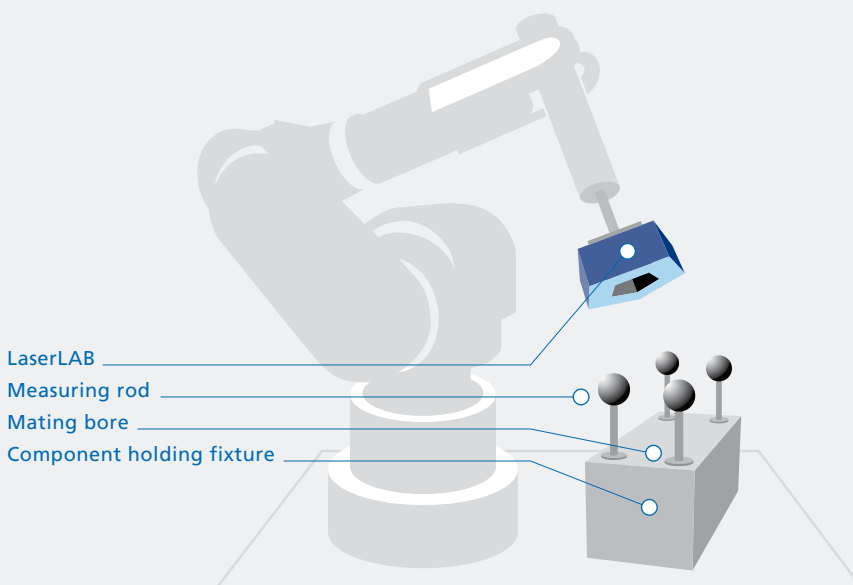


## Base measurement with base:in

Does your robot grab into an empty space, instead of picking up the component? Do your robots not work exactly any more, even though everything should fit? Then, most likely the base is incorrect... High time for LaserLAB and base:in!

The goal of measuring the robot base (base measurement) is determining the transformation from the workpiece into the coordinate system of the robot. This is especially important for off-line programming, duplication of the robot programmes, as well as relocating of robot plants. With base:in you can exactly measure the component holding fixtures (stations), as well as external, stationary tools e.g. electrode holder and gluing jets.



### Your advantage

- :: Costly teach-in can be dropped
- :: Relocating of production plants can be carried out quicker
- :: Duplication of robot programmes is possible
- :: Measuring tilted stations
- :: Measuring external, stationary tools
- :: Measuring linear axes
- :: Comprehensible due to measurement reports
- :: Non-contact and quick measurement
- :: Easy and safe to operate!
- :: Time necessary < 15 min
- :: Long downtimes will be avoided!

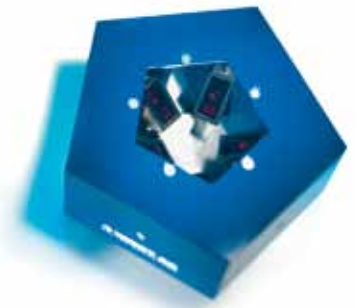
### How it is done

Attach the measuring system LaserLAB to the robot hand and screw the measuring rods into the provided mating bores in the working space of the robot. Now measure the measuring balls by running a teach-in robot programme or moving the robot manually. The searched transformation can be calculated on the basis of the measured values, which then can be transferred into the robot control by pushing a button.

Furthermore, you can measure stationary electrode holders and determine their movement direction by using the WIEST-measuring triangle. The measuring sequence stays the same.

### Compatibility

- :: ABB
- :: Comau
- :: Kuka
- :: Mitsubishi
- :: Motoman
- :: Stäubli



## SUCCESS BY FLEXIBILITY – APPLICATIONS

### Initial operation

The geometric base measurement of the robot before initial operation guarantees successful application of off-line generated production programmes on real robot plants.

If you want to replace a robot, a new measurement also makes sense; especially, if the robot has not been dowelled at its working location and the same robot position cannot be guaranteed.

### Maintenance

If there is a crash of the component holding fixture, massive displacements of it may occur; especially, if it has been manufactured as a lightweight construction. In such cases, the LaserLAB in combination with base:in has proved itself: Quick and automated measuring of the base transformation guarantees minimum downtimes compared with conventional methods!

### Duplication of Robot Programmes

Do you have a manufacturing line with several identical robot plants? Then make full use of synergy effects with base:in! For this purpose, the robot programmes will be programmed on one plant and transported to the parallel robot plants. As the locations of the stations are lightly different in every plant, an exact base measurement for every single plant is necessary.

### Relocating Robot Plants

Usually, the robot plants are at first installed, programmed and tested by the manufacturer in their own premises. Only after this, they will be transported to the end customer and finally installed. If you, as a manufacturer or operator of the plant, use LaserLAB and base:in, you can significantly speed up the initial operation, as automated measuring of the stations can be carried out. A manual teach-in repetition of room points – and therefore unnecessary waiting time to the initial operation – will be fully dropped!

## THE PROCEDURE IN DETAIL

Together with the LaserLAB, the robot forms a contact-free coordinate measuring machine. The measuring rods in the robot coordinate system will be measured one after the other. The measured ball coordinates represent the actual ball positions. Now, the numerical values of the nominal values of the ball positions have to be entered. They can be taken from different sources:

- :: Design data (absolute coordinates)
- :: Measurement by superior measuring system, e.g. in the measuring room (absolute coordinates)
- :: Measuring with LaserLAB and the robot (relative coordinates)

The required base transformation will be determined by correlating the measured actual values with the known nominal values.

