



TJR APP



www.tjr.com.tw

Product Code

AR S - 210 - H R - J - A

Table Diameter

Special Version (A, B, C,...)
Specified by Customers

Ø210mm

Ø255mm



Alternative Hydraulic Brake

Except for AR-255H
Refer to page 2 Table 3

Motor mounting location

Refer to page 2 Table 2

- J** High Tensile Brass
- T** Aluminum Bronze
- S** Alloy Steel
- R** Right Mount
- L** Left Mount
- B** Back Mount
- N** Right Mount

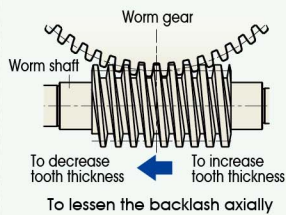
with sheet metal cover reduction

Model Code (by Transmission Mechanism)

AR HR Series



Worm & Worm Gear

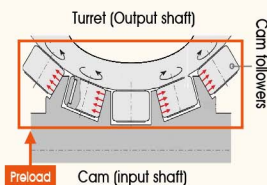


Specially designed double-lead worm & gear with full-depth teeth. The worm gear with a large pitch diameter creates a large engagement area and less pressure on the contact surface, resulting in higher strength. By moving the worm shaft axially, the tooth engagement can be changed successively. As the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

RC Series



Roller Gear Cam

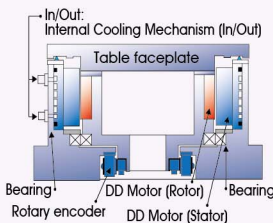


It consists of an input shaft and output turret with embedded roller followers. A cross-roller bearing supports the output turret with minimal run out and transmits power by rolling rather than sliding. Preloaded roller followers contact the input rib surfaces with a wedge-shaped cross section. It can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

AD Series



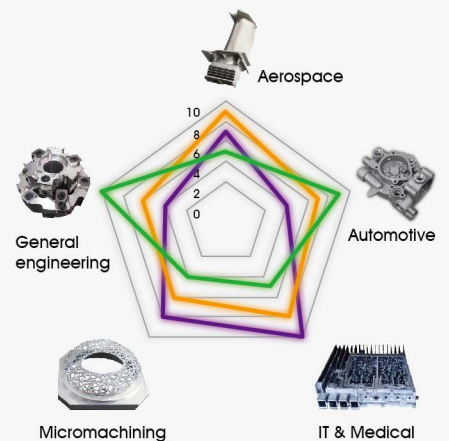
Direct Drive Motor



There is no mechanical transmission (reduction) mechanism such as worm gear or roller cam system in a rotary table equipped with a D.D. (Direct Drive) motor. The torque (Direct Drive) motor is built in the rotary table to drive directly. High rotation speed and high acceleration / deceleration can be achieved. Besides, a built-in rotary encoder is employed to secure high positioning and repeatability.

The sales of different models by major industry sector

► Industry Sector



► Transmission Mechanisms

- Worm & Worm Gear **AR HR**
- Roller Gear Cam **RC**
- Direct Drive Motor **AD**

Product Features

Features of different Transmission Mechanisms

Table 1

| Model | Ø210mm | AR-210-T | AR-210-J | ARs-210 | RC-210-J | — |
|------------------------------------|---|--|--|---|--|----------|
| | Ø255mm | HR-255-T | HR-255-J | HRs-255 | RC-255-J | AD-261iB |
| Transmission Mechanism | Worm & Worm Gear | | | Roller Gear Cam | Direct Drive Motor | |
| | | | | | | |
| Material | Worm wheel : T Aluminum Bronze | Worm wheel : J Special high tensile brass | Worm wheel : S Ion nitrided alloy steel | Turret, Roller Gear Cam, and Follower : Case hardened alloy steel | FANUC Specially Customized Synchron Built-in torque motor | |
| | Worm shaft : Case hardened alloy steel | | | The table runs on a series of rollers, mean- ing slick rolling sur- face operation with no backlash and wear. | A perfect match for Fanuc control. The risk of damage is minimized when an improper operation occurs. | |
| Compact Footprint | — | — | — | — | ★★★★ | |
| Zero Backlash | — | — | — | ★★★★ | ★★★★ | |
| Anti-Wear | ★ | ★★ | ★★★★ | ★★★★ | ★★★★ | |
| Maintenance | ★ | ★ | ★ | ★★ | ★★★★ | |
| Rotary Speed | ★ | ★ | ★ | ★★ | ★★★★ | |
| Indexing Precision / Repeatability | ★★ | ★★ | ★★ | ★★ | ★★★★ | |
| Loading capacity | ★★★★ | ★★★★ | ★★★★ | ★★★★ | ★★ | |
| Driving Torque (without Brake) | ★★★★ | ★★★★ | ★★ | ★★ | ★ | |
| Popularity | ★★★★ | ★★★★ | ★★★★ | ★★ | ★ | |

