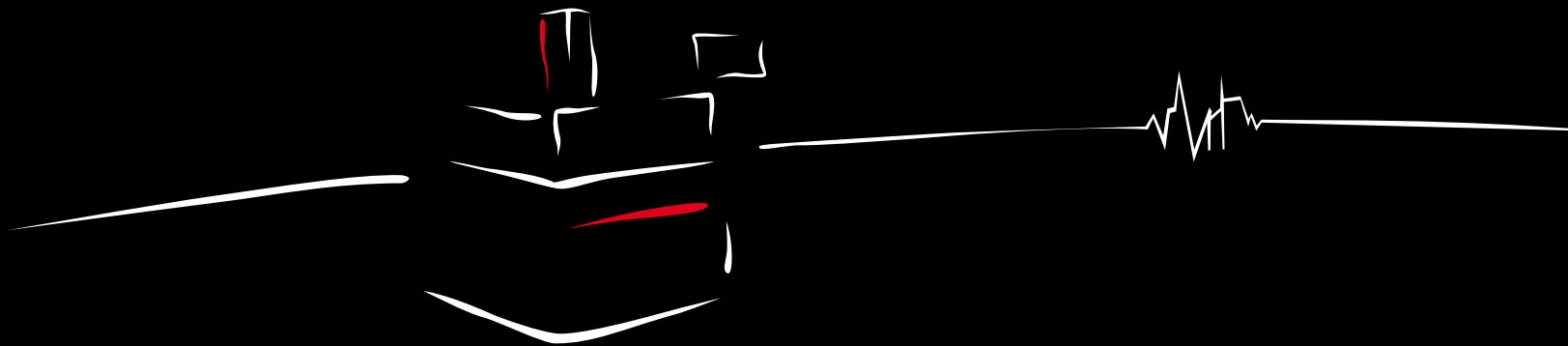


The Art of *Economy*



EDM Drilling Power



start



Three models

and endless possibilities.

Mitsubishi Electric	5	Practical and well thought out	13
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Over

8,000

patent applications
per year

66,000

produced
EDM machines

139,000

employees

95 years

of dependable
technology



If you've got grand designs,
you need someone strong you can count on.



Since 1970, a growing number of European companies have therefore been turning to high-performance EDM machines from world market leader Mitsubishi Electric.

Only by producing components in-house is it possible to tailor them perfectly to the intended task. Mitsubishi Electric resorts to its own controls, semiconductors, motors and other items, which are adapted in detail to all requirements. The only thing you notice is that it works – and often for many decades after purchase.

If you want to invest soundly in a durable EDM machine, choose **Mitsubishi Electric**.

 **start**



Equipped for everything.

Three sizes, one strategy.

Small holes, great precision

The perfect complement to the wire-cutting systems from Mitsubishi Electric. The start EDM drilling systems not only master small dimensions on start holes with 0.3–3.0 mm electrodes, but also functional bores. The manual version offers comfortable operation during manual positioning, while the CNC version also masters a large number of holes in a single sweep.



Digital control in the manual version

Speed and simplicity

An EDM drilling system simply has to get the job done – and must not distract from important tasks. The start series is therefore designed to bring the user quickly and simply to his goal. Speed and simplicity are also all-important as far as maintenance and organisation are concerned – everything is readily accessible and accommodated immediately in the machine. Even electrode tubes and guides can be stored within the machine. Everything within easy reach.



Drilling technologies for all requirements.

Whatever is required – through holes or blind holes, small holes or large, in steel or in other materials – the user has a multitude of EDM technologies at his disposal.

Continued on page 9



Solid mechanical engineering.

EDM drilling machines also have to be equipped to withstand loads. The start series therefore builds on the fixed-table principle with solid components. Granite forms the foundation for precision. The focus is always on immaculate machining results.

Continued on page 9



Operation made easy – for the user's benefit.

Be it manual or fully CNC-controlled, simple operation is the basic principle. A touch panel is the control centre of the “small” manual start 43Z, while a PC with a large touchscreen is the user interface on the CNC variants of the start series. Ease and convenience for intuitive results.

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Set-up the easy way.

The ergonomically designed work table makes clamping workpieces easy. The machine's position sensing and automatic positioning for drilling make the user's life easy – and ensures the precise positioning of the drilled holes.

