5.4.2 Reading a Tool Offset (High-speed Response)

A tool offset value recorded in the CNC can be read.
Wear offset data, geometric offset data, cutter compensation data, and tool length offset data can be read as a tool offset.

Input data structure

Top Address +0	(Function code) 13
+2	(Completion code) - (Need not to be set)
+4	(Data length L) - (Need not to be set)
+6	(Data number N) Offset number
+8	(Data attribute M) Offset type
+10 +41	(Data area) - (Need not to be set)

(a) Offset types (for machining centers)

	Cutter	Tool length
Wear	0	2
Geometric	1	3

If the type of tool offset need not be specified, enter 0.

(b) Offset types (for lathes)

	X axis	Z axis	Tool tip R	Virtual tool tip	Y axis	B axis (Reserved)
Wear	0	2	4	6	8	10
Geometric	1	3	5	7	9	11
2nd Geometric	12	13			14	

(c) Offset types (for machining centers with the Tool offset for Milling and Turning function)

	X axis	Z axis	Tool tip R	Virtual tool tip	Y axis	Corner R
Wear	1010	1012	1015	1019	1018	1024
Geometric	1009	1011	1014		1017	1023

Completion codes

0 The tool offset has been read normally.
3 The offset number specified for reading is invalid. (This completion code is returned when the specified offset number data is not from 1 to the maximum number of offsets.)
4 There are mistakes in the data attribute that specifies the type of the offset to be read. (Some wrong offset types do not result this completion code.)

Output data structure

Top Address +0	(Function code) 13	
+2	(Completion code) ? (See above description)	
+4	(Data length L) 4	
+6	(Data number N) Offset number (Same as input data)	
+8	(Data attribute M) Offset type (Same as input data)	
+10	Tool offset value	Signed binary (A negative value is represented in 2's complement.)
+13	(4bytes)	Upper 3 bytes are always "0" for virtual tool tip.

Output data unit

		Input system	Increment system				
			IS-A	IS-B	IS-C	IS-D	IS-E
Machining center system		mm, deg	0.01	0.001	0.0001	0.00001	0.000001
		inch	0.001	0.0001	0.00001	0.000001	0.0000001
Lathe system	Radius specification	mm, deg	0.01	0.001	0.0001	0.00001	0.000001
	Diameter specification		0.01	0.001	0.0001	0.00001	0.000001
	Radius specification	inch	0.001	0.0001	0.00001	0.000001	0.0000001
	Diameter specification		0.001	0.0001	0.00001	0.000001	0.0000001