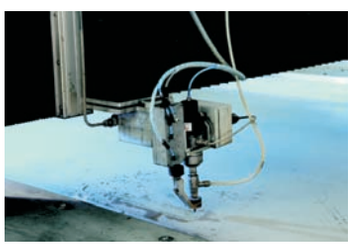
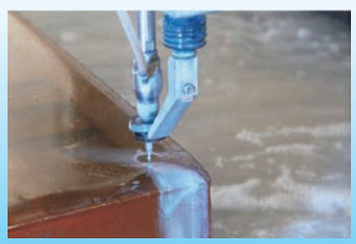
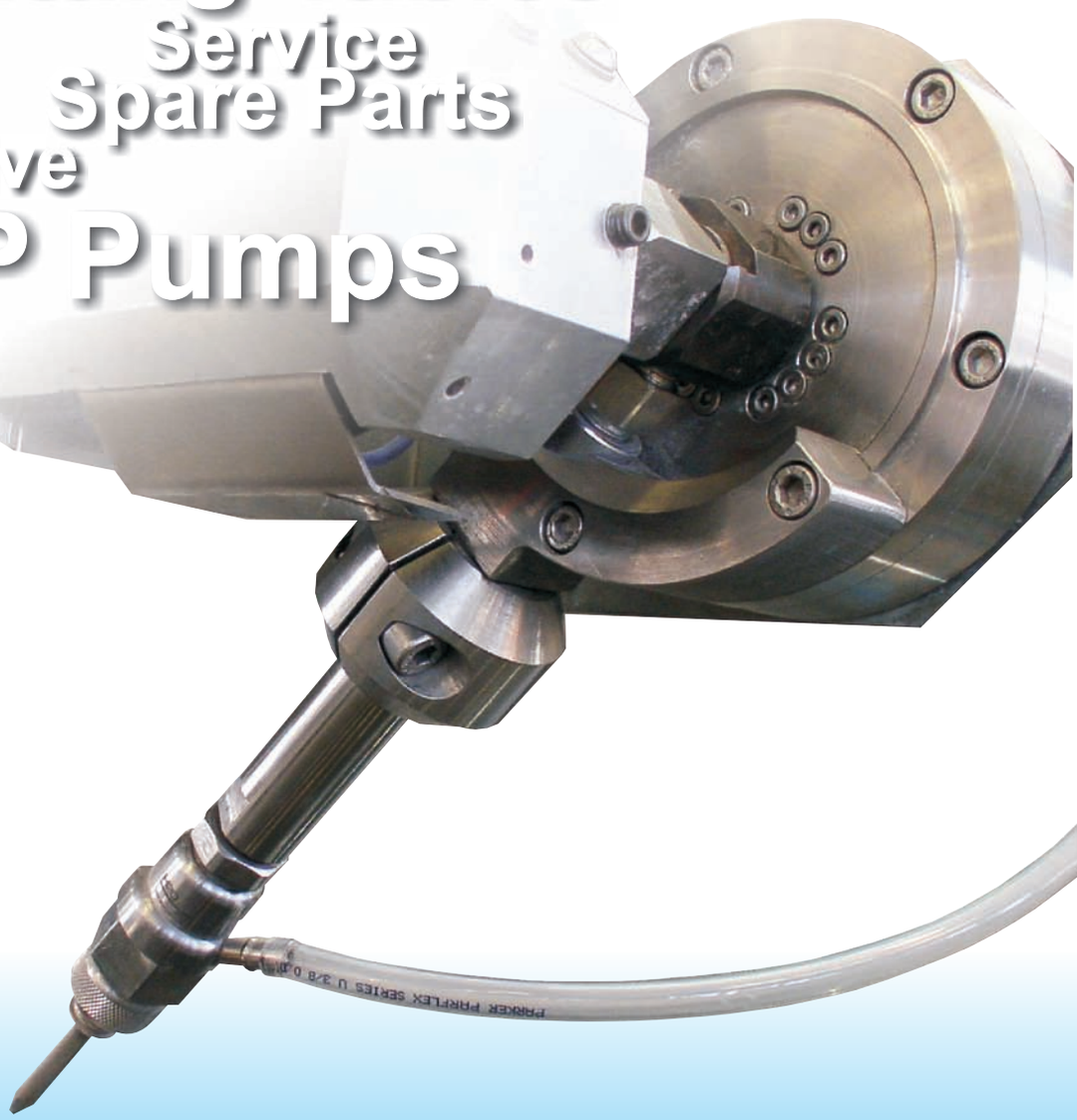
PTV, spol. s r.o.

