

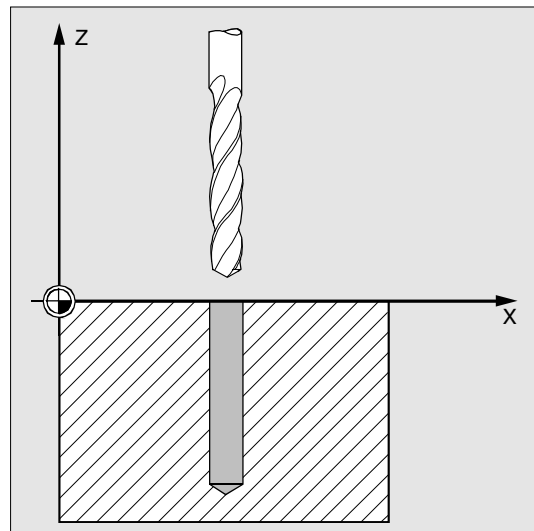
2.1.2 Drilling, centering – CYCLE81**Programming**

CYCLE81 (RTP, RFP, SDIS, DP, DPR)

RTP	real	Retraction plane (absolute)
RFP	real	Reference plane (absolute)
SDIS	real	Safety clearance (enter without sign)
DP	real	Final drilling depth (absolute)
DPR	real	Final drilling depth relative to reference plane (enter without sign)

**Function**

The tool drills at the programmed spindle speed and feedrate to the programmed final drilling depth.

**Sequence of operations****Position reached prior to cycle start:**

The drilling position is the position in the two axes of the selected plane.

The cycle implements the following motion sequence:

Approach of the reference plane brought forward by the safety clearance with G0

- Traverse to final drilling depth with the feedrate (G1) programmed in the calling program
- Retraction to retraction plane with G0



Description of parameters

RFP and RTP (reference plane and retraction plane)

Generally, the reference plane (RFP) and the retraction plane (RTP) have different values. In the cycle it is assumed that the retraction plane lies in front of the reference plane. The distance between the retraction plane and the final drilling depth is therefore greater than the distance between the reference plane and the final drilling depth.

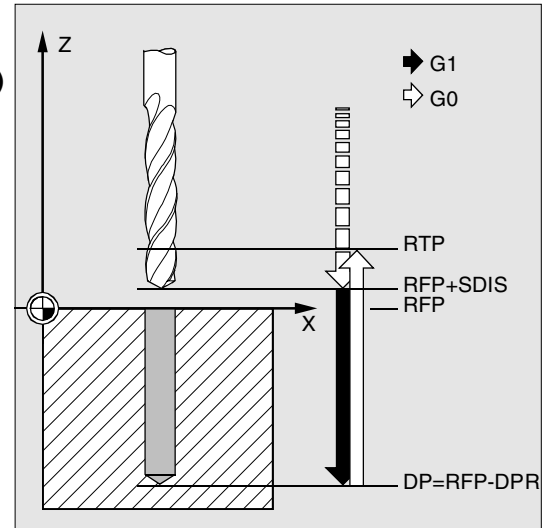
SDIS (safety clearance)

The safety clearance (SDIS) is effective with regard to the reference plane which is brought forward by the safety clearance. The direction in which the safety clearance is active is automatically determined by the cycle.

DP and DPR (final drilling depth)

The final drilling depth can be defined as either absolute (DP) or relative (DPR) to the reference plane.

If it is entered as a relative value, the cycle automatically calculates the correct depth on the basis of the positions of the reference and retraction planes.



Further notes

If a value is entered both for the DP and the DPR, the final drilling depth is derived from the DPR. If the DPR deviates from the absolute depth programmed via the DP, the message "Depth: Corresponds to value for relative depth" is output in the dialog line.

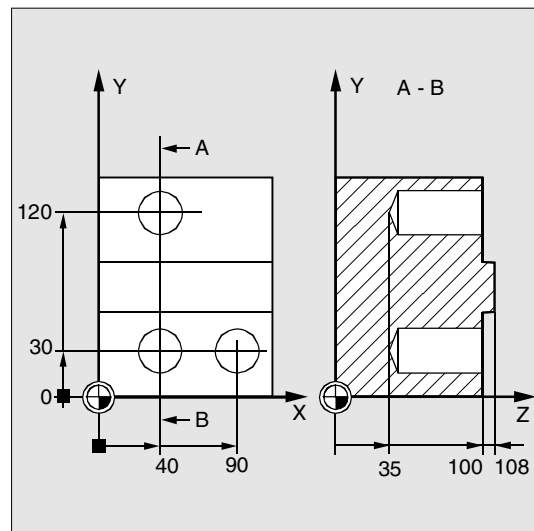
If the values for the reference plane and the retraction plane are identical, a relative depth must not be programmed. The error message 61101 "Reference plane incorrectly defined" is output and the cycle is not executed. This error message is also output if the retraction plane lies behind the reference plane, i.e. the distance to the final drilling depth is smaller.



Programming example

Drilling_centering

You can use this program to make 3 holes using the drilling cycle CYCLE81, whereby this cycle is called with different parameter settings. The drilling axis is always the Z axis.



N10 G0 G90 F200 S300 M3	Specification of technology values
N20 D3 T3 Z110	Traverse to retraction plane
N30 X40 Y120	Traverse to first drilling position
N40 CYCLE81 (110, 100, 2, 35)	Cycle call with absolute final drilling depth, safety clearance and incomplete parameter list
N50 Y30	Traverse to next drilling position
N60 CYCLE81 (110, 102, , 35)	Cycle call without safety clearance
N70 G0 G90 F180 S300 M03	Specification of technology values
N80 X90	Approach next position
N90 CYCLE81 (110, 100, 2, , 65)	Cycle call with relative final drilling depth and safety clearance
N100 M30	End of program