2.4.5 FEED PER REVOLUTION+

When a spindle pulse generator is installed+, the feedrate per revolution function can be used, and a new G code will be used for this function. Before F function for feedrate per revolution is given, G code of F group shown below must be designated. When the power supply is switched on, G94 is in effect.

G code of 05 group	Function
G94	Feed per minute (mm/min) designation
G95	Feed per revolution (mm/rev) designation

Since F code is modal, the code is effective until the next F code is given. However, when G94/G95 are switched over, F code must be designated again.

After the designation of G95, the feedrate-of-tool per spindle-revolution can be given by 4 digits following F. The command range of the F code is as follows.

Table 2.17

		Format	Feedrate (Feed/min) range
Metric output	Metric input	F22	F0.01 - F99.99 mm/rev
	Inch input	F13	F0.001 - F3.936 in./rev
Inch output	Metric input	F22	F0.01 - F99.99 mm/rev
	Inch input	F13	F0.001 - F3.936 in./rev

1/10 of minimum unit of F code programmable range can be programmed by setting the contents of parameter #6020D2,D3 to 1. See Table 2.18.

Table 2.18

		Format	Feedrate (Feed/min) range
Metric output	Metric input	F23	F0.001 - F99.999 mm/rev
	Inch input	F14	F0.0001 - F3.9366 in./rev
Inch output	Metric input	F23	F0.001 - F99.999 mm/rev
	Inch input	F14	F0.0001 - F3.9366 in./rev

However, the programming of feedrate is restricted by the spindle speed (S) as shown below.

$$F \times S \leq \text{Feedrate upper limit value or clamp value}$$

(mm/rev or in./rev) (rpm) (mm/min)

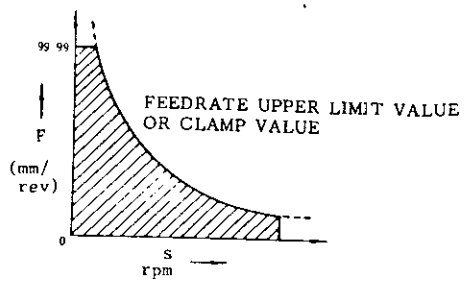

Fig. 2.4 Restriction of Feedrate (F) and Spindle Speed (S)

2.4.6 AUTOMATIC ACCELERATION AND DECELERATION

Acceleration and deceleration for rapid traverse and cutting feed are automatically performed.

2.4.6.1 ACCELERATION AND DECELERATION OF RAPID TRAVERSE AND MANUAL FEED

In the following operation, the pattern of automatic acceleration and deceleration is linear.

- Positioning (G00)
- Manual rapid traverse (RAPID)
- Manual continuous feeding (JOG)
- Manual HANDLE feeding (HANDLE)

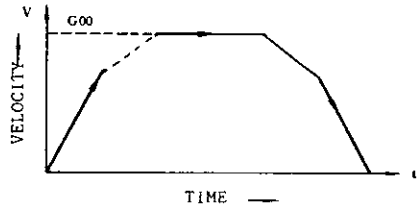

Fig. 2.5

Rapid traverse rate and acceleration/deceleration constant of rapid traverse rate can be set by parameter. (#6280 to #6301)

2.4.6.2 ACCELERATION/DECELERATION OF FEEDRATE

- Automatic acceleration and deceleration of feed motion (G01 - G03) are in the exponential mode.

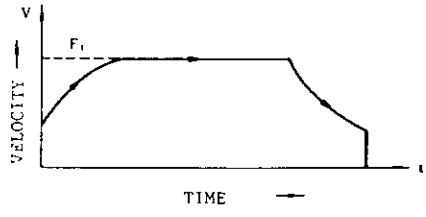

Fig. 2.6 Exponential acceleration deceleration

- Feedrate time constants are set at 4 msec intervals and feedrate bias is set at 2kpps intervals by parameters. (#6092, #6093)

Note:

The automatic acceleration/deceleration parameters are set to the optimum values for the respective machines. Do not change the setting unless this is required for special purposes.