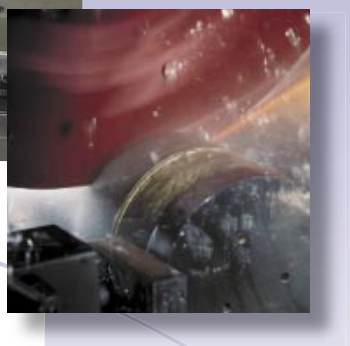
Exotom-150

Struers

Powerful, high-capacity cut-off machine, designed for the production environment

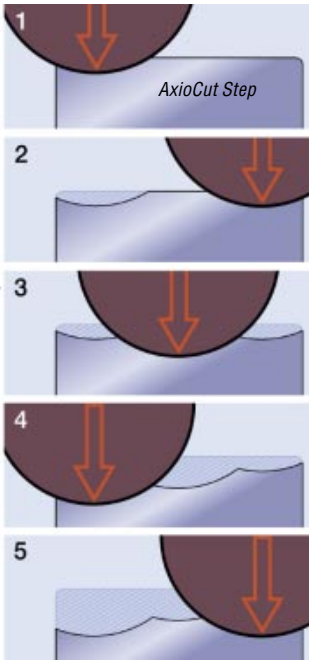


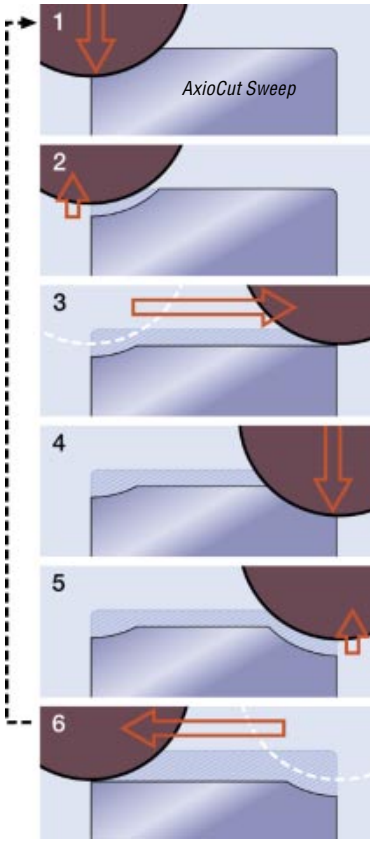
A Revolution in Cutting Technology

- **Extremely simple operation**
  Just two operating keys
  No programming required
- **Unprecedented capacity and accessibility**
- **Up to four different cutting modes**
- **Two cutting tables**
  a fixed adjustable table and an optional movable table
- **Position of the cut is marked by laser**

Unique technologies and features:
ExciCut - easy through the hardest workpieces
OptiFeed - intelligent feed control
AxioCut - cutting mode module
Variable cutting offset - flexible wheel positioning
Three operation modes - block non-essential controls

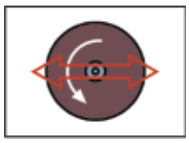
Effortless operation even wearing working gloves





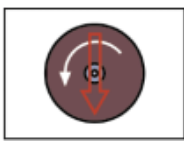
ExciCut
-for cutting the hardest materials

The Exotom-150 comes standard with the unique ExciCut feature. The technology was first introduced by Struers a decade ago, and appears on the Exotom-150 in a highly refined version. Through an oscillating movement of the cut-off wheel, the contact area between the wheel and the workpiece is kept at a minimum throughout the cutting process. ExciCut is ideal for hardened materials and means faster cutting of standard materials. Since the contact area between sample and cut-off wheel constantly changes, cooling is greatly improved.
In turn, this means reduced risk of damage to the workpiece, and reduced work in the processes following the cutting.



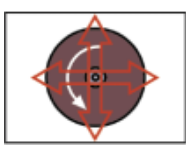
Direct Cut
-the classic cutting mode

For smaller samples and some materials it might be an advantage to use the direct cutting mode where the cut-off wheel is fed through the workpiece in a linear movement.



