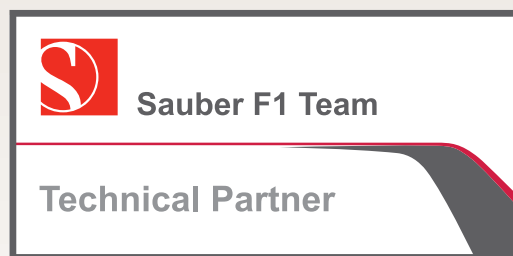


FA-S Advance Series



MITSUBISHI ELECTRIC EUROPE B.V.
German Branch
FA-Mechatronics EDM

Gothaer Str. 8 • DE - 40880 Ratingen
Fon +49 - (0)2102 - 486 - 6120
Fax +49 - (0)2102 - 486 - 7090

edm.sales@meg.mee.com
www.mitsubishi-edm.de



FA-S Advance: Your Future in Wire Erosion	Page: 4-5
Convincing in all aspects: The superior machine concept	Page: 6-7
Ensure Your Success: Highest Productivity and Precision with Maximum Process Safety	Page: 8-9
Ready to go in a few seconds: The user-friendly wire threading system	Page: 10-11
The new Advance CNC control: The new standard in wire erosion	Page: 12-13
Advance Control: Directly utilise your existing 3D CAD data	Page: 14-15
Power Master 3D: Dynamics and Precision with Utmost Process Safety	Page: 16-17
... it gets even better	Page: 18-19
The FA-S Advance Series	Page: 22-23
Think big: The FA30-S, FA40-S and FA50-S Advance	Page: 24-25
The FA-S Advance: Eroding PCD and CBN easily	Page: 26-27
Expand your possibilities: B axis and rotating spindle	Page: 28-29
Automatic operation for everything: Complete solutions for all cases	Page: 30-31
Technical data	Page: 32-33
Technical data, layout plans	Page: 34-39

You can find the latest information on benefits, support and technical questions on the Mitsubishi Electric EDM Internet pages (www.mitsubishi-edm.de).

In the products area of the homepage you will find links to documentation for Mitsubishi's EDM product portfolio, as well as the most current version of this catalogue as a download.

All data is updated daily and is available in English and German.

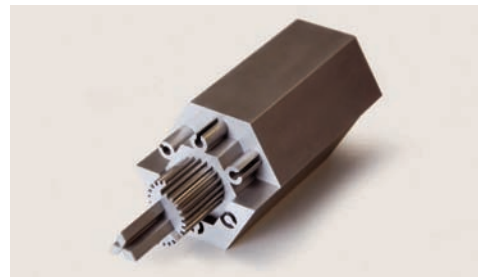


Your requirements for a modern wire eroding system are highly varied and your customer's demand will continue to rise. What does it mean for you?

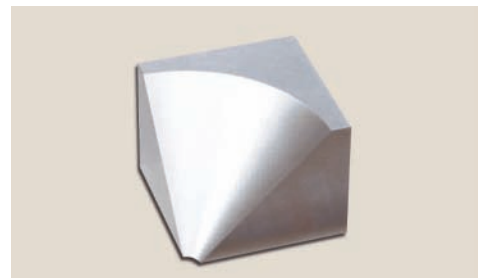
The FA-S Advance is the solution for your manufacturing process. You can realise compound tools, graphite electrodes, gear moulds, profiles, plastic moldings and single-part or serial production quickly and reliably with the FA-S Advance, which covers the complete application range. Even special demands from medical as well as aircraft and space industry are the domain of this machine series.

Since we are Mitsubishi Electric, the world-wide leader in spark erosion, you can expect this from us.

Our outstanding reliability and operational safety in spark erosion remains unparalleled.



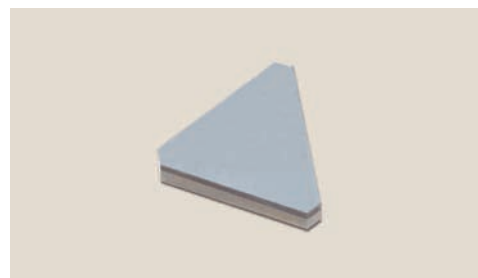
High precision processing with precision and parallelism <math>< 3\mu</math>
 Material Steel (58Hrc)
 Cutting height 80 mm
 Wire electrode 0.25 mm brass
 Surface quality Ra 0.24 μm
 Parallelism: <math>< 3\mu</math>



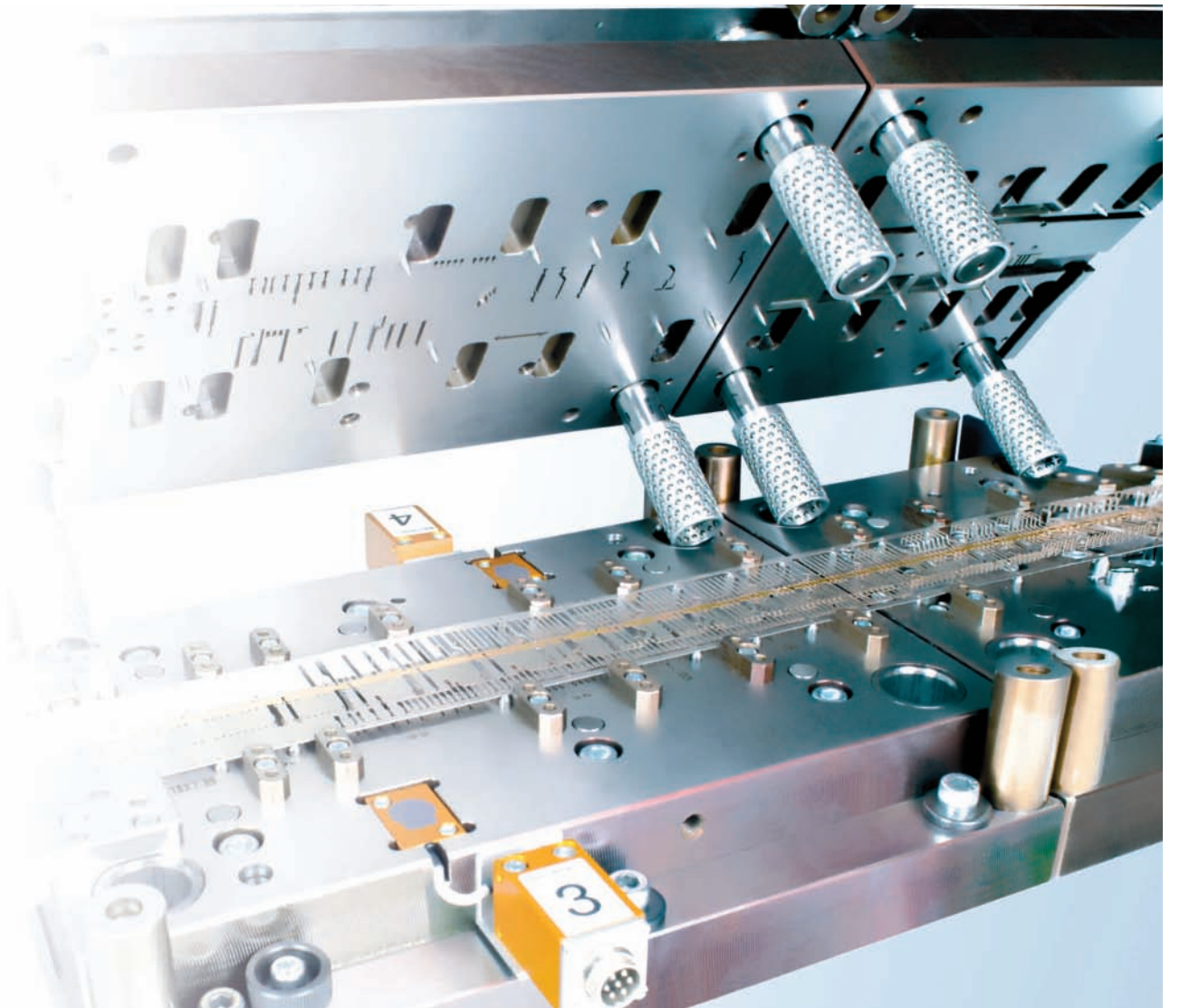
Conical processing
 The Angle Master enables you to precisely machine angles up to 45° with a stable eroding process.
 Material: 1.2379
 Work piece height: 50 mm
 Wire electrode: 0.25 mm Master Cut Type T
 Surface quality: Ra 0.63 μm
 Function utilised: Angle Master



Precise processing of **stepped workpieces** with a parallelism <math>< 2\mu\text{m}</math>
 Material: steel
 Cutting height: 5-20-40-60 mm
 Wire electrode: 0.20 mm brass
 Surface quality: Ra 0.34 μm
 Function utilised: SL-Control, Power Master



Innovative **PCD processing** that prevents unplanned material erosion
 Material: PCD grain size 10 μm
 Cutting height: 3 mm
 Wire electrode: 0.25 mm brass
 Surface quality: Ra 1.65 μm

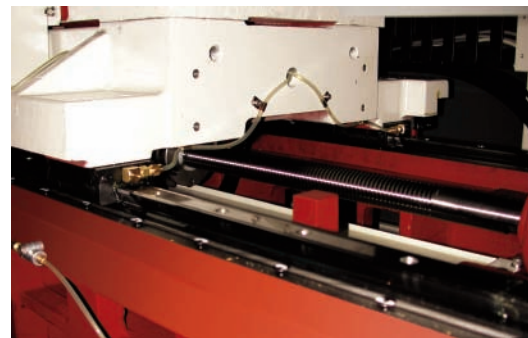




The vertical sliding door opens and closes at the push of a button (except FA10-S Advance). This solution guarantees ultimate space saving and best access to the working area.



Direct drive and generously dimensioned spindles. The digital AC direct drive system, gives a shaft resolution of 0.05 μm . The spindle is also arranged exactly in the centre of the load in order to ensure "soft" axis movement.

