

Setting Tool Offsets

DynaPath WinDelta CNC Lathe Control · Operator Quick Guide

Each tool needs X and Z offsets before running a program. Programs call a tool and its offset together with a four-digit T-code: **T0305** = tool station 3, offset row 5. [4.11, 9.1, 13.3]

The tool offset table — MODE → 5 TOOL OFFSET Manual 9.1

NO.	X	Z	R	T	
001	0.0000	0.0000	0.0200	0.0000	SET
002	0.7207	0.0154	0.0200	0.0000	MEASURE
003	0.3011	0.0104	0.0010	0.0000	
004	0.0090	-0.1994	0.1190	0.0000	
005	0.0000	0.0000	0.2000	0.0000	CALL TOOL
006	-12.8974	0.0000	0.0197	0.0000	
007	-12.4052	0.0000	0.0000	0.0000	
008	0.0000	0.0000	0.0157	0.0000	
009	0.0000	0.0000	0.0000	0.0000	
010	0.0000	0.0000	0.0315	0.0000	RESET
MESSAGE					
	PgDn	JOG	MPG	ATC TABLE	BACK

TOOL OFFSET table: X, Z, R and T columns [Fig. 9.1-1]

Column	Holds
X / Z	Tool tip offset from the reference (machine zero or reference tool)
R	Tool nose radius, used by G41 / G42 nose radius compensation
T	Tip direction (orientation number 0–8, see below)
TOOL WEAR table	X / Z wear corrections, added to the offset. Set to zero for a new tool [9.2]

Pick a method Manual 9.1

Method	How it works	Best for
1 Machine zero	Work offset left at zero; each tool's full offset measured from machine zero. A new part size means re-measuring every tool (or using the external offset).	Simple jobs, few tools
2 Reference tool	Reference tool sets the work offset; every other tool is measured against it. A new part only needs the reference tool re-set.	Many tools, off-machine tool setters
3 Mixed (most efficient)	X offsets from machine zero (part zero X is the spindle centre); Z offsets against the reference tool, which sets work offset Z once.	Most everyday work

NOTE Use a reference tool that doesn't change or wear, e.g. one used only to square the part. The accuracy of Methods 2 and 3 depends on it.

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Measure tools — TOOL OFFSET → MEASURE Manual 9.1.1

MEM			MAIN		inch	
NO.	X	Z	MACHINE	RELATIVE		
001	0.0000	0.0000	X -12.7280	-12.7280	SET	
002	0.7207	0.0154	Z -16.4805	-16.4805	EXIT	
003	0.3011	0.0104	C 0.000	0.000	MEASURE	
004	0.0090	-0.1994	Y		CALL	
005	0.0000	0.0000	TOOL: 1	ZERO X REL	TOOL	
006	-12.8974	0.0000	X MEAS: 3.0000	ZERO Z REL	RESET	
007	-12.4052	0.0000	Z MEAS: 0.0000			
008	0.0000	0.0000	OFFSET	WEAR		
009	0.0000	0.0000	MACHINE	RELATIVE		
010	0.0000	0.0000	SET X POS	SET X POS		
			SET Z POS	SET Z POS		
MESSAGE						
PgDn			JOG	MPG	ATC TABLE	BACK

MEASURE window: X/Z MEAS, ZERO X/Z REL and SET X/Z POS [Fig. 9.1-2]

Method 1 – against machine zero

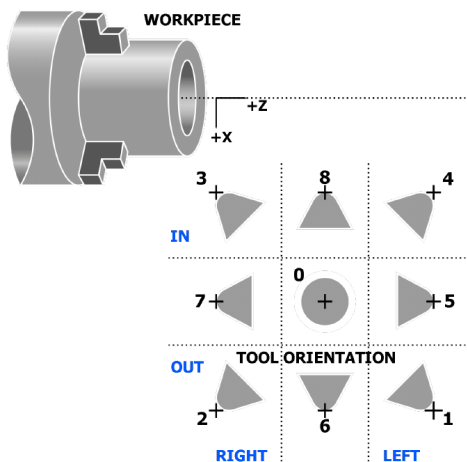
- 1 Select the tool number.
- 2 Touch the tool on a turned diameter. Enter the measured diameter in **X MEAS**, press **MACHINE SET X POS**.
- 3 Touch the tool on a Z reference face. Enter its position in **Z MEAS**, press **MACHINE SET Z POS**.
- 4 Repeat for each tool.

Method 2 – against a reference tool

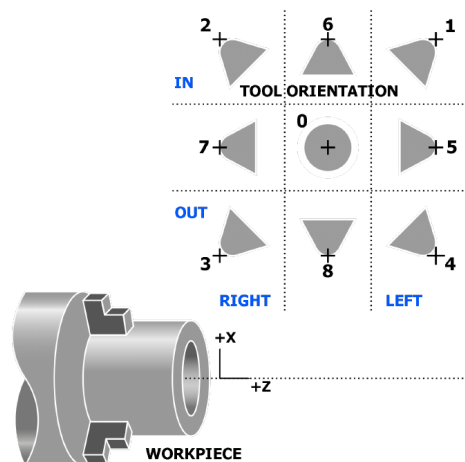
- 1 With the reference tool, touch a Z face and press **ZERO Z REL**; touch a diameter and press **ZERO X REL**.
- 2 Enter that diameter in **X MEAS** (and any Z face offset in **Z MEAS**).
- 3 Highlight the next tool and change to it (**CALL TOOL**).
- 4 Touch the same diameter and press **RELATIVE SET X POS**; touch the same face and press **RELATIVE SET Z POS**.
- 5 Repeat steps 3–4 for each tool.

Tool tip orientation (T column) Manual 9.1.2

Pick the number that matches the tip direction. Check whether your turret is in front of the spindle (towards the operator) or behind it, as the numbers differ.



Front tool post [Fig. 9.1-3]



Back tool post [Fig. 9.1-4]