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genius 700

genius 850

genius 1000 The Cube

genius 1200



space-saving highly accurate economical

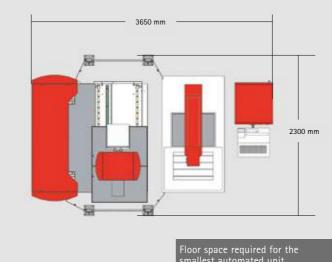


EDM machine genius 602

Are you looking for a machine that executes especially the precise, small EDM work with high long-term precision? With the *genius* 602, we offer a machine with the same control system as our large machines – and it shows in the precision. The difference: the *genius* 602 fits into every company. It is accessible from three sides, has a relatively low weight and is the most space-saving EDM machine on the market in its class. In relation to its size, it offers a maximum dielectric fluid height above the table, and the tank is integrated into the base, fully retractable and continuously variable.

The temperature of the dielectric fluid is automatically controlled via a thermostat. The rigid cast iron construction with pre-stressed anti-friction guideways avoids vibrations and thus ensures stability. Even on unstable floors, the three-point set-up ensures a continuously uniform alignment. The travel range of the *genius* 602 optimally utilises the size of the table, making the machine suitable for a wide range of tasks. In addition, it also allows you to take a first step towards automation.





Machine data

Travel distance X - Y	350 x 250 mm
Travel distance Z	315 mm
Table: Length x width	576 x 400 mm
Distance: Table - sleeve	550/240 mm
w/o chuck max./min.	(optional 615/305 mm)
Dielectric fluid above table	365 mm
Overall dimensions (wxdxh)	(900 x 1,680 x 2,540) mm
Total weight (w/o fluids)	2,000 kg
Workpiece weight	500 kg
Electrode weight w. rotation	15 kg
Electrode weight w/o rotation	50 kg with Heavy-load adapter
Resolution X - Y - Z	0.001 mm
Resolution C	0.001°
Dielectric fluid consumption	250 litres
Generator	<i>IPM</i> tec
Operating current	52 A in total
	optional 100 A in total (+ 48 A)
	Booster 196 A in total (+ 96 A)
Suction capacity	200 m ³ /h (55 l/sec)
Required cooling capacity	2.5 kW
Floor load	
11001 IUau	3.5 N/mm ²
Number of adjustable feet	3.5 N/mm ²
Number of adjustable feet	3
Number of adjustable feet Weight per foot	3 1 t
Number of adjustable feet Weight per foot Diameter of base plate	3 1 t ø 60 mm
Number of adjustable feet Weight per foot Diameter of base plate Flow rate (air)	3 1 t ø 60 mm 10 l/min
Number of adjustable feet Weight per foot Diameter of base plate Flow rate (air) Required air pressure	3 1 t ø 60 mm 10 l/min min. 6 bar
Number of adjustable feet Weight per foot Diameter of base plate Flow rate (air) Required air pressure T-slots: number/width/distance	3 1 t Ø 60 mm 10 I/min min. 6 bar 4 slots/10 mm/3 x 100 mm
Number of adjustable feet Weight per foot Diameter of base plate Flow rate (air) Required air pressure T-slots: number/width/distance Paper cartridge filter	3 1 t Ø 60 mm 10 I/min min. 6 bar 4 slots/10 mm/3 x 100 mm 3 pcs.
Number of adjustable feet Weight per foot Diameter of base plate Flow rate (air) Required air pressure T-slots: number/width/distance Paper cartridge filter	3 1 t Ø 60 mm 10 I/min min. 6 bar 4 slots/10 mm/3 x 100 mm 3 pcs. 3 Pressure ports
Number of adjustable feet Weight per foot Diameter of base plate Flow rate (air) Required air pressure T-slots: number/width/distance Paper cartridge filter	3 1 t Ø 60 mm 10 I/min min. 6 bar 4 slots/10 mm/3 x 100 mm 3 pcs. 3 Pressure ports 1 Suction connection

