425")	
d in mm (")	1.3 (0.0512")	1.42 (0.0559")	1.42 (0.0559")	
Packing unit	1 pc.	1 pc.	1 pc.	
110°		12C110G		
118°		12C118G		
120°		12C120G		
125°		12C125G		
130°		12A130G	03A130G	
135°	02A135GL	12A135G	03A135G	03B135G
145°	02A145GL	12A145G	03A145G	03B145G
148°		12A148G	03A148G	
150°		12A150G	03A150G	
152°		12A152G	03A152G	
153°		12A153G	03A153G	
154°		12A154G	03A154G	
155°	02A155GL	12A155G	03A155G	
158°		12A158G	03A158G	

$\alpha$  = Cutting angle  
( $\pm 1^\circ$ )

D = Outside diameter  
(+0.15 mm/0.0059"  
-0.30 mm/0.0118")

d = Inside diameter  
(+0.04 mm/0.0016")

t = Wheel thickness  
( $\pm 0.01$  mm/0.0004")

The Silberschnitt® polycrystalline diamond (PCD) cutting wheel was developed for applications demanding a long service life and good cut edge quality.

These extremely hard cutting wheels demonstrate their capabilities particularly well when edges are cut during float glass production: the service lives in this application are extraordinarily long. And when cutting very thin glass such as LCD, TFT or PDP, the Silberschnitt® PCD wheels cut cleanly with practically no dusting or splintering. PCD wheels can be re-ground many times and are therefore especially economical. Bohle can produce cutting angles to suit your specific applications.

Diamond cutting wheels feature the following characteristics:

- An extraordinarily long service life
- Consistently high cutting quality over the entire service life
- Outstanding cut edges
- Significant reduction of glass splintering/dusting
- Adaptation to the particular application

### PCD



<b>Wheel holder complete</b>	Article No.	490DXXX	491DXXX	492DXXX	494DXXX	495DXXX	496DXXX	497DXXX	498DXXX
<b>Wheel holder</b>	Article No.	490.5	490.6	490.7	490.6	432.0C	432.0C	422.0C	422.0C
<b>Wheel</b>	Dimensions	∅ 5.0 x 1.08 x ∅ 1.51 mm	∅ 2.5 x 0.65 x ∅ 0.8 mm	∅ 5.0 x 1.08 x ∅ 1.51 mm	∅ 3.0 x 0.65 x ∅ 0.8 mm	∅ 4.1 x 1.08 x ∅ 1.4 mm	∅ 5.6 x 1.08 x ∅ 1.4 mm	∅ 4.1 x 1.08 x ∅ 1.4 mm	∅ 5.6 x 1.08 x ∅ 1.4 mm
	Article No.	483DXXX	484DXXX	483DXXX	485DXXX	487DXXX	488DXXX	487DXXX	488DXXX
<b>Axle</b>	Dimensions	∅ 1.5 x 4.1 mm	∅ 0.8 x 4.1 mm	∅ 1.5 x 6.0 mm	∅ 0.8 x 4.1 mm	∅ 1.39 x 4.1 mm	∅ 1.39 x 4.1 mm	∅ 1.39 x 9.0 mm	∅ 1.39 x 9.0 mm
	Article No.	497D200	497D300	497D400	497D300	497D141	497D141	497D422	497D422

### PCD Cutmaster® Platinum



<b>Wheel holder complete</b>	Article No.	490PXXX			494PXXX	495PXXX	496PXXX	497PXXX	498PXXX
<b>Wheel holder</b>	Article No.	490.5			490.6	432.0C	432.0C	422.0C	422.0C
<b>Wheel</b>	Dimensions	∅ 5.0 x 1.08 x ∅ 1.51 mm			∅ 3.0 x 0.65 x ∅ 0.8 mm	∅ 4.1 x 1.08 x ∅ 1.4 mm	∅ 5.6 x 1.08 x ∅ 1.4 mm	∅ 4.1 x 1.08 x ∅ 1.4 mm	∅ 5.6 x 1.08 x ∅ 1.4 mm
	Article No.	83DXXXP			85DXXXP	87DXXXP	88DXXXP	87DXXXP	88DXXXP
<b>Axle</b>	Dimensions	∅ 1.5 x 4.1 mm			∅ 0.8 x 4.1 mm	∅ 1.39 x 4.1 mm	∅ 1.39 x 4.1 mm	∅ 1.39 x 9.0 mm	∅ 1.39 x 9.0 mm
	Article No.	497D200			497D300	497D141	497D141	497D422	497D422

“XXX” please indicate the required cutting angle

For optimum, smooth running of PCD cutting wheels, PCD axles should be used for mounting them in their wheel holders. These PCD axles meet the demands for high cutting speeds and minimal wear and they guarantee that the cutting wheel rolls smoothly and easily.

Article No.	Diameter in mm (")	Length +/- 0.2 mm (0.0079")	Chamfer
497D300	0.80 mm (0.0315")	4.1 mm (0.1614")	0.2 x 30° (1x) (0.0079 x 30")
497D306	0.80 mm (0.0315")	6.0 mm (0.2362")	0.2 x 30° (1x) (0.0079 x 30")
497D310	1.10 mm (0.0433")	6.0 mm (0.2362")	0.2 x 30° (1x) (0.0079 x 30")
497D100	1.30 mm (0.0512")	4.1 mm (0.1614")	0.5 x 30° (1x) (0.0197 x 30")
497D141	1.39 mm (0.0547")	4.4 mm (0.1732")	0.5 x 30° (1x) (0.0197 x 30")
497D422	1.39 mm (0.0547")	4.4 mm (0.1732")	0.5 x 30° (1x) (0.0197 x 30")
497D200	1.50 mm (0.0591")	4.2 mm (0.1654")	0.5 x 30° (1x) (0.0197 x 30")
497D400	1.50 mm (0.0591")	6.0 mm (0.2362")	0.5 x 30° (1x) (0.0197 x 30")

#### Carbide axles with PCD coating

The carbide axle with strong, impact resistant PCD coating is an economical alternative for applications in automotive glass cutting.

Article No.	Diameter in mm (")	Length +/- 0.2 mm (0.0079")	Chamfer
499D080	0.79 mm (0.0311")	4.6 mm (0.1811")	0.3 x 30° (1x) (0.0118 x 30")
499D110	1.10 mm (0.0433")	4.4 mm (0.1732")	0.5 x 30° (1x) (0.0197 x 30")
499D139	1.39 mm (0.0547")	4.4 mm (0.1732")	0.5 x 30° (1x) (0.0197 x 30")
499D939	1.39 mm (0.0547")	9.0 mm (0.3543")	0.5 x 30° (1x) (0.0197 x 30")
499D151	1.49 mm (0.0587")	6.0 mm (0.2362")	0.5 x 30° (1x) (0.0197 x 30")
499D150	1.50 mm (0.0591")	4.4 mm (0.1732")	0.5 x 30° (1x) (0.0197 x 30")

Please enquire about PCD axles with special dimensions.







### The optimum packaging for your cutting wheels

- Different packaging sizes to suit your requirements
- Cutting wheel edges are perfectly protected during transport  
Reclosable, handy transparent box  
Your stock of cutting wheels can be seen at a glance
- Labelling for simple reordering

Please note our packing units:

The first two numbers identify the wheel type. This is followed by a letter (A, B and C), which defines the grind. The three numbers following the letter indicate the cutting angle. If there is no letter after the cutting angle, it is a pack of 10 cutting wheels. The pack of 100 wheels is identified by an „H“ at the end of the code. On pages 18 and 19 you will find a table showing the standard wheels available from Bohle ex stock.

Article No.	Wheel type	Grind	Cutting angle	Packaging
03A155	03	A	155	10
03A155H	03	A	155	100

### Wheels with special tolerances for Lisec cutting systems with holder type 439.0 / 439.1:

These wheels have special tolerances. (thickness tolerance +0.01).

