CHMER

Die Sinker E.D.M

Linear Drive SERIES

- High Machining Speed
- Less Electrode Wear
- High Productivity

National Award

Rising Star Award

MACHINE SPECIFICATIONS

ITEMS	UNIT	D322CL	D433CL
Work Table Size (WxD)	mm	500x300	650x400
Work Tank Size (WxDxH)	mm	770x500x300	1000x610x300
Max. Job Load Size (WxDxH)	mm	720x450x190	950x560x250
Table Travel (X,Y)	mm	300x200	400x300
Table Travel (Z)	mm	250	300
X, Y,Z Axis drive	mm	X, Y axis by AC Servo Motor Z axis by linear Motor	X, Y axis by AC Servo Motor Z axis by linear Motor
Distance from Ram platen to work table	mm	250~500	250~550
Max. Electrode Weight	kg	20	30
Max. Work-piece Weight	kg	300	350
Outside Dimensions (WxDxH)	mm	1040x1470x2000	1260x1600x2175
Net Weight	kg	1400	1600
Pneumatic Requirement	kgf/cm²	6	6
For Dielectric Tank	—	D434	D434

POWER SUPPLY UNIT	UNIT	50N	75N
Max. machining current	A	50	75
Max. power input	KVA	5	6
Electrode wear rate	%	0.2	0.2
Best surface roughness	μm/Ra	0.25	0.25
Outside Dimensions (WxDxH)	mm	620x850x1860	620x850x1860
Weight	kg	180	220

DIELECTRIC	UNIT	D434
Volume	L	390
Filter	method	Paper filter
Power	HP	0.5
Weight	kg	80
Outside Dimensions (WxDxH)	mm	1400x800x430

Note: The manufacturer reserves the right to modify the design for specifications, machanisms, ...etc. to improve the performance of the machine without notice, all the specifications above are just for reference.

National Award Rising Star Award

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Die Sinker EDM Linear Drive SERIES

The Great Lead Forward Hardware Performance And Superior Software Control Condensation

D322CL

D433CL

HIGH TRANSMISSION PERFORMANCE LINEAR MOTOR

High transmission performance linear motor with effective servo drive and software control; to stabilize the machining feed and get averagely. Spark gap voltage for improving the surface roughness to achieve the high speed, high accuracy erosion result.

SUPER PRECISION PROCESSING, MICRO SPARK

For the super precision processing, micro spark, it can wield small, tiny hole, thin plate and tilt job driven by high speed linear motor. Effective flushing by advanced ARC-OFF control function, enhance the high speed machining to upgrade the automation in the production line.

FUNCTION INTERFACE

- Friendly conversation window available. Suitable working conditions easily and quickly come up by just input electrode and work piece material, sparking current and desired surface roughness.
- Working depth will be automatically adjusted by controller after changing sparking depth for ideal working condition.
- Unique CHMER E code function to achieve 3 axis simultaneous machining without complicated G, M codes.
- Different E codes available for different working applications.
- Friendly E code illustration for operator to understand E code machining before and during the processing.

MECHANISM FEATURE

- The world leading technology to adopt the self-manufacturing linear motor on the developed die sinker.
- Spindle Ram Z-axis with optimized balance cylinder and brake lock up when stops. This is for a rapid travel movement and accurate positioning; also we developed a gas refilling and recovery device for energy saving and emission reduction. (Patented product)