Options

Electrode changer	16-fold, <i>Chameleon</i> Mono
Combined electrode	Chameleon linear and
and workpiece changer	Chameleon Quad
Sleeve system, pallet system	EROWA, 3R, Hirschmann,
	POWERGRIP, Mecatool etc.
C-module	for carbide metal working
O-module	for very fine surfaces
Flush flow regulator	15-fold
Flushing device	expandable to 14 connections
Additional axis	5 8. axis, opt. (A,B,W,Q)
Rotation head	up to 700 r/min
High pressure flushing	possible
Order control system	JOB <i>mod</i> EDM
Identification	IDENTmod
Temperature compensation	possible

Subject to technical change

 $\mathbf{6}$



EDM machine genius 700



With the genius 700, you will enter a new dimension of cavity sinking. High travel speed and reduced idle times – this is how the *genius* 700 provides for especially speedy processing of your orders. The ratio of table size and travel distance is unique in its class. It enables the optimal utilisation of the table. The machine offers the by far largest dielectric fluid height above the table in its class. Feeding the dielectric fluid into the continuously movable tank is quick and easy. The machine has a high rigidity with pre-stressed anti-friction

guideways. The moment of inertia of the C-axis is comparatively high at 0.6 kg/m². In addition, it has a highly accurate measuring system. Even demanding EDM processes can be carried out economically and with high precision with the genius 700. The "on the fly" filter replacement prevents standstill, and the central lubrication system reduces maintenance times. The genius 700 can be connected from two sides, making flexible positioning possible. The height-adjustable control desk is ergonomically designed and allows working while seated.



Machine data

Travel distance X - Y	400 x 350 mm
Travel distance Z	350 mm
Table: Length x width	575 x 500 mm
Distance: Table - sleeve	550/200 mm
w/o chuck max./min.	
Dielectric fluid above table	420 mm
Overall dimensions (wxdxh)	(1,213 x 2,326 x 2,530) mm
Total weight (w/o fluids)	3,200 kg
Workpiece weight	700 kg
Electrode weight w. rotation	15 kg
Electrode weight w/o rotation	50 kg with Heavy-load adapter
Resolution X - Y - Z	0.001 mm (optional 0.0001 mm)
Resolution C	0.001°
Dielectric fluid consumption	330 litres
Generator	IPMtec (integrated)
Operating current	52 A in total
	optional 100 A in total (+ 48 A)
	Booster 196 A in total (+ 96 A)
Suction capacity	200 m ³ /h (55 l/sec)
Required cooling capacity	2.5 kW
Floor load	ca. 2.1 N/mm ²
Number of adjustable feet	3
Weight per foot	2 t
Diameter of base plate	ø 110 mm
Flow rate (air)	10 I/min
Required air pressure	min. 6 bar
T-slots: number/width/distance	4 slots/10 mm/3 x 100 mm
Pleated paper filter	1 x pcs.
Flushing device	1 Pressure port
	1 Suction connection
	1 Fine amount pressure port
Flush flow regulator	continuously variable
Programming software	PROG <i>mod</i> EDM

Options

24-fold, <i>Chameleon</i> Mono
Chameleon linear and
Chameleon Quad and Mono
EROWA, 3R, Hirschmann,
POWERGRIP, Mecatool etc.
for carbide metal working
for very fine surfaces
expandable to 12 connections
5 8. axis, opt. (A,B,W,Q)
up to 700 r/min
possible
possible JOB <i>mod</i> EDM



EDM machine genius 850

You need precise results also for heavy work pieces. We designed the *genius* 850 to meet exactly these requirements. It is identical in construction and design to the *genius* 602, but has a larger table and greater travel range. However, the machine requires little space compared to the large machining surface. With the *genius* 850, you can clamp two work piece pallets of common pallet systems at the same time and realise unmanned operation, for example over the weekend. The work tank of the *genius* 850

is integrated into the base, fully retractable and automatically adjusts together with the table. The temperature of the dielectric fluid is automatically and consistently controlled via a thermostat. The space-saving design allows for easy handling both in manual and automated operation. Through the various extension options – for example a 5th axis on the table – this versatile machine can also be adapted to individual requirements within the company.



