2.9.25 WORK COORDINATE SYSTEM SETTING (G52 to G59) †

Six types of work coordinate systems corresponding to six G codes, G54 through G59, are available for selective use.

· There are three types of coordinate systems as follows.

A. Basic coordinate system

This is the basic coordinate system to be set up by G92, by the ORIGIN key, or by the automatic coordinate system setting function. When the power supply is turned on, until any of these actions will be made, the tool position at the time of turning on is treated as the temporary coordinate origin point.

B. Work coordinate system

When any of the G codes G54 through G59 is commanded, a coordinate system with the origin shifted by the amount set by the setting numbers corresponding to that G code is set up. The coordinate systems set up by these G codes are referred to as work coordinate systems, and when once a work coordinate system is set up, the tool will be controlled to it. Since there are six G codes for work coordinate systems, up to six work coordinate systems can be used.

C. Machine coordinate system

This is a coordinate system which is fixed to the machine, and is set up when the tool is returned to the reference point. This coordinate system has its (0, 0, 0) point at the reference point.

· The setting number for setting the shift amounts for G codes from G54 to G59 are as follows.

G code	Coordinate system	X	Y	Z	α
G54	Work coordinate system 1	#6516	#6517	#6518	#6519
G55	Work coordinate system 2	#6522	#6523	#6524	#6525
G56	Work coordinate system 3	#6528	#6529	#6530	#6531
G57	Work coordinate system 4	#6534	#6535	#6536	#6537
G58	Work coordinate system 5	#6540	#6541	#6542	#6543
G59	Work coordinate system 6	#6546	#6547	#6548	#6549

· Setting up work coordinate systems (G54 to G59)

G54 (G55, G56, G57, G58 or G59);

When this command is once given, from that time on, the tool will be controlled on the work coordinate system specified by it.

· Returning to basic coordinate system (G52)

G52 ;

With this command, the currently effective work coordinate system is cancelled, and the basic coordinate system becomes effective again. (Fig. 2.9.25.1)

· Temporary shift to positions on machine coordinate system

(G90) G53 G00 X··· Y··· Z··· ;

With this command, the tool is shifted to the position (X, Y, Z) on the machine coordinate system only in this block. G53 is a non-modal G code.

EXAMPLE

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N1 G90 X100 Y200 ;
N2 G54 ;
N3 X100 Y300 ;
N4 X300 Y200 ;
N5 G52 ;
N6 X0 Y0 ;
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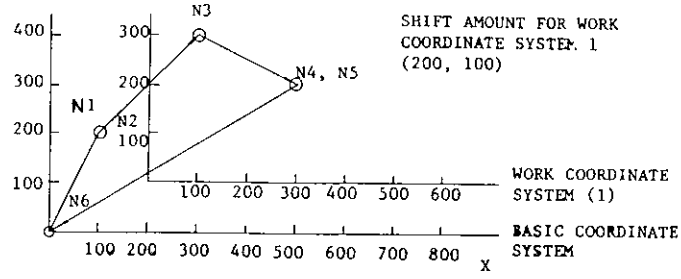

Fig. 2.73