High Pressure Water Jet
CNC Cutting Tables
Service
Spare Parts
Abrasive
HP Pumps







www.ptv.cz

CNC TABLES

Our CNC tables are equipped with their own **software**, created especially for PTV tables, and a **database of technical parameters** for cutting various types of materials. Also included as standard equipment is a **proportional abrasive doser**. During manufacturing, the components used are supplied by leading European, American and Japanese companies.

NEW ! COBRA Model

A new generation of PTV tables

- Low longitudinal axis for better table stability, more precise cutting and easier access to the working area alongside the table.
- Y-axis length up to 30 m.
- Modular table construction with the option of 2 portal heights.
- A new concept for the Z-axis with an elevation of 500 mm for cutting materials up to 320 mm (3D) / 500 mm (2D) thick.
- New design of CNC table and control panel with an emphasis on ergonomics and the use of high-resistance materials.
- High and extremely robust welded steel structure.
- Precise linear motions.
- Hardened and ground toothed racks and pinions.
- Extremely robust servomotors in combination with precise gears Linear measurement system.

NEW LINE Model

Our top-level universal model, with the maximum possible equipment

- A universal table with the maximum possible equipment range and technical parameters.
- All-steel framing structure and steel or composite portal.
- Extremely robust linear guidelines.
- Hardened and ground toothed racks and pinions.
- Precise planetary compact drives.
- Stainless-steel covering.
- Portal completely covered with bellows.
- Independent catcher with pneumatic water level regulation (for working areas up to 16m2). Optionally can be made of stainless steel.

UNI JET Model

Most frequently sold model - certainty proven by time

- Basic steel framing structure with AL portal.
- Linear guidelines with ball routers.
- Hardened toothed racks and stainless-steel pinions.
- Precise planetary gearbox with servomotors.
- Stainless-steel covering.
- Portal completely covered with bellows.
- Independent catcher.

CNC TABLES

SMART JET II - L Model

Simple execution an economically advantageous variation for 2D cutting

- Low-cost table
- Abrasive or water special
- Steel frame construction with integrated catcher
- AL portal completely covered by bellows
- Linear guidelines with ball routers
- Hardened toothed racks and stainless-steel pinions
- Precise planetary gearboxes with servomotors
- Covering of spraypainted sheet metal

SMART JET II - S Model

Compact table for 2D cutting with possibility of adding a cutting head for taper compensation

- Compact table with the possibility of many options
- Possibility of construction as abrasive or water special
- Steel frame construction with integrated catcher
- Portal of AL girders completely covered by bellows
- Linear guidelines with ball routers
- Hardened toothed racks and stainless steel pinions
- Precise planetary gearboxes with servomotors
- Covering of spraypainted sheet metal

DYNAMITE Model

Special, highly dynamic table for pure-water cutting in 2D

- Steel frame construction
- Integrated stainless steel catcher constructed for the specific needs of the user
- Acceleration up to 2G
- Portal of carbon composite
- Linear guidelines with ball routers
- Drive using linear servomotors
- Outer covering of stainless steel

TECHNICAL PARAMETERS OF CNC TABLES						
	Cobra	**New Line**	**Uni Jet**	**Smart Jet II - L**	**Smart Jet II - S**	**Dynamite**
Max. portal length	4 m	8 m	4,5 m	2 m	2,5 m	2 m
Positioning accuracy/300mm	+/- 0.04	+/- 0.04	+/- 0.04	+/- 0.05	+/- 0.05	+/- 0.03
Repeatability	+/- 0.03	+/- 0.03	+/- 0.03	+/- 0.04	+/- 0.04	+/- 0.02
Max. working speed	20,000	20,000 (1Z) 16.000 (2Z)	16,000	12,000	12,000	90,000
Max. transversal speed	30,000	30,000	20,000	30,000	30,000	120,000
Qty of Z-supports	1 - 2	1 - 2	1 - 2	1	1 - 2	1 - 2
Z-axis uplift	500 - 700	200 - 700	200 - 700	200	200	100 - 200
Qty of cutting heads	1 - 4	1 - 8	1 - 8	1	1 - 2	1 - 10

CNC TABLES

Special applications: Tables with high lifts on the Z-axis

Custom versions of the models D or New Line offer a raised structure of movement on the Y-axis. This raised construction is used because the table is equipped on the Z-axis with a high lift. The Z-axis lift can be adapted to the requirements of the customer (e.g. 500 or 700 mm). Variants with a high Z-axis lift have applications for cutting thicker materials. Additionally, the table can be equipped with the system ProgressJet II with a 60° angle of the cutting head.


