HEIDENHAIN

Webinar

New touch probe cycles

TNC 640

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CONTENT

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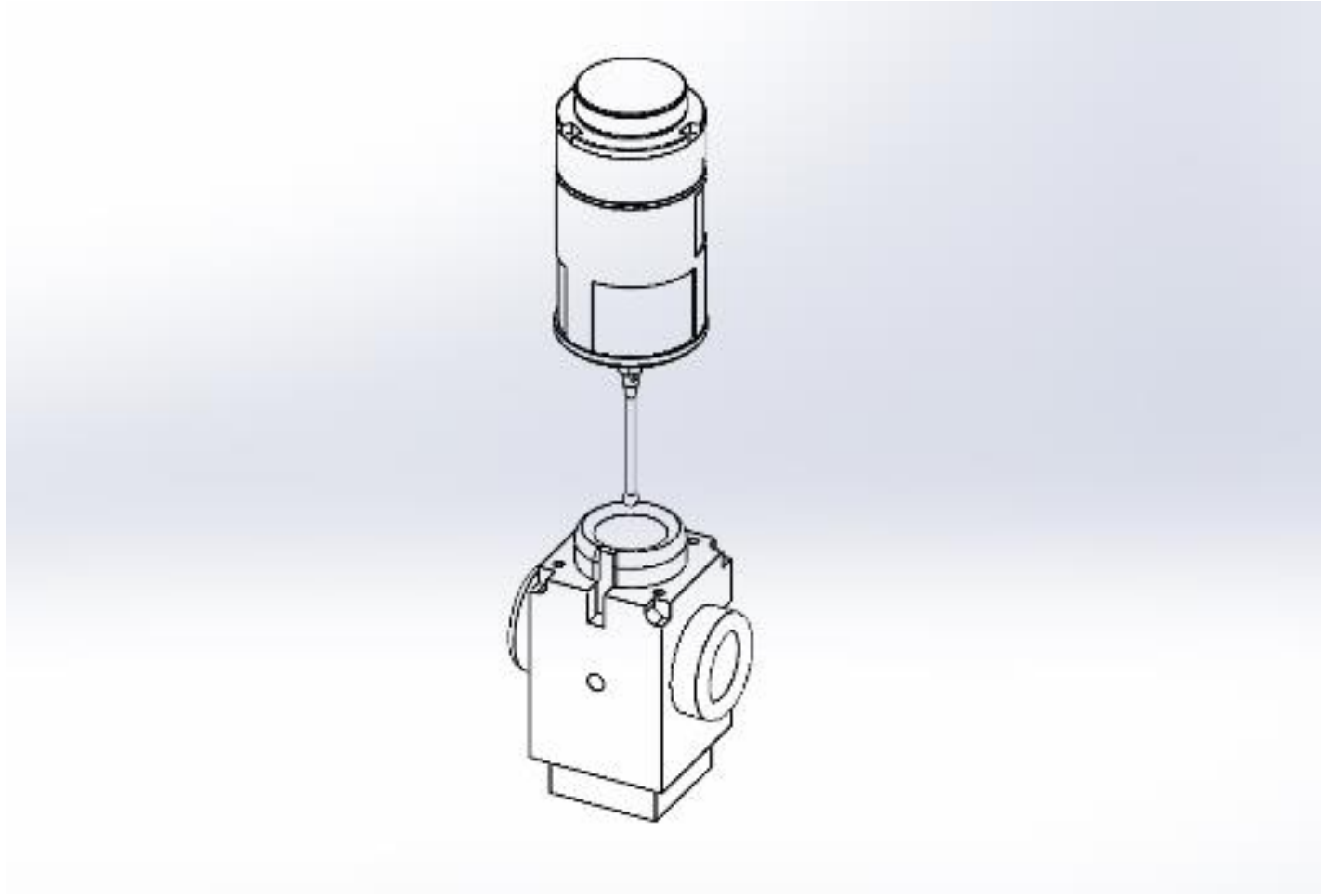
2. New input parameters
3. Programming
4. Examples of use

