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www.tjr.com.tw

## Product Code

**RC - 170 - H - R - T**

Code No. of

Transmission Mechanism Type

RC : Roller Gear Cam

AR : Worm & Worm Gear

Diamentor of  
the rotary table  
face plate (mm)

Alternative  
Hydraulic  
Brake

Refer to page2 Table3

Motor mounting  
location

Refer to page2 Table2

**R** Right Mount

**L** Left Mount

**B** Back Mount

Transmission  
Mechanisms

Material

Refer to page1 Table1

**T** Taiwan-made

**J** Japan-made

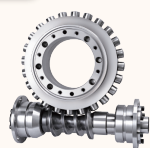


AR-125 ▲

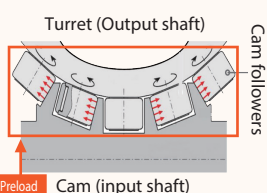


▲ RC-170

## RC Series



Roller Gear Cam

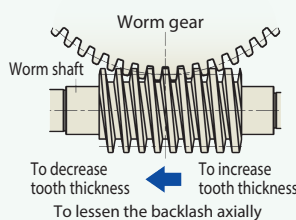


It consists of an input shaft and output turret with embedded roller followers. A cross-roller bearing supports the output turret with minimal run out and transmits power by rolling rather than sliding. Preloaded roller followers contact the input rib surfaces with a wedge-shaped cross section. It can be adjusted by moving the input axis, eliminating backlash completely. Clearly seen for CW and CCW rotation.

## AR Series



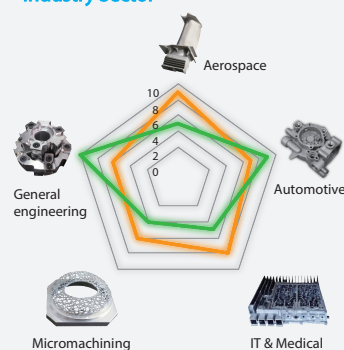
Worm & Worm Gear



Specially designed double-lead worm & gear with full-depth teeth. The worm gear with a large pitch diameter creates a large engagement area and less pressure on the contact surface, resulting in higher strength. By moving the worm shaft axially, the tooth engagement can be changed successively. As the backlash between worm and gear can be adjusted while keeping them in their proper positions, the ideal tooth engagement is maintained.

## The sales of different models by major industry sector

### Industry Sector



### Transmission Mechanisms

Roller Gear Cam

Worm & Worm Gear

RC

AR

| Model | Ø125mm | AR-125-T | -        | -        |
|-------|--------|----------|----------|----------|
|       | Ø170mm | AR-170-T | AR-170-J | RC-170-T |

| Transmission Mechanism             | Worm & Worm Gear                                                                                                     |                                                                                      | Roller Gear Cam                                                                                                                            |
|------------------------------------|----------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------|
|                                    |                                   |  |                                                       |
| Material                           | <b>T</b> Taiwan Made<br>Worm wheel : Aluminum Bronze<br>Worm shaft : <b>Case hardened alloy steel</b>                |                                                                                      | <b>J</b> Japan Made<br>Worm wheel : Special high tensile brass<br>Turret, Roller Gear Cam, and Follower : <b>Case hardened alloy steel</b> |
|                                    | The combination of iron and brass produces less friction. A more effective transfer of the motor torque is achieved. |                                                                                      | The table runs on a series of rollers, meaning slick rolling surface operation with no backlash and wear.                                  |
|                                    |                                                                                                                      |                                                                                      |                                                                                                                                            |
| Compact Footprint                  | —                                                                                                                    |                                                                                      | —                                                                                                                                          |
| Zero Backlash                      | —                                                                                                                    |                                                                                      | ★★★★                                                                                                                                       |
| Anti-Wear                          | ★                                                                                                                    |                                                                                      | ★★★★                                                                                                                                       |
| Maintenance                        | ★                                                                                                                    |                                                                                      | ★★                                                                                                                                         |
| Rotary Speed                       | ★                                                                                                                    |                                                                                      | ★★                                                                                                                                         |
| Indexing Precision / Repeatability | ★★                                                                                                                   |                                                                                      | ★★                                                                                                                                         |
| Loading capacity                   | ★★★★                                                                                                                 |                                                                                      | ★★★★                                                                                                                                       |
| Driving Torque (without Brake)     | ★★★★                                                                                                                 |                                                                                      | ★★                                                                                                                                         |
| Popularity                         | ★★★★                                                                                                                 |                                                                                      | ★★                                                                                                                                         |

# Ø125,170mm Models

## Specifications



Air brake



Oil brake

| Item / Code No.                                               |                | Unit                      | ARs -125 R/L/B                                 | AR -170 R/L/B                                  | RC-170 R         |
|---------------------------------------------------------------|----------------|---------------------------|------------------------------------------------|------------------------------------------------|------------------|
| Table Diameter                                                |                | mm                        | Ø125                                           | Ø170                                           | Ø170             |
| Inner Diameter of Mandrel Sleeve                              |                | mm                        | Ø35H7                                          | Ø40H7                                          | Ø40H7            |
| Diameter of Center Through Hole                               |                | mm                        | Ø25<br>Blind hole Ø25 x 152 Deep <sup>*1</sup> | Ø40<br>Blind hole Ø40 x 152 Deep <sup>*1</sup> | Ø40              |
| Center Height (Vertical)                                      |                | mm                        | 110                                            | 135                                            | 135              |
| Table Height (Horizontal)                                     |                | mm                        | 152<br>NA <sup>*1</sup>                        | 152<br>NA <sup>*1</sup>                        | 152              |
| Table T-slot Width                                            |                | mm                        | 12H7                                           | 12H7                                           | 12H7             |
| Guide Block Width                                             |                | mm                        | 14h7                                           | 18h7                                           | 18h7             |
| Min. Increment                                                |                | deg.                      | 0.001                                          | 0.001                                          | 0.001            |
| Indexing Precision                                            |                | sec.                      | 40                                             | 20                                             | 30               |
| Repeatability                                                 |                | sec.                      | 6                                              | 6                                              | 6                |
| Clamping System                                               |                | kgf/cm <sup>2</sup>       | Pne. 6                                         | Pne. 6 / Hyd. 35                               | Pne. 6 / Hyd. 35 |
| Clamping Torque                                               |                | kgf-m                     | 13                                             | 31  / 55                                       | 31  / 50         |
| Servo Motor Model                                             | FANUC          | Taper shaft               | ais4 / βis4                                    | aiF4 / aiF8 / βis8                             | aiF8 / βis8      |
|                                                               | MITSUBISHI     | Taper / Straight shaft    | HG -75 / 105                                   | HG -54 / 104                                   | HG -54 / 104     |
|                                                               | SIEMENS        | Straight shaft            | 1FK7042                                        | 1FK7060                                        | 1FK7060          |
|                                                               | HEIDENHAIN     | Straight shaft            | QSY-96A                                        | QSY-116C                                       | QSY-116C         |
| Speed Reduction Ratio                                         |                | -                         | 1 : 60                                         | 1 : 90                                         | 1 : 36           |
| Max. Rotation Rate of Table<br>(Calculate with Fanuc a Motor) |                | min-1                     | 33.3                                           | 44.4 [33.3]                                    | 83.3             |
| Allowable inertia load capacity<br>(Horizontal)               |                | kg-m <sup>2</sup>         | 0.28                                           | 0.63                                           | 0.63             |
| Allowable Workpiece Load                                      | Vertical       | kg                        | 50                                             | 75                                             | 75               |
|                                                               | With Tailstock | kg                        | 100                                            | 150                                            | 150              |
|                                                               | Horizontal     | kg                        | 100<br>NA <sup>*1</sup>                        | 150<br>NA <sup>*1</sup>                        | 150              |
| Allowable Thrust Load<br>(with Rotary Table Clamping)         | F              | kgf                       | 1000                                           | 1450                                           | 1450             |
|                                                               | FxL            | kgf-m                     | 45                                             | 110                                            | 110              |
|                                                               | FxL            | kgf-m                     | 13                                             | 31                                             | 31               |
| Driving Torque                                                |                | kgf-m                     | 9                                              | 29                                             | 37               |
| Net Weight<br>(Servo motor excluded)                          |                | kg                        | 34<br>44 <sup>*1</sup>                         | 55<br>60 <sup>*1</sup>                         | 44               |
| Optional Rotary Joint<br>                                     |                | Available Number of Ports | 2,4                                            | 2,4                                            | 2,4              |

\*1: When the motor mount location is BACK.