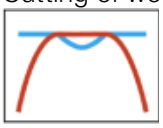
AxioCut
-for extra large workpieces

For cutting of larger workpieces, additional 150 mm cutting capacity is available with AxioCut. This feature allows cutting of work-pieces with a dimension of e.g. 100 x 450 mm (for other dimensions, please refer to Cutting Diagram on page 5 of this brochure). The field-upgradable option includes two different cutting modes: Step and Sweep. Step cutting offers very fast cutting, whereas Sweep cutting offers fast cutting combined with better wheel economy.

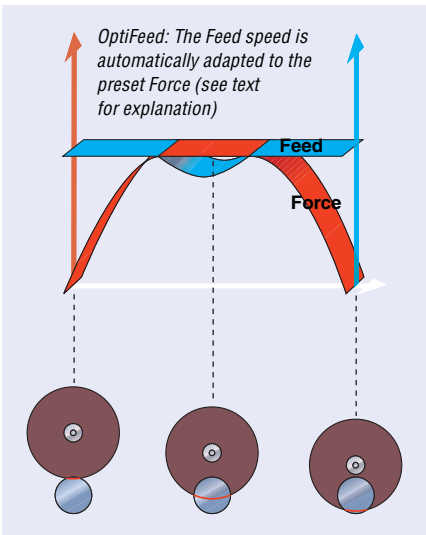


OptiFeed
-Protection and speed

Cutting of workpieces with uneven cross-section or composition, represents a great challenge to the operator. The risk of damage to the workpiece or the cut-off wheel is high. Bearing this in mind, Struers has developed the new OptiFeed principle, based on a preset maximum force limit.



As the contact area (between workpiece and wheel, cf. below diagram) is getting larger, the force increases to maintain the preset feed speed. If the preset force limit is reached, the feed speed is automatically reduced to avoid damage. When the cut-off wheel has passed the centre of the work-piece, the contact area is getting smaller again, and with it the resulting force. In turn, the feed speed is automatically increased to the preset maximum. Thanks to OptiFeed you will always cut through the workpiece at the fastest possible speed, within the set parameters - and without overloading the workpiece and the cut-off wheel.



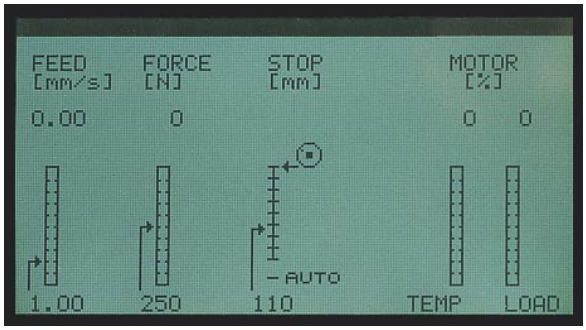
OptiFeed: The Feed speed is automatically adapted to the preset Force (see text for explanation)

Controls of Unique Simplicity

Two simple keys combined with a large graphic display are incorporated on a swivelling control panel. With the multi-function knob all cutting parameters are easily controlled even wearing working gloves. The joy-stick is used for fast and precise positioning of the cut-off wheel. The side-mounted control panel is kept away from the machine for maximum safety and to avoid soiling of display and controls. Also the risk of slipping samples damaging the display is elimi-

Two flexible water jets for additional cooling. Ideal for hollow workpieces

Single-level display:
Full control of cutting process + motor information in same view



nated. The control panel can easily be moved if very long workpieces have to be placed in the cutting chamber.

Large Cutting Chamber
The corrosion resistant cutting chamber is exceptionally spacious with its 600 x 564 mm cutting table, offering unrestricted access. Bulky workpieces are easily placed manually or using a forklift truck, since the cutting table is the highest point in the chamber. Maximum mounting flexibility is provided by multiple, bi-directional 12 mm T-slots. The powerful flushing gun is placed outside the cutting chamber for easy access and improved ease of use. Extra large windows and fully, indirect lightning, give an excellent, non-glare view of the cutting chamber.
A balanced mechanism ensures effortless opening and closing of the hood.

