

amidia



swiss made

Using nano diamond knives is the most economical way to perform a clear corneal or a side-port incision. Get a diamond scalpel at the price of a sapphire knife.

*sharpness
at its peak*



Nano Diamond knives

Made in Switzerland

Amidia AG

Amidia AG has been manufacturing diamond knives for ophthalmology, micro surgery and plastic surgery for the last 20 years. Our many years of experience and strict quality control allows us to only manufacture and sell first-class products.

Since 2015 Amidia offers the unique Nano Diamond Blades. These reusable knives are a perfect alternative to single-use knives. If handled correctly more than 1000 surgeries per knife are possible. Thereby the cost can be cut down and less waste conserves the environment.

In the area of ophthalmology, we offer all commonly used designs. Inquiries for new blade types/dimensions will be gladly considered and realized, if possible.

IMPORTANT:

We also sharpen and maintain diamond knives of other manufacturers.

Feel free to contact us with all questions regarding our high-quality products. We would be happy to assist you any time.

Amidia AG

Contents

Nano diamond knives type/ summary	5
Nano diamond knives with single edge--9series	6
Nano diamond knives with clear cornea--39series	7
Nano diamond knives with lance--18series	10
Nano diamond knives with crescent--8series	11
Nano diamond knives with tri-facet--6series	12
Instructions for use	13
Why diamond knives are better than disposable blades	16
Contact window in China	20

Facts about nano diamond knives

- Nano Diamond blades are the sharpest scalpels available.
- Nano Diamond blades never get dull only damaged by improper use!
- Nano Diamond blades are the most economical cutting instruments available.

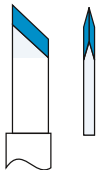
How long does a nano diamond blade last?

Since a nano diamond blade cannot get dull, it lasts theoretically forever. The blade gets damaged only if it touches an instrument, another hard object or if it falls to the floor.

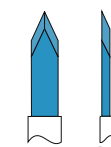
We suggest sending Nano diamond knives for inspection to our company at least after 500 surgeries.

Nano diamond knives summary

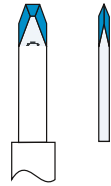
5 types 80series



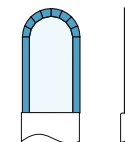
09series
Single edge 45°
Length 3.50mm
Width 1.00mm | 1.50mm



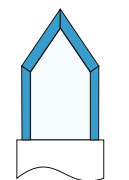
18series
Lance 30° | 60° | 70°
Length 3.50mm



06series
Tri-facet 30°/30°
Length 3.50mm
Width 1.00mm



08series
Crescent
Length 4.00mm
Width 1.40mm | 2.00mm
Angle mounting



39series
Clear Cornea 70°
Length 4.00mm
Angle mounting

normal blade thickness 150miron
Ultra Sharp Series
blade thickness 100 micron only

2 thickness

2 mounting

straight mounting

angled mounting



3 handles



swiss made

Nano diamond knives with single edge

with an anodized handle

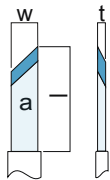
with an aluminium handle

Highlights:

- Nano diamond knives are the perfect alternative to disposable knives
- now also available with 100 micron blades (Ultra Sharp Series)



Article	Total	Handle		Mounting		Thickness		Length	Angle	Width	
		Anodized	Aluminium	Straight	Angled	100um	150um			3.50mm	45°
Single edge	9	6	3	6	3	3	6	9	9	6	3



Single edge with an anodized handle

single edge 45°

width (w)	length (l)	thickness (t)	angle (a)	angled mounting order no.	straight mounting order no.
1.00 mm	3.50 mm	0.15mm	45°	A-nano-C1000A	A-nano-C1000
1.50 mm	3.50 mm	0.15mm	45°		A-nano-C1005

Ultra Sharp Series
blade thickness 100 micron only

1.00 mm	3.50 mm	0.10mm	45°	A-nano-SC1000A	A-nano-SC1000
1.50 mm	3.50 mm	0.10mm	45°		A-nano-SC1005

Single edge with an aluminium handle

single edge 45°

width (w)	length (l)	thickness (t)	angle (a)	angled mounting order no.	straight mounting order no.
1.00 mm	3.50 mm	0.15mm	45°	A-nano-UB1000A	A-nano-UB1000
1.50 mm	3.50 mm	0.15mm	45°		A-nano-UB1005