★★★★ Excellent ★★★ Good ★ Neutral

Motor Mounting Location

Table2

| Code | R Right Mount | L Left Mount | N Right Mount with sheet metal cover reduction | B Back Mount |
|-------------|----------------------|---------------------|---|---------------------|
| Positioning | | | | |
| Diagram | | | | |
| VERTICAL | ✓ | ✓ | ✓ | ✓ |
| HORIZONTAL | ✓ | ✓ | ✗ | ✗ |

Model Name by brake mechanism

Table3

| Faceplate size | Ø210mm | | Ø255mm | | |
|----------------|---------|---------|---------|--------|----------|
| Air brake | AR-210 | RC-210 | AR-255H | NA | AD-261iB |
| Oil brake | AR-210H | RC-210H | HR-255 | RC-255 | NA |

Ø210, 255mm Models

Specifications



Air brake



Oil brake

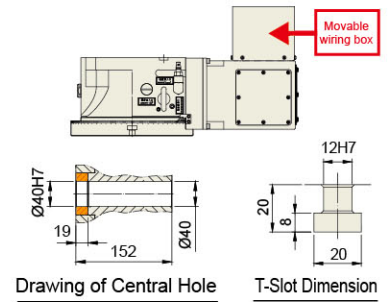
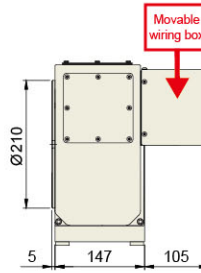
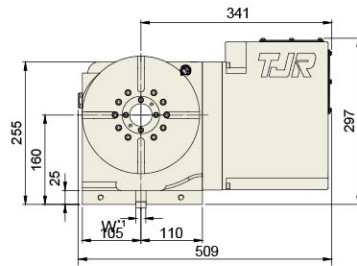
[]: Alloy Steel Worm & Gear series

