



BALL DRIVE SYSTEM



ZERO BACKLASH



NO REVERSAL ERROR



HIGH ACCURACY MACHINING



ZERO MAINTENANCE



INDEX SPEEDS UP TO 138.9 RPM

THE TSUDAKOMA DUAL LEAD GEARING SYSTEM

THE TSUDAKOMA DUAL LEAD GEARING SYSTEM DELIVERS THE OPTIMUM BALANCE BETWEEN POWER, DURABILITY, AND SMOOTH CUTTING PERFORMANCE.

Tsudakoma's
Proprietary
Dual Lead
Worm Gearing
System with Full
Depth Gear Tooth
Engagement



TORQUE TRANSFER EFFICIENCY

The Tsudakoma dual lead gearing system features the largest tooth engagement of any rotary table manufacturer. **This system generates up to 85% torque transfer efficiency.**

GEARING MATERIALS

PROPRIETARY HIGH TENSILE STRENGTH BRASS

Worm Wheel Material	Tensile Strength (N/mm ²)	Elongation (%)	Hardness (HB)
Bronze	245	15	70
Phosphor Bronze	295	5	80
Aluminum Bronze	490	20	120
Tsudakoma Proprietary Brass	650	15	170
Worm Spindle	Case hardened alloy steel		

Tsudakoma's dual lead gearing system features exceptionally smooth cutting due to the inherent lubricating properties of the gear materials.



TOOTH PROFILE

Tsudakoma utilizes full tooth depth engagement along with a larger gear module. The results are a larger surface contact area yielding a substantially stronger worm gear system.

Conventional tooth profile



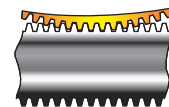
Tsudakoma tooth profile



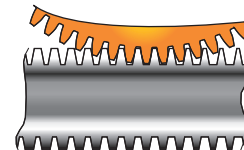
OVERSIZE WORM WHEEL

The Tsudakoma worm wheel uses an oversize diameter pitch circle resulting in reduced pressure on the contact surface compared to a conventional gearing system.

Conventional gearing



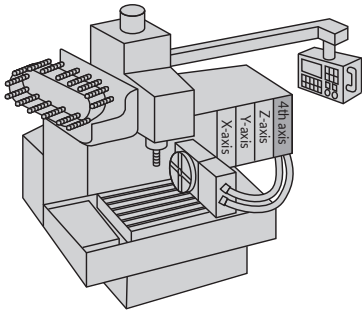
Tsudakoma gearing



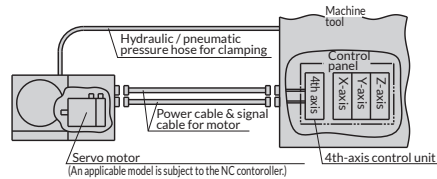
ROTARY TABLE SELECTION

1. Determine the controller system that will drive the rotary table.

Control System #1: A 4th axis (or 5th axis) feature is installed in the machine tool control.



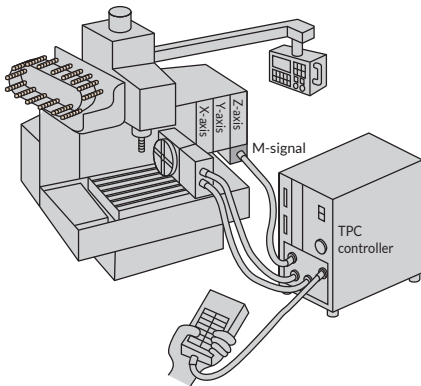
Structure



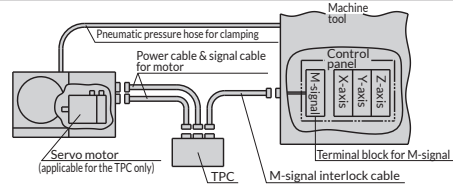
Features

- Simultaneous and continuous contour cutting in the X, Y, and Z-axes is possible subject to the capabilities of the machine tool control.
- Rotary table programming is input at the machine tool control.