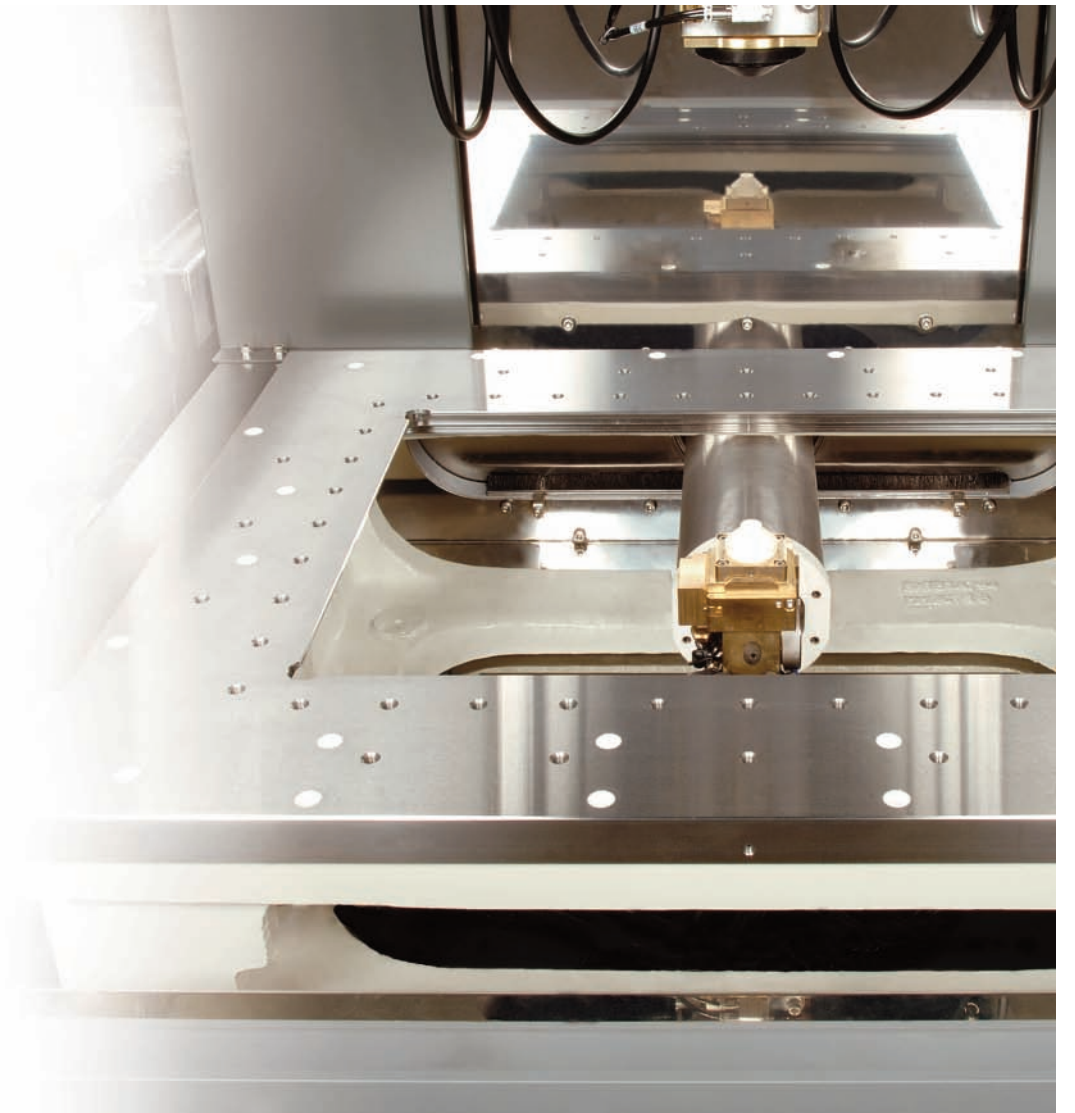


The classic **cast steel machine design** provides a solid construction for a long service life, as well as being able to handle heavy workpieces.



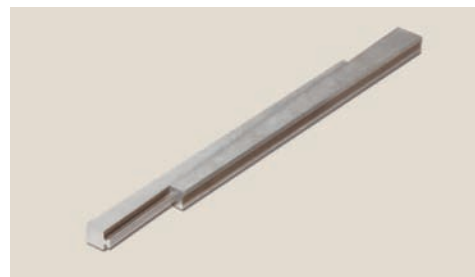
As standard, the FA-S Advance is equipped with **glass scales** in the X and the Y axis. These are located within the immediate vicinity of the working area for the highest precision.

Designed for workpieces of up to 4 tonnes. There is little else we need to say regarding the rigidity and stability. Furthermore, there is the high-resolution digital controlled direct drive system (0.05 μm resolution) and a generously dimensioned ballscrew, including 10 years warranty on positioning accuracy. Both features guarantee continuous precision over an extremely long working life. The table for workpiece clamping, with its vertical slidingdoor has been ergonomically designed with the operator in mind. Ease of maintenance is a core design feature demonstrated by the patented self-cleaning system of the working tank seal plate as well as the fully automatic central lubrication system. These are only a few examples of the intelligent design applied to Mitsubishi's latest FA-Series machine. Needless to say quality is also important to us, and all FA machines are checked by laser measurement, roundness tests and extensive controls among other things. Because precision needs perfection.





The FA-S Advance generates outstanding, precise results - not only under laboratory conditions, but also in day-to-day activities. After all, this is ultimately the decisive factor for you. Astonish your customers with exceptional results and reasonable prices made possible by the most progressive technology and low operating costs. Surface finishes of less than 0.15 μm Ra, cutting speeds up to 500 mm²/min, and parallelism from 5 μm on the diameter at a cutting height of 200 mm are achievable. The FA-S Advance continues to work reliably even in the most difficult flushing conditions such as conic angles up to 45°, offset or intermittent workpieces, thereby delivering precise and lasting results that are reproducible.



Precision with large cutting heights
Material: steel
Cutting height: 200 mm
Parallelism: 5 μm
Wire electrode: 0.25 mm brass
Surface quality: Ra 0.6 μm
Function utilised: V-Generator with Digital AE



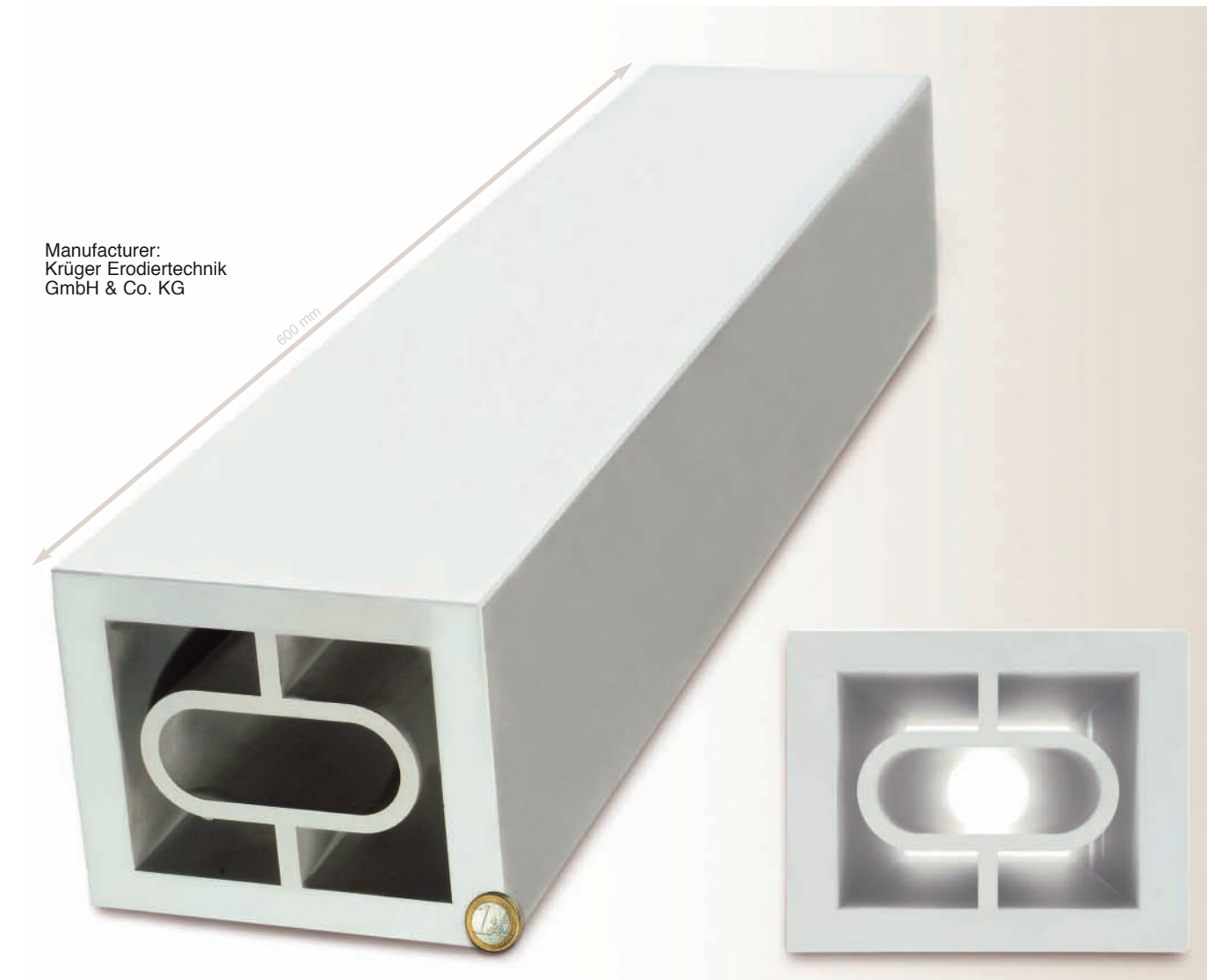
High-speed processing of large stepped forms
with data transfer from 3D CAD
Material: 1.2379
Workpiece height: 10 – 80 mm
Wire electrode: 0.25 mm brass
Surface quality: Ra 0.4 μm
Function utilised: 3D Power Master



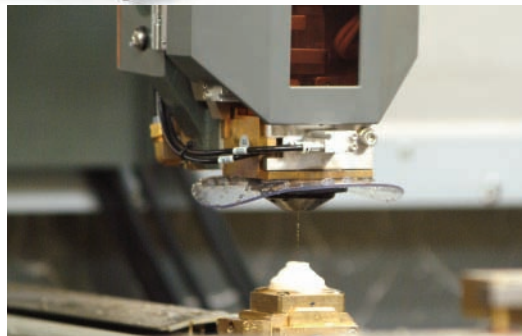
Ultra-precise punch's with parallelism
< 3 μm and with the best surface qualities
Material: tungsten carbide
Cutting height: 60 mm
Wire electrode: 0.20 mm brass
Surface quality: Ra 0.13 μm
Function utilised: Digital fine finishing generator



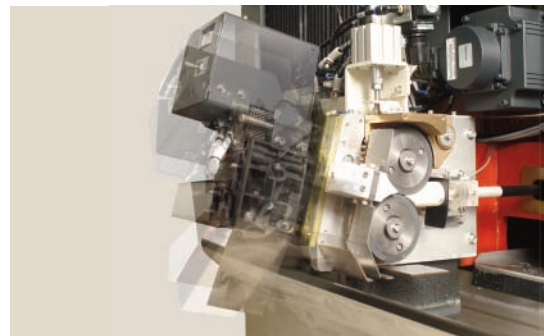
Punch and guidance – precision and productivity
Material: Steel (58Hrc)
Cutting height 60 mm
Wire electrode 0.25 mm brass
Surface quality 0.28 μm Ra
Parallelism: < 3 μm



Manufacturer:
Krüger Erodieretechnik
GmbH & Co. KG



Threaded in 10 seconds: the AT system
The combination of a new measuring sensor and a fast retract function gives you highest reliability and ultimate speed, even for smallest starting holes.



The **wire drive mechanism** has been equipped with larger draw rolls. This increases the operational safety particularly for thin wires. The standard existing wire chopper can be easily swivelled to the side when it is not needed.



Telecontrol: Remote control via PC. Telecontrol realises the remote monitoring and remote control of the machine from any site. The optimisation of running processes is also possible.



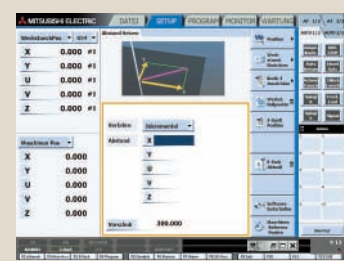
The Automatic Threading System (AT) threads the wire in only 10 seconds and combined with the standard wire chopper you will achieve ultimate speed, safety and comfort.

Overall machine operation is made easy with all the operating and maintenance elements easily reached.

And if you are off site? You can still have access to the machine functions via Telecontrol.