Table 2

| Positioning / Code | Right Mount | Left Mount | Back Mount |
|--------------------|-------------|------------|------------|
| Diagram            |             |            |            |
| <b>VERTICAL</b>    | ✓           | ✓          | ✓          |
| <b>HORIZONTAL</b>  | ✓           | ✓          | ✗          |

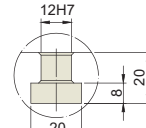
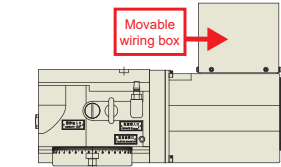
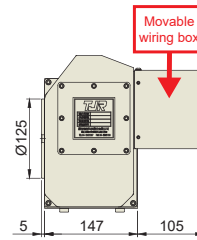
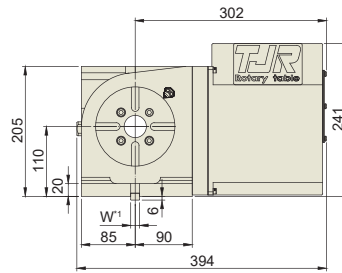
## Model Name by brake mechanism

Table3

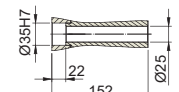
| Faceplate size   |  | Ø125mm | Ø170mm  |         |
|------------------|--|--------|---------|---------|
| Brake type       |  |        |         |         |
| <b>Air brake</b> |  | AR-125 | AR-170  | RC-170  |
| <b>Oil brake</b> |  | NA     | AR-170H | RC-170H |

# Ø125mm Model Dimensions

## AR-125

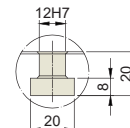
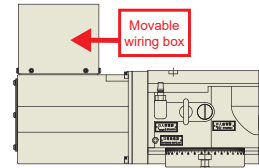
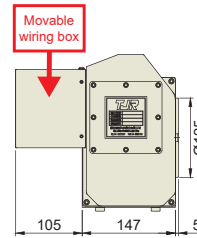
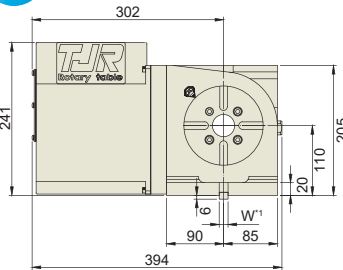
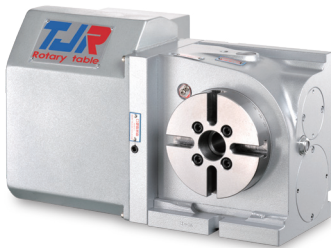


T-Slot Dimension(4:1)

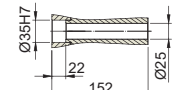


Drawing of Central Hole

## AR-125

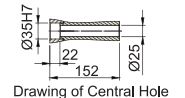
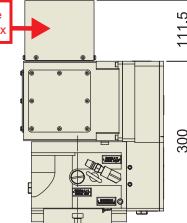
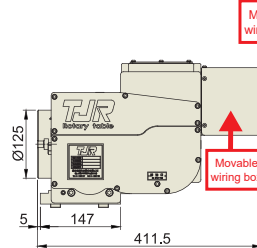
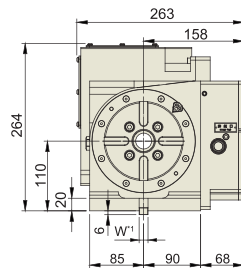


T-Slot Dimension(4:1)

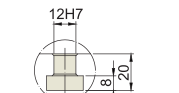


Drawing of Central Hole

## AR-125



Drawing of Central Hole



T-Slot Dimension(4:1)

\*1: The Guide Key size can be changed based on the T-slot of work table.

★ Air purge function is provided inside the motor cover as standard.

★ External dimensions depend on the type of the servo motor. Indicated dimensions are in case of FANUC. Please contact us for CAD files.