The Cutting Table
With Exotom-150 you can choose between a fixed cutting table or a movable cutting table, which can be moved 150 mm in the X-direction. The scale on the positioning wheel has indications for every 0.1 mm, allowing for precise positioning of the work piece. The movable table allows cutting of parallel slices without having to reposition and re-clamp the workpiece. The table on the left can be removed completely, which makes it possible to insert custom made clamping tools for special requirements.

Variable Cutting Offset
The horisontal position (cutting offset) of the cut-off wheel can be set manually.
In the ExciCut and Direct Cut cutting modes, the cut-off wheel may be moved 10 mm towards the front and 60 mm towards the back of the cutting chamber. This allows for maximum flexibility when cutting difficult workpieces (e.g. turbine blades) and for clamping generally.

Easy Positioning
The two steel bands next to the cut-off wheel have markers displaying the cutting range for both direct cut and AxioCut. To facilitate positioning of the work piece before cutting, Exotom-150 has a laser straight edge that marks exactly where the cut-off wheel will enter the work piece.

Three Operation Modes
Particularly in an industrial environment with many users, operator errors may cause damage to machine and samples.
To overcome this, non-essential controls may be blocked partly or fully by using the pass code-protected operation modes.

High-capacity Cooling
With the Exotom-150 you can choose between two different cooling systems, depending on the machine's workload:
- a band filter unit
- a recirculation unit

The band filter unit is recommended when the Exotom-150 is used in production areas and when sample throughput is really high. To accommodate both systems, a flow sensor is installed and secures a sufficient water flow for cooling the work piece.

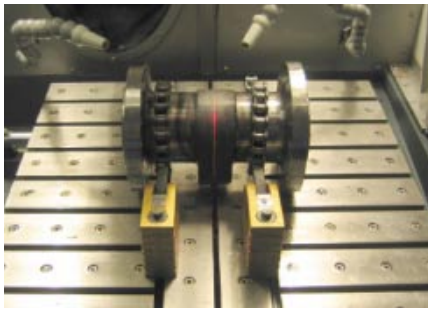
AutoStop
After the workpiece is securely clamped and Start has been pressed you can leave the machine unattended. OptiFeed makes sure that cutting is completely under control.

With AutoStop, Exotom-150 automatically detects when the workpiece has been cut through, returns the wheel to its start position and stops all motors.

QuickPosition
Positioning the cut-off wheel can be sped up dramatically. Simply push the joystick downwards and the cut-off wheel will speed towards the workpiece. On contact with the workpiece, the cut-off wheel stops automatically without harming workpiece or wheel.
After contact, the wheel is auto-

Two simple keys combined with a large graphic display are incorporated on a swivelling control panel

A laser straight edge marks exactly where cut-off wheel will enter the workpiece



matically retracted a little from the workpiece, to be ready for cutting. QuickPosition can be used both before and during cutting.

Cutting Long Workpieces

If the user wants to cut workpieces protruding the cutting chamber, it is possible to swivel the control panel aside, for easy access. The cutting chamber comes standard with closed sides for maximum operator safety. However, for cutting of longer, protruding work pieces, specially designed safety box-extensions are available and can easily be mounted on each side of the machine.

Programmable Return Position

The return position of the cut-off wheel can be set to three different positions: Exotom-150 retracts the cut-off wheel to the top position, to the position where the cutting was started or it lets the cut-off wheel stay in the cut. In this way, it is very easy to get convenient access to the workpiece or an extremely quick exchange when cutting uniform workpieces.

Electronic Monitoring

More than a dozen electronic sensors monitor the complete cutting process and all machine functions to ensure flawless cutting. Never has sectioning on a large cut-off machine been this safe.

Safety Features

Exotom-150 complies with international safety standards, and safety features include emergency stops and safety sensors for all machine functions and motors. The cutting motor cannot be started before the protection hood is closed, and after Start, the hood cannot be opened before the machine has stopped. The windows of the protection hood are made of impact resistant material.