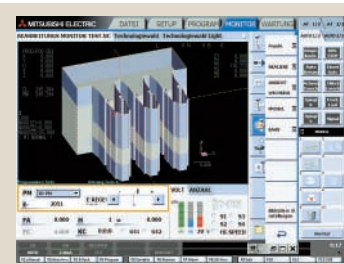
This function allows you to control and monitor your eroding system through a datalink in real time. Another monitoring option is our intelligent Telecontact system.

It allows you to transfer machine messages via SMS to a mobile phone. And for the highest level of help and support you can rely on remote diagnosis and online help through our Teleservice. With this system our customer service team can support you for all problems by means of direct online access to the machine.



Easy Screen

The workpiece set-up takes place as usual via screen views that are simple and logical in their succession. A "short version" offers the Easy Set Up function, which provides all essential set-up possibilities in one screen view. It could not be any easier to get started...



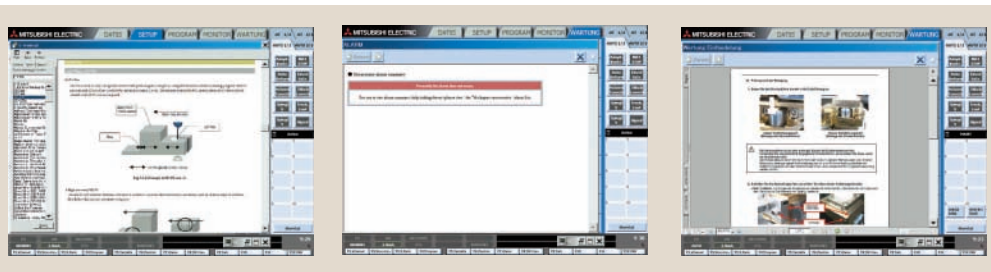
Ergonomic Design

In addition to the 15" touch screen, the machine is also equipped with fixed function keys as well as a PC keyboard and mouse. These features enable simple and precise operation even when the CAM functions are utilized.



USB

The FA-S Advance is generally equipped and delivered with an individualized USB flash drive. Any type of software update regarding the control of the machine can only be performed via this USB stick. This includes the backup of all user and machine-specific data before any software update. This enables your individual settings to be restored afterwards.



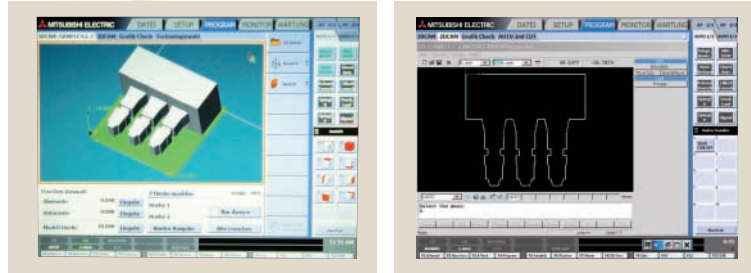
E-Manual / Alarm / Maintenance Support

The Advance Control comes with complete machine documentation, including numerous search and help functions. Directly from within the respective processing screen, you can call up the corresponding explanations from the machine's operating manual, maintenance guidelines for the corresponding machine components, and additional notes regarding alarm signals.

The new Advance control based on the Mitsubishi CNC M700 is captivating due to its user-friendliness and reliability. In spite of its complex range of functions, it can be operated intuitively via a control concept based on Windows XP. The logical menu structure and uncomplicated design allow you to quickly and reliably achieve your goal. You can run a 2D or 3D simulation of your program before or during the processing. The optimal generator setting creates the expert system E.S.P.E.R from your processing parameters. Evaluation, optimisation, and monitoring programs support you in your work. Operational control is performed via a sturdy 15" touch screen monitor, fixed function keys for commands most often used, as well as keyboard and mouse. The control can be linked to a network by using the standard Ethernet card. Data can also be exchanged independently from the network by way of two USB ports via USB flash drive.

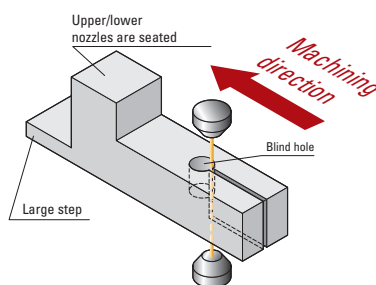
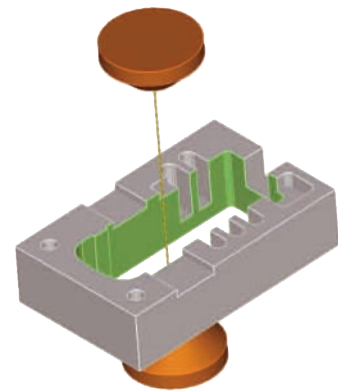
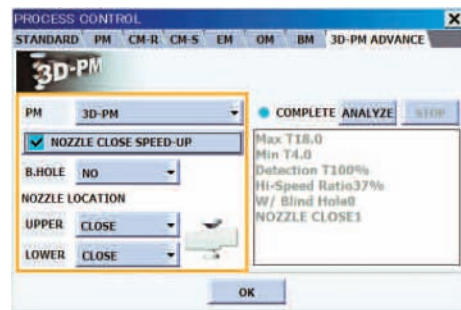
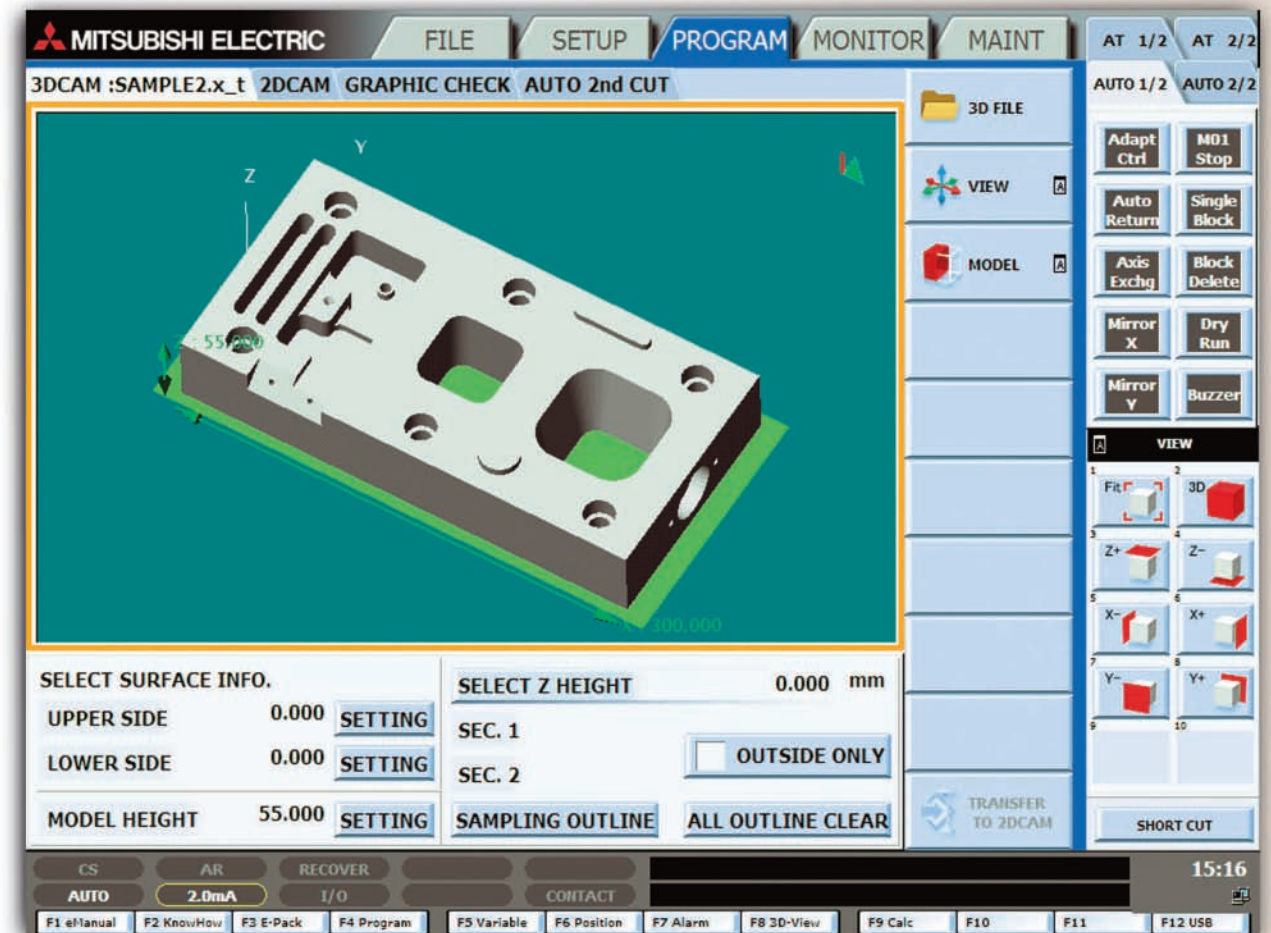


The Advance Control also includes a 3D as well as 2D CAM system. 3D data in parasolid format and 2D data stored as DXF or IGES files can be directly imported and converted into NC programs. Your advantage: quickly and easily move from set-up to production.



3D CAD / 2D CAD

Loading the existing 3D data for your workpiece in parasolid format is easy as the Advance Control can process your original data in multiple formats. Using the integrated 3D CAM system, you can generate the eroding contours directly from your 3D parasolid model and then transmit them to the built-in 2D CAM program. The 2D CAM generates the NC program from these specifications, which can also still be adjusted. Needless to say, you can also import 2D CAD data in DXF or IGES format directly into the 2D CAM and then generate or further process the NC program.



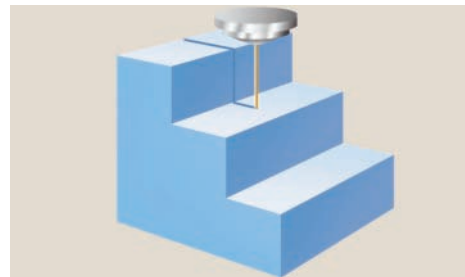
3D PowerMaster

The Advance Control reads the 3D CAD data for information regarding height run and interruptions in the workpiece. When the Advance Control is processing in the 3D Power Master mode, it anticipates height differences and cavities in the workpiece and reacts accordingly. The possibility of the workpiece being damaged with marks and lines is avoided by this anticipatory eroding process, which at the same time, does not adversely affect the performance or cutting speed.



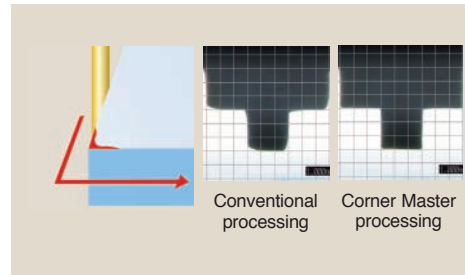
You receive fully automatic technology management with the Power Master 3D.

It automatically adapts the generator power and flushing pressure to the processing conditions and optimises the cutting speed. By utilising the integrated 3D functionality, it anticipates the height differences and cavities in the workpiece and erodes accordingly. This minimises the wire break risk and shortens your processing time, all while increasing workpiece quality and contributing to a lasting cost reduction. There are numerous other automatic functions that make it easier for you to achieve perfect and reproducible processing results.

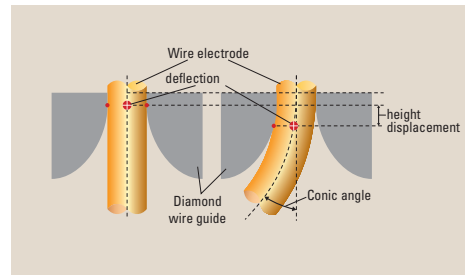


Power Master

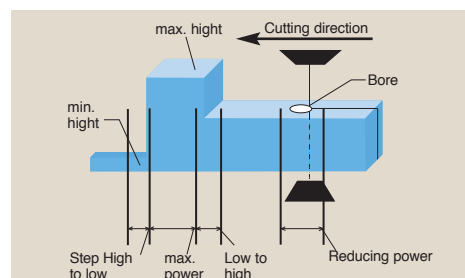
The proven Power Master enables you to process stepped workpieces without wire breaks or marks on the surface.



Corner Master takes care of the clean shaping of sharp corners and small radii without losing cutting speed. The attention to details in small-geometry elements is ensured by the strategy outline in the finishing cuts.

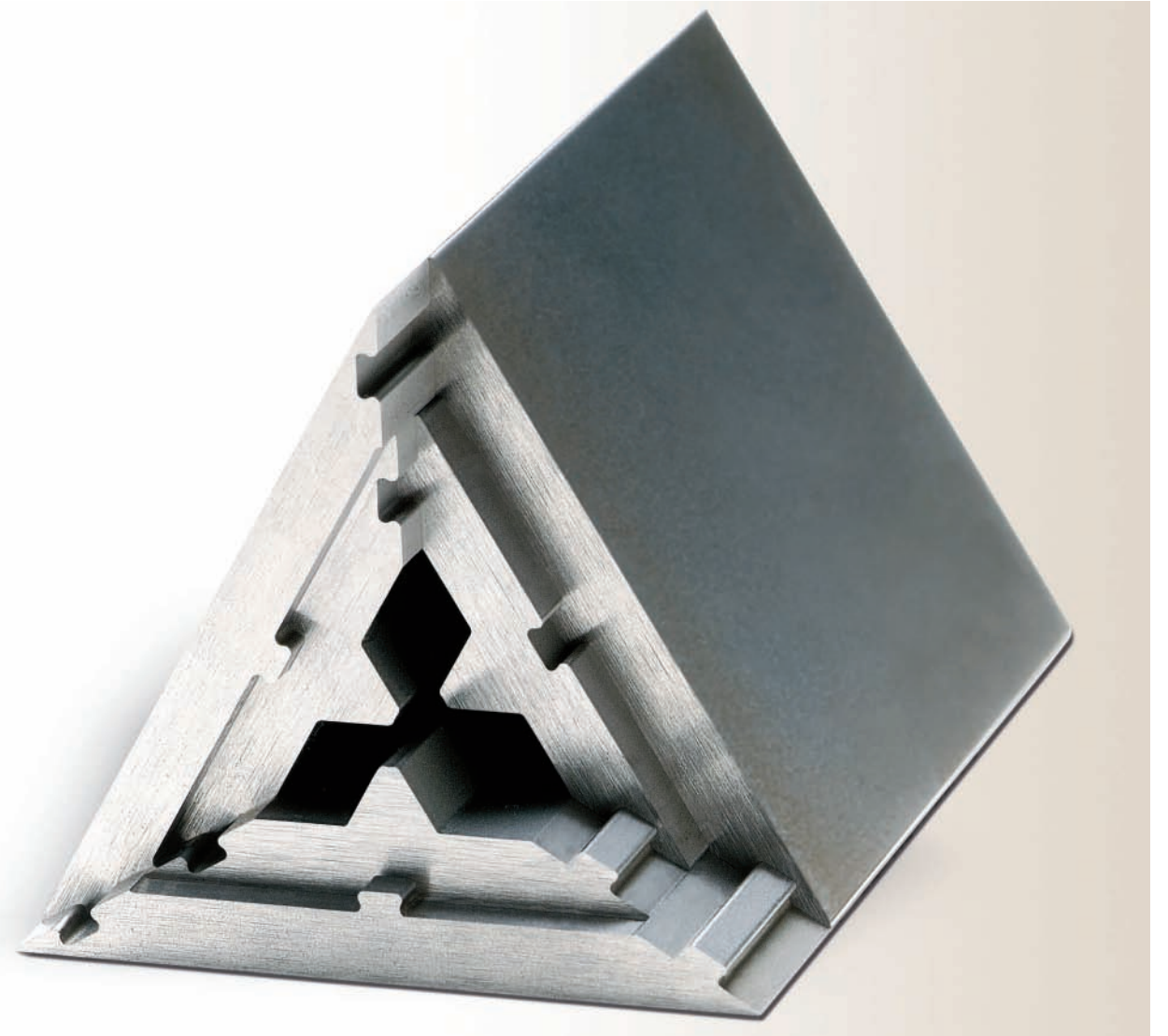


The **Angle Master** compensates the movement of the EDM wire fulcrum within the Diamond wire guide to achieve highest precision, even with changing taper angles.



3D Power Master

By means of 3D data, which is read by the Advance Control for program generation, the 3D Power Master establishes the exact position of the height differences and cavities in the workpiece and optimises generator power and cutting speed shortly before it actually reaches the "problem area".

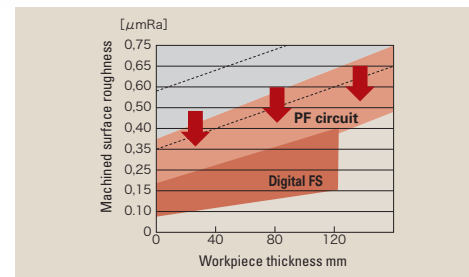




The wire eroding machines from Mitsubishi Electric have been equipped for a long time with high-speed, anti-electrolysis generators (HSS-AE). Adverse effects to the workpiece surface through electrolysis or electrochemical corrosion are reduced to a minimum.

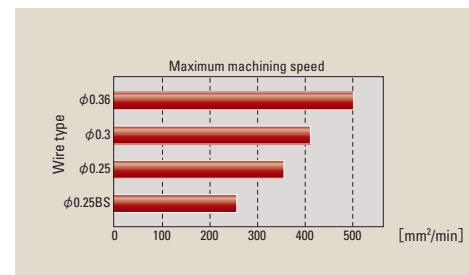
No localised corrosion forms even during longer processing times. It minimises the washouts of the binding agent matrix for sintered materials, the thermally influenced border zone, and the microcrack formation. With more generator options, the FA-S Advance becomes the "machine for everything": it can handle surface finishes finer than $0.15 \mu\text{m Ra}$, cutting speeds up to $500 \text{ mm}^2/\text{min.}$, or parallelism in surprisingly small dimensions.

All from the FA-S Advance ...



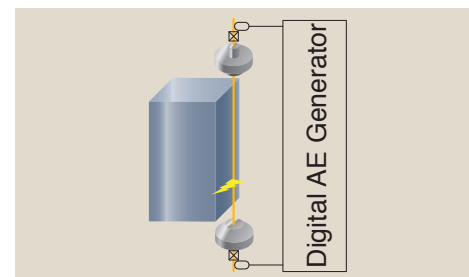
D-FS - Perfect Surface

The digitally controlled fine finishing generator (D-FS) is already well-known from Mitsubishi Electric's high-end PA series and now it is an option with the FA-S Advance. It can achieve surface finishes that are less than $0.15 \mu\text{m Ra}$.



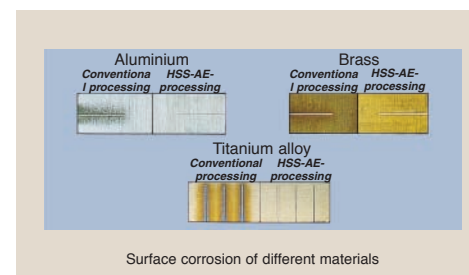
V-Package

The "V-Package" includes a high performance generator in order to achieve cutting rates up to $500 \text{ mm}^2/\text{min.}$ The V-Package can be combined with the digital fine finishing generator.



D-AE - Disruptive process control

The V-Package includes a digitally controlled anti-electrolysis generator (D-AE), which contains all the functions described above in the HSS-AE generators. Furthermore, the D-AE offers a feature that is **not found anywhere else in the world**: the vertical position of the discharges on the workpiece can be controlled! In order to achieve the best parallelisms for taller workpieces, more discharges are concentrated in the lower region of the workpiece to compensate the wear on the wire during the eroding process.



The HSS-AE generator **reduces oxidation in the cutting area for sensitive materials: ferrous materials and sintered materials** such as tungsten carbide, but also for titanium, aluminium etc.





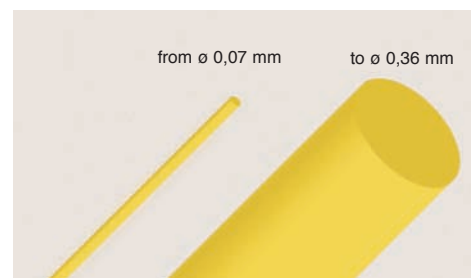
In the best sense of the word, the FA-S Advance is an universal machine, which can increase your competitive edge through low operating costs and short processing times. Cutting speeds up to 500 mm²/min., surface finishes of less than 0.15 μm Ra, wire diameters from 0.07 – 0.36 mm, best parallelism, and simple processing of even the most different materials leaves nothing to be desired. The numerous automatic functions, coupled with the solid, durable construction and the linear measuring system, ensure lasting results that are reproducible. Your advantage: Praxis proven technology ensures your competitive advantage on a long term basis.



FA10-S Advance
Travel paths X/Y/Z mm: 350 x 250 x 220
Overall dimensions of the machine WxDxH mm:
2072 x 2460 (2560 mm V-Generator) x 2030
Max. workpiece dimensions WxDxH mm:
800 x 600 x 215



FA20-S Advance
Travel paths X/Y/Z mm: 500 x 350 x 300
Overall dimensions of the machine WxDxH mm:
2550 x 2800 (2900 mm V-Generator) x 2150
Max. workpiece dimensions WxDxH mm:
1050 x 800 x 295



Possible wire diameters





The technical data of both large-scale Wire cut EDM strengthen the technological leadership of Mitsubishi Electric EDM in an impressive manner.

The maximum cutting rate is 500 mm²/min.

The built-in technology management reduces the processing time even with very large work pieces and bad cutting conditions (stepped and/or pre-milled work pieces, large nozzle distance) – with the highest process reliability. The FA40-S and FA50-S Advance are modern and economical Wire Cut EDM for tool- and mold makers as well as for parts production. The outstanding productivity secures provides a quick return on your investment.