Nano diamond knives with clear cornea

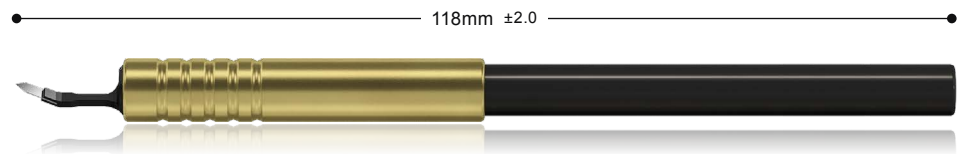
with an anodized handle

with an aluminum handle

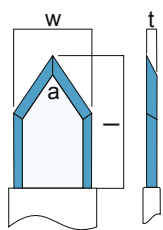
with a plastic handle

Highlights:

- Nano diamond knives are the perfect alternative to disposable knives
- now also available with 100 micron blades (Ultra Sharp Series)



Article	Handle			Mounting type	Thickness		Length	Angle	Width										
	Plastic	Anodized	Aluminium		Angled	100um			150um	4.00mm	70°	1.80mm	2.20mm	2.40mm	2.50mm	2.60mm	2.65mm	2.75mm	2.80mm
Clear Cornea	9	20	10	9	10	29	39	39	3	4	4	4	4	4	4	4	4	4	4



Clear Cornea with an anodized handle

angled mounting

width (w)	length (l)	thickness (t)	angle (a)	order no.
1.80 mm	4.00 mm	0.15 mm	70°	A-nano-C1123A
2.20 mm	4.00 mm	0.15 mm	70°	A-nano-C1127A
2.40 mm	4.00 mm	0.15 mm	70°	A-nano-C1129A
2.50 mm	4.00 mm	0.15 mm	70°	A-nano-C1130A
2.60 mm	4.00 mm	0.15 mm	70°	A-nano-C1131A
2.65 mm	4.00 mm	0.15 mm	70°	A-nano-C1132A
2.75 mm	4.00 mm	0.15 mm	70°	A-nano-C1132-01A
2.80 mm	4.00 mm	0.15 mm	70°	A-nano-C1133A
3.00 mm	4.00 mm	0.15 mm	70°	A-nano-C1135A
3.20 mm	4.00 mm	0.15 mm	70°	A-nano-C1137A

ULTRA SHARP Version - with a 100 micron blade

width (w)	length (l)	thickness (t)	angle (a)	order no.
1.80 mm	4.00 mm	0.10 mm	70°	A-nano-SC1123A
2.20 mm	4.00 mm	0.10 mm	70°	A-nano-SC1127A
2.40 mm	4.00 mm	0.10 mm	70°	A-nano-SC1129A
2.50 mm	4.00 mm	0.10 mm	70°	A-nano-SC1130A
2.60 mm	4.00 mm	0.10 mm	70°	A-nano-SC1131A
2.65 mm	4.00 mm	0.10 mm	70°	A-nano-SC1132A
2.75 mm	4.00 mm	0.10 mm	70°	A-nano-SC1132-01A
2.80 mm	4.00 mm	0.10 mm	70°	A-nano-SC1133A
3.00 mm	4.00 mm	0.10 mm	70°	A-nano-SC1135A
3.20 mm	4.00 mm	0.10 mm	70°	A-nano-SC1137A

Ultra Sharp Series
blade thickness 100 micron only

Nano diamond knives with clear cornea

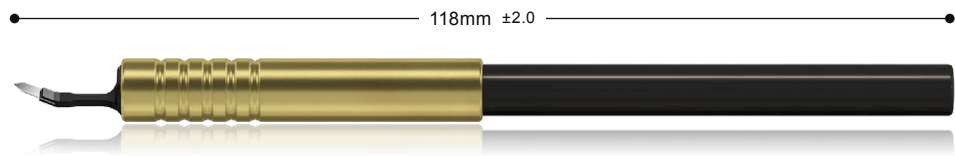
with an anodized handle

with an aluminium handle

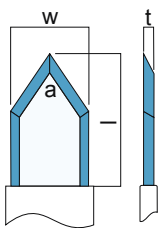
with a plastic handle

Highlights:

- Nano diamond knives are the perfect alternative to disposable knives
- now also available with 100 micron blades (Ultra Sharp Series)



Article	Handle			Mounting type	Thickness		Length	Angle	Width										
	Plastic	Anodized	Aluminium		Angled	100um			150um	4.00mm	70°	1.80mm	2.20mm	2.40mm	2.50mm	2.60mm	2.65mm	2.75mm	2.80mm
Clear Cornea	9	20	10	9	10	29	39	39	3	4	4	4	4	4	4	4	4	4	4