The code number has an „L“ (Lisec) following the cutting angle numbers; the packing unit corresponds to that of all the other wheels.

Article No.	Wheel type	Grind	Cutting angle	Packaging
02A155I	02	A	155	10
02A155HI	02	A	155	100



In response to customer wishes, the cutting wheels are now also available on request with engraved cutting angle. The sales unit for these is 100.

Different cutting angles in type 03, type 02 and type 12 are available, please ask our salesteam.

## Customised solutions on the spot

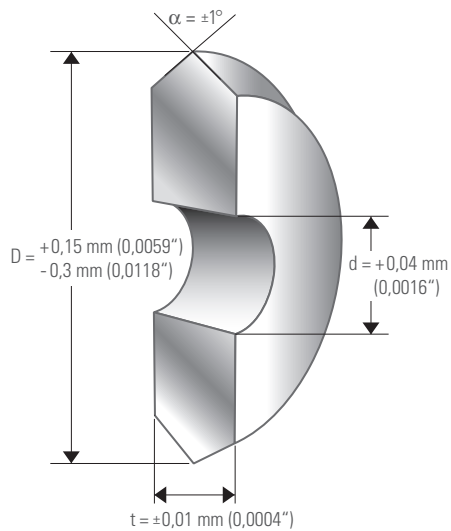
In addition to standard solutions, Bohle will manufacture all Silberschnitt® wheels in increments of 1° (from 75° to 165°) on request. The Bohle professionals will also be happy to assist you on site to find solutions for your cutting requirements. Whether you need cutting wheels, wheel holders, complete solutions or other products for automatic glass cutting, by working closely with you we can find optimum solutions. Call us. We will be glad to help you.

In order to help you make the right choice from the large number of possible combinations, we have summarised the glass cutting wheels for the most frequent applications in the table below and they are readily available from stock.

- Please select the cutting wheel with the dimensions you require.
- The table on page 8 gives you recommendations for the correct cutting angle.
  - Recommendations for choosing the correct grind can be found on page 7.

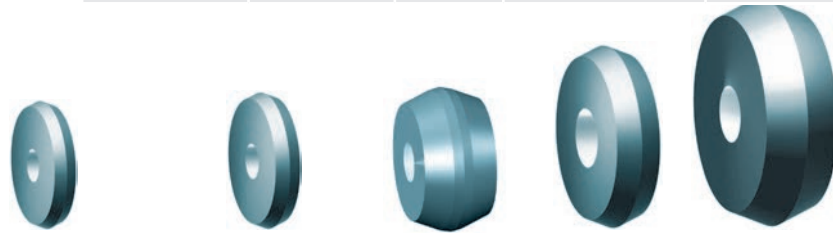


Type	06		66			05			12			02		
D in mm (")	2.5 (0.0984")		3 (0.1181")			3 (0.1181")			4.1 (0.1614")			5 (0.1969")		
t in mm (")	0.65 (0.0256")		0.65 (0.0256")			1 (0.0394")			1.08 (0.0425")			1 (0.0394")		
d in mm (")	0.8 (0.0315")		0.8 (0.0315")			1.3 (0.0512")			1.42 (0.0559")			1.3 (0.0512")		
Packing unit	10 / 100 pc.		10 / 100 pc.			10 / 100 pc.			10 / 100 pc.			Thickness tolerance +0,01 mm (+0.0004") 10 / 100 pc.		
Order No./ Cutting angle	06B000	06C000	66A000	66B000	66C000	05A000	05B000	05C000	12A000	12B000	12C000	02A000	02B000	02C000
77°														
90°														
116°													02B116	02C116
118°														02C118
120°										12B120	12C120		02B120	02C120
127°										12B127	12C127	02A127	02B127	02C127
135°	06B135					05A135	05B135		12A135	12B135		02A135	02B135	
140°	06B140					05A140	05B140		12A140	12B140		02A140	02B140	
145°	06B145					05A145	05B145		12A145	12B145		02A145	02B145	
148°									12A148					
150°	06B150					05A150	05B150		12A150	12B150		02A150	02B150	
152°									12A152					
153°									12A153					
154°									12A154					
155°									12A155	12B155		02A155	02B155	
156°														
158°									12A158					
159°									12A159					
160°									12A160	12B160		02A160		
165°									12A165	12B165		02A165		
for Wheel holder	432.6		432.6			432.3			422.0 432.0/432.1			432.3/414.000 416.000 419.000 432.3 439.1 439.2		
Axles	496.080		496.080			496.130			depending on type of insert			496.439/496.130		



### Example for ordering:

Article No.	Wheel type	Grind	Cutting angle	Packaging
03A135	03	A	135°	10
03A135H	03	A	135°	100



Type	03			07			63	08		64
D in mm (")	5.6 (0.2205")			6 (0.2362")			6 (0.2362")	8 (0.3150")		12.5 (0.4921")
t in mm (")	1.08 (0.0425")			1.14 (0.0449")			3 (0.1181")	2 (0.0787")		4 (0.1575")
d in mm (")	1.42 (0.0559")			1.55 (0.0610")			1.6 (0.0630")	2.6 (0.1024")		3 (0.1181")
Packing unit	10 / 100 pc.			10 / 100 pc.			10 pc.	10 pc.		10 pc.
Order No./ Cutting angle	03A000	03B000	03C000	07A000	07B000	07C000	63A000	08A000	08B000	64A000
77°									08B077	
90°									08B090	
116°										
118°										
120°		03B120	03C120		07B120					
127°		03B127	03C127		07B127					
135°	03A135	03B135		07A135	07B135				08B135	
140°	03A140	03B140		07A140	07B140					
145°	03A145	03B145		07A145	07B145		63A145			
148°										
150°	03A150	03B150		07A150	07B150		63A150			64A150
152°	03A152									
153°	03A153									
154°	03A154									
155°	03A155	03B155		07A155	07B155		63A155			64A155
156°	03A156									
158°	03A158									
159°										
160°	03A160									64A160
165°	03A165									64A165
for Wheel holder	422.0 432.0/ 432.1			417.000 418.000			422.1			

Axles

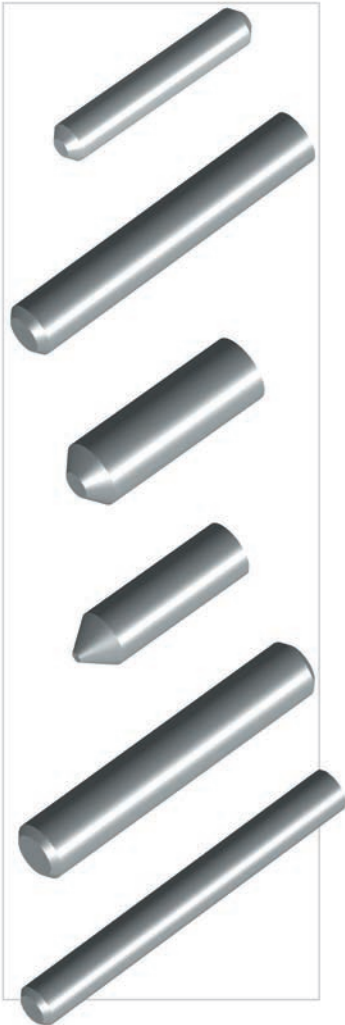
depending on type of insert

496.160

496.300



Type	47			47BP (pre-faceted)		33	
D in mm (")	4.0 (0.175")			4.0 (0.175")		6.2 (0.2441")	
t in mm (")	0.70 (0.0275")			0.70 (0.0275")		1.08 (0.0425")	
d in mm (")	1.30 (0.051")			1.30 (0.051")		1.42 (0.0567")	
Packaging unit	10 / 100 pc.			100 pc.		100 pc.	
Order No./Cutting angle	47B000H	47A000	47A000H	47BP00H	33B000	33B000H	
77°							
88°							33B088H
90°							
94°							33B094H
116°							
118°							
120°	47B120	47B120H					
125°				47BP125H			
127°							
130°	47B130	47B130					
135°							
140°							
145°							
148°							
150°							
152°							
153°							
154°							
155°							
156°							
158°							
159°							
160°							
162°							
165°							
for Wheel holder	Special holder			Special holder		432.0 422.0 439.16 439.122	
Axles	496.330			496.330		496.139F 496.422 496.140F	



For mounting of the wheels in the wheel holder or support, Silberschnitt® axles are available in various dimensions. With the present-day standard of machine engineering and the high demands made on the glass cuts, axles of carbide alloy steel are to be recommended. These axles meet all the demands for high cutting speeds and minimal wear and they guarantee that the cutting wheel rolls smoothly and easily. They are ideally suitable for extremely thin as well as thick glass.