Uni Jet Model


New Line Model

Special applications: Pure water CNC tables with sliding grids

One example of a customer solution is a Smart Jet II-S CNC table, which uses a pure water for cutting. The machine is equipped with a system of exchangeable, sliding grids, which enable the intermediates to be placed on the first grid and the cut parts to be removed from it at the same time as the cutting process is underway on the other grid. This greatly increases the productivity of the entire process. Work safety is ensured by a protective partition with a sliding shield and laser barriers.


Smart Jet II - S - W Model

CNC TABLES EQUIPMENT

- *standard*
- *option*

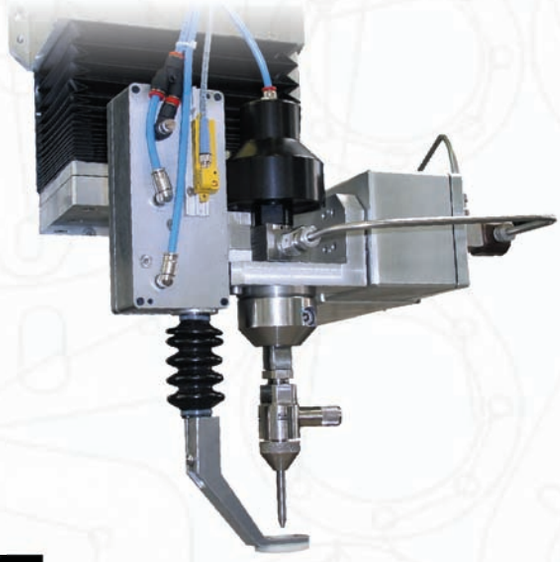
	Cobra	New Line	Uni Jet	Smart Jet II - S	Smart Jet II - L	Dynamite
Proportional doser of abrasive	•	•	•	•	•	
Height sensor	•	•	•	•	•	•
ProgressJet	•	•	•	•		
ProgressJet 5AX 45°	•	•	•	•		
ProgressJet 5AX 60°	•	•	•			
Pressure transportation system	•	•	•	•	•	
Remote control	•	•	•	•	•	•
Water level regulation	• *	• *	•	•	•	
Stainless steel catcher	•	•	•	•	•	•
Air drill	•	•	•			
High revolution spindle	•	•	•	•		
Laser measuring cross	•	•	•	•	•	•
Vacuum suction of abrasive	•	•	•	•	•	
Light barrier	•	•	•	•	•	•
B-head mechanical inclination	•	•	•	•	•	
High construction of Y-axis		•	•			
Gentle piercing	•	•	•	•	•	•
Control system simulation	•	•	•	•	•	•
Sprinkle protection box				•	•	•

* *standard for working areas up to 16m2 only*

SPECIAL TECHNOLOGIES

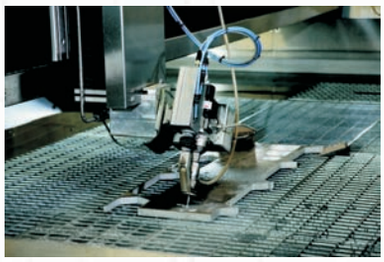
ProgressJet System

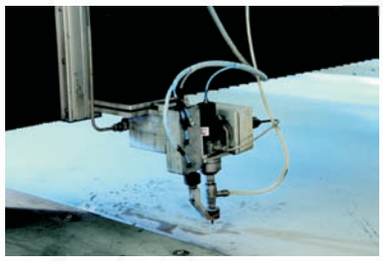
- eliminates errors caused by the jet's energy drop
- enables vertical cuts to be made and simultaneously increases product's shape precision
- suitable only for surface cut applications
- function ensured by additional 3D mechanics controlled by CNC table's system in accordance with the material and technological database
- enables rotation axes to be tilted up to +/- 10°
- its function is fully controlled by the CNC table's system
- does not require specialized 3D CAD-CAM



ProgressJet 5AX System

- fulfils all the functions of a standard ProgressJet system, just with lower precision and positioning speed
- designed for 3D cuts from plate semi-products
- mechanics enable rotation axis to be tilted up to +/- 45°
- 3D mode requires a 3D CAD-CAM generated program (IGEMS modul 5X-CAM)





ProgressJet 60dg System

It is based on the previous ProgressJet 5AX system and extends and improves its qualities. It can be also used for 2D taper compensation as well as for 3D cutting, whereas the 2D and 3D characteristics are the same as in the previous ProgressJet version.