| Transmission mechanism | | Unit | Worm & Gear | Roller Gear Cam | Worm & Gear | Roller Gear Cam | Direct Drive Motor |
|---|----------------|---------------------------|---|---------------------------|------------------|--------------------|---------------------------|
| Model | | - | AR-210 ^{*1} | RC-210 | HR-255 | RC-255 | AD-261iB |
| Faceplate diameter | | mm | Ø210 ^{*1} | Ø210 | Ø255 | Ø255 | Ø250 |
| Diameter of Table Center Hole | | mm | Ø67 | Ø67 | Ø110 | Ø110 | - |
| Inner Diameter of Mandrel Sleeve | | mm | Ø40H7 | Ø40H7 | Ø80H7 | Ø80H7 | Ø46H7 |
| Diameter of Center Through Hole | | mm | Ø40 | Ø40 | Ø80 | Ø80 | Ø46 |
| Center Height (Vertical) | | mm | 160 | 160 | 160 | 160 | 160 |
| Table Height (Horizontal) | | mm | 152 160 ^{*2} NA ^{*3*4} | 152 | 200 | 200 | NA |
| Table T-slot Width | | mm | 12H7 | 12H7 | 12H7 | 12H7 | 12H7 |
| Guide Block Width | | mm | 18h7 | 18h7 | 18h7 | 18h7 | 18h7 |
| Min. Increment | | deg. | 0.001 | 0.001 | 0.001 | 0.001 | 0.001 |
| Indexing Precision | | sec. | 20 | 30 | 15 | 20 | 20 |
| Repeatability | | sec. | 6 | 8 | 6 | 6 | 4 |
| Clamping System | | kgf/cm ² | Pne. 6 / Hyd. 35 | Pne. 6 / Hyd. 35 | Pne. 5 / Hyd. 35 | Hyd. 35 | Pne. 6 |
| Clamping Torque | | kgf·m | 31 / 55 | 31 / 50 | 70 / 70 | 70 | 45.9 |
| Servo Motor Model | FANUC | - | aiF4 / aiF8 / βiS8 | aiF8 / βiS8 | aiF8/βiS8 | aiF8/βiS12 (Taper) | FANUC DD Motor |
| | MITSUBISHI | Taper/Straight shaft | HG/HF-54 / 104 | HG/HF-104 / 154 | HG/HF-104 / 154 | HG/HF-154 | - |
| | SIEMENS | - | 1FK7060 | 1FK7060 | 1FK7063 | 1FK7063 | - |
| | HEIDENHAIN | - | QSY-116C | QSY-116C | QSY-116E | QSY-130C | - |
| Speed Reduction Ratio | | - | 1 : 90 | 1 : 36 | 1 : 120 | 1 : 60 | Direct Drive |
| Max. Rotation Rate of Table (Calculate with Fanuc a Motor) | | r.p.m | 44.4 [33.3] | 83.3 | 33.3 [25] | 50 | 200 (Rated) 300 (Max.) |
| Allowable inertia load capacity (Horizontal) | | kg·cm·sec ² | 8.3 11.7 ^{*2} 4.1 ^{*3} 5.9 ^{*4} | 8.3 11.7 ^{*2} | 20.3 | 16.3 | 7.8 |
| Allowable Workpiece Load | Vertical | kg | 75 | 75 | 100 | 100 | 100 ^{*5} |
| | With Tailstock | kg | 150 | 150 | 250 | 250 | 100 ^{*5} |
| | Horizontal | kg | 150 / NA ^{*3*4} | 150 | 250 | 250 | - |
| Allowable Thrust Load (with Rotary Table Clamping) | F | kgf | 1450 | 1450 | 2000 | 2000 | 1020 |
| | FxL | kgf·m | 110 | 110 | 150 | 150 | 23.6 |
| | FxL | kgf·m | 31 / 55 | 31 / 50 | 70 | 70 | 45.9 |
| Driving Torque | | kgf·m | 29 [14.6] | 14 | 61 [19.5] | 35 | - |
| Net Weight (servo motor excluded) | | Kg | 55 58 ^{*1} 65 ^{*3} 72 ^{*4} | 52 | 109 | 110 | 90 |
| Optional Rotary Joint | | Available Number of Ports | 2,4,5 | 2,4,5 | 2,4,6,8 | 2,4,6,8 | 2,4 |

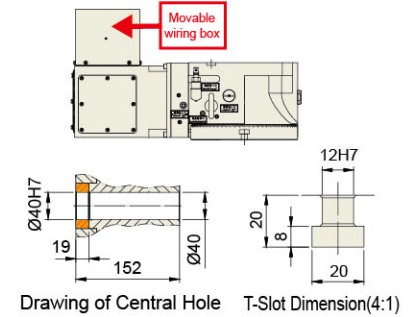
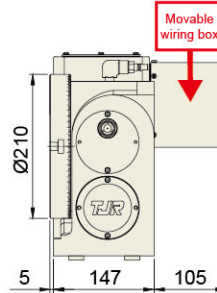
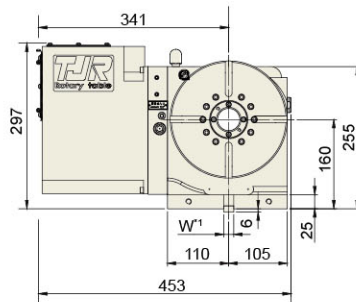
*1: The faceplate can be enlarged to Ø250 as an option.
 *2: When the faceplate is enlarged to Ø250 and motor mount location is LEFT or RIGHT.
 *3: When the faceplate is Ø210 and motor mount location is BACK.
 *4: When the faceplate is enlarged to Ø250 and motor mount location is BACK.
 *5: Valid when it is below the rated speed.

