



Agiecut Excellence eCut is the third generation of the series launched in 1996.
The eCut concept includes numerous measures for enhancing precision, cutting performance, angle accuracy when taper cutting and convenience.
Agiecut Excellence eCut offer the model and the machine size, respecting all requirements, in order to reduce machining times, to improve flexibility or to automate sequences.
From simple punches to highly complex and precise workpieces. From hot-work steel to hard metal.
From the minute machining job to long jobs lasting over the weekend.
ED wire cutting par excellence.

# ED wire cutting for demanding machining jobs with the higest precision

AGE

CON ATTA DURING

**1.5** μm



# Excellente



Agiecut Excellence eCut ED wirecutting systems strike by unique features:

#### Greatest choice of machining technologies

With virtually inexhaustible possibilities of combining material, wire type and workpiece height, this is the most comprehensive technology database on the market.

#### Absolute repeatability of the machining jobs

The dual measuring system, achieves the tightest tolerances on the workpiece by continuous measuring and correction of the axis positions. A perfect fitting accuracy is achieved for punches and dies.

#### Precision already with the full cut

The new eCut technology achieves the required accuracy and surface quality with reduced or no trimcuts.

### Reduced non-productive times

With the new possibilities of the Agievision control, set-up cycles can be reduced up to 50%.

#### Best cylindricity on the workpiece

With the new AWO (Advanced Wire Offset) function, the influences of wire wear and flushing are compensated technologically.











# Increased precision

Agia white accur drice Cali By r a

6

Agieconic Plus is a new function which doubles the angle and form accuracy on workpieces with cylindrical and tapered surfaces:

#### Calibrated wire position

By means of a calibrating device and a measuring cycle, the wire is deflected in the entire angle area and the actual wire position is detected. The correction values are stored for the respective wire type, the wire tensile force and the EDM height. During taper EDM, the wire position is then corrected continuously.



#### New toroid geometry

With a ten times greater toroid radius of the well proven wire guide system, it is possible to attain a three-fold increase in the wire tensile force. The wire lies tauter on the workpiece, a surface quality of Ra < 0.5  $\mu$ m can be achieved over the whole angle range, and the feed rate can also be increased.

#### Increased precision on stepped workpieces

Wire Bending Control corrects lateral wire deviations caused by the process. So even at high cutting rates, the highest accuracy and cylindricity can be achieved over the whole contour. In combination with Agieconic Plus, the form accuracy is thus markedly improved, even on stepped workpieces with tapered surfaces.



Agiecut Excellence eCut with Agieconic Plus offers ED wire cutting that opens up a new dimension in precision for tapered machining jobs







# for every aspect **Generator**



The high efficiency	
of the IPG Generator	
and the eCut technologies	
lead to best	
surface quality	
in steel and carbide	

Together with the new eCut concept, the IPG (Intelligent Power Generation) generator offers a maximum of precision and productivity:

#### Fast machining

With IPG modules of the proven, fully digitised Agie generator, roughing impulses are adapted optimally to the wire diameter. As a result, fine roughness values and high speeds can be achieved.

#### Higher precision of cylindricity

With AWO (Advanced Wire Offset) the influences of wire wear and flushing are technologically compensated. As a result, the contour accuracy becomes nearly perfect.

#### Most comprehensive technology database

Teccut, offers the largest selection of ED wire-cutting technologies for nearly every electrically conductive material, for most wire types and for the most varied workpiece heights.



Advanced Wire Offset

The wire's path is optimised on the upper and lower wire guide with correction values

#### Precise full cut

The new eCut technology achieves the required accuracy and surface quality with reduced or no trimcuts.



# Standard

Tkm





CCA 0.2 Heigt 50 mm Ra 0.2 µm Standard Excellence eCut 1 um

Cylindricity	2 µm	1 µm
Tkm	2 µm	1 µm



#### CCA 0.20 Steel Ra 0.2 $\mu m$



#### BC 0.25 Steel Ra 0.3 µm







**Dynamic Corner Control** 

#### Automatic power adjustment

With Variocut, stepped workpieces or workpieces with openings can be cut at an optimal speed and accuracy. The cutting cross section is detected continuously and the power is automatically adjusted to the changing conditions.

#### Unbraked through contours

With Dynamic Corner Control, complex geometries can be cut at full speed with high accuracy in the radii. Wire deviations are corrected in real time allowing best geometrical accuracy.

#### Highest form accuracy

With Wire Bending Control, the wire bend is detected in real time and optimised by the process control. Best shape and profile accuracy are generated on the workpiece.



