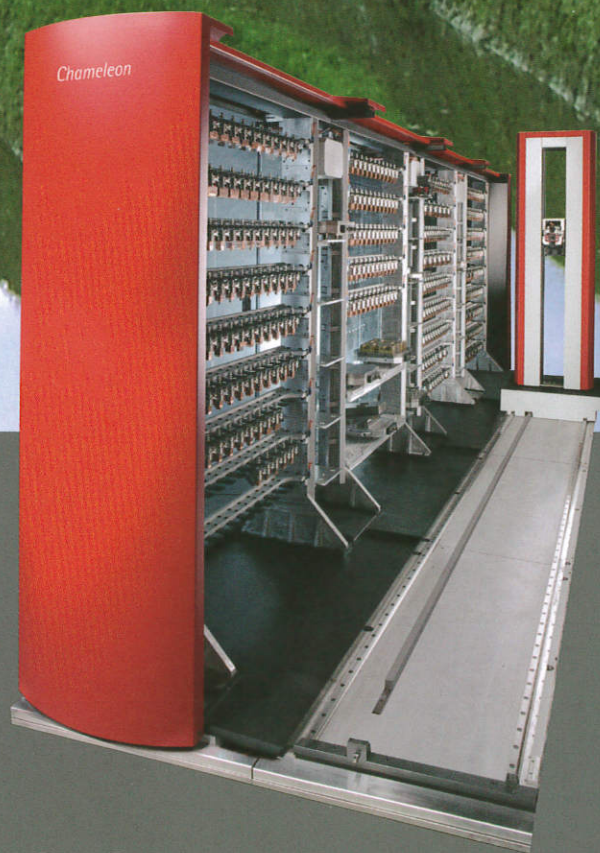


ZK

simply genius



Chameleon
Handling systems



50-fold
Electrode changer



24-fold
Electrode changer



16-fold
Electrode changer



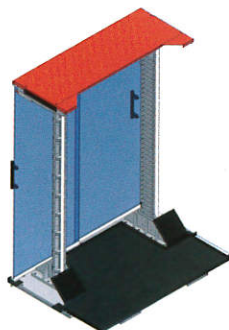
Transclean

Content

Handling systems	04–09
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Manual transfer and cleaning device	13
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Manual transfer
and cleaning device



Magazines




Articulated robot



Chameleon



Connected systems
stimulate growth.



Chameleon handling- and cleaning systems

Automation is the key to quality assurance and efficient order processing in tool manufacture and mould making. The higher the degree of automation in your company, the fewer mistakes are made – and the more continuously all your machines are in use. With *Chameleon*, we are the first manufacturer on the market to have developed a linear handling system for tool manufacture and mould making that can automate your entire production process right up to drying and cleaning, across technologies, for multiple machines at the same time, and for all operations.

With all its options, *Chameleon* ensures flexible procedures and a transparent process. It is modular in design and can be expanded at any time. This makes automation feasible even for small businesses.

Internationally, we are the technological leader with the *Chameleon* handling system. The combination of innovation, transparency and investment security convinces customers all over the world, because our

concept stands out from among others. We take on the process responsibility across all technologies integrated into the system – even those from other manufacturers. We configure individual automation solution for you and adapt the design to the conditions in your facility. In this process, you will always have the option to expand your production system as needed.

Brand new: You can now also equip our linear *Chameleon* with an articulated robot. Where heavy parts have to be handled, the system is now more powerful through this alternative.

With our *Transclean* development, even the last gap to a fully automated process is now closed. Cleaning and drying work pieces/electrodes and pallets is thus integrated into your automated process. But even as a stand-alone machine, the *Transclean* offers real time advantages.

modular
linear
fully automated



Handlingsystem *Chameleon*

Are you looking for a cutting-edge solution for secure, automated production? We offer you *Chameleon*, the automation system that combines the reliable mounting of different machines with unprecedented adaptability and versatility. The universally designed system is suitable for work pieces, electrodes and milling cutters.

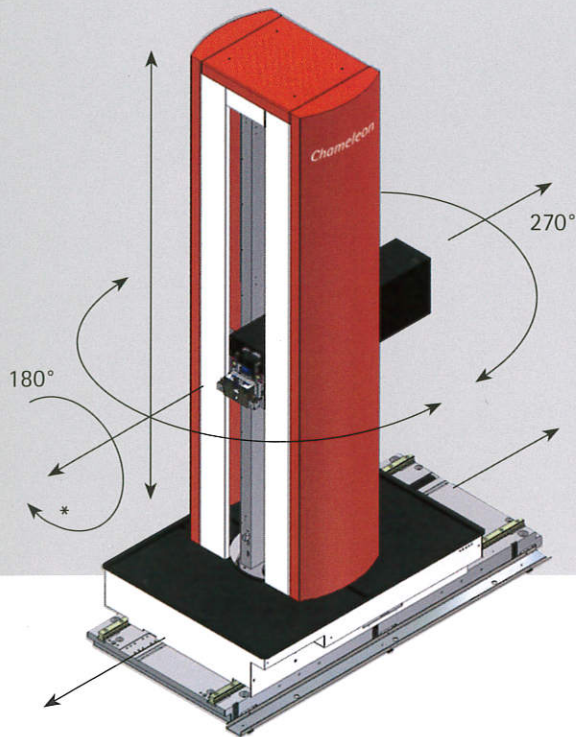
Thanks to the modular design, *Chameleon* grows with the needs of your company. From small workshop to large-scale industrial operation, the system offers the right level of automation for you. In this process, machines from other manufacturers – for

example, milling cutters and wire cutting machines – can also easily be integrated. The different grippers – various electrode grippers, milling grippers or pallet grippers – are operated automatically by the control system. In such a group of interlinked machines, we take care of the individual planning and assume the responsibility for the entire process. No other system offers you something like that.

Quality assurance and increased throughput are the direct monetary benefits *Chameleon* generates in your production, because it offers a fully automated identification system that carries out error-free

The core piece on rails

Chameleon can move through the entire FMS on an expandable rail system. The intelligent control system provides efficient solutions for controlling each process station individually.



* Optional swivel gripper see p. 17

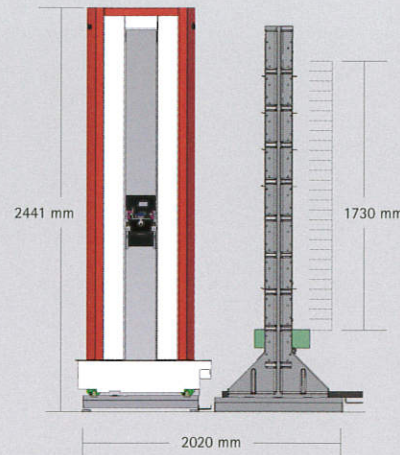
The movement of the *Chameleon* robot: C-rotation 270°

and rapid change-overs, thus significantly reducing change-over times, particularly in continuous operation. With additional features such as the LEDs on the magazine shelves you can see the status of the parts in process at a glance.

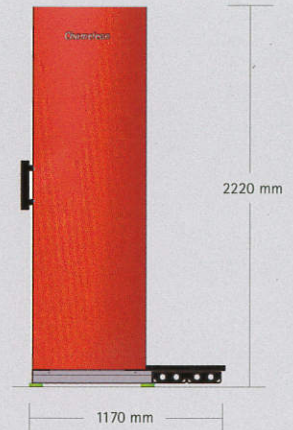
Chameleon flexibly equips machines and magazines both horizontally and vertically during operation. This also facilitates stockpiling and sorting. Your key benefit: shorter lead times and improved adherence to delivery dates.

Space required

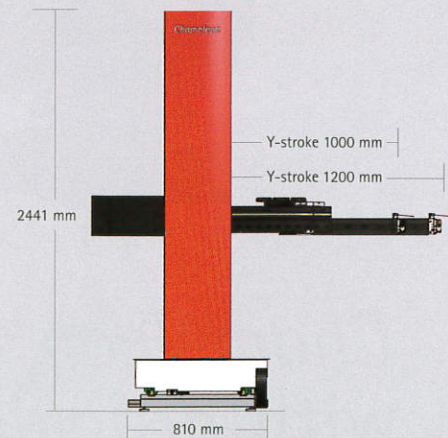
1 robot and 1 magazine



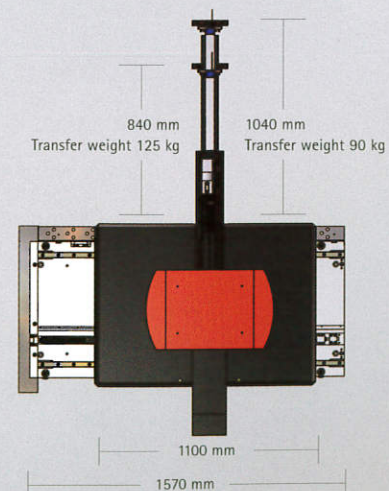
1 magazine



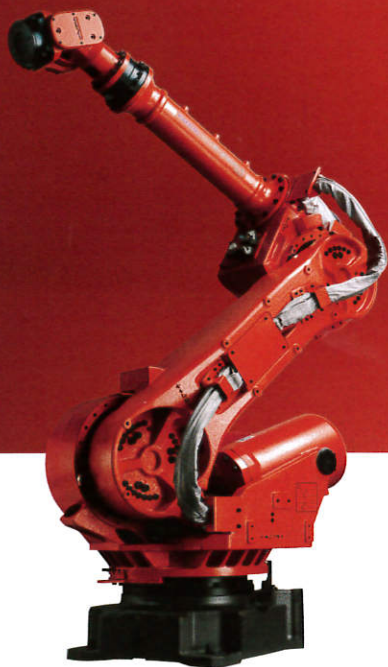
Side view of robot with different arm lengths