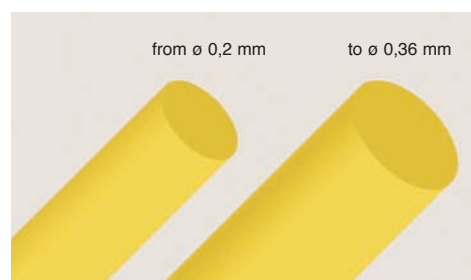
FA30-S Advance
 Travel paths X/Y/Z mm: 750 x 500 x 410 (420*)
 Overall dimensions of the machine W x D x H mm:
 3495 (3732*) x 3143 x 2633 (2783*)
 Max. workpiece dimensions W x D x H mm:
 1300 x 1000 x 405 (600*)
 * = V+ version for workpieces upto 600mm height



FA40-S Advance
 Verfahrwege X/Y/Z mm: 1000 x 800 x 400
 Gesamtabmessungen Maschine BxTxH mm:
 4427 x 4150 x 2823
 Max. Werkstückabmessungen BxTxH mm:
 1550 x 1300 x 395



FA50-S Advance
 Verfahrwege X/Y/Z mm: 1300 x 1000 x 400
 Gesamtabmessungen Maschine BxTxH mm:
 5375 x 5045 x 2823
 Max. Werkstückabmessungen BxTxH mm:
 2000 x 1600 x 395



Possible wire diameters

from ø 0,2 mm to ø 0,36 mm

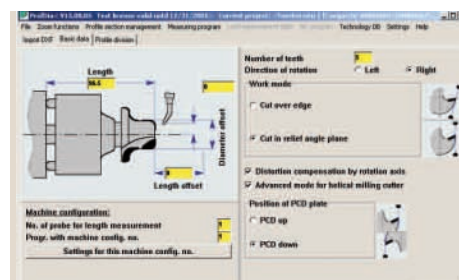




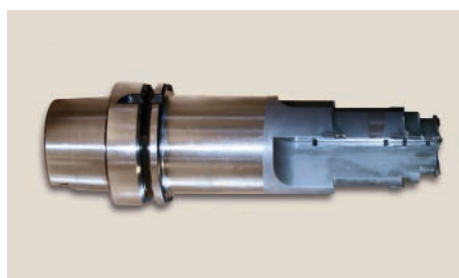
In addition to the workpiece form, "exotic" materials also place high demands on a wire eroding system. The FA-S Advance with the V-Package overcomes these challenges without difficulty. The V500 generator unit quickly cuts PCD and CBN while achieving exceptional surface qualities. Not to mention, it is all accomplished with the reliability Mitsubishi Electric is known for. The tool package option increases the possibilities of processing cutting tools in numerous automation levels up to and including fully automated serial production.



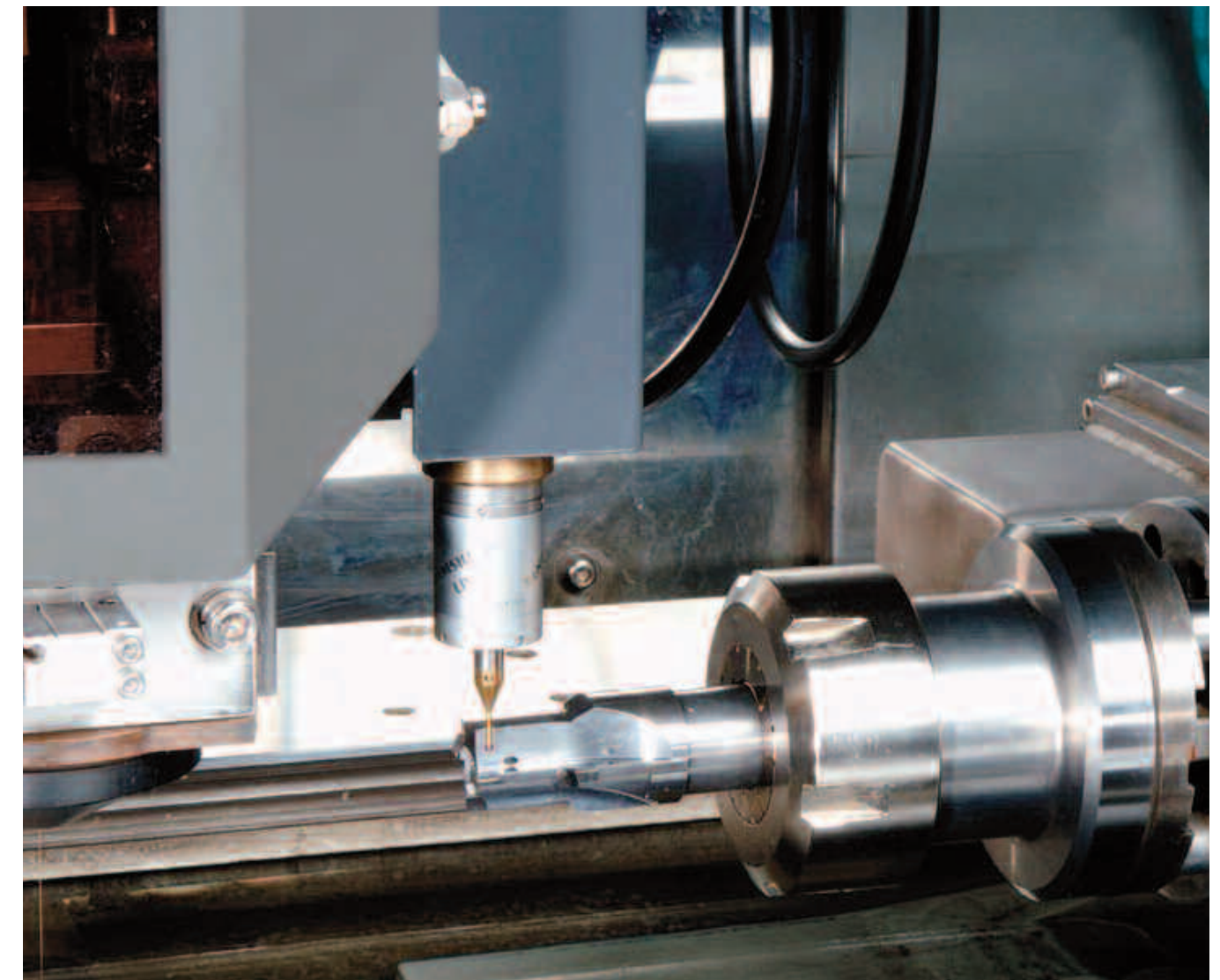
Rotation axis (B-axis) Hirschmann H150R.NCMI.XX
 Completely servo-controlled B-axis.
 Allows wire eroding on a rotating, guided workpiece.
 Basic specification:
 Size (WxDxH): 265 x 215 x 160 mm
 Axis centre above zero: 80 mm
 Dead weight: 45 kg
 Max. workpiece weight: 50 kg

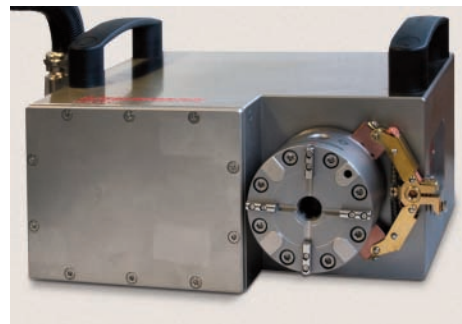


Programming software ProfDia
 The software ProfDia has been developed specially for the generation of measuring and processing programs for rotational tools. Calibration data from the machine (position measurement via sensing elements) is automatically taken into the processing programs.

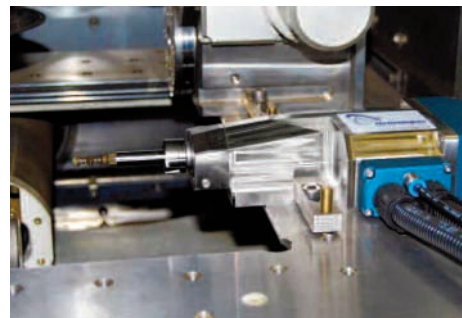


Circular milling tool
 for processing aluminium die casting with high Si proportion.

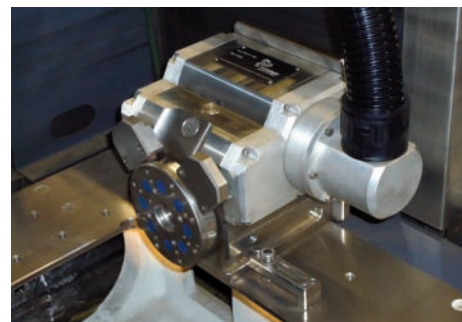




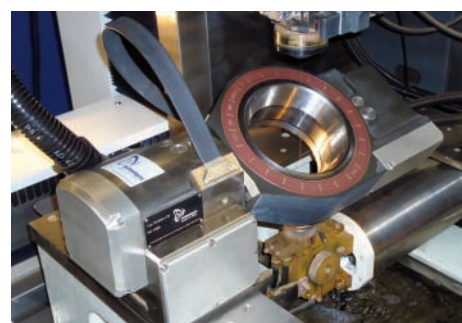
Rotary axis (B axis) Hirschmann H80R.MNCM.
Fully servo controlled B axis allows wire eroding on a rotating, guided workpiece as well as indexing and high-speed rotation.
Dimension (W x D x H): 265 x 220 x 120 mm
Axis centre above zero: 60 mm
Axis weight: 31 kg
Max. workpiece weight: 30 kg
Max. rotation: 1,000 rpm
Radial runout $\leq 0,003$ mm



Rotary axis (B axis) ITS-HV-100
Fully servo controlled B axis for accurate pitch processing and multi-sided machining in one clamping, simultaneous processing.
Dimension (W x D x H): 259 x 170 x 163 mm
Axis weight: 16kg
Max. workpiece weight: 30 kg
Max. rotation: 25 U/min.
Radial runout $\leq 0,005$ mm
Positioning accuracy +/- 5"



Rotary spindle ITS-MS-24
Fully integrated rotary spindle with positionig for smallest and highly precise parts, e.g.: Production of ejector punches with diameter ≥ 0.05 mm, conical thread implementation in medical technology, Wire EDM turning and grinding, simultaneous editing.
Dimension (W x D x H): 145 x 228 * 49 mm
Axis weight: 3,5 kg
Axis centre above zero: 24 mm
Max. rotation: 3,000 rpm
Radial runout $\leq 1\mu\text{m}$
Positioning accuracy: +/- 0,15°
Clamping interface compatible with ER 16



Articulation axis ITS-MA2-i-115
Fully servo controlled A-B hollow axis for processing of conics with high accuracy requirements. Multi-axis machining to the center of the work-piece and multi-sided machining in one setup, implementation of high-precision conical polygons.
Dimension (W x D x H): 308 x 479 x 170 mm
Axis weight: 32 kg
Free inner diameter 115mm, swivel range $\pm 180^\circ$.
Radial and axial runout $\leq 0,005$ mm
Positioning accuracy swivel and rotation axis each +/- 5"
Max. workpiece weight 5 kg (with optional counter weight up to 25 kg)
Max. rotation: 23 rpm

Broaden your range of applications in wire erosion - you can effortlessly meet the demands of medical technology and micromechanics with the FA-S Advance.

The use of a rotating spindle allows spark-erosive grinding/turning on a rotating workpiece. The combination of rotation and indexing function converts your FA-S Advance wire eroding system to a "highly precise spark-erosive grinding machine". A fully servo-controlled rotation axis allows wire eroding on a rotating, guided workpiece.

Discover new manufacturing possibilities and win over new customers.





The market offers lots of machines, robots and components in order to increase the degree of automation, however, there is a problem.

The components are not optimised with each other and the integration eats up un-planned and unexpected resources and budgets.

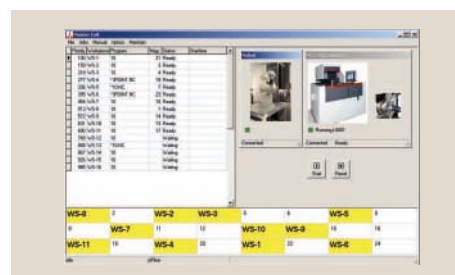
The solution is simple. One-stop for everything. Mitsubishi Electric can offer you wire eroding systems, die sinking machines, robots and handling systems. All these systems are perfectly matched to each other in order to achieve a perfect mesh. Your advantage is you can apply proven manufacturing cell technology, safeguarding your competitive advantage.