1 Overview and application possibilities

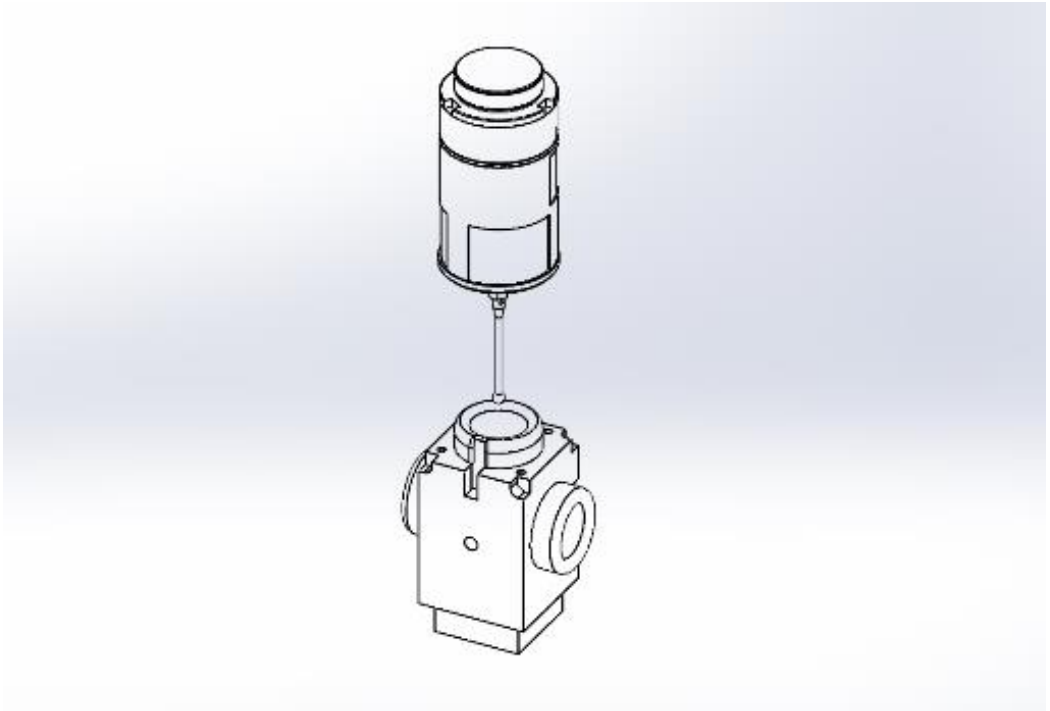
Overview
Cycles

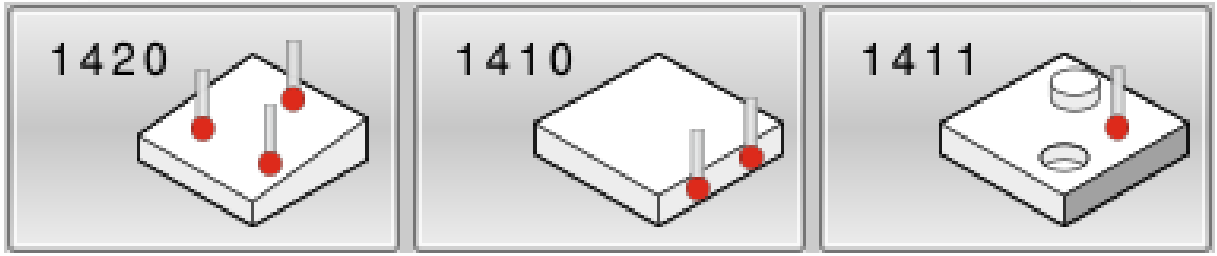
- **1410** TOUCHING EDGE
- **1411** SENSING TWO CIRCUITS
- **1420** TOUCHING PLANE



Application possibilities
Cycles

- Determination of rotations
- Semi-automatic probing
- Monitoring of tolerances
- Alignment via basic rotation or table rotation
- Describing the 3D basic rotation