In addition, the ProgressJet 60 dg offers new functions:

- its mechanics enable rotation axis to be tilted up to +/- 60°
- laser height sensor is integrated
- unique safety system which monitors and analyses the cutting head and the abrasive jet position within the working area by means of sensors and eliminates danger for operators or danger of machine damage
- a higher protection of components compared to the previous version

Teach In

Application intended for machining complex-shaped prefabricates

Teach In allows for creating a cutting program through the gradual recording of points chosen on the workpiece. The system works with all axes accessible on the given machine, meaning that it is possible to create a cutting program along the axes XYZ and the rotation axes A and B without needing an expensive CAD/CAM system. Teach In is also suitable where there is no extant computer model of the cut prefabricate, for example for artistic objects. For its correct functioning the CNC table must be equipped with remote control.

Gentle Piercing

A special function of the control system, allowing for safe piercing of fragile materials or ones liable to delamination.

This piercing method is particularly suitable for marble, granite, glass, laminates, layered insulation or other composites, where classical through-penetration causes breakage in these materials along the penetration point, delamination of individual layers, or overall destruction. The function can only be used with some PTV pumps.

PUMPS

We produce:

75 kW pumps with maximum pressure of 4,130 bar (60,000 PSI):

PTV JETS - 7.5/60c

PTV PUMPS CUTTING PARAMETERS COMPARISON					
Pump	Nozzle	Quantity of abrasive g/min	Cutting speed **Alluminium 20 mm** Division Cut mm/min	Cutting speed **Stainless Steel 20 mm** Division Cut mm/min	Cutting speed **Titanium 20 mm** Division Cut mm/min
22 kW (30HP/63A)	0.010"	300	425	133	201
37 kW (50HP/80A)	0.014"	500	885	276	419
75 kW (100 HP/160A)	0.019"	800	1546	483	733

37 kW pumps with maximum pressure of 4,130 bar (60,000 PSI):

PTV JETS - 3.8/60 Classic

PTV JETS - 3.8/60 Basic

PTV JETS - 3.8/60 Compact

22 kW pumps with maximum pressure of 4,130 bar (60,000 PSI):

PTV JETS - 2.2/60

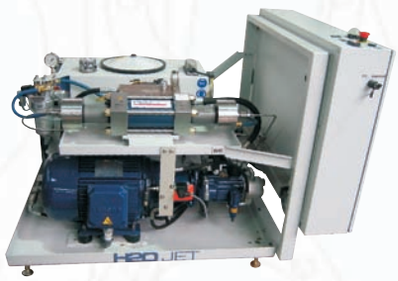
PTV JETS - 2.2/60
with a special anti-noise covering

PTV JETS - 2.2/60

PUMPS

11 kW pumps with maximum pressure of 4,130 bar (60,000 PSI):

PTV JETS - 1.1/60
without covering



Technical parameters of PTV pumps:

TECHNICAL PARAMETERS OF PTV PUMPS						
	PTV JETS 7.5/60c	PTV JETS 3.8/60 Compact	PTV JETS 3.8/60 Classic	PTV JETS 3.8/60 Basic	PTV JETS 2.2/60	PTV JETS 1.1./60
Max. Output (l/min)	7.5	3.8	3.8	3.8	2.2	1.1
Max. Pressure (bar/PSI)	4,130/60,000	4,130/60,000	4,130/60,000	4,130/60,000	4,130/60 000	4,130/60 000
Input (kW/HP/A)	75/100/160	37/50/80	37/50/80	37/50/80	22/30/63	11/15/25
Control	PLC	PLC	PLC	PLC	PLC	PLC
Hydraulic Oil Cooling	oil/air (oil/water)	oil/air (oil/water)	oil/air (oil/water)	oil/air (oil/water)	oil/air (oil/water)	oil/air (oil/water)
Max. Diameter of orifice	20 or 2x14	14 or 2x10	14 or 2x10	14 or 2x10	10	7
Qty of Intensifiers	2	1	1	1	1	1
Electromotor	Siemens	Siemens	Siemens	Siemens	WEC	WEC
Hydraulic Pump	MOOG	Parker	Parker	Parker	Casappa	Casappa

✓ All the PTV pumps are equipped with 2-stage filtration unit, an automatic bleed down valve, an inner diagnostic system and remote control from a CNC table control system cutting program.

