



User Guide

Accu-Edge® Disposable Blades

Accu-Edge® Disposable Microtome blades

This User Guide will improve the overall performance and functionality of the Accu-Edge® Disposable Microtome blades.

Blade types

4686 (R35)

Blade type 4686 is recommended for routine sectioning and is suitable for hard tissues, thanks to the special hardened blade edge. Cutting ribbons is easy with this blade type. Very small shrinkage of ribbons is seen when microtomy is performed with this blade, when using it with a correct clearance angle. The trimming time is very short and blade life time is very good.

4688 (S22)

Blade type 4688 is recommended to use for soft tissue sectioning and to section thin ribbons. Shrinkage of ribbons produced with this blade is very small and the trimming time is very short. Under some circumstances the blade life time is limited because of an ultra thin blade.

4689 (S35)

Blade type 4689 is recommended for routine sectioning and larger biopsies. Shrinkage of ribbons which are produced with this blade is very small. The trimming time is very short and blade life is very good. In rare cases scratches can occur through coating. The microparticles on the blade edge from the coating process (see microphotograph below) can cause scratches in the ribbons when using a new blade. By trimming the paraffin block irregularities on the blade edge disappear and ribbons can be easily obtained.

4691 (N35HR)

Blade type 4691 is recommended for extra hard and routine sectioning for example bone, cartilage, prostate or uterus. Shrinkage of ribbons produced with this blade is very small and the trimming time is very short. The blade life time is good.



4686 (R35)



4688 (S22)



4689 (S35)



4691 (N35HR)

Microtomy

Accu-Edge® Disposable Blades

4810 (C35)

Blade type 4810 is recommended for cryo sectioning only. The blade is made of carbon steel; a metal that does not form rust in high humidity circumstances, like a cryostat. Shrinkage of ribbons produced with this blade is none. Trimming time is extremely short as the edge surface is smooth. The blade life time is good.

4980 (A35)

Blade type 4980 is recommended to use for both hard and soft tissue. This blade type is also recommended for extremely thin sectioning. Shrinkage of ribbons produced with this blade is very small when using it with a flat clearance angle. The trimming time is short and the blade life is very good.

7089 (A22)

This blade is developed for ribbon sectioning, for very thin sectioning in routine and research and suitable for fibrous tissue (biopsies). Shrinkage of ribbons produced with this blade is very small. The trimming time is short and the blade life time is very good. The blade angle is 22°, this is very thin and therefore this blade is very sharp and suitable to cut very thin sections. This blade is specially made to cut the Paraform cassettes.

4685 (high profile)

This blade type 4685 is developed for routine sectioning and larger biopsies. Shrinkage of ribbons produced with this blade is very small. The trimming time is short and the blade life time is very good. In contrast to the other blade type mentioned, this is a high profile blade. In rare cases scratches can occur through coating. The microparticles on the blade edge from the coating process can cause scratches in the ribbons when using a new blade. By trimming the paraffin block irregularities on the blade edge disappear and ribbons can be easily obtained.

4690 (N35)

This blade type is developed for hard tissues and routine cutting. Higher service life. Suitable for routine sectioning, soft tissues and biopsies. After trimming also suitable for ribbon sectioning. Very low shrinkage. Trimming takes a little longer, but afterwards excellent durability!



4810 (C35)



4980 (A35)



7089 (A22)



4685 (high profile)



4690 (N35)

Coating A



Coating B



Coating C



No coating



Microtome Blades
Various coatings

Trimming time/coating

All disposable blades have a coating.
Due to the coating:

- The section slides better during cutting process;
- The blades have different features;
- The blades can be dispensed from the dispenser.

The coating gives the blade edge an uneven surface and makes trimming necessary. By trimming a block the surface becomes more even and smooth. Even if the blade is new, unevenness on the edge can in rare cases cause scratches in the ribbon. By trimming a paraffin block, the cutting surface becomes practically mirror smooth, resulting in a low friction, reduced drag and superior performance. The blades have different coatings - one coating is harder than the other - and therefore need a specific trimming time. All the blades, except the C35, have a coating.

Note

When ribbons will not form the knife is too sharp and trimming takes longer until the ribbon will form. It makes no sense changing the blade, because the problem will happen again with the next sharp knife.

