

PENTA CNC

EDM Die-Sinking machine
even better



Czech product PENTA CNC

Dear business partners,
We have the honor to introduce new series of PENTA CNC Electro-Discharge for Die-Sinking machines, which follows up the successful models of last years. New design and technical improvements of CNC system and generator are achieving the standard of the best EDM machines of the world.

◊ For the first sight:

- Models G are made by polygranite which increase accuracy and rigidity of the machine
- Fix table construction – more compact, better possibility of automation
- LED illumination of working place as a standard
- Easy access into the working tank
- Improved generator and files of technological conditions
- Faster erosion, lower electrode wear, better surface quality
- Excellent functions for remote control with LAN and internet
- Motto for new models: “Automatization and operatorless working”
- Many options

◊ History of PENTA CNC development

2006 – Beginning of PENTA CNC control system development
2008 – First instrument innovation
2009 – Development of accessories – C-axis, ATC
2010 – International fair EURMOLD in Germany
2011 – International fair TIMTOS in Taiwan
2012 – First instrument innovation abroad, International fair in China
2013 – International fair TIMTOS in Taiwan, project of simultaneous control of milling machine from one CNC panel
2014 – International fair in Joinville, Brasilia
2015 – New control card for better efficiency and ARC-protection
2016 – More than 100 CNC PENTA installations on 5 continents

Why choose the machine from PENTA?

- Extreme speed
- Absolute accuracy
- Outstanding reliability
- Service support and know-how
- Top quality surface finish
- The lowest operational costs in its class



◈ PENTA 433GS CNC / PENTA 433G CNC



Compact model PENTA 433GS CNC



Machine with separate generator PENTA 433G CNC

		PENTA 433GS CNC	PENTA 433G CNC
Travel (X x Y x Z)	mm	400 x 300 x 300	400 x 300 x 300
Working tank (X x Y x Z)	mm	1 000 x 550 x 320	1 000 x 550 x 350
Working table size	mm	700 x 350	700 x 350
Open height (min. – max.)	mm	130 – 430*	130 – 430*
Weight capacity	kg	700	1 200
Max. electrode weight	kg	100	100
Floor space (X x Y x Z)	mm	2 050 x 1 760 x 2 380	2 900 x 1 750 x 2 350
Machine weight	kg	2 210	2 650
Max. oil level	litre	300	380

* In specific range possible to adapt

◈ PENTA 540 CNC / PENTA 650G CNC



P 540 CNC



P 650G CNC

		PENTA 540 CNC	PENTA 650G CNC
Travel (X x Y x Z)	mm	500 x 400 x 350	600 x 500 x 500
Working tank (X x Y x Z)	mm	1 200 x 700 x 400	1 400 x 800 x 500
Working table size	mm	800 x 450	1 000 x 600
Open height (min. – max.)	mm	200 – 550*	220 – 720*
Weight capacity	kg	2 000	4 000
Max. electrode weight	kg	200	400
Floor space (X x Y x Z)	mm	2 160 x 2 447 x 2 380	3 200 x 2 700 x 2 647
Machine weight	kg	3 500	6 300
Max. oil level	litre	500	720

* In specific range possible to adapt

PENTA CNC

PENTA 1060 CNC PENTA 1880 CNC PENTA 2010 CNC



		PENTA 1060 CNC	PENTA 1880 CNC	PENTA 2010 CNC
Travel (X x Y x Z)	mm	1 000 x 600 x 500	1 800 x 800 x 600	2 000 x 1 000 x 600
Working tank (X x Y x Z)	mm	1 900 x 1 100 x 550	2 600 x 1 320 x 700	2 740 x 1 600 x 700
Working table size	mm	1 250 x 750	1 850 x 1 000	2 150 x 1 100
Open height (min. – max.)	mm	400 – 900*	450 – 1 050*	660 – 1 260*
Weight capacity	kg	4 500	7 000	9 500
Max. electrode weight	kg	350	500	500
Floor space (X x Y x Z)	mm	3 400 x 3 300 x 3 100	3 600 x 3 150 x 3 200	4 000 x 4 500 x 3 688
Machine weight	kg	6 000	9 000	12 500
Max. oil level	litre	1 700	3 000	3 750

* In specific range possible to adapt

DOUBLE HEAD MACHINES

Double head machines – double power. Two generators and two CNC systems can work independently but sharing the data, local coordinates, working conditions, CNC programs and other. For heavy electrodes the heads can combine to working together.



Additional Equipment

◈ C-axis

C-axis for large and heavy electrodes. Maximum rigidity and strength, also designed for electrodes with a high moment of inertia.

◈ Fire extinguishing system

Independent automatic fire suppression system – ensures safety equipment as required for unattended operation. The sensing element is a pressure hose connected to a special differential valve. Fire extinguishing filling is approved for use with EDM machines.