Clear Cornea with an aluminium handle

angled mounting

width (w)	length (l)	thickness (t)	angle (a)	order no.
1.80 mm	4.00 mm	0.15 mm	70°	A-nano-UB1123A
2.20 mm	4.00 mm	0.15 mm	70°	A-nano-UB1127A
2.40 mm	4.00 mm	0.15 mm	70°	A-nano-UB1129A
2.50 mm	4.00 mm	0.15 mm	70°	A-nano-UB1130A
2.60 mm	4.00 mm	0.15 mm	70°	A-nano-UB1131A
2.65 mm	4.00 mm	0.15 mm	70°	A-nano-UB1132A
2.75 mm	4.00 mm	0.15 mm	70°	A-nano-UB1132-01A
2.80 mm	4.00 mm	0.15 mm	70°	A-nano-UB1133A
3.00 mm	4.00 mm	0.15 mm	70°	A-nano-UB1135A
3.20 mm	4.00 mm	0.15 mm	70°	A-nano-UB1137A

Nano diamond knives with clear cornea

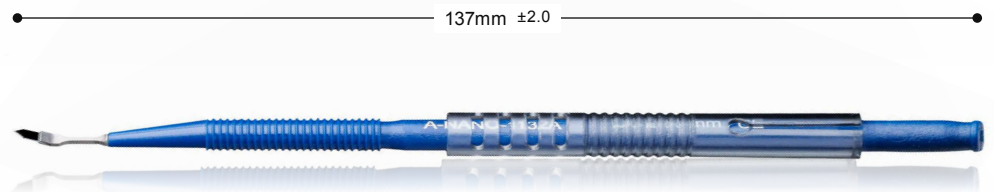
with an anodized handle

with an aluminium handle

with an plastic handle

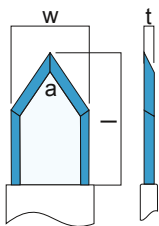
Highlights:

- Nano diamond knives are the perfect alternative to disposable knives



Econo version

Article	Handle			Mounting type	Thickness		Length		Angle	Width									
	Plastic	Anodized	Aluminium		Angled	100um	150um	4.00mm		70°	1.80mm	2.20mm	2.40mm	2.50mm	2.60mm	2.65mm	2.75mm	2.80mm	3.00mm
Clear Cornea	9	20	10	9	10	29	39	39	70°	3	4	4	4	4	4	4	4	4	4



Clear Cornea with an plastic handle

angled mounting

width (w)	length (l)	thickness (t)	angle (a)	order no.
2.20 mm	4.00 mm	0.15 mm	70°	A-nano-PL1127A
2.40 mm	4.00 mm	0.15 mm	70°	A-nano-PL1129A
2.50 mm	4.00 mm	0.15 mm	70°	A-nano-PL1130A
2.60 mm	4.00 mm	0.15 mm	70°	A-nano-PL1131A
2.65 mm	4.00 mm	0.15 mm	70°	A-nano-PL1132A
2.75 mm	4.00 mm	0.15 mm	70°	A-nano-PL1132-01A
2.80 mm	4.00 mm	0.15 mm	70°	A-nano-PL1133A
3.00 mm	4.00 mm	0.15 mm	70°	A-nano-PL1135A
3.20 mm	4.00 mm	0.15 mm	70°	A-nano-PL1137A

Nano diamond knives with lance

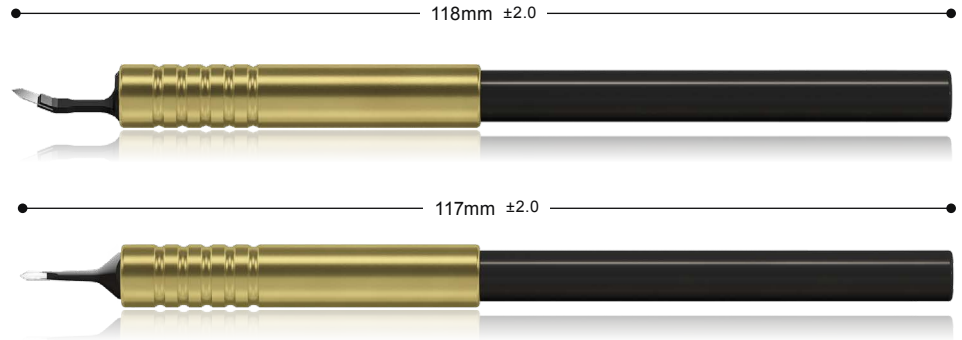
with an anodized handle

with an aluminium handle

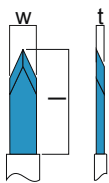
with a plastic handle

Highlights:

- Nano diamond knives are the perfect alternative to disposable knives
- now also available with 100 micron blades (Ultra Sharp Series)



Article	Total	Handle			Mounting type		Thickness		Length	Angle			Width			
		Plastic	Anodized	Aluminium	Straight	Angled	100um	150um		3.50mm	30°	60°	70°	0.80mm	0.90mm	1.00mm
Lance	18	6	8	4	12	6	4	14	18	12	3	3	2	2	13	1



