

## **Water jet cutting system TCI WATERJET BP-1 BPxL-A 1 30300 3M (2008) id5175**

TCI Waterjet BP-1 is a water jet cutting system equipped with 2 cutting heads of 2.5 axes of 200 mm. max high. It also has a cutting head of 5-axis 550 mm maximum height. Independent system abrasive cutting table, all fed by a pump high pressure of 100 CV wing.

The waterjet system is developed for cutting by water jet with abrasive for hard materials (steel, marble, stoneware, porcelain, stainless steel, aluminium, etc.) and with pure water for flexible materials.

The main features of the waterjet cutting facilities "TCI Waterjet" are:

- Highly dynamic machinery.
- Accuracy: direct measurement.
- Rigidity: Transfer of forces through stable building elements
- Security Systems Class IV
- Ergonomics: A drive for "Y" axis and other for "X" axis.
- Accessibility: Replacing parts
- Additionally, we should mention the accredited features of TCI Waterjet:
- The machine is protected against vibrations
- Drilling simple with CAD / CAM software
- Optimal operator protection by protected cutting zone
- Easy programming
- Automatic adjustment of the advance and the power to stroke the outline
- Reduced operating costs thanks to modern drive system
- Technical service and spare parts service from TCI Waterjet in Spain.

This machine includes the following elements:

1. Cutting table with 3 independent connexion nozzles for KMT Autoline abrasive.
2. Electrical equipment and complete SIEMENS CNC on metal sealed cabinet of high quality and integrated control panel
3. Automatic amount regulator for abrasive, independent to the cutting head (g. / Min.) from the design software. (It eliminates the traditional manual adjustment).
4. Automatic abrasive feeder. Capacity: 200 l.
5. ONLINE Machine communication System.
6. HP Pipes
7. Software for CAD / CAM, Lantek CUT Lite and postprocessor for Lantek software.
8. Security System machine. CE marking.
9. Pressure pump KMT 100hp.

### Cutting unit

- A water tank with support for cutting material and water level, built in stainless sheet steel and welded on steel frame to absorb the residual energy of the water jet.
- Guided axis system on independent bench to the cutting table (Y axis). The guidance system consists of a set of rollers and high precision guide, providing a reliable linear transport, ensuring a high rigidity, a minimal frictional resistance and a high load capacity, being this driven by a zip/reducer precision system, ensuring maximum performance, being this connected to a brushless AC motor with a working stroke of 30000 mm



- Cross linear axis (X axis) mounted on the linear Y axis, with the same described in the previous point system and working stroke of 3000 mm.
- Two nozzle holder heads (Z axis) equipped with a vertical guidance system. With automatic height adjustment system and anti-collision system
- 1 nozzle holder head of 5 axes (Z, A, and C axes).
- 3 long-life nozzles, with orifice and pneumatic valve for jet control.
- Control panel integrated to the electrical panel for the machine control.
- Push button for automatic operation with emergency button.

#### Technical specifications:

- Cutting length speed X axis = 3000 mm.
- Cutting length speed Y axis = 30000 mm.
- Feed Z axis = 200 mm. and 550 mm.
- Positioning accuracy =  $\pm 0.1$  mm / m
- Repeatability =  $\pm 0.01$  mm.
- Units for drawing = mm
- Tank volume = 90 m<sup>3</sup>
- Number of cutting nozzles = 3

#### Electrical equipment and control CNC TCI 3.2

- Electrical panel, mounted in hermetically sealed metal cabinet, with indoor ventilation system, control circuits and power fully protected and galvanic isolation for power and control.
- 2 industrial PCs integrated into the control cabinet. These PCs has installed a communication system with machine control as well as WINDOWS XP operating system
- Axes machine intelligent digital control regulation of fine interpolation, SIEMENS 810D position limiter by software, recording absolute position, output of current absolute value of incremental position, control integrated holding brake, automatic adjustment of parameters, error reaction adjustable, motor feedback for absolute position registration.

#### TCI ABRASIVE 3.0 abrasive regulation

- Automatic dosing of abrasive cutting process, will be enhanced by a pressurizer located at the machine fully accessible by the user. This pneumatically pressurizing the abrasive to send an automatic regulation, which will be assigned a set point from software design, the system automatically metering the amount of abrasive in every moment by a real-time channel.

This equipment allows the automatic feeding of abrasive, enabling continuous operation without machine stops for feeding abrasive.

#### TCI abrasive ABRALINE regulation 1.2

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The system for transporting abrasive consists of the following main components:

- Collection container including sieve insert





- Pressure tank
- Distribution cabinet

Abrasive material is poured in the collecting tank by the sieve insert and it is temporarily stored. As soon as the pressure vessel has reached a minimum filling level, it is opened for a period of about 15 seconds, the conical joint located between the collecting tank and pressure. A logistics relay assumes command of this operation; the relay is mounted on the distribution cabinet. If the filling of the collecting tank drops to a minimum level, this state marked by a light from the distribution cabinet. In this case, we must add abrasive to the collection tank. This resupply can be done without interrupting production running.

#### Technical specifications:

Net weight: 80 Kg.  
Length: 700 mm  
Width: 700 mm  
Height: 1,400 mm  
Storage tank capacity: 200 L  
Pressure tank capacity: 24 L  
Min operating pressure: 6 bar  
Max. operating pressure: 7 bar  
Max. Compressed air consume: 500l / min.  
Max. Abrasive: 1.300 g / min.

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#### Lantek CAD/CAM Software

Lantek CAD/CAM Software prepared to generate cutting paths through the TCI Waterjet postprocessor that it is included with the software.

#### CE MARKING

CE MARKED certificate for the cutting system TCI Waterjet 3-2040-1.

#### HP PUMP Specifications

Streamline SL-V 100 Plus pump with 100 hp power can give a maximum pressure of 4150 bar.

The pressure pump is characterized by:

- 1) Hydraulic pump of variable flow and pressure compensated.
- 2) Selector high / low pressure to facilitate drilling/perforation

- Rated power (hp): 100
- Working pressure (bar): 3800
- Maximum flow rate (l/min): 7.2
- Accumulator capacity (l): 3
- Tank capacity (l): 182



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- Hydraulic pump flow: 202
- Max. nozzle 0.23 mm. diameter: 4
- Max. nozzle 0.33 mm. diameter: 2
- Max. nozzle 0.40 mm. diameter: 1

Added extras:

- Hydraulic cooler for the oil of the pump
- Anti-collision systems in the 2D heads
- Water softener and pressurization water pump previous to the pump
- Latest version (2014) upgraded 2D heads
- Latest version (2014) upgraded pump of check
- Stock of consumables to repair of any breakage / wear



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