Ø210mm Model Dimensions

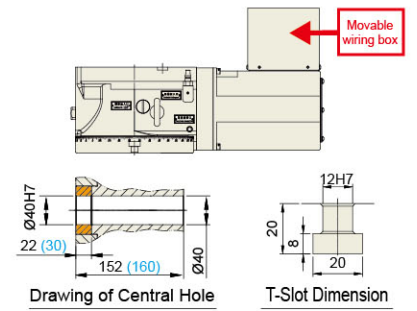
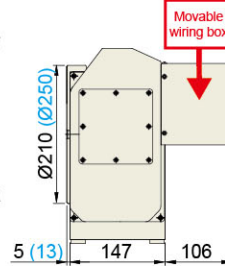
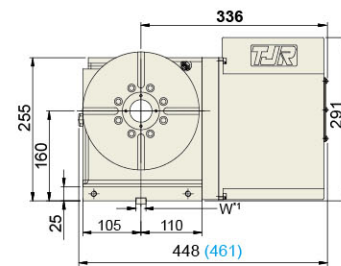
RC-210R



RC-210L

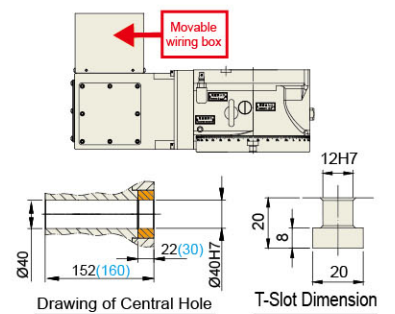
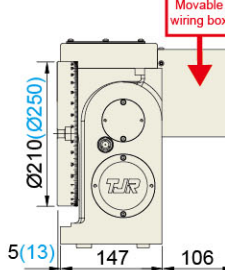
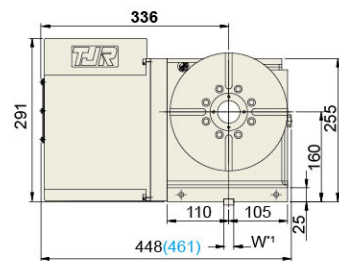


AR-210R



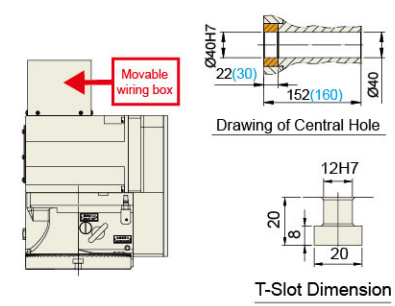
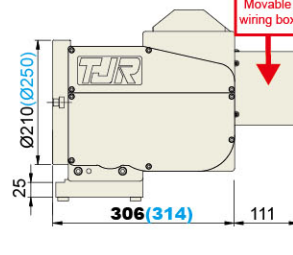
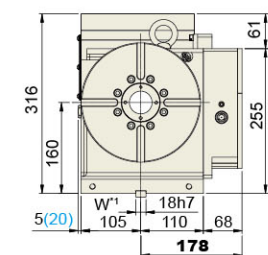
(): When the faceplate is enlarged to Ø250mm.

AR-210L



(): When the faceplate is enlarged to Ø250mm.

AR-210B



(): When the faceplate is enlarged to Ø250mm.

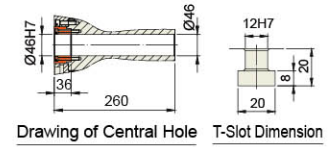
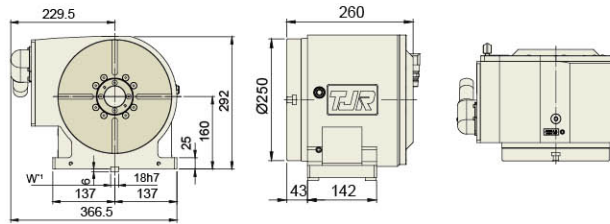
*1: The Guide Key size can be changed based on the T-slot of work table.

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

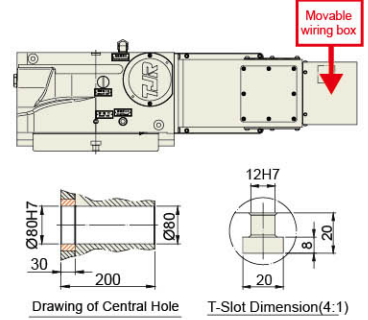
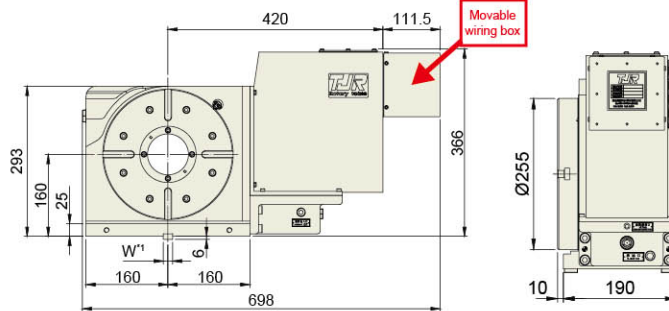
★ External dimensions depend on the type of the servo motor. Indicated dimensions are in case of FANUC. Please contact us for CAD files.