▲ AR-125 + 5C



▲ AR-125-2W + TTJ-125



▲ AR-125-3W

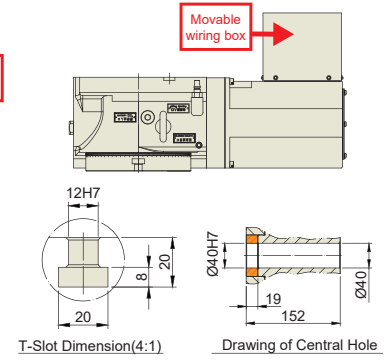
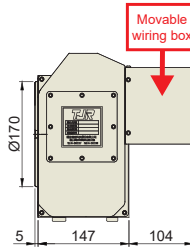
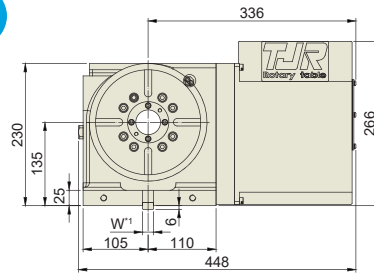
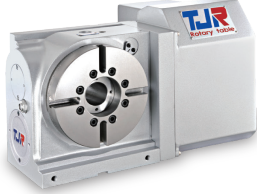


▲ AR-125-4W + ATTJ-125

# Ø170mm Model Dimensions

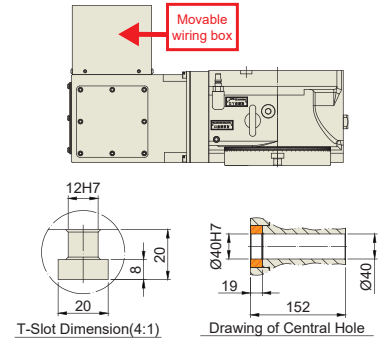
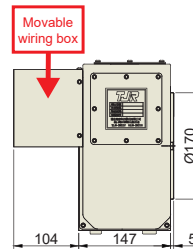
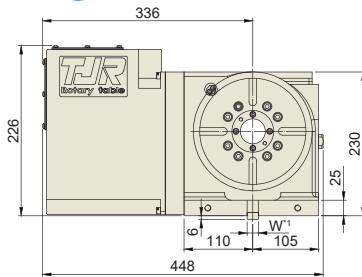
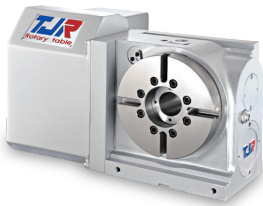
## AR-170

**R**  
Right Hand



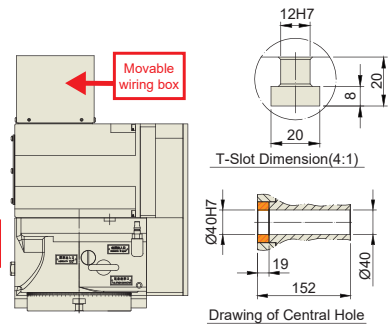
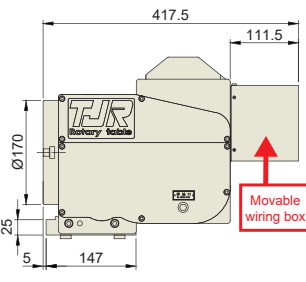
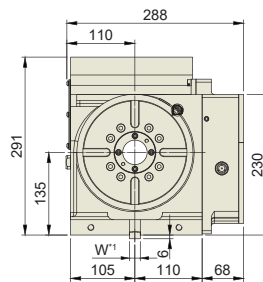
## AR-170

**L**  
Left Hand



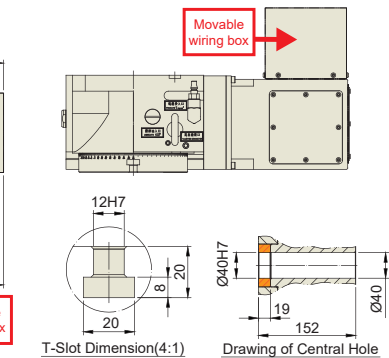
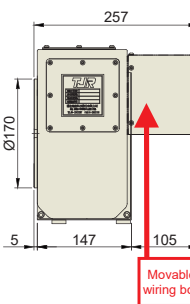
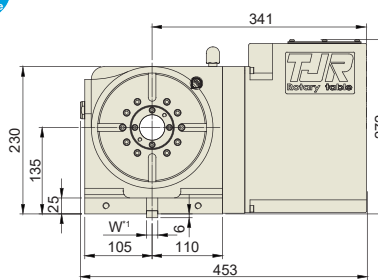
## AR-170