With Without

Wire Bending Control





### The control for flexible planning



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Under every profitabily or quality aspect the open system Agievision control offers the software module that helps the save time, make reliable data input and a flexible data management:

Adapted data input according to organisation. With Agievision, the data input can take place flexibly in accordance with the infrastructure of the workshop and the surroundings:

- All data input directly on the machine.
- Geometries imported and completed with the target data on the machine.
- Geometries and target data imported and completed on the machine with measurement and position data.
- The entire workpiece data, including measurement and position data, are imported directly on the machine.

#### EDM-specific iob management system

With Agievision, priorities can be set and changed at any time on the machine. With Lotto, several workpiece machining jobs can be linked together to form a machining batch for a optimal job management..

#### Problem-free insertion of jobs

With Pieceinsert, the actual status of the machining currently in progress, including the number of cutting sequences is recorded, and after completion oth the express job is resumed exactly there where it was interrupted. Without changing or inserting data records.

#### Flexible priorities

With Usersequence, the cutting sequence and the machining sequence of several workpieces can be arranged and selected in accordance with priorities directly on the machine, even shortly before ED machining. During ED machining, the cutting sequences can then be determined in accordance with time criteria (e.g. EDM start in the evening and removal of the drop-out parts in the morning) or self-defined with the Early/Late function.

#### Remote monitored ED wire cutting

With Agievision Contact, the ED machining in progress can be checked at any time from your office or from your home. The PC is connected online with the ED wire-cutting system, and every phase of machining or the current process efficiency can be checked.

#### Identical data input on the PC

With Agievision PC, the data input for an ED wire-cutting job can be carried out on your PC at your home or in your office. All the input and function pages are identical with the Agiecut Excellence eCut.

# Prece List Start EDM Name State Availability Batch Cone Paiet Mag. Table Prece 0011 Active Precent Lot 00 Prece 0014 Active Precent Lot 00 Lot Lot 0 Lot Lot 0 Lot Lot 0 Lot Lot 0

AGIEVISION







# The control of the set-up times



The Agievision control helps to save time, making reliable data input possible and enhancing the machine's availability:

#### Result-oriented data input

With Easywork, just enter the required surface quality, contour tolerance, workpiece material and height, as well as the wire type. Based on the entered input the control system generates machining technologies and sequences automatically.

#### Without fine adjustment

With Agiesetup 3D, the workpiece location in the work area is determined automatically as a measuring cycle by the EDM wire and a touch probe. The control system takes account of any possible offset in the plane and height and allocate the new reference values to the geometry program.

#### Set-up times reduced up to 50%

With selectable threading mode: Highest speed (8 - 15 seconds), highest reliability or a combination of both. With selectable positioning mode: Depending on the application, one or more optimisation possibilities can be employed.



Material: Piece Height Wire Quality Target

Cold die Steel

50

Cobra Cut A 0.20

Ra 0.1\_Tkm 1\_Te1





#### Check data input automatically

With Formalcheck, the data input is constantly checked for completeness. Missing inputs are displayed in plain text. With Graficheck, the machining can be visualised as a 2D and 3D simulation program. Functions which give certainty for the whole machining job.

#### Create machining templates

With Workmodel, recurring machining jobs, including the contours and the appropriate machining technology can be stored as a template or modified for similar jobs. A user-specific database for routine ED wire cutting.



Process Control



# The mechanical design



Agiecut Excellence eCut have mechanical components and functions which guarantee excellent cutting quality with optimal economic viability:

#### Dual measuring system

With two independent measuring systems, a precision in the µm range is achieved on the workpiece. Shaft encoders guarantee high dynamics and optimum process control. Glass scales continuously monitor and optimise the axis positions.

#### Use of different wires

The high precision wire guides are designed for all wire diameters. No further expensive wire guides are needed for other wire diameters. Change of wire diameter can be carried out very quickly. Wire guides for high autonomy and low running costs.



#### Machining jobs with fine wire

With the Agiecut Excellence eCut F models, wires with a diameter up to 0.03 mm can be used. Here too, automatic threading and comprehensive machining technologies are Agie standard.

#### Extendable productivity

With a lowerable work tank, programmable bath level for workpiece heights up to 250 mm, as well as a clearly defined interface, Agiecut Excellence eCut with Agievision are outstandingly well suited for automation with Agie WorkPal or other handling and robots systems.

#### Long running times

With wire spools up to 25 kg, as well as the unique service lives of the wearing parts, an optimum in machine hours is reached, for night and weekend operation.



