



Wire-cut EDM Systems MV Series

Changes for the Better

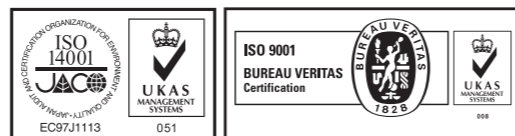


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- * Not all models are supported for all countries and regions.
- * Machine specifications differ according to the country and region, so please check with your dealer.
- * Processing data provided in this brochure is for reference only.

Mitsubishi Electric Corporation Nagoya Works is a factory certified for ISO14001 (standards for environmental management systems) and ISO9001 (standards for quality assurance management systems)



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Specifications are subject to change without notice.



for a greener tomorrow

New generation makes it's mark in a continuously updated lineage.

1972



DWC50S-LT1 DWC50H-DNC2 DWC100H-CNC2 DWC90-CNC1 DWC110N-CNC1

1980



PX05 FX10 DWC90PA CX20 SX20

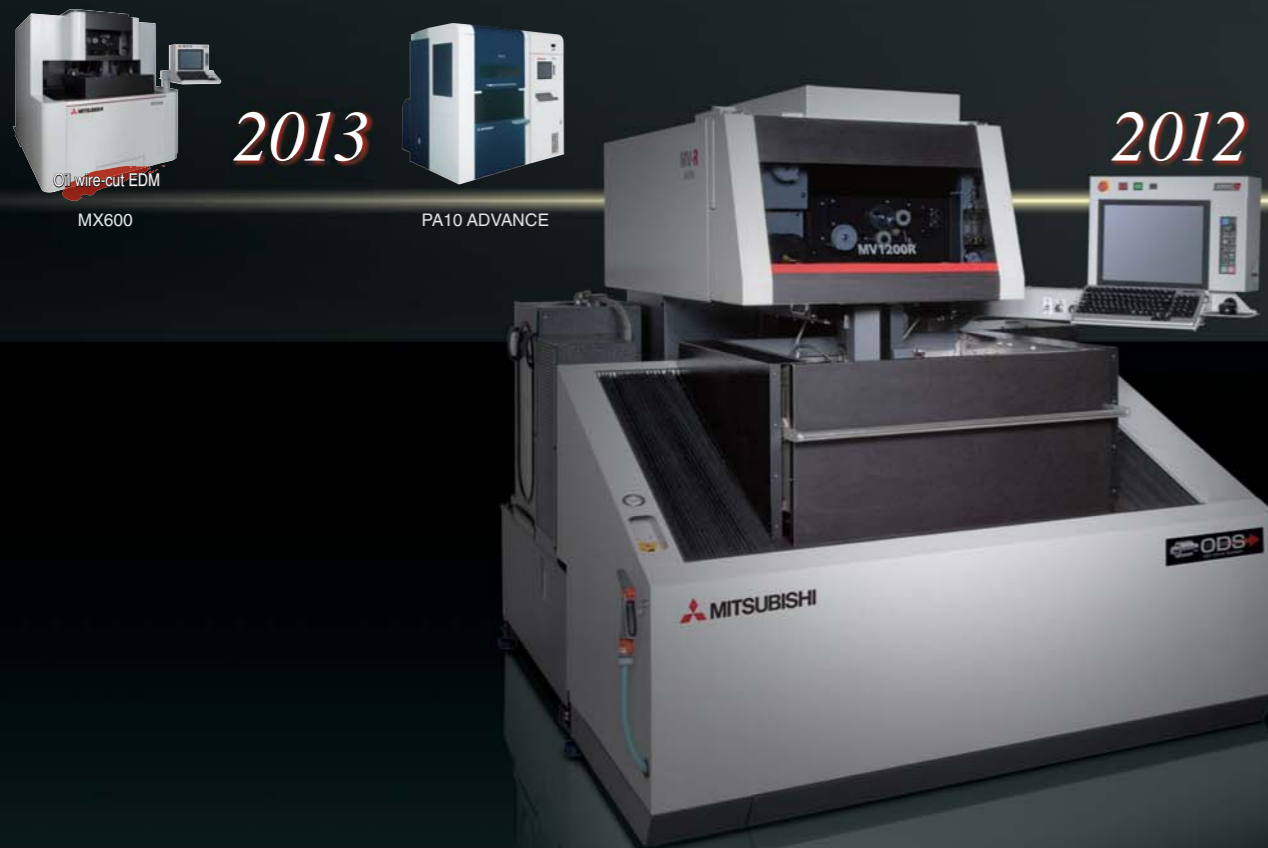
2000



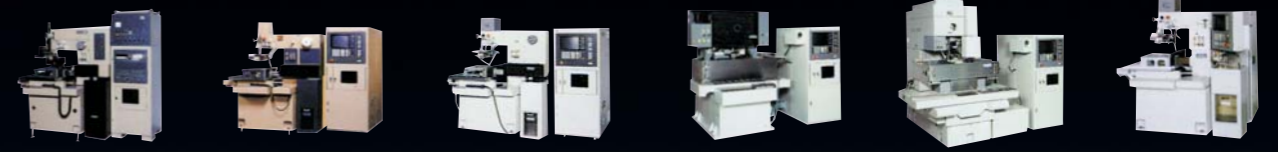
FX20K QA20 RA90AT FA20 FA20P

2013

2012



MX600 PA10 ADVANCE



DWC90FSK-CNC1 DWC90G DWC90H DWC90PH DWC110PH DWC90C

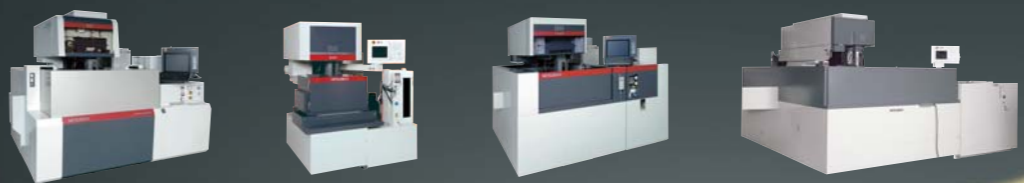
1990



DWC400HA DWC110SA DWC110SZ DWC90SB DWC90HA



PA20 FA30V PA05S FA20S FA10PS



NA2400P BA8 FA20S Advance FA50V

Next-generation Innovations of our best selling Performance Machine

MV Series

Revolutionary MV1200R / MV2400R

High-performance Wire-cut EDMs