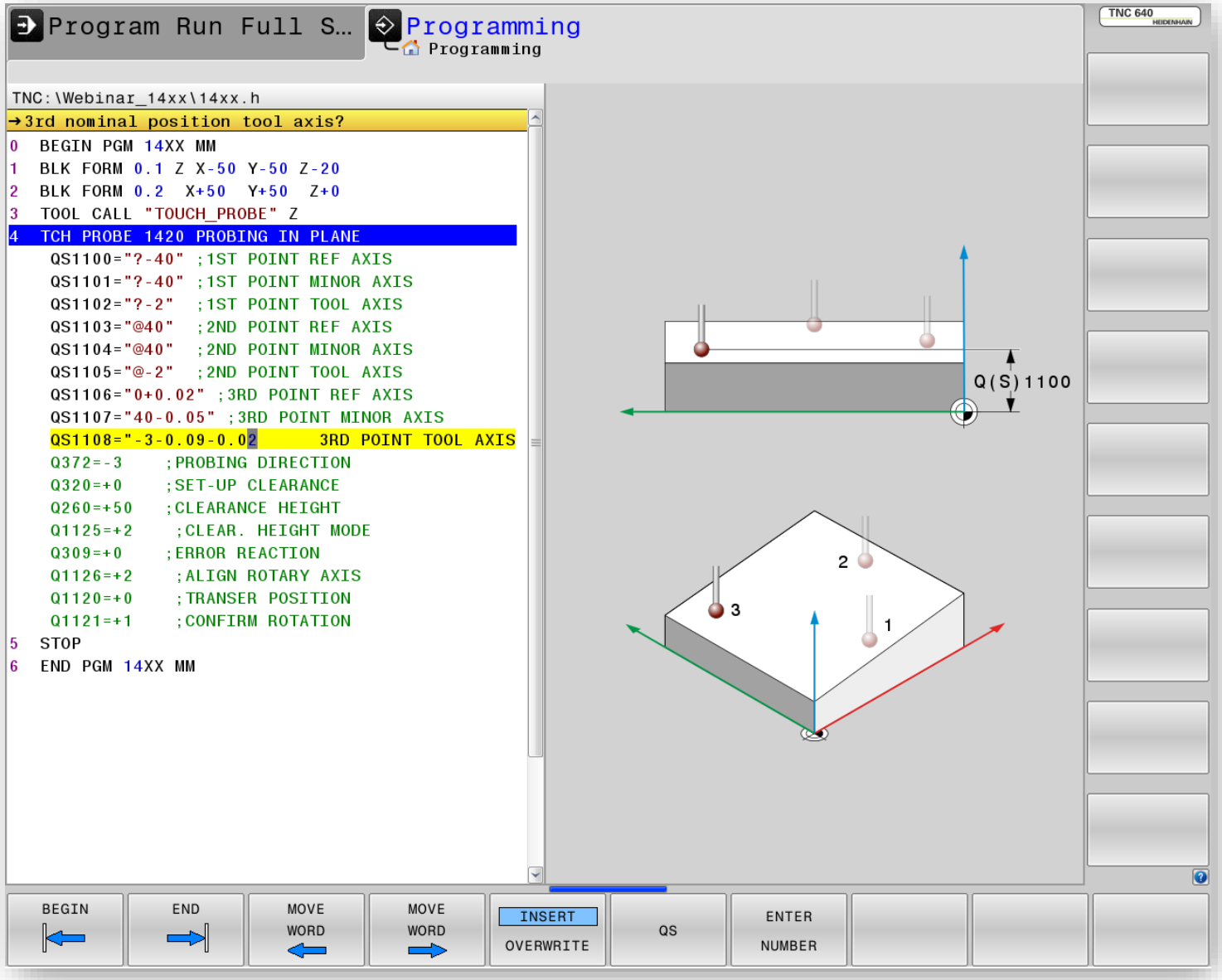




2 New input parameters

New input parameters
Axis position

- **Absolutely**
  Q1100 = +45 ; 1ST POINT MAIN AXIS
- **Semi-automatic mode**
  QS1100 = "?+45" ;1ST POINT MAIN AXIS
- **Tolerances**
  QS1100 = "+45-1-0.5" ;1ST POINT MAIN AXIS
- **Transfer of an actual position**
  QS1100 = "+45@45.1" ;1ST POINT MAIN AXIS



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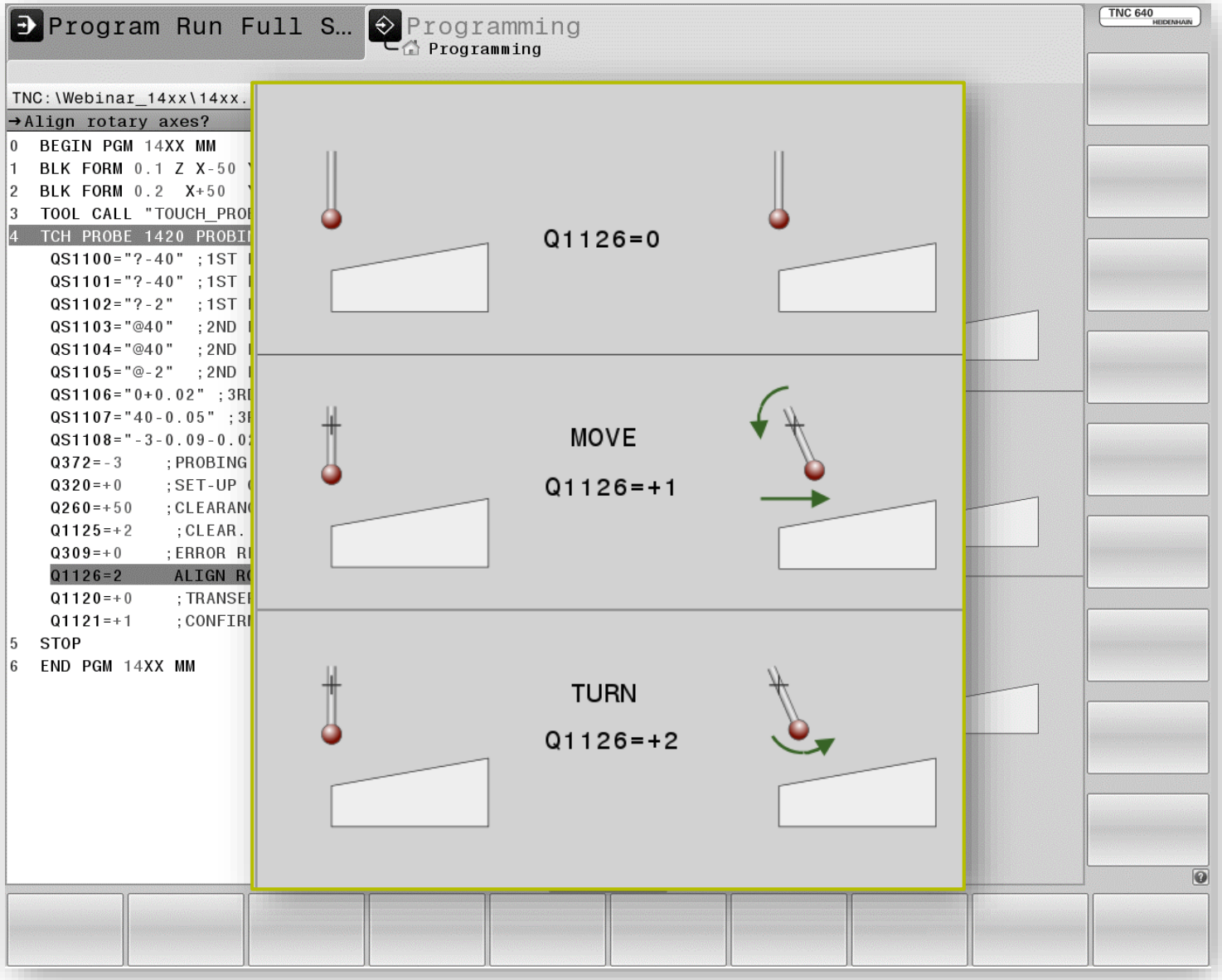
New input parameters
Align rotary axes

