

Update : 02/12/2015



*Non contractual photo*

## 1 - Description

The alignment robot allows the accurate positioning of objects in vertical and horizontal directions.

This accurate positioning is realized by an operator assisted by the robot thanks to continuous position measurements by cameras.

The gaps between the theoretical and the actual locations are represented in real time on the MMI, allowing the operator to adjust the position of each object using some mechanical actuators.

The object location adjustment is correct when all measured locations are within the defined tolerances.

The integrated calibration station allows the machine calibration before adjustment.

The technologies used in this machine allow adjusting the location of the objects with an absolute accuracy of 2 $\mu$ m on the whole adjustment range (800mm x 200mm).

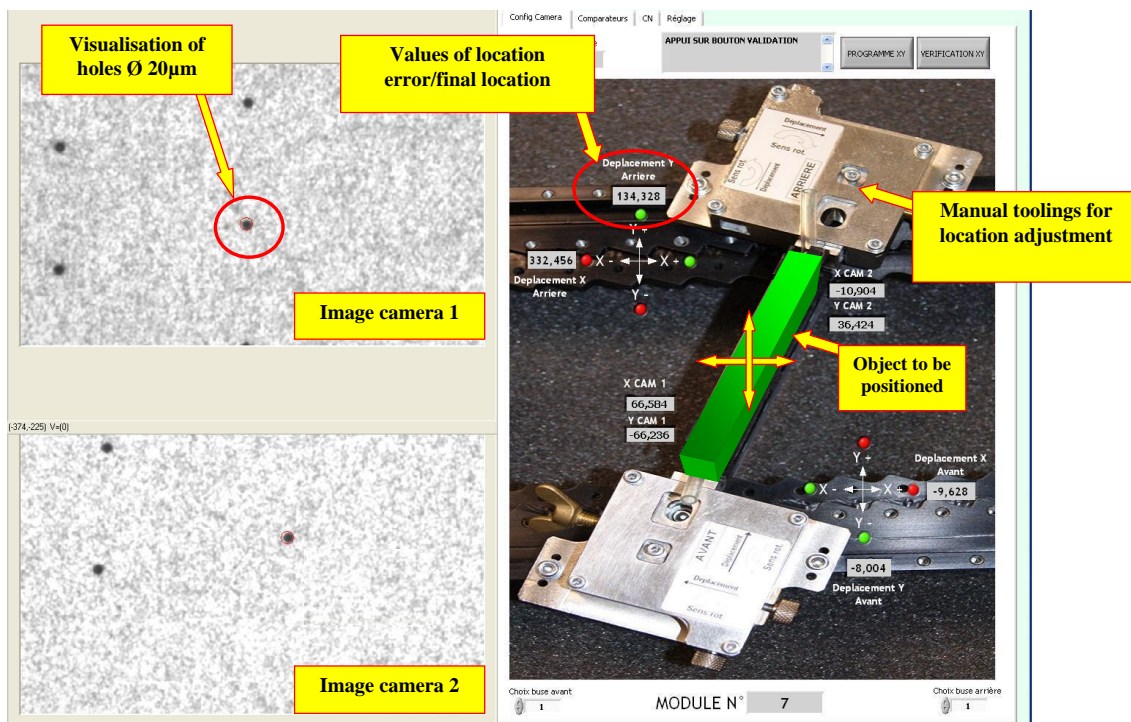
This machine is designed to reach a high reliability and to limit the maintenance (linear motor, optical encoders, air bearings). It just requires a regular cleaning of sliding surfaces.

## 2 - Technical characteristics

- Grinded granite on a mechanically welded assembly (with 2-level mechanical isolation).
- Granite trolley with air bearings
- Parts support arch made of stabilised aluminum.
- High precision optical encoder ( $\pm 1,1\mu$ m over 920mm range).

- Closed-loop positioning with linear motors: accuracy 0,1µm
- Calibration station integrated in the machine
- Camera system embedded on the trolley : 2 cameras with integrated lighting
- Measurement in Z-direction : 2 removable dial gauges embedded on trolley : resolution 5µm

**Visualisation of adjustment MMI :**



CHARACTERISTIC (excl. options)	VALUES
Working area :	800 mm x 200 mm
Structure :	Grinded granite
Trolley bearing :	Air bearing
Displacement resolution :	0,1µm
Camera measurement system :	2 cameras with ring-shaped lighting *
Z-measurement system :	2 dial gauges stroke12mm, resolution 5µm *
Displacement speed :	100 to10 mm/s (adjustable)
Machine dimensions (L x W x H) :	1200 x 600 x H 1100 (working height for the operator)
Absolute positioning accuracy :	± 1,5µm over 800 mm
Calibration station :	integrated : cameras and dial gauges
Power supply :	230 Vac / air supply 6 bars (dry and filtered)
Mass :	800 Kg