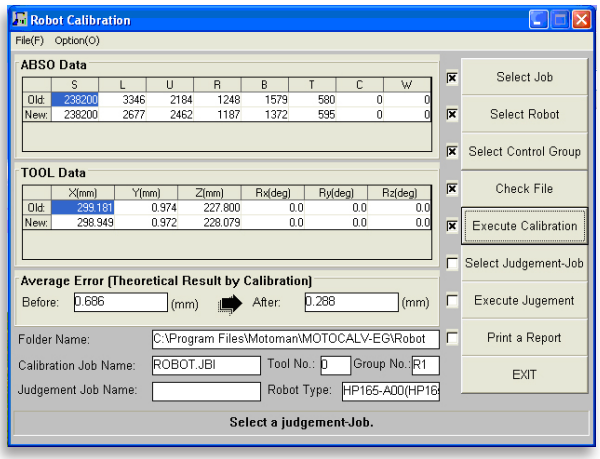
MotoCalV EG

Calibration Utilities



Key Benefits

Improves path accuracy for high-precision applications

Ability to manually calibrate robot with a laptop computer

Improves offline programming accuracy

Minimum System Requirements

Windows® 7 (32 bit/64 bit)

Windows 10 (64 bit)

512 MB Ram

2 GHz processor speed

1 GB free hard drive space

Compatibility

YRC1000 controller

DX200 controller

DX100 controller

NX100 controller

XRC controller

MRC controller

ERC controller

- Economical software tool that is used to improve absolute positioning accuracy, Tool Control Point (TCP) and tool posture of Motoman® robots.
- MotoCalV EG performs five types of calibration:

- Robot calibration

Improves the absolute accuracy of the robot. Adjusts absolute data values by teaching five different postures at five different points (total of 25 points).

- Tool calibration

Calculates the exact tool data to determine the TCP. Some form of tool calibration must be completed before robot can be calibrated. Adjusts tool data values by teaching seven different postures at one point (total of seven points).

- Tool posture calibration

Provides accurate TCP, which is essential for the robot to perform certain motion types such as linear and circular interpolation. Adjusts tool data by teaching one posture at one point (total of one point); calculates exact tool positions (Rx, Ry, Rz). Tool posture is the angle data that shows the relationship between flange coordinates and tool coordinates.

- Workpiece calibration (used with MotoSim® EG)

Recognizes and compares positional differences (between each robot and workpiece) in robot programs created by MotoSim EG versus the program created using the teach pendant. MotoCalV EG then converts the position data from MotoSim EG into position data for the actual robot by using the calculated positional difference obtained between the robot and the workpiece.

- Layout correction (used with MotoSim EG)

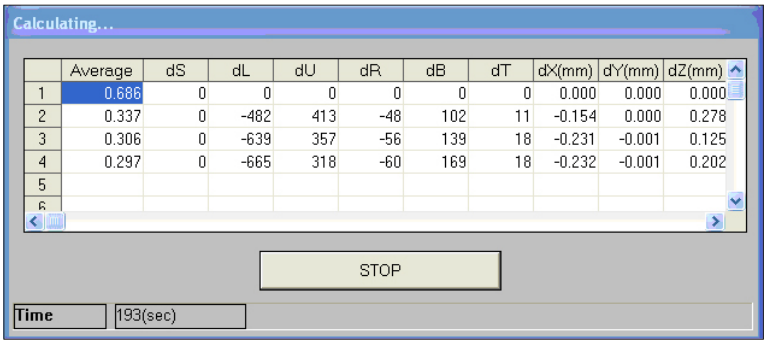
Corrects the robot layout in a workcell that is created through MotoSim EG. The “robot layout correction” function compares the MotoSim EG job to the INFORM programmed job. The “travel axis tilt correction” function calculates the positional difference between the travel axis and the robot positioned on the travel axis.

MotoCalV EG

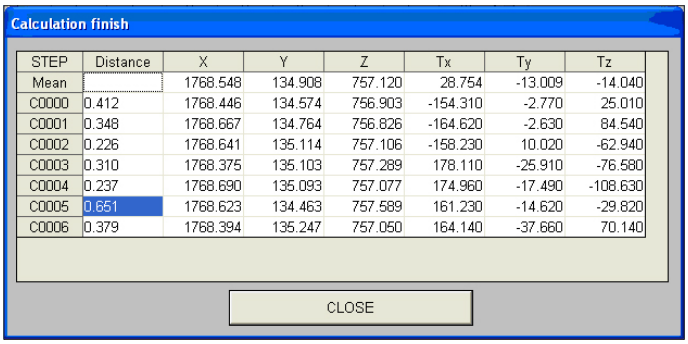
Calibration Process

- The programming pendant is used to teach the points required for all five types of calibration. All points must be taught carefully and with a high degree of accuracy to ensure optimal results.
- Once the points are taught by a programmer, MotoCalV EG correlates the actual taught points versus the theoretical points using a software algorithm.
- The full-featured MotoCal package uses an external encoder and measurement cable to correct the absolute values of the robot; therefore, some manual touch-up of robot program points may be necessary after a mechanical failure when using MotoCalV EG.

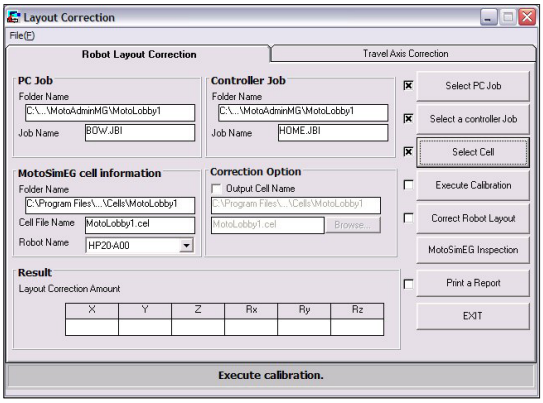
Absolute positioning accuracy is important for path accuracy in high-precision applications and is essential for off-line programming (OLP). Like any mechanical system, robots are built within manufacturing tolerances. These small differences affect the absolute positioning accuracy of the robot.



Tool Calibration



Judgement Job



Layout Calibration

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