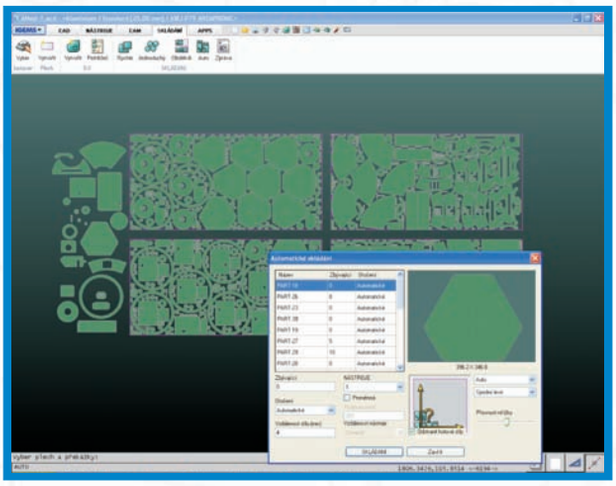
We provide: 6,200 bar pumps

Pump PRO 60 / PRO 125
Power: 2.4 l/min / 5.5 l/min at maximum pressure of 6,200 bar

Power:	**45 kW (60 HP/100A) / 93 kW (125HP/200A)**
Qty of pressure levels:	**2**
Min. Pressure of inlet water:	**2.4 bar**
Ph of cutting water:	**6-8**
Hydraulic oil tank capacity:	**106 l**
Hydraulic oil cooling:	**oil / water**

CAD/CAM SOFTWARE

CAD/CAM software IGEMS R10



- **Top of the range program with modular conception**
- **Very good CAD similar to AutoCAD**
- **Quality design**
- **Open technological database**
- **Wide language selection options**
- **Excellent support from the producer**

Modules:

IGEMS R10 - Heart of the program which is combined with other additional modules.

AWJ - Basic CAM module. Together with IGEMS R10 it serves for basic work with the program. Supported operations: work with internal database, preparation of the semiproduct for cutting, CNC code generation.

2D CAM - Basic CAM module. Together with IGEMS R10 it serves for basic work with the program. Supported operations: creation of shapes in basic environment of the internal CAD, import of dwg and dxf files.

CAM-Tools - Module for analysis and optimization of imported or created shape. The module is not essential for the work, but it greatly influences the possibility of finding errors. It allows the final product to be optimized and a clear and shorter CNC code to be generated.

Nesting Level 1 - Very important tool for semi-automatic and automatic nesting.

Nesting Level 2 - Very important tool for cutting large series. It it able to nest the requested shapes on the semiproduct with a maximum effectiveness that, importantly, reduces the quantity of cutting material consumed.

CAM 5X (Bevel cutting) - Module designed for 5-axis machines. Amplifies the possibilities of the 2D CAM module with other functions.

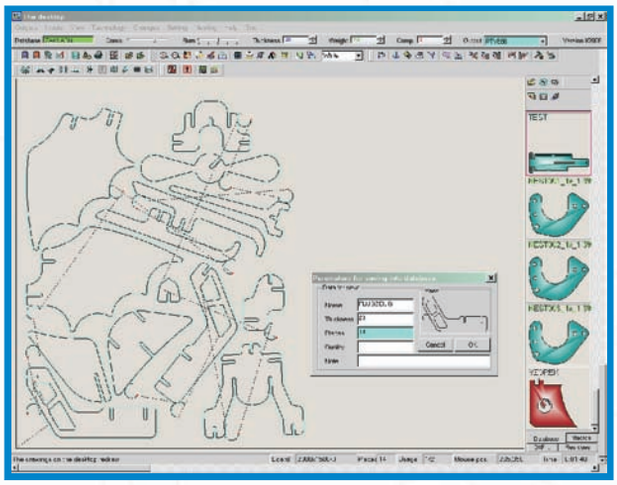
Data Exchange - Enables CBF, GEO, TAG, ORD, WMF, IGS to be imported to Igems. It is useful for users that already have a database of files in some of the above mentioned formats and want to work with them. The module also enables backword of the CNC code.