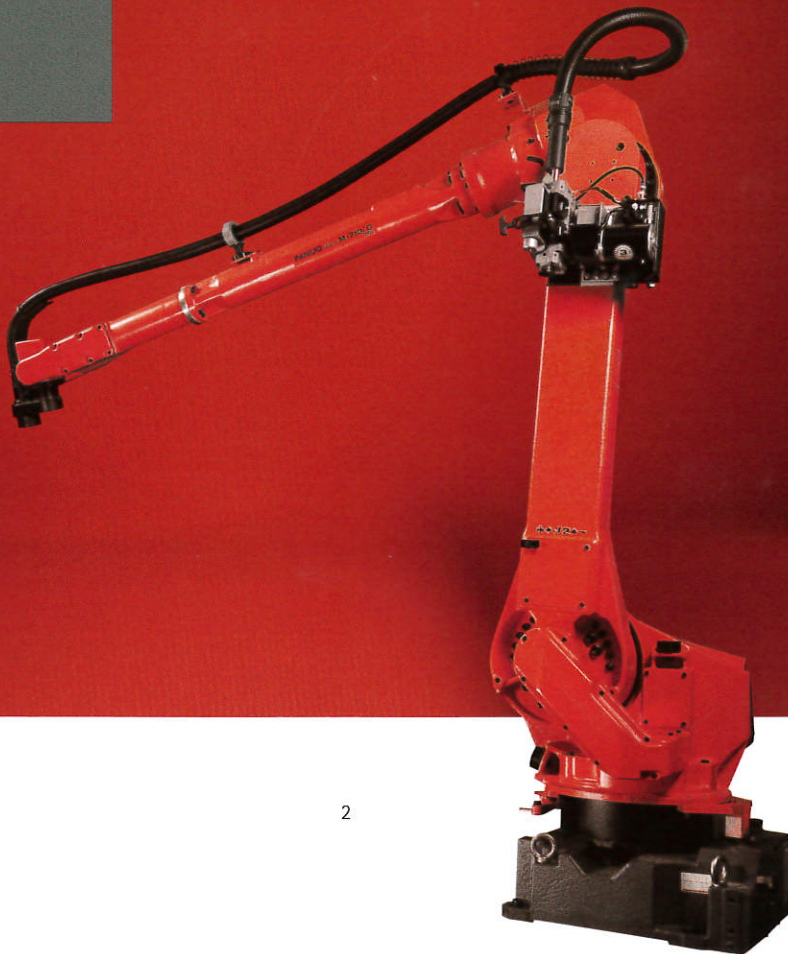
Top view of robot with different arm lengths



flexible
articulated
tough



1



2

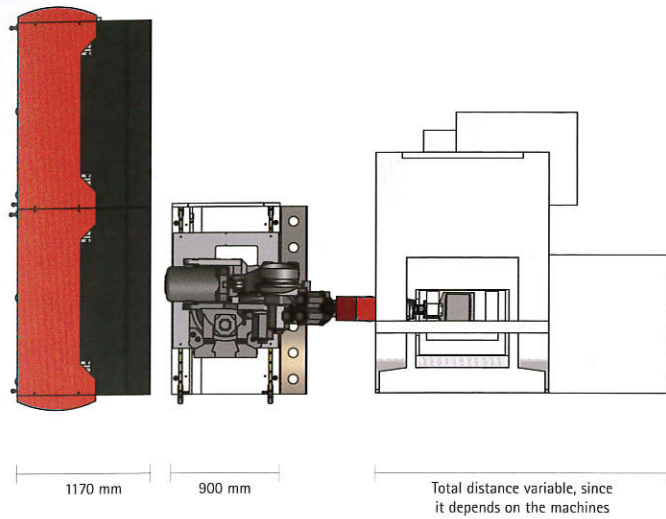
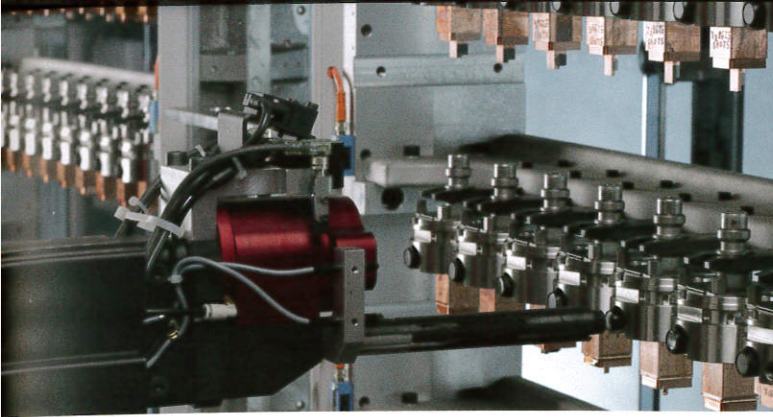
Chameleon with articulated robot

Your flexibility is what's most important to us. That is why we are constantly improving all our systems to offer you the right solution for all your different tasks. For work situations where greater range is needed and/or heavy weights must be carried, you can now equip *Chameleon* with an articulated robot.

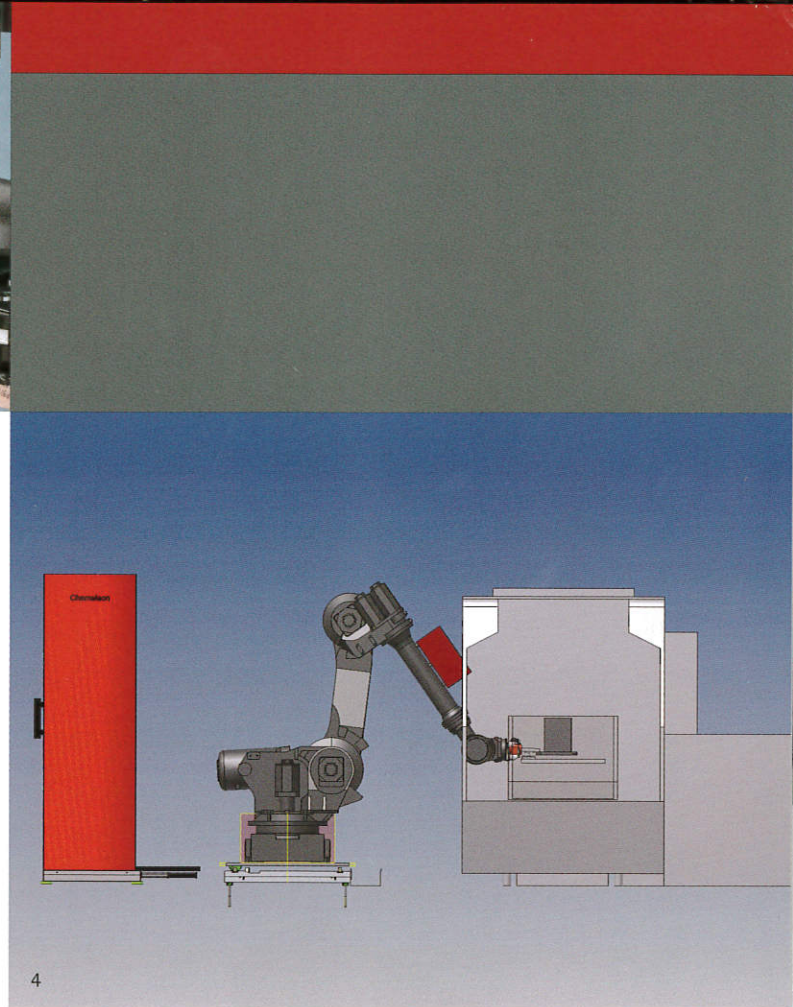
A definite key benefit for you: our rail systems and magazines remain unchanged. This way you can upgrade or convert to an articulated robot at any time. Even the dual use of both types of robots in a connected group of different process units is possible.

