



# Aka-Cut

– THE SMARTER ALTERNATIVE  
FOR PERFECT CUTTING

High Surface Quality

Long Lifetime

Maximum Reproducibility

The Aka-Cut Cut-off wheels are developed and optimised to help you reach your sectioning tasks in the best possible way.

- Surface Quality = A plane surface without heat damage or deformation allows for the shortest possible grinding and polishing times
- Lifetime = Long lifetime eliminates frequent changing of wheels and reduces overall cost
- Reproducibility = Achieving the exact same results every time is crucial in Quality Control





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## Metallographic Cutting

Cutting is very often the very first step in metallographic sample preparation. In most laboratories the aim is to prepare samples as fast as possible to obtain maximum throughput in production.

To achieve that, all preparation steps must be optimized regarding quality and time. This is especially important for the cutting process, where the use of inferior products may give short cutting times, but will result in heat damage and/or deformation. This again will result in much longer grinding times to remove the introduced damage, or, in wrong conclusions if not all damage has been removed.

Therefore the cutting process has to be carried out correctly and one of the most important parameters is the correct cut-off wheel. The Akasel cut-off wheels are manufactured according to the highest standards and especially designed to provide optimum results in metallographic cutting.

## Al<sub>2</sub>O<sub>3</sub> Cut-off wheels

For cutting of ferrous metals Al<sub>2</sub>O<sub>3</sub> as abrasive is the best choice.

Depending on the hardness of the materials to be cut, the hardness of the binder is adjusted. For hard materials, a softer binder is used to frequently release new, sharp abrasive grains.

This maintains a constant cutting action without the risk of introducing heat damage or deformation.

The Aka-Cut Fe60 is a wheel with a soft binder for cutting of very hard steels.

For softer materials a harder bond is selected as the abrasive wears more slowly and does not need as frequent replacement. These cut-off wheels last longer making cutting more economic.

## SIC Cut-off wheels

Soft and ductile, non-ferrous metals are best sectioned using SiC as abrasive. SiC breaks down more easily ~~perpared to Al<sub>2</sub>O<sub>3</sub>~~ <sup>releasing new</sup> sharp, cutting edges. This is important, especially for ductile materials where blunt abrasives easily introduce deep deformation that can be almost impossible to remove at a later preparation stage.

## Fibre-reinforced Cut-off wheels

The Aka-Cut 500 HV is reinforced with a special fiberweb on both sides for maximum durability. Compared to non-reinforced wheels it can much better withstand the internal stress and tension in surface hardened workpieces and will reduce the risk of wheel breakage.

## OVERVIEW OF **CUT-OFF WHEELS** AND THE RECOMMENDED **HARDNESS RANGES**

Hardness	Aka-Cut Fe60	Aka-Cut Fe50	Aka-Cut Ti20	Aka-Cut NF10	Aka-Cut 500 HV
1000 HV	X				
700 HV	X	X			
500 HV	X	X			X
350 HV		X	X		*
250 HV			X	X	X
200 HV			X	X	*
150 HV			X	X	X
100 HV			X	X	*
50 HV				X	X
Wheel dia.	Product no.:				
250 mm / 10"	11252160	11252150	11252120	11252110	11251140
300 mm / 12"	11302160	11302150	11302120	11302110	11301140
350 mm / 14"	11352160	11352150	11352120	11352110	11351140
400 mm / 16"	11402160	11402150	11402120	11402110	11411140
432 mm / 17"	11432160	11432150	11432120	11432110	

To easily find the correct wheel for a certain application both the material definition and the approximate hardness are used in the names of our new cut-off wheels.

### Material definition:

Fe = Ferrous metals / Steels

Ti = Titanium and Titanium Alloys

NF = Non-Ferrous Metals / Aluminium, Copper, Brass

**The numbers are an indication of the hardness of the material to be cut:**

60 = approx. 60 HRC /  $\geq 500$  HV = hard & very hard steels

50 = approx. 50 HRC / 350 - 700 HV = medium hard to hard steels

20 = approx. 20 HRC / 100 - 350 HV = medium hard ductile metals

10 = (approx. 10 HRC) / 50 - 250 HV = very soft & soft metals

\* The Aka-Cut 500 HV is a fibre-reinforced wheel for cutting of all types

of softer steel, and especially suited for surface hardened samples with a hardness of about 500 HV.



# Aka-Cool

– THE SMARTER ADDITIVE  
FOR PERFECT CUTTING



Together with Aka-Cool, the additive for the recirculation cooling unit, the Aka-Cut cut-off wheels will perform at their very best. Aka-Cool improves the cooling and lubricating ability of the water and acts as corrosion protection for both cut-off machine and sample material.

Aka-Cool is free from amine and boric acid, common in many other machine coolants. It has optimum skin compatibility and an extremely low allergy potential. Aka-Cool guarantees a very long service life of the coolant and a safe and economical process flow.

Both in regards of cost and personal safety Aka-Cool is the optimal choice.

When excessive foaming of the cooling water occurs, Aka-NoFoam offers the ideal solution. The formation of foam drastically reduces cooling of the samples during cutting and can result in thermal damage of the material. Aka-NoFoam eliminates foam and thus increases the cooling ability of the cooling water.

Name	Contents	Product no.
Aka-Cool	1 l	19201015
Aka-Cool	5 l	19201017
Aka-NoFoam	500 ml	19501013

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ALTERNATIVE