ADVANCE PLUS

4-axis LSM (XYUV linear shaft motor)
Four-sided hardened table

ADVANCE PLUS control offers maximum efficiency using a fully optical drive system (MV1200R/2400R)



MV1200R
(manual vertical front door)



MV2400R
(automatic vertical front door)

ADVANCE PLUS × PFC
Machining time reduced up to 17% (FA series ratio)

ADVANCE PLUS × ODS
Corner accuracy ±1µm

ADVANCE PLUS × ODS
Circular accuracy within 2µm

ADVANCE PLUS × ODS × PFC
Power consumption reduced up to 69% (FA Series ratio)

ADVANCE PLUS × McAfee
Anti-virus protection
McAfee® is a registered trademark of McAfee, Inc. in the United States and other countries

Standard MV1200S / MV2400S

Standard Wire-cut EDMs

2-axis LSM (XY linear shaft motor)
U-shaped hardened table



MV1200S
(manual vertical front door)



MV2400S
(automatic vertical front door)



MV2400S
(column up specification)
(automatic vertical front door)

High-value-added machining

<options for MV-R series>

Digital-FS power supply
Optimum surface roughness of Rz0.4µm/Ra0.05µm (Tungsten carbide)
Wire electrode : ø0.2(.008")/BS
Workpiece : Tungsten carbide, t10mm(.4")
Surface roughness : Rz0.4µm/Ra0.05µm



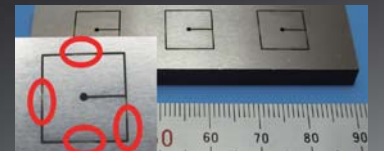
ø0.05(.002"), ø0.07(.003") automatic wire threading
ø0.05(.002") wire electrode available
Wire electrode : ø0.05(.002")/SP
Workpiece : Steel(PD613), Length 20mm(.79") width 2mm(.08")