Continued on page 13



Drilling by EDM, precisely and efficiently.

The supply module for fresh dielectric integrated in the machine saves space and takes the effort out of maintenance. Long-lasting filters and low consumption of deionising resin lift profitability to a new level.

Continued on page 13



Outstanding stability and high precision
Experience dependable solidity and maximum accuracy when drilling.



Now watch the start film:
www.mitsubishi-edm.de/start-en

A monument to precision.

Solid granite and plenty of power.



Intelligent generator technology

The generator is designed for low-wear operation without compromising on performance. Micro Discharge Technology makes it possible. Drilling technology for a variety of tasks is available in the technology database. For exotic materials, technologies can be modified and stored at any time – in-built flexibility.

Diversified machining strategies inclusive

Automatic positioning measurement is a convenient function of the CNC-controlled version. Further important automatic functions of the machines:

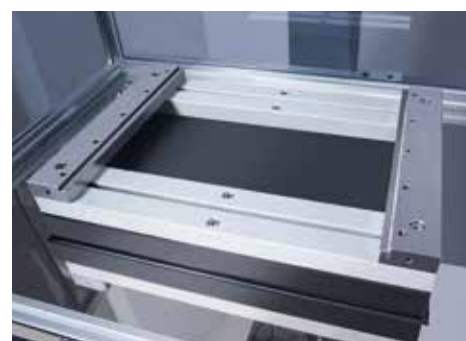
- Electrode wear compensation
- Z axis retraction function
- Depth calculation for blind holes

Ergonomic fixed table

Good accessibility permits convenient and swift set-up. The tidy, granite-based work area is designed and optimised for easy workpiece clamping. Furthermore, the fixed table makes the machine compact and permits loading with heavier workpieces.

Solid base, high-grade guides and spindles – in the service of precision

The machine base is solidly designed. The granite stiffening components and high-grade linear guides are an assurance of durability and long-term accuracy. The granite base of the work table also prevents accidental drilling into the table.



 **start**

Drills many materials, but not the work table.



Simple touchscreen operation – like on a smartphone.

Whether manual or CNC control, convenience is what counts – in both cases.



Position manually, ...

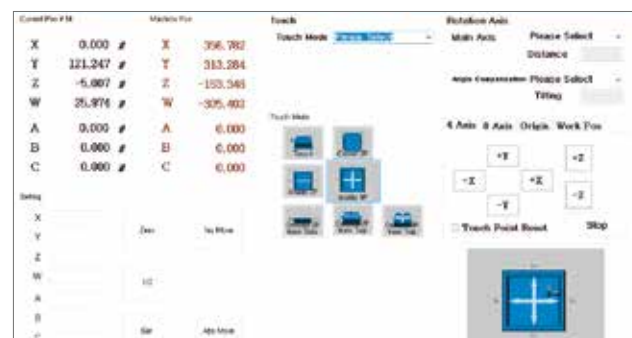
...conveniently assign the technology via the touch panel and select the machining details. And then you can start.

