Common features of Accutom-5/-50
- Positioning accuracy of 5 µm
- Pre-set, constant feed speed (0.005 to 3 mm/sec)
- Adjustable force limit
- Sample rotation or oscillation
- Variable cut-off wheel speed up to 3,000 rpm
- Menu control and digital read-out
- Built-in cut-off wheel list
- Database with user-definable cutting methods
- Built-in recirculation cooling unit
- Enclosed cutting chamber with safety switch

Common application areas:
Precise and deformation-free cutting of:
- Metals
- Electronic components
- Ceramics
- Composites
- Crystals
- Sintered carbides
- Minerals
- Fibre reinforced materials
- Biomaterials (teeth and bones)

Additional features of Accutom-50
- Serial cutting of slices (Multi-cut)
- Grinding of thin sections
- Target grinding in components
- Variable cut-off wheel speed up to 5,000 rpm
- Database for both cutting and grinding methods
- Improved menu control

Additional application areas:
- Precise serial cutting of all materials
- Thin sections of minerals
- Thin sections of ceramics
- Target grinding in components
Accutom-50 is based on the known and well tested technology of Accutom-5. Sample positioning within 5 µm combined with constant feed speed and sample rotation or oscillation represents the utmost in precision cutting. The addition of fully automatic serial cutting and precision grinding facilities, together with even higher wheel speeds, makes Accutom-50 the most universal tool in precision manufacturing of samples.

**Working principle**
Both Accutom-5 and Accutom-50 are built on the same, precisely manufactured, cast frame. The use of step motors to control the movement of the sample in both X- and Y-directions enables very precise positioning.

**Positioning accuracy of 5 µm**
The high resolution of the step motor makes it possible to position the sample with an extraordinary precision of 5 µm. The total movement of the sample in the X-direction is 60 mm.

**Pre-set, constant feed speed**
The feed speed can be pre-set and controlled in the range of 0.005 to 3 mm/sec. This wide range allows even the most delicate materials to be cut. Both the pre-set and the actual speeds are shown on the display. If the preset force limit is reached, the feed speed will be reduced and the process stopped if the speed has fallen below a specified limit.

**Adjustable force limit**
To protect thin cut-off wheels or fragile samples, the force limit can be set to three different levels: Low, Medium and High.

**Sample rotation or oscillation**
Sample rotation or oscillation reduces the contact area between cut-off wheel and sample to a minimum. This results in a decrease in frictional heat and allows fast cutting of extremely hard materials.

**Variable cut-off wheel speed up to 3000 rpm**
The motor of Accutom-5 has variable cut-off wheel speeds from 300 up to 3000 rpm in steps of 100 rpm. This allows both high and low speed cutting and enables a more accurate choice of wheel speed for different cut-off wheel diameters.

**Menu control and digital readout**
Accutom-5 is operated from a touch pad on the ergonomically designed, slanting front. All parameters, both for positioning and cutting, are presented on the LC-Display.

**Built-in cut-off wheel list**
A list of all Struers cut-off wheels is stored in an internal database together with their name, respective thickness and force limit.

#### Accutom-50 provides the following additional features:

**Serial cutting of slices (Multi-cut)**
Accutom-50 can be programmed to automatically cut series of slices from the same sample. The advanced software will also compensate for the wheel thickness and for slight drift of the cut-off wheel. This results in very precise sections with an identical thickness, as required in failure analysis or the examination of biomaterials.

**Database with user-definable cutting methods**
After establishing a method for a specific material, all settings can be saved in a database and recalled at any time. Accutom-5 has a storage capacity of ten methods.

**Built-in recirculation cooling unit**
With a capacity of four litres, and a very high through-put, the recirculation cooling unit ensures a constant low temperature during the cut, and an efficient removal of cutting debris.

**Enclosed cutting chamber with safety switch**
The fully transparent cover is equipped with a safety switch to prevent the cut-off wheel from starting whilst the cover is open. The sample can be inserted and positioned but the cut-off wheel itself can only be activated when the cover has been closed properly, thus providing maximum safety for the operator.
Grinding of thin sections
The thickness ground during each different operation associated with a thin section can be easily adjusted or even saved in different grinding methods. After grinding the glass plate to the precise thickness, the position of the sample holder is set to zero. Thereafter the thickness of the thin section is entered directly.

Target grinding in components
When the precise position of a component within a sample is known, Accutom-50 can be programmed to grind down to precisely that position. The position can be adjusted in steps of 5 µm.

Variable cut-off wheel speed up to 5000 rpm
The variable cut-off wheel speed can be adjusted from 300 up to 5000 rpm in steps of 100 rpm. This grants even higher precision as the drift of the cut-off wheel is reduced because of the higher speed. Also, the feed speed can be increased without experiencing any deterioration in the high quality of the cut surface.