- **STAY**
  Q1126 = 0
- **MOVE**
  Q1126 = 1
- **TURN**
  Q1126 = 2



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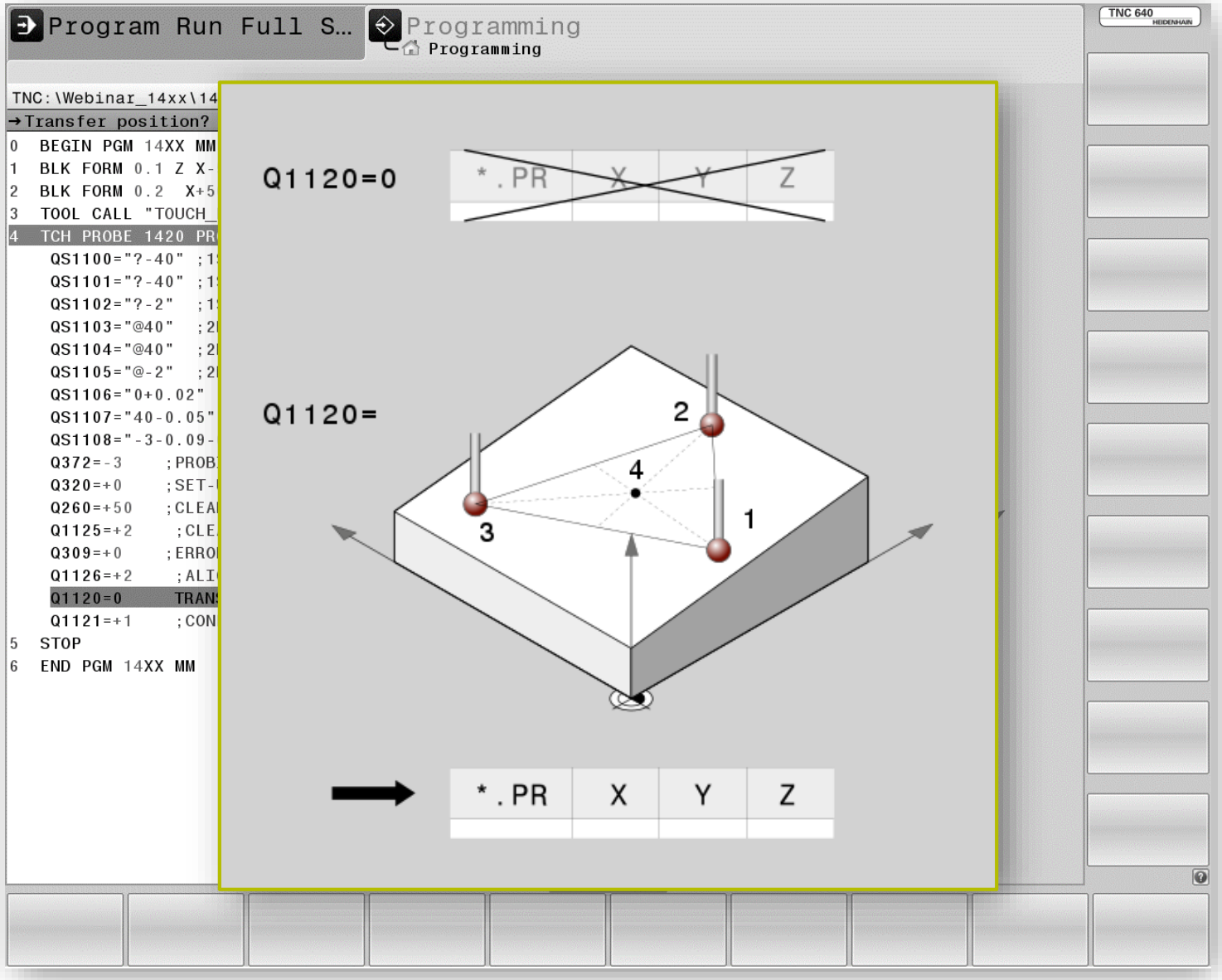
New input parameters
Position for takeover

- **No takeover**
  Q1120 = 0
- **Acceptance of the 1st measuring point**
  Q1120 = 1
- **Acceptance of the 2nd measuring point**
  Q1120 = 2
- **Acceptance of the averaged measuring point**
  Q1120 = 3



