

# EDS 200, EDS 400, EDS 600 & EDS 1000

Electric Discharge Sawing Machines

New



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After extensive R & D for the past 30 years in the field of Electric Discharge Machining, now Electronica is introducing High-Speed Sawing Machines using the Electric Discharge principle for cutting all metals, including exotic ones.

Ideal for Aeronautical Engineering, Metallurgical and Research laboratories, Defence workshops.

### Advantages

- It can cut any electrically conductive material irrespective of its hardness
- Sawing of spherical or slanting surfaces
- Faster than band saw in case of hard materials
- Minimum loss of material, as the cutting width is less than 1.5 mm
- No deformation of the workpiece
- Good sawing efficiency irrespective of the hardness and resistance strength
- Only a small zone gets affected due to heat generation
- Easy clamping due to very small sawing force which is 300 to 500 gm per sawing width of 10 mm
- Very low running expenses

### How it works

An endless Mild Steel belt is used as an electrode to cut the workpiece. This Mild Steel belt rotates continuously over the two pulleys under tension. The thickness of this Mild Steel belt ranges between 0.5 and 0.9 mm and has the width between 19 and 40 mm and the length approximately between 7500 & 12000 mm depending on model.

This electrode is fed to the workpiece with the help of Servo system. Water-based diluted Silicic acid soda (Sodium Silicate) solution or distilled water is used as dielectric.

### Performance

- Maximum cutting speed : 10 to 15 cm<sup>2</sup>/min.  
The cutting speed is calculated considering the cross-section of the workpiece that is to be cut. For example, to cut a slice out of a square bar of 10 cm x 10 cm, it will require roughly 10 minutes.
- Depth of the heat-affected zone on the sawing surface :  $\leq 0.5$  mm

### Applications

- Sawing of hard metals and exotic metals such as Titanium, Stainless Steel, Super Alloy, Inconel, Cast Steel etc.
- Sawing of fragile or soft materials, honeycomb, thin pipes etc.
- Works on all types of metals used in Aeronautical Engineering
- Most suitable for sawing materials such as, Tool Steel, Super Heat-resistant Alloy, Stainless Steel, Cast Iron and Cast Steel

## EDS 1000



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## Operational features

- **Automatic belt tension adjusting system** with a sensor in case of belt elongation. It is interlocked with the process to ensure cutting with higher efficiency.
- **Pneumatic job-clamping system** (optional)  
This clamping system is separate from the work table. Hence, a continuous cutting and feeding is ensured without loss of time in clamping the workpiece.
- **Motorised trolley** (optional)  
For continuous feeding of the workpiece for cutting
- **Separate strip butt welding system** with built-in grinder, allows instant welding of electrodes
- Separate water cycle exclusively for Aluminium cutting

## Safety features

- Enclosed work area with interlocked doors ensures higher operator safety
- Enclosed belt wheels with interlocked covers to ensure safe replacement of the belt
- Built-in fume extractor with dielectric separating facility for fume-free work environment, without loss of the coolant

## Easy maintenance

- Separate automatic wash cycle for cleaning the work area automatically with a single-key operation
- Easily replaceable ceramic guides and carbon brushes allow easy maintenance



## Control



## Types of control

- Functional control : Micro-controller based
- Servo control : PWM DC Servo  
AC Servo (optional)

## Data input and output

- Special-function sealed keyboard
- Hand-held remote control unit

## Operating aids

- Audiovisual alarm for fault indication
- Manual Up / Down switch
- Auto-positioning of saw
- Gap control
- DRO for Z axis

## Safety and protections

- Mains over-voltage and under-voltage
- Dielectric low level and overflow
- Servo overload
- Fan failure
- Preset depth
- Over-travel for Z axis
- Interlocked safety doors for wheels
- Belt break interlock
- Belt jam interlock

## Dielectric unit

- Dielectric capacity : 600 Litres

## Standard accessories

- Strip butt welder
- Fume extractors
- Centralised lubrication system
- Automatic servo-controlled voltage stabiliser
- Manual clamping set