Lance with an anodized handle

width (w)	length (l)	thickness (t)	angle (a)	angled mounting	straight mounting
				order no.	order no.
1.00 mm	3.50 mm	0.15mm	30°	A-nano-C1100A	A-nano-C1100
1.00 mm	3.50 mm	0.15mm	60°		A-nano-C1110
1.00 mm	3.50 mm	0.15mm	70°		A-nano-C1120
Ultra Sharp Series blade thickness 100 micron only					
1.00 mm	3.50 mm	0.10mm	30°	A-nano-SC1100A	A-nano-SC1100
1.00 mm	3.50 mm	0.10mm	60°		A-nano-SC1110
1.00 mm	3.50 mm	0.10mm	70°		A-nano-SC1120

Lance with an aluminium handle

width (w)	length (l)	thickness (t)	angle (a)	angled mounting	straight mounting
				order no.	order no.
1.00 mm	3.50 mm	0.15mm	30°	A-nano-UB1100A	A-nano-UB1100
1.00 mm	3.50 mm	0.15mm	60°		A-nano-UB1110
1.50 mm	3.50 mm	0.15mm	70°		A-nano-UB1120

Lance with a plastic handle

width (w)	length (l)	thickness (t)	angle (a)	angled mounting	straight mounting
				order no.	order no.
0.80 mm	3.50 mm	0.15mm	30°	A-nano-PL1090A	A-nano-PL1090
0.90 mm	3.50 mm	0.15mm	30°	A-nano-PL1095A	A-nano-PL1095
1.00 mm	3.50 mm	0.15mm	30°	A-nano-PL1100A	A-nano-PL1100

Nano diamond knives with crescent

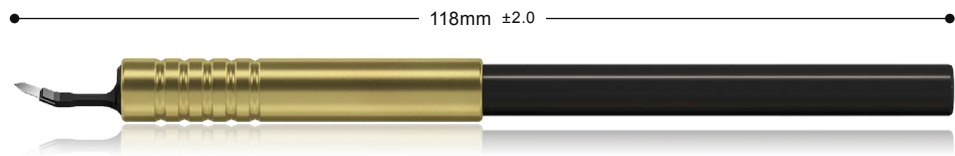
with an anodized handle

with an aluminium handle

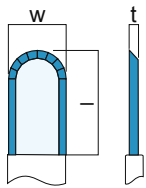
with a plastic handle

Highlights:

- Nano diamond knives are the perfect alternative to disposable knives
- now also available with 100 micron blades (Ultra Sharp Series)



Article	Total	Handle			Mounting type	Thickness		Length	Angle	Width	
		Plastic	Anodized	Aluminium	Angled	100um	150um	4.00mm	NA	1.40mm	2.00mm
Crescent	8	2	4	2	8	2	6	8	8	4	4



Crescent with an anodized handle

angled mounting

width (w)	length (l)	thickness (t)	angle (a)	order no.
1.40 mm	4.00 mm	0.15 mm		A-nano-C1302A
2.00 mm	4.00 mm	0.15 mm		A-nano-C1306A
Ultra Sharp Series blade thickness 100 micron only				
1.40 mm	4.00 mm	0.10 mm		A-nano-SC1302A
2.00 mm	4.00 mm	0.10 mm		A-nano-SC1306A

Crescent with an aluminium handle

angled mounting

width (w)	length (l)	thickness (t)	angle (a)	order no.
1.40 mm	4.00 mm	0.15 mm		A-nano-UB1302A
2.00 mm	4.00 mm	0.15 mm		A-nano-UB1306A

Crescent with a plastic handle

angled mounting

width (w)	length (l)	thickness (t)	angle (a)	order no.
1.40 mm	4.00 mm	0.15 mm		A-nano-PL1302A
2.00 mm	4.00 mm	0.15 mm		A-nano-PL1306A

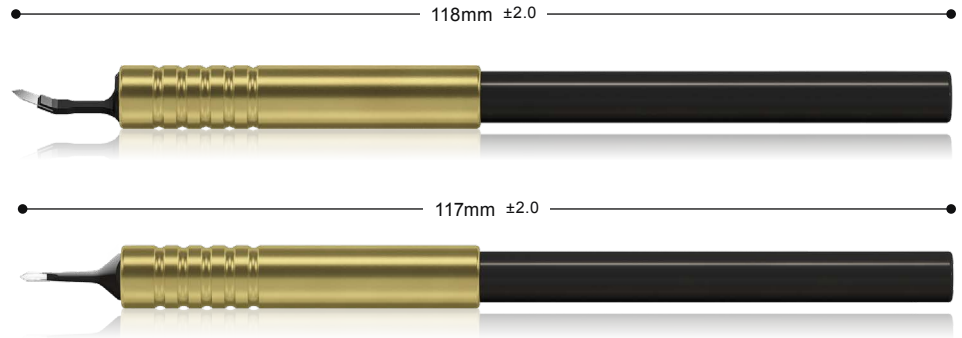
Nano diamond knives with tri-facet

with an anodized handle

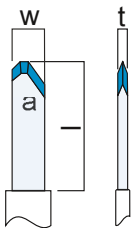
with an aluminium handle

Highlights:

- Nano diamond knives are the perfect alternative to disposable knives
- now also available with 100 micron blades (Ultra Sharp Series)



Article	Total	Handle		Mounting type		Thickness		Length	Angle	Width
		Anodized	Aluminium	Straight	Angled	100um	150um			
Tri-facet	6	4	2	3	3	2	4	6	6	6



Tri-facet with an anodized handle

width (w)	length (l)	thickness (t)	angle (a)	angled mounting	straight mounting
				order no.	order no.
1.00 mm	3.50 mm	0.15mm	30°/30°	A-nano-C1200A	A-nano-C1200
Ultra Sharp Series blade thickness 100 micron only					
1.00 mm	3.50 mm	0.10mm	30°/30°	A-nano-SC1200A	A-nano-SC1200








Tri-facet with an aluminium handle

width (w)	length (l)	thickness (t)	angle (a)	angled mounting	straight mounting
				order no.	order no.
1.00 mm	3.50 mm	0.15mm	30/30°	A-nano-UB1200A	A-nano-UB1200

Instructions for use

Amidia Nano-diamond scalpels

Legend to Symbols:

Manufacturer	Article Number	Unsterile	Directions for use to consider	Attention	CE Klasse I	CE Klasse Im
						

Description

Diamond scalpels are reusable instruments, consisting of a handle and a diamond blade. The blades are made from synthetic nano diamond and measure between 100µm and 200µm thick; the handles are made from plastic or aluminium.

Applications

Diamond scalpels are designed for various microsurgery incisions.

Precautions

- Read instructions before use
- Diamond scalpels are not sterile and must be sterilised.

Instructions for use

- Diamond scalpels must be thoroughly cleaned and sterilised before use. Diamond scalpels must also be cleaned and then sterilised after every subsequent use. For instructions on how to clean and sterilise diamond scalpels please refer to the section entitled **Cleaning and Sterilisation**.
- The diamond blades must never come into contact with other instruments. Special care must therefore be taken during surgical operations, to ensure that the blades do not come into contact with instruments such as forceps/tweezers or sharp surgical instruments.
- Ensure that diamond blades are not damaged before use. Damaged diamond scalpels should not be used.

After every use of a diamond scalpel, care must be taken to ensure that the blade is protected by the protection cap.

Cleaning

The machine cleaning process and the manual cleaning process were performed and validated by the company SMP GmbH, D-72072 Tübingen, Germany.

Criteria

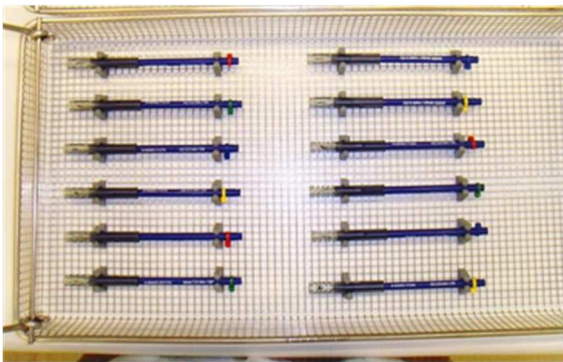
No.	Criterion	Acceptance level	References
1	There shall be no soil visible on the sample at the end of the cleaning process.	N/A	EN ISO 15883-1:2014 / RKI guideline: 2012 AAMI TIR 30: 2011 /Guideline DGKH, DGSV, AKI: 2014
2	The total amount of protein per sample shall be	<100 µg	RKI guideline: 2012
3	The total amount of protein per sample shall be	< 200 µg	EN ISO 15883-1:2014
4	The amount of protein/cm ² shall be	< 6.4 µg/cm ²	AAMI TIR 30: 2011 Alfa et al AJIC 1999
5	The amount of protein/cm ² shall be	< 3.0 µg/cm ²	Guideline DGKH, DGSV, AKI: 2014
6	The amount of hemoglobin/cm ² shall be	< 2.2 µg/cm ²	AAMI TIR 30: 2011 Alfa et al AJIC 1999
7	The total amount of radioactivity per sample shall be	< 5 cps	SMP Report 11011010605: Validation of the acceptance criteria of the Radionuclide Method as performed by SMP GmbH

Machine cleaning

Machine Cleaning:

Use the following program for automated cleaning:

- ensure that each blade is retracted into the handle
- place the knives in a metal tray and secure them by silicone brackets. See picture below.
- 2 min pre-cleaning with cold tap water
- 5 min cleaning with 55° tap water and 0.5% cleaning solution neodisher Mediclean forte (Dr. Weigert, D-Hamburg) **or comparable**
- draining
- 3 min rinsing with cold deionized water
- draining
- 2 min rinsing with cold deionized water
- draining



Note:

- During the entire automated cleaning process **the blade is retracted** in the handle.
- Washer-disinfector: Miele Professional G 7836 CD or a similar Washer-disinfector are recommended.