Cut-off wheels

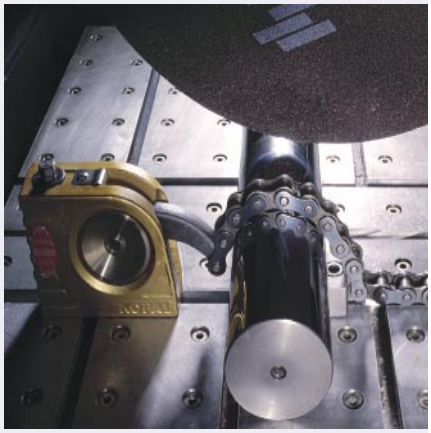
A range of cut-off wheels for all ferrous and non-ferrous metals is available for Exotom-150. Diamond cut-off wheels are available for cutting of ceramic and mineralogical materials and intered carbides.

Application	Dimensions	Abrasive	Code
For ExciCut and direct cutting of extremely hard steels (350-800 HV)	432 x 3.0 x 32 mm	Al_2O_3	101MA
For ExciCut and direct cutting of steels (< 500 HV). Extremely hard (white cast iron) or ductile (18/8 or St60) steel types are cut with oscillating cutting. Gives good wheel economy	432 x 3.0 x 32 mm	Al_2O_3	102MA
For ExciCut and direct cutting of very hard and ductile ferrous metals. Strong, fibre-reinforced wheel (250-700 HV)	432 x 3.0 x 32 mm	Al_2O_3	202MA
For ExciCut and direct cutting of steels (< 500 HV). Gives very good wheel economy	432 x 3.0 x 32 mm	Al_2O_3	104MA
For ExciCut and direct cutting of non-ferrous ferrous metals (< 300 HV). Primarily for ExciCut	432 x 3.0 x 32 mm	SiC	106MA
For direct cutting of hardened steels	406 x 1.8 x 32 mm	CBN	108MA
For direct cutting of sintered carbides and ceramics	350 x 1.8 x 32 mm 305 x 1.8 x 32 mm	Diamond Diamond	26EXO 25EXO

Clamping Tools

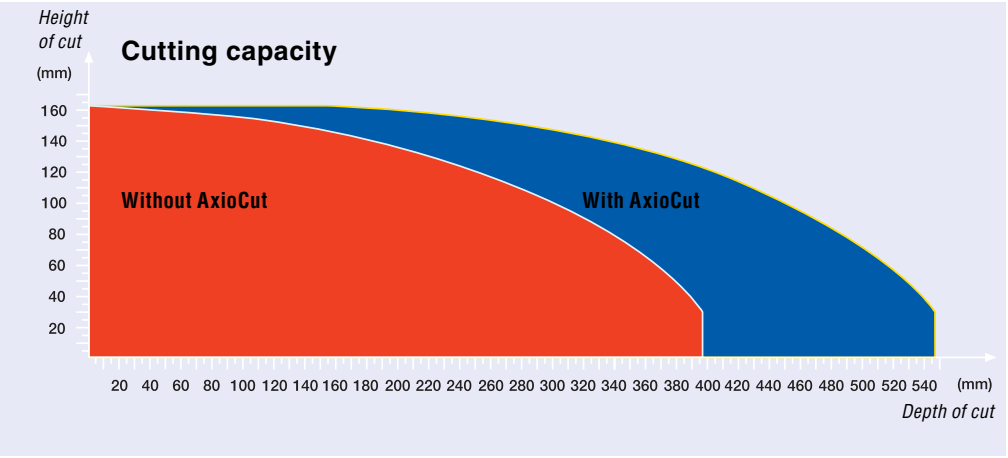
Struers offer a wide range of clamping tools for Exotom-150. Clamping requirements differ greatly, which is why Struers have chosen to supply Exotom-150 without any 'standard' clamping devices. Rather, the user can order exactly the clamping system matching his requirements.
Please refer to separate brochure.