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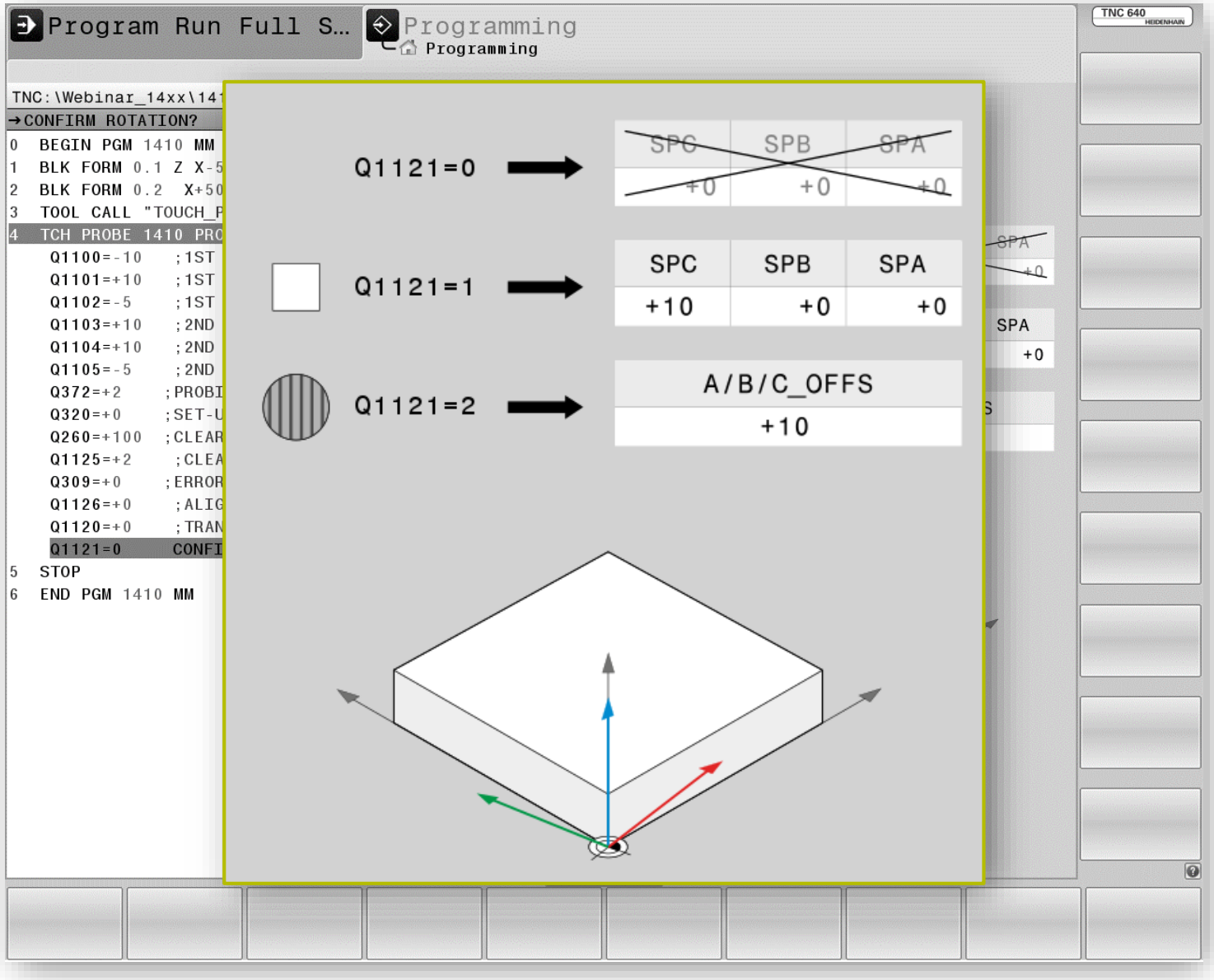
New input parameters
Accept rotation as

- **No takeover**
  Q1121 = 0
- **Set basic rotation**
  Q1121 = 1
- **Execute rotary table rotation**
  Q1122 = 2



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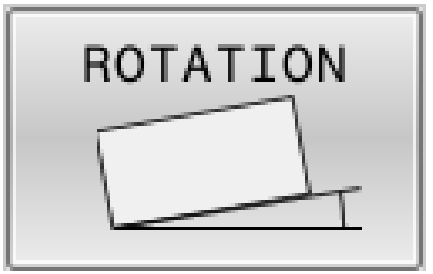
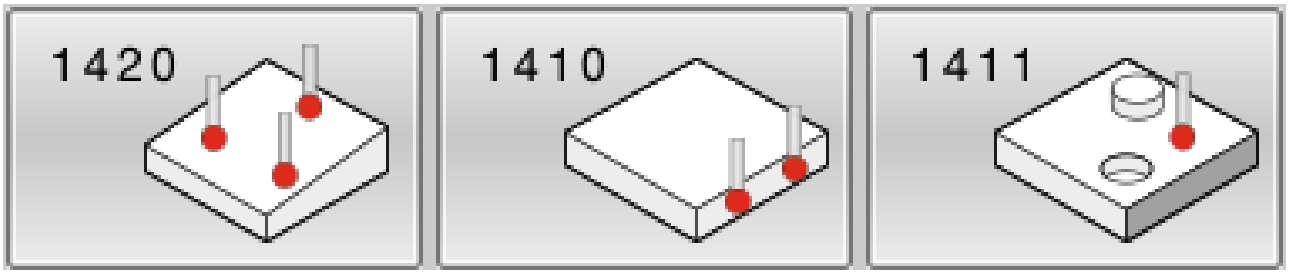
3 Programming