Easy programming and highest precision guarantee **highest flexibility**. Also for continuous production of parts, this is the ultimate solution.
Mitsubishirobot RV-12SL
 Handling weight: 12 kg
 Coverage (radius): 1385 mm
 Repeatability accuracy: ± 0,05 mm



Maximum productivity and accuracy around the clock. Manufacturing Cell consisting of Mitsubishi wire eroding system FA20-S Advance and Erowa Robot Compact. Transfer weight: 30 kg



The cell software, **MasterCell**, controls numerous wire eroding machines in connection with flexible automated solutions from Mitsubishi Electric and optimizes your serial production processes.



The figure shows the wire eroding system FA20-S Advance, automated with the MitsubishiRobot RV-12SL.

Technical Data

Machine

Model		FA10-S Advance	FA10-S Advance V-Package	FA20-S Advance	FA20-S Advance V-Package	FA30-S Advance V-Package	FA30-S Advance+ V-Package	FA40-S Advance V-Package	FA50-S Advance V-Package	
Machine	Travel path (X/Y/Z)	mm	350 x 250 x 220	350 x 250 x 220	500 x 350 x 300	500 x 350 x 300	750 x 500 x 410	750 x 500 x 420	1000 x 800 x 400	1300 x 1000 x 400
	Travel path (U/V)	mm	± 32 x ±32	± 32 x ±32	± 75 x ±75	± 75 x ±75	± 100 x ±100	± 100 x ±100	± 75 x ±75	± 75 x ±75
	Conic angle (for workpiece height)	°	15 (100 mm)	15 (100 mm)	15 (260 mm)	15 (260 mm)	15 (360 mm)	15 (360 mm)	15 (260 mm)	15 (260 mm)
	Max. workpiece dimensions (W x D x H)	mm	800 x 600 x 215	800 x 600 x 215	1050 x 800 x 295	1050 x 800 x 295	1300 x 1000 x 405	1300 x 1000 x 600	1550 x 1300 x 395	2000 x 1600 x 395
	Max. workpiece weight	kg	500	500	1500	1500	3000	3000	4000	4000
	Table dimensions (W x D)	mm	590 x 514	590 x 514	780 x 630	780 x 630	1100 x 875	1100 x 875	1360 x 1175	1660 x 1375
	Possible wire diameters	mm	0,07 – 0,3	0,1 – 0,36	0,07 – 0,3	0,1 – 0,36	0,1 – 0,36	0,1 – 0,36	0,2 – 0,36	0,2 – 0,36
	Wire spool reception	kg	10	10	10	10	20	20	20	20
	Automatic water beam threading		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	Wire chopper		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	Max. advance (X/Y)	mm/min	1300	1300	1300	1300	1300	1300	1300	1300
	Overall workpiece dimensions (W x D x H)	mm	1897 x 2075 x 2030	1897 x 2075 x 2030	2420 x 2710 x 2150	2420 x 2710 x 2150	3495 x 3143 x 2633	3732 x 3143 x 2783	4427 x 4150 x 2823	5375 x 5045 x 2823
	Machine weight	kg	2000	2000	3500	3500	4800	5700	7500	9000
	Filter unit	Tank capacity	l	440	440	740	740	1200	1700	2425
Filter fineness		µm	1-2	1-2	1-2	1-2	1-2	1-2	1-2	1-2
Filter elements			2	2	2	2	4	4	4	4
Temperature control			Dielectric cooler	Dielectric cooler	Dielectric cooler	Dielectric cooler	Dielectric cooler	Dielectric cooler	Dielectric cooler	Dielectric cooler
Weight unfilled		kg	280	280	350	350	540	580	680	1000

Generator / Control

Model		FA10-S Advance	FA10-S Advance V-Package	FA20-S Advance	FA20-S Advance V-Package	FA30-S Advance V-Package	FA30-S Advance+ V-Package	FA40-S Advance V-Package	FA50-S Advance V-Package
Generator	Power unit		transistor controlled pulse generator	transistor controlled pulse generator	transistor controlled pulse generator	transistor controlled pulse generator	transistor controlled pulse generator	transistor controlled pulse generator	transistor controlled pulse generator
	Generator cabinet		completely tight	completely tight	completely tight	completely tight	completely tight	completely tight	completely tight
	Cooling method		indirect air cooling	indirect air cooling	indirect air cooling	indirect air cooling	indirect air cooling	indirect air cooling	indirect air cooling
	Max. working current	A	50	50	50	50	50	50	50
Control	Dimensions (W x D x H)	mm	550 x 600 x 1650	650 x 630 x 1870	550 x 600 x 1650	650 x 630 x 1870	650 x 630 x 1870	650 x 630 x 1870	650 x 630 x 1870
	Weight	kg	240	300	240	300	300	300	300
	Entry system		Keyboard, USB-Stick, Ethernet	Keyboard, USB-Stick, Ethernet	Keyboard, USB-Stick, Ethernet	Keyboard, USB-Stick, Ethernet	Keyboard, USB-Stick, Ethernet	Keyboard, USB-Stick, Ethernet	Keyboard, USB-Stick, Ethernet
	TFT Colour monitor		15" Touchscreen	15" Touchscreen	15" Touchscreen	15" Touchscreen	15" Touchscreen	15" Touchscreen	15" Touchscreen
	Control system		CNC, closed loop	CNC, closed loop	CNC, closed loop	CNC, closed loop	CNC, closed loop	CNC, closed loop	CNC, closed loop
	Min. instruction step	µm	X, Y, Z, U, V 0.1 µm	X, Y, Z, U, V 0.1 µm	X, Y, Z, U, V 0.1 µm	X, Y, Z, U, V 0.1 µm	X, Y, Z, U, V 0.1 µm	X, Y, Z, U, V 0.1 µm	X, Y, Z, U, V 0.1 µm
	Min. axis resolution	µm	0,05	0,05	0,05	0,05	0,05	0,05	0,05
	Max. instruction value	mm	±99999,999	±99999,999	±99999,999	±99999,999	±99999,999	±99999,999	±99999,999

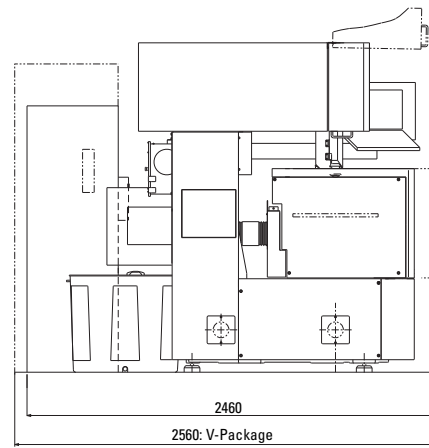
Equipment

Model		FA10-S Advance	FA10-S Advance V-Package	FA20-S Advance	FA20-S Advance V-Package	FA30-S Advance V-Package	FA30-S Advance+ V-Package	FA40-S Advance V-Package	FA50-S Advance V-Package
Equipment	Wire station 20kg		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	Wire station 50kg		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Wire spool reception		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	Thin wire device (0,1, 0,15 mm)		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	--	--
	Glass scales X/Y		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	Fine smoothing unit FMC surface quality up to < Ra 0,2 µm		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	--	--
	Digital fine finishing generator surface quality up to < Ra 0,1 µm		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	--	--	--
	Digital anti-electrolysis generator		--	<input checked="" type="checkbox"/>	--	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	--	--
	Z axis extension + 150 mm		--	--	--	<input type="checkbox"/>	--	--	--
	Four-filters option		--	--	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	B axes		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Tool Package		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	--
	Automation Robot		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Ethernet interface		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	Teleservice		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Telecontrol		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Telecontact		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
External signal outlet		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

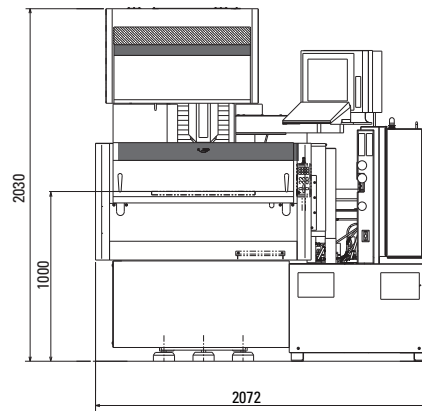
- = Standard
- = retrofittable
- = not retrofittable
- = not available