ALL NEW DISCHARGE CIRCUIT DESIGN

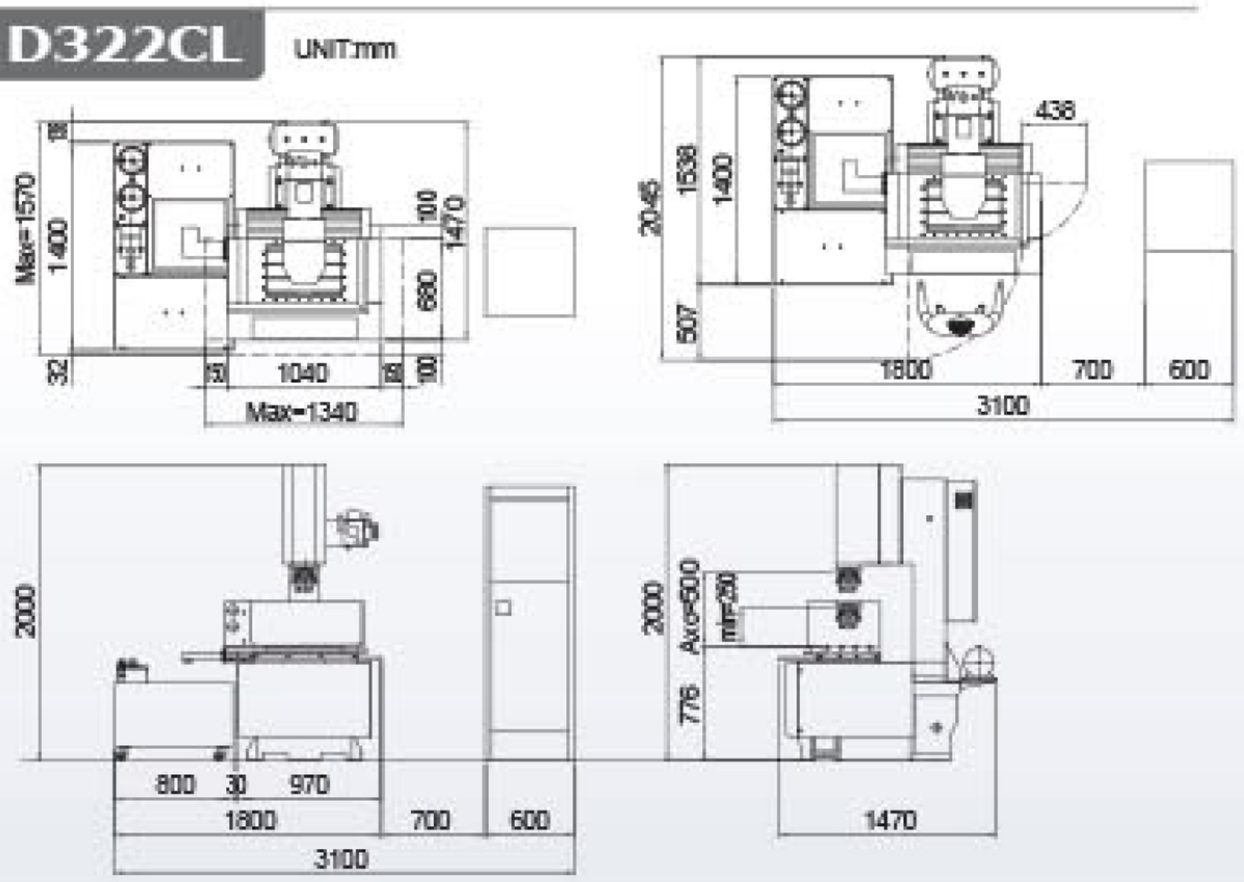
- **Medium-low current impulse**
  To control current" ascend speed rate" on analogy circuit to reduce the wear of electrode.
- **Rapid energy lesion circuit**
  To help reducing the discharge current Impulse "OFF Time" and add the machining feed without heavily electrode wear.
- **Special Parasitic resistance technology**
  To help reducing the noise and surge during the discharge current Impulse "On Time" and enhance the response frequency of high current impulse discharge.
- **Micro spark finish circuit**
  Through high current impulse discharge to reach the mirror surface finish.

- **All new circuit module hardware & software**
  multiple-choice S. code to meet all purpose with different material discharge process.
- **Discharge current impulse display window**
  to do real-time monitoring diagnosis for users.

FLOOR LAYOUT

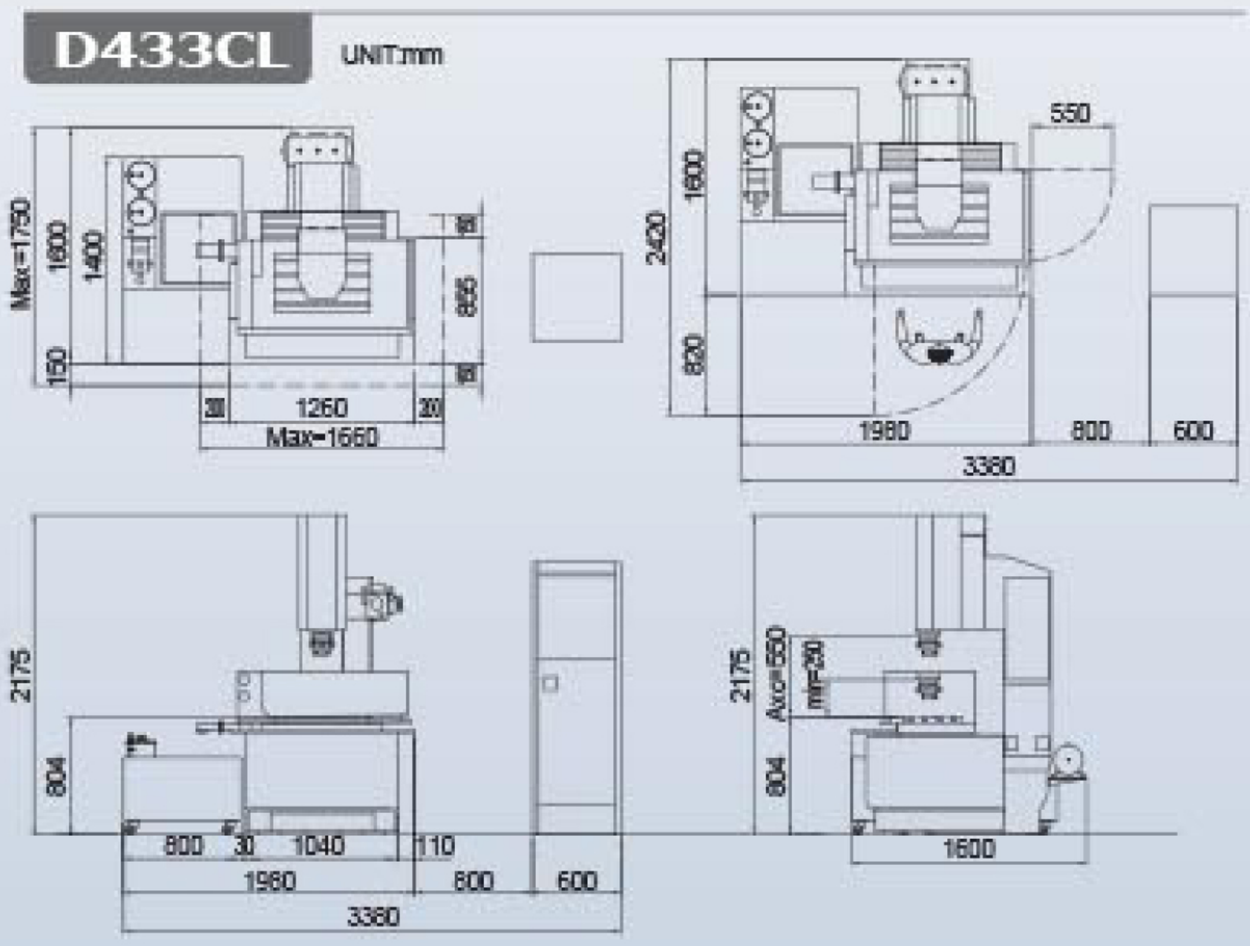
D322CL

UNIT:mm



D433CL

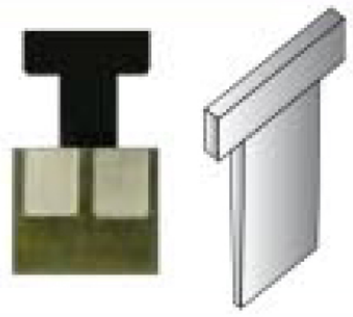
UNIT:mm



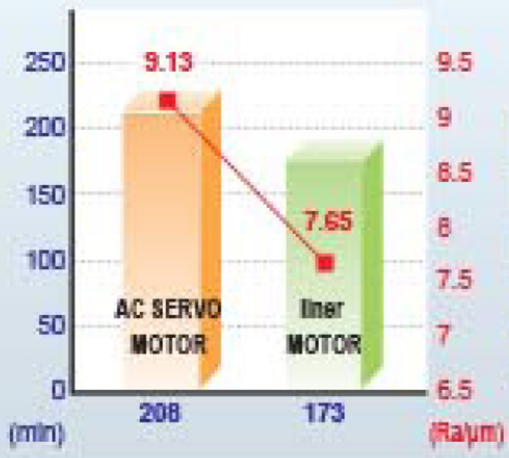
Die Sinker EDM Linear Drive SERIES

PERFORMANCE COMPARISON

Eletrode : GRAPHITE



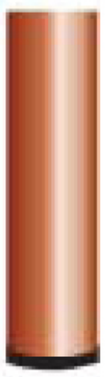
MATERIAL QUALITY	SC50C
ELECTRODE SIZE	L50mmxW2mm,tp1˚
DEPTH	40mm
LOW PRESSURE	30A



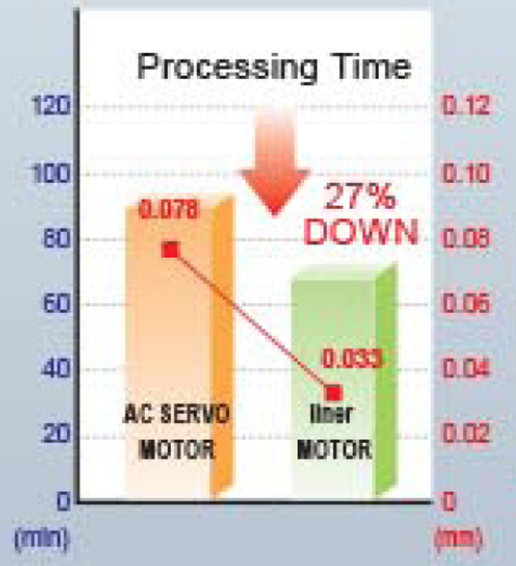
TRANSMISSION	PROCESSING TINE	SURFACE ROUGHNESS
AC SERVO MOTOR	208 min	9.13 Ra/μm
LINEAR MOTOR	173 min	7.65 Ra/μm