SignMaker - For work with JPG/BMP patterns and fonts in the environment of the internal CAD. The module is especially suitable for the customers that work with printed patterns.

TileMaker - For tile nesting, inlays and mosaics.

Organizer - Helps to store information about realized or planned jobs, customers, etc. It is based on SQL database and allows quick access to information in accordance with the specified requirements.

Floating Licence - Enables more people to work without having to introduce the hardware key into each computer.

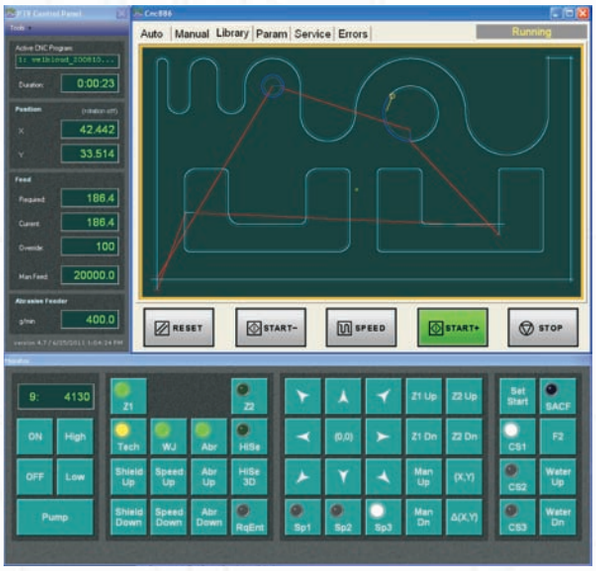


WRYKRYS CAD-CAM

- **Complex, not modular**
- **Czech product**
- **Top price / performance ratio**
- **Wide language selection options**
- **Excellent support from the producer**