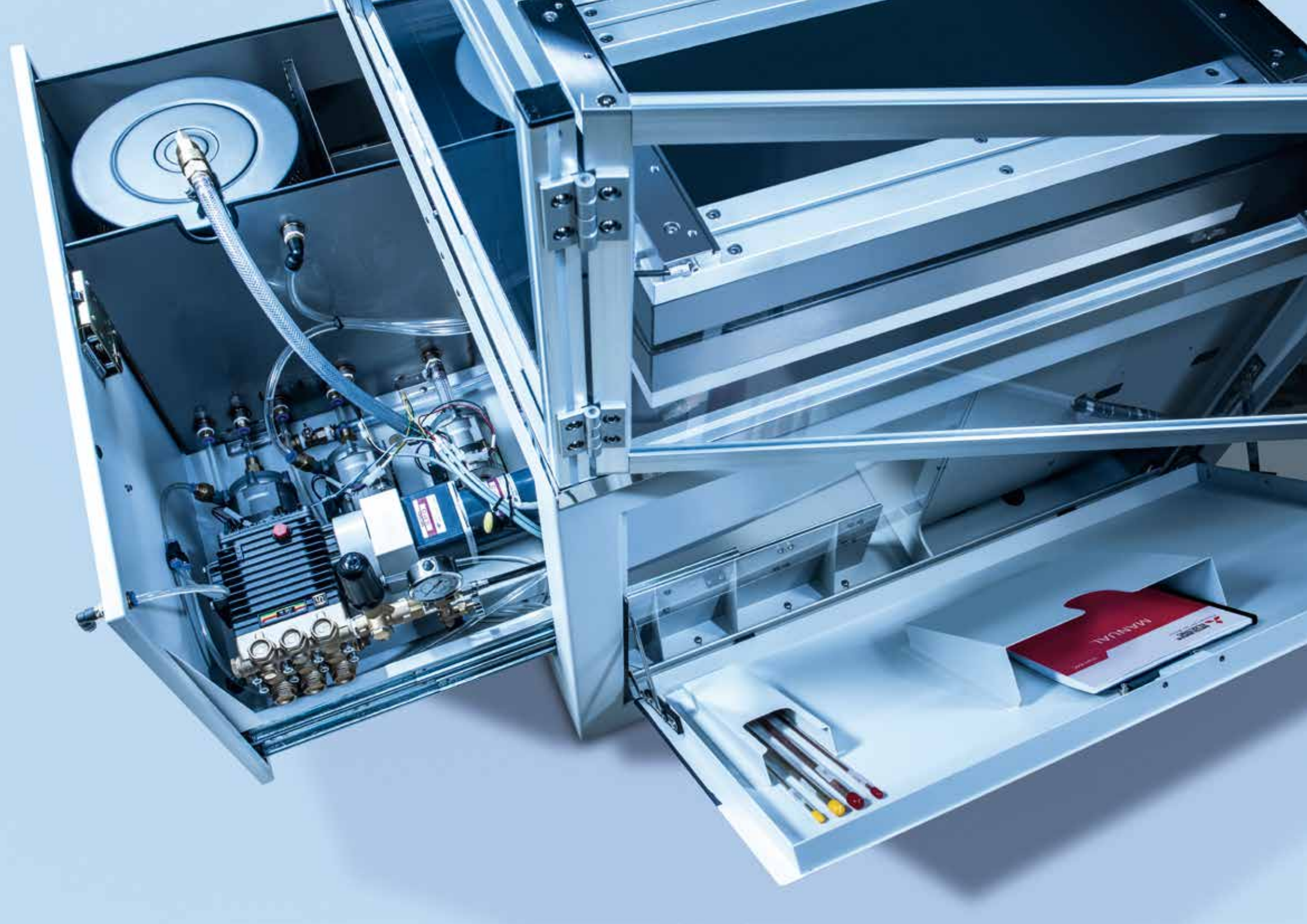
Position automatically...

...by CNC command. The drilling position can be manually entered on the screen or conveniently adopted from external sources. You can either read in a positioning table or adopt the drilling position from an already loaded DXF file – the choice is yours. Incidentally, the interfaces for data transfer are already available: USB or TCP/IP, serving all commonly used standards.

Direct selection from DXF

A convenient way to select the position: the DXF of a component being machined is read in and the drilling points are adopted directly from the graphics. It could hardly be simpler!



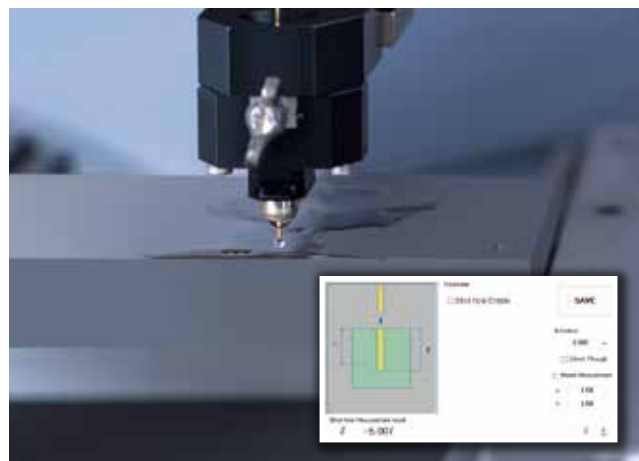


It's easy.

Simple solutions for everyday tasks.