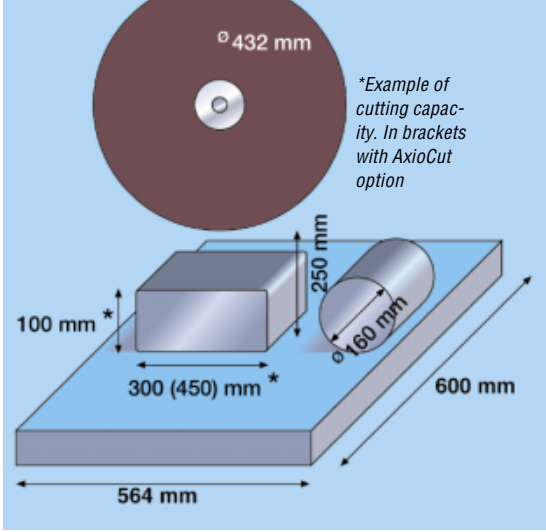
Struers chain spanner for large ueven samples



On Exotom-150 the flushing gun is placed outside the cutting chamber

The band filter unit is recommended for really heavy workloads





Technical data

Subject		Metric/International	US
Cutting Specifications			
Workpiece Dimensions (max.)	Workpiece inside cutting chamber:		
	Height	250 mm	10"
	Width	650 mm	25.6"
	Depth	550 mm	20"
	Workpiece protruding cutting chamber:		
	Height	140 mm	5.5"
	Depth	360 mm	14.2"
Cutting Capacity*	Max. cutting diameter	160 mm	6.3"
	Rectangular sample:**		
	(In brackets with AxioCut option)		
	Height	100 mm (100 mm)	3.9" (3.9")
	Depth	300 mm (450 mm)	11.8" (17.7")
Physical Specifications			
Cutting Motor	Cutting power	10.5 kW	14 HP
	Maximum power	15-18 kW	20-24 HP
Cut-off Wheel	Diameter x Thickness x Centre-hole	432 x 3 x 32 mm	17 x 0.12 x 1.26"
	Rotational speed (running idle)	1950 rpm	1950 rpm
Positioning & Feed	Positioning range (of cut-off wheel)	0 – 250 mm	0 – 9.8"
	Max. positioning speed	50 mm/s	2.0"/s
	Feed Speed range	0.05 – 5 mm/s	0.002 – 0.2"/s
	(adjustable in steps of)	(0,05 mm/s)	(0.002"/s)
	Cutting force	Max. 700 N	Max. 150 lbf
Cutting table	Width	2x297 mm	33.6"
	Depth	564 mm	21.6"
	T-slots	12 mm	0.48"
Dimensions and Weight	Height (closed/open hood)	1756/2300 mm	69/90.5"
	Width (ex/including control panel)	1050/1350 mm	41.3"/53.1"
	Depth	1500 mm	59.1"
	Weight	820 kg	1810 lbs
Recirculation Cooling Unit	Tank volume	150 l	39.6 gallons
	Approx. flow	25 l/min	6.6 gallons/min
Band Filter Unit	Tank volume	125 l	33 gallons
	Approx. flow	25 l/min	6.6 gallons/min
Environment			
Noise level	78 dB(A) measured at idle running, at a distance of 1.0 m/39.4" from the machine.		
Electrical Data			
Voltage/Frequency	200-240 V / Max. power 15 kW / Max. load 69 A		
	380-480 V / Max. power 18 kW / Max. load 34 A		

**Projected cutting capacity with new cut-off wheel. Actual cutting capacity depends on sample material, cut-off wheel and clamping technique*

***Example of cutting capacity. Please refer to Cutting Diagram above*

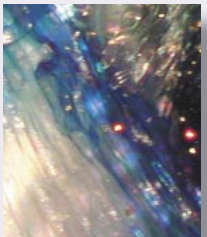
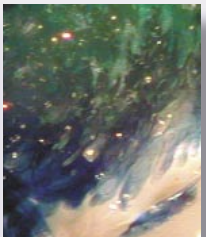
Struers' products are subject to constant product development. Therefore, we reserve the right to introduce changes in our products without notice.