Information about special-sized axles not shown in the catalogue is available on request. The following standard carbide axles are available ex stock (in packs of 10):

Article No.	Diameter in mm (")	Length ± 0.2 in mm	Chamfer
496.080	0.80 mm (0.0314")	4.6 mm (0.1811")	0.5 x 45° (2x) (0.0200" x 45°)
496.380	0.80 mm (0.0314")	3.6 mm (0.1417")	0.5 x 35° (2x) (0.0200" x 35°)
496.130	1.30 mm (0.0512")	4.2 mm (0.1654")	0.2 x 45° (2x) (0.0790" x 45°)
496.330	1.30 mm (0.0512")	3.6 mm (0.1417")	0.2 x 45° (2x) (0.0790" x 45°)
496.439	1.30 mm (0.0512")	8.0 mm (0.3149")	0.2 x 55° (1x) (0.0790" x 55°)
496.4391	1.30 mm (0.0512")	14.0 mm (0.5512")	0.2 x 45° (1x) (0.0790" x 55°)
496.138F	1.38 mm (0.0543")	4.2 mm (0.1654")	0.4 x 45° (1x) (0.0157" x 45°)
496.210A	1.38 mm (0.0543")	5.3 mm (0.210")	0.4 x 45° (1x) (0.0157" x 45°)
496.245A	1.38 mm (0.0543")	6.2 mm (0.245")	0.4 x 45° (1x) (0.0157" x 45°)
496.305A	1.38 mm (0.0543")	7.7 mm (0.305")	0.4 x 45° (1x) (0.0157" x 45°)
496.139F	1.39 mm (0.0547")	4.6 mm (0.1811")	0.8 x 35° (1x) (0.0314" x 35°)
496.422	1.39 mm (0.0547")	9.0 mm (0.3543")	0.2 x 45° (2x) (0.0790" x 45°)
496.140F	1.40 mm (0.0551")	12.0 mm (0.4724")	0.4 x 45° (1x) (0.0157" x 45°)
496.150	1.50 mm (0.0591")	5.5 mm (0.2165")	0.2 x 45° (1x) (0.0790" x 45°)
496.160	1.60 mm (0.0630")	9.0 mm (0.3543")	0.2 x 45° (2x) (0.0790" x 45°)
496.300	3.00 mm (0.1181")	11.0 mm (0.4331")	0.5 x 45° (1x) (0.0200" x 45°)

#### 432.005 Cap for 432

The cap is slipped onto the holder 432 and ensures that the mounted axle as well as the wheel don't fall out. Sold individually.



#### Assortment case 4400.0

This case with 2 inserts allows you to keep your stock of diverse wheels nicely sorted. The case also includes a magnifying glass and the practical mounting aid (Art. No. 440).



With modern machines and production methods, down time can be very costly. Silberschnitt® wheel holders were specially developed to reduce the shutdown time needed when changing cutting wheels. Their main characteristics are that they can be quickly changed and that they guarantee a clean, safe cut.

### Silberschnitt® plastic wheel holders



Silberschnitt® plastic wheel holders are precision parts with uniformly close tolerances. Thanks to the different colours, the wheel angle is immediately recognizable. Bohle uses high quality, wear-resistant plastics for the wheel types 416 and 417. One special feature of the plastic wheel holders is the low frictional resistance - essential for good running properties.



### Silberschnitt® steel wheel holders

Silberschnitt® steel wheel holders are designed to meet the demands of modern glass cutting machines. High precision and the ability to be changed quickly are prominent features of these wheel holders. They are produced on CNC machines, ensuring that the slots for the cutting wheels are at perfect right angles to the holes for the axles. Minimal tolerances ensure an exact wheel run.



Thanks to efficient production and high quantities, steel wheel holders are very economical. Many leading manufacturers of glass cutting machines exclusively use Silberschnitt® model 432.0 steel wheel holders. These wheel holders are especially suitable for use in machines with high cutting speeds. In addition, they are ideal for use when cutting thick glass. These wheel holders are inherently stable and can reliably transfer even high cutting pressure to the glass surface.

**New:** The respective wheel angles are engraved in the 432.0 wheel holders. Thus the steel wheel holders likewise allow the immediate recognition of wheel angles.



### Mounting aid BO 440 and BO 441

The practical mounting aid for wheel holder 432.0 makes wheel changing easy.

BO 440     $\varnothing$  1.30 mm  
BO 441     $\varnothing$  0.80 mm



### Screwdriver BO 442

Screwdriver blade tip width  
1.9 x 0.4 mm, total length 86 mm.

**Customised solutions on the spot**

In addition to standard solutions, Bohle will manufacture all Silberschnitt® wheels in increments of 1° (from 75° to 165°) on request. The Bohle professionals will also be happy to assist you on site to find solutions for your cutting requirements. Whether you need cutting wheels, wheel holders, complete solutions or other products for automatic glass cutting, by working closely with you we can find optimum solutions. Call us. We will be glad to help you.

**The right solution**

Please refer to the specifications of your machine manufacturer when selecting the optimum wheel holder for your cutting machine. Please note that this list is not exhaustive.

Manufacturers: Bavelloni, Benteler, Bottero, Bystronic, Grenzbach, Hegla, Intermac, Lisee, Macotec and Rohmer + Stimpfig



	416			417			414	419
Material	plastic			plastic			steel	steel
Version	coloured			coloured				
Wheel ø	5 mm			6 mm			5.6 / 5.0 mm	5.0 mm
	wheel 02			wheel 07			13 / 02	02
	10			10			10	10
Order No.	416AXXX	416BXXX	416CXXX	417AXXX	417BXXX	417CXXX	414.XXX	419.XXX
Special angle								
118°			416C118	light blue		417B118	light blue	
120°		416B120		light blue		417B120	light blue	
127°		416B127		yellow		417B127	yellow	
135°	416A135	416B135		white	417A135	417B135	white	419.2
140°	416A140	416B140		blue		417B140	white	
145°	416A145	416B145		black	417A145	417B145	black	419.1
150°	416A150	416B150		brown		417B150	red	
155°	416A155	416B155		red	417A155	417B155	red	
156°								
160°	416A160			dark green				
165°	416A165			light green				

“XXX” please indicate the required cutting angle

<b>BENTELER</b> 	<b>Bottero</b> Glass Technologies	 <b>GRENZBACH</b>
	 <b>HEGLA</b> INNOVATIV FLEXIBEL	<b>LiSEC</b>
<b>glaston</b> BAVELLONI	<b>MACOTEC</b> MACCHINE DI TECNOLOGIA <i>Your Cutting Partner</i>	<b>CMS Brembana</b> glass technology
		<b>Bystronic</b> glass



Material  
Axle  
Wheel type  
Wheel ø

with  
inscription

with  
inscription

with  
inscription

with  
inscription

without  
inscription

without  
inscription

127°

432.1271

432.1272

432.127

Suitable for automotive applications.  
When ordering, please indicate the wheel angle  
and grind.

134°

432.1341

432.1342

432.134

135°

432.1351

432.1352

432.135

140°

432.1401

432.1402

432.140

145°

432.1451

432.1452

432.145

148°

432.1481

432.1482

432.148

150°

432.1501

432.1502

432.150

152°

432.1521

432.1522

432.152

153°

432.1531

432.1532

432.153

154°

432.1541

432.1542

432.154

155°

432.1551

432.1552

432.155

156°

432.1561

432.1562

432.156

158°

432.1581

432.1582

432.158

160°

432.1601

432.1602

432.160

163°

432.1631

432.1632

432.163

165°

432.1651

432.1652

432.165

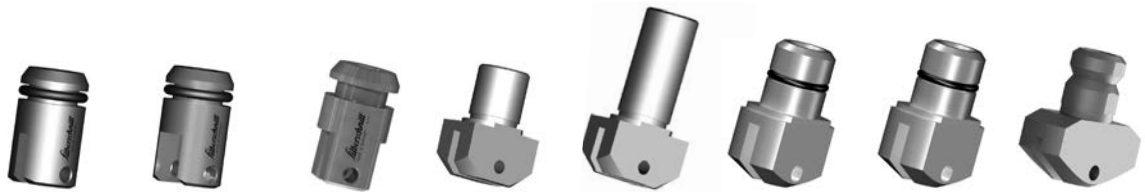






For:	432.0	432.3	432.1	432.6	432.M
Axle	496.138F / 496.139F	496.130	496.138F / 496.139F	496.080	496.138F / 496.139F
Wheel type	12/03	05/02L	12/03	06/66	12/03
Wheel ø	4.1 / 5.6 mm	3 / 5 mm	4.1 / 5.6 mm	2.5 / 3 mm	4.1 / 5.6 mm
	without angle inscription	without angle inscription	with hole for ball pressure piece	without angle inscription	without angle inscription

Suitable for the following glass processing machines:  
 Armatec, Bando, Bavelloni, Benteler, Billco, Bystronic, GED, Grenzebach, Hegla, Intermac, Laser, Lisec,  
 MacoTec, Perfect Technology, Pfister, Rohmer+Stimpfig - Wheel and axle not included.



	422.0	422.1	422.080A	439.1	439.2	439.16	439.16V	439.122
Material	steel	steel	steel	steel	steel	steel	steel	steel
Axle	496.422	496.160	496.422	496.439	496.439	496.140F	496.140F	496.140F
Wheel type	12/03	63	12/03	02L	02L	12/03	12/03	12/03
Wheel ø	4.1 / 5.6 mm	6 mm	4.1 / 5.6 mm	5 mm	5 mm	4.1 / 5.6 mm	4.1 / 5.6 mm	4.1 / 5.6 mm

L = 11.5

L = 16.5

tempered

Suitable for the following glass processing machines:

Bottero	Bottero	Bottero	Lisec	Lisec	Bottero	Bottero	Bottero
Bystronic	Bystronic	Bystronic					
Grenzebach	Grenzebach	Grenzebach					
Benteler	Benteler	Benteler					

Wheel and axle not included.

To optimise the applications in cutting, Bohle offers an addition to the standard type 416 plastic wheel holders. With the metal wheel holder 439.16 and using the plastic rings available in different colours to identify the cutting angle, the cutting properties can be improved significantly.

Especially for applications involving shape cuts or open cuts, it is recommended to use a wheel holder of the 439.16 series.

### Wheel holder 439.16 with mounted plastic rings

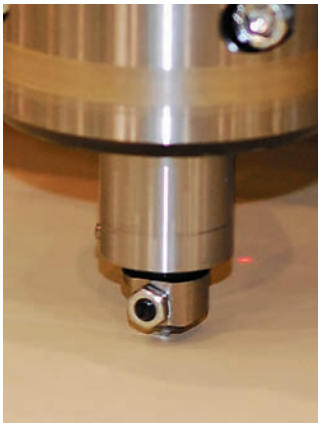


Art. No.	Wheel type	Dimensions in mm (")	Axle	Dimensions in mm (")
439.16	12	∅ 4.1 x 1.08 x ∅ 1.42 mm (∅ 0.1614" x 0.0425" x ∅ 0.0559")	496.140F	∅ 1.4 x 12.0 mm (∅ 0.551" x 0.4724")
439.16	03	∅ 5.6 x 1.08 x ∅ 1.42 mm (∅ 0.2205" x 0.0425" x ∅ 0.0559")	496.140F	∅ 1.4 x 12.0 mm (∅ 0.551" x 0.4724")

Suitable for the following cutting machines: Bavelloni, Bottero, CMS, Grenzebach, Intermac, Macotec, Maver, Pannkoke

Art. No.	438R135	438R145	438R150	438R155
Ring set	white	black	brown	red

The plastic rings are available in 4 different colours. Sales unit = set of 2 rings.



With Silberschnitt® blades, films for sandblast stencils or mounted etching stencils can be cut on modern CNC cutting tables. The narrow blades are used for fine contour cuts, the wide blades are suitable only for straight cuts. Films in thicknesses from 0.2 to 2.6 mm can be cut with the Silberschnitt® blades.



	432.7	432.8	432.71	432.81	416.1	416.2	439.1601
Material	steel	steel	steel	steel	plastic	plastic	steel
Blade shape	narrow	wide	narrow, turned 180°	wide, turned 180°	narrow	wide	narrow



» *Fine contour cuts ...*

*... with the Silberschnitt® blades for film cutting «*



limited swivel



swivel 360°

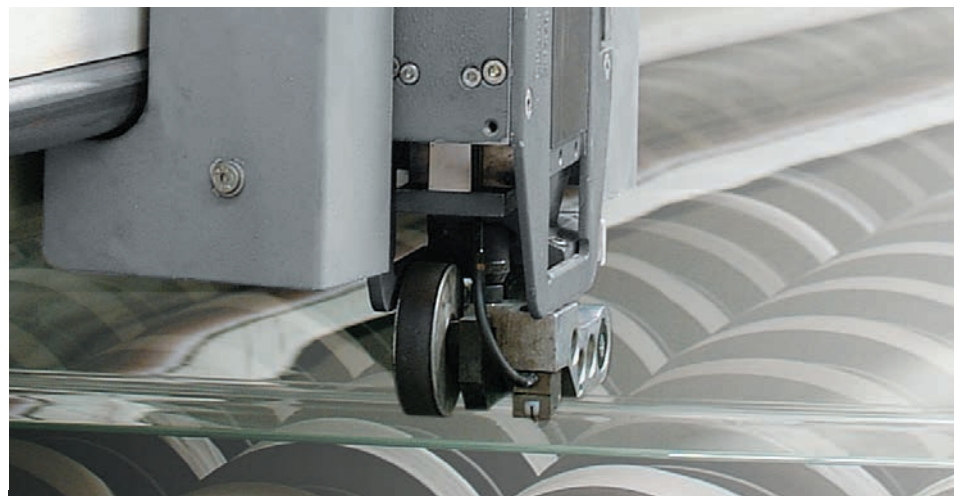


Bohle has been developing and producing complete solutions for cutting machines for many years. By this we mean not only cutting wheels and axles, but also wheel holders and complete pillar posts. The range of pillar posts manufactured to customers' specific wishes is being continuously expanded.

Silberschnitt® pillar posts are available in different versions: for straight cuts with a limited trailing cutting wheel, for shape cuts with trailing wheels which can rotate up to 360°. You can choose whether the cutting wheel should stop in the last cutting position or be centered back to the 0° position after the cutting process. Silberschnitt® pillar posts trail by 2 mm. On request, we can manufacture pillar posts with larger trailing distances.