Manual cleaning

1. Brush the handle of the knife under running cold tap water with a soft nylon brush until it's visibly clean. The blade has to be retracted into the handle.
2. Extend the blade and rinse the blade under running cold tap water for 10s or until all visible soil is removed. Do not touch the blade with another object.
3. Place the knife (with the blade retracted in the handle) in a 0.5% cleaning solution of Neodisher Mediclean Forte (Dr. Weigert, D-Hamburg) **or comparable** at room temperature ($20^{\circ}\text{C} \pm 2^{\circ}\text{C}$) for 10 minutes.
4. Rinse the knife under running deionized water (room temperature $20^{\circ}\text{C} \pm 2^{\circ}\text{C}$) for 1 minute

Note:

The diamond blades must never come into contact with other instruments; otherwise there is a risk that the blades will be damaged. Great care must therefore be taken when loading washing machines.

After cleaning, the condition of the instrument must be checked. Visually inspect the blade to ensure that it is not broken. Following this, the diamond scalpel must be immediately placed in the sterilisation box or in another suitable container. **Do not clean** diamond scalpels in ultra-sound cleaning systems.

Sterilization

- Diamond scalpels must be sterilised before each use.
- Diamond scalpels must be sterilised with the diamond blades retracted. Please therefore ensure that the blade is protected.

Sterilization method	Type of sterilization	Item loaded	Temperature	Sterilization time
Steam	Gravity Displacement Mode	Double wrapped	132°C (270°F)	15 minutes
Steam	Pre-vacuum Mode	Double wrapped	132°C (270°F)	4 minutes

The validation of the sterilization behaviour was examined and validated according to EM ISO 14937.

Note:

- Diamond blades are made from an extremely hard but sensitive material. Handle these ultra-sharp blades carefully to avoid damage.
- Mechanical contact **must** be prevented.
- Diamond scalpels must be cleaned and sterilised before each use.
- After use the blade must be immediately protected by the protection cap.
- Diamond scalpels must never be stored un-cleaned.

Maintenance / Guarantee

The manufacturer does not grant any warranty, neither on the blade nor on the handle.

Proper Disposal

The country specific laws and regulations have to be observed for proper disposal.

Manufacturer:

Amidia AG

Mattenstrasse 11

CH-2555 Brugg

Why diamonds are better than disposable blades

We conducted a retrospective study of 12,182 consecutive patients who underwent clear corneal phacoemulsification, comparing incision technologies.

Group A

In 3,912 patients the main and sideport incisions were created with diamonds.

Group B

In 8,270 patients standard metal keratomes were employed for both incisions.

All patients were seen within 8 hours of surgery.

There were no postoperative wound leaks (0/3,912) at any point in time with a mean first visit postoperative pressure of 19.2 mm Hg in Group A.

There were 9/8,270 ($p < 0.05$) wound leaks with a mean first visit postoperative pressure of 21.6 mm Hg ($p < 0.05$) in Group B.

All 9 wound leaks in Group B were from the sideport. 3/9 wound leaks required suturing. 6/9 wound leaks sealed spontaneously.

The intraocular pressure difference reflected the need to hydrate the wounds more in Group B as they were more difficult to seal and the eyes were left with a higher intraocular pressure at the end of the case. 180/3,912 (4.55%) of patients in Group A had an early IOP spike greater than 28 mm Hg versus 842/8,270 (10.18%) in Group B ($p < 0.05$).