1 Example: FANUC Typ R2000iB / 165F,
ultimate load at the joint 165 kg

2 Example: FANUC Typ710iC / 20L (long-arm version),
ultimate load at the joint 20 kg



3

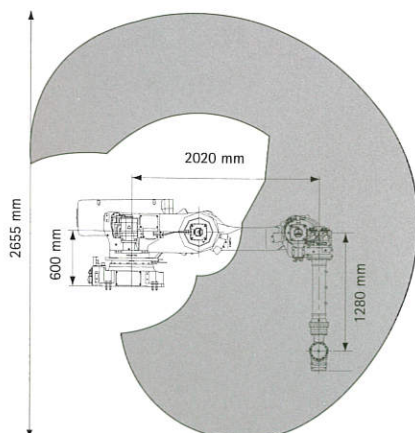


4

3 Top view of articulated robot loading the machine
4 Side view of articulated robot loading the machine

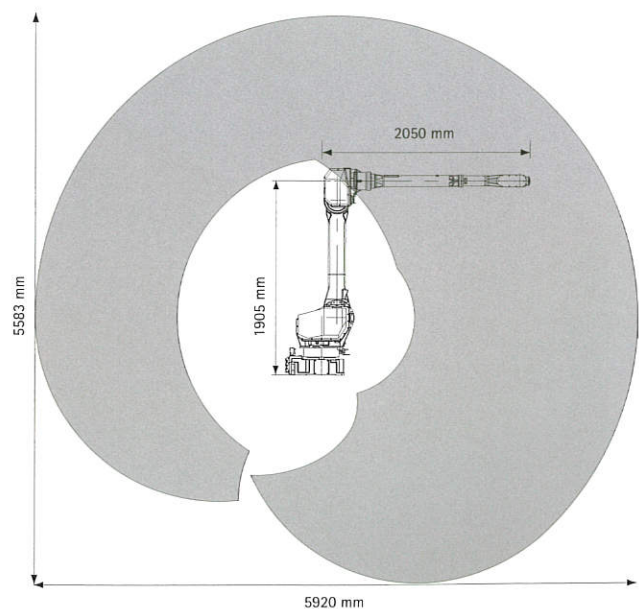
Articulated robot FANUC R-2000iB/165F/210F

Representation of the range

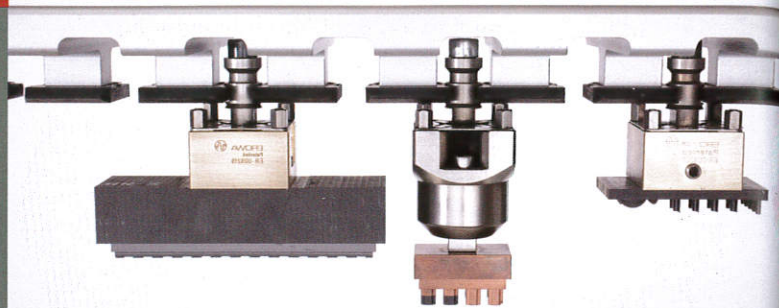


Articulated robot FANUC M-710iC/20L

Representation of the range



Flexibility of the magazines



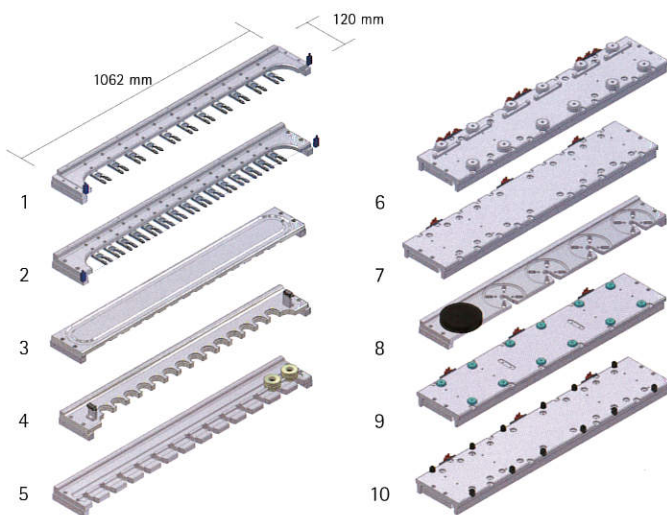
Flexible shelf system

The grid allows you to divide the magazines individually and as needed. Within a magazine, you can mix electrodes, work pieces and tools. If your overall need of electrodes/work pieces increases, simply increase the number of magazines.

(See Fig. below – Magazines)

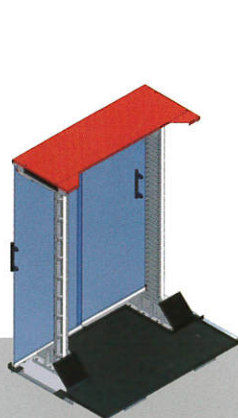
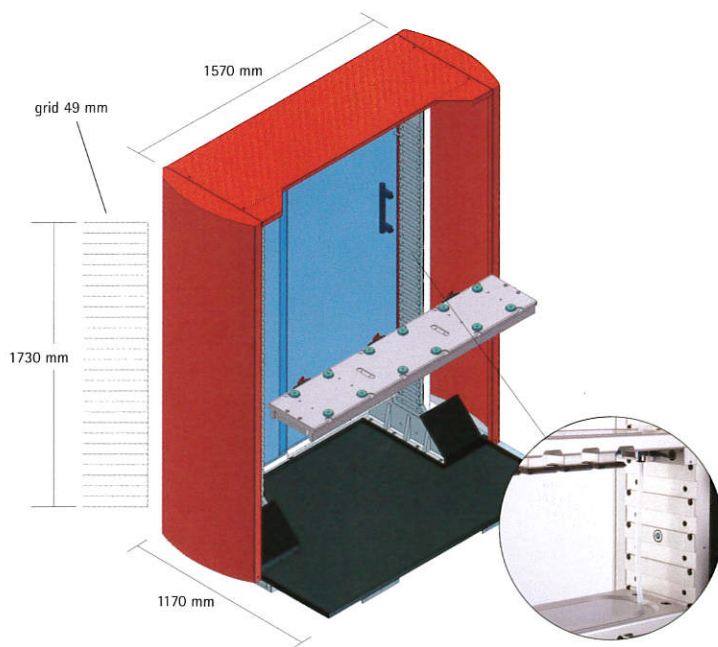
Magazine shelves

Whatever you have to manage and store – we have the right shelf. For every clamping system.

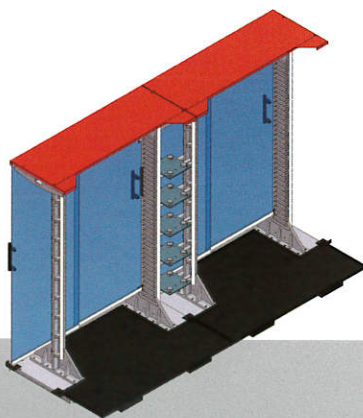


- 1 Electrode level 11 pcs.
- 2 Electrode level 15 pcs.
- 3 Electrode level 15 pcs.
Pass through level
- 4 HSK 50, 14 pcs.,
alternatively:
HSK 25, 24 pcs.
HSK 40, 17 pcs.
HSK 63, 12 pcs.
- 5 EROWA PM system

- 6 PARTOOL POWERGRIP 2's
- 7 EROWA UPC pallet level
- 8 EROWA PowerChuck 148
- 9 3R Dynafix pallet level
- 10 Mecatool GPS 240



Single magazine



Two single magazines including extension with intermediate magazine positions



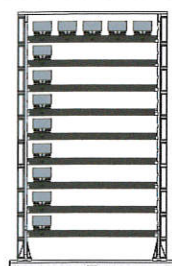
Extension covering
(size 900 mm x 2,100 mm)



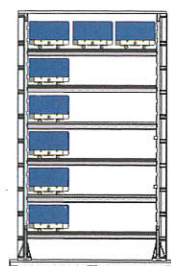
Guide rail extension, length
1,570 mm (matched to one
magazine length each)

Examples

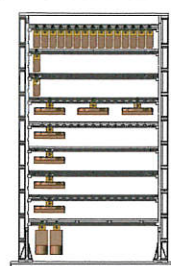
PowerChuck 45-fold



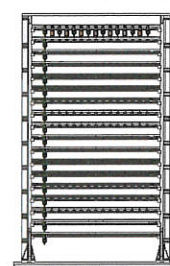
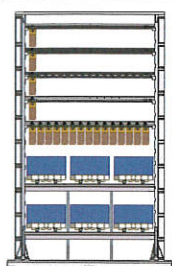
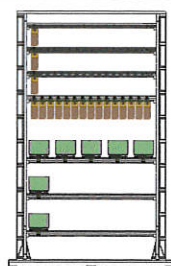
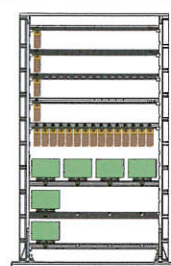
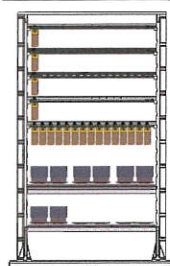
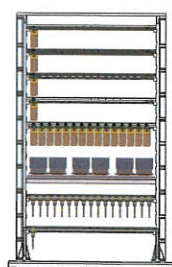
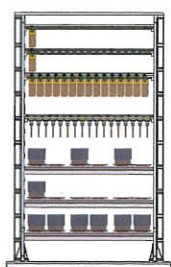
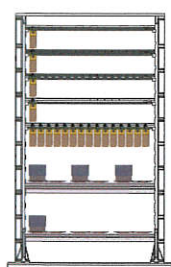
UPC 18-fold



Electrode 135-fold



Compact Combi 270-fold

Electrode 75-fold
UPC 6-foldElectrode 60-fold
PowerChuck 15-foldElectrode 75-fold
PowerChuck 12-foldElectrode 75-fold
POWERGRIP 4's 6-foldElectrode 75-fold
POWERGRIP 4's 3-fold
HSK40 34-foldElectrode 45-fold
HSK40 17-fold
POWERGRIP 2's 12-fold
POWERGRIP 4's 3-foldElectrode 75-fold
POWERGRIP 2's 12-fold

	Size (max.)	Work piece weight kg (max. incl. pallet)	Weight per level kg (max.)
Electrode	250 x 250 x 100 mm	20 kg	120 kg
Compact Combi	50 x 50 x 40 mm	8 kg	120 kg
PowerChuck	300 x 200 x 100 mm	40 kg	120 kg
UPC	320 x 320 x 200 mm	125 kg	200 kg
POWERGRIP 2's	158 x 318 mm	60 kg	200 kg
POWERGRIP 4's	318 x 318 mm	125 kg	200 kg

Empty magazine weight 550 kg.

