

### 3.8 Milling circular pockets - POCKET2



#### Programming

POCKET2 (RTP, RFP, SDIS, DP, DPR, PRAD, CPA, CPO, FFD, FFP1, MID, CDIR, FAL, VARI, MIDF, FFP2, SSF)



#### Parameters

RTP	real	Retraction plane (absolute)
RFP	real	Reference plane (absolute)
SDIS	real	Safety clearance (enter without sign)
DP	real	Pocket depth (absolute)
DPR	real	Pocket depth relative to the reference plane (enter without sign)
PRAD	real	Pocket radius (enter without sign)
CPA	real	Pocket center point, abscissa (absolute)
CPO	real	Pocket center point, ordinate (absolute)
FFD	real	Feedrate for depth infeed
FFP1	real	Feedrate for surface machining
MID	real	Maximum infeed depth for infeed (enter without sign)
CDIR	int	Milling direction for machining the pocket Value: 2 (for G2) 3 (for G3)
FAL	real	Final machining allowance on pocket edge (enter without sign)
VARI	int	Type of machining Value: 0=Complete machining 1=Roughing 2=Finishing
MIDF	real	Maximum infeed depth for finishing
FFP2	real	Feedrate for finishing
SSF	real	Speed for finishing



*The cycle requires a milling cutter with an "end tooth cutting over center" (DIN 844).*

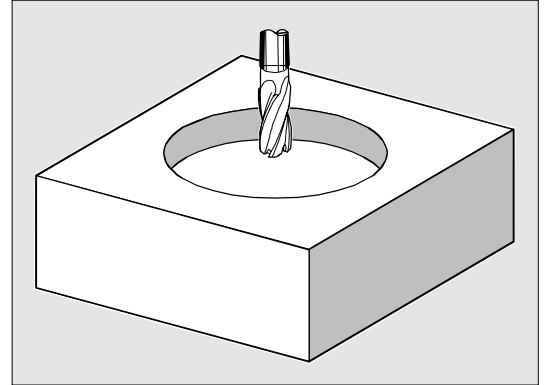


The pocket milling cycle POCKET4 can be performed with any tool.



### Function

The cycle is a combined roughing-finishing cycle. With this cycle you can machine circular pockets in the machining plane.



### Sequence of operations

#### Position reached prior to cycle start:

This can be any position from which the starting position on the center point of the pocket at the retraction plane level can be approached without collision.

#### The cycle implements the following motion sequence:

- With G0, the pocket center point is approached at the retraction plane level and then, from this position, with G0 the reference plane brought forward by the safety clearance is approached. Complete machining of the pocket is performed in the following stages:
  - Infeed perpendicular to the pocket center to the next machining depth with feedrate FFD.
  - Pocket milling up to the final machining allowance with feedrate FFP1 and the spindle speed that was active before the cycle was called.
- After roughing is completed:
  - Infeed to the next machining depth defined by MIDF.
  - Final machining along the contour with feedrate FFP2 and speed SSF.
  - The machining direction is defined by CDIR.
- When machining is completed the tool is traversed to the pocket center point in the retraction plane and the cycle is terminated.



### Description of parameters



See Section 2.1.2. (Drilling, Centering – CYCLE81) for a description of parameters RTP, RFP, SDIS.

See Section 3.7 for a description of parameters DP, DPR.



See Section 3.5 (SLOT1) for a description of parameters FFD, FFP1, MID, CDIR, FAL, VARI, MIDF, FFP2, SSF.

See Section 3.2 for cycle setting data \_ZSD[1].

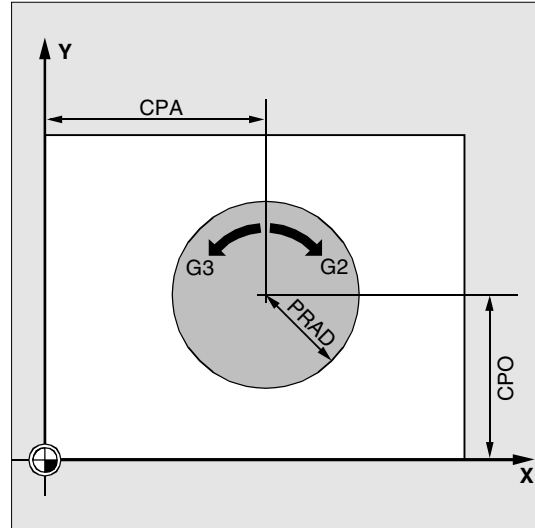
#### PRAD (pocket radius)

The shape of the circular pocket is determined by the radius only.

If the radius is less than the tool radius of the active tool, the cycle is aborted after alarm 61105 "Milling cutter radius too large" is output.

#### CPA, CPO (pocket center point)

With parameters CPA and CPO you define the center point of the circular pocket in the abscissa and ordinate.



### Further notes

A tool offset must be activated before the cycle is called. Otherwise the cycle is aborted and alarm 61000 "No tool offset active" is output.

The depth infeed is always made in the pocket center point. It can be useful to drill there beforehand.

A new workpiece coordinate system that influences the actual value display is used in the cycle. The zero point of this coordinate system lies on the pocket center point.

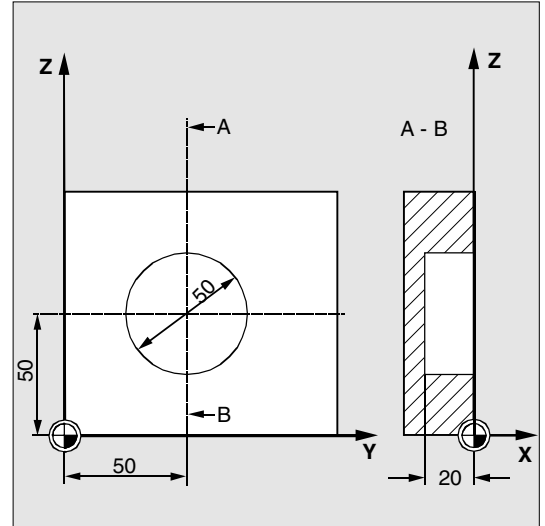
The original coordinate system becomes active again after the end of the cycle.



### Programming example

#### Circular pocket

With this program you can machine a circular pocket in the YZ plane. The center point is defined by Y50 Z50. The infeed axis for the depth infeed is the X axis, the pocket depth is entered as an absolute value. Neither a final machining allowance nor a safety clearance is defined.



```
DEF REAL RTP=3, RFP=0, DP=-20, ->
-> PRAD=25, FFD=100, FFP1, MID=6
N10 FFP1=FFD*2
```

Definition of variables with value assignment

```
N20 G19 G90 G0 S650 M3 T20 D20
```

Specification of technology values

```
N30 Y50 Z50
```

Approach starting position

```
N40 POCKET2 (RTP, RFP, , DP, , PRAD, ->
-> 50, 50, FFD, FFP1, MID, 3, )
```

Cycle call  
Parameters FAL, VARI, MIDF, FFP2, SSF are omitted

```
N50 M30
```

End of program

-> Must be programmed in a single block