

## Threading Q+A

➔ Answers to questions:

1. **PITCH** ... is the distance between corresponding points of two adjacent threads
2. **LEAD** ... is the linear distance for a thread turn of 360°
3. The three G-codes used for threading are: **G32** **G92** **G76**
4. (d) **G97** (direct r/min designation - no surface speed used !)
5. **K** is the single depth of the thread  
**D** is the depth of first threading pass (normally without a decimal point)  
**F** is the threading feedrate in **ipr** or **mm/rev**  
**X** is the last diameter of the thread  
**A** is the included angle of the threading tool
6. The threading feedrate is always equivalent to the **LEAD** of the thread, never its pitch. However, lead amount is the same as the pitch amount for single start threads only.
7. (b) Feedrate per revolution (ipr **or** mm/rev)
8. (a)  $0.61343/18 = 0.0341$  Reverse formula  $0.61343 \times 0.0556$  uses pitch rather than TPI  
 (b)  $0.54127 \times 1.5 = 0.812$  Metric threads use pitch designation only  
 (c)  $0.61343 \times 0.25/2 = 0.0767$  Lead of 0.25 for two starts is equivalent to pitch of 0.125 or 8 TPI
9. **P** is the single depth of the thread (no decimal point)  
**R** is the fixed amount for finish allowance  
**Q** is the depth of the first threading pass (no decimal point)  
**R** is the radial difference between thread endpoints (R0 for straight threads)  
**P...xx** is the included angle of the threading tool
10. The actual contents may be slightly different, but the program should resemble the following example:

```

N38 T5000
N39 G97 S850 M03
N40 G00 X... Z... T0505 M08                                (THREAD START POSITION)
N41 G76 X16.936 Z-29.0 I0 K1.534 D380 F2.5 A60 P1
N42 G00 X100.0 Z100.0 T0500
N43 M01 (CHECK THREAD)

```

The depth **K** set to 1.534 was calculated by using the standard formula:  $0.61343 \times 2.5 = 1.534$

Solution for the challenge - two-block input: - some data have no equivalent in the one-block input::

```

N38 T5000
N39 G97 S850 M03
N40 G00 X... Z... T0505 M08                                (THREAD START POSITION)
N41 G76 P011060 Q075 R0.02
N42 G76 X16.936 Z-29.0 R0 P1534 Q380 F2.5
N43 G00 X100.0 Z100.0 T0500
N44 M01 (CHECK THREAD)

```