2.3 TECHNICAL FEATURES

The main technical features of this machine are listed below:

Z-axis working stroke: 24 mm
Positioning accuracy: ± 0.003 mm
Repeatability accuracy: ± 0.002 mm
Optical scale resolution: 0.001 mm
Encoder resolution: 1000 imp/turn
X-Y axes positioning rate: 25 m/min
X-Y axes maximum acceleration: 3 m/s²
Z-axis positioning rate: 25 m/min
Z-axis maximum acceleration: 30 m/s²
Numerical control: Sieb & Meyer CNC 44.00 + PC
Slide system: Pneumostatic
Drive system: Servomotors + Ball screws
Number of tools: 4
Power supply: 380 V 50 Hz three-phase
Electrical consumption: 8 kW
Final vacuum: - 650 mm Hg
Pneumatic consumption: 400 Nl/min
Supply pressure: 7 bar
Dimensions (machine): 1550 x 1930 x 1760 mm
Weight: 3200 kg
Noise level: < 75 dB
2.4 VISION SYSTEM

X-ray vision system repeatability: 0.005 mm with the processing of 255 images
Reference pad diameters: 0.75 - 1 - 1.25 - 1.5 - 1.75 mm ± 10%
Reference hole diameter: 2 mm ± 10%
Panel reference position with respect to the theoretical dimension: Included in a square of 4 mm per side

2.5 DRILLING SYSTEM

Type: WW 1201/21
Rotation speed: 18,000 - 110,000 r.p.m.
Slide system: Pneumostatic bushing
Air consumption: 56 l/min
Air pressure: 4.8 - 5.0 kg/cm²
Coolant delivery: 0.8 l/min
Static runout (at 20 mm from the collet): < 0.0050 mm
Dynamic runout (at 20 mm from the collet): < 0.0075 mm
Max. radial load at 110 Krev: 8.2 kg
Max. axial load: 25 kg
Radial rigidity at 110 Krev: 0.59 kg/μ
Axial rigidity at 110 Krev: 1.07 kg/μ
Collet closing torque: 1.4 kgcm
Weight: 3.24 kg
2.6 TEST SPECIFICATIONS

Tooling plate flatness: \( \pm 0.020 \text{ mm} \)
X-axis straightness: \( \pm 0.005 \text{ mm} \)
Y-axis straightness: \( \pm 0.005 \text{ mm} \)
Flatness of the upper granite table: \( \pm 0.005 \text{ mm} \)
Parallelism between granite guides: \( \pm 0.005 \text{ mm} \)
Flatness of granite cross rail: \( \pm 0.005 \text{ mm} \)
Perpendicularity of spindle axis with respect to the granite table: \(< 15 \times 10^{-5} \text{ Centesimal degrees}\)

2.7 PANEL SPECIFICATIONS

Panel dimensions: Minimum: 300 x 300 mm
Maximum: 800 x 650 mm
Min. interaxis between references: 300 mm
Maximum panel thickness: 4 mm
Maximum number of copper layers: 12 with the "Shifted reference method"
24 with the "Overlapped reference method"
Inspection area: 241 x (200 - 635) mm per side Fig. 2.1

Fig. 2.1