Exemplary HAUBEX NC-subprogramme Control: **Siemens SINUMERIK 840D sl**

Clamping

```
...
N10   SPOS=X                    (0/90/180/270)

N20   G0    X0    Y0
N30   G0    Z0*
N40   G1    Z-20*  F500
N50   G1    Z-29.9* F100
N60   POSITION1:   SPOS=IC(0.4)
N70   REPEATB      POSITION1    P=229

N80   POSITION2:   SPOS=IC(-0.4)
N90   REPEATB      POSITION2    P=4

N100  G1    Z30*   F100
N110  G0    Z150*
```

N10	Positioning the angular position of the machine spindle [Marking of workholding hood aligned to the „unclamped" symbol on the zero-point device]
N20	Position the machine spindle centrically over the zero-point device
N30	Position the 5-Axis Vice with its clamping studs approx. 8 mm above the zero-point device
N40	Slowly placing the clamping studs of the 5-Axis Vice into the zero-point device
N50	Gentle placement of the 5-Axis Vice on the zero-point device
N60	Turn the spindle incrementally clockwise by 0.4°
N70	Repeat set N60 229x, gives a total of 91.6° (slow twist) Total rotation set N50 + N60 = 92°
N80	Turn spindle incrementally by 0.4° counterclockwise
N90	Repeat set N80 4x, gives a total of 1.6° (slow twist) Total rotation set N80 + N90= 2° (free travel of the workholding hood)
N100	Slower free travel in the Z-axis
N110	Free travel in the Z-axis

Determine value X:

Place the workholding hood into the machine spindle and position it at 0° / 90° / 180° / 270°.
The angular position at which the marking of the workholding hood points to the right [aligned with the marking (unclamped) of zero-point device] is entered as positioning in block N10.

* The total length of the workholding hood with inserted 5-Axis Voce (tool length) is measured via a gauge block (30 mm) on the presetting device. The determined value can now be entered directly into the NC programme without subtracting the height of the gauge block. Alternatively, you can also subtract the height of the gauge block from the determined value and enter the length measured up to the bottom of the vice. Please note that in this case other z-Axis values apply.

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Unclamping

```
...
N10   SPOS=X                    (0/90/180/270)

N20   G0    X0     Y0
N30   G0    Z135*
N40   G1    Z20*   F500
N50   G1    Z-29.9* F100
N60   POSITION1:   SPOS=IC(-0.4)
N70   REPEATB      POSITION1    P=229

N80   POSITION2:   SPOS=IC(0.4)
N90   REPEATB      POSITION2    P=4

N100  G1    Z-20*  F100
N110  G0    Z150*
```

N10	Positioning the angular position of the machine spindle [Marking of workholding hood aligned to the marking on the 5-Axis Vice]
N20	Position the machine spindle centrically over the zero-point device
N30	Position the workholding hood with safety distance above the workpiece
N40	Slow pre-positioning of the workholding hood in the Z-axis
N50	Slow travel to the end (pick-up) position
N60	Turn the spindle incrementally counterclockwise by 0.4°
N70	Repeat set N60 229x, gives a total of 91.6° (slow twist) Total rotation set N50 + N60 = 92°
N80	Turn spindle incrementally by 0.4° clockwise
N90	Repeat set N80 4x, gives a total of 1.6° (slow twist) Total rotation set N80 + N90= 2° (free travel of the workholding hood)
N100	Slow pick-up of the 5-Axis Vice
N110	Free travel in the Z-axis

Determine value X:

Place the workholding hood into the machine spindle and position it at 0° / 90° / 180° / 270°.
The angular position at which the marking of the workholding hood points to the front [aligned with the marking of the 5-Axis Vice] is entered as positioning in block N10.

* The total length of the workholding hood with inserted 5-Axis Voce (tool length) is measured via a gauge block (30 mm) on the presetting device. The determined value can now be entered directly into the NC programme without subtracting the height of the gauge block. Alternatively, you can also subtract the height of the gauge block from the determined value and enter the length measured up to the bottom of the vice. Please note that in this case other z-Axis values apply.