Angle Master ADVANCE
Taper accuracy is improved regardless of wire angle direction
Wire electrode : ø0.2(.008")/BS
Workpiece : Steel(SKD11), t140mm(5.5")



COREHOLD (Slug retention)
The slug to be automatically held in place after the rough cut for complete unattended operation
Wire electrode : ø0.2(.008")/BS
Workpiece : Steel(SKD11), t5mm(.2")



Ultimate optimization of EDM technology
Super Digital Control
Digital technology optimizes all enhanced functions required by Wire-cut EDMs

Standard functions

- ø0.1(.004"), ø0.15(.006") automatic wire threading
- Digital-AE II power supply
- LAN/W
- Angle Master (S/W)
- Anti-virus protection (MV-R)
- Sleep mode (MV-R)

Options for MV-R series

- ø0.05(.002"), ø0.07(.003") automatic wire threading
- Angle Master ADVANCE (S/W)
- Digital-FS power supply
- COREHOLD

Options

- 20Kg 43.1mm wire spool unit
- Angle Master guide kit (H/W)
- Advanced manual control box
- External signal output
- 3-color warning light
- Run timer
- Option box
- LED light
- 4-piece filter system (MV2400R/2400S)
- Anti-virus protection (MV-S)

Innovative automatic wire threading



- New annealing system greatly improves wire threading with a curl ratio of less than 10%
- Wire break point insertion is greatly improved for thick workpieces
- Wire threading mode can be selected to match the workpiece shape (i.e., jet stream on, jet stream off and submerged break point insertion)



Multiple level wire threading is possible by setting the AT jet mode to off. Highly dependable automatic threading for multi-opening applications

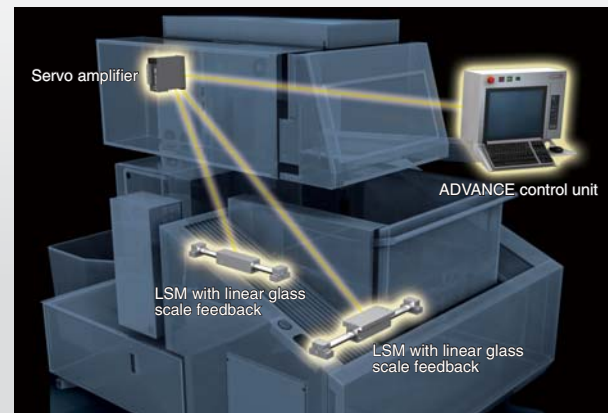


Stable automatic threading is realized during pitch machining

Improved machining accuracy



- Equipped with a linear shaft motor (LSM)
- Mitsubishi Electric's optical drive system uses fiber-optic communications between the control unit, servo amplifier and linear motor to improve machining accuracy



Improved productivity



- Faster machining is realized with improved power-supply performance (Rz3.5µm/Ra0.45µm with 3 cuts) (Rz2.0µm/Ra0.28µm with 4 cuts)
 - All machining conditions are provided (speed condition, nozzle release condition)
- Machining time comparison for Rz3.5µm/Ra0.45µm with 3 cuts

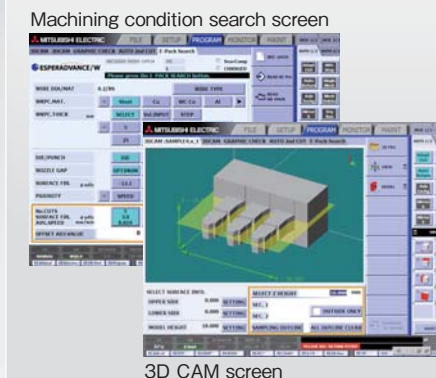


*Compared to conventional Mitsubishi Electric Wire-cut EDM (FA Series)

Easy operation



- Search function for machining conditions is improved by a narrow-down function
 - Job scheduling adjustments use the schedule call back, extra job insertion and ME-pack feature
- *ME-pack is a package of machining processes including offset, machining speed and adaptive control settings



