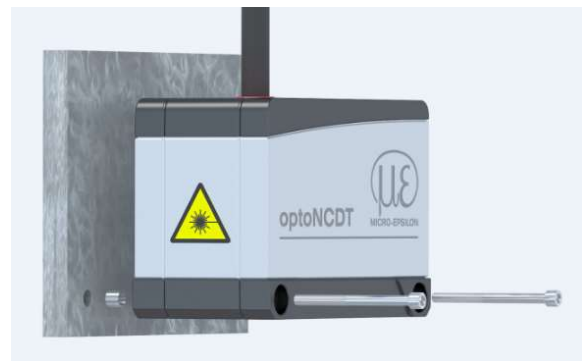


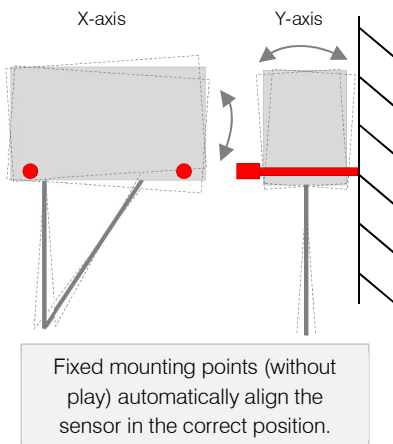
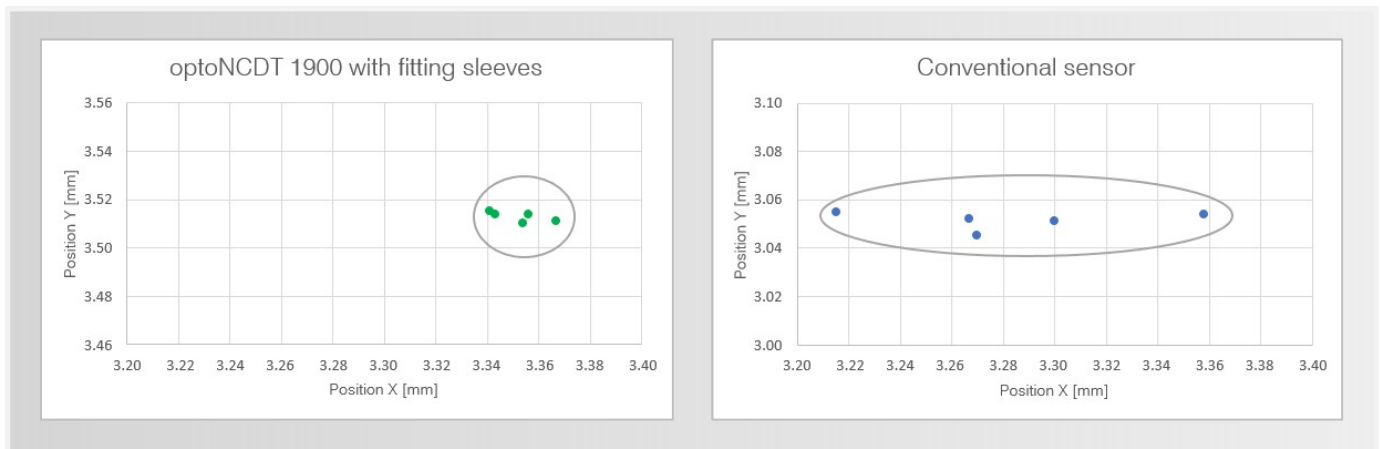
T038 // Optimum mounting of optoNCDT 1900 sensors

The mounting of laser triangulation sensors influences the achievable accuracy. The more precisely a sensor is aligned, the more precise the measurement results. The optimum sensor alignment (with diffuse reflection) is based on an orthogonal arrangement of the measuring object. Any mounting and alignment deviating from this causes linearity errors (pitch error) and/or a zero offset (offset error). This effect can already be seen in one-sided distance measurements and particularly increases with two-sided measurements (thickness measurement).

With all manufacturers of laser triangulation sensors, the position of the light spot deviates from the ideal orthogonal position (90°) to the sensor. This is due to both manufacturing tolerances of the sensor and tolerances during the mounting of the sensor. Micro-Epsilon intends to keep these deviations as low as possible. This is why the new optoNCDT 1900 models can be mounted using fitting sleeves.