Mounting per magazine max. 1,000 kg.

Weight of *Chameleon* robot with one magazine 1,000 kg.

Weight of robot with track 500 kg.

Max. pallet size 500 x 500 mm or 400 x 600 mm
with 125 kg max. transfer weight.

economical
independent
efficient

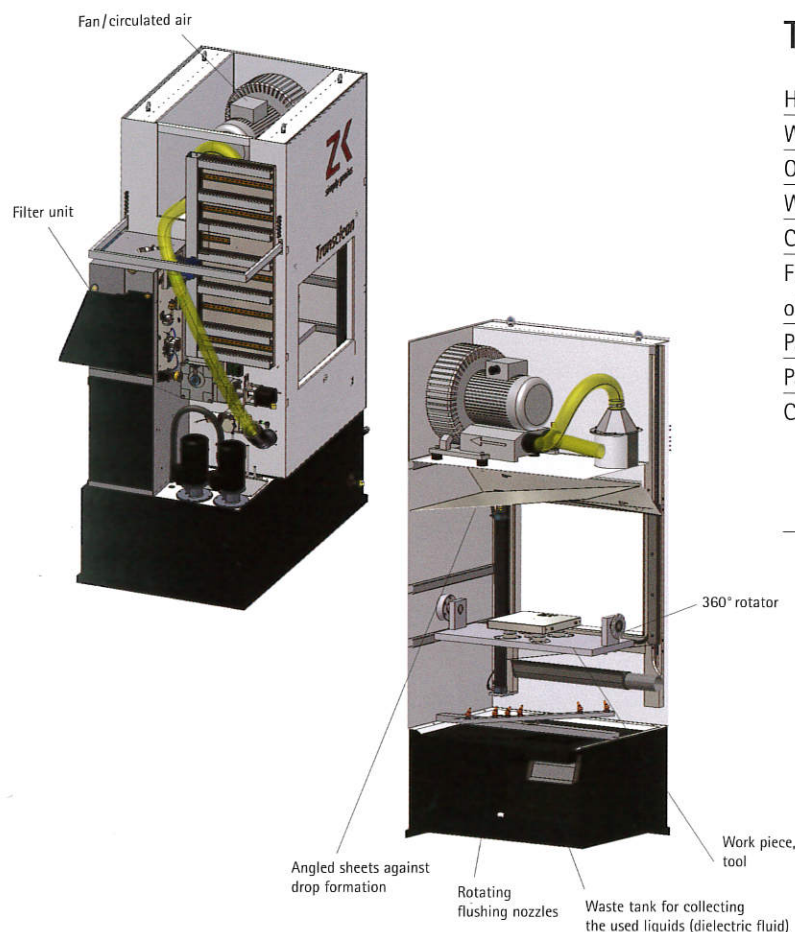


Transclean – automatic cleaning station

This is what a clean process looks like: after milling, *Chameleon* brings the dirty electrodes or work pieces to the *Transclean* automatic cleaning station. There, they are cleaned and dried before they are re-shelved in the magazine.

The advantages at a glance:

- cleans work pieces, electrodes and tools
- stand-alone operation
- use in mono-cells (milling or EDM)
- use in all fully automated cells
- can be used as transfer station
- independent of compressed air through internal fan
- drying without additional temperature supply
- washing liquid can be recovered
- suitable for all clamping systems
- plug and play – set it up and get started

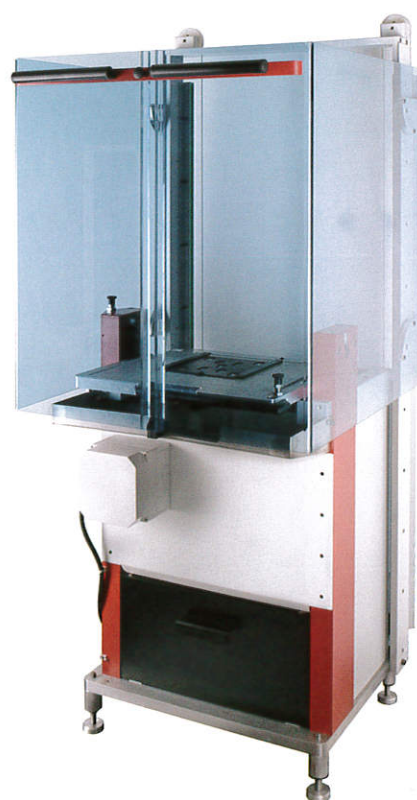


Technical specifications

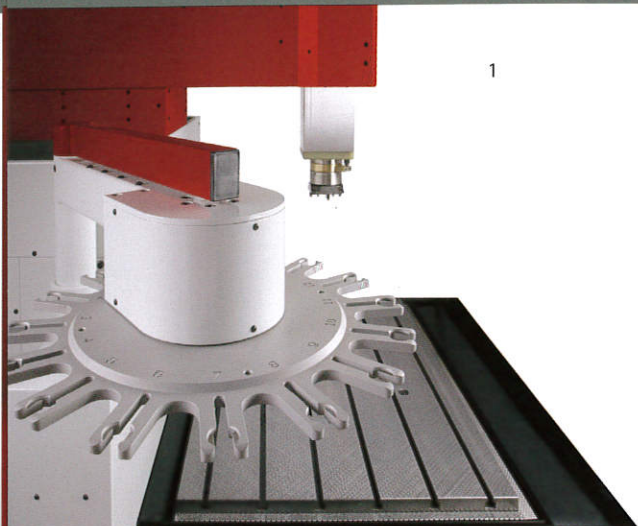
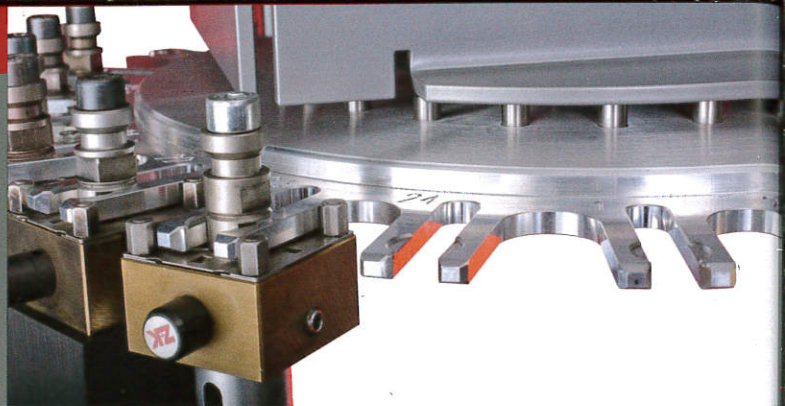
H x W x D	2,400 x 1,540 x 1,000 mm
Weight	1,200 kg
Output	6 kW / 400 Volt
Waste tank	170 l
Chip basket	2.3 l
Filling capacity of cleaning fluid	180 l
Pallet size (max.)	600 x 400 x 300 mm (x, y, z)
Pallet weight (max.)	250 kg
Clamping systems	PARTOOL: POWERGRIP EROWA: ITS, UPC, PowerChuck 3R: Makro, Dynafix

Manual transfer and cleaning station

Our transfer station simplifies the overall handling of the system. The unit, which is independent of the machine, is used for loading and unloading the *Chameleon* handling system. During unloading, the pallets can be tipped into the transfer and cleaning station. This way, any remaining dielectric fluid is poured out and the following processing steps can be carried out "clean". The transfer station is easily accessible and meets the highest standards regarding occupational safety.



independent
sturdy
fast



1

2

Gripper exchange systems Single and double grippers

For *Chameleon*, we offer single and double grippers for electrodes and work pieces for all common clamping systems. In addition, you'll receive 148's pallet grippers and UPC pallet grippers in different versions. Storage spaces in the magazines allow for fast changing of the grippers for electrodes, work pieces and tools.

