

Technical data and machine description

CNC-Sinker-Erosion-Machine EDM 312



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Technical data**Travel**

Axes-travel X x Y x Z	mm	450 x 300 x 300
Traverse rate / lift off speed	mm / min.	5000 / 10000
Distance table to chuck min./max.	mm	150 / 450
C-axis	Rpm	1 - 100
Measurement resolution	degree	0,001
	mm	0,001

Work tank / table / machine

Max. load with C-axis	kg	30
without C-axis	kg	150
Tank dimensions (tank filled moveable)	mm	900 x 520
Max. fluid level programmable in mm / fluid level)	mm	300
Table dimensions	mm	820 x 400
	piece	4
T-slot	width	12H8
	distance	100 mm
Max. weight on work table	kg	800
Total machine dimensions (W x D x H)	mm	1950 x 1800 x 2350
Machine weight (with generator)	kg	2800

Filter system

Dielectric capacity	l	750
Cartridge filter (2 filter cartridges)	filter area	7,6 m ²
Pressure and suction flushing	bar	0 - 1,5 / 0 - 0,6
Options: cooling device	KW	4

Important connection values

Power requirement		400V / 50Hz-60Hz / 3PH/N/PE
Power capacity	with exoPULSE 60A	kVA 6,7 (50Hz) 7,2 (60Hz)
	60A; and cooling aggregate	8,9 (50Hz) 9,4 (60Hz)
Fuse		3 x 32 A lead fuse or circuit breaker with K-trait
Compressed-air	Air pressure quality	ISO 8573-1:2010 [7:4:4]
	Working pressure min. / max.	7 bar / 8 bar
Connection smoke exhaustion	max. flow rate	70 NI/min
	at cartridge filter	Ø 100

Possibly meanderings in brochures/presentations are non-binding!

Technical machine description

Machine base made from stable cast steel

Advantages:

- *traverse rate/lift off speed: mm/min 5000 / 10000
- *very good damping
- *temperature-stabilized machine base $\pm 1K$
- *The machine is optimally qualified for high-precision machining

FEM-optimized machine components for highest rigidity.

Moveable rise/fall work tank with programmable liquid level in mm over work table

Advantages:

- * free accessibility to the working area
- * steady dielectric-revolution/filtration by double-wall-technique

Cast working table with 4 T-slots (12H8) for highest flexibility

High-precision ball-revolution-guide by "Bosch Rexroth".

Direct drive by ball screws for highest dynamic

All components/aggregates integrated in machine frame
(Exception: optional cooling aggregate external)

Large dielectric volume

Advantages:

- * high revolution, only little cooling is necessary
- * constant temperature proportion
- * highest accuracy

Filter system integrated in machine frame

Space-saving compact construction

Minimal floor-space

Machine colour: Light grey RAL 7035, tele grey 2 RAL 7046
 traffic red RAL 3020

Electrical connection conditions:

- Machine only allowed to be connected with a TN-net.
- Other mains power supplies (f. e. TT-, IT-nets, 3-phase-net without earthed, resistant neutral point) have to be adjusted by an isolating transformer.
- EN 60204 part 1 point 6.3.3 "safety by automatically switch off of power supply" is strictly to be observed if connecting with electric supply.
- Electric supply have to be provided as termination. A flexible connection by a coupler is not allowed.
- Because of EMV-measures the machine has operating current higher 10 mA.
- It is not allowed to connect the machine with a power supply system with earth-leakage trip (FI). See EN 50178 / VDE 0160 for addition measures.

Practice oriented realization of CE-regulations

Control MF20

Control type

Industry PC for highest reliability,
Microsoft Windows XP Professional operating-system

Multitasking

with dialog programming

Display

15" TFT Aktiv Color LCD Display with touch screen function
Setpoint, current program-set, program-list (extract), operation mode,
machine status, dialog lines and announcements symbolic respectively plain text

Help-functions

Interactive operation help which can be activated by help-button

Axes

X,Y,Z and C
expandable up to 6 axes

Interpolation

Linear 4 axes
Circular 2+2 Linear

Work-piece reference systems

max. 999 work piece zero points

Electrode reference systems

max . 999 electrode zero points

Technology memory

Substantial tables for different material pairings preinstalled
max. extendable up to 999 tables