Programming

- Programming Target Coordinates
- Probing direction:

  X+/X- Y+/Y- Z+/Z-
- Active reference point is described
- Touch probe results are stored as of Q950

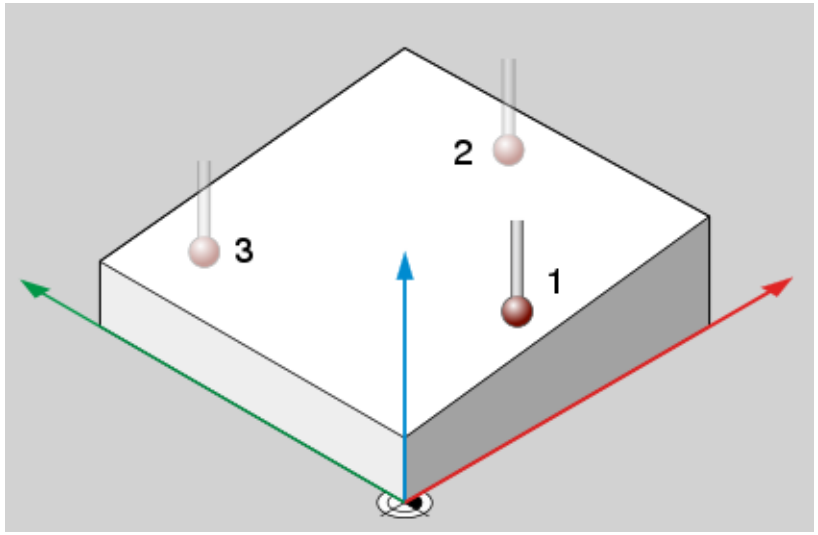


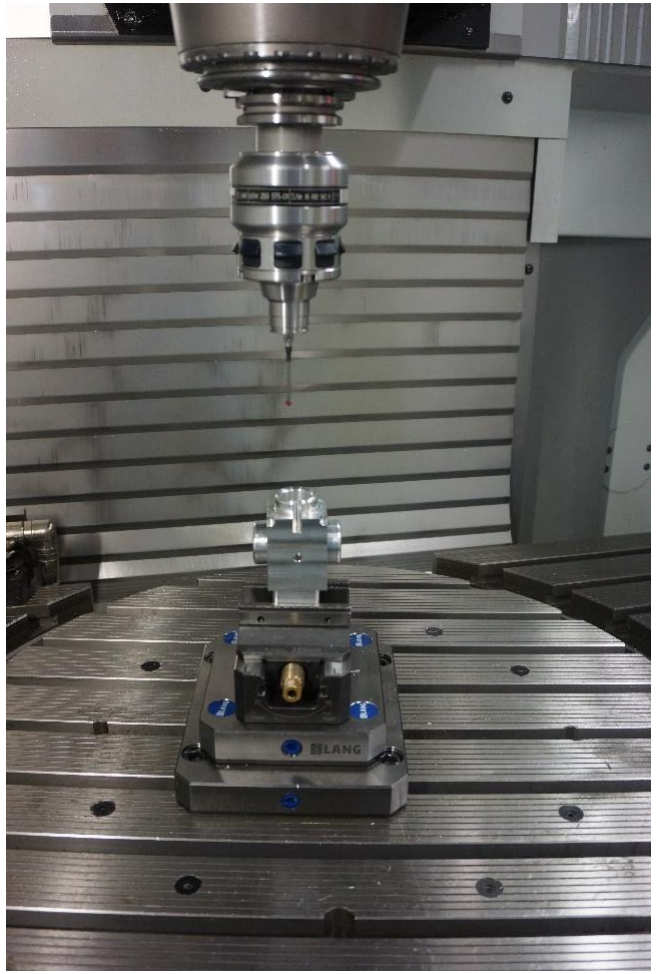


4 Examples of use

Application example 1
Surface Alignment

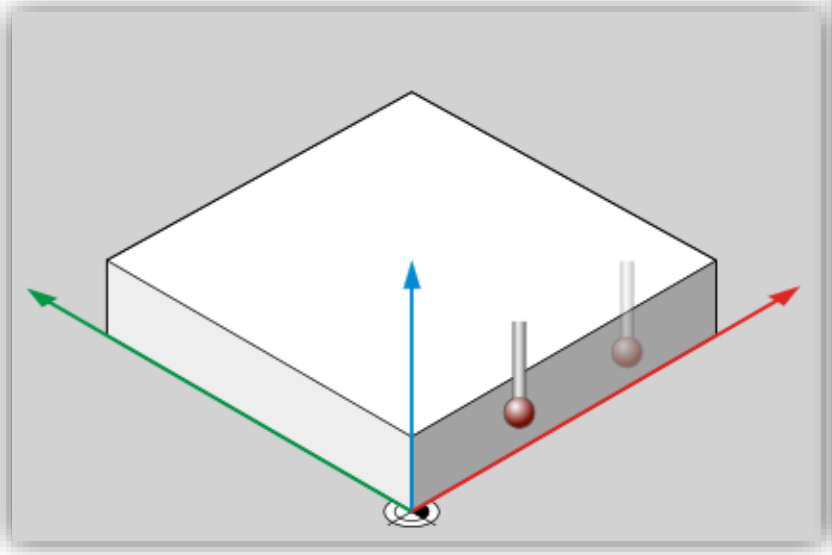
- Coordinates of the component are **known**
- Input of the nominal coordinates (important Z+0)
- Specifying the points define the coordinate system