FA10-S Advance

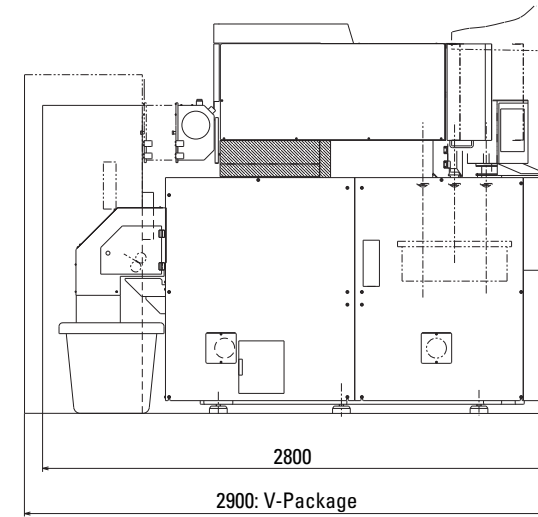
FA20-S Advance



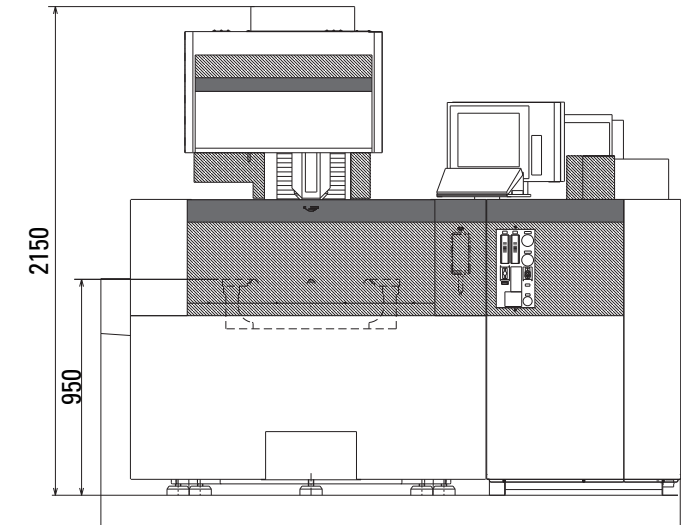
Lateral view



Front view

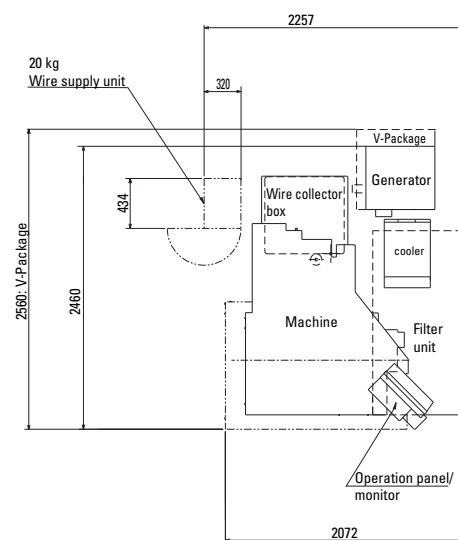


Lateral view

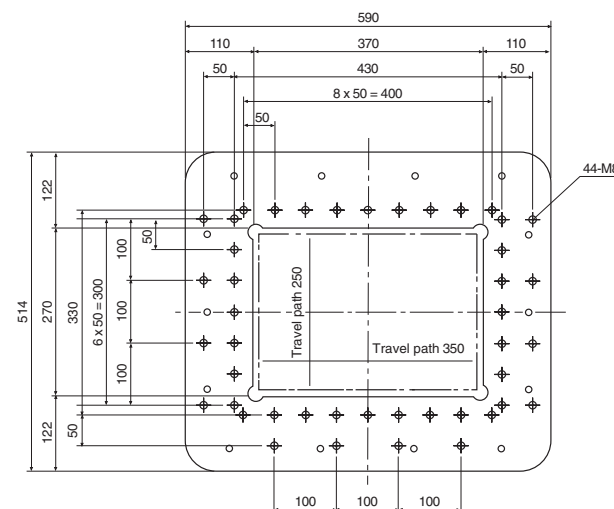


Front view

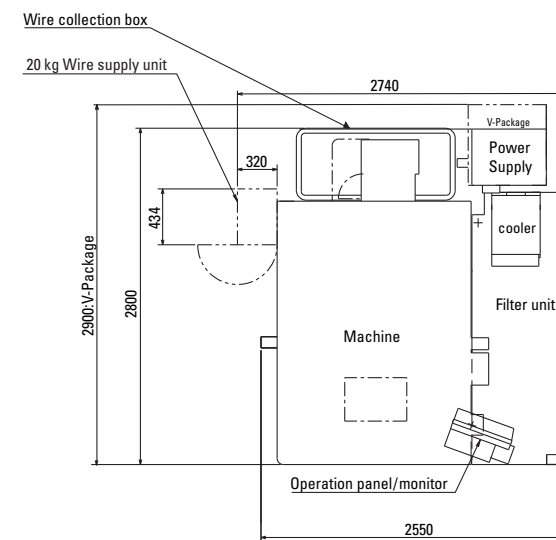
Footprint



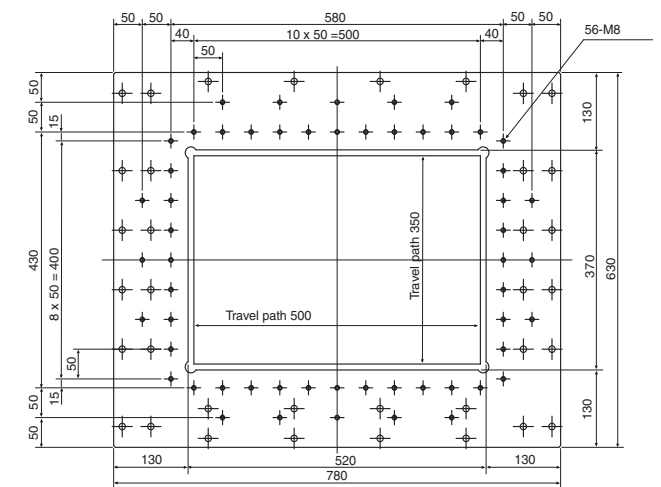
Working table



Footprint



Working table



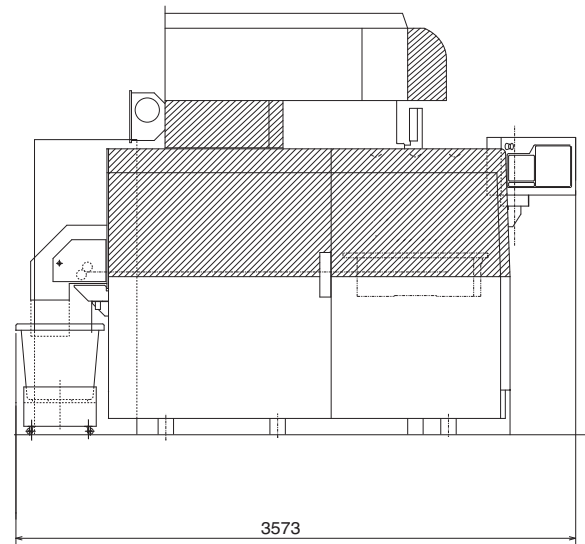
All indications in mm
The dimensions may vary according to equipment.

All indications in mm
The dimensions may vary according to equipment.

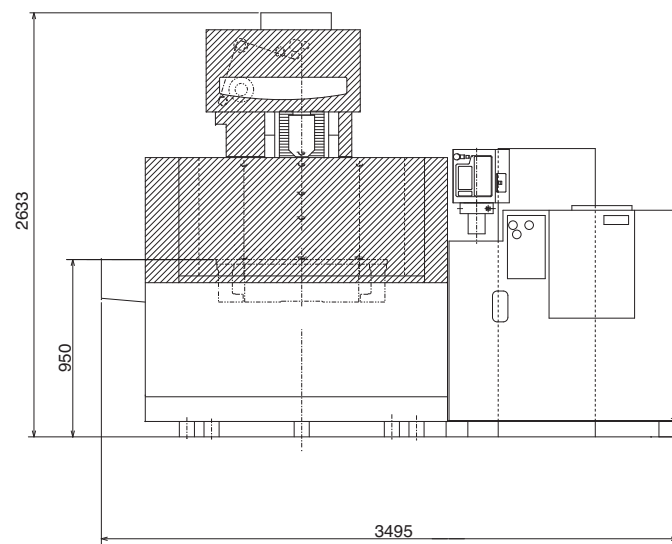
Model		FA10-S Advance	FA10-S Advance V-Package
Overall power consumption	[KVA]	13,5	15,0
Overall weight of the installation	kg	2540	2600
Minimum door opening dimensions for insertion B x H	mm	1600 x 2030	1600 x 2030

Model		FA20-S Advance	FA20-S Advance V-Package
Overall power consumption	[KVA]	13,5	15,0
Overall weight of the installation	kg	4110	4170
Minimum door opening dimensions for insertion B x H	mm	1950 x 2200	1950 x 2200