25 kg



#### Reliable wire threading

Agiejet is the prerequisite for autonomous, automated ED wire cutting operation.

The high reliability of the threading system allows machining with multiple clampings, with several contours on each workpiece. Agiejet make full use of the machine with night and weekend operation possible.

#### Electromagnetic screening

With their fully enclosed architecture, Agiecut Excellence eCut comply with all safety regulations. International and EU standards are met in full.





## The production facilities for most modern EDM systems



#### Made in Switzerland

With an ultra-modern production shop, Agie manufactures itself all the mechanical and electronic components which are relevant for accuracy. High precision, large dimensioned recirculating ball screws, as well as pretensioned, enclosed and also large dimensioned guides on all axes ensure a long working life and high pre-

cision on the workpiece.

#### Pioneering production

With efficient logistics, Agiecut Excellence eCut are assembled and configurated exactly in accordance with customers' requirements. EDM systems and spare parts can be supplied in a very short time.

### Machine-resident measurement data

With a unique system, measurement values and test results, which can be retrieved by specialists at any time, are stored in the control system already during assembly.

#### Certified quality

Every Agiecut Excellence eCut is measured by laser. Then every Agiecut Excellence eCut ED machines a pallet with inspection pieces based on practice. The ED wire-cutting system is supplied with an integrated quality certificate, thus also proving the time taken for the complete certification of an Agiecut Excellence eCut which is almost double as long as that the actual assembly.

#### Exemplary compact construction

The machine, control, generator and dielectric unit are integrated in a space-saving manner in the full enclosed system. Agiecut Excellence eCut machines are supplied as a whole on frame with rollers. The ED wire-cutting system can thus be manoeuvred with little effort and, thanks to its small floor requirement, finds its place even in narrow rooms. Machine set up is extremely simple with a total of just 4 connections.









# Pioneering and technology

Agiecut Excellence eCut convince with their outstanding mechanics and technology. ED wire-cutting systems that meet tomorrow's machining requirements and are without alternative already today with numerous uniques features.



Travels	X/Y/Z axes	
		U/V axes
		Max taper angle <°/height
Workpiece	Max. workpiece dimensions	Lenght x width x height
	Max. workpiece weight	With/without bath
Performances	Maximal cutting rate with wire Ø CCS 0.33 mm	<ul> <li>Cylindrical cut</li> </ul>
Manufacturing guality	Best surface finish with SF Module, power module for finest finishing	♦ Ra
Threading system	AGIEJET	Threadable height
	Threading nozzle	Diameter
Wire guide system	Wire guides, Standard equipment	Wire diameter
	Combination wire guide system	«V» guides
		Toroid guide
	Increased accuracy in tapered cut	AGIECONIC PLUS
Wire drive	Wire spool	Up to 25 kg
	Wire tension	0-25 N
	Wire speed	60-300 mm/s
	Wire feed	Automatic
	Wire disposal	Chopper
Work area		Accessibility
		Drop tank
Clamping base	Universal clamping frame	Clamping frame
Flushing	Programmable coaxial flushing, high pressure, low pressur, suction	Flushin pressure
	Machining in bath	Level regulation
Universal High Power Generator	AGIE IPG integrated with eCut Module	Average working current
	Technology for fast and economical precision cuts	eCut cutting technology
	Minimum influence of surface and boundary zone	PURECUT
	Dynamic path optimisation and process adaptation in the radii	DYNAMIC CORNER CONTROL
	Real time detection and correction of the wire bending	WIRE BENDING CONTROL
	Real time detection of the workpiece cross section and automatic power optimisation	VARIOCUT
	Correction of the cylindrical residual error	AWO (Advanced Wire Offset)
Dielectric conditioning unit	Integrated	Charge volume
Filter	Cartridges	4 canisters with 8 cartridge filters
		Filtrate quality
Deionizing	Deionizing bottle	Charge volume
	Water conductivity control	Automatic
Cooling	Generator and control unit with air/water, and dielectric with water/water heat exchanger	
System	System dimensions	Lenght x width x height
		Floor-to-clamping plane distance
	Woight	Notwoight
	Weight	iver weight

