MULTI-AXIS MACHINING CENTRE PARPAS MOD.THS 100 X

CNC UNIT HEIDENHAIN iTNC-530

TECHNOLOGY AND DESIGN PHILOSOPHY
The design of all the structural components of the machine was carried out using the most powerful systems operating in structural analysis, static analysis, dynamic analysis, thermal analysis.

AXIS MOVEMENT MORPHOLOGY
Longitudinal axis movement
Y transversal axis movement: UPRIGHT
Z vertical axis movement: HEAD SLIDE

LOAD-BEARING STRUCTURES
They are made up of electro-welded steel structures with a "closed" structure, suitably ribbed with accurate magnetostatic control of the welds (MAGNAFLUX) and subsequently stabilised. They make it possible to obtain maximum structural rigidity and high resistance to stresses derived from
moving masses.

HEAD SLIDE
It consists of an electro-welded steel structure suitably ribbed with accurate magnetostatic control of the welds (MAGNAFLUX) and subsequently stabilized. Depending on the machine version, the internal front part is designed to receive the components for the rotation group with TORQUE MOTOR of the B axis (as a positioning axis or as a working axis), to which the various proposed head solutions will be applied . The weight of the entire vertical movement is balanced with a hydropneumatic balancing system which allows to obtain a very efficient dynamic response of the axis without weighing on the screw.

WORKTABLE
The workpiece holding tables, whether flat or revolving, are made of a high-performance ductile cast iron casting.resistance on whose surface the T-slots are obtained for clamping the parts to be machined.

KINEMATICS - SERVOLOGIES - SAFETY

AXIS COMMAND
The linear and rotary axes are driven by digitally driven brush-less SIEMENS motors. SLIDING GUIDES AND LUBRICATION. The sliding is carried out on linear guides with pre-loaded rollers, via recirculating ball screw with pre-loaded nut. The machine is equipped with suitable lubrication systems for all moving parts, with centralized management.

MEASUREMENT SYSTEMS
Linear axes X,Y,Z via HEIDENHAIN optical scales coded with mm resolution. 0.001. Rotary axes via angle measuring system with HEIDENHAIN axial graduated graticule with resolution of 0.0005º.

ELECTRICAL EQUIPMENT
The electrical cabinets are placed on the ground and are made watertight with IP55 protection rating.
A dedicated chiller group keeps their internal temperature controlled.

DIAGNOSTICS AND MONITORING
The machine is equipped with a diagnostic and monitoring system. A series of safety devices supervises all the main functions with clear messages on the CNC video.

RULES - PROTECTIONS - SAFETY
The machine complies with CE regulations. It is equipped with a perimeter fairing with sheet metal panels and windows that surround and protect from the work area. It is equipped with two sliding front doors for the width of the work area, equipped with electric locks managed by the machine PLC, allowing access to the work area in safe conditions. A rear door for inspection.

PAINTING
Standard Parpas dark blue Rall 5008 and light gray Rall 7035

VARIOUS SUPPLY
Guide protections with bellows and/or scrapers. User, maintenance and programming manual. Work area lighting system. Drawings with foundation plans excluding structural calculations.
All technical drawings indicating the arrival points of the services to the machine.

CNC: HEIDENHAIN iTNC 530 DIGITAL
Interfaces for data transmission:
- one V24 / RS-232-C interface
- one V.11 / RS-422 interface up to max. 115 Kbit/s
- an extended data interface with LSV2 protocol
- a 100 MBbit/s BaseT Fast Ethernet interface
Data entry in Heidenhain plain text or according to DIN/ISO standards.
Programming:
- Cartesian or polar coordinates
- absolute or incremental dimensions

- mm/inch switching
- processing with handwheel overlap
- direct spindle speed
- parametric with mathematical functions
- with variables
- 2D dotted profile graphic mode even while another program is running
- teach-in (self-learning)

Tool correction
- tool radius in the work plane and tool length
- three-dimensional tool radius
- preventive calculation of the profile with radius correction

Tool number tables, tool cutting data tables and constant trajectory speed.
Possibility of inserting programs also with graphic support while the machine works.
Subprogram technique and repetition of program blocks.
Approach and departure from the profile on a tangential line, perpendicular or on a tangential circle.
Rounding of corners. Canned machining cycles. Graphic display of the executed program or simulation with top view, 3-plane representation, 3D representation and enlargement of details
even while another program is running. Test program with display of program times. Block program restart or program interruption with slowdown and repositioning.
Self-diagnosis.

TGT 50 TURNTABLE TABLE
Rotating table equipped with a direct-acting torque motor allows the transmission of motion directly from the motor rotor, thus eliminating any transmission play that could be created over time with the
traditional transmission systems and above all eliminating damage to the transmission that could be caused in the event of collisions.

WORK AREA COVERAGE
Fairing with roof covering the work area that can be opened and with internal light for rotating pieces with a maximum diagonal dimension of 2000 mm.

Positioning B axis (head holding platform)
B-axis rotation of ± 165° is achieved via a direct-acting torque motor with motion transmission directly from the motor rotor. It eliminates any transmission play that could be created over time with traditional transmission systems and above all it eliminates damage to the transmission that could be created in the event of collisions.

VERTICAL HEAD Mod. TVE 29
It consists of a body inside which the motor spindle equipped with a refrigeration system programmed and managed by CNC is housed.

TOOL WAREHOUSE
The tool magazine is in a fixed position on the ground. It is chain-driven with double gripper exchange transfer. The tool change is carried out with the spindle in a vertical position. Supplement for the tool cooling system that allows both air and water to pass through the spindle center

TECHNICAL CHARACTERISTICS

TRAVEL		
• longitudinal travel	mm.	2500
• cross travel	mm.	1050/1200
• vertical travel	mm.	1200
• rapid feed	mt/min	40
• B axis rotation	degree	± 165°
ROTARY TABLE		
• rotary table dimensions (beamed)	mm.	1250x1400
• width of T slots	mm.	22
• load capacity with distributed load	Nm	5000
• max torque	Nm	5150
• axis locking torque	Nm	10500
• nominal acceleration	degree/1'	1000
• spindle speed	rpm	30
• reading encoder	type	RON 785C
• positioning accuracy	Arc.sec	± 2
• rotation of the internal fairing piece	mm.	2000
TOOL MAGAZINE		
• tool taper	HSK	63
• max tool diameter	mm.	50
• max tool length	mm.	250
• max tool weight	Kg.	8
• tool magazine number	n°	40

STANDARD ACCESSORIES

- CNC Unit Heidenhain iTNC-530 digital
- TGT 50 rotary table
- Table center services for magnetic top and predisposition. for FCS system quick clamping
- Work area coverage
- Positioning B axis (head holding platform)
- Vertical head Mod. TVE 29
- Tool magazine with 40 positions
- Chip conveyor
- Coolant system
- Tool setting (BLUM laser)
- HR-410 remote electronic handwheel
- Teleservice
- Operator and maintenance manuals
- CNC manuals
- Year of construction 2010
- MTS29-92 electrospindle overhaul carried out in April 2022
- X-axis screw and bearings replaced in March 2022
- Y axis guide pads and screws replaced in November 2018