Ø255mm Model Dimensions

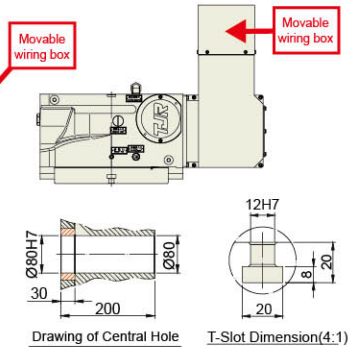
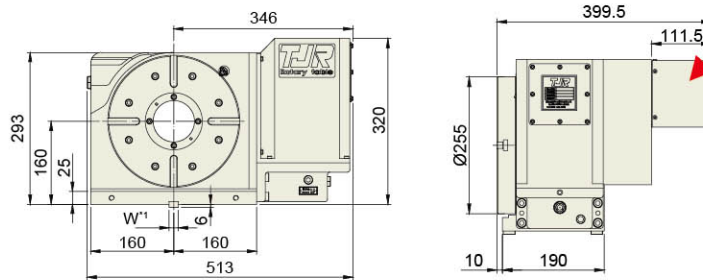
AD-261iB-FA



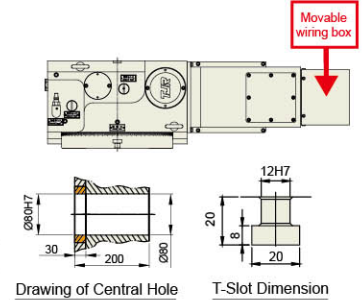
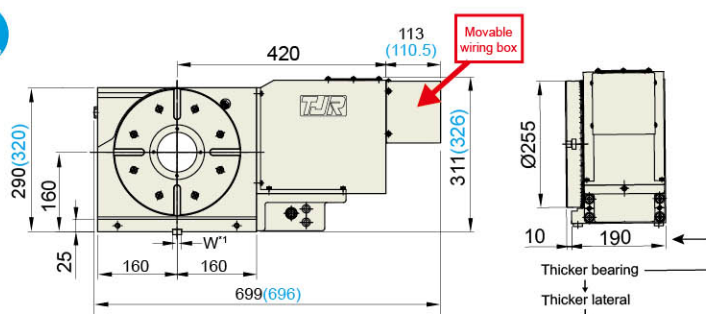
RC-255R



RC-255N

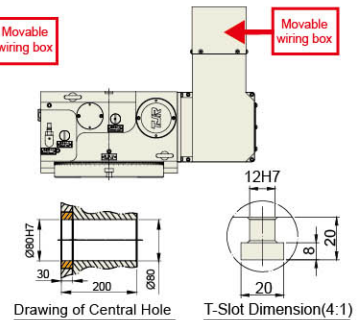
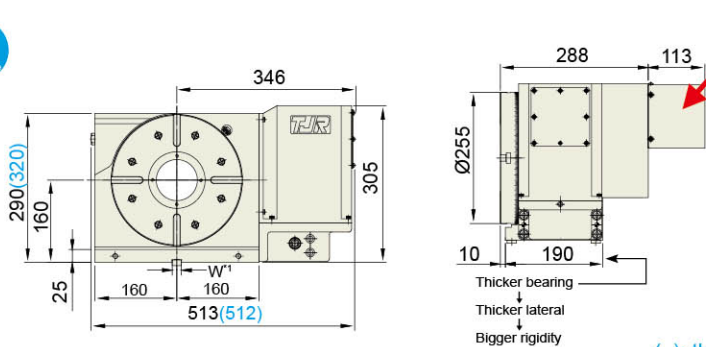


HR-255R



() : the dimension of Model AR-255HR

HR-255N



() : the dimension of Model AR-255HN

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

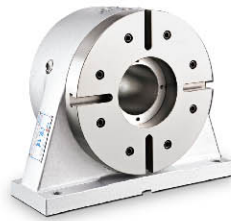
★ Air purge function is provided inside the motor cover as standard.