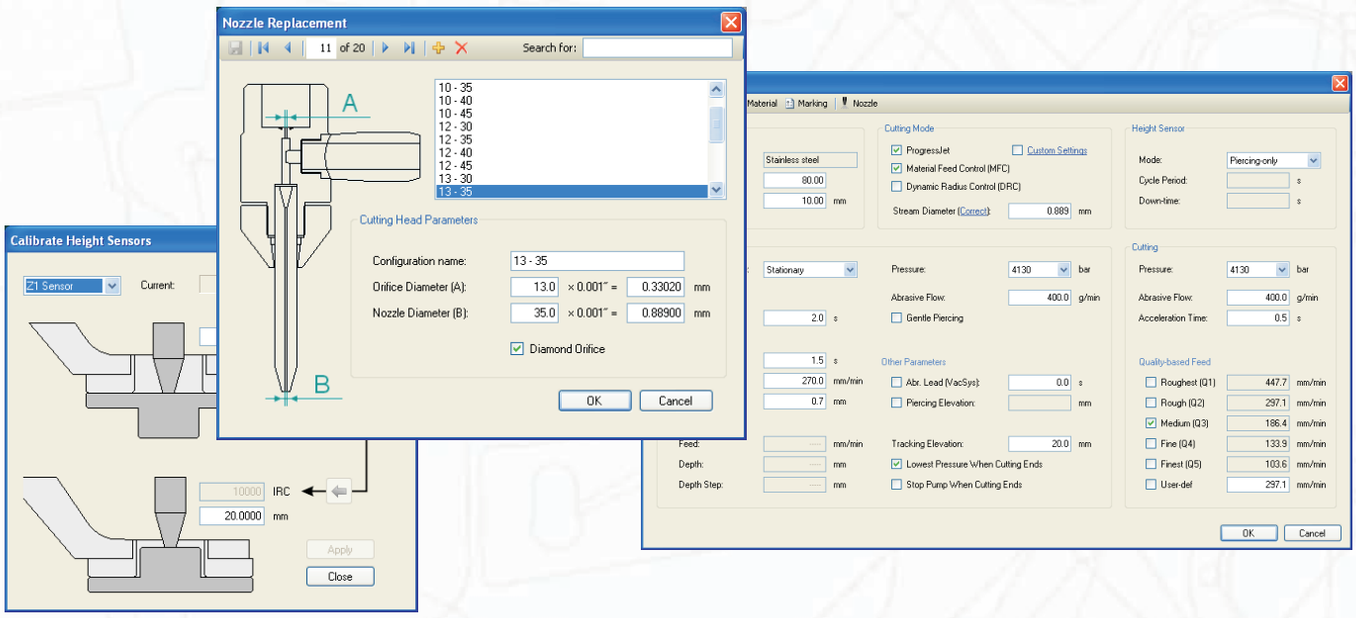
CONTROL SYSTEM

Control System Software **PTV 886**



The control system is based on an industrial PC in a WindowsXP Embedded environment. The software of the control system offers the following cutting process operating functions:

- Cutting conditions presetting (nozzle, pump pressure, abrasive…)
- Integral material database
- Material type and thickness option on the operating system, when the system itself determines speed, or, in CAD/CAM
- MFC function operates cutting speed in a way that optimizes divergence between upper and lower side of the cut at the required quality.
- DRC function eliminates errors caused by variable width of the cut slit when the jet enters material.
- ProgressJet function



ACCESSORIES

Diamond cutting head SLICE

The first cutting head that allows for turning a cartridge to the full 360° for precise cutting needs. Used primarily for cutting in 3D regimes. The new design of the mixing chamber increases the speed of the abrasive particles to the maximum and thus increases both the cutting speed and the quality of the cut. Further increasing the cutting speed is the entry of the abrasive into the mixing chamber below an angle of 30°. The technology P.A.C.T. (Precision Align Cartridge Technology) ensures the solidity of the water ray and all components of the cutting head.

Proportional doser of abrasive

Allows for the fluid changing of the abrasive flow during cutting without needing to stop the cutting process. With a suitable choice of quantity regulation for various operating regimes, it is possible to lower the use of abrasive and thus operating costs, while increasing the quality of the cut. Quantity regulation can be performed automatically from the cutting program or manually.

Other advantages of using the dispenser:

- Lowered risk of water penetration into the dispenser supply
- Quick removal of defects during unwanted water penetration into the dispenser
- Lowered consumption of compressed air
- Lowered risk of jamming the abrasive jet while piercing materials
- Type ATD V is additionally equipped with a function for detecting the level of abrasive in the tank, optical and aural signalling of the threat of abrasive shortage, and a function for stopping the cutting process if the tank is empty.

ATD V doser

ATD IV doser

NEW ! Remote control for ATD V

Remote control for ATD V proportional doser of abrasive provides communication between the proportional doser manufactured by PTV and the control system for waterjet cutting machines from other manufacturers, which do not use proportional dosing of abrasive. Thanks to this device, machines from other manufacturers can also benefit from the advantages offered by the proportional abrasive doser.

Height Sensor

The height sensor fulfils the function of an automatic guard of the optimal distance between the uneven cut prefabricate and the cutting jet. A potentiometric sensor is used to maintain the correct distance.

Remote Control

Allows for comfortable table servicing during manual insertion and fluid changes of feed in the automatic regime. Thanks to a flexible cable with a maximum length of 6m, it spans the entire working space of the machine. For tables equipped with Teach In function it is supplied automatically.

Abrasive

PTV supplies high quality abrasive materials of Australian origin. Thanks to its unique hardness and solidity of grains it secures the highest productivity and perfect quality of cutting. Highly precise sorting secures 100% effectiveness without any dust and excessive grains thus providing permanently optimal cutting conditions and stable supply of abrasive without choking of abrasive nozzles. This gives the highest effectiveness of production and lowest manufacturing costs during the whole cutting time.

ACCESSORIES

Pressure Transportation System of Abrasive

A fully automatic system for transporting abrasive to the dispenser.
As an option, it can be equipped with an additional 1-ton reservoir.

Technical Parameters:

Total capacity	240 kg of abrasive
Upper tank capacity	95 liters
Lower tank capacity	10 liters
Working pressure	2,5 - 5 bar
Dimensions	800 x 800 x 1 200 mm

Small Pressure Transportation System of Abrasive

Designed to supply the doser with abrasive by means of a rubber hose. As an option, it can be equipped with a sensor for abrasive level monitoring.