With complete solutions from Bohle you can be sure that all the components – from the cutting wheel through the axle and wheel holder right up to the pillar posts – are perfectly matched. That guarantees optimal conditions for precise cutting.

Bohle also offers special solutions for applications in float glass facilities. In order to achieve improved cutting quality and service life, we can convert your existing pillar posts which use plastic wheel holders to make them suitable for using high precision metal holders. For use in float glass facilities, a modified holder 432.1 is inserted in the respective pillar post. The holder 432.1 has a hole which goes all the way through. A spring ball in the pillar post secures the wheel holder and prevents it from falling out. This function can only be achieved with Bohle pillar posts. Those made by other manufacturers do not meet the requirement.





**439.1015**  
Grenzebach  
ø 7 mm, 14 x 18 x 40.5 mm



**439.2015**  
Grenzebach  
ø 7 mm, 14 x 18 x 40.5 mm



**439.3015**  
Grenzebach  
ø 7 mm, 14 x 18 x 40.5 mm



**439.1115**  
Grenzebach  
ø 7 mm, 14 x 18 x 40.5 mm



**439.2115**  
Grenzebach  
ø 7 mm, 14 x 18 x 40.5 mm



**439.3115**  
Grenzebach  
ø 7 mm, 14 x 18 x 40.5 mm



**439F1115**  
Grenzebach  
ø 7 mm, 14 x 18 x 40.5 mm



**439F2115**  
Grenzebach  
ø 7 mm, 14 x 18 x 40.5 mm



**439F3115**  
Grenzebach  
ø 7 mm, 14 x 18 x 40.5 mm



Suitable for Grenzebach 439 pillar posts.

**438.048**  
Needle bearing set, complete with sealing ring and spring washer

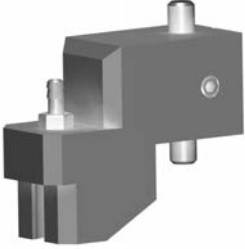


Suitable for Grenzebach 439F pillar posts.

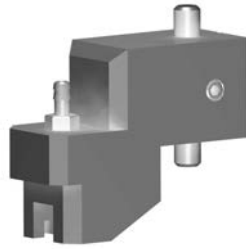
**438.F048**  
Special bearing, complete with sealing ring and spring washer



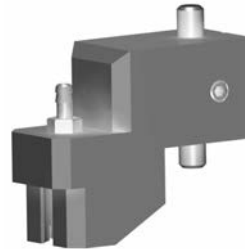
**SP439G**  
Set of retaining rings for Pillar Post



**436.200**  
Grenzebach  
14 x 28.5 x 35 mm



**436.202**  
Grenzebach  
14 x 28.5 x 35 mm



**436.203**  
Grenzebach  
14 x 28.5 x 35 mm



**439.1031**  
Grenzebach  
Outer  $\varnothing$  15.8 mm, H = 35.0 mm  
trailing 4.0 mm



**439.2031**  
Grenzebach  
Outer  $\varnothing$  15.8 mm, H = 35.0 mm  
trailing 4.0 mm



**439.3031**  
Grenzebach  
Outer  $\varnothing$  15.8 mm, H = 35.0 mm  
trailing 4.0 mm



**436.220**  
limited swivel  
Grenzebach, Bottero,  
 $\varnothing$  19 mm, L = 33.5 mm



**436.226**  
swivel 360°  
Grenzebach, Bottero,  
 $\varnothing$  19 mm, L = 34 mm



**436.220V** limited swivel  
ball spring catch ground off,  
Bottero,  $\varnothing$  19 mm, L = 33.5 mm  
trailing 4.0 mm



**436.222**  
limited swivel  
Grenzebach, Bottero  
 $\varnothing$  19 mm, L = 35.1 mm



**439.0077**  
limited swivel  
Bottero,  $\varnothing$  19 mm, L = 34 mm  
trailing 3,6 mm, tempered



**436.201**  
limited swivel  
Grenzebach  
 $\varnothing$  15.8 mm, L = 36 mm




**436.BY**  
Bystronic  
ø 29 mm, H = 35 mm  
with set screw




**436.BYA**  
Bystronic  
ø 29 mm, H = 35 mm




**436.3BY**  
Bystronic  
ø 29 mm, H = 35 mm  
with set screw




**436.3BYA**  
Bystronic  
ø 29 mm, H = 35 mm




**436.3BYA**  
Bystronic  
ø 29 mm, H = 35 mm




**439.1107**  
Bystronic  
ø 6.35 mm, L = 23.5 mm  
trailing 0, stem length 16 mm



**438.060B**  
Axle, hardened, for BO 436.BY  
ø 6/8 mm, H = 31.5 mm



**438.160B**  
Bearing unit for 436.BY  
ø 16 mm, H = 31.5 mm




**436.1046**  
Technometal, swivel 360°,  
ø 15.8 mm, H = 32 mm




**439.1204**  
AGC, Asahi cutting machines  
swivel 360°, ø 19 mm,  
L = 21.0 mm, trailing 2.5 mm






**436.3015** Pillar post for 422.1  
or wheel 64.xxx  
limited swivel, ø 15.6 mm,  
L = 33.7mm, stroke 0.5 mm




**439.1195** limited swivel  
various cutting machines  
ø 15.8 mm, L = 36.8 mm  
trailing 2.5 mm, tempered



**439.1198** limited swivel  
various cutting machines  
ø 15.8 mm, L = 31.9 mm  
trailing 3.2 mm, tempered



**439.1201** limited swivel  
various cutting machines  
ø 15.8 mm, L = 31 mm  
trailing 3.0 mm



**439.3201** limited swivel  
various cutting machines  
ø 15.8 mm, L = 31 mm  
trailing 3.0 mm



**436.7**  
Rohmer + Stimpfig  
ø 10 mm, H = 35 mm



**436.706**  
Rohmer + Stimpfig, Pfister  
ø 10.0 mm, H = 35 mm  
Slant 6°



**438.054**  
Ball bearing set  
suitable for 436.XX  
ø 19 mm x 6 x ø 6 mm



**439.1194** various cutting machines  
stem ø 6.35 mm, stem length  
11.0 mm, total length 23.5 mm,  
trailing 3.0 mm, tempered



**439.2194** various cutting machines  
stem ø 6.35 mm, stem length  
11.0 mm, total length 25.5 mm,  
trailing 3.2 mm, tempered



**439.3194** various cutting machines  
stem ø 6.35 mm, stem length  
11.0 mm, total length 25.5 mm,  
trailing 3.0 mm, tempered



**439.1205** various cutting machines  
stem ø 6.33 mm, stem length  
10.0 mm, total length 22.5 mm,  
trailing 3.2 mm, tempered



**439.1108**  
GED  
ø 7.14 mm, L = 38 mm  
trailing 2.0 mm, tempered



**434K000**  
Biebuyck, for 3 carbide wheels,  
ø 27.2 mm, thickness = 14.6 mm






**436.G**  
Intermac, Genius, cutting tables  
ø 29.5 mm, H = 30.0 mm




**436.G2**  
Conical pillar post for  
Intermac-Genius  
ø 29.5 mm x 30 mm




**436.G4**  
Conical pillar post for  
08A160, for Intermac-Genius  
ø 29.5 mm x 30 mm




**436.FOX**  
Intermac, Fox tables  
ø 44 mm, H = 50.5 mm




**439.047**  
Laser  
H = 45 mm, B = 14 mm, t = 8 mm




**436.16**  
Bottero, swivel 360°,  
ø 16 mm, H = 44.5 mm




**436.5**  
limited swivel,  
ø 16 mm, H = 42.5 mm




**436.6**  
can rotate 360°,  
ø 16 mm, H = 42.5 mm




**436.6L**  
Bavelloni, swivel 360°,  
ø 16 mm, H = 44.5 mm




**439.1264**  
Pillar post for Bando cutting  
systems, rotates 360°,  
L = 12mm, Ø 16 mm, H = 44,5 mm




**436T1027**  
Bando, limited swivel,  
ø 8 mm, H = 44 mm




**436T1028**  
Bando, swivel 360°, ø 16 mm,  
stem ø 8 mm, H = 44 mm

Modern synthetic cutting fluids are definitely preferred over traditional cutting fluids like petroleum or kerosene. The greatest advantages: good lubricating effect, an audibly softer break and considerably improved edge quality. Furthermore, the modern cutting fluids bind the glass dust and significantly reduce the amount of glass splintering and dust. Silberschnitt® cutting fluids are water-soluble, environmentally safe and available for a wide range of applications: from fluids for cutting thick glass to evaporating cutting fluids for cutting glass with different coatings.