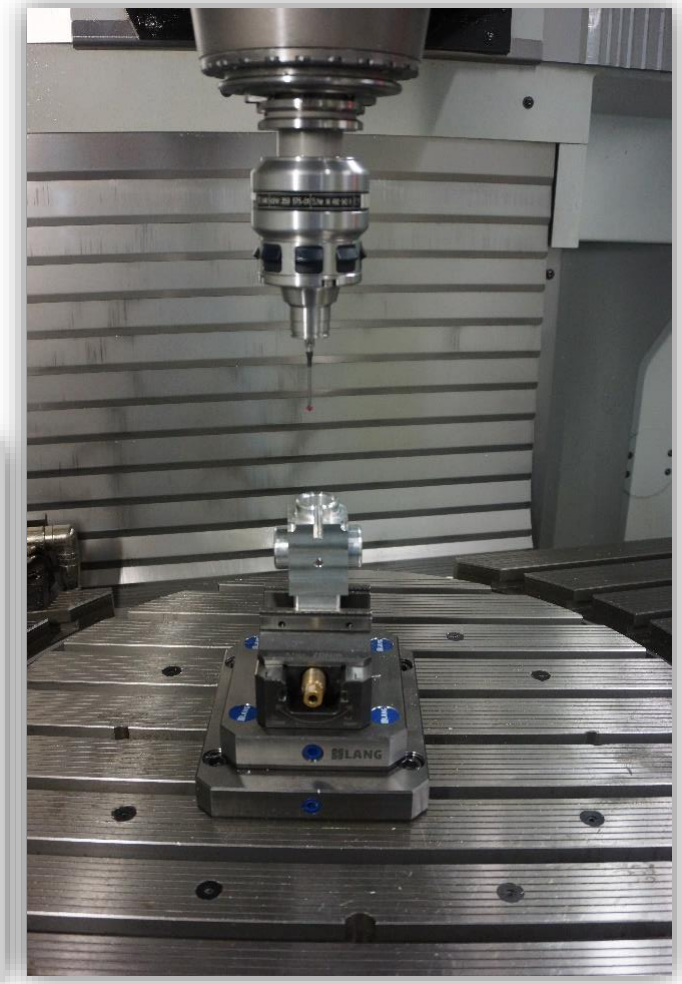




Application example 1
Align edge

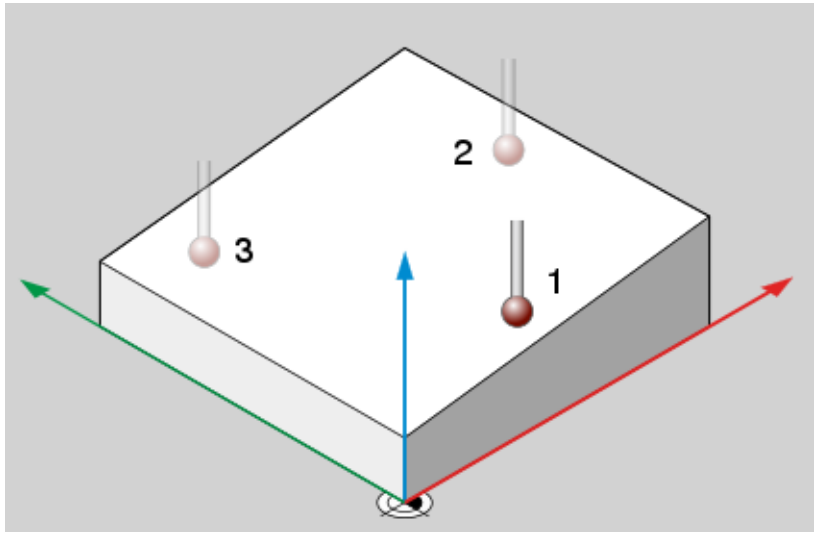
- Coordinates of the component are **known**
- Input of the nominal coordinates (important Y+0)