## Optional accessories

- Motorised trolley

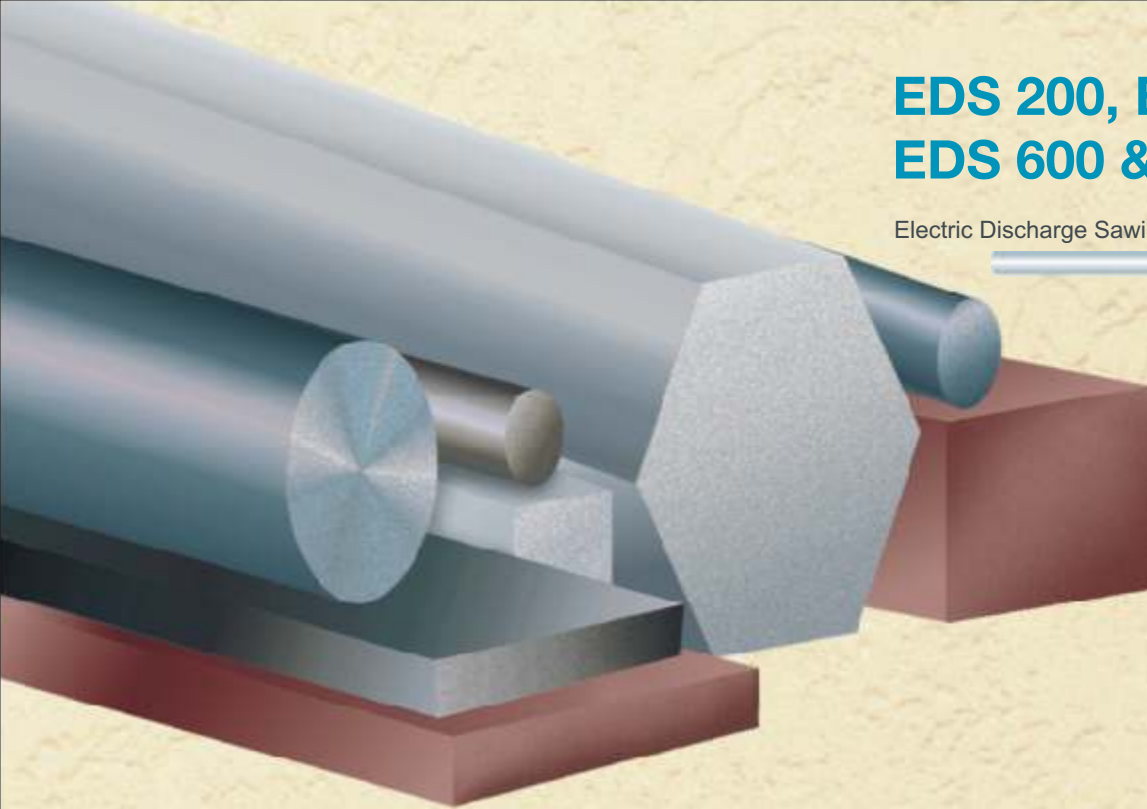


Strip butt welder



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## Technical Specifications

Machine Tool	Unit	EDS 200	EDS 400	EDS 600	EDS 1000
Maximum cutting limits (cross-section of the workpiece)	mm	200 x 200	400 x 400	600 x 600	1400 x 1000
Work table dimensions	mm	400 x 600	600 x 800	800 x 800	1400 x 1000
Vertical saw travel (Z)	mm	250	450	650	1150
Rapid feed rate	mm/min.	600	600	600	600
Cutting (working) saw Servo feed	mm/min.	40	40	40	40
Average cutting speed	cm <sup>2</sup> /min.	10-15	10-15	10-15	10-15
Saw speed	m/Sec.	16	16	16	16
Tension on the saw belt	kg	300	300	300	300
Electrode material		Mild Steel	Mild Steel	Mild Steel	Mild Steel
Axis measurement Z with encoder	mm	0.005	0.005	0.005	0.005
Net weight	kg	4500	5000	6000	10000

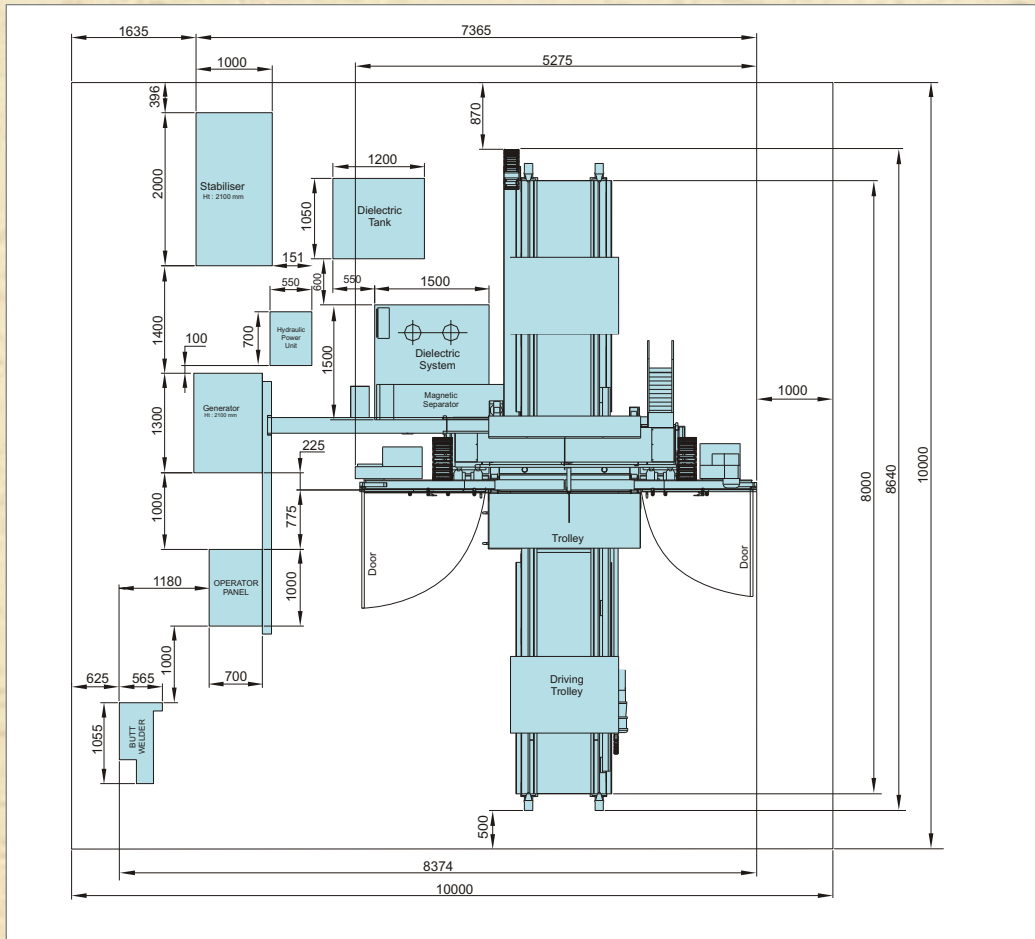
Pulse Generator	EDC 300	EDC 500	EDC 1000
Maximum output	30 V, 200 A	30 V, 400 A	30 V, 1000 A
Output amperage adjustment method	Saturated reactor type	Saturated reactor type	Saturated reactor type
Electrode Servo feeding method	DC Servo type (AC Servo optional)	DC Servo type (AC Servo optional)	DC Servo type (AC Servo optional)
Input power supply <sup>+</sup>	3 Phase, AC, 415 V, 50 Hz <sup>+</sup>	3 Phase, AC, 415 V, 50 Hz <sup>+</sup>	3 Phase, AC, 415 V, 50 Hz <sup>+</sup>
Connected load	20 KVA	45 KVA	160 KVA