Machine data

Travel distance X - Y	570 x 400 mm
Travel distance Z	410 mm
Table: Length x width	840 x 600 mm
Distance: Table - sleeve	595/180 mm
w/o chuck max./min.	(optional 660/245 mm)
Dielectric fluid above table	360 mm
Overall dimensions (wxdxh)	(1,110 x 1,840 x 2,780) mm
Total weight (w/o fluids)	2,750 kg
Workpiece weight	1,000 kg
Electrode weight w. rotation	15 kg
Electrode weight w/o rotation	50 kg with Heavy-load adapter
Resolution X - Y - Z	0.001 mm
Resolution C	0.001°
Dielectric fluid consumption	400 litres
Generator	<i>IPM</i> tec
Operating current	52 A in total
	optional 100 A in total (+ 48 A)
	Booster 196 A in total (+ 96 A)
Suction capacity	200 m ³ /h (55 l/sec)
Required cooling capacity	2.5 kW
Floor load	ca. 4.5 N/mm ²
Number of adjustable feet	3
Weight per foot	1.2 t
Diameter of base plate	ø 60 mm
Flow rate (air)	10 l/min
Required air pressure	min. 6 bar
T-slots: number/width/distance	6 slots/10 mm/5 x 100 mm
Paper cartridge filter	4 pcs.
Flushing device	3 Pressure ports
	1 Suction connection
	1 Fine amount pressure port
Programming software	PROG <i>mod</i> EDM

Options

Electrode changer	24-fold, <i>Chameleon</i> Mono
Combined electrode	Chameleon linear and
and workpiece changer	Chameleon Quad and Mono
Sleeve system, pallet system	EROWA, 3R, Hirschmann,
	POWERGRIP, Mecatool etc.
C-module	for carbide metal working
O-module	for very fine surfaces
Flush flow regulator	15-fold
Flushing device	expandable to 14 connections
Additional axis	5 8. axis, opt. (A,B,W,Q)
Rotation head	up to 700 r/min
High pressure flushing	possible
Order control system	JOB <i>mod</i> EDM
Identification	IDENT <i>mod</i>
Temperature compensation	possible
<u> </u>	

Subject to technical changes

solid precise large-area



EDM machine genius 1000 – The Cube

How do you machine tall work pieces? The best way is with our *genius* 1000. It combines highest stability with rigidity through the construction in the mineral cast bed. As a modified half gantry with two synchronised digital drives in the x-axis, it provides an intelligent, control solution. It thus offers interesting proportions, which are designed specifically for machining tall work pieces – and with exemplary machine precision. All linear axes are equipped with glass scales. This way they achieve

particular fineness even with large work pieces.

With a dielectric fluid height of 500 mm above the

table, it offers an exceptional processing height, thus covering a wide size range of electrodes and work pieces. The travel range of the machine is also suitable for very large work pieces. The intelligent control system allows you to synchronously control 8 axes as EDM axes. This is a real advantage if you have to deal with complex geometries or free forms. At the same time, the machine allows for the organisation of more efficient processes with large quantities. Despite its size, the *genius* 1000 can be set up in surprisingly small spaces. Its compact design makes it easily accessible and loading with

Solid cast mineral bed provides high stability

Solid, stable frame construction

a crane very simple. The connection to automation is possible from three sides, so that you can place this machine wherever you need it in your company. The height-adjustable control desk ensures ergonomic working for everybody regardless of height. Due to the great accessibility of the service unit, it is particularly easy to maintain and service, saving you even more time.

