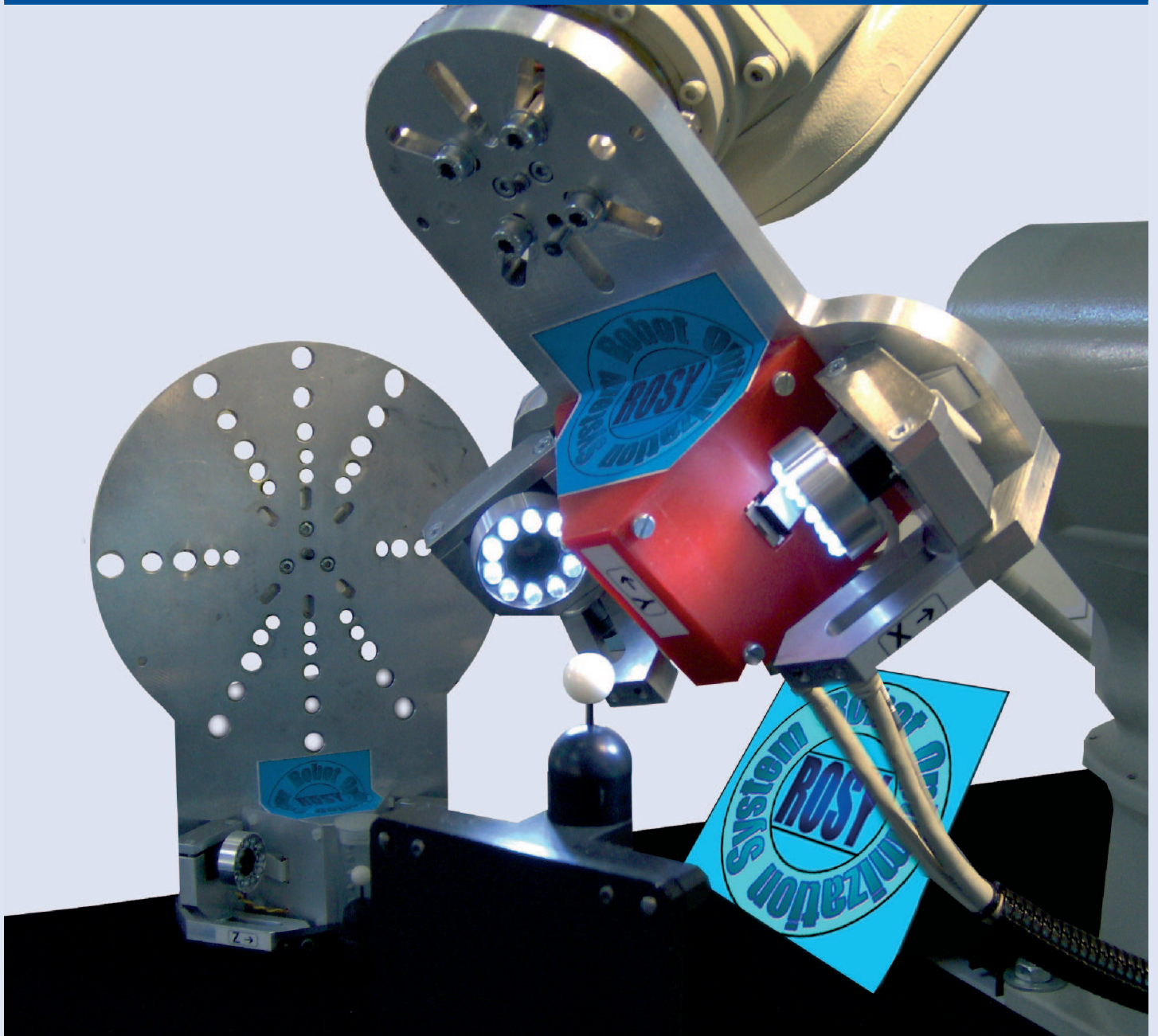

ROSY

Robot Optimization System



Accuracy Improvement of Industrial Robots

leconsult

Why Robot Calibration?

The pose accuracy of industrial robots often is unsatisfactory for special applications. Particularly in connection with off-line programming, exchangeability and high precision tasks problems may occur which can be very time-consuming and costly to solve. Therefore the calibration system ROSY (Robot Optimization SYstem) has been developed in order to increase robot accuracy.

ROSY enables the accuracy of pose to be improved for industrial robots up to the range of repeatability of pose. For this purpose the robot is first measured with a calibration ball and digital cameras, then its kinematic errors and the resulting correction values are calculated. Finally the corresponding parameters of the control software or the user program are changed appropriately. The whole process can be accomplished easily and is usually finished in less than an hour. Additionally different methods for tool and base correction are implemented.