◈ C-box

C-box – the special unit in the generator enables effective machining of carbide materials with small electrode wear and higher performance.

◈ Automatic identifying of electrodes

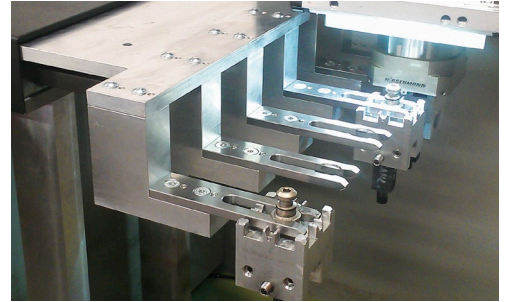
Automatic identifying of electrodes – Electrode labeling/pallets by RFID chips, which carry information about the correct position, offset, undersize and other information. The reader on the machine head for automatic identify of electrode or pallets will accurately identifying and setting up all the necessary values.

Molds production cell

Graphite electrodes vertical milling center, which may be supplied either with a separate single control system, or a common control system eroding/milling from BECKHOFF. This economic solution is unique, cost cheaper and more reliable. Moreover, it enables direct integration into a single cell with electrode tool changer.

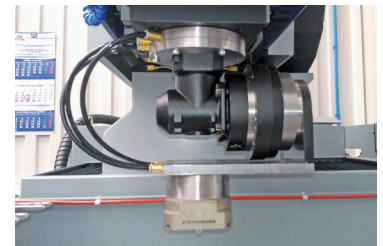
◈ Automatic electrode changer

Automatic electrode changer with motordriven feed. Smooth travel to desired position, variable number of holders as well as selectable travel length.



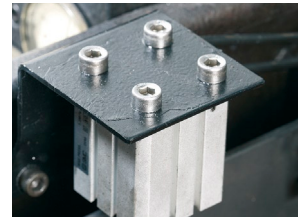
◈ Tilting axis

Special option for special purposes.



◈ Automatic dielectric level control

Maintenance-free and unattended operation with automatic height setting by Z axis.



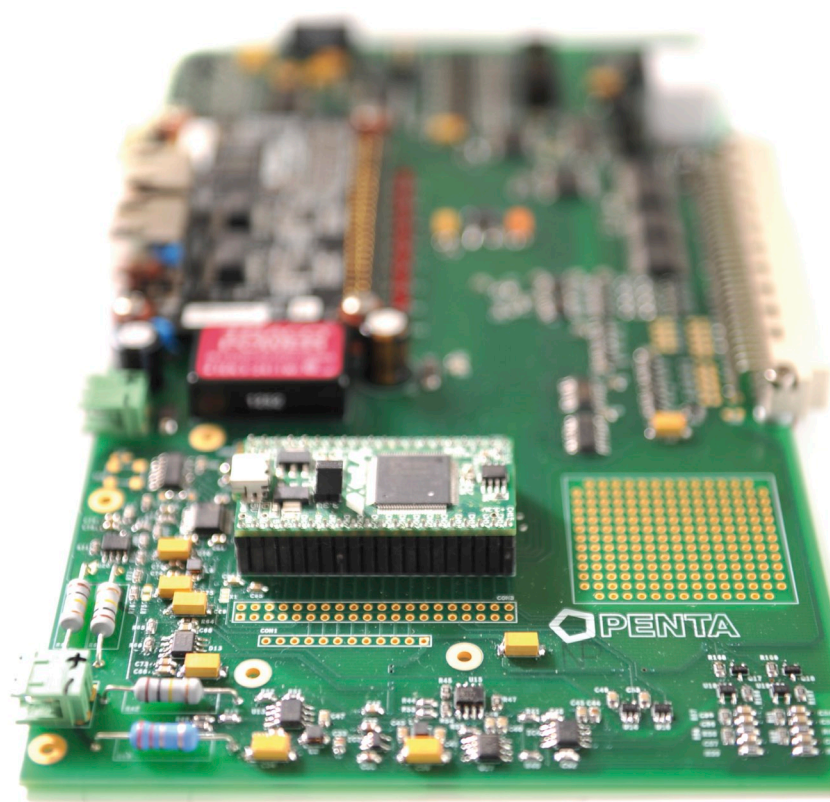
◈ Cooling

Cooling to increase machining accuracy.