Machine data

Travel distance X - Y	700 v 500 mm
Travel distance Z	700 x 500 mm
	500 mm
Table: Length x width	900 x 700 mm
Distance: Table - sleeve	650/150 mm
w/o chuck max./min.	(optional 615/305 mm)
Dielectric fluid above table	500 mm
Overall dimensions (wxdxh)	(1,650 x 3,064 x 3,050 / 1,825) mm
Total weight (w/o fluids)	6,500 kg
Workpiece weight	1,500 kg
Electrode weight w. rotation	15 kg
Electrode weight w/o rotation	100 kg w. with Heavy-load adapter
Resolution X - Y - Z	0.001 mm (optional 0.0001 mm)
Resolution C	0.001°
Dielectric fluid consumption	700 litres
Generator	<i>IPM</i> tec
Operating current	52 A in total
	optional 100 A in total (+ 48 A)
	Booster 196 A in total (+ 96 A)
Suction capacity	200 m ³ /h (55 l/sec)
Required cooling capacity	2.5 kW
Floor load	3.5 N/mm ²
Number of adjustable feet	3
Weight per foot	2 t
Diameter of base plate	ø 110 mm
Flow rate (air)	10 I/min
Required air pressure	min. 6 bar
T-slots: number/width/distance	6 slots / 12 mm /
	150 mm, 3 x 100 mm, 150 mm
Pleated paper filter	2 pcs.
Flushing device	1 Pressure port
	1 Suction connection
	1 Fine amount pressure port
Flush flow regulator	continuously variable
Programming software	PROG <i>mod</i> EDM

Options

Electrode changer	24-fold, <i>Chameleon</i> Mono
Combined electrode	Chameleon linear and
and workpiece changer	Chameleon Quad and Mono
Sleeve system, pallet system	EROWA, 3R, Hirschmann,
	POWERGRIP, Mecatool etc.
C-module	for carbide metal working
0-module	for very fine surfaces
Flushing device	expandable to 12 connections
Order control system	JOB <i>mod</i> EDM
Identification	IDENT <i>mod</i>
Additional axis	5 8. axis, opt. (A,B,W,Q)
High pressure flushing	possible

Subject to technical change



We offer clean design combined with maximum stability. The *genius* 1200 is designed for the real big tasks. The machine is constructed in gantry style. Even very heavy work pieces can be processed with the highest precision due to the rigid cast iron design. Despite its size, you can set up the machine using comparatively little space, since it is easily accessible from all sides for maintenance and service work. The *genius* 1200 is equipped with a 5-axis CNC control system and has two simultaneous

drives, each with measurement systems for the gantry of the x-axis, which are directly attached. This allows you to process large electrode dimensions as well as small parts on large work pieces. The tank can be continuously lowered, saving you time. Interruptions for pumping, flooding or temperature adjustments are avoided and idle times reduced.



Machine data

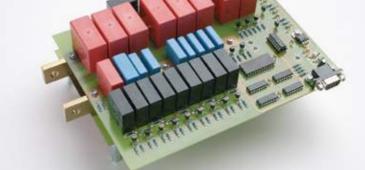
ravel distance X - Y	900 x 680 mm
ravel distance Z	405 mm
able: Length x width	1,200 x 850 mm
Distance: Table – sleeve	650/235 mm
w/o chuck max./min.	(optional 750/325 mm)
Dielectric fluid above table	410 mm
Overall dimensions (wxdxh)	(1,540 x 1,520 x 2,710) mm
Total weight (w/o fluids)	3,700 kg
Norkpiece weight	3,000 kg
Electrode weight w. rotation	15 kg
Electrode weight w/o rotation	100 kg w. with Heavy-load adapter
Resolution X - Y - Z	0.001 mm
Resolution C	0.001°
Dielectric fluid consumption	900 litres
Generator	<i>IPM</i> tec
Operating current	52 A in total
	optional 100 A in total (+ 48 A)
	Booster 196 A in total (+ 96 A)
Suction capacity	200 m ³ /h (55 l/sec)
Required cooling capacity	2.5 kW
Floor load	5.5 N/mm ²
Number of adjustable feet	3
Weight per foot	1.5 t
Diameter of base plate	ø 60 mm
Flow rate (air)	10 I/min
Required air pressure	min. 6 bar
-slots: number/width/distance	6 slots/12 mm/5 x 145 mm
Paper cartridge filter	6 pcs.
-lushing device	3 Pressure ports
	1 Suction connection
	1 Fine amount pressure port
Programming software	PROG <i>mod</i> EDM