Database for both cutting and grinding methods
Accutom-50 is equipped with a database capable of storing 20 cutting and 10 grinding methods.

Improved menu control
Subsequent menus for the selection of cutting or grinding parameters greatly facilitate the operation. Together with the larger display the new menu control improves the user-friendliness of Accutom-50.

Cut-off wheels
As Accutom-50 works with programmable constant feed speeds, all types of cut-off wheels, including abrasive wheels, can be used.

Struers offer a large variety of Diamond, CBN, Al₂O₃ and SiC cut-off wheels cove-ring all possible applications. Also, saw blades for the cutting of very soft metals or plastics can be used on Accutom-5/50 due to the cover with the safety switch.

Cup wheels
Two different types of cup wheels, resin and metal bonded, are available for grinding on Accutom-50.

Specimen holders
All specimen holders for Accutom-5/-50 are provided with a dovetail plate. This means that the samples can be clamped into the sample holder outside the cutting chamber, and then easily inserted into the dovetail fixture of Accutom-5/-50.
Technical data

Cutting

**Accutom-5**
- Cutting speed: 300-3000 rpm
- Feed speed: 0.005-3.000 mm/s
- Max. pos. speed: Y=13 mm/s X=10 mm/s
- Force limits: low: approx. 20 N; high: approx. 60 N

**Accutom-50**
- Cutting speed: 300-5000 rpm
- Feed speed: 0.005-3.000 mm/s
- Max. pos. speed: Y=13 mm/s X=10 mm/s
- Force limits: low: approx. 20 N; high: approx. 60 N

**Pos. range**
- Y direction: 105 mm (precision 0.1 mm)
- X direction: 60 mm (precision 0.005 mm)

Sample size

- Max length of cut-off sample: 30 mm, 140 mm at ø20 mm
- ø127 mm cut-off wheel and ø42 mm flange
- ø152 mm cut-off wheel and ø42 mm flange

Recirculation cooling unit

- Contents: 4 l
- Flow: 800 ml/min

Motor

- 370 W at 3000 rpm
- 550 W at 5000 rpm

Software and electronics

- Display: 4 x 40 characters
- Controls: touch pad
- Database: 10 cutting methods

Power supply

- 1-3 x 200-240 V / 50/60 Hz

Dimensions and weight

- Width: 510 mm / 20”, Depth: 700 mm / 27.6”, Height: 270 mm / 10.6”
- Weight: 45 kg / 99 lbs

Specifications

Cat. no.

**Accutom-5**
- Precision cut-off machine with variable speed. Automatic feeding with electronic control of feed speed.
- Motorised positioning system and digital read-out, with built-in sample rotation and oscillation.
- Complete with recirculation cooling unit, flange sets 42 mm dia. and specimen holder (04946903).
- 04946227

**Accutom-50**
- Precision cut-off machine with variable speed. Automatic feeding with electronic control of feed speed.
- Motorised positioning system and digital read-out. Complete with recirculation cooling unit, flange sets 42 mm dia. and specimen holder (04946903). Without built-in sample rotation and oscillation.
- 04946127

**Accutom-60**
- Precision cut-off and grinding machine with variable speed. Equipped with Multi-cut feature.
- Automatic feeding with electronic control of feed speed. Motorised positioning system and digital read-out, with built-in sample rotation and oscillation. Complete with recirculation cooling unit, flange sets 42 mm dia. and specimen holder (04946903).
- 04946127

Accessories

**Specimen holders**
- Three jaw-chuck
- For general use. Vice type with max. opening 60 mm
- For round specimens. Teardrop type with max. opening 40 mm / ø 1½"
- For irregular specimens, with 7 screws. Max. width 40 mm / 1½"
- With goniometer
- For adhering specimens
- With ceramic vacuum chuck for thin sections
- For small specimens. Vice type
- For long specimens. With double parallel vice
- For cylindrical specimens, max. dia. 40 mm

**Joints to be mounted between the dovetail and the specimen holder**
- Tilting joint with max. angle ø10°
- Angling joint with max. angle ø30-90°

**Base Plate**
- With dovetail. For mounting of other types of specimen holders

**Flange Sets**
- For cut-off wheels, 65 mm dia., to achieve highest precision
- For cup wheels, only to be used on Accutom-50

**Additive for Cooling Fluid**
- For Recirculation Cooling Unit. To contain the precision machine from corrosion, and to improve cutting and cooling qualities
- 1 l 49900045
- 5 l 49900046

See special brochure for more information about cut-off wheels.

Struers’ equipment is in conformity with the provisions of the applicable International Directives and their appurtenant Standards. (Please contact your local supplier for details)

Struers’ products are subject to constant product development. Therefore, we reserve the right to introduce changes in our products without notice.

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