The Bohle cutting fluids are produced by Chemetall. Some cutting fluids, for example for cutting thick glass, were developed by Chemetall in cooperation with Bohle.

Art. No.	Contents	Chemetall ID	Washable (A) Evaporating (V)	Applications	Viscosity (20°C)
50 028 08	30 l (8 gallon)	Acelub I	V	For use as separating agent in bending applications	approx. 2 mPas
50 028 38	200 l (55 gallon)	Acelub I	V	For use as separating agent in bending applications	approx. 2 mPas
50 028 02	30 l (8 gallon)	Acecut 4153	A	Automotive glass, general cutting, shape cutting	approx. 35 mPas
026	1 l (0.26 gallon)	Acecut NT	A	Regular glass cutting and laminated glass	approx. 5 mPas
025	30 l (8 gallon)	Acecut NT	A	Regular glass cutting and laminated glass	approx. 5 mPas
024	200 l (55 gallon)	Acecut NT	A	Regular glass cutting and laminated glass	approx. 5 mPas
50 028 05	30 l (8 gallon)	Acecut 5503	V	Standard product for cutting insulated glass, automotive glass, mirror glass, low-E, general cutting up to 10 mm, 30°- 50°C / 86°- 122°F	approx. 2 mPas
50 028 35	200 l (55 gallon)	Acecut 5503	V	Standard product for cutting insulated glass, automotive glass, mirror glass, low-E, general cutting up to 10 mm, 30°- 50°C / 86°- 122°F	approx. 2 mPas
50 028 06	30 l (8 gallon)	Acecut 6000	A	Automotive glass, very demanding shape cutting, 40°- 90°C / 104°- 194°F	approx. 65 mPas
50 028 36	200 l (55 gallon)	Acecut 6000	A	Automotive glass, very demanding shape cutting, 40°- 90°C / 104°- 194°F	approx. 65 mPas
50 028 07	30 l (8 gallon)	Acecut 5929	V	Coated glass, special applications	approx. 2 mPas
50 028 37	200 l (55 gallon)	Acecut 5929	V	Float glass production, glass thickness from 4 - 19 mm, working temperature 40°- 60°C / 104°- 140°F	approx. 2 mPas
50 028 04	30 l (8 gallon)	Acecut 5250	V	Insulated glass, mirror glass, general cutting up to 10 mm, laminated glass, cutting film with blade, 30°- 50°C / 86°- 122°F	approx. 2 mPas
50 028 34	200 l (55 gallon)	Acecut 5250	V	Insulated glass, mirror glass, general cutting up to 10 mm, laminated glass, cutting film with blade, 30°- 50°C / 86°- 122°F	approx. 2 mPas

### Float glass production

In float glass production, pure mineral spirits are still often used for online cutting. All these products have drawbacks (e.g. residues) which often lead to problems in subsequent processes (e.g. in mirror production, soft coating, production of laminated glass).

Because every manufacturer has different conditions in the production of float glass, the cutting fluid must also be suited to the respective requirements. Important criteria in the selection of cutting fluids are, for example, glass thickness, surface temperature or the system for application. ACW has developed cutting fluids specifically for float glass production suitable for the various requirements (see chart). To avoid problems in subsequent processes, only cutting fluids that evaporate should be used.

### Other areas

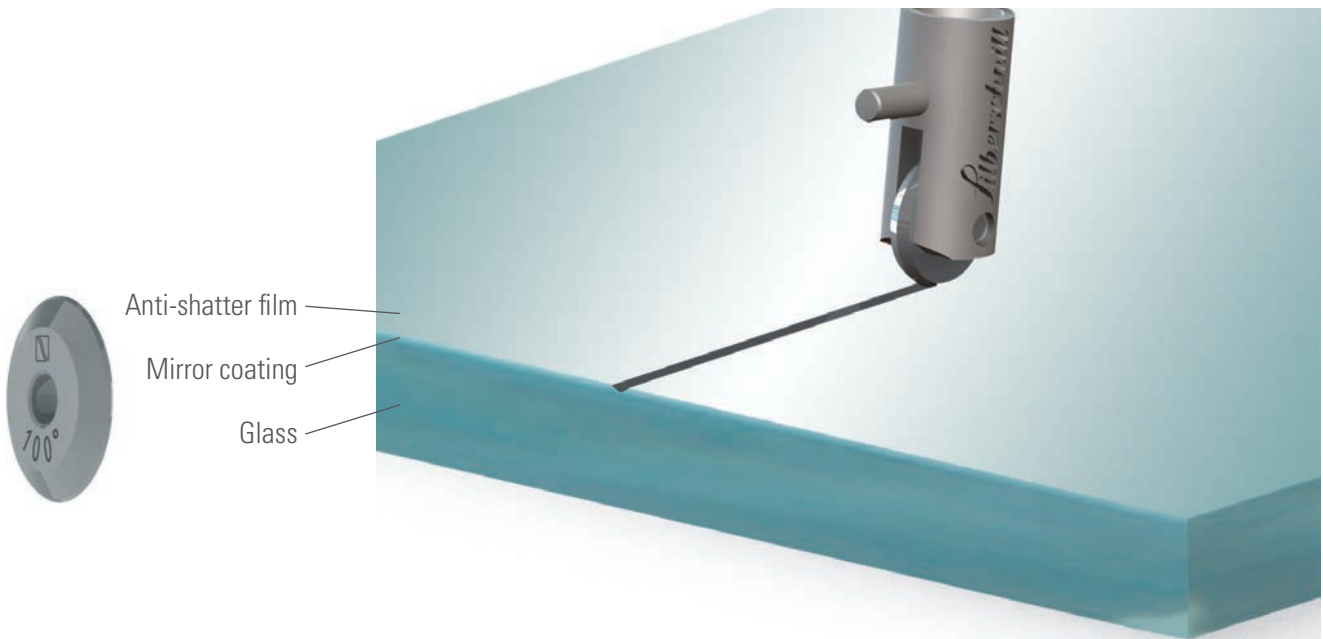
The right choice of cutting fluid for the varied applications in the flat glass industry is strongly dependent on the individual conditions. Important criteria are, for example, the quality requirements of the cut (particularly when cutting shapes), the type of glass, the type of cutting system or subsequent glass processing. Talk to us before you start using a cutting fluid. We will help you to find the optimum product.

### Viscosity of the cutting fluid

As a general rule, modern automatic cutting systems allow the dosage of the cutting fluid to be set without regard to the viscosity. Should problems arise, changing to a cutting fluid with more suitable viscosity can help.

## Cutting of mirrors that are surfaced with anti-shatter film

To cut mirrors that have already been backed with an anti-shatter film during manufacturing, wheels that are specially pre-faceted are used. Depending on the glass thickness, different cutting angles must be used.



