MICROCUT


# DMC series

## Double Column Machining Center

National Award of Outstanding

ISO 9001:2015 FM 538421

ISO 14001:2015 EMS 546518

ISO 50001:2011 ENMS 642457

# DMC Series

## Double Column Machining Center

MICROCUT Double Column Machining Center, DMC series combines heavy cutting and high speed machining capabilities in one. The DMC is a profitable performer especially excellent for precision machining for extra heavy parts. The specially designed machine structure enables the machine to keep at the best accuracy condition after years of operation. With the roller type linear guideways on X/Y axes, and box way on Z axis, the machine fully exhibits its heavy loading resistance and outstanding features.

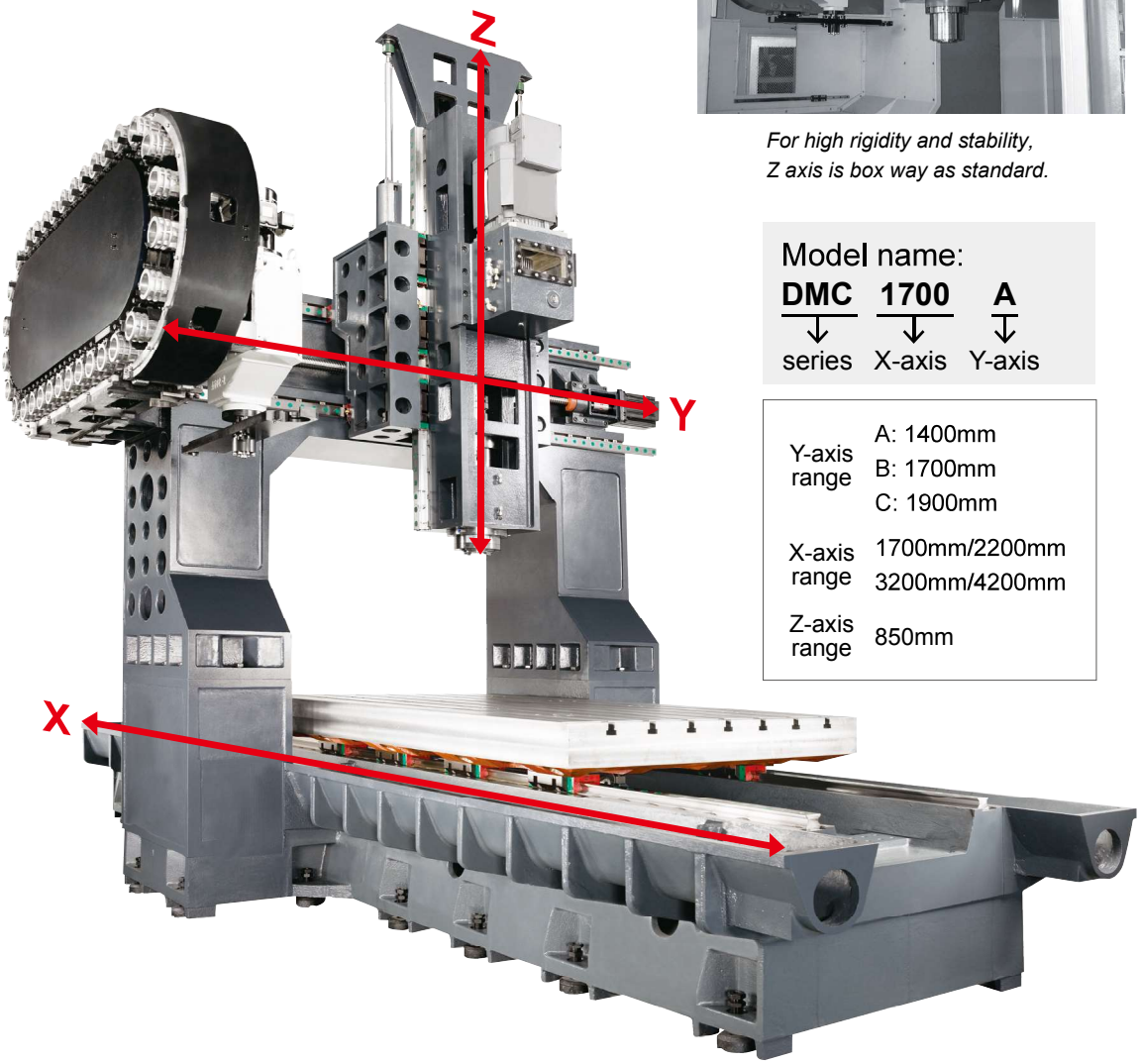
To meet the high speed and high precision machining requirement, the gearbox also provides high torque output, allowing the machine to perform heavy cutting with ease. The spindle head on the DMC series is designed with advanced automatic compensation balancing system combined with the use of accumulator to control hydraulic cylinder, allowing the spindle to move smoothly and steadily all the times.


*Full guard (opt.)*

# Highlights

- Roller type linear guideways on X/Y axes and box way on Z axis
- Three axes are transmitted by class C3 precision ballscrews.
- Enclosed splash guard
- Automatic compensated balance system (SCBS) on spindle head
- Automatic lubrication system
- One-piece and box type base
- The beam and the columns are one-piece constructed.
- Ladder type slide
- Rigid spindle head
- Lubrication oil and coolant are separately collected.
- Extra wide working capacity.

*For high rigidity and stability,*
*Z axis is box way as standard.*




Model name:

| DMC | 1700 | A |
|---|---|---|
| ↓ | ↓ | ↓ |
| series | X-axis | Y-axis |

| | |
|---|---|
| Y-axis range | A: 1400mm<br>B: 1700mm<br>C: 1900mm |
| X-axis range | 1700mm/2200mm<br>3200mm/4200mm |
| Z-axis range | 850mm |

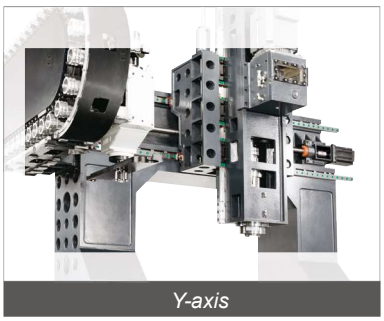
# Machine Features

## Guideways