EXCELLENCE eCut 2



### EXCELLENCE eCut 3

### EXCELLENCE eCut 2F

### EXCELLENCE eCut 3F

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350 x 250 x 256 mm (13.77 x 9.84 x 10 in)	500 x 350 x 256 mm (19.7x13.77x10 in)	350 x 250 x 256 mm (13.77 x 9.84 x 10 in)	500 x 350 x 256 mm (19.7x13.77x10 in)
±70 mm (± 2.75 in)	±70 mm (± 2.75 in)	±70 mm (± 2.75 in)	±70 mm (± 2.75 in)
30°/100 mm (30°/ 3.93 in)	30°/100 mm (30°/ 3.93 in)	30°/100 mm (30°/ 3.93 in)	30°/100 mm (30°/ 3.93 in)
750 x 550 x 250 mm (29.5 x 21.6 x 9.8 in)	1050 x 650 x 250 mm (41.3x25.6x 9.8 in)	750 x 550 x 250 mm (29.5 x 21.6 x 9.8 in)	1050 x 650 x 250 mm (41.3x25.6x 9.8 in)
200/450 kg (440/990 lbs)	400/800 kg (880 lbs/1763.70 lbs)	200/450 kg (440/990 lbs)	400/800 kg (880 lbs/1763.70 lbs)
> 300 mm <sup>2</sup> /min	> 300 mm <sup>2</sup> /min	> 300 mm²/min	> 300 mm <sup>2</sup> /min
■ 0.1 µm	■ 0.1 µm	■ 0.1 µm	■ 0.1 µm
up to 250 mm (9.84 in)	up to 250 mm (9.84 in)	up to 250 mm (9.84 in)	up to 250 mm (9.84 in)
■ 2/1 mm (0.08/0.04 in)	■ 2/1 mm (0.08/0.04 in)	■ 2/1 mm (0.08/0.04 in)	■ 2/1 mm (0.08/0.04 in)
-	-	• 0.6 mm (0.024 in)	• 0.6 mm (0.024 in)
0.1-0.33 mm (0.004/0.013 in)	0.1-0.33 mm (0.004/0.013 in)	0.03-0.33 mm (0.001/0.013 in)	0.03-0.33 mm (0.001/0.013 in)
cylindrical up to 2°	cylindrical up to 2°	cylindrical up to 2°	cylindrical up to 2°
2° up to 30°	2° up to 30°	2° up to 30°	2° up to 30°
front/left	front/left	front/left	front/left
automatic	automatic	automatic	automatic
0.2-18 bar	0.2-18 bar	0.2-18 bar	0.2-18 bar
0-250 mm automatic	0-250 mm automatic	0-250 mm automatic	0-250 mm automatic
45 A	45 A	45 A	45 A
700 l (180 gal)	1000 l (264 gal)	700 l (180 gal)	1000 l (264 gal)
5 μm (19.7 μin)	5 μm (19.7 μin)	5 μm (19.7 μin)	5 μm (19.7 μin)
■ 10 l (2.64 gal)	■ 10 l (2.64 gal)	■ 10 l (2.64 gal)	■ 10 l (2.64 gal)
● 30 l (7.92 gal)	●30 l (7.92 gal)	● 30 l (7.92 gal)	● 30 l (7.92 gal)
1-25 µS/cm <sup>2</sup>	1-25 µS/cm <sup>2</sup>	1-25 µS/cm <sup>2</sup>	1-25 μS/cm <sup>2</sup>
2215 x 2215 x 2220 mm (87 x 87 x 88 in)	2800 x 2400 x 2220 mm (110 x 95 x 88 in)	2215 x 2215 x 2220 mm (87 x 87 x 88 in)	2800 x 2400 x 2220 mm (110 x 95 x 88 in)
1100 mm (43 in)	1100 mm (43 in)	1100 mm (43 in)	1100 mm (43 in)
3600 kg (7940 lbs)	4500 kg (9920 lbs)	3600 kg (7940 lbs)	4500 kg (9920 lbs)
appr. 4500 kg (9920 lbs)	appr. 6000 kg (13200 lbs)	appr. 4500 kg (9920 lbs)	appr. 6000 kg (13200 lbs)



- According to AGIE setting values
- Standard
- ▲ Variant: not retrofittable
- Option: at choice



## Exemplary in operation and convenience

I sistemi Agiecut Excellence eCut, fissano nuovi standard in quanto a comfort ed ottimizzazione dell' utilizzo dell'impianto.