■ Processing Time (min)
■ Electrode consumption(mm)

Eletrode : COPPER



MATERIAL QUALITY	SC45C
ELECTRODE SIZE	φ 9.95mm
DEPTH	Discharge 5 cavity by one electrode of 2mm depth for each.
LOW PRESSURE	30A

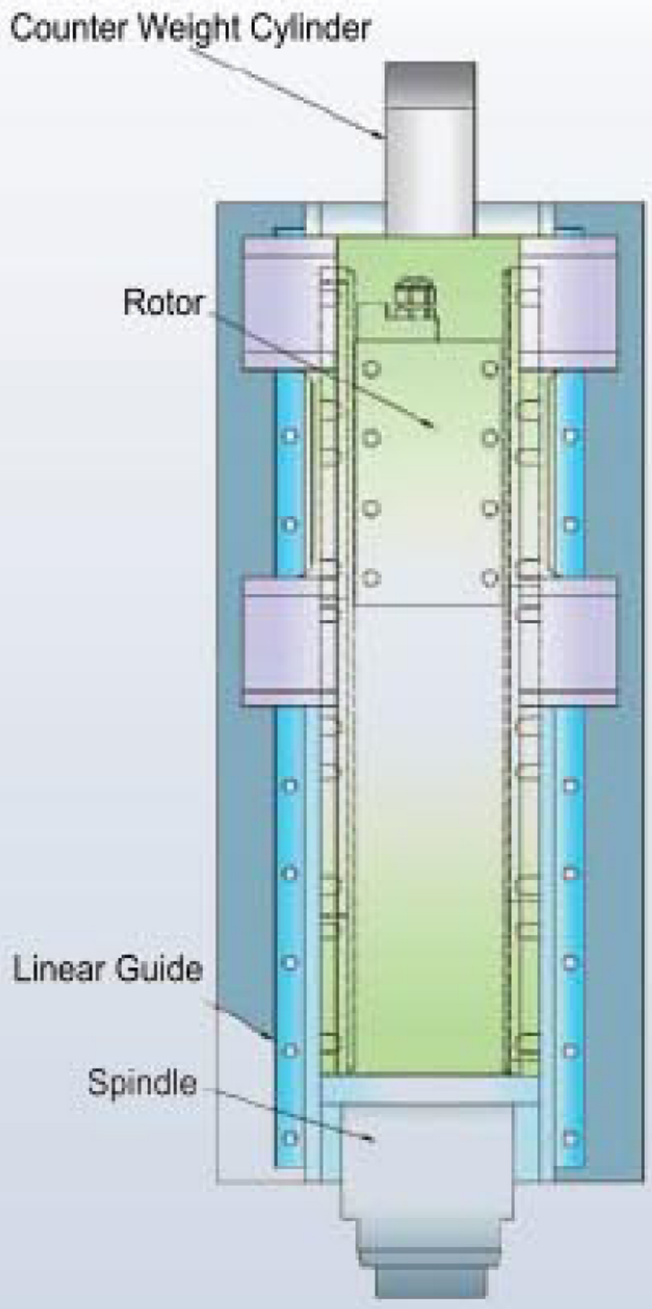


TRANSMISSION	PROCESSING TINE	SURFACE ROUGHNESS
AC SERVO MOTOR	82 min	0.078 Ra/μm
LINEAR MOTOR	61 min	0.033 Ra/μm

■ Processing Time (min)
■ Electrode consumption(mm)

LINEAR MOTOR DRIVE SYSTEM

The advantages of applying Linear Motor systems equipped with Linear Scales in the field of Die Sinker EDMs are: high machining speed, high response, low friction of axis movement ,and high follow-up performance (minimum positioning lag). The addition of LM technology resulted in less electrode wear, more consistent surface finishes and more consistent over burns, especially with deep rib burns.



HIGH SPEED MOVEMENT

In addition to the high acceleration and high positioning accuracy, Linear Motors also greatly enhance the traverse speed over traditional Ball Screw drives with no positioning lag.