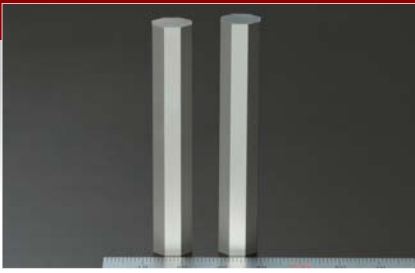
Energy savings, low running cost



- Power consumption reduced up to 69%
Conventional model: 100%
MV-S: Reduced 55%
MV-R: Reduced 69%
- Filter cost reduced up to 45% (Automatic changing filtration flow rate)
Conventional model: 100%
MV-R/S: Reduced 45%
- Wire consumption reduced up to 46%
Conventional model: 100%
MV-S: Reduced 42%
MV-R: Reduced 46%
- Ion exchange resin cost reduced up to 25%
Conventional model: 100%
MV-R/S: Reduced 25%

*Compared to conventional Mitsubishi Electric Wire-cut EDM (FA Series)

Machining Samples



Punch

Model	MV2400R <small>ADVANCE</small>
Electrode material	ø0.2(.008")/BS
Workpiece	Steel(SKD11) Tungsten carbide(KD20)
Workpiece thickness	60mm(2.36")
Surface roughness	Rz1.2µm/Ra0.18µm/7µ"Ra Rz0.8µm/Ra0.12µm/5µ"Ra
Machining accuracy	±2µm

- Ultrafine surface finish is possible using Digital-FS for punch machining
- A corner accuracy of ±1µm is possible using CM3 control
- *CM3 (Corner Master 3) : corner machining control
- Digital-FS power supply <option for MV-R series>



Taper

Model	MV2400R <small>ADVANCE</small>
Electrode material	ø0.2(.008")/Mega-T
Workpiece	Steel(SKD11)
Workpiece thickness	30mm(1.18"), taper angle 15°
Surface roughness	Rz4µm/Ra0.6µm/24µ"Ra
Machining accuracy	Taper ±0.01°

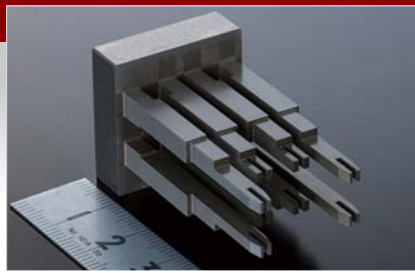
- Taper accuracy is improved regardless of wire angle direction using Angle Master ADVANCE
- ODS provides high accuracy when cutting a U-V independent tapered shape
- Angle Master ADVANCE <option for MV-R series>



Pitch machining

Model	MV2400R <small>ADVANCE</small>
Electrode material	ø0.2(.008")/BS
Workpiece	Steel(SKD11)
Workpiece thickness	50mm(1.97")
Surface roughness	Rz18µm/Ra2.7µm/106µ"Ra
Machining accuracy	-

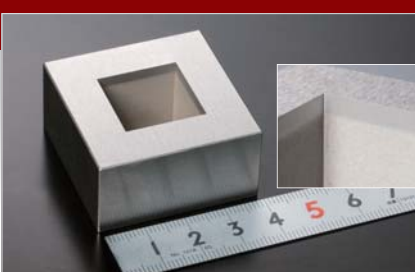
- COREHOLD provides slug retention to hold core after the rough cut for complete unattended operation (Slug retention positions and lengths can be automatically set in place)
- COREHOLD <option for MV-R series>



Connector machining

Model	MV1200R <small>ADVANCE</small>
Electrode material	ø0.2(.008")/BS
Workpiece	Steel(SKD11)
Workpiece thickness	4~25mm(0.16~0.98")
Surface roughness	Rz3.1µm/Ra0.38µm/15µ"Ra
Machining accuracy	±3µm

- Highly accurate machining is possible using ODS
- A machining accuracy of ±3µm is realized for high L/D machining of pin widths from 1.0 to 4.5mm and a length of 40mm



Cutting edge machining

Model	MV1200R <small>ADVANCE</small>
Electrode material	ø0.2(.008")/BS
Workpiece	Steel(SKD11)
Workpiece thickness	20mm(.787")
Surface roughness	Rz2.5µm/Ra0.32µm/13µ"Ra
Machining accuracy	±3µm

- Highly accurate machining is possible using ODS
- Improved taper accuracy using PFC creates uniform cutting edge lengths