FA30-S Advance

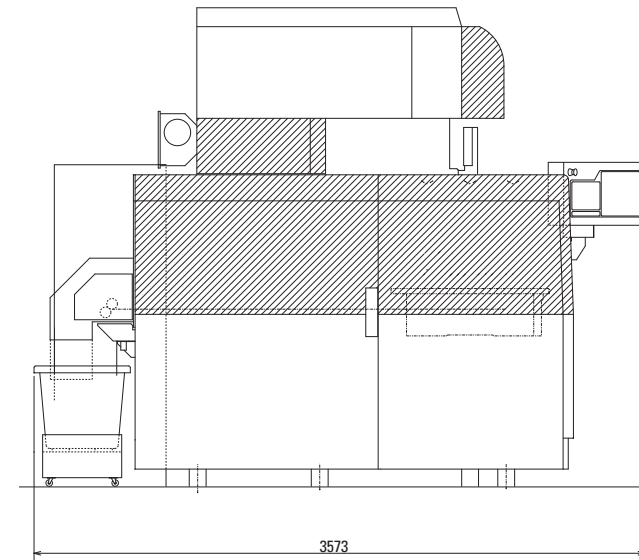


Lateral view

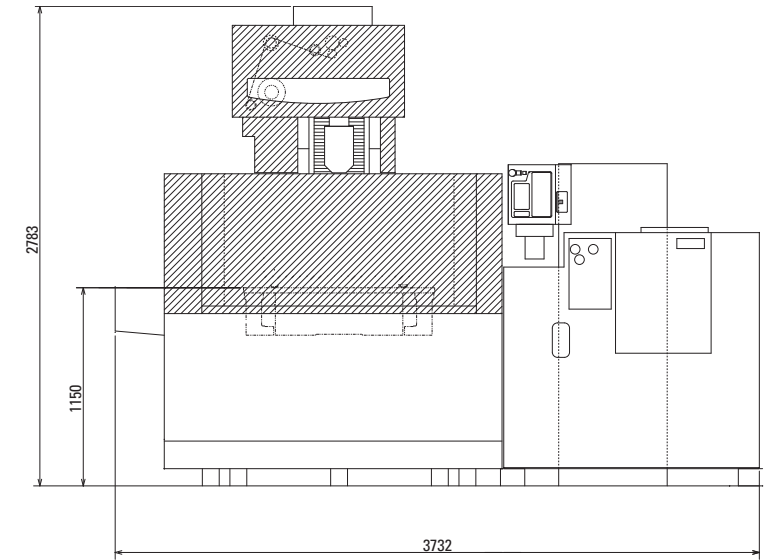


Front view

FA30-S Advance+

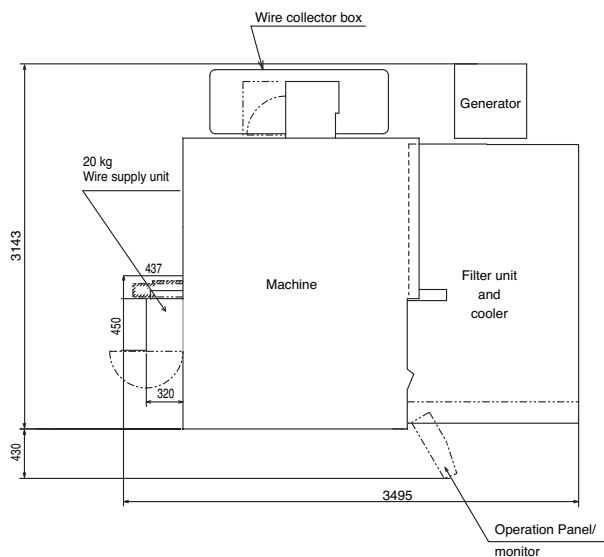


Lateral view

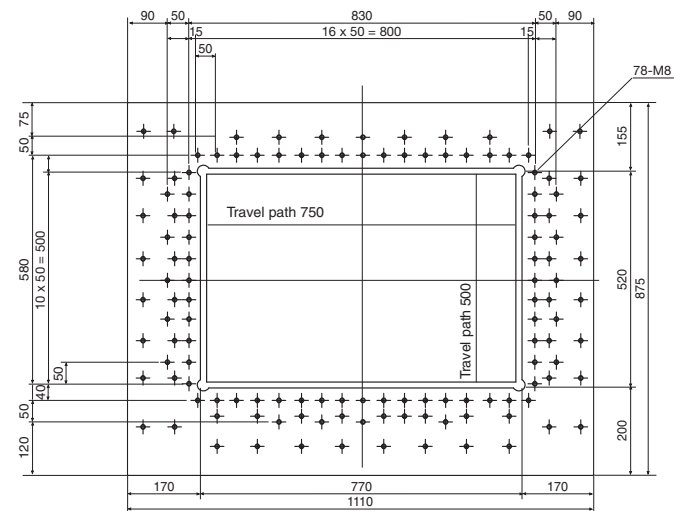


Front view

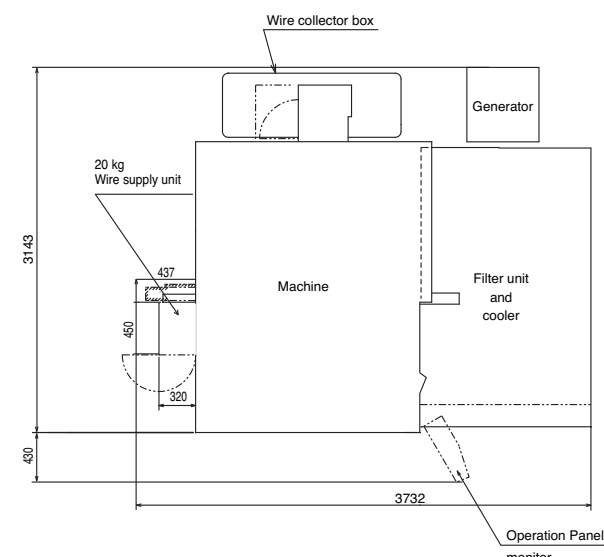
Footprint



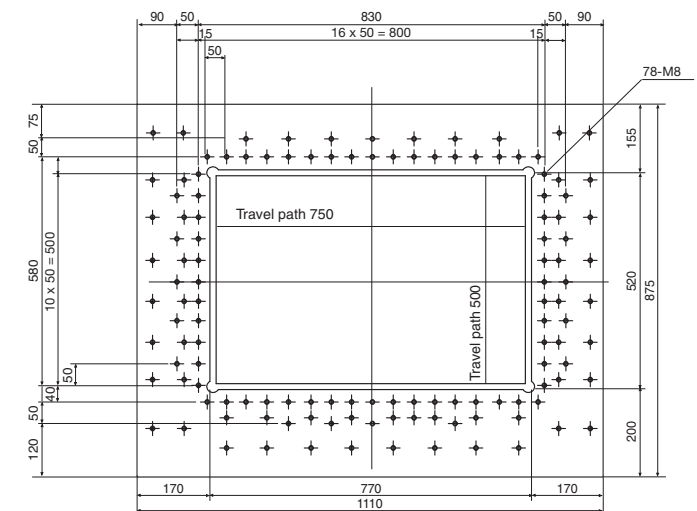
Working table



Footprint



Working table



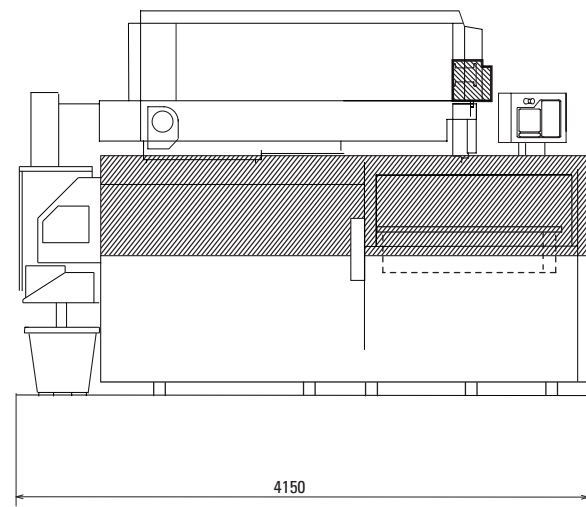
All indications in mm
The dimensions may vary according to equipment.

Model	FA30-S Advance	
Overall power consumption	[KVA]	15,0
Overall weight of the installation	kg	5.640
Minimum door opening dimensions for insertion B x H	mm	2850 x 2700

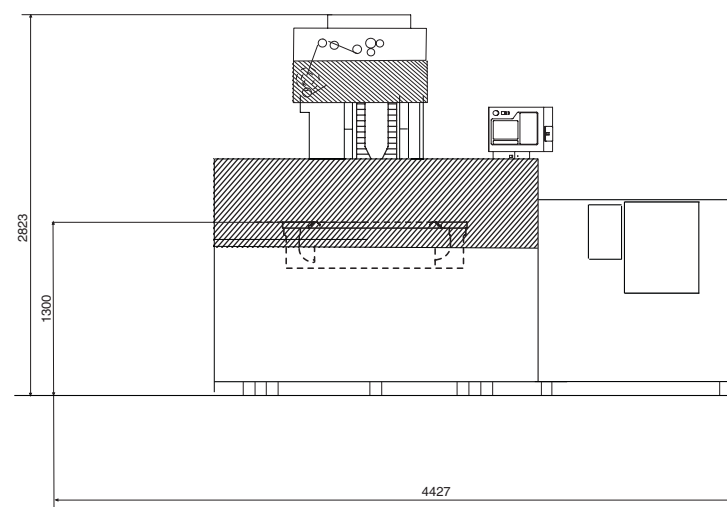
All indications in mm
The dimensions may vary according to equipment.

Model	FA30-S Advance+	
Overall power consumption	[KVA]	15,0
Overall weight of the installation	kg	6600
Minimum door opening dimensions for insertion B x H	mm	2850 x 2800

FA40-S Advance

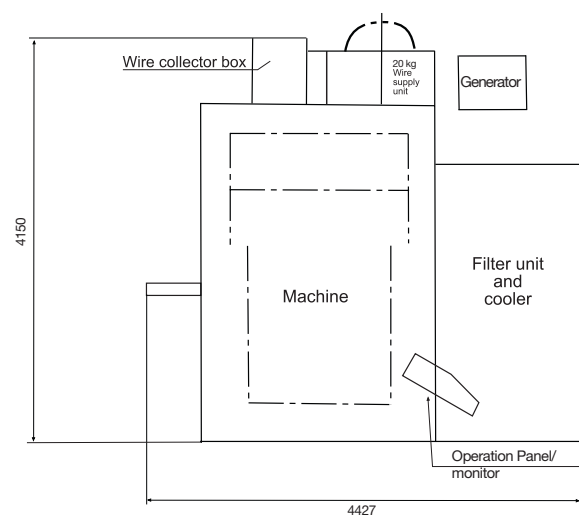


Lateral view

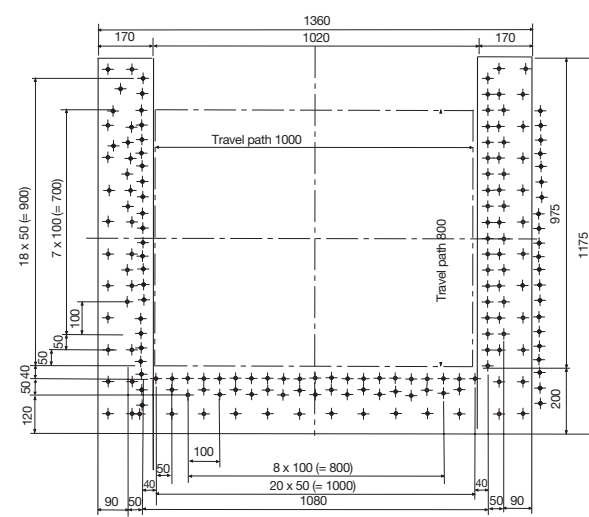


Front view

Footprint



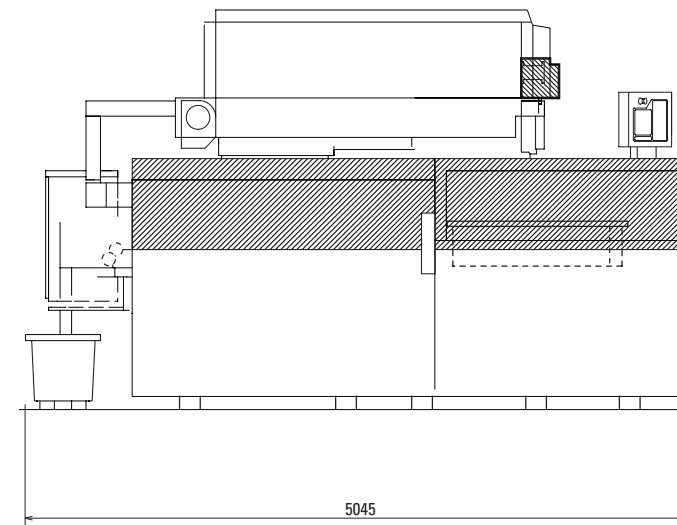
Working table



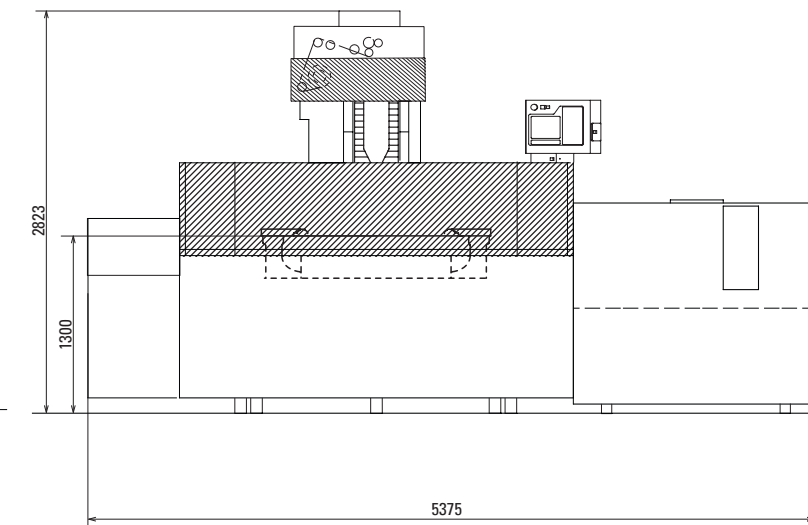
All indications in mm
The dimensions may vary according to equipment.

Model	FA40-S Advance V-Package	
Overall power consumption	[KVA]	23,0
Overall weight of the installation	kg	8.500
Minimum door opening dimensions for insertion B x H	mm	2415 x 2830

FA50-S Advance

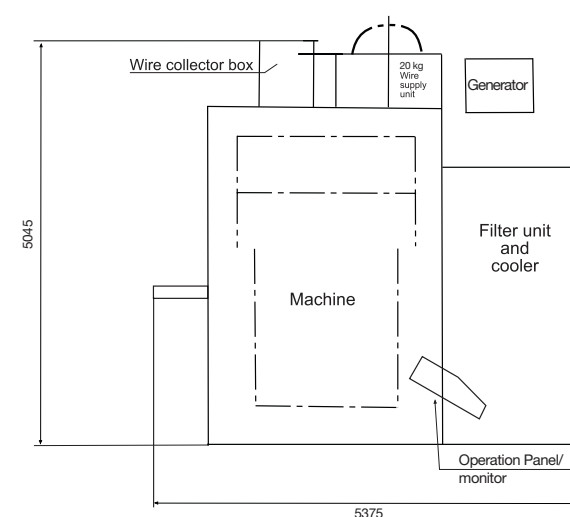


Lateral view

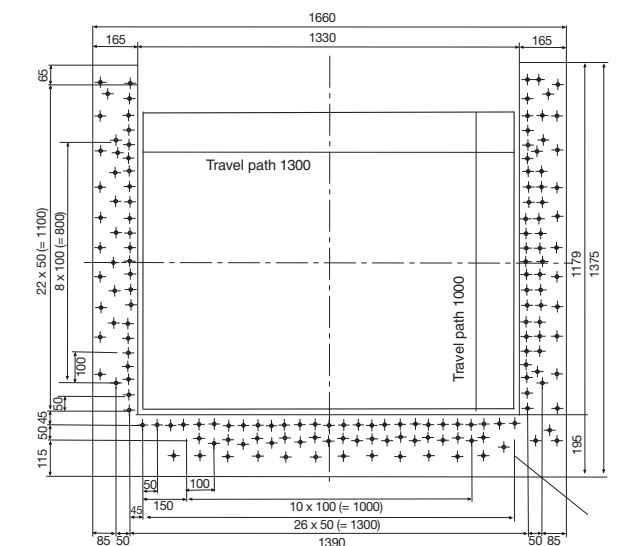


Front view

Footprint



Working table



All indications in mm
The dimensions may vary according to equipment.

Model	FA50-S Advance V-Package	
Overall power consumption	[KVA]	23,0
Overall weight of the installation	kg	10.320
Minimum door opening dimensions for insertion B x H	mm	2900 x 2830