Operation and data input		
Remote control for manual axes movement X/Y/U/V/Z	AGIEJOGGER with electronic handwheel	
set-up functions for wire drive, work tank and pickup cycles		
Operator interface system	15"-LCD-display, keyboard and mouse	
Control unit integrated	AGIEVISION object oriented man-machine interface	
Operating system	Multitasking OS/2	
Operating mode	Multiprocessor	
CPU's	Pentium for CNC and operator interface	
Servocontrolled axes	■ X/Y/U/V/Z	
Supplementary servocontrolled axe	🔺 A axe	
Units of measurement	mm/inch	
Command format	Absolute/incremental	
Smallest prgrammable step	0.0001 mm (0.000004 in)	
Max. path correction	6 mm (0.236 in)	
Modules and functions		
Easy preparation of machining programs	EASYWORK	
Pickup cycles for automatic determination of workpiece plane and position	AGIESETUP 3D	
Automatic technology selection based on machining objectives	■ TECCUT	100 m
Simple 2D geometry programming	GEOEDITOR	
Import of PP100, PP123 AGIECUT geometries	■ ISOCONVERTER	
Import of job-specific data from CAD/CAM systems	CAMLINK	
Predefined machining strategies	AUTOSEQUENCE	
Vor- und bedienerdefinierte Bearbeitungsstrategien	USERSEQUENCE	
Quickly insert rush orders without effort	PIECEINSERT	
NC port with Xon/Xoff and LSV2 protocols	DNC	
Help functions, explanations with text and graphics	HELP and online manual	
Machining simulation 2D and 3D view	GRAFICHECK	
Maximum safety through continuous data input	FORMALCHECK and data input Protocol	
Easy preparation of job templates	WORKMODEL	
Automatic instructions and commands executi	EASYRUN	
Automatic machining sequence definition		
for multiple workpieces clamping	LOTTO	



Manoeuvred with little effort. Agiecut Excellence eCut machines are

supplied as a whole on a frame with rollers. Thanks to the small floor requirement the Agiecut Excellence eCut finds easily its place in narrow rooms.



design award winner

Agiecut Excellence eCut are the best

Rethreading on wire break/on "no- thread" detection restart after power failure	Rescue strategies	of their esterory
Language	English, CN, CZ, DK, ES, FR, HU, IT, JP, NL, RU, SE, UK, US	of their category.
Storage capacity	■ ≥ 20-GB-HD, 128 MB Ram	With
nterfaces	2 x RS232C, 1 x Parallel, 1 LAN (Local Area Network)	the award
Data storage media	CD-ROM for updates and on line manual, 3 <sup>1/2</sup> "-floppy-disk	for the quality
nterface for automation		of docign
Basic equipment for handling devices	ROBOTCOMMAND	or design,
Communication interface for handling devices	HOSTCONTROL	functionnality,
Communication interface for cell computer connection	▲ AUTOMATION	style
Jtilities		and elegance.
ine power	10.5 kVA	
ine voltage	■ 3 x 400 V	
Compressed air	■ 6 bar, 5 m <sup>3</sup> /h	
Cooling capacity required	■ 1.5-7.5 kW	

Print.

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### The address for over 50 years of ED machining

Electro-erosion, also called EDM -Electric Discharge Machining, is a young technology. 50 years old. Just as young as Agie. A technology that has been decisively influenced and shaped by Agie in this period. What is EDM? Using electric discharge machining, conductive materials of any hardness can be machined with an accuracy of down to a thousandth of a millimetre, practically without mechanical influence. This makes EDM a key technology in the manufacture of demanding dies and punches which are used in the mass production of parts made of plastic, metals and glass. Objects from our everyday life: toothbrushes, mobiles, PET bottles, computers, cutlery, ski boots, ballpoint pens, car components, toys, implants, instruments – the examples could be continued at will and prove impressively that EDM is a dynamic technology with unlimited potential for the future.

AGIE









#### Advice

Competent and experienced sales engineers, who are quite near you, advise you all round the topic of electric discharge machining. No questions remain open.

#### Information

Agie updates its web site www.agie.com continuously, publishes interesting customer applications in the magazine "Experience" and informs you about the latest products even after the sale with brochures and flyers.

#### After-sales care

Agie has specialist advisers at work worldwide who realise practically orientated application, automation, hardware and software solutions and also make entry into ED machining easier.

#### Training

Agie prepares individual instruction courses for each EDM system so that productive EDM jobs can be started already shortly after commissioning.



#### Documentation

Agie supports the user effectively with practically orientated operation and maintenance documentation in printed and electronic form.

#### Hotline

Agie solves approx 90% of all problems as a matter of routine directly on the hotline phone all round the clock.

#### Service

Agie ensures optimal functioning and utilisation of its Agie EDM systems worldwide with its constantly trained service technicians.

#### Readiness for delivery

Agie offers a 24-hour service and holds a large stock for fast deliveries with 97 percent availability of original spare and wearing parts, consumables and additional equipments.

#### Original parts

Agie guarantees the best EDM results with its original spare and wearing parts. All machining technologies and works details are based on this.

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