<sup>+</sup> Alternate power supply ratings available on request

We recommend • EDS 200 with EDC 300 • EDS 400/600 with EDC 500 • EDS 1000 with EDC 1000

## Floor Plan : EDS 1000

All dimensions in mm



## Indicative Performance Chart of EDS 400 with EDC 500

Test conditions with Electrode Mild Steel (W x H x L) : 0.9 x 35 x 7450 mm

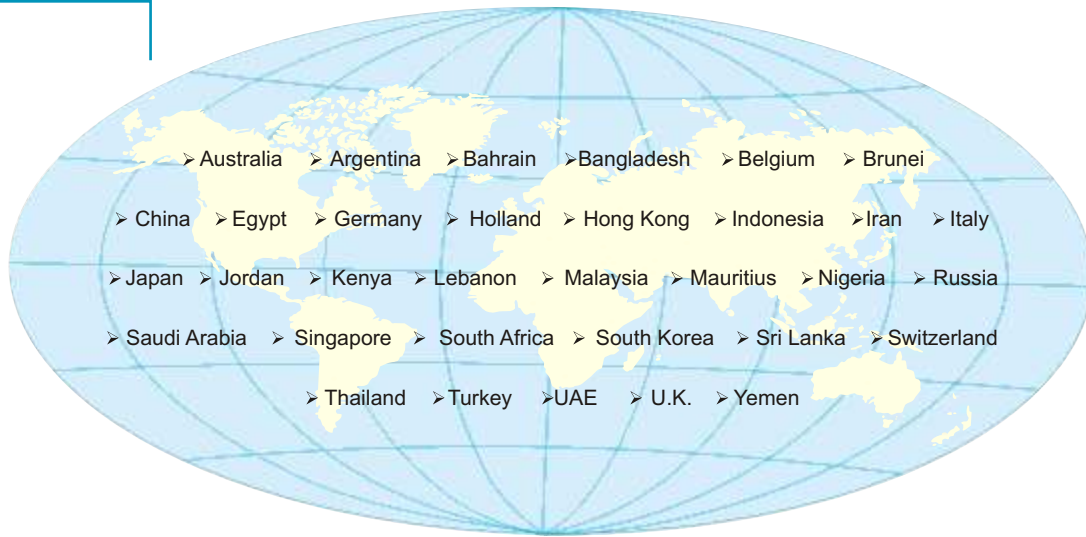
Workpiece		Coolant	Results
W x H (mm)	Metal		Cutting speed (mm <sup>2</sup> /min.)
150 x 150	OHNS (Steel)	Sodium Silicate	1000
100 x 100	Brass	Sodium Silicate	1100
140 x 140	Aluminium	Distilled Water	550
140 x 140	Aluminium	Distilled Water	1000
20 x 50	Armour Steel	Sodium Silicate	300
6 x 50	Naval Steel	Sodium Silicate	200
20 x 70	Nickel	Sodium Silicate	200
50 x 35	Titanium	Sodium Silicate	250
Ø 30	Tungsten	Sodium Silicate	50
405 x 405	OHNS (Steel)	Sodium Silicate	1200

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## Global Presence



*In keeping with our constant endeavour to meet market needs, we reserve the right to alter or change the specifications mentioned without prior notice.*

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