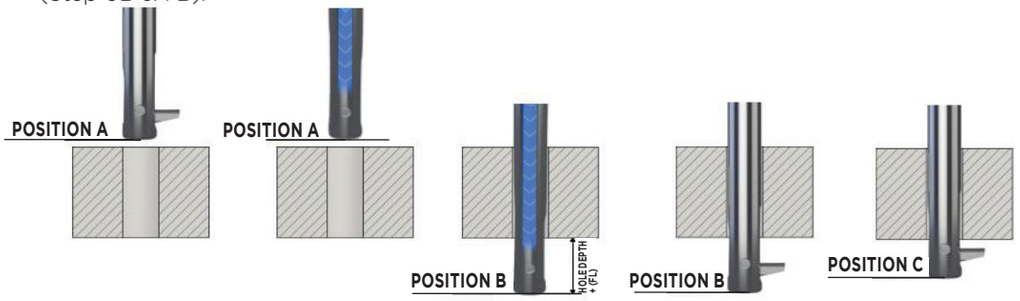
UBACK PROGRAMMING GUIDELINES FOR INTERRUPTED AND CONTINUOUS CUT

NOGA MT MACHINE TOOLS

ThINking is INSIDE this BOX!

HIGHLIGHTS

- The tool-holder family (UBACK) is designed for CNC automated operations and is compatible with both USPOT inserts (for back counter-boring & spot-facing) and UCHAMF inserts (for back countersinking).
- The opening/closing mechanism of the insert is hydraulic (activated via coolant/air through the spindle), with a minimum pump pressure of 6 bar (90 PSI).
- For interrupted cuts (slots, shoulders, fully interrupted), use external coolant only (Step 6B & 7B).



STEP 1
Move to Initial Position A to the safe height while the tool is rotating.
(G0 Z[#Z_SAFE])

STEP 2
Position A
Turn coolant ON: **(*M7/M8)** Wait for the coolant to engage for the defined time:
(G4 P[#COOLANT_WAIT])

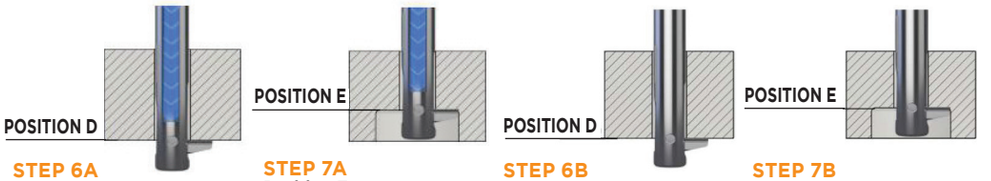
STEP 3
Moving to Position B
Move rapidly down to the pilot hole depth + FL (See Note 1).
(G0 Z[#HOLE DEPTH + #FL])

STEP 4
Position B
Turn coolant OFF **(M9).**
Wait for the coolant to disengage for the defined time:
(G4 P[#COOLANT_WAIT])

STEP 5
Moving to Position C
Move below the workpiece to Position C (Approx. 0.1-0.2mm), using a controlled feed rate:
(G1 Z[#HOLE_DEPTH + #Z_SAFE] F[#ENGAGE_FEED])

CONTINUOUS CUT

INTERRUPTED CUT

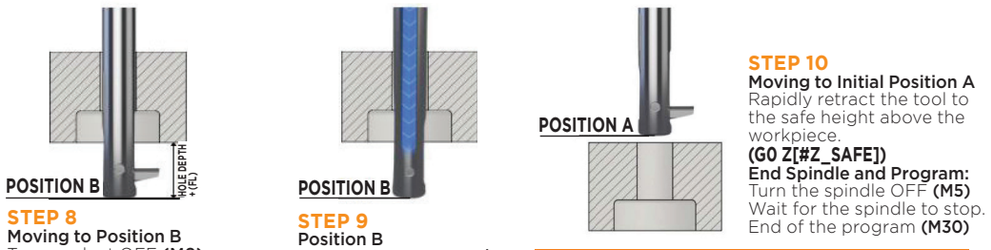


STEP 6A
Moving to Initial Position D
Turn coolant ON **(*M7/M8)**
Move the tool to touch the workpiece with a controlled approach using the defined feed rate.
(G1 Z[#HOLE_DEPTH] F[#ENGAGE_FEED])

STEP 7A
Position E
Machine the counterbore at the defined depth using a defined feed rate of 80 mm/min.
(G1 Z[#HOLE_DEPTH + #SPOT_DEPTH] F80)

STEP 6B
Moving to Initial Position D
Turn external coolant ON **(*M7/M8).** Move the tool to touch the workpiece with a controlled approach using the defined feed rate.
(G1 Z[#HOLE_DEPTH] F[#ENGAGE_FEED])

STEP 7B
Position E
Machine the counterbore at the defined depth using a defined feed rate of 80 mm/min.
(G1 Z[#HOLE_DEPTH + #SPOT_DEPTH] F80)



STEP 8
Moving to Position B
Turn coolant OFF **(M9)** and wait for the coolant to disengage. Retract the tool back to Position B below the workpiece:
(G0 Z[#HOLE_DEPTH + #FL])

STEP 9
Position B
Turn coolant ON **(*M7/M8).** Wait for the coolant to engage for the defined time.
(G4 P[#COOLANT_WAIT])

STEP 10
Moving to Initial Position A
Rapidly retract the tool to the safe height above the workpiece.
(G0 Z[#Z_SAFE])
End Spindle and Program:
Turn the spindle OFF **(M5)**
Wait for the spindle to stop.
End of the program **(M30)**

1. The Folding Length **(FL)** parameter is listed in the tool-holder tables and is the same for both **USPOT** inserts and **UCHAMF** inserts.
2. The illustrated operation sequence above demonstrates working with a **USPOT** insert but remains the same when using a **UCHAMF** insert.
3. ***M7** when using SINUMERIK controller
   M8 when using FANUC controller

Cutting Recommendations – USPOT / UCHAMF System

Based on ISO 513 and VDI 3323 material groups. Start at mid-range. Interrupted cuts: reduce the maximum by 25% / 50% / 65%, never above mid-range. Minimum fz 0.005 mm/t.

MATERIAL GROUP (ISO)	Example Materials	Cutting speeds (Vc)	Feed per Tooth (fz)
P - Steel & Cast Iron	Carbon Steel, Alloy Steel	20-50 m/min (66-164 sfm)	0.02-0.05 mm/t (0.0008-0.0020")
M - Stainless Steel	AISI 304, 316	15-32.5 m/min (49-107 sfm)	0.015-0.045 mm/t (0.0006-0.0018")
K - Cast Iron	Grey or Nodular Iron	30-60 m/min (98-197 sfm)	0.025-0.055 mm/t (0.0010-0.0022")
N - Aluminum & Non-Ferrous	Al 6061, Cu, Brass	70-100 m/min (230-328 sfm)	0.03-0.06 mm/t (0.0012-0.0024")
S - High Temp. Alloys	Inconel, Titanium	15-22.5 m/min (49-74 sfm)	0.015-0.04 mm/t (0.0006-0.0016")
H - Hardened Steel	Up to 50 HRC	6-17.5 m/min (20-57 sfm)	0.005-0.035 mm/t (0.0002-0.0014")

SAFETY NOTICE:

- **Always wear protective glasses and gloves during assembly and operation.**
- **Ensure the machine spindle is stopped before inserting or removing the tool.**
- **Verify proper coolant pressure (min. 6 bar / 90 PSI) before activation.**

For more technical information scan the QR code:

UX0014/C

Stability Correction

CONDITION	FEED ADJUSTMENT
Good Stability	No Reduction
Moderate Stability	-10% Feed
Poor Stability	-30% Feed
Interrupted Cut (Vc & feed)	Light -25% / Medium -50% / Heavy -65%

Configuring UBACK Tool-Holders for Different Coolant Systems



UBACK tool-holders are compatible with air, emulsion, or MQL coolant systems. When using air or MQL as the coolant, close off the back of the tool using the supplied plug screw set.

NOGA MT
MACHINE TOOLS

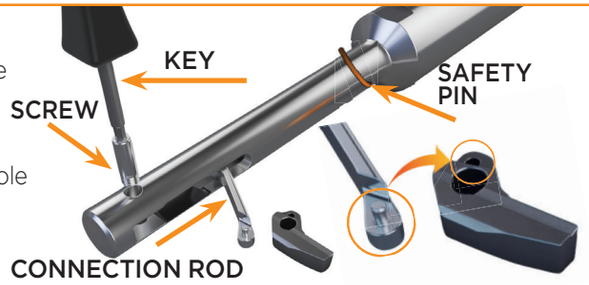
ThINking is INSIDE this BOX!

