

University Visvesvaraya College of Engineering

(Bangalore University), Bangalore, K R Circle, Bangalore

TECHNICAL EDUCATION QUALITY IMPROVEMENT PROGRAM - II

Package No. 97 : ELECTRIC DISCHARGE MACHINING SYSTEM

(TEQIP-II/2015/KA2G01/Shopping/46)

- A] MACHINE TOOL ***
- | | | |
|----|---|-------------------------------------|
| 1 | Work Tank Internal Dimensions (WxDxH) | : 750 X 450 X 350 mm |
| 2 | Work Table Dimension | : 500 X 350 mm |
| 3 | Adjustable Maximum Dielectric Level | : 325 mm |
| 4 | T Slots For Fixing | : 4 OF 10 mm |
| 5 | Longitudinal Travel (X) | : 300 mm |
| 6 | Transverse Travel (Y) | : 200 mm |
| 7 | Maximum Permitted Load on Table | : 200 Kg |
| 8 | Quill Travel | : 250mm |
| 9 | Maximum Workpiece Height | : 250 mm |
| 10 | Maximum Electrode Weight (With Accessories) | : 100 Kg (DC Servo) |
| 11 | Depth of Throat | : 350mm |
| 12 | Daylight | : 515mm |
| 13 | Shut Height | : 265 mm |
| 14 | Max. job height above table | : 250 mm |
| 15 | Quill Servo system for Z Axis | : DC Servo with Lead Screw
0.005 |
| 16 | Resolution Of System Z | : mm |
| 17 | Least Count Of Hand wheel (X,Y) | : 0.20 mm with vernier |
| 18 | Machine overall size | : Compact Foot Print |
- B] GENERATOR (INTEGRAL WITH MACHINE TOOL)**
- | | | |
|----|------------------------|--------------------------|
| 1 | Pulse Generator | : MOSFET |
| 2 | Pulse Peak Voltage | : 1 Step |
| 3 | Impulse Voltage | : 150 V |
| 4 | Max. Machining Current | : 50A |
| 5 | Pulse ON Time | : 0.5 To 4000uS |
| 6 | Pulse OFF Time (Tau) | : 1 To 12 |
| 7 | Pulse Frequency | : 0.1 To 500 KHZ |
| 8 | Superfinish Mode | : Built - in |
| 9 | Input Power Supply | : 3-Phase, AC 415V, 50Hz |
| 10 | Connected load | : 6 KVA |
| 11 | Average Load | : 4.5 KVA |
- C] TECHNOLOGY :**
- 1 Built - in EDM Technology : Standard & User definable
Detailed Technology charts and guide lines for Copper to Steel, graphite (EDM1) to steel, Graphite (G500) to steel
 - 2 Steel to Steel, Copper to Carbide(GT55), Copper to Carbide (GT20), Tungsten Copper To Carbide,

Copper to Copper

- 3 Maximum MRR : - Copper to Steel : 350mm³/min
Gr (EDM1) to Steel : 500mm³/min
- 4 Minimum electrode wear with Copper to Steel & Graphite to Steel < 0.2%
- 5 Best surface finish Copper to Steel : <=0.3micro Ra

I GEOMETRY, POSITION MEASURING SYSTEM

- 1 Controlled Axis : Z Axis
Position Measuring System For
- 2 X,Y,Z : Incremental linear scale
- 3 Least Input Increment : 0.005 mm (0.001mm OPTIONAL)

II TYPE OF CONTROL :

- 1 Functional control : 386 based Controller EMT S ZNC
- 2 Servo Control : STANDARD - PWM DC SERVO

III DATA INPUT AND OUTPUT : Keyboard - Special Function hand held sealed keyboard

IV DISPLAY :

- a Display Type : SVGA Colour Graphic CRT Display
- b Text in English
- c Information Display :
Large character actual value display for
X,Y,Z
Active EDM parameter setting
display
Machine Parameter & EDM
Technology
Interlock Status

V PROGRAM :

A]

- 1 Program data memory : 99 programs of 50 Steps each
Battery back - up for
- 2 memory
- 3 Program EDIT
Programmable Z Axis
Depth
Program dwell
Program step
- 4 Inch / Metric data input
- 5 Selection of EDM parameters from standard technology
- 6 Selection of EDM parameters from "Ez - GURU"

B] OFFLINE EDITOR :

- 1 Powerful editing
Programming Through "Ez - GURU"
- 2 or similar/ equivalent
Windows based serial
- 3 communication

VI OPERATING AIDS :

- EDM and machining parameter
- 1 override
- 2 Function keys for operating mode and parameter selection
e.g. JOBSET/ PROG/ TECH/
SERIAL
- 3 Position display mm/inch
- 4 Program Co-ordinate System setting
Program files
- 5 management
- 6 Continuous Cycle

- 7 Single Step
Center Finding/ Edge
- 8 Finding
- 9 Override : Servo Sensitivity / EDM parameters

VII SAFETY & PROTECTIONS

- 1 Mains Over voltage & under voltage
- 2 Dielectric Low level & Over flow
- 3 Dielectric Over Temperature
- 4 Servo overload (with DC servo only)
- 5 Fan failure
- 6 Preset depth
Overtravel for Z
- 7 axis
- 8 Mechanical Antiarc
- 9 Fumes
- 10 Flame
- 11 Spark guard cover

Only interlocks are to be provided for safety, if sensing equipment is not include

VIII DIAGNOSTICS

- 1 Safety routine continuously active for CPU
Safety interlocks
- 2 for
Mains Over voltage & under voltage
Dielectric Over Temperature
Dielectric Low level & Over flow
Fan failure
Servo Overload
Mechanical Antiarc
- 3 Display of error message with/without interruption of the operation in progress for alarms,
programming errors, optional errors, memory input/output errors.
- 4 Diagnostic messages for machine tool interface.

IX PUMP FILTER UNIT (INTEGRAL WITH MACHINE TOOL)

- 1 Filtration System : CARTRIDGE type, 10 MICRON FILTER 2 NOS.
400
- 2 Dielectric Capacity : Liters
- 3 Dielectric Cooling System : Provision of coolingcoils (Optional)

****Indicates minimum value of the specification and any specification which is higher / better is acceptable.***