Slide core

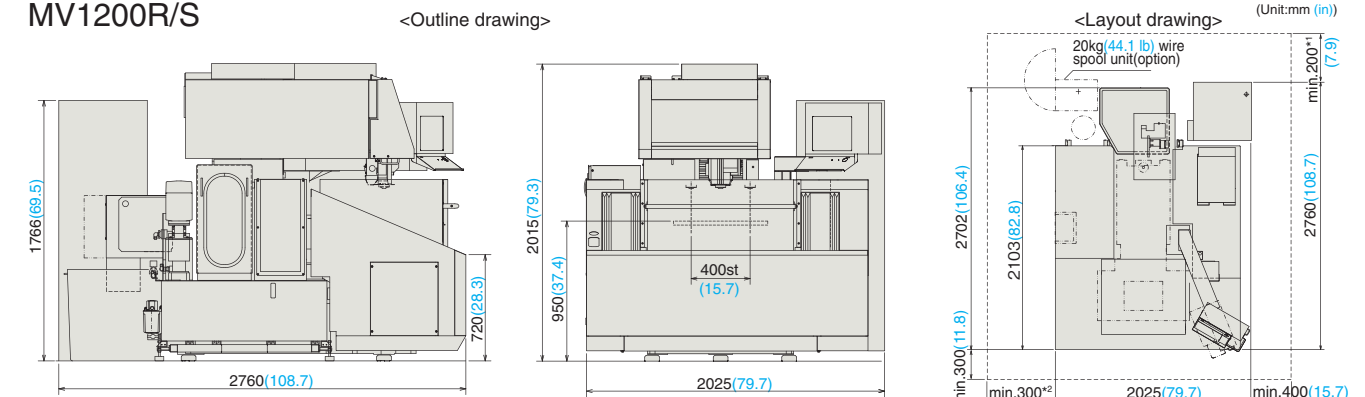
Model	MV2400S
Electrode material	Die :ø0.20(.008")/BS Punch :ø0.25(.010")/BS
Workpiece	Steel(SKD11)
Workpiece thickness	Die :100mm(3.9") Punch :150mm(5.9")
Surface roughness	Rz3.5µm/Ra0.45µm/18µ"Ra
Machining accuracy	±5µm

- Thick workpieces can be machined with high straight-line accuracy using ODS
- High-speed and precise straight machining are realized using PFC



Machine Specifications

MV1200R/S



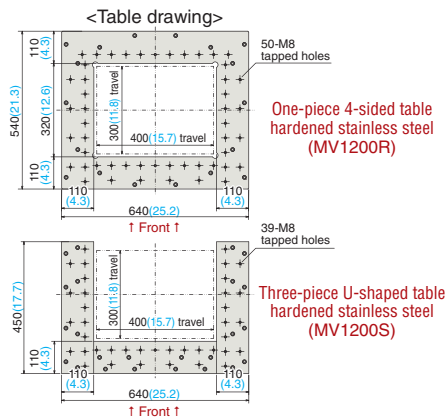
Standard Machine specifications

	MV1200R	MV1200S
Model	MV1200R	MV1200S
Max. workpiece dimensions [mm](in)	810(31.9)×700(27.6)×215(8.5)	
Max. workpiece weight [kg](lb)	500(1102)	
Table dimensions [mm](in)	640(25.2)×540(21.3) (4-sided)	640(25.2)×450(17.7) (U-shaped)
Machine travels (X×Y×Z) [mm](in)	400(15.7)×300(11.8)×220(8.7) (XY axis OPT-drive specifications)	
Machine travels (U×V) [mm](in)	±60(2.4)×±60(2.4) (OPT-drive specifications)	±60(2.4)×±60(2.4) (Ball screw specifications)
Max. taper angle [°]	15° (max. 200mm(7.9"))	
Wire diameter [mm](in)	0.1(.004)~0.3(.012)*1	
Weight [kg](lb)	2700(5952) (including dielectric fluid reservoir)	
Tank capacity [ℓ](US gal)	550(145)	
Filtration method	Paper filter (2)	
Filtered particle size [µm]	3	
Water purifier (ion exchange resin) [ℓ](cu.ft.)	10(0.35)	
Dielectric fluid chiller unit	Unit cooler	
Weight (dry) [kg](lb)	— (included in the machine unit weight)	