Simple set-up

The work table is ergonomically organised and optimised for simple workpiece clamping. The automatic position detection by means of simple set-up cycles in the CNC control identifies workpiece position and orientation and calculates the correct drilling positions. This way, workpieces are processed quickly and comfortably.



Maintenance made easy

The entire dielectric preparation and supply is accommodated in the machine base. This saves space and eliminates tripping hazards. All components are readily accessible at arm's length, which makes maintenance easy. Long-lasting filters and the use of standard deionising resin keep operating costs low in addition. Simply an intelligent solution.



Now watch:
www.mitsubishi-edm.de/s-filter-en



Everything within reach

Another intelligent solution: the integrated storage pocket for accessories like electrode tubes, the user's manual and any other documents. Everything in its place and directly available – integrated in the machine, within easy reach.



98.7%

of the spare parts available in Europe – delivery within 24 hours ex Düsseldorf warehouse

167,000

parts at the Düsseldorf warehouse

Headquarters in **Ratingen, Germany**

Service.
Always there.

Training

Users acquire skills at the machine and at specially equipped PC workstations. This way they benefit most from the direct transfer of know-how.

You don't like call centres and queuing systems? We don't either. With every Mitsubishi Electric EDM system you buy excellent service as part of the package.

With 167,000 parts in stock in Ratingen near Düsseldorf, you have a swift and reliable source of parts – on request by express in less than 24 hours. Service is performed by our own highly skilled service technicians so that production is kept dependably up and running.

Users are assisted over the phone and benefit from the expertise and wealth of experience of Mitsubishi Electric specialists.

Service hotline: +49 (0) 1801 486-600

Application support: +49 (0) 1801 486-700

Monday to Friday: 7.30 am to 8 pm

Saturday: 9 am to 4 pm

We're there to help you.

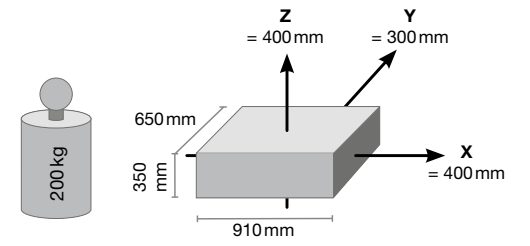
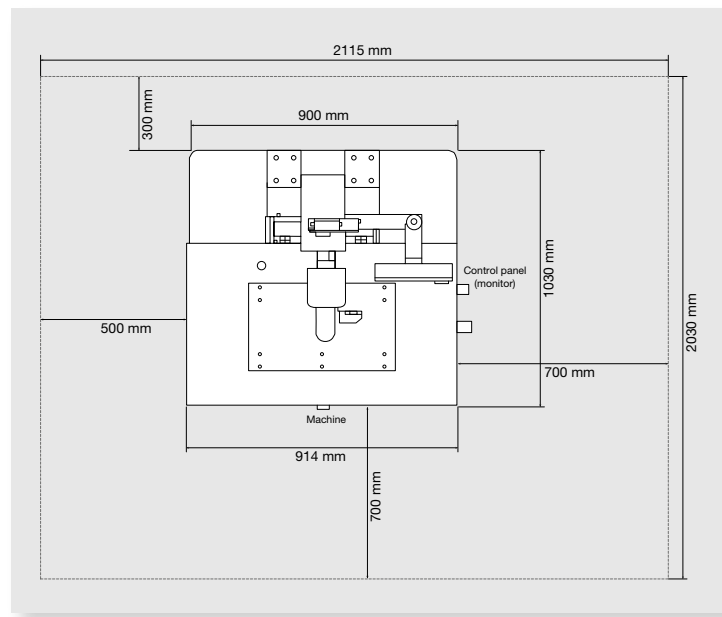


start

Expert assistance whenever I need it.



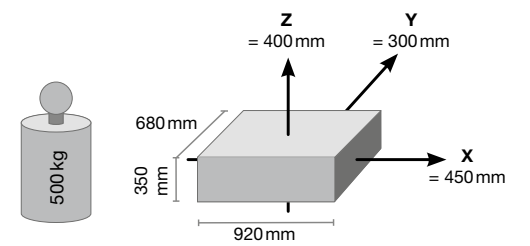
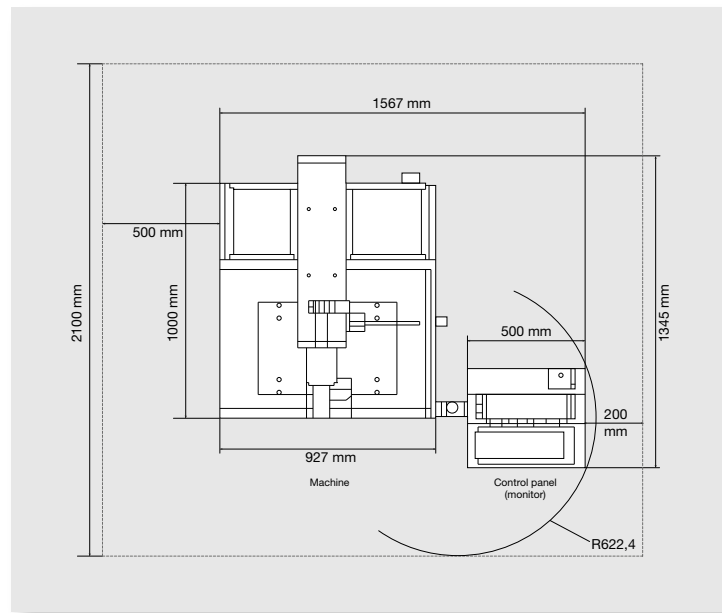
start 43Z



Machine body weight 680 kg
 Machine height 2200 mm
 Required minimum dimensions
 for doorways (W x H) in mm 1030 x 2300



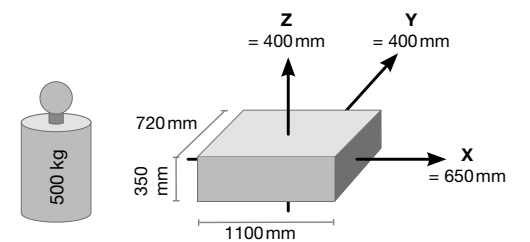
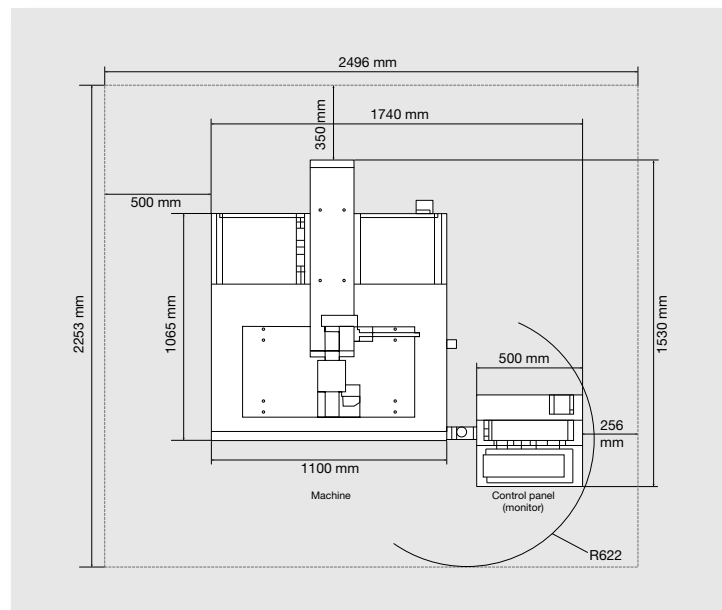
start 43C



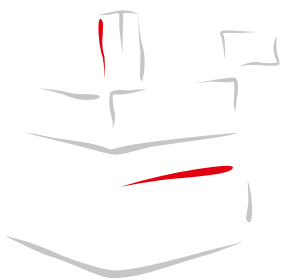
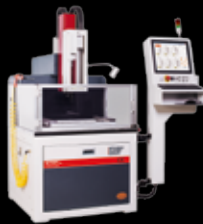
Machine body weight 1140 kg
 Machine height 2130 mm
 Required minimum dimensions
 for doorways (W x H) in mm 1300 x 2230



start 64C



Machine body weight 1350 kg
 Machine height 2100 mm
 Required minimum dimensions
 for doorways (W x H) in mm 1500 x 2200