★ 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



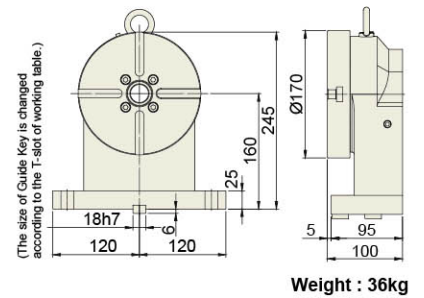
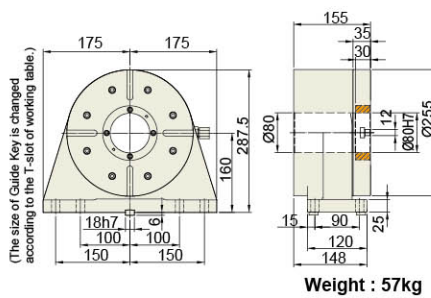
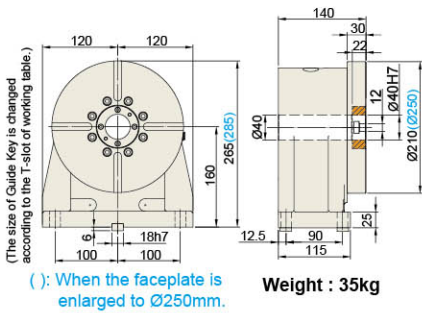
RTA-210 Air brake



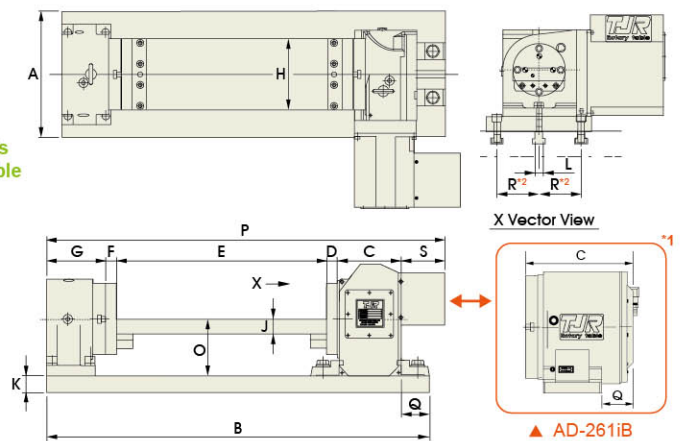
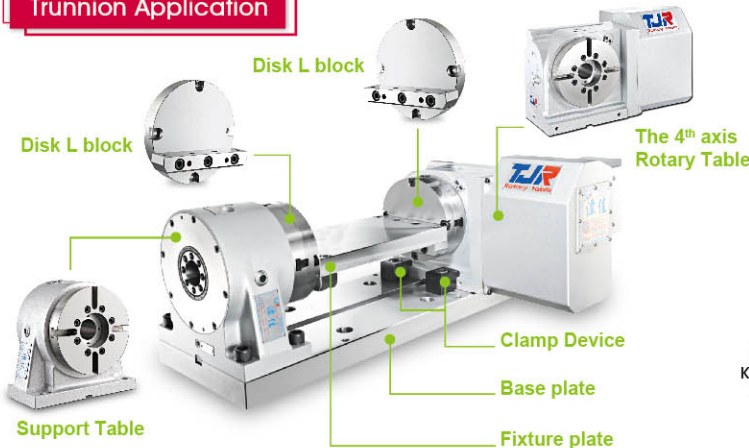
RTH-255 Oil brake



RT-210F No Brake



Trunnion Application



[] : When the faceplate of AR-210(H) is enlarged to Ø250mm.