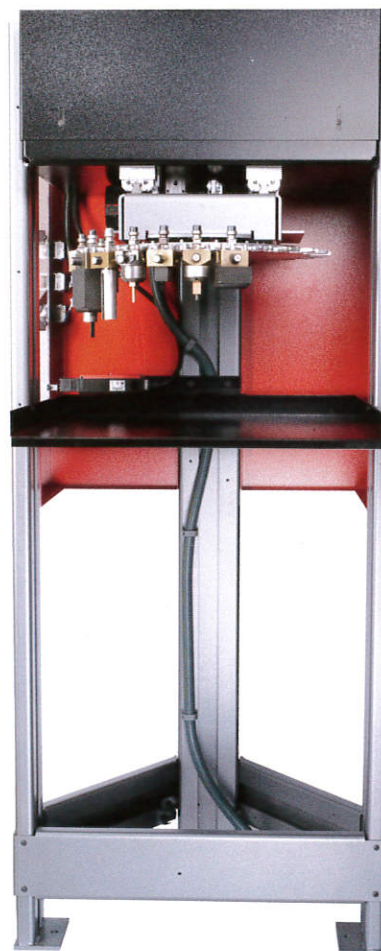
16-fold plate changer

Our 16-fold rotary plate electrode changer is designed for all standard clamping systems. It is proven, cost-effective, reliable and extremely sturdy. Overload and collision protection can be activated and monitored during the change process. You can use the 16-fold changer with all our *genius* machines, except the *genius* 700.

24-fold plate changer

Our 24-fold electrode changer in plate construction is sturdy and flexible. It can be continuously adjusted to all table heights and has integrated overload and shock protection. The changer offers the option of electrode identification via RFID chip and is suitable for all clamping systems.

You can use the 24-fold changer with all our *genius* machines, except the *genius* 602.

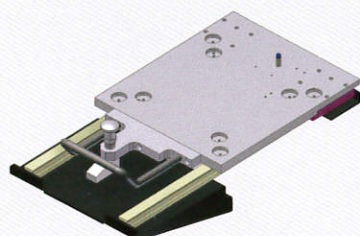


- 1 16-fold electrode changer
- 2 24-fold electrode changer, with flexible height adjustment

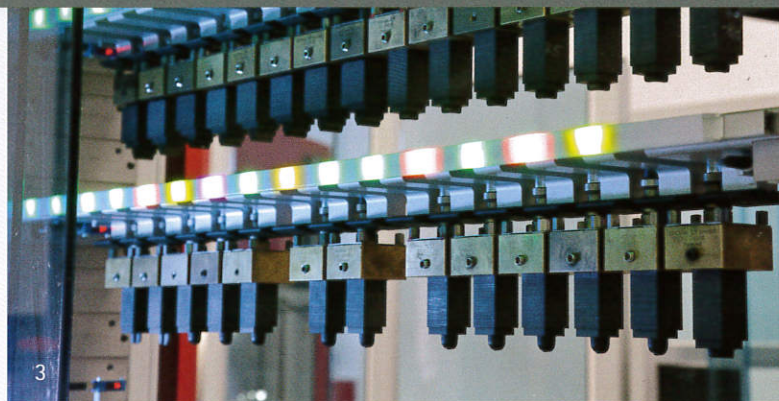
Accessories and options



1



2



3

- 1 50-fold electrode changer
- 2 Loading drawer
- 3 LED light strip on the magazines

50-fold plate changer

Our 50-fold electrode changer in plate design is based on the 24-fold changer, also designed for all standard clamping systems, and has integrated overload and shock protection. In contrast to the 24-fold changer, this system offers the option of electrode identification via RFID chip. You can use the 50-fold changer with all our *genius* machines, except the *genius* 602.

Loading drawer

The drawer helps to load and unload heavy parts into the magazine. It is mounted in the intermediate magazines.

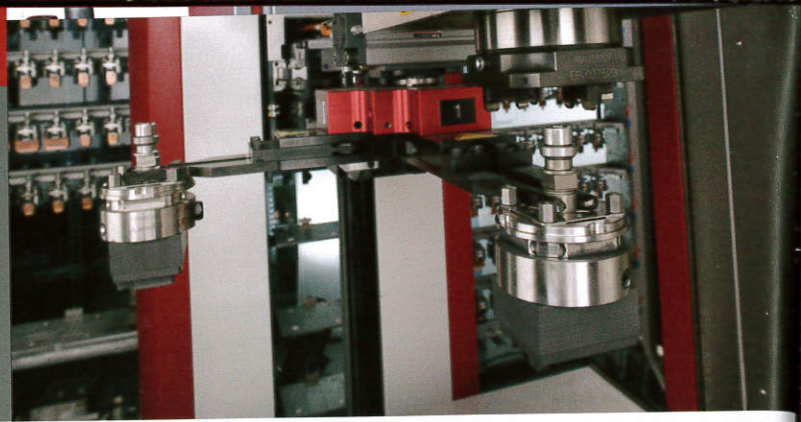
LED light strips

The magazine shelves can be optionally equipped with LED lights. They offer you an overview of ongoing processes even from a distance, for example, red for busy and green for available. You can freely program up to 7 colours according to your own sorting criteria.

Coupling systems

In addition, we can equip *Chameleon* with a coupling system for changing the grippers. We offer the system as our own Zimmer & Kreim system or on request from ERÖWA (RCS).

Pallets, grippers and chucks



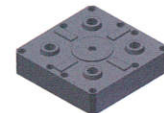
Clamping systems *Chameleon works with all common clamping systems.*



EROWA ITS



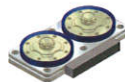
Prepalett PowerChuck



EROWA UPC



3R Macro



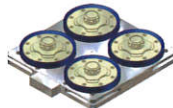
PARTOOL
POWERGRIP 2's



3R Dynafix



EROWA PowerChuck



PARTOOL
POWERGRIP 4's

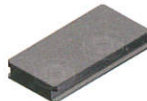


Hirschmann
pallet clamber
H 8 11.32

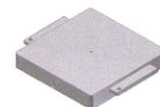
Pallets *Pallet size: 500 x 500 mm and 400 x 600 mm.*



EROWA ITS Electrode



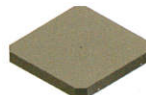
PARTOOL
POWERGRIP 2's pallet



3R Dynafix pallet



3R Macro Electrode



PARTOOL
POWERGRIP 4's



Hirschmann H8 320 pallet



EROWA
PowerChuck pallet



EROWA UPC pallet

Gripper exchange systems



Single gripper



Gripper for PARTOOL
POWERGRIP double



Gripper Hirschmann



PowerChuck
Single gripper



Gripper for PARTOOL
POWERGRIP quadruple,
UPC, Dynafix

Gripper options



Double gripper



PowerChuck
Double gripper



Rotation gripper 90°



Double-rotation gripper 2 x 180°



Rotation gripper 180°



Gripper oversize
500 mm x 450 mm

Fully automated across multiple processes – FMS flexible manufacturing systems

Milling machines Röders RXP 500

HSC milling machine for automatic processing according to priorities. The use of milling machines is controlled by our software tool JOBmodMILL and executed by *Chameleon*.



Transclean

Automatic cleaning of work pieces, tools and electrodes.

EDM machine genius 1000 – The Cube

CNC cavity sinking machine, adaptable for left and right



EDM machine genius 700

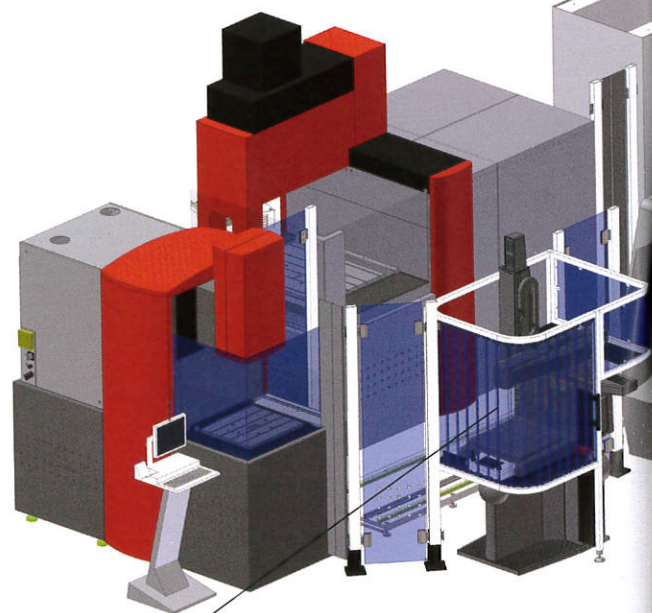
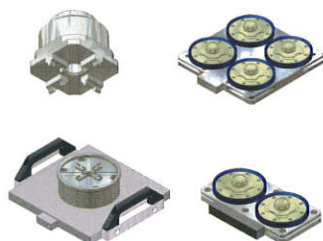
CNC cavity sinking machine, adaptable for left and right

- high travel speed
- highest precision in difficult EDM processes



Zero point clamping system

All clamping systems in the system are controlled and equipped by the robot. All commercial clamping systems can be used.