UBACK TOOL SYSTEM

INITIAL ASSEMBLY & ACTIVATION
A ONE-TIME OPERATION

STEP 1 - ASSEMBLE

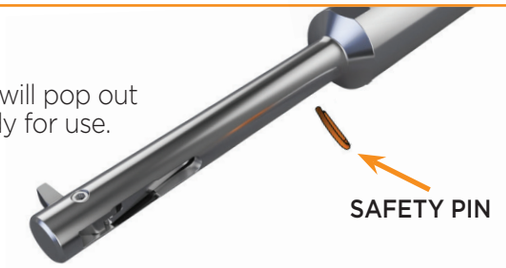
- Loosen the supplied screw on the tool-holder.
- Pull out the connection rod.
- Install the new insert onto the connection rod, aligning the insert hole with the rod's pin.
- Tighten the screw back in place using the supplied screw and key.



STEP 2 - ACTIVATE

- Pull out the safety pin - the insert will pop out automatically, and the tool is now ready for use.

The **STEP 1 & STEP 2** operations should be performed only once before the first use.
For replacing future inserts, refer to **FIGURE 1** opposite.

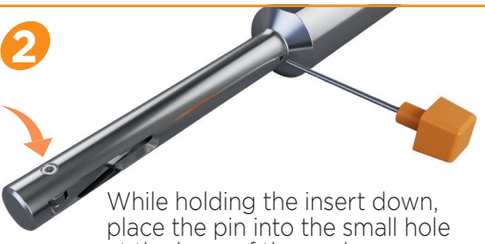


UBACK INSERT REPLACEMENT
FIGURE 1

The illustrated insert replacement demonstrated below is with a USPOT insert and will remain the same when using a UCHAMF insert.



Press the insert down into the holder and hold it in place



While holding the insert down, place the pin into the small hole at the base of the neck.



Loosen the screw and remove it from the tool-holder.



Push the connecting rod along with the wear insert.



Install a new insert, aligning its hole and position it onto the rod's pin.

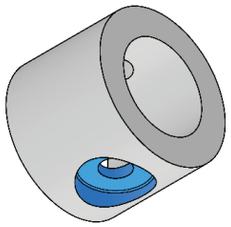


Tighten the screw back in place.

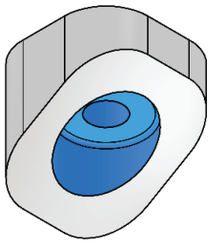


Pull the pin out to release the insert, allowing it to pop out.

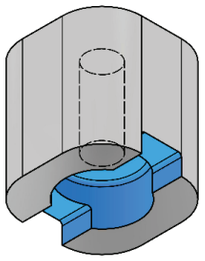
UBACK CUTTING APPLICATIONS & GUIDELINES



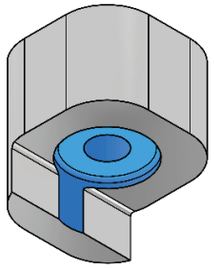
CONTINUOUS CUT
COUNTERBORE ON CYLINDRICAL BORE



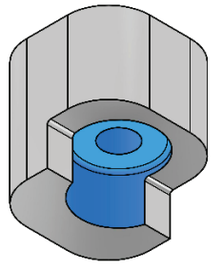
INTERRUPTED CUT
COUNTERBORE ON SLOPED SURFACE
- Use external coolant only.



INTERRUPTED CUT
COUNTERBORE ON SLOT
- Fully Interrupted Cut.
- Use external coolant only.
- Consider reduced stability and adjust cutting parameters by reducing them by 25-65%.



INTERRUPTED CUT
COUNTERBORE ON SHOULDER
- Fully Interrupted Cut.
- Use external coolant only.
- Consider reduced stability and adjust cutting parameters by reducing them by 25-65%.



INTERRUPTED CUT
COUNTERBORE ON SHOULDER
- Fully Interrupted Cut.
- Use external coolant only.
- Consider reduced stability and adjust cutting parameters by reducing them by 25-65%.