Type						
Article No.	03A100M	416A100M	03A110M	416A110M	03A115M	416A115M
Cutting angle	100°	100°	110°	110°	115°	115°
Glass thickness	4 mm	4 mm	4 mm	4 mm	5/6 mm	5/6 mm

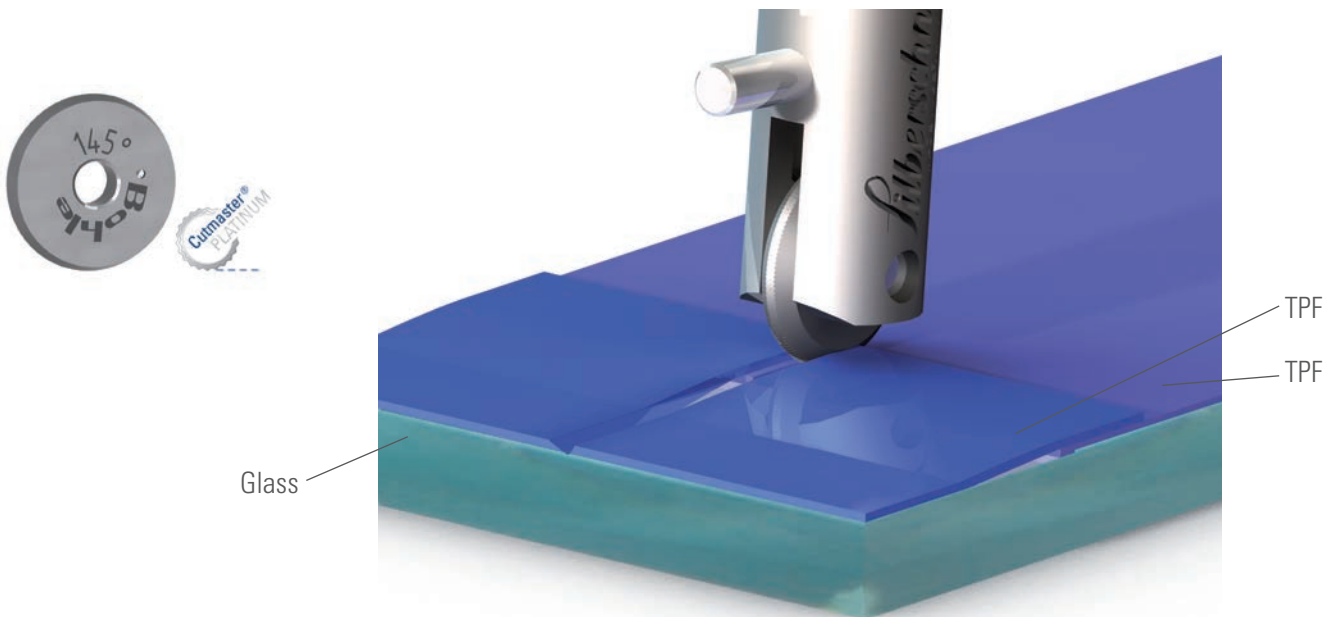
Please refer to pages 24-26 for an overview of metal wheel holders and suitable carbide axles.

### Cutting of glass that is protected with TPF (temporary protective film)

The cutting wheel of the Cutmaster® Platinum series with patented micro-structure and a special cutting edge geometry allows a precise cut through the film and optimum penetration into the glass at the same time.

Thus the cutting wheel allows a perfect break of the glass. The special cutting geometry in combination with the micro-structure makes it possible to cut the glass using relatively low cutting pressure.

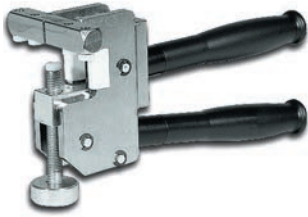
With the standard carbide cutting wheels that are generally used, it is only possible to cut through the film by exerting overproportional cutting pressure, thus negatively affecting the break quality.



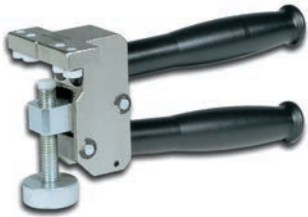
	Carbide wheel	PCD wheel
Article No.	03AP148P	88DP148P
Cutting angle	148°	148°
Glass thickness	6/8 mm	6/8 mm
Article No.	03AP150P	88DP150P
Cutting angle	150°	150°
Glass thickness	8/10 mm	8/10 mm
Article No.	03AP152P	88DP152P
Cutting angle	152°	152°
Glass thickness	10/12 mm	10/12 mm

	Carbide wheel
Article No.	02AP130P
Cutting angle	130°
Glass thickness	6/8 mm

Please refer to pages 24-26 for an overview of metal wheel holders and suitable carbide axles. PCD axles can be found on page 16.

**B0 702.0 Silberschnitt® cut running pliers**

Heavy-duty model · all-metal · for thick glass up to 25 mm · precisely adjustable to glass thickness · optimum transmission of pressure even over a cut length up to 6 m

**B0 704.0 Silberschnitt® cut running pliers**

All-metal · for glass thicknesses from 6 to 15 mm · with adjustment screw to set to individual glass thickness · optimum transmission of pressure · also ideal to open straight cuts, corner cut-outs, etc.

**B0 710.0 Silberschnitt® cut opening tapper for thick glass**

Heavy-duty · all-metal construction · operates on the tapper head principle · adjustable tapper force · for a controlled break with clean glass edges even for demanding requirements

**B0 706.0 Silberschnitt® cut opener**

For complicated cuts · ideal for opening corner, lateral or other shaped cuts · for glass 6 to 10 mm thick · with turnable pressure ring for optimum adjustment to all cuts · maximum reach 100 mm

**B0 51 646 15 Bohle TinCheck®**

The innovative TinCheck measuring device is a tool for the fast, reliable and uncomplicated detection of the tin side of float glass. Bohle has succeeded in eliminating the considerable disadvantages of conventional measurement devices, such as sensitivity to light or short service life of the lamp, by the use of state-of-the-art technologies. Electronic components of the very latest LED generation enable TinCheck to provide correct results on the graphic display with the very first measurement. Simply place the handy device on the glass pane, press the start button, and you're finished. The result is displayed immediately.

**B0 701.5 Silberschnitt® glass nibbling pliers with carbide cutting wheels**

For efficient nibbling of glass shapes · after the surface of the wheel has worn out, the wheel can be turned and re-used.



#### BO 50 080 20 Glass breaking pliers

200 mm long · jaw width 24 mm · lacquered black · ground head



#### BO 50 082 20 Glass breaking pliers

With curved jaw · 200 mm long · jaw width 20 mm · handles laquered blue



#### BO 2740.0 Thick glass cutting kit in aluminium case

This kit contains all necessary tools for cutting circles and straight cuts in glass up to 25 mm thick and with max.  $\varnothing$  of 120 cm. Now also includes oil glass cutter BO 2000.P POWER and practical aluminium carrying case.

BO 2000.P	Silberschnitt® 2000.P POWER oil glass cutter
BO 2045.0	Silberschnitt® transverse handle for glass cutters
BO 702.0	Silberschnitt® cut running pliers
BO 710.0	Silberschnitt® cut opening tapper for thick glass
BO 521.0	Silberschnitt® thick glass circle cutter
BO 5002800	Silberschnitt® cutting fluid for thick glass
BO 5002810	Dispenser for cutting fluid



#### BO 2720.0 Silberschnitt® thick glass cutting sledge System 2000

Used with special Bohle straight edges · together with the Silberschnitt® 2000.P POWER oil glass cutter (included in kit), with its trailing wheel and integrated cutting fluid, excellent results are achieved.

BO 2000.P	Silberschnitt® 2000.P POWER oil glass cutter
BO 2045.0	Silberschnitt® transverse handle for glass cutters
BO 5002800	Silberschnitt® cutting fluid for thick glass
BO 5002810	Dispenser for cutting fluid



#### BO 50 095 25 Carbide steel glass nibbling pliers

with exchangeable jaws

BO 5009526	Spare jaws for carbide steel glass nibbling pliers
BO 5009527	Spare spring for carbide steel glass nibbling pliers

**BO 725 Blades**

Round blades  $\varnothing$  25 mm, for cutting laminated glass films, 10 blades in a small case, for use in Lisec laminated glass cutting machines

**BO 4403.0 Magnify lens for smart phone**

30 x magnification, with LED, slip version

**BO 51 648 50 Pressure measuring device**

With the pressure measuring device from Bohle (loads up to 500 N), the cutting pressure which is exerted onto the cutting wheel by the cylinder of the cutting head can now be accurately determined.

1 Pressure measuring cell F 500 N ( 9.81 N = 1 kg)

1 Display unit

1 Aluminium holder for pressure measuring cell

4 Brass spacers

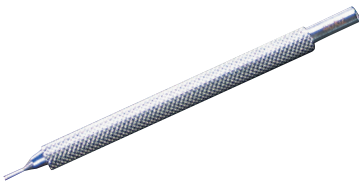
1 Plastic carrying case

1 Operating manual

1 Calibration certificate

**BO 4400.0 Assortment case**

This case with 2 inserts allows you to keep your stock of diverse wheels nicely sorted. The case includes a magnifying glass, the practical mounting aid (Art. No. BO 440) and a screwdriver (Art. No. BO 442)

**BO 440 Mounting aid · BO 441 Mounting aid**

Practical mounting aid for mounting the axles in the wheel holders.

BO 440  $\varnothing$  1.30 mm · BO 441  $\varnothing$  0.80 mm

**BO 442 Screwdriver**

Screwdriver blade tip width 1.9 x 0.4 mm, total length 86 mm

**BO 438.114 Test pin**

Test pin  $\varnothing$  1.14 mm to check the play in the slot dimensions of wheel holders 432.0



### It's not always the wheel's fault

You know the situation: You're not really satisfied with the results of the cutting machine. Based on our experience, we have compiled a questionnaire to help you quickly identify possible problems and easily remedy them yourself. Please check if one or more of the following points may be the cause of your problem:

- Does the wheel still rotate easily when installed?
- Does the wheel have too much lateral play when installed?
- Is the wheel contaminated with cutting fluid residue or glass particles?
- Is sufficient cutting fluid being applied or does it stop dispensing during the cutting process?
- Is the wheel angle right for the glass thickness / glass type / shape cuts or straight cuts?
- Is the cutting pressure right for the wheel angle and the glass thickness/ glass type?
- Does the wheel holder have too much lateral play in the cutting head?
- Is the axle worn?
- Is the cutting speed appropriate for the glass being cut?
- Is the wheel aligned 100% precisely in the cutting direction?  
(Wheel running slightly offset from the cutting direction?)  
Can be recognised by hard breaking, poor broken edge quality and high wear.  
Please note: This fault occurs gradually.
- Are you producing a fine, silvery score line or a white score line? A white track indicates too much cutting pressure or insufficient cutting fluid.
- Is the type of grind of the wheel appropriate for the cutting process and material?
- Are you using the right grind (ACTIVE) for coated glass?
- Does the glass contain excessive separating powder? This impairs perfect cutting and can cause the wheel to jam.
- Are you using glass with high stresses?
- Are you using the right wheel diameter for your glass?
- Small radii and thin glass should be cut with small cutting wheels.
- Is the wheel worn?

The Bohle Glass Academy offers a comprehensive seminar programme covering many areas of glass processing. Would you like to learn new techniques or improve your expertise in familiar areas? Recognised Bohle professionals and external instructors look forward to seeing you. The Automatic Glass Cutting seminars are held on site at the customer.

Order no.: BSAH003



### Automatic Glass Cutting Technology

- Traditional hand tools and their use
- Effects of cutting geometry and different types of grinds
- Choice of wheel holders and optimizing the choice of wheels
  - Cutting and breaking flat glass of different thicknesses and types
  - Problem solving in automatic glass cutting and the effects of different parameters
- Open cuts of shapes
  - Use of cutting fluids
  - Optimizing cutting of laminated glass
- Cutmaster® Platinum, The perfect solution for glass cutting
  - Precise glass penetration – perfect edge

### Target groups

The seminar is designed for those in industrial glass processing who cut glass with standard CNC cutting tables or cutting systems.

If desired, the Automatic Glass Cutting Technology seminar can also be held on Saturdays so your production need not be interrupted.

### Advantages for you

The important operation parameters, like choice of appropriate wheels, cutting pressure, cutting speed and optimum cutting fluid supply, are demonstrated on the glass you use and using your own machinery.

An additional objective of the seminar is to optimize the cutting of technical or special glass such as Ceran, Neoceran, Borofloat, etc., prospectively reducing costs.

To make an appointment, please contact:

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If you don't have a contact person yet, dial

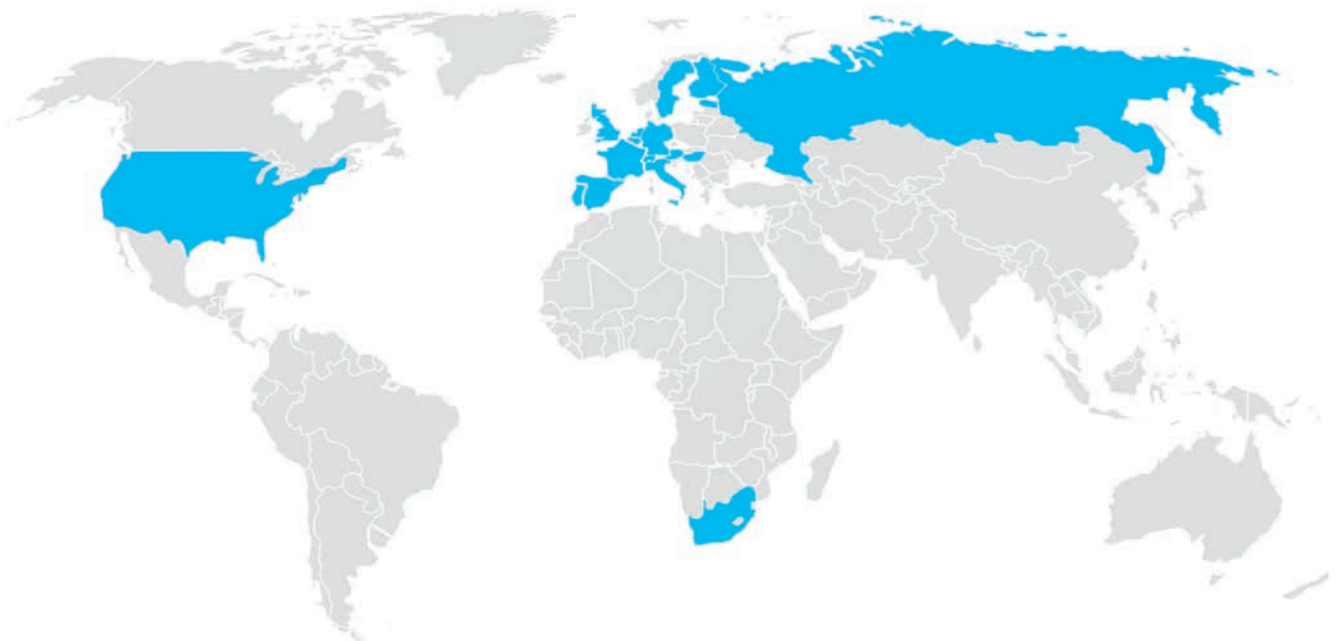
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Friday	8.00 am - 2.00 pm

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