Duramax measuring machine

Automatic presetting and measuring against data set, integrated in the automated process flow.





Chameleon robot

Linear robotic system with its own control system; movable on up to 5 axes; transfer weight up to max. 125 kg



Kern EVO

HSC ultra-precision processing centre. Integrated into the cell via the JOBmodMILL software module.

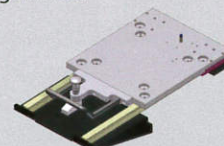


Double-rotation gripper

2-fold 180° rotation in 2 axes

Loading drawer

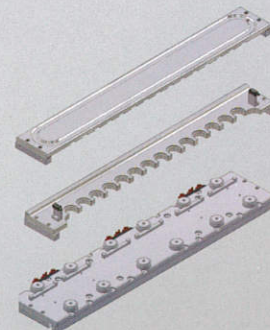
Loading and unloading of work pieces; extendible, assembly in the intermediate magazines.



Magazine shelves for electrodes, work pieces and milling cutters

For example for:

- HSK 50 (alternatively: HSK 25, HSK 40, HSK 63)
- EROWA ITS 15
- PARTOOL POWERGRIP 2's and all common clamping systems.



FANUC

Wire EDM machine. Symmetrically arranged magnetic disks provide greater accuracy. Integrated into the cell via the JOBmodCUT software module.



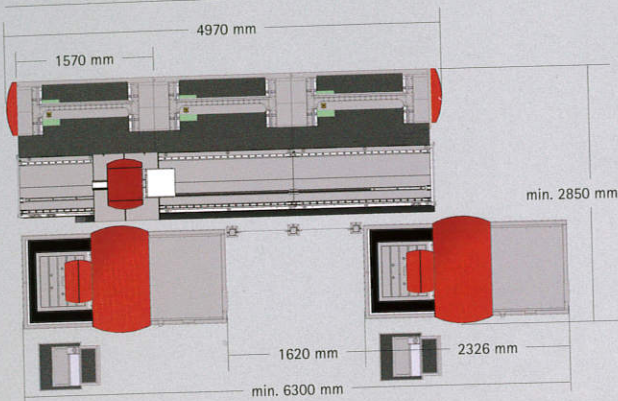
For other automated systems, please visit our website:

www.zk-system.com

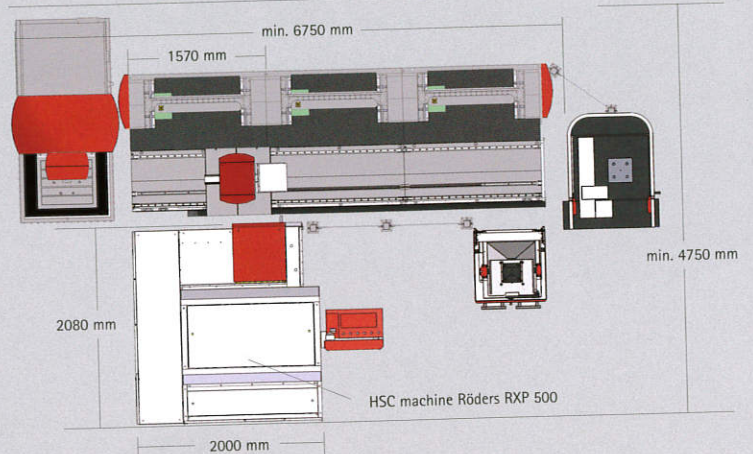
Modular according to your needs

Set-up examples

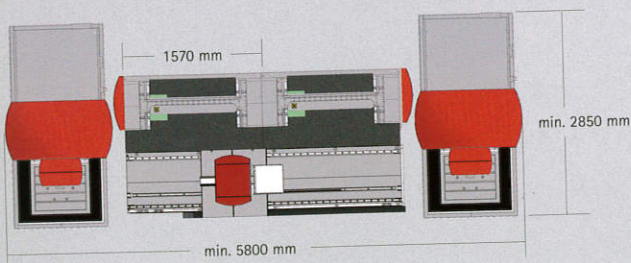
Alternative 01 (minimum floor space 6300 mm x 2850 mm)



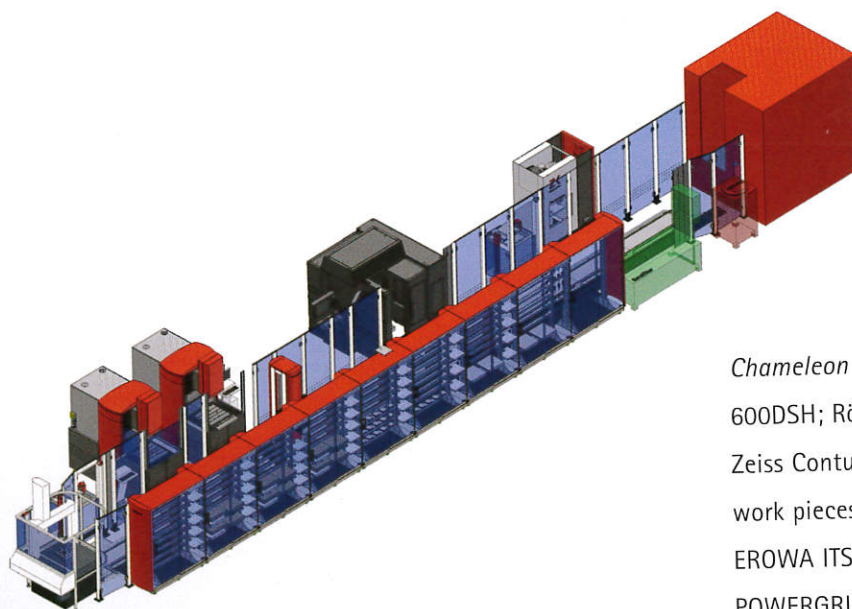
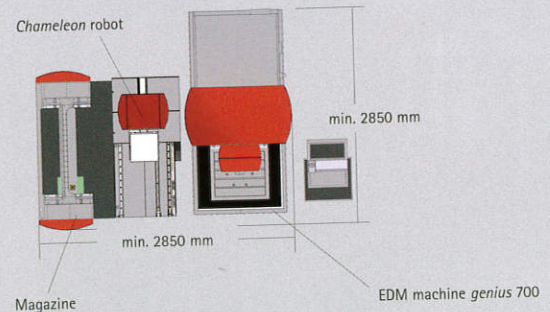
Alternative 02 (minimum floor space 6750 mm x 4750 mm)



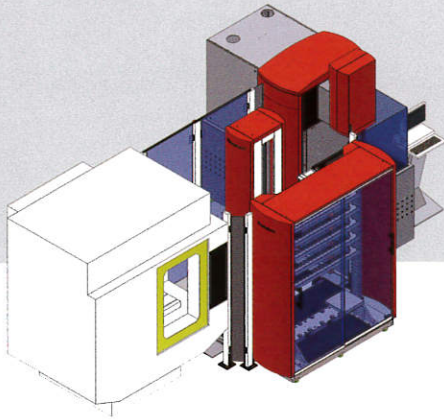
Alternative 03 (minimum floor space 5800 mm x 2850 mm)



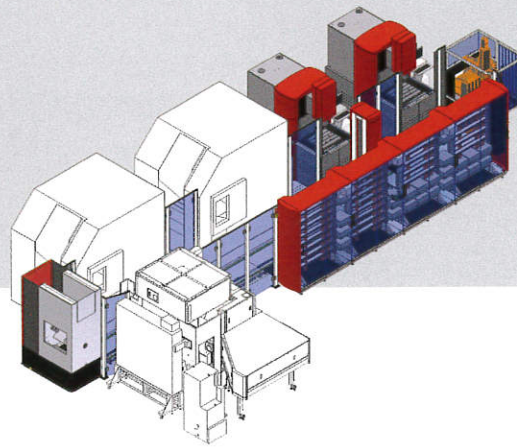
Alternative 04 (minimum floor space 2850 mm x 2850 mm)



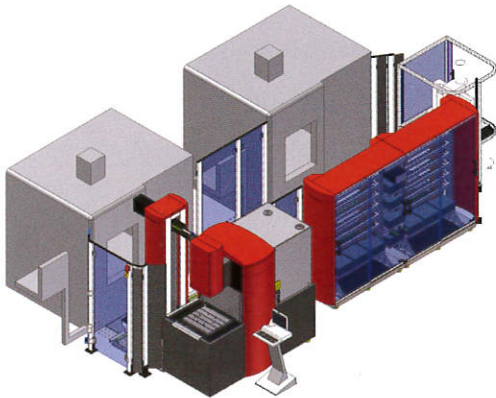
Chameleon with 9 magazines; 2 pcs. *genius* 700; Röders RXP 600DSH; Röders RXP 500DS; *Transclean*; measuring machine Zeiss Contura; 2 pcs. loading stations; number of electrodes, work pieces and tools: 168 HSK 50E, 136 HSK 40, 540 pcs. EROWA ITS 50, 20 x EROWA PowerChuck 148, 18 x PARTOOL POWERGRIP 450 x 400, 36 x PARTOOL POWERGRIP 318 x 318