**B**  
Back Side



## RC-170

**R**  
Right Hand



\*1: The Guide Key size can be changed based on the T-slot of work table.

★ Air purge function is provided inside the motor cover as standard.

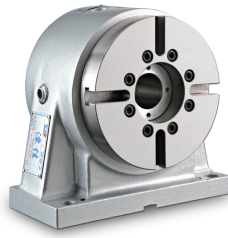
★ External dimensions depend on the type of the servo motor. Indicated dimensions are in case of FANUC. Please contact us for CAD files.



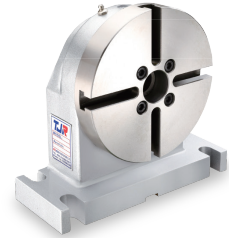
# Support Table & Corresponding Accessories



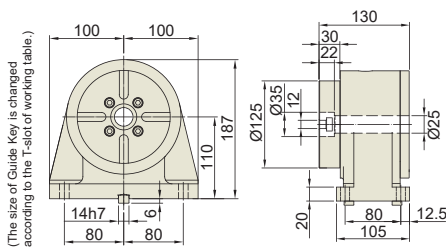
**RTA-125** Air brake



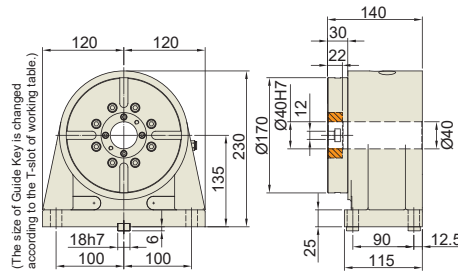
**RTA-170** Air brake Oil brake



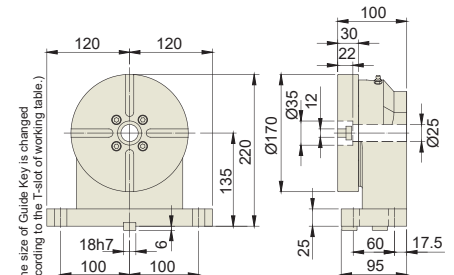
**RT-170F** No Brake



Weight :18kg

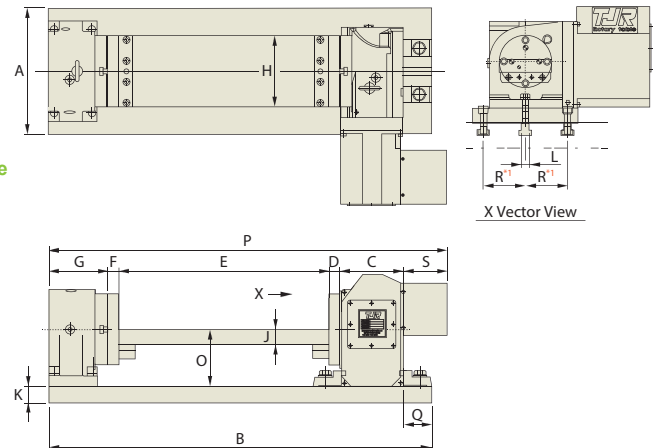
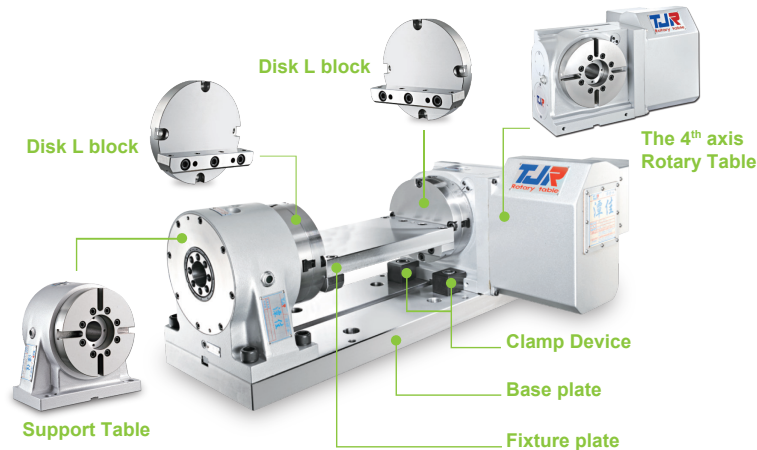