Options

24-fold, <i>Chameleon</i> Mono
Chameleon linear and
Chameleon Quad and Mono
EROWA, 3R, Hirschmann,
POWERGRIP, Mecatool etc.
for carbide metal working
for very fine surfaces
15-fold
expandable to 14 connections
5 8. axis, opt. (A,B,W,Q)
up to 700 r/min
possible
JOB <i>mod</i> EDM
IDENTmod

Subject to technical changes

14 Electrode changer









Options for EDM machines









¹ C-module

The C-module makes the optimal erosion with the rotation head or in case of exotic materials (Inconel, titanium, CBN) as well as tungsten copper/carbide and/or steel/steel possible.

² O-module

The O-module is permanently installed in the machine and used to increase efficiency for surfaces finer than Ra 0.08.

3 Rotation head

The rotation head allows the fast and precise EDM of small, deep holes with tube electrodes of diameters between 0.6 mm and 6 mm. The rotation head is suitable for all current clamping systems and used via the electrode changer. The circulator turbine is supplied automatically through the machine. The rotation head is also available with high pressure flushing device.

⁴ Tube guides for high pressure flushing

For the production of highly accurate and deep bore holes starting at 0.1 mm in diameter, the rotation head and the C-module can be used together with an additional tube guide.

⁵ Heavy-load adapter

The heavy-load adapter is suitable for all machine types. It is used to attach particularly heavy electrodes to the sleeve. In this case, the C-axis is deactivated and the electrode is aligned manually.

⁶ Interface software for measuring machines

With the interface software for the measuring machines recommended by Zimmer & Kreim, for example by Zeiss, Mitutoyo, Hexagon or other measuring equipment manufacturers, you save time for set-up and alignment. The offset values are supplied to the control system for calculation and processed accordingly.



⁷ Cooling unit (not pictured)

An additional cooling unit supplies the heat exchanger that balances the temperature of the dielectric fluid with chilled water. It is suitable for both direct and external cooling.

8 Booster

The booster serves as power amplifier of the generators for a load increase from 80 A to 160 A (except *genius* 602). The booster can be connected to all *genius* machines and expanded by an additional 25 A.

⁹ genius transfer

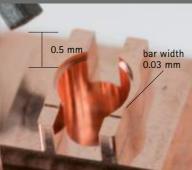
With the joystick measuring device *genius*^{transfer} you can preset electrodes and workpieces easy and intuitive directly with/on the EDM machine. Offset values are calculated directly in the control system.

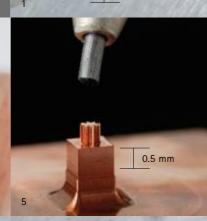
10 INPROCESS mod

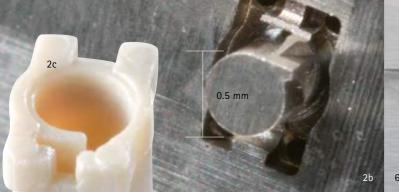
Measurement against data set direct on the EDM: If measured on the *genius*-EDM against the data model with a 3-D sensor, any required correction can be made immediately, avoiding clamping errors completely.

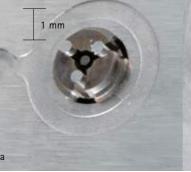
little wear precise contours very fine surfaces

















b. Enlargement of the work piece c. Finished moulded part, final size 2 x 1.5 mm

2 a. 0.5 mm work piece

1 Slide mould fibre optic technology

- 3 Electrode, min. bar width 0.08 mm
- 4 Copper electrode for EDM polishing with narrow bars (0.03 mm) Ra 0.07
- specially modified generator control allows the precise and low-wear use of even the smallest electrodes. 6 a./b. Upper and lower form of the
- work piece
- c. Insulating piece diameter 3 mm, height 1.7 mm, bars 0.25 mm

www.scholz-htik.de

Processing examples of IT and medical technology

In IT and medical technology, minuscule parts with perfectly smooth surfaces are used. The requirements for the EDM process are above all highest precision with fast processing and low wear. With

the genius 602 Nano, Zimmer & Kreim has specialised in precise and low-wear machining with extremely small electrodes in the micro-range.