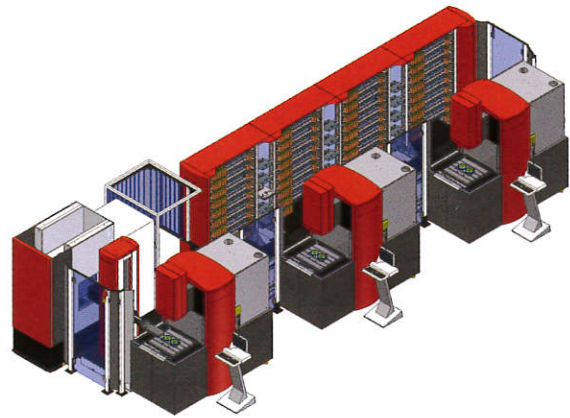
Chameleon with 1 magazine; *genius 700*; FANUC Robodrill T 21iE; number of electrodes and work pieces: 90 pcs. system 3R Macro, 3 pcs. system 3R Dynafix



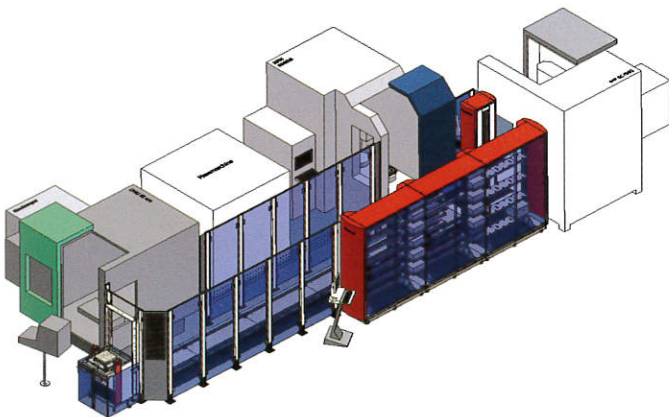
Chameleon with 4 magazines; 2 pcs. *genius 700*; 2 pcs. YASDA YBM640; Makino V33; *Transclean*; measuring machine Zeiss Duramax; number of electrodes, work pieces and tools: 420 pcs. EROWA ITS 50, 23 pcs. EROWA UPC



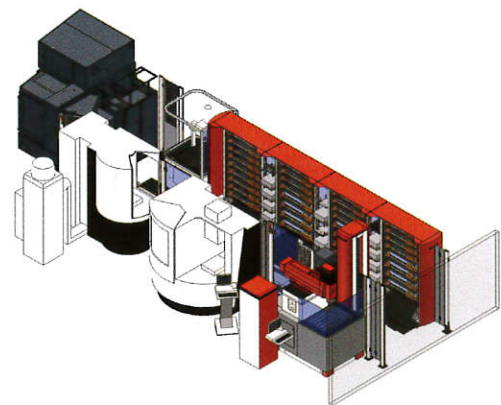
Chameleon with 2 magazines; *genius 700*; 2 pcs. DMC 365V; measuring machine Zeiss Vista; number of electrodes, work pieces and tools: 210 pcs. EROWA ITS 50, 4 pcs. PARTOOL POWERGRIP 4's; 12 pcs. PARTOOL POWERGRIP 2's



Chameleon with 4 magazines; 3 pcs. *genius 700*; *Transclean*; measuring machine Zeiss Vista and optical measuring machine; number of electrodes, work pieces and tools: 540 pcs. EROWA ITS 50, 15 pcs. PARTOOL POWERGRIP 2's



Chameleon with 3 magazines; cover DMU 50 evo; Röders RP 600 DS; cover DMU 70 evo; preparation for measuring machine; loading station; number of electrodes, work pieces and milling cutters: 165 pcs. EROWA ITS; 19 pcs. UPC; 102 pcs. HSK 40



Chameleon with 4 magazines; *genius 850*; Mikron HSM400; Mikron HSM 300; Exeron D-600HSC; number of electrodes, work pieces and tools: 480 pcs. EROWA ITS 50, 13 pcs. EROWA UPC

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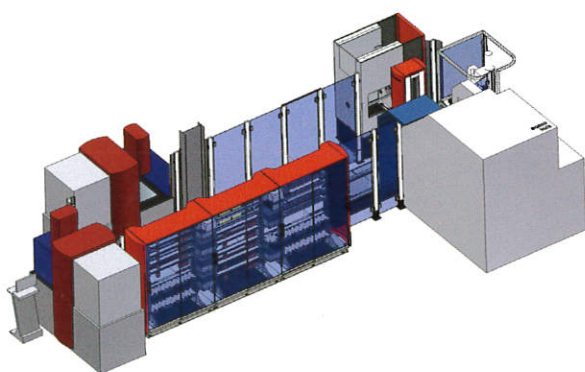


Global systems expertise in automated processing

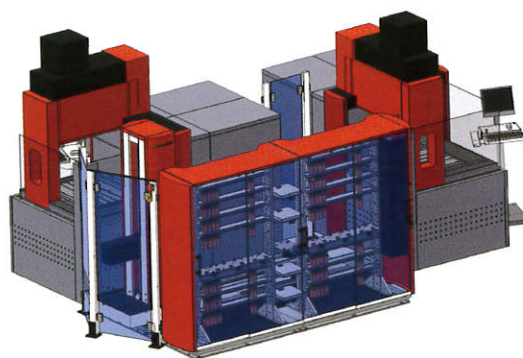
More than 500 installed systems worldwide prove our expertise in the set-up and support of automated manufacturing systems across technologies. Every system is different – tailored to your processes and machinery. Impossible? Not for us. We design your individual, automated process solution.

In the run-up to your investment decision, we advise you and develop the right concept together with you. In this process, you benefit from our experience as machine manufacturer in the area of cavity sinking, as a process developer in the area of automated handling, and as a software developer for tool manufacture and mould making. Our expertise acquired over decades gives you the support and the confidence you need for your upcoming investment.

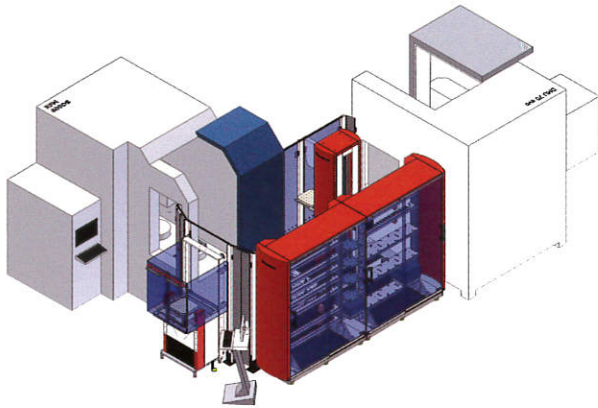
A small selection:



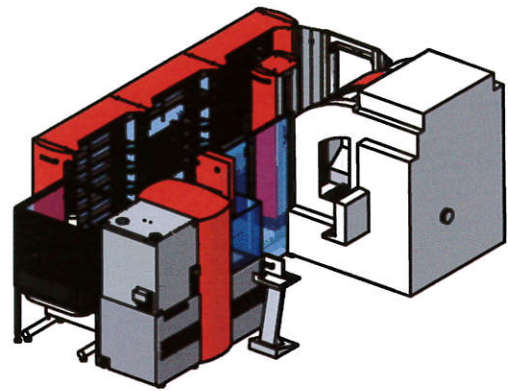
Chameleon with 3 magazines; 2 pcs. *genius* 700; *Transclean*; measuring machine Zeiss Vista; 1 pc. Rödgers RFM 600DS; number of electrodes, work pieces and tools: 150 pcs. EROWA ITS 50, 51 HSK 40, 19 pcs. EROWA UPC



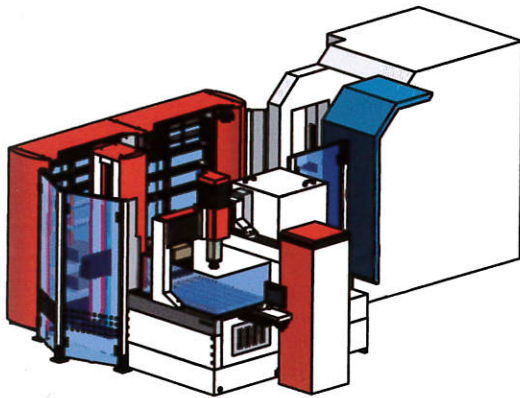
Chameleon with 2 magazines; 2 pcs. *genius* 1000; number of electrodes, work pieces and tools: 210 pcs. EROWA ITS 50, 11 pcs. PARTOOL POWERGRIP 4's



