

9.3. Studying the Axial Clearance

The axial clearance is not a factor of positioning accuracy in single-directional feed. However, it will cause backlash when the feed direction is inversed or the axial load is inversed. Select an axial clearance that meets the required backlash from tables 9 and 11 on page K-31.

Table 1 Examples of Selecting Accuracy Grades by Application

| Application | | NC machine tools | | | | | | | | | | | | | | | | | | |
|----------------|-----|------------------|---|------------------|---|------------------|---|-----------|---|-----------------|---|---|------------------|---|----------------------------|---|---|---|----|----------------|
| | | Lathe | | Machining center | | Drilling machine | | Jig borer | | Surface grinder | | | Cylinder grinder | | Electric discharge machine | | Electric discharge machine Wire cutting | | | Punching press |
| Axis | | X | Z | XY | Z | XY | Z | XY | Z | X | Y | Z | X | Z | XY | Z | XY | Z | UV | XY |
| Accuracy grade | C0 | | | | | | | ○ | ○ | | | | ○ | | ○ | | ○ | ○ | | |
| | C1 | ○ | | | | | | ○ | ○ | | | | ○ | ○ | ○ | ○ | ○ | ○ | | |
| | C2 | ○ | | | ○ | ○ | | | | | ○ | ○ | ○ | | ○ | ○ | ○ | ○ | ○ | |
| | C3 | ○ | ○ | | ○ | ○ | ○ | | | | ○ | ○ | ○ | | ○ | | ○ | | ○ | ○ |
| | C5 | ○ | ○ | | ○ | ○ | ○ | ○ | | | ○ | ○ | ○ | | | ○ | | | | ○ |
| | C7 | | | | | | | ○ | | | | | | | | | | | | ○ |
| | C8 | | | | | | | | | | | | | | | | | | | |
| | C10 | | | | | | | | | | | | | | | | | | | |

| Application | | NC machine tools | | | General-purpose machine; dedicated machine | Industrial robots | | | | Semiconductor related machines | | | | | | 3D measuring instrument | Image processing machine | Injection molding machine | Office equipment |
|----------------|-----|--------------------------|---|----------------------|---|----------------------|-------|---------------------------|-------|--------------------------------|--------------------------|----------------------------|-------------|--------|--------------------------------|-------------------------|--------------------------|---------------------------|------------------|
| | | Laser processing machine | | Wood working machine | | Cartesian coordinate | | Vertical articulated type | | Cylindrical coordinate | Photolithography machine | Chemical treatment machine | Wire bonder | Prober | Printed board drilling machine | | | | |
| Axis | | X | Z | | | Assembly | Other | Assembly | Other | | | | | | | | | | |
| Accuracy grade | C0 | | | | | | | | | | | ○ | | | | ○ | | | |
| | C1 | | | | | | | | | | | ○ | | | | ○ | ○ | | |
| | C2 | | | | | | | | | | | | ○ | | ○ | ○ | ○ | | |
| | C3 | ○ | ○ | ○ | | ○ | ○ | | | | ○ | | | ○ | ○ | ○ | ○ | | |
| | C5 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | | ○ | | ○ | ○ | ○ | ○ | |
| | C7 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | | ○ | | | ○ | ○ | | ○ | |
| | C8 | | | | ○ | ○ | ○ | ○ | ○ | | | | ○ | | | | | ○ | |
| | C10 | | | ○ | ○ | | ○ | | | | | | ○ | | | | | ○ | |