high erosion rates simultaneous 8-axis operation reduction of electrodes



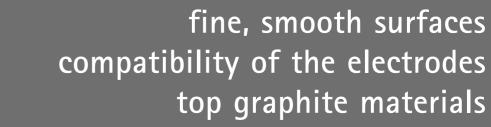
During the EDM of blades and turbines, highperformance electrodes are needed to allow for high erosion rates and smooth surfaces during roughing. The forming of the sometimes very large work pieces is a complex process requiring at least four axes. Zimmer & Kreim machines demonstrate outstanding qualities in working with graphite, achieve particularly good results in erosion and

surface quality, and offer a lot of space to move around. As the only manufacturer on the market, Zimmer & Kreim offers a machine control system that ensures the process and EDM in simultaneous 8-axis operation, thus significantly reducing the number of electrodes.

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uniform structure very fine contours thin-walled electrodes

Processing examples for the automotive industry



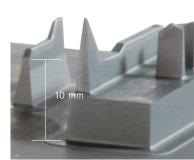




- 2 delicate work pieces with finished ABS-filter
- 3 precision stamp
- 4 delicate graphite electrode with thin bars for functional parts with corresponding injection mould
 - 5 tiny work piece for large mass production with die-cast finished

- 1 graphite electrodes for very fine bars and minuscule grooves
- 2 tool for inner shell
- 3 tools mounted on a pallet
- 4 copper electrode for inner shell with thin bars and fine contours
- 5 top of tool

- 6 copper electrode for smooth surface treatment VDI 18/Ra 0.8
- 7 graphite electrodes for very fine bars and minuscule grooves



21

Processing examples for the automotive industry

Different surfaces, but consistent surface quality.

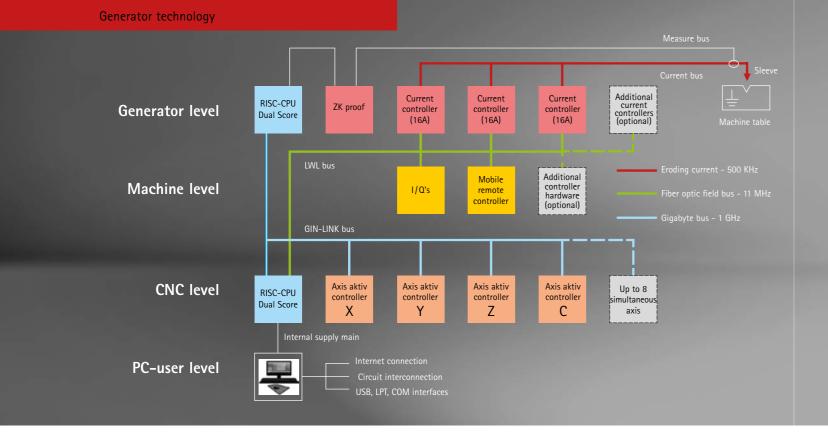
Precise manufacturing of functional parts with small grooves and bars. Complex electrodes for difficult forms. Long processing times with high throughput at the same time.

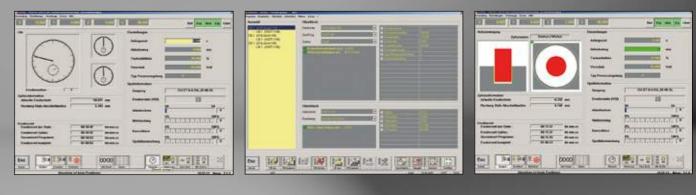
The requirements in the automotive industry are complex and require highest precision and greatest efficiency. Especially with regard to diversity and large units, the automated solutions by Zimmer & Kreim prove their worth.