Weight :29kg



Weight :18kg

## Trunnion Application



| Rotary Table Model | Tailstock Model | A   | B   | C   | D  | E   | F  | G   | H   | J  | K  | L  | N  | O   | P   | Q  | S   |
|--------------------|-----------------|-----|-----|-----|----|-----|----|-----|-----|----|----|----|----|-----|-----|----|-----|
| AR-125             | RTA-125         | 250 | 725 | 152 | 20 | 400 | 20 | 130 | 125 | 30 | 35 | 14 | 14 | 115 | 827 | 2  | 105 |
| AR-170<br>RC-170   | RTA-170         | 300 | 911 | 152 | 25 | 500 | 25 | 140 | 170 | 35 | 40 | 18 | 18 | 135 | 947 | 69 | 105 |

\*1: "R" depends on the size of machine worktable.

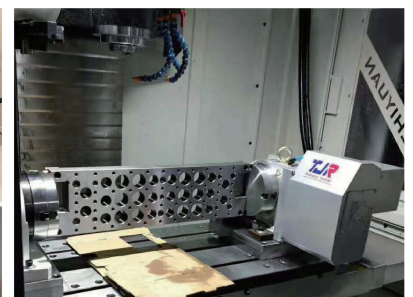
★ A suitable raiser for either rotary table or manual tailstock can be customized to increase the center height.