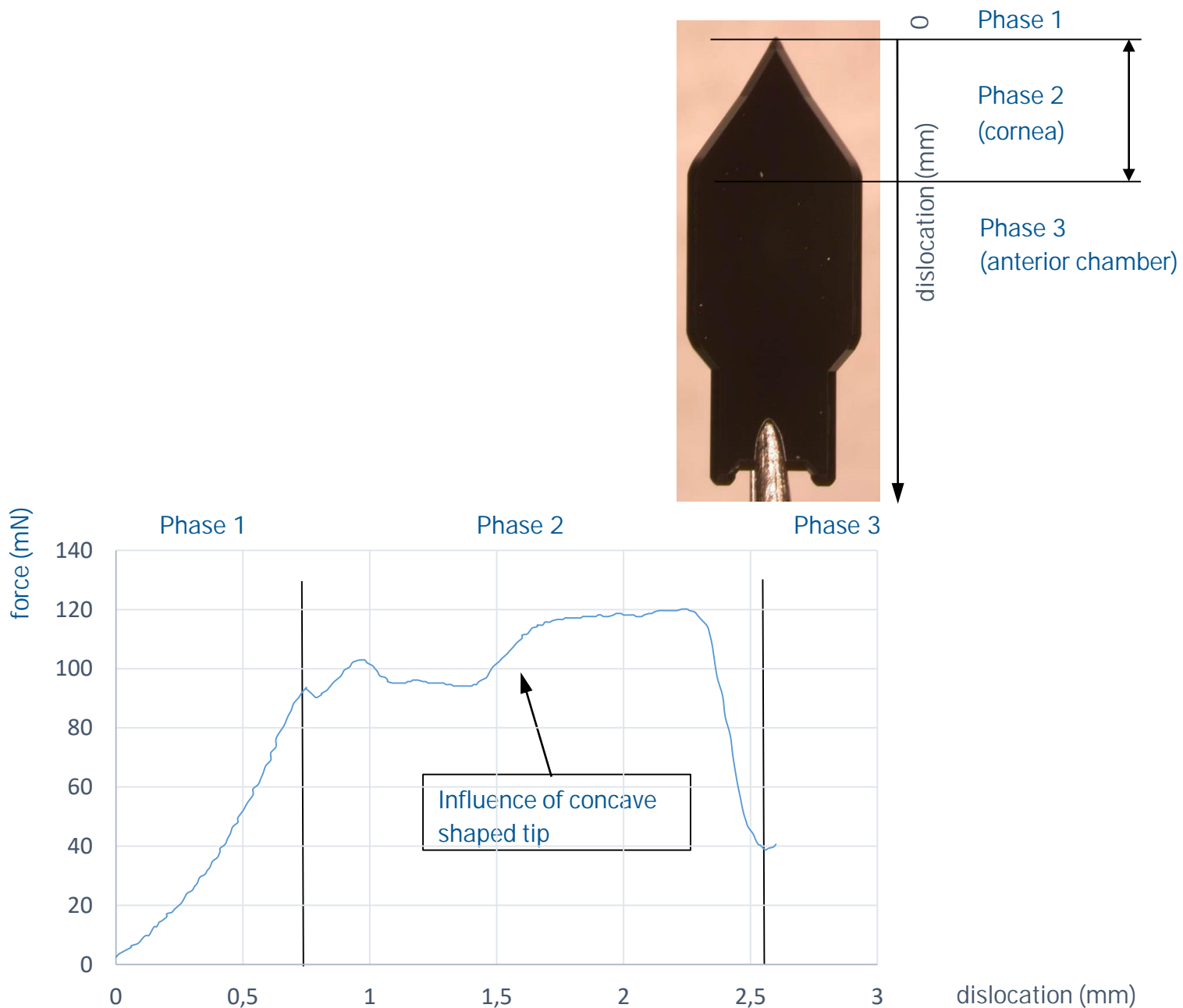
None of the patients in either group experienced an endophthalmitis or vascular occlusion.

We found that the use of diamonds for the incision significantly reduced the rate of wound leaks and the amount of wound hydration resulting in lower early postoperative IOP's and potentially dangerous IOP spikes.