Processing examples for the communications industry

The production of components for communications technologies requires the highest accuracy both regarding depth and surface quality as well as fast processing times – with electrodes made of different materials. Up to 1,000 electrodes may

be used for one tool. This is why the compatibility for the EDM process is a determining requirement. Zimmer & Kreim machines process graphite as well as copper and are optimally designed for the quick replacement of electrodes.





user interface genius control system

Generator-Technology

////tec control system - up to eight simultaneous eroding axis

The heart of our well-known, excellent machines is the control system. It was designed specifically for EDM and contains our 30-year experience of building EDM machines. And it does what you expect from a Zimmer & Kreim machine: precision, speed, reliability, stability and flexibility and ease of operation.

This means specifically: Our control system allows programming during the erosion process, ensures safe and easy operation, and allows the data transfer via various external interfaces. The control system has its own internal database and is designed as an open solution. It allows for EDM in stand-alone operation as well as for highest functionality in workshop groups.

Flexibility is one of the most important characteristics of our control system. The EDM process can be designed based on the requirements of the work assignments and remains comfortable and economical even in non-standard situations

With the *IPM*tec, our generator control system guarantees that EDM leads to equally good results in all three "material worlds". Whether graphite, carbide or copper processing – *IPM*tec achieves

the best EDM results with almost zero wear and considerably improved times. With a Windows user interface and various graphical display options, our generator control system ensures greatest user friendliness. The 3D coordinate system handling allows for systematic error control. Calculating the work piece coordinates is also possible online in manual mode. The PROG mod programming interface

also facilitates the processing of a wide array of technologies. The ZK generator control system can be equipped with various additional modules, thus offering solutions for both special applications and mass production. Operating with up to 4 additional simultaneously EDM axis from other manufacturers is therefore possible without any problems.



Service

Whether it be machines, handling systems or software, we offer you a multitude of service options to ensure maximum availability and performance for your systems. We apply the following principle: We help you find the quickest way to be up and running again after any malfunctions without any major disruptions to production.

The advantages of ZK's service at a glance:

- Help Desk: Our help desk will provide you with first aid and rapid support by telephone. We make sure that none of your queries goes astray from the moment we pick up the phone until you have received expert advice from a service specialist.
- Remote service: With the remote maintenance service we log into your systems and rectify errors directly online or perform updates and repair work.
- On-site service: Wherever you are we'll be there in a flash. Our on-site service ensures that your systems are working again as quickly as possible.

- Machine and software upgrading: The modular design makes this possible. We will adapt your machines and your software at any time to meet your company's requirements so that you are fully prepared for anything your customers require.
- Spare parts service: We keep large stocks of spare parts for you in our stores so that we can react quickly in an emergency.
- Preventative maintenance: Preventative maintenance helps improve the service life and quality of your machines.

Worldwide vanity service number 070000 genius

By dialling the vanity call number 070000436487 you will be put through directly to our staff in the telephone service department without having to select a country code. The short answer to rapid help.

Our skills support any process

Technology, which has much to offer, requires skills that can make use of any options. ZK offers you training on all aspects of process optimisation, technology, software and machines, thus enabling you to use all the potential in your company in the best possible way.

Training and further training sessions

- on technology, materials and tools
 (e.g. graphite processing)
- on software applications and use
 (e.g. data transfer from CAD/CAM)
- on machines (e.g. optimising processing results)
- on processes (e.g. improving process flows and running times or achieving data consistency)
- also cell manager training can be co-ordinated by our ZK Academy.

Step by step to better processes

- Process analysis: We analyse the processes in your company and make proposals for introducing or extending automation
- Project planning: A dedicated project team in our company will see your project through, ensure that it is on time and co-ordinate communication up to a successful conclusion.
- Installation and customising: Our service personnel will undertake commissioning on site with all the necessary configurations, tests and modifications until the process runs smoothly.
- Start up support: Even if your staff are still unsure after initial training – one call will do. Our service team will help you.
- Technology training: We adapt all standard technologies to your specific range of parts so that you get the best out of your hardware and software.







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