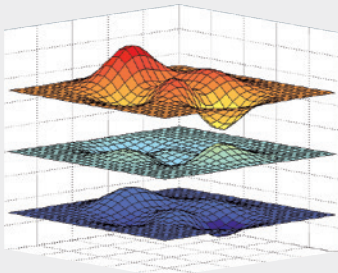# MV-Cor™: A cost effective way to improve system accuracy

3D evaluation of system's accuracy

ORBIT/FR offers a unique service to increase the accuracy of positioning systems and subsystems (typical accuracy improvement is a factor of 2 or 3) by integrating geometrical error correction techniques into new or existing systems. The MV-Cor™ service is a cost-effective solution to enhance range performance without replacing the entire positioning system. This service ensures range performance enhancement with minimum range down-time and optimized cost. The service includes:

❶ **System evaluation.**
❷ **Development of the geometrical error correction data.**
❸ **Integration and improved accuracy validation.**

What are the most common sources of error?

- Misalignment between different axes
- Inaccurate gears, resulting in a discrepancy between the measured position and the actual position.
- Inconsistent screw-drive pitch in the design of the positioner's gear unit.
- Bearing wobble.
- Imperfect leveling.

System evaluation

We offer more than traditional "black box" measurement services.
- Mechanical inspection of the positioning equipment - based on the diagnosis, recommended services will be offered to reach optimal operation.
- Measurement and optimization of positioner repeatability.
- An upgrade to AL-4164, AL-4166, or one of the AL-48060 series positioner controllers, as required.

+ This initial inspection ensures that the geometrical corrections are integrated into top-quality, fully optimized equipment, therefore improving the final results.

Development of the geometrical error correction data

- Analysis of current position accuracy, using a laser tracker or other electro-optical measurement device.
- The data is then collected and analyzed.
- Once the source of error is identified, geometrical error correction maps are generated and programmed in the controller using a proprietary ORBIT/FR calibration tool (Mect™ software).

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- MV-Cor uses continuous feedback correction, the only method that compensates for both position commands/feedback and for the variable gain measured by the control filter.
- The feedback sensor records the original hardware values, making the correction transparent to the end user.

Ⱨow is the position accuracy defined?

The position accuracy is the difference between the absolute position of the positioning system and the position measured by the feedback sensor of the controller.
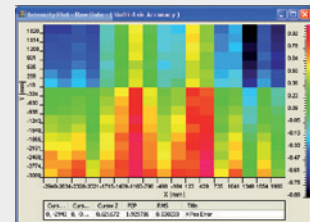

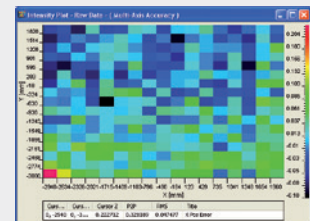# **Integration** and improved accuracy validation

✓ After the correction tables are activated, several measurements are performed to validate the effect of the correction tables on the overall system's accuracy.

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Minimal system down-time is ensured by quick MV-Cor integration and validation by ORBIT/FR engineers.

Before

After

TECHNICAL REQUIREMENTS

- MV-Cor™ correction tables can be integrated in any AL-48060 series (formerly AL-4806-3C) or AL-4164/AL-4166 controllers manufactured by ORBIT/FR.

ADDITIONAL EQUIPMENT

The equipment below may be necessary in the event of mechanical issues within existing customer equipment:
- Optical tool such as inclinometer, electronic level or laser tracker (preferred).
- Standard positioning system maintenance tools, such as cranes, forklifts, etc.

Contact your local sales representative for more information
www.mvg-world.com/services
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