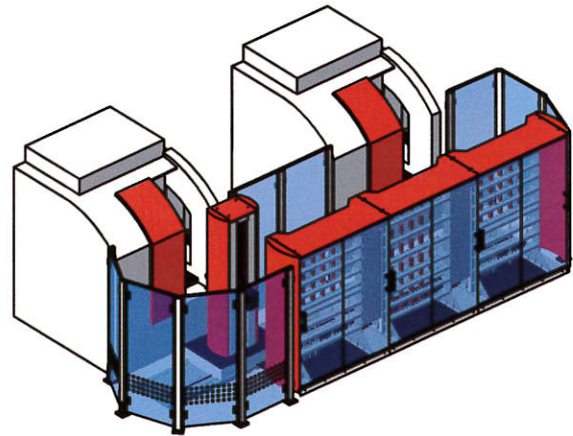
Chameleon with 2 magazines; cover DMU 50 evo; Röders RP 600 DS; preparation for measuring machine; loading station; number of electrodes, work pieces and milling cutters: 60 pcs. EROWA ITS; 14 pcs. UPC; 102 pcs. HSK 40



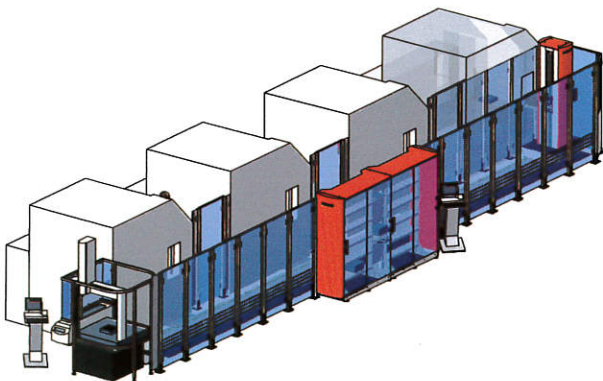
Chameleon with 3 magazines; *genius* 700; Röders RXP 300; measuring machine Mitutoyo Crysta CNC; number of electrodes, work pieces and tools: 150 pcs. ITS electrodes; 18 PARTOOL POWERGRIP 2's; 72 pcs. HSK 25



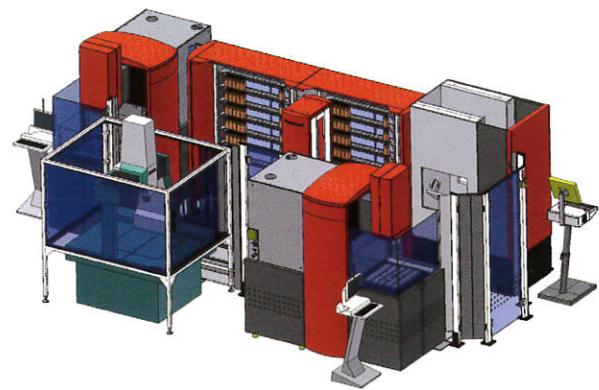
Chameleon with 2 magazines; *genius* 1200; Röders RHP 800; turning and rotating station; number of electrodes and work pieces: 120 pcs. EROWA ITS; 12 pcs. EROWA UPC; 34 pcs. HSK 40



Chameleon with 3 magazines; 2 Röders RXP 500; number of electrodes and milling cutters: 250 pcs. EROWA ITS, 136 pcs. HSK 40



Chameleon with 2 magazines (total track length of the robot 15.70 m); 3 x milling machines YASDA 640 V; 1 x additional milling machine as preparation; measuring machine Zeiss Contura; loading drawer; number of work pieces: 30 pcs. EROWA UPC



Chameleon with 2 magazines; 2 pcs. *genius* 700; measuring machine Wenzel; *Transclean*; number of electrodes, work pieces and tools: 210 pcs. EROWA ITS 50, 16 pcs. PARTOOL POWERGRIP 2's

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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.

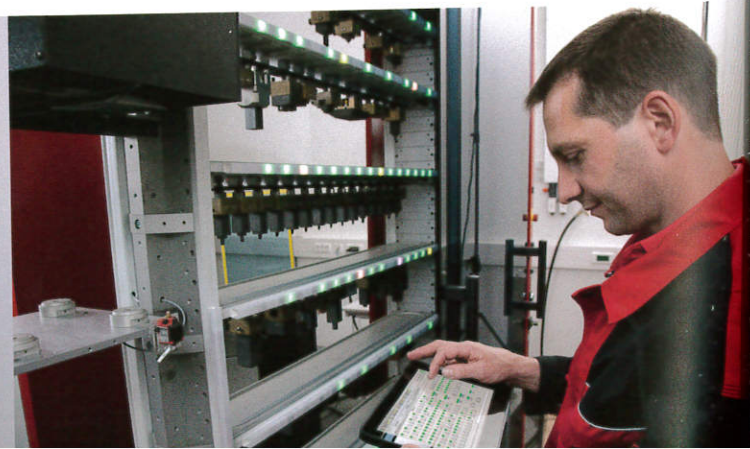
The advantages of ZK's service at a glance:

- **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.

And now the latest: 070000genius Worldwide vanity service number.

By dialling the vanity call number 070000genius (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.





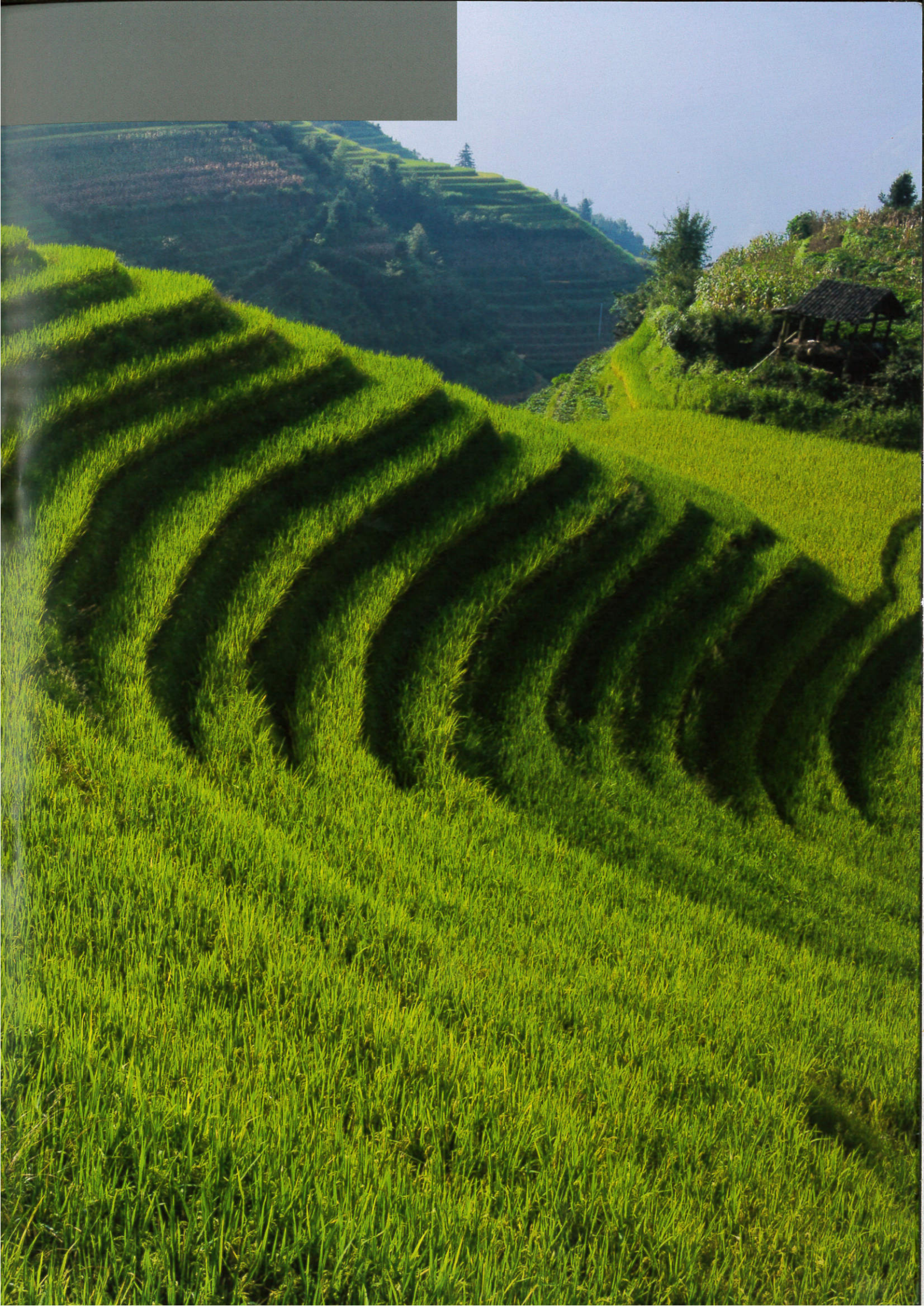
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and are supplied by us with the necessary spare parts in the shortest of times. By the way: we are constantly expanding our sales partnerships so that you will find a contact person close by everywhere in the world.

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