	LINEAR Motor	Ball-Screw
Traverse Speed	18 - 21 m / min	2 - 5 m / min
Positioning Lag	NO	YES
Structure		

HIGHLY FEED & LOW CONSUMPTION FOR CORNER CLEARANCE OF THIN PLATE

Discharge area: 4.1mm² / **Total processing area:** 4.1mm³

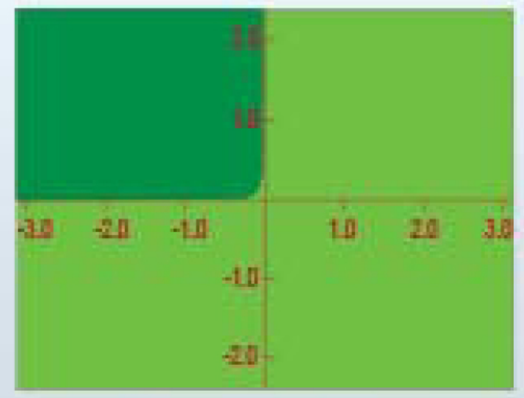
Processing electrode size: 0.82x5.0mm

Processing depth: 1mm

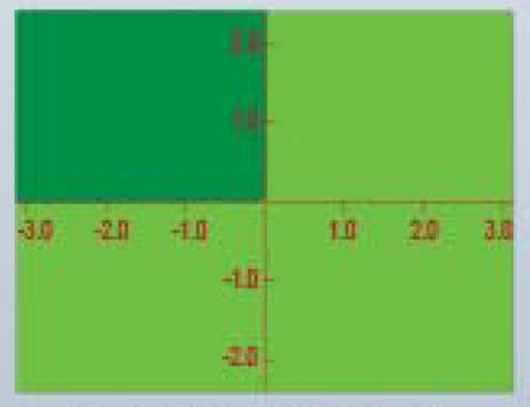
TRANSMISSION	PROCESSING TIME	PROCESSING SPEED	R ANGLE CONSUMPTION
AC SERVO MOTOR	20 min	0.21 mm³/min	0.040 mm
LINEAR MOTOR	13 min	0.32 mm³/min	0.025 mm

Processing Time

R angle consumption



AC SERVO MOTOR



LINEAR MOTOR

HIGH PERFORMANCE EXAMPLE

For obtaining the best surface roughness, keeping a consistent spark gap is essential to optimize the erosion condition. Vacuum suction can more effectively bring the chips quickiy out of the cavity. This reduces the secondary discharge that causes irregular and excessive electrode wear.

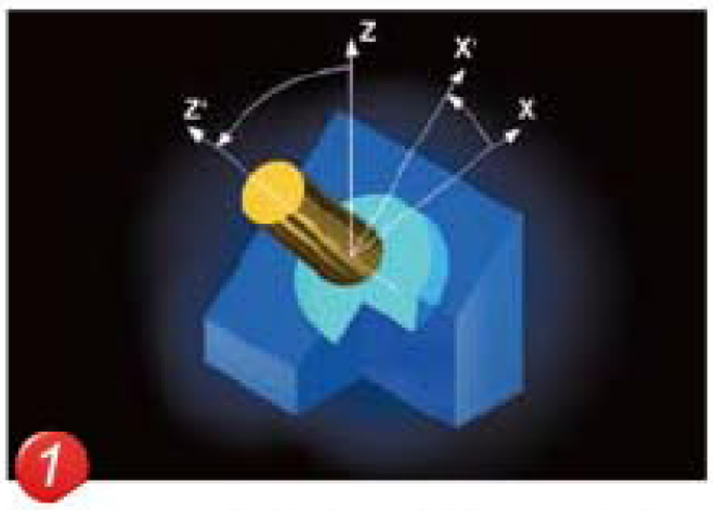
TEST RESULT

	Measurement	Roughness
1	2.697 mm	0.52μmRa
2	2.698 mm	0.50μmRa
3	2.696 mm	0.52μmRa
4	2.697 mm	0.50μmRa
5	2.697 mm	0.53μmRa
6	2.697 mm	0.48μmRa
7	2.696 mm	0.50μmRa
8	2.696 mm	0.52μmRa
9	2.696 mm	0.54μmRa