		start 43Z	start 43C	start 64C
Machine	Table dimensions in mm	910x650	920x680	1100x720
	Travel (X/Y) in mm	400/300	450/300	650/400
	Travel Z in mm	400		
	Travel W in mm	345		
	Possible electrode diameter in mm	0.3–3.0		
	Max. electrode length in mm	400		
	Max. workpiece height in mm	350		
	Max. workpiece weight in kg	200	500	500
	Machine weight in kg	680	1140	1350
	Overall dimensions (WxDxH) in mm	914x1030x2200	1567x1345x2130	1740x1530x2100
	Power supply	230V/AC, 30A		
Standard equipment	Toolbox	1 (inclusive of standard toolkit)		
	Electrode chuck	1		
	Ceramic guides	1 each 0.8 mm/1.5 mm		
	Electrode tubes	20 each 0.8 mm/1.5 mm		
	Sealant set for electrodes	6 sets		
	Dielectric filters	2		
	Deionising resin	1 litre		
	USB flash drive	–	1	1
Optional	“AEC” – Automatic Electrode Changer	–	Optional (not retrofittable)	Optional (not retrofittable)

Consumables

Single-channel electrode tubes



Multi-channel tubes

- 2-channel (different versions)
- 3-channel (different versions)



Ceramic guides

Diameters of 0.30–3.00 mm



Drill chuck

Size: 0.3–3.00 mm



Rubber seal

Size: 0.3–3.00 mm



Collet

Size from 0.3–3.0 (stainless)

Collet 0.3 mm for 0.3–0.4 mm tube
Collet 0.5 mm for 0.4–0.5 mm tube
Collet 0.7 mm for 0.5–0.7 mm tube
Collet 0.9 mm for 0.7–0.9 mm tube
Collet 1.1 mm for 0.9–1.1 mm tube
Collet 1.3 mm for 1.2–1.4 mm tube
Collet 1.5 mm for 1.4–1.6 mm tube
Collet 1.7 mm for 1.6–1.8 mm tube
Collet 1.9 mm for 1.9–2.0 mm tube
Collet 2.1 mm for 2.0–2.2 mm tube
Collet 2.3 mm for 2.2–2.4 mm tube
Collet 2.5 mm for 2.4–2.6 mm tube
Collet 2.7 mm for 2.7–2.9 mm tube
Collet 2.9 mm for 2.9–3.0 mm tube



Optional

“AEC” – Automatic Electrode Changer
20-fold electrode changer for tubes of the same diameter (Ø 1.0–3.0 mm)

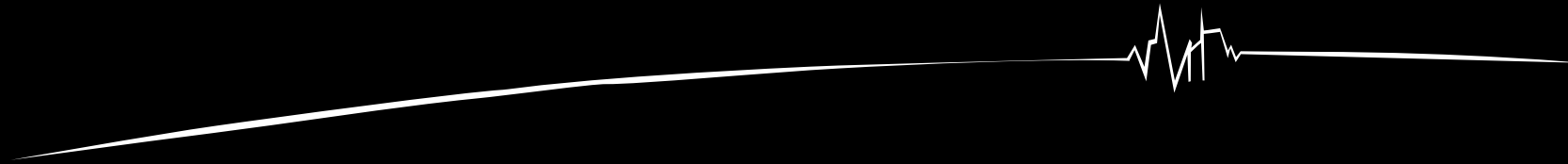
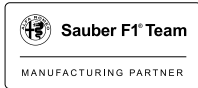


The EDM hole-drilling machine should be set up on a suitable hard industrial floor and preferably on a consolidated concrete floor. Any shielding that may be necessary in conformity with the EMC Directive is not included in the equipment supplied by Mitsubishi Electric. Unloading by forklift truck – no unloading by crane!



Details can be found in the assembly plan of the machine:
www.mitsubishi-edm.de/download

Partner



MITSUBISHI ELECTRIC EUROPE B.V.

Mechatronics Machinery / Mitsubishi-Electric-Platz 1 / 40882 Ratingen / Germany / Tel. +49 (0) 2102 486-6120 / Fax +49 (0) 2102 486-7090
edm.sales@meg.mee.com / www.mitsubishi-edm.de