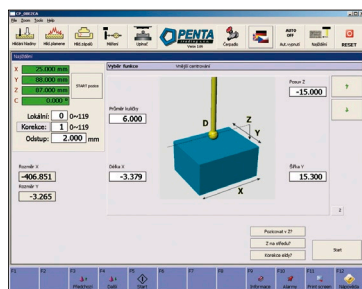


Generator

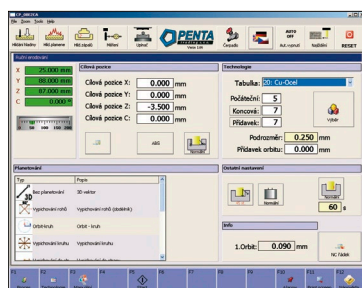
- EDM current from 0.5 A to 300 A
- Variable curve control of each pulse on the basis of spark-gap condition – early ARC prevention
- Multi-stage ARC and short-circuit protection – maximum priority for electrode protection
- High speed
- Low electrode wear
- Special technology for graphite ribs and deep cavities including finishing
- Polishing operations
- Ready for erosion of Amco, Ti and Inconel
- Very simple design – only 1 generator board and 1 control board
- Modern design based on FPGA circuit
- High speed jump
- Wearless technology



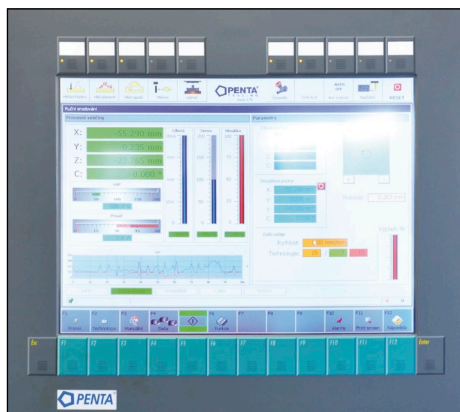
PENTA CNC Control system



3D rotation of local coordinate system



Manual erosion setting screen



PENTA CNC Control panel

- 15" LCD touch screen with Windows CE system – guaranteed compatibility
- Arbitrary control language exchangeable in process
- Many orbiting cycles, easy possibility of defining own shape, 3D orbiting
- Automatic measuring cycles – easy to extend by job type
- Downloading positions from DXF/CSV file
- Direct data export to DXF/STEP/CSV file
- Correction table for electrodes with automatic identification option – data download from measuring machine
- Easy programming even during eroding process, possibility of using subprograms and macros, on-line calculations, jumps, repeats; using variables – opens new CNC programming options
- Optional screens for user setting, open system for own modifications
- Easy-to-extend parameter and diagnostic sets
- Context-sensitive help for all screens, settings, parameters as well as own macros
- Remote diagnostics via Internet and LAN directly from service center
- Supervisory functions – status report (SMS/e-mail), shared desktop, operation effectiveness monitoring, application for PDA
- LAN 10/100/1000 network connection, data transfer via FTP service, or connection as external disc (SMB), USB-port on machine panel – failure-free integrity into your network
- Temperature monitoring, controlled fans depending on residual heat, quiet running, minimum thermal load, low input – savings in operation
- Automation support

Service support

Service support

We are company specialized in electro-discharge and HSC machining. We engage entirely in development, production, sales and service of electro-discharge and HSC machines, its equipment and consumables. We provide service of customs electro-discharge machining, customs graphite electrodes production, development and education in electro-discharge and HSC.

We have quality and functional service center where the technical or technological demands are announced.

Service nonstop hot-line and sophisticated structure of service center in conjunction with the number of application engineers, consequent evidence and statistics of service actions as well as possibility of remote access to the instrument screen on selected control systems, this all ensure prompt service action in the moment the problem is reported.

The team of 23 service department workers (service system operator, service managers, senior technicians, service engineers, application engineers, development engineers, programmer, spare part referent, service assistant) is guarantee that the service will come through the shortest time and with the full attention to each announced requirement.

Service centers

ŘÍČANY – Headquarters

Service dispatching, development, spare parts stock, consumables stock

ŘÍČANY – Application center

Service, technological consultancy, training center

LOUNY – Technological center

Service, technological consultancy, training center

POSTŘELMOV – Application center

Service, technological consultancy, development, testing laboratory

IVANČICE – Application center

Service, technological consultancy, development, testing laboratory

POPRAD – PENTA SLOVENSKO, Ltd.

Independent subsidiary company in the Slovak Republic

Service dispatching, application center of electro-discharging service, technological consultancy, spare parts stock, consumables stock

We dispose of entire spare parts stock and a number of demonstrations and stock machines which are, in case of need, available too. We closely cooperate with development workers, technicians and electronic workers of our suppliers and so we provide high specialized knowledge of our technicians.



Dealer's worldwide support

- Skilled service engineers PENTA
- Technical and technology support
- Spare parts delivery
- Hot-line support
- Showrooms ready for help
- Local dealer assistance
- Training before the delivery of machine



PRAHA | POPRAD | POSTŘELMOV | ŘÍČANY | IVANČICE | LOUNY



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