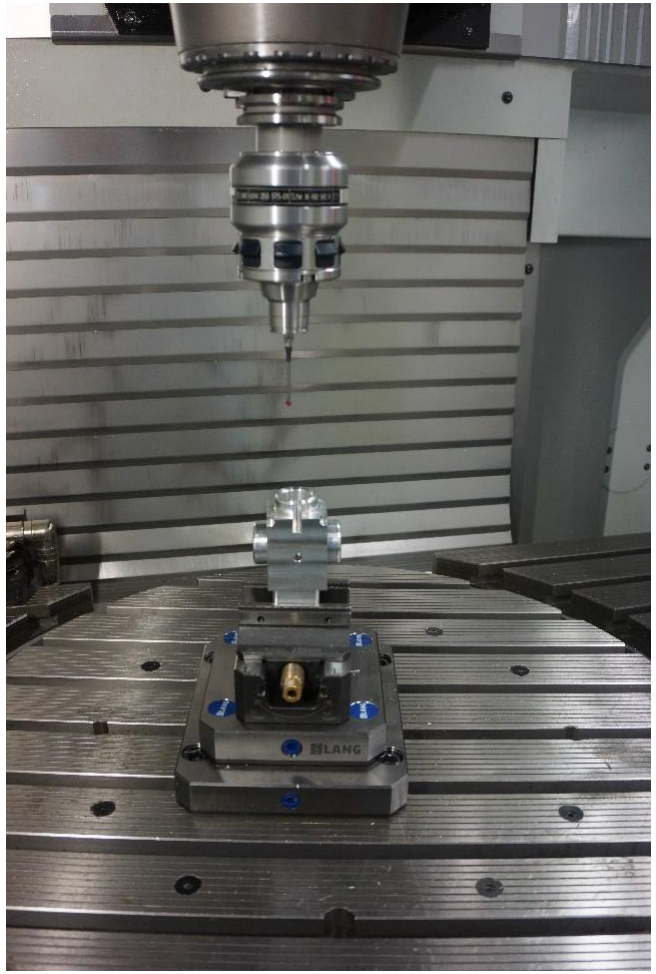




Application example 2
Surface Alignment

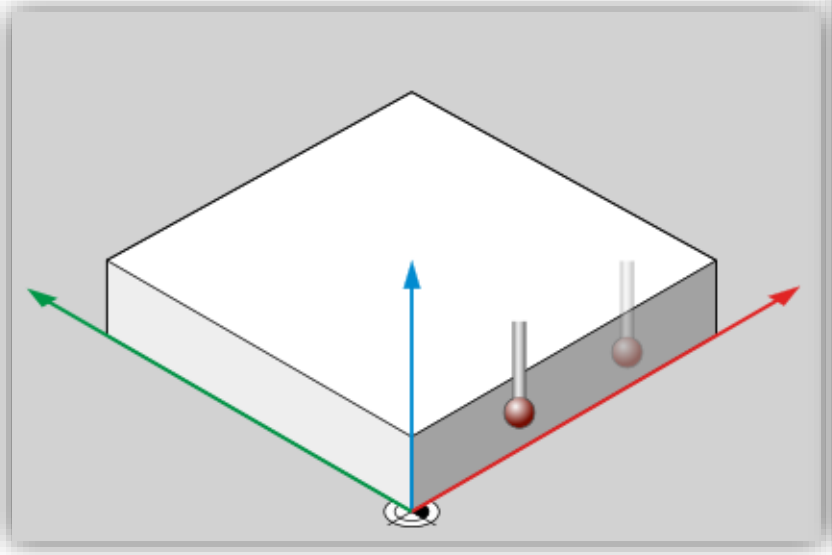
- Coordinates of the component are **unknown**
- Input of the nominal coordinates (important Z+0)
- Specifying the points define the coordinate system

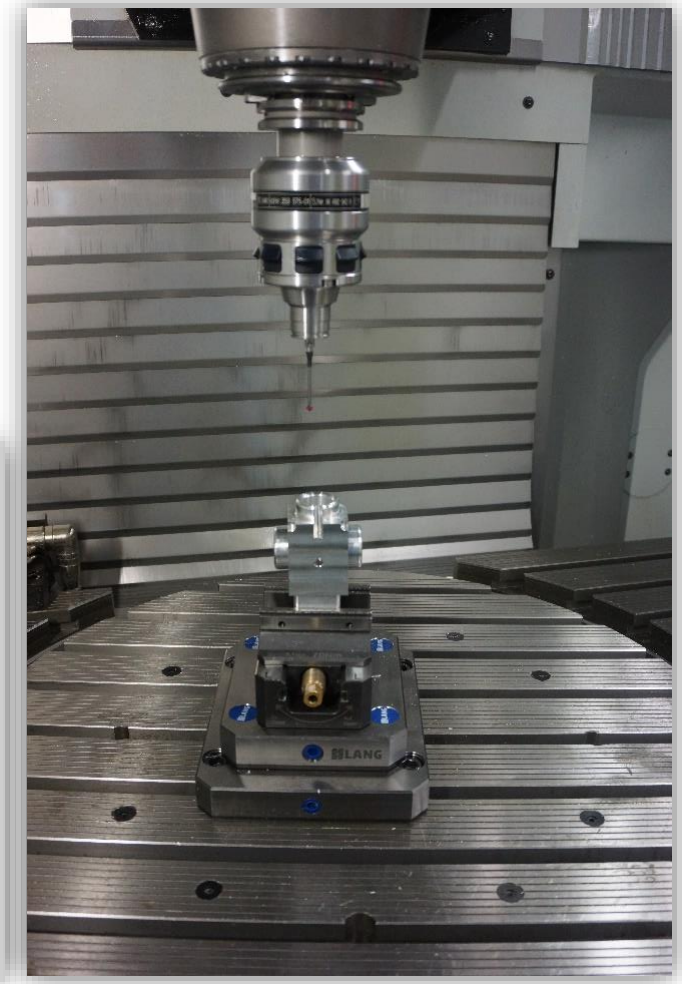




Application example 2
Align edge

- Coordinates of the component are **unknown**
- Input of the nominal coordinates (important Y+0)





Application example 3
Surface Alignment with three balls

- Nominal position of the balls known
- Measure actual position
- Calculate with cycle 1420:

  Nominal position@actual position
- cycle calculates the rotations

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