Clearance angle

The clearance angle is the angle between the blade and specimen (see drawing). Adjustment of the clearance angle needs to be done in case of compression and wrinkles, thin and thick sections, ribbons will not form and when sections roll up. First increase the clearance angle and then decrease if necessary.

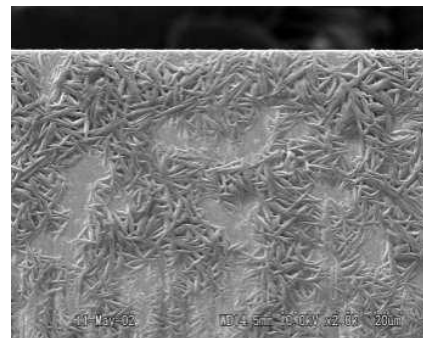
Based on the fact that each microtome, each manufacturer respectively, has an own interpretation and starting point of the scale of the clearance angle, we have no general recommendations on the adjustment of the clearance angle per blade type.

General recommendations

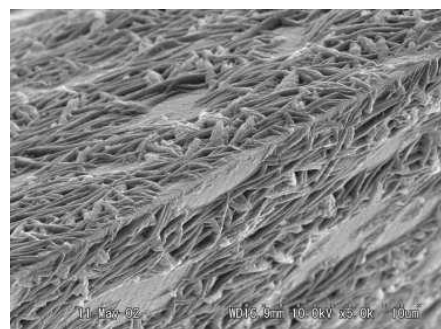
- Have different types of blades available for different application purposes;
- If microtomy is no good with a particular blade type, try another blade type.

Glossary

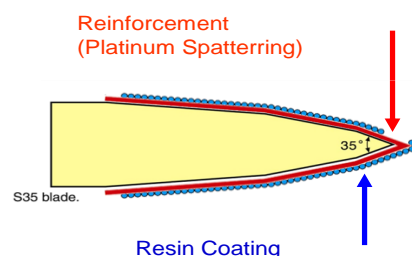
Clearance angle	Adjusted at the knife holder scale
Ribbon section	A number of sections that stick together like a ribbon
Service life	Life time of the blade
Shrinkage	Section compression
Trimming time	Time needed to straighten the blade edge by cutting a paraffin block



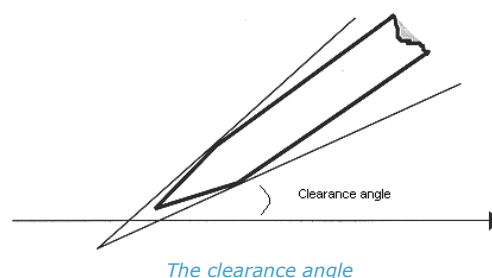
Microphotograph of blade edge 4689



Microphotograph of blade edge 4689



Microtome Blades – Various coating



The clearance angle

Table of Accu-Edge® Microtome blades

Blade type	Recommended	Soft	Hard	Large	Cryo	Routine sections	Ribbon sections	Technical information	Trimming
4980	For both soft and hard tissues as well as for extremely thin sectioning	▲	▲			▲	□	Very long blade life	Short trimming time with corresponding clearance angle
4689	Standard blade for routine sectioning and larger biopsies	▲	□		□	▲	□	Both for rotary / sledge microtomes. Initial and good regular sectioning quality	Short trimming time
4686	Very good ribbon and routine sectioning, suitable for hard tissues	□	▲			□	▲	Special hardened blade edge. Easy to get ribbon sectioning	Short trimming time
4690	Very good for hard tissue	□	▲	□	□	□	□	Blade made of stainless steel	Higher service life. Suitable for routine sectioning, after trimming also suitable for ribbon sectioning. Trimming time a little longer
4691	Very good for extra hard tissue (bone, cartilage)		▲	□			▲	Blade made of stainless steel	Suitable for hard tissues like bone, cartilage, prostate and uterus
4810	For cryo sectioning only	□	□		▲	▲		Carbon steel blade. For cryostat only	Short trimming time
4688	For soft tissue and for thin sectioning	▲				▲		Ultra-thin blade edge.	Short trimming time
4685	Standard blade for routine sectioning and larger biopsies	▲	□		□	▲	□	High profile	Short trimming time. In rare cases scratches can occur through coating

▲ = Excellent
□ = Good

- Our advice for sectioning helps to obtain better sections.
- Non-decalcified tissue cannot be sectioned by above blades.
- Disposable blades are extremely sharp. Take care by handling blades.