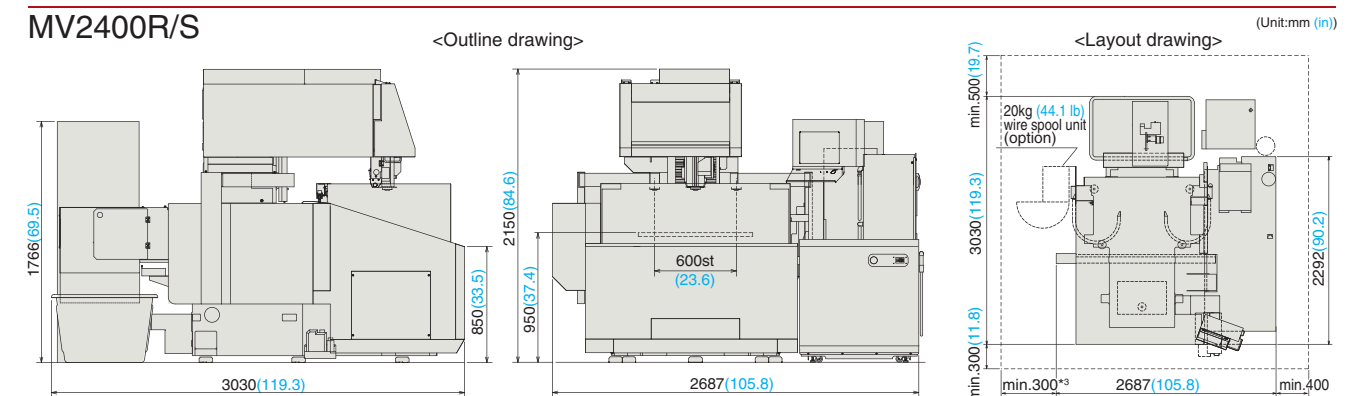
*1 ø0.2(.008") D.D guides and ø1.5(.006") jet nozzle are standard equipment.

General input [kVA]	13.5
Required air rate	Air pressure [Mpa](psi) 0.5(70)~0.7(100)
Air rate [ℓ (cu.ft.)/min]	75(2.6) or more

*1 is min.500(19.7) and *2 is min.700(27.6) when the 20kg(44.1lb) wire spool unit is mounted.
Footprint : 2725(107.3)×3260(128.3) (including maintenance space)



MV2400R/S



Standard Machine Specification

	MV2400R	MV2400S	MV2400S(column up specification)
Model	MV2400R	MV2400S	MV2400S(column up specification)
Max. workpiece dimensions [mm](in)	1050(41.3)×820(32.3)×305(12)		
Max. workpiece weight [kg](lb)	1500(3307)		
Table dimensions [mm](in)	840(33)×640(25.2) (4-sided)	840(33)×560(22) (U-shaped)	840(33)×640(25.2) (4-sided)
Machine travels (X×Y×Z) [mm](in)	600(23.6)×400(15.7)×310(12.2) (XY axis OPT-drive specifications)		
Machine travels (U×V) [mm](in)	±75(2.9)×±75(2.9) (OPT-drive specifications)	±75(2.9)×±75(2.9) (Ball screw specifications)	
Max. taper angle [°]	15° (max. 260mm(10.2"))		
Wire diameter [mm](in)	0.1(.004)~0.3(.012)*1		
Weight [kg](lb)	3500(7716)	3650(8047)	
Tank capacity [ℓ](US gal)	860(227)	980(259)	
Filtration method	Paper filter (2)		
Filtered particle size [µm]	3		
Water purifier (ion exchange resin) [ℓ](cu.ft.)	10(0.35)		
Dielectric fluid chiller unit	Unit cooler		
Weight (dry) [kg](lb)	350(771)	390(860)	

*1 ø0.2(.008") D.D guides and ø1.5(.006") jet nozzle are standard equipment.

General input [kVA]	13.5
Required air rate	Air pressure [Mpa](psi) 0.5(70)~0.7(100)
Air rate [ℓ (cu.ft.)/min]	75(2.6) or more

*3 is min.670(26.4) when the 20kg(44.1lb) wire spool unit is mounted.
Footprint : 3387(133.3)×3830(150.8) (including maintenance space)