Technical Parameters:

Total capacity	87 kg of abrasive
Feeder capacity	35 liters
Working pressure	2,5 - 10 bar
Dimensions	350 x 450 x 840 mm

Abrasive Removal System

The abrasive removal system serves to remove the mechanical particles (used abrasive and particles up to 3 mm of diameter) from the catcher.

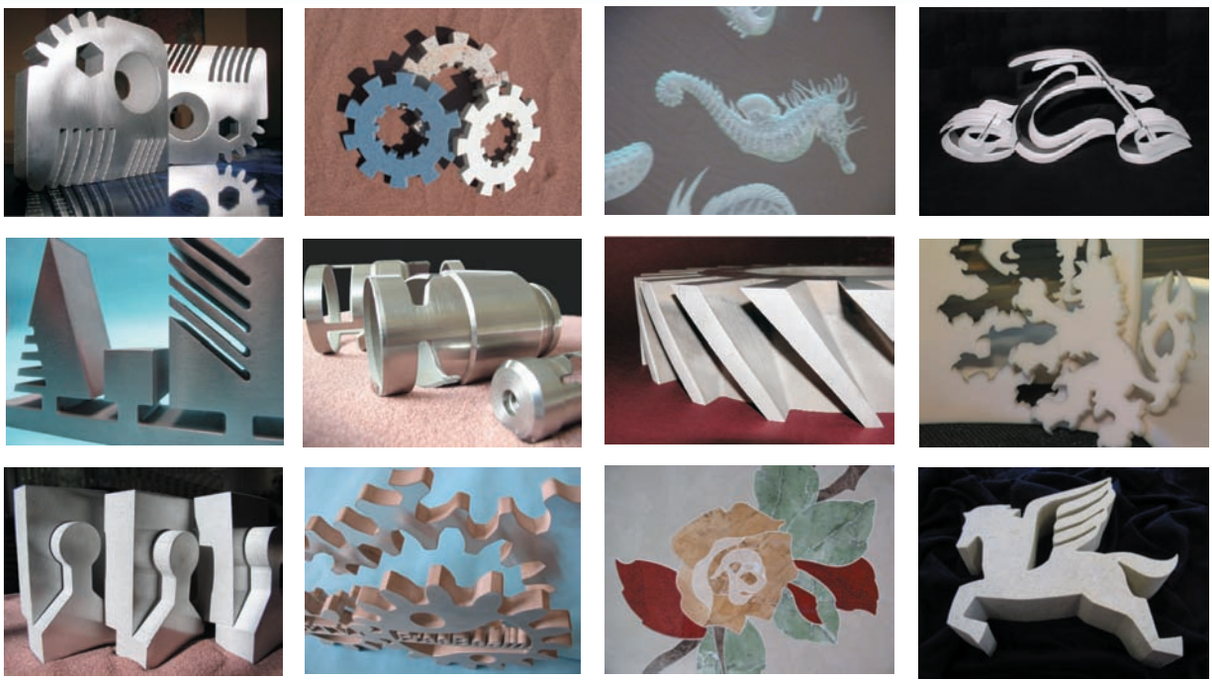
The basic part of the Abrasive Removal System is made of a steel welded construction, on which all the necessary parts are placed: i.e. pneumatic pump, sludge pump, operator electronic device, mechanical hydrocyclon. There are stainless steel suction heads in the catcher, through which water + abrasive material are sucked. This mixture continues through thick-walled hoses by means of an air pump to the hydrocyclon, in which water is separeted. Then the water goes to the auxiliary tank and solid particles to a suspended big-bag. Resting water passes through the big-bag to an auxiliary tank and then it´s pumped over to the catcher by means of a sludge pump. The big-bag is exchanged, when it´s full.

Sedimentation Unit

The sedimentation unit is intended for removing abrasive material and impurities (max. 1.6 mm), created during the cutting process, from the table catcher. The unit works on the principle of the independent precipitation of impurities in the sedimentation tank.

APPLICATION

Heat sensitive materials, hard workable materials, materials with a tendency to clog up cutting equipment, marble, granite, ceramic materials, glass, wall and floor tiles, rubber, insulation, foam materials, kevlar, plastic materials, acrylic glass, leather, wood, cork, composites, sandwich materials, rock wool, all types of metal, stainless steel, alloys and other metals, food, paper.



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