The fitting sleeves ensure optimal sensor alignment. The following diagrams confirm this by demonstrating that the light spot of the optoNCDT 1900 is significantly less scattered than with conventional laser triangulation sensors. Five mounting repetitions were measured.



There are two advantages of fitting sleeves:

Simplified sensor mounting reduces errors in distance measurement

Reduces pitch errors, as the sensor is aligned exactly 90° to the measuring object while time-consuming, manual adjustment is no longer necessary (plug & play).

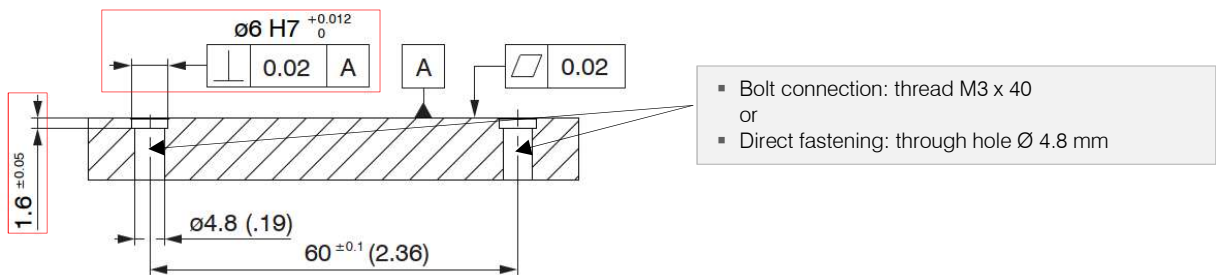
Results with higher precision for thickness measurements even on vibrating measuring objects

Both sensors measure at exactly the same point and can also be easily aligned with each other.

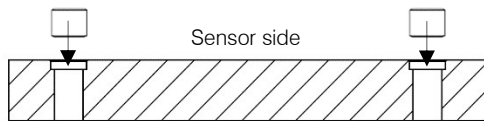
Procedure

1. Use a flat surface for mounting the sensor and drill the corresponding holes. Depending on the desired mounting (bolt connection with M3 screw or direct fastening with M4 screw) this can be a through hole or a threaded hole. In addition, a counterbore is required to drill out the holes to match the diameter of the sleeves. The following tolerance specifications must be strictly adhered to:

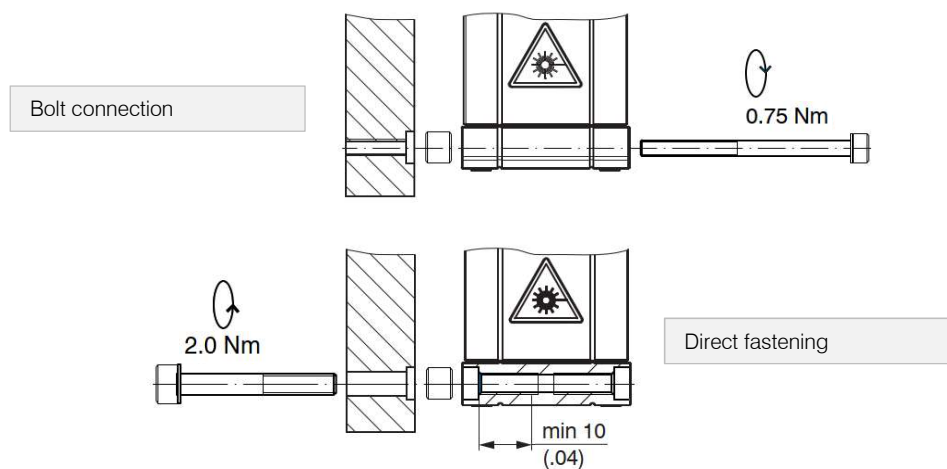
→ $\text{Ø}6 \text{ H7 } +0.012 / \text{depth } 1.6$



2. The sleeves can then be pressed into the sensor holder:



3. The sensor can now be placed on the sleeves and fastened using the preferred screw connection. This will automatically align the sensor. No alignment aids are required. Observe the specified torques when tightening the screws!



→ Please note additional information in the assembly instructions!