Christoph Kranemann, MD

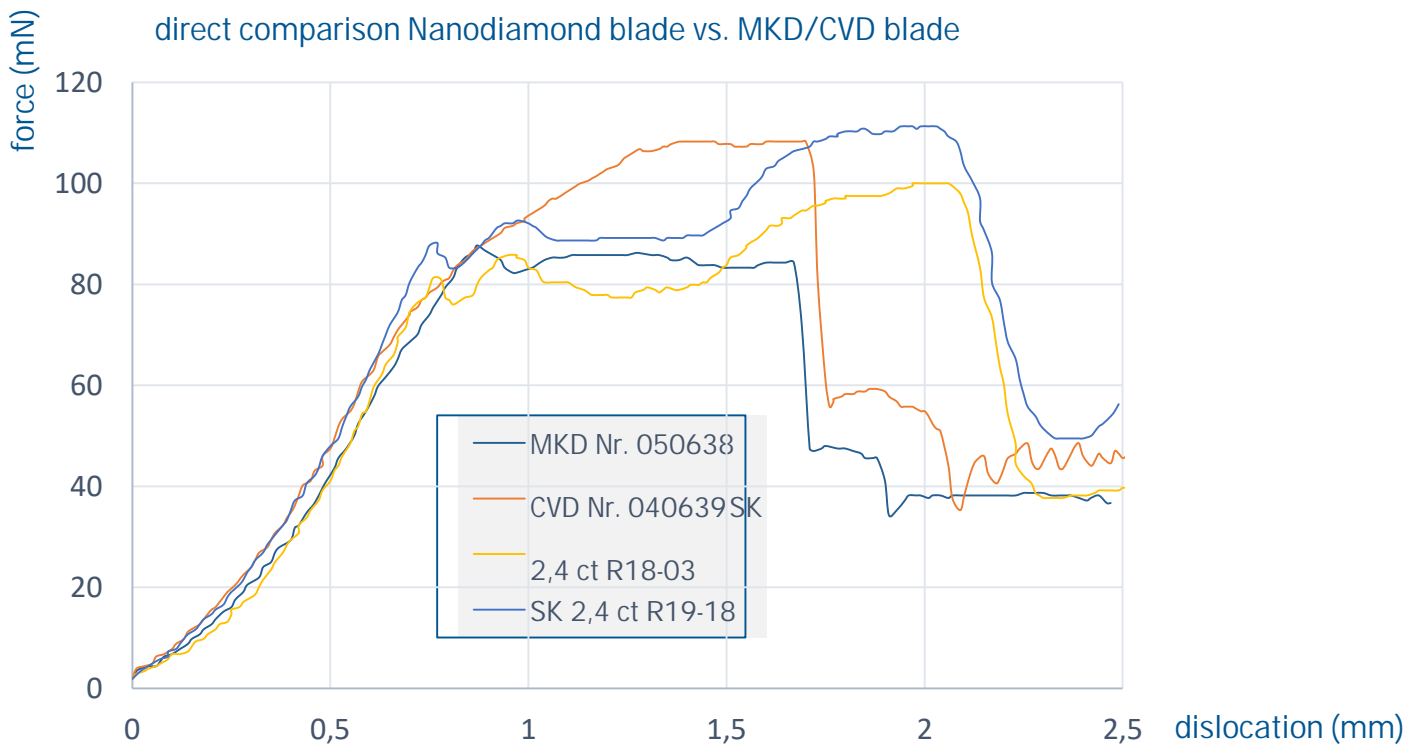
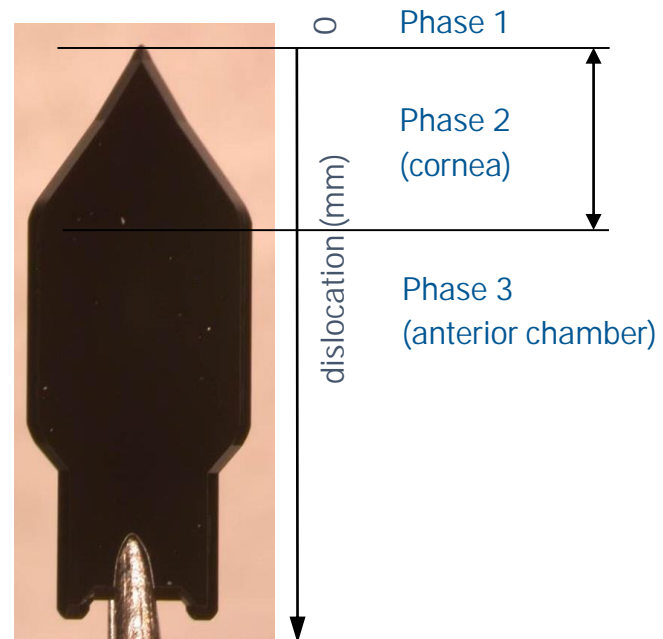
Performance / sharpness

- The sharpness / performance of Nano Diamond knives is adjusted to match the penetration performance of diamond knives.
- The shape of the penetration force curve is engineered to give an adequate tactile feedback and comfortable control of the knife to the surgeon.
- Undesired peak effects have been corrected by special tip shape designs.
- For development and quality insurance reasons, the sharpness of our blades is measured by a force vs. dislocation test, penetrating a plastic foil.



Performance / sharpness

- Nano diamond blades are adjusted to match the maximum penetration force of best MKD/CVD Diamond blades.
- Phase 2 forces remain almost constant for Nano diamond blades, due to concave shaped tip design.



General

- Batch process, cost efficient and highly reproducible .
- Wafer process cost determines pricing, independent from geometry .
- No mechanical grinding involved .
- No dull edges possible / sharpness always at physical limit
- Cutting edge formed from artificial diamond (hardest material).
- Reusable product (up to 1000 surgeries per scalpel proven)
- Lifetime not limited by no. of cuts nor sterilization cycles
- Patented product



For more information about our service, please contact your distributor in China or Amidia AG.

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