VARDEX Tips 13

Tip 1 — *In circular movement, the feed at the center of the tool (F_2) is smaller than the feed at the cutting edge (F_1)*

If the incorrect feed is used while working in a circular movement, one of these problems is likely to occur:
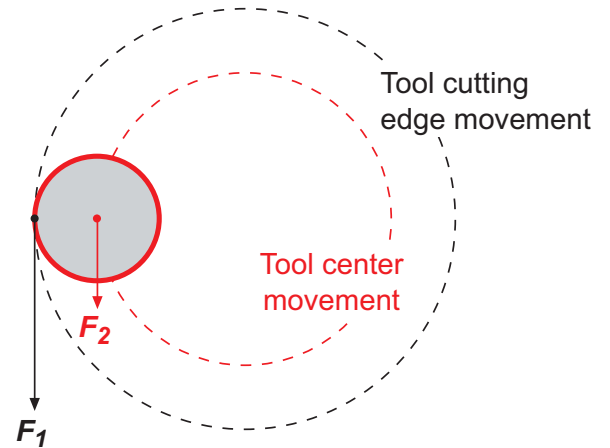
Example: M6 × 1
Tool cutting diameter = 4.8 mm
F_1 = 238(mm/min)
F_2 = 47(mm/min)

- Working too slow - leads to increased machining time (in this example, 5 times longer) and shorter tool life

- Working too fast - a high load on the insert will reduce tool life significantly

Tool cutting edge movement

Tool center movement

F_2

F_1

Tip 2 — *Some controllers refer to the feed at the center (F_2) and some to the feed at the cutting edge (F_1)*

- In the CNC program, the command "F" defines the tool feed (mm/min, inch/min)

- It is difficult to determine in advance whether the "F" command in the CNC program refers to the tool center or to the cutting edge
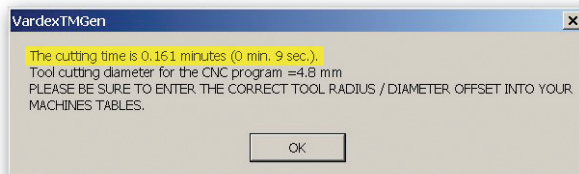
CAUTION!

- Often, the machine operator is unaware of the feed differences between the tool center and the tool cutting edge
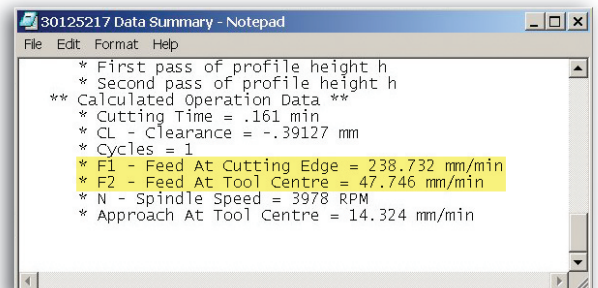
Tip 3 — *Find out how the machine controller refers to the "F" command*

- The machining time calculated by the VARDEX TM Gen is based on the feed at the tool center (F_2)

VardexTMGen

The cutting time is 0.161 minutes (0 min. 9 sec.).
Tool cutting diameter for the CNC program =4.8 mm
PLEASE BE SURE TO ENTER THE CORRECT TOOL RADIUS / DIAMETER OFFSET INTO YOUR MACHINES TABLES.

OK

- If the actual machining time is substantially different than that calculated by the TM Gen, your controller is moving according to the <u>feed</u> on the cutting edge (F_1). Switch to the F_1 value

- The VARDEX TM Gen calculates both F_1 and F_2, eliminating the need to manually calculate them

- F_1 and F_2 are stored in the data summary page:


```
30125217 Data Summary - Notepad
File  Edit  Format  Help
   * First pass of profile height h
   * Second pass of profile height h
 ** Calculated Operation Data **
   * Cutting Time = .161 min
   * CL - Clearance = -.39127 mm
   * Cycles = 1
   * F1 - Feed At Cutting Edge = 238.732 mm/min
   * F2 - Feed At Tool Centre = 47.746 mm/min
   * N - Spindle Speed = 3978 RPM
   * Approach At Tool Centre = 14.324 mm/min
```

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