Specifications

	Code
Exotom-150 Automatic cut-off machine with OptiFeed, ExciCut and Direct Cut. 10.5 kW (14 HP) motor. For 432 mm cut-off wheels. With fixed cutting table with 12 mm T-slots. Recirculation cooling or band filter unit, quick-clamping devices (EXOQL + EXOQR) and vertical clamping system (EXOVS) respectively are ordered separately. Field-upgradeable to AxioCut by optional kit (EXOMA) and with moveable cutting table (EXOMT)	EXOXD
Exotom-150, AxioCut Automatic cut-off machine with OptiFeed, AxioCut, ExciCut and Direct Cut. 10.5 kW (14 HP) motor. For 432 mm cut-off wheels. With fixed cutting table with 12 mm T-slots. Recirculation cooling or band filter unit, quick-clamping devices (EXOQL + EXOQR) and vertical clamping system (EXOVS) respectively are ordered separately. Field-upgradeable with moveable cutting table (EXOMT)	EXOXM
Exotom-150 with movable cutting table Automatic cut-off machine with OptiFeed, ExciCut and Direct Cut. 10.5 kW (14 HP) motor. For 432 mm cut-off wheels. With moveable cutting table for parallel cuts with 12 mm T-slots. Recirculation cooling or band filter unit, quick-clamping devices (EXOQL + EXOQR) and vertical clamping system (EXOVS) respectively are ordered separately. Field-upgradeable to AxioCut by optional kit (EXOMA)	EXODX
Exotom-150 with movable cutting table and AxioCut Automatic cut-off machine with OptiFeed, AxioCut, ExciCut and Direct Cut. 10.5 kW (14 HP) motor. For 432 mm cut-off wheels. With moveable cutting table for parallel cuts with 12 mm T-slots. Recirculation cooling or band filter unit, quick-clamping devices (EXOQL + EXOQR) and vertical clamping system (EXOVS) respectively are ordered separately.	EXOMX

Accessories

		Code
Recirculation Cooling Unit Recirculation cooling unit complete with connection kit for Exotom-150. Cap. 150 l		EXORC
Band Filter Unit Band filter unit complete with connection kit to Exotom-150. Capacity 125 l		EXOBF
Filter Paper for Band Filter Unit Replacement filter paper for band filter unit, 30 µm. Roll with 100 m		EXOBP
AxioCut Kit for Exotom-150 Increases cutting capacity (depth) by 150 mm. Requires installation by Struers Service Technician		EXOMA
Moveable Cutting Table Moveable cutting table for mounting on Exotom-150 Movement in X-direction of 150 mm. With 12 mm slots. Mounted on left hand side in cutting chamber		EXOMT
Replacement Stainless Steel Bands For Exotom-150	60 x 225 mm. Set of 2 60 x 564 mm. Set of 2	EXOBN EXOBW
Clamping Tools for 12 mm T-slots. For clamping irregularly shaped workpieces. Complete with clamps, supports and bolts		MAGOF
Vertical Clamping System for 12 mm T-slots For clamping irregularly shaped workpieces. Clamping height up to 92 mm. Complete with operating key and one flat clamping shoe		EXOVS
Swivel Shoes for Vertical Clamping System. For clamping irregularly shaped workpieces. Set of four multi-shaped swivel shoes		TREVI
Riser Block for 12 mm Vertical Clamping System For elevating Vertical Clamping System when clamping high workpieces. To increase clamping height by 74 mm		EXOKS
Arm Extension for 12 mm Vertical Clamping System For extending arm of Vertical Clamping System		EXOAR
Chain Spanner For 12 mm T-slots. Complete with anchor block and operating key		EXOCS
Spare Nylon Filter for Recirculation Cooling Unit For insertion into filter-drawer in cooling unit compartment		EXOFI
Quick-clamping Device For securing the work piece. Complete with backstop. To be mounted at the left hand side of the cut-off wheel Left. For 12 mm T-slots		EXOQL
Quick-clamping Device For securing the work piece. Complete with backstop. To be mounted at the right hand side of the cut-off wheel Right. For 12 mm T-slots		EXOQR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