▲ AR-125 + RTA-125

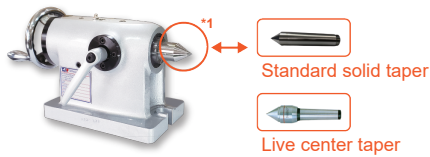


▲ AR-170 + RTA-170



▲ RC-170 + RTA-170

# Manual Tailstock & Corresponding Accessories



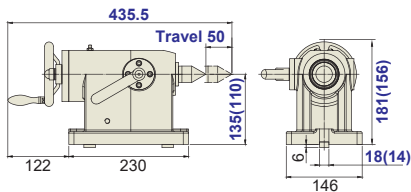
**TTJ-125/170**



**TTJ-125A**

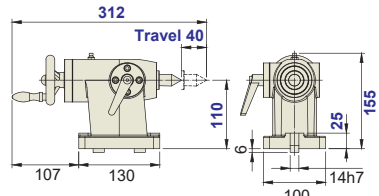


**ATTJ-125/170**  
(With Pneumatic switching valve)

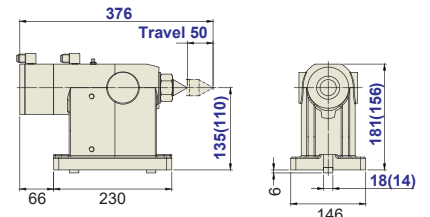


\*( ): the dimension of Model TTJ-125

**Weight : 23kg(21.5kg)**



**Weight : 8.5kg**

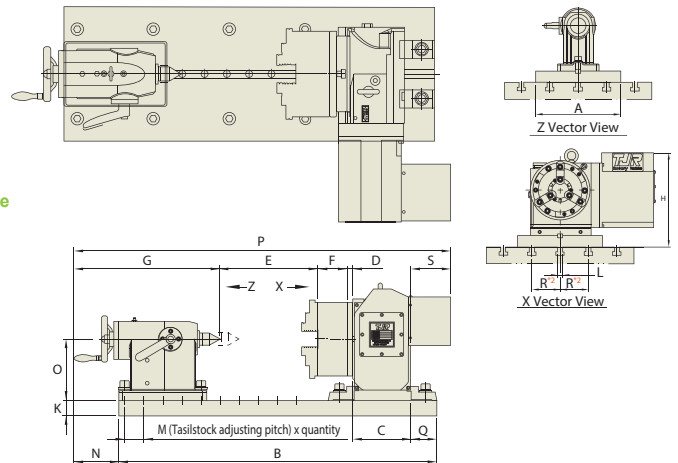
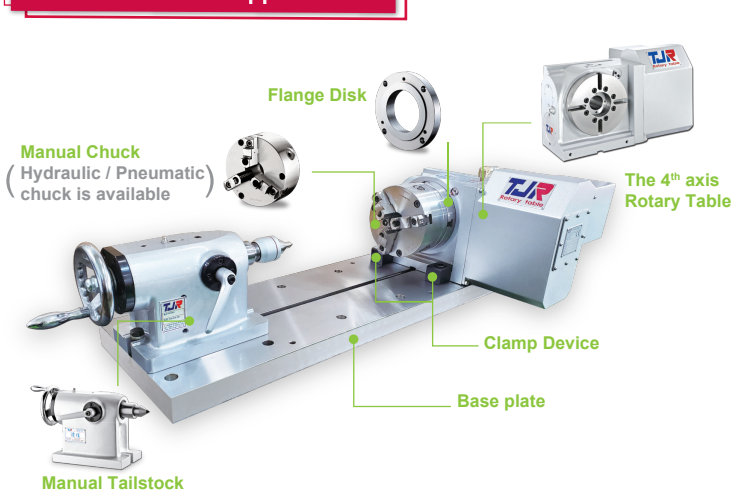


\*( ): the dimension of Model ATTJ-125

**Weight : 23kg(21kg)**

\*1: The taper is replaceable. The standard one is a solid taper. Moreover, the live center taper can be optional.

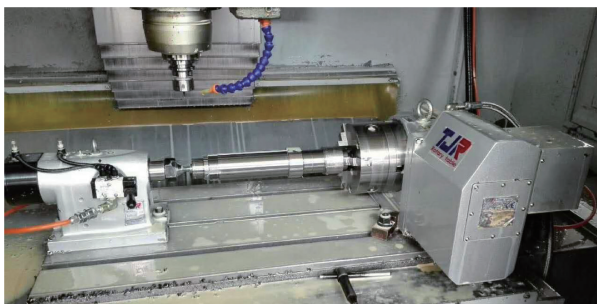
## Chuck and Tailstock Application



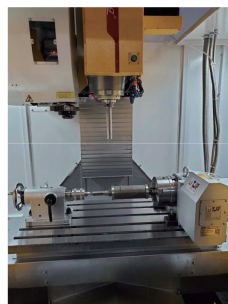
| Rotary Table Model | Tailstock Model | Chuck Model | A   | B   | C   | D  | E     | F    | G     | K  | N   | O   | P    | Q  | S   |
|--------------------|-----------------|-------------|-----|-----|-----|----|-------|------|-------|----|-----|-----|------|----|-----|
| AR-125             | TTJ-125         | SC-4        | 250 | 725 | 152 | 16 | 234.5 | 60   | 382.5 | 35 | 122 | 110 | 950  | 2  | 105 |
|                    |                 | SC-5        | 250 | 725 | 152 | 16 | 234.5 | 60   | 382.5 | 35 | 122 | 110 | 798  | 2  | 105 |
| AR-170<br>RC-170   | TTJ-170         | SK-6        | 300 | 911 | 152 | 16 | 346.5 | 67   | 382.5 | 40 | 122 | 135 | 1069 | 69 | 105 |
|                    |                 | SK-7        | 300 | 911 | 152 | 16 | 337   | 76.5 | 382.5 | 40 | 122 | 135 | 917  | 69 | 105 |
|                    |                 | SK-8        | 300 | 911 | 152 | 16 | 337   | 76.5 | 382.5 | 40 | 122 | 135 | 917  | 69 | 105 |

\*2: "R" depends on the size of machine worktable.

★A suitable raiser for either rotary table or manual tailstock can be customized to increase the center height.



▲ RC-170 + ATTJ-170



▲ AR-170 + TTJ-170



▲ AR-170 + TTJ-170