Control System #2: (1) or (2) Tsudakoma TPC single axis NC controllers are used (M-signal sent from the machine tool).



Structure

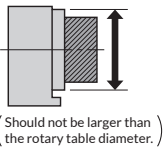


Features

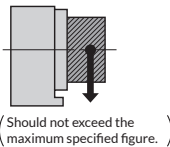
- If the machine tool control does not have 4th axis capabilities, but an M-signal is available, a TPC controller can be used to control the rotary table.
- This control system is only for indexing.
- Rotary table programming should be input directly into the TPC. At the machine tool an M-signal is indexed and input as a start command.

2. Select a rotary table by determining the workpiece parameters and the machining operations to be performed.

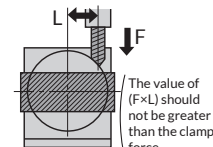
• Workpiece diameter



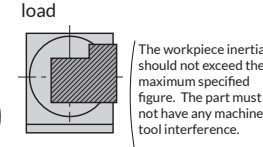
• Workpiece weight



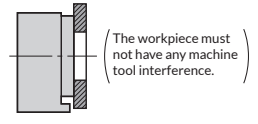
• Workpiece positioning



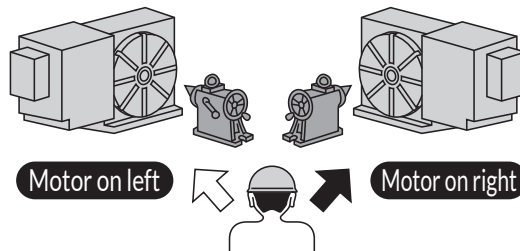
• Workpiece with eccentric load



• Workpiece of larger diameter, but lighter weight

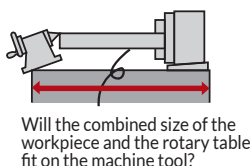
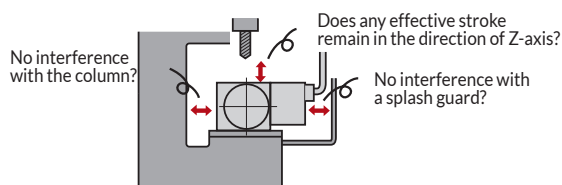


3. Determine the motor location on the rotary table.



Pay careful attention to any interference with the ATC automatic tool changer and also easy operation before determining the setting direction.

4. Ensure there is no rotary table / workpiece / machine tool interference.



- No interference with the ATC?
- Does the combined weight of the workpiece & rotary table remain within the allowable load for the machine tool?

ROTARY TABLE SELECTION FORM

☐ Dealer Company: _____☐ End User Company: _____

Contact: _____

Contact: _____

Address: _____

Address: _____

City: _____ State: _____ Zip Code: _____

City: _____ State: _____ Zip Code: _____

E-mail: _____

E-mail: _____

Phone #: _____ Cell #: _____

Phone #: _____ Cell #: _____

1. Machine Tool: Manufacturer: _____ Model _____

☐ New☐ Existing

NC Controller Make: _____ NC Controller Model: _____

2. Workpiece: Description _____ Material _____ Weight _____

Dimensions:

1.) A: _____ 2.) A: _____ 3.) G: _____

B: _____ B: _____ H: _____

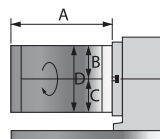
C: _____ C: _____ I: _____

D: _____ D: _____ J: _____

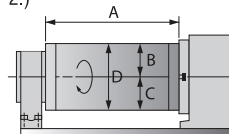
K: _____

Example:

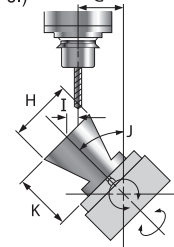
1.)



2.)



3.)



3. Cutting Conditions

Application: ☐ Mill ☐ Drill

Cutter Size (number of teeth)	Cutting Speed (sfm)	Cutting Feed Rate	Cutting Depth (1 pass)	Cutting Process (indexing or continuous cutting)

Description of
Application: