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.

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Precise processing of stepped workpieces with a parallelism < 2 µm
Material: steel (58Hrc)
Cutting height: 80 mm
Wire electrode: 0.25 mm brass
Surface quality: Ra 0.24 µm
Parallelism: < 3µ

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

High precision processing with precision and parallelism < 3µ
Material: steel (58Hrc)
Cutting height: 80 mm
Wire electrode: 0.25 mm brass
Surface quality: Ra 0.24 µm
Parallelism: < 3µ

Conical processing
The Angle Master enables you to precisely machine angles up to 45º 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

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 mouldings 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.
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 sliding door 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.
Ready to go in a few seconds: The user-friendly wire threading system

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.

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The new Advance CNC control - the new standard in wire erosion

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, optimization, 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.

Easy Screen
The workplace 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.
Advance Control: Directly utilise your existing 3D CAD data

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 CAM · 2D CAM · 3D Power Master

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 workplace. When the Advance Control is processing in the 3D Power Master mode, it anticipates height differences and cavities in the workplace and reacts accordingly. The possibility of the workplace 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.

Blind hole
Large step
Upper/lower nozzles are seated
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**
Cuts 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.

**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 µm Ra, cutting speeds up to 500 mm²/min., or parallelism in surprisingly small dimensions.

All from the FA-S Advance ...
The Master team: The Mitsubishi FA-Series
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.
Think big: The FA30-S, FA40-S and FA50-S Advance

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 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. workplace dimensions W x D x H mm: 1300 x 1000 x 405 (600*)
- * = V+ version for workpieces up to 800mm height

**FA40-S Advance**
- Travel paths X/Y/Z mm: 1000 x 800 x 400
- Overall dimensions of the machine W x D x H mm: 4427 x 4150 x 2823
- Max. workplace dimensions W x D x H mm: 1500 x 1300 x 395

**FA50-S Advance**
- Travel paths X/Y/Z mm: 1300 x 1000 x 400
- Overall dimensions of the machine W x D x H mm: 5375 x 5045 x 2823
- Max. workplace dimensions W x D x H mm: 2000 x 1600 x 395

Possible wire diameters
- From ø 0.2 mm to ø 0.36 mm
The FA-S Advance: Eroding PCD and CBN easily

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.

Processing of Special Materials · Production of Cutting Tools

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.

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.
Expand your possibilities: B axis and rotating spindle

Simultaneous machining of rotating, guided workpieces · Rotation-Symmetric Workpieces

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.

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 ≤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: 18 kg
Max. workpiece weight: 30 kg
Max. rotation: 25 U/min.
Radial runout ≤0,005 mm
Positioning accuracy +/- 5°

Rotary spindle ITS-MS-24
Fully integrated rotary spindle with positioning 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): 146 x 228 x 48 mm
Axis weight: 3,5 kg
Axis centre above zero: 24 mm
Max. rotation: 3,000 rpm
Radial runout ≤ 1 µm
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 cones with high accuracy requirements. Multi-axis machining to the center of the workpiece 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 ± 180°
Radial and axial runout ≤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
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. Mitsubishi robot RV-12SL
Handling weight: 12 kg
Coverage (radius): 1385 mm
Repeatable 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

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<thead>
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<th>Model</th>
<th>FA10-S Advance</th>
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<td>Weight kg</td>
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<tr>
<td>Dimensions (W x D x H) mm</td>
<td>550 x 600 x 1650</td>
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#### Equipment

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<td>Wire station 65 kg</td>
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<td>Wire station 80 kg</td>
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<td>Wire station 100 kg</td>
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<td>Thin wire device (0.1, 0.15 mm)</td>
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<td>Glass scales X/Y</td>
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<td>Digital finishing generator</td>
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<td>Digital antielectrolysis generator</td>
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<td>Z-axis extension</td>
<td>+ 150 mm</td>
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* = Standard  
** = variable  
*** = not retofittable  
--- = not available
Technical Data · Layout Plans

**FA10-S Advance**

- **Overall power consumption [KVA]**: 13.5
- **Overall weight of the installation [kg]**: 2540
- **Minimum door opening dimensions for insertion B x H [mm]**: 1600 x 2030

**FA20-S Advance**

- **Overall power consumption [KVA]**: 13.5
- **Overall weight of the installation [kg]**: 4110
- **Minimum door opening dimensions for insertion B x H [mm]**: 1950 x 2200

All indications in mm
The dimensions may vary according to equipment.
Model | FA30-S Advance | FA30-S Advance+
---|---|---
Overall power consumption [KVA] | 15,0 | 15,0
Overall weight of the installation kg | 5,640 | 6600
Minimum door opening dimensions for insertion B x H mm | 2850 x 2700 | 2850 x 2800

All indications in mm
The dimensions may vary according to equipment.
Model: FA40-S Advance

- Overall power consumption: 23.0 [KVA]
- Overall weight of the installation: 8.500 [kg]
- Minimum door opening dimensions for insertion: B x H = 2415 x 2830 [mm]

Model: FA50-S Advance

- Overall power consumption: 23.0 [KVA]
- Overall weight of the installation: 10.320 [kg]
- Minimum door opening dimensions for insertion: B x H = 2900 x 2830 [mm]

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