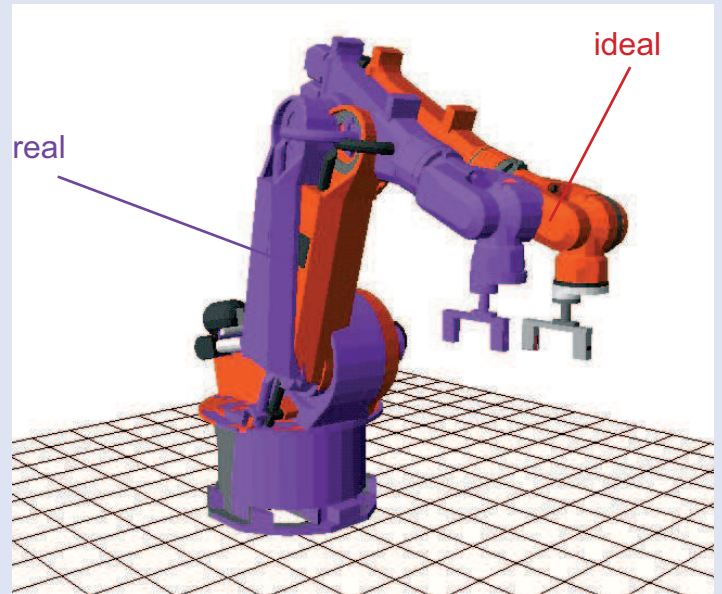
This way identical and highly accurate robot cells can be created onto which offline generated user programs may simply be transferred. Thus process security can be improved significantly.



ROSY measurement with cameras and calibration sphere.

Fields of application

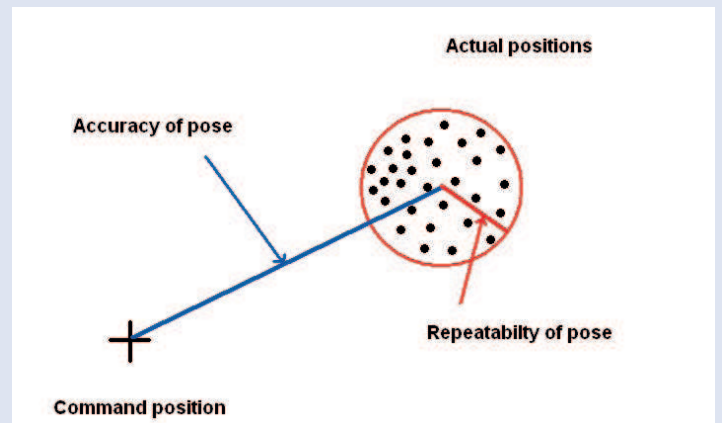
- High accuracy robot tasks
- Off-line programming
- Improvement of exchangeability



Deviations due to kinematic errors of the real robot compared to the ideal model

Aims

- Reduction of down-time and failure cost
- Simple transfer of off-line programs
- Enhancement of process security
- Coverage of new fields of application
- Efficiency
- Fast amortisation



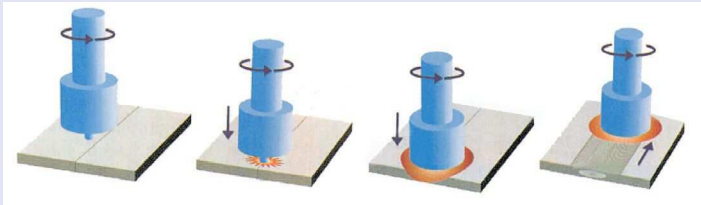
Enhancement of accuracy of pose (AP) up to the range of repeatability of pose (RP)

Options & features

- Measuring
- Calibration
- User program correction
- Tool and base correction
- Quickness
- Portability
- Simplicity
- Precision

Sample applications & services

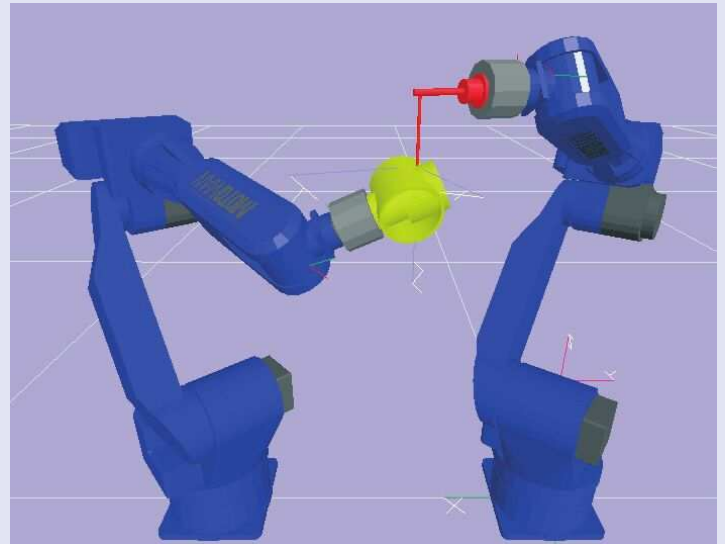
- Robot guided hemming
- Medical robotics
- Water jet applications
- Laser applications
- Friction stir welding
- Riveting
- Drilling
- Assembly
- Milling
- Deburring
- Robot measurement and calibration with ROSY
- Implementation of high accuracy robot applications
- Off-line programming
- Economic efficiency considerations
- Reachability studies
- Feasibility surveys
- Integration of sensors
- In-line measurement / inspection with IR
- Further tasks within the automation area



Friction stir welding of aluminium

References

- Adept Technology
- Audi
- bwm
- EADS
- Fanuc Robotics
- Grundfos
- Ingemat
- Motoman robotec
- SEF Roboter
- Siemens
- Stäubli
- Volkswagen



Arc welding with co-operating robots

Teconsult

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