| Rotary Table Model | Support Table Model | A | B | C | D | E | F | G | H | J | K | L | O | P | Q | S |
|------------------------|---------------------|-----|----------------|--------------|----|-----|------------|-----|--------------|----|----|----|-----|----------------|------|------|
| AR-210(H) RC-210(H) | RTA-210(H) | 300 | 1011 [1020] | 152 [160] | 25 | 600 | 30 [38] | 140 | 200 [250] | 40 | 40 | 18 | 160 | 1047 [1055] | 69 | 106 |
| HR-255N RC-255 | RTH-255 | 350 | 1148 | 200 | 25 | 700 | 35 | 155 | 250 | 45 | 40 | 18 | 160 | 1305 | 69 | 201 |
| AD-261iB*1 | RTA-210 | 300 | 976 | 260 | 25 | 600 | 25 | 14 | 200 | 40 | 40 | 18 | 160 | 1051 | NA*1 | NA*1 |

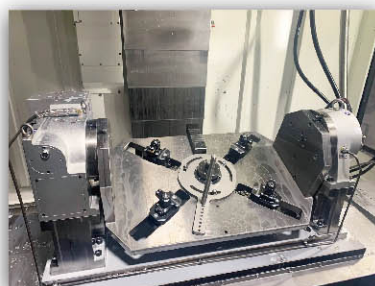
*1: Due to the different structure of rotary table, the above dimensional drawing can not be fully applicable to AD-261iB. However, the figures of AD-261iB in the above sheet can be still referenceable. Please contact TJR for a precise drawing of AD-261iB when it's needed.

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

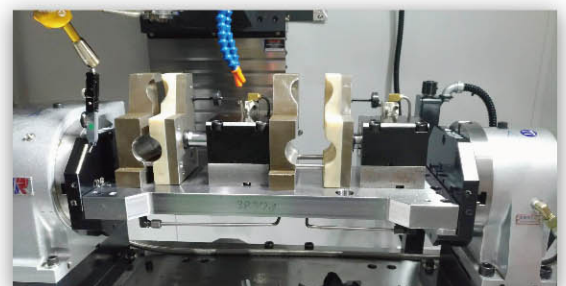
★ A suitable raiser for either rotary table or manual tailstock can be customized to increase the center height.



▲ AR-250R + RTA-250

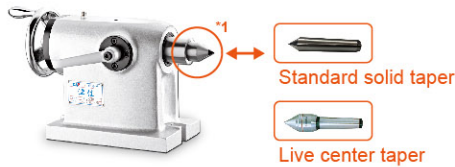


▲ RC-255 + RTH-255

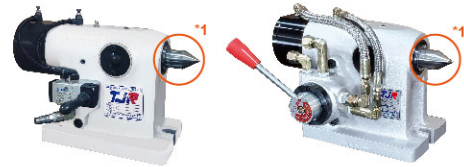
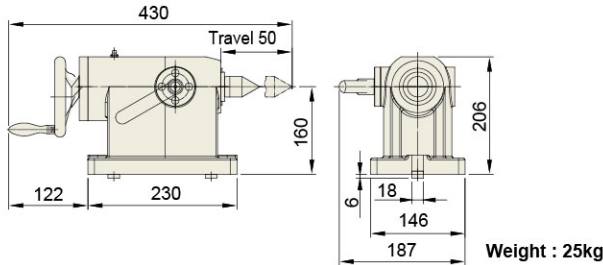


▲ AD-261iB + RTA-210

Manual Tailstock & Corresponding Accessories



TTJ-210/255

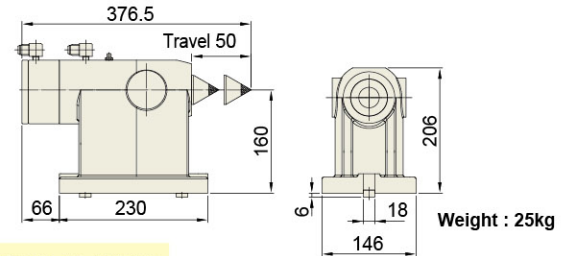


ATTJ-210/255

(With Pneumatic switching valve)