Program administration

max. 999 programs, administrated by %-numbers

Program structure

By set numbers, subprogram-technique, macro-call, direct skips, nesting

Program check

Syntax-check, Fast motion simulation



Control MF20

Operation modes

Install operation, individual set, automatic (individual-, consecutive set),
sub-programming mode: programme input (editing), external operation (net-work-access or USB Port)

Data interfaces

Ethernte, USB, Serial interface (RS 232/V24)

RJ45 net work connection (Ethernet interface up to max. 100 Mbit/s)

Mass memory

40 GB hard disc
USB Port

Measuring machine

Data transfer in tool-/ work piece catalogue by net work connection,
file export / -import via USB stick or by serial connection (RS232/V24)

Automation

SPS, CAN for connection to handling systems,
changers and robots

Generator exoPULSE⁺



The new generator technology by exeron is based on a completely new power source design. It combines extensive experience in the fields of spark erosion and generator construction. We paid special attention to a very compact design which is also setting the trends for the current state of technology. The very small power loss is entirely discharged. In order to meet the constantly growing technological requirements of our customers, the generator technology enables an active current modification of the erosion discharge pulse which is essential in order to ensure minimal electrode wear during the machining the highest accuracy.

Together with the also newly developed process control, complete with FPGA technology, every eroding impulse can be evaluated in very short time periods allowing the process to be controlled correspondingly.

The future adjustment via software updates is ensured by expandable technology.

OPITONS

Electrode changer



5-position electrode changer
20-position electrode changer
30-position electrode changer

CO2 fire extinguishing unit



Type: Kraft & Bauer
Microprocessor-controlled state-of-the-art extinguishing systems control FB 703/704.
Fire detection within the first few seconds by parallel switched, high-sensitive optical and thermal detectors. Therefore, optimal limitation of damage.
Acoustic and visible alarm.
Optimal swirling of the extinguishing gas by special extinguishing nozzles.
Integrated emergency power supply.
The use of a fire extinguishing unit is recommended by insurance companies.

Cooling aggregate



Cooling power: 4,42 kW
Power input: 1,67 kW
Heating power: 5,9 kW
Chilled oil temperature IN: 25° C
Chilled oil leaving temp.OUT: 20° C
Air inlet temperature: 30° C

Postprocessor for connecting a measuring machine

With the postprocessor it would be possible to transfer and use setting ups. Transfer of data files to the EDM machine is possible by USB stick or network. Possibly upgrades or updates at the measuring machine have to be requested and respectively purchased by the customer directly at the manufacturer of the measuring machine.

The data format is structured as follows:

SEP ,M23 ,X7.488 ,Y21.070 ,Z30.000 ,C-7.000

TOF ,T1 ,X... ,Y... ,Z... ,C...

Examples:

workpiece data: SEP ,M1 ,X-2.405 ,Y6.454 ,Z-101.901 ,C11.977

electrodes data: TOF ,T1 ,X0.064 ,Y-44.927 ,Z169.938 ,C1.116

file extension: .cmd

data format: ASCII File

OPTIONS

Remote control with hand-wheel and display



With additional display and electronic hand-wheel
Incl. install functions, that means manual installation
in existent caverns

exo-net



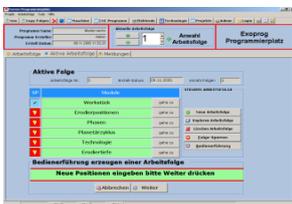
Via Internet, data interface (modem) will be provided
by the customer

exo-call



Messages will be sent GSM net to a mobile phone.
Supply by customer: SIM-card for exo-call in machine
and mobile phone incl. SIM-card.
Mobile phone reception on machine location has to be guaranteed
by the customer.
Error main-program, end of main-program
SMS messages: warning message, error machine,
error main-program, end of main-program

exo-prog



EDM-CAM software package
Object-oriented description of machining tasks without knowledge
of the NC syntax supported by efficient graphic user guidance
Various interfaces for the data transfer from CAD systems.
Postprocessor for the automatic generation of NC programs.
Data transfer interface on Job Management System (JMS).