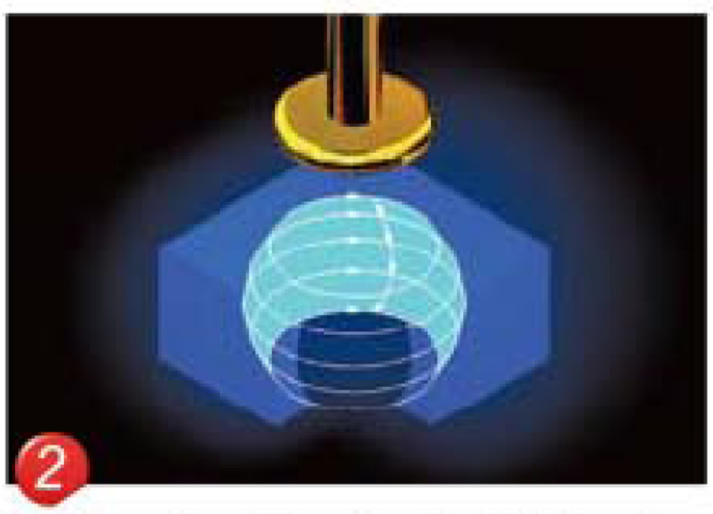
- **Electrode:** Cu: 60X60mm 2 pcs
- **Workpiece:** NAK80
- **Depth:** 2.70mm
- **Machining time:** 13hr 05min (Rough=3hr35min; Finish=9hr30min)
- **Roughness (Ra):** 0.50μmRa

E-CODE FUNCTION (CANNED CYCLES)

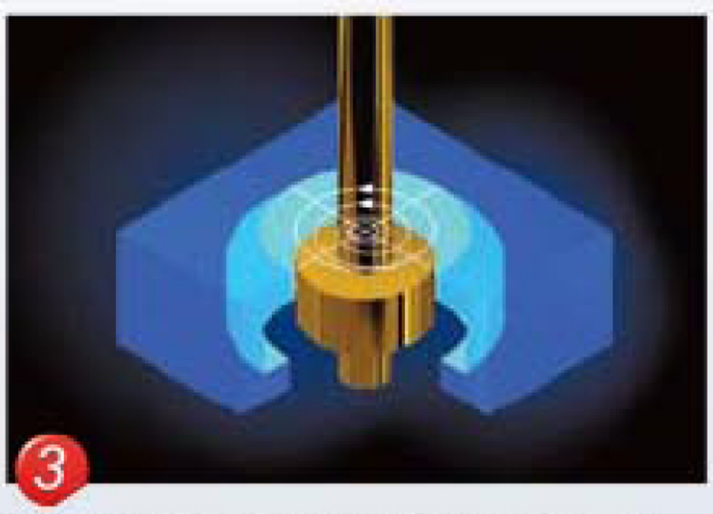
Canned Cycles (E-code) provides simple programming solution for diverse mould production.



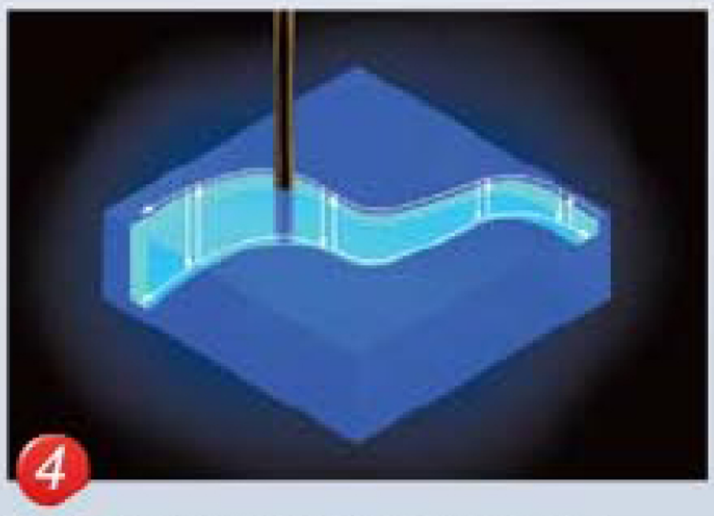
Work-piece slanted at 45 degree to do orbiting sparking at 45° ramp.



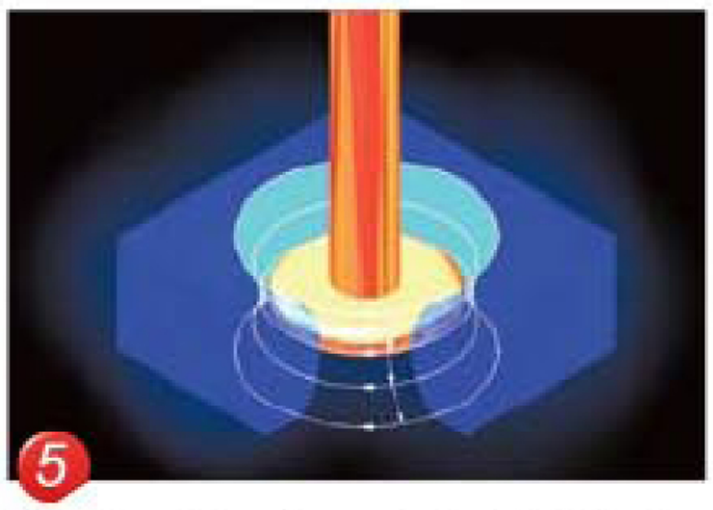
Interior sphere formaing by X,Y circular motion and Z at various depths.



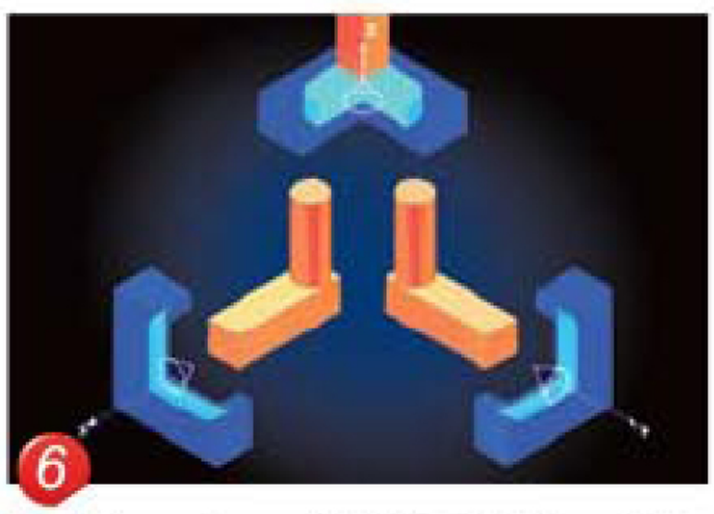
X,Y axes do orbiting at specified depth.



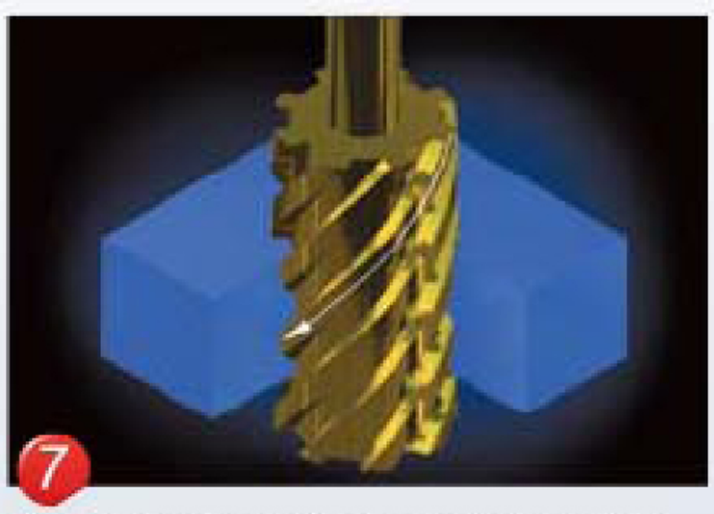
G, M Code programming enables complex 3D contour erosion.



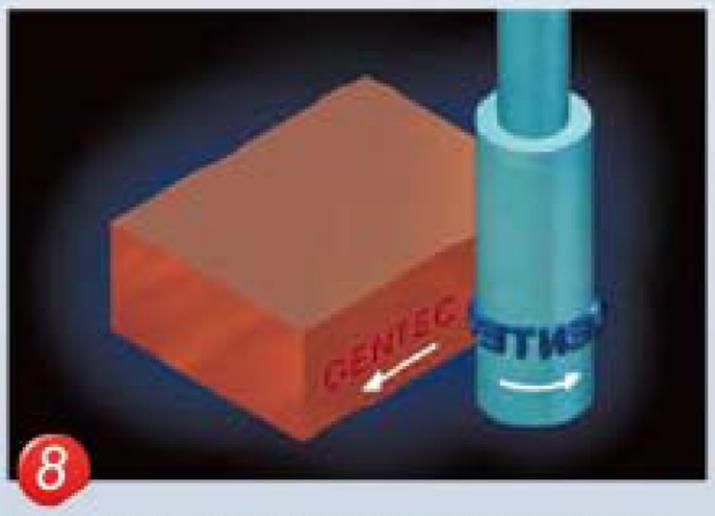
Exterior sphere formaing by X,Y circular motion and Z at various depths.



3 orbiting planes (XY, YZ, XZ) by rotating electrode along with Z, X and Y axes respectively.



Z sparking with C-axis equipment for complex shape like thread and helical forming.



Sparking with C axis rotation for parts embossing.

High Speed Linear Drive Die Sinker EDM

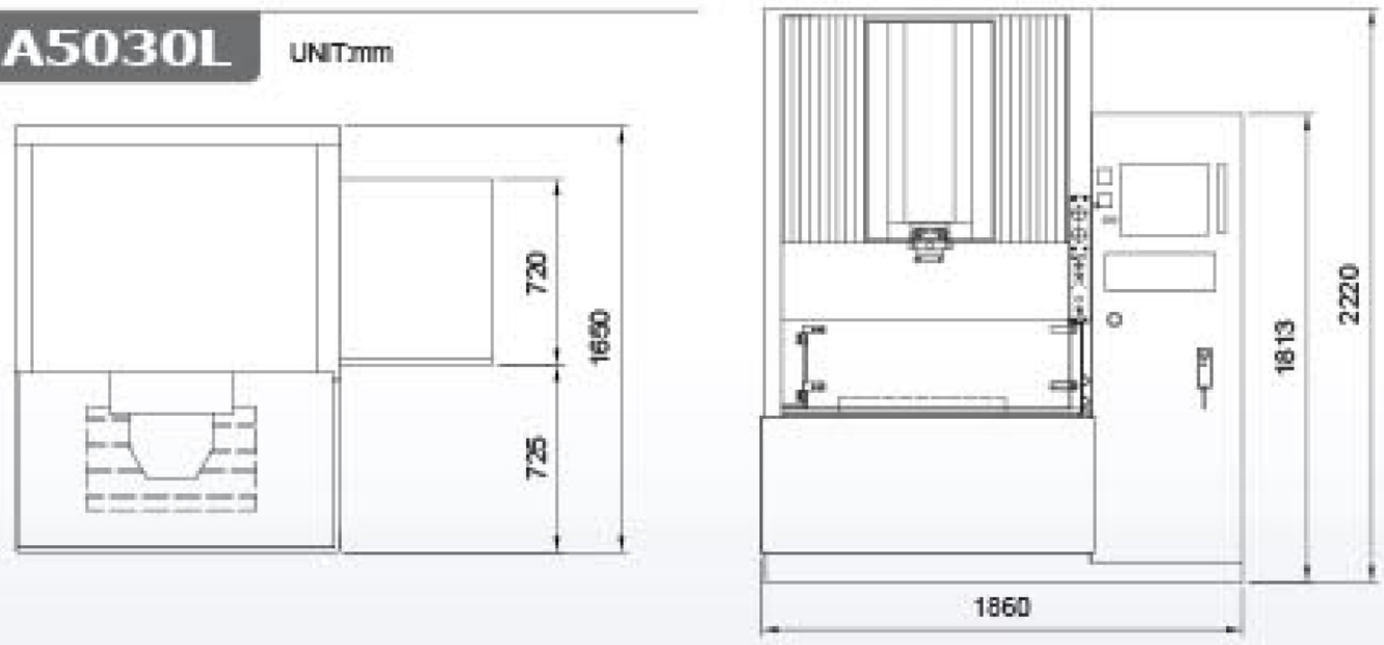
NEW

- All-in-one design to have occupied space 10% less.
- Highly rigid column moving structure design attached with X,Y,Z axis Linear Motors to gain high speed, backlish-free, high precision machining.
- Cutting speed can be increased up to 4 times and high responsiveness possible by Linear Motor and air balance system. It can have good machining result on tiny and deep hole, also rib job.
- Friendly conversation window available. Suitable working condition easily and quickly come up by just select the type of E code.
- Newest 2ND generation power supply with HE circuit has lower wear and 30% increased up on machining speed as before.
- Simplified modular box design to get maintenance less.

A5030L

FLOOR LAYOUT

A5030L UNIT:mm



MACHINE SPECIFICATIONS

ITEMS	UNIT	A5030L
Work Table Size (WxD)	mm	650x400
Work Tank Size (WxDxH)	mm	1100x640x400
Max. Job Load Size (WxDxH)	mm	850x550x300
Table Travel (X,Y)	mm	500x350
Table Travel (Z)	mm	300
X, Y,Z Axis drive	mm	X, Y ,Z axis by linear Motor
Distance from Ram platen to work table	mm	300~600
Max. Electrode Weight	kg	30
Max. Work-piece Weight	kg	1000
Outside Dimensions (WxDxH)	mm	1860x1650x2220
Net Weight	kg	2230
Pneumatic Requirement	kgf/cm²	6
For Dielectric Tank	—	DA53

POWER SUPPLY UNIT	UNIT	50N	75N
Max. machining current	A	50	75
Max. power input	KVA	5	6
Electrode wear rate	%	0.2	0.2
Best surface roughness	μm/Ra	0.25	0.25
Outside Dimensions (WxDxH)	mm	Built in	Built in
Weight	kg	Built in	Built in

DIELECTRIC	UNIT	DA53
Volume	L	480
Filter	method	Paper filter
Power	HP	0.5
Weight	kg	Built in
Outside Dimensions (WxDxH)	mm	Built in

Note: The manufacturer reserves the right to modify the design for specifications, machanisms, ...etc. to improve the performance of the machine without notice, all the specifications above are just for reference.