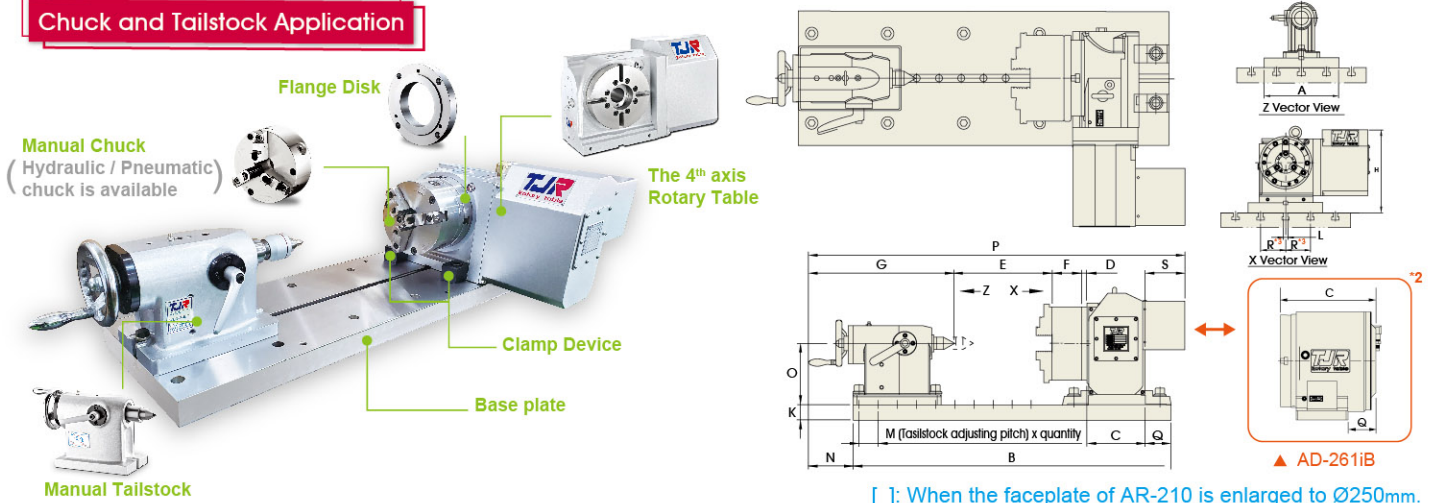
HTTJ-210/255

(With Hydraulic switching valve)



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

Chuck and Tailstock Application



[]: When the faceplate of AR-210 is enlarged to Ø250mm.

| Rotary Table Model | Tailstock Model | Manual Chuck Model | A | B | C | D | E | F | G | K | N | O | P | Q | S |
|--------------------|-----------------|--------------------|-----|----------------|--------------|----|-------|------|-----|----|------|-----|----------------|------|------|
| AR-210 RC-210 | TTJ-210 | SK-7 | 300 | 1011 [1019] | 152 [160] | 14 | 429 | 76.5 | 381 | 40 | 110 | 160 | 1158 [1166] | 69 | 106 |
| | | SK-8 | 300 | 1011 [1019] | 152 [160] | 14 | 429 | 76.5 | 381 | 40 | 110 | 160 | 1158 [1166] | 69 | 106 |
| HR-255 RC-255 | TTJ-255 | SK-7 | 350 | 1148 | 200 | 20 | 512 | 76.5 | 381 | 40 | 110 | 160 | 1390 | 69 | 201 |
| | | SK-8 | 350 | 1148 | 200 | 20 | 512 | 76.5 | 381 | 40 | 110 | 160 | 1390 | 69 | 201 |
| | | SK-9 | 350 | 1148 | 200 | 20 | 504 | 84 | 381 | 40 | 110 | 160 | 1390 | 69 | 201 |
| AD-261iB*1 | TTJ-255 | SK-7 | | | | | 431 | 76.5 | | | | | | | |
| | | SK-8 | 300 | 976 | 260 | 20 | 431 | 76.5 | 381 | 40 | NA*2 | 160 | 1168 | NA*2 | NA*2 |
| | | SK-9 | | | | | 423.5 | 84 | | | | | | | |

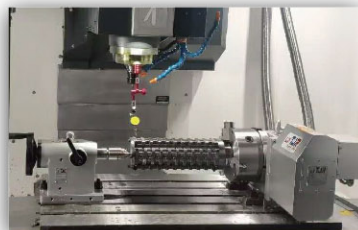
*2: Due to the different structure of rotary table, the above dimensional drawing can not be fully applicable to AD-261iB. However, the figures of AD-261iB in the above sheet can be still referenceable. Please contact TJR for a precise drawing of AD-261iB when it's needed.

*3: "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-210R + TTJ-210



▲ RC-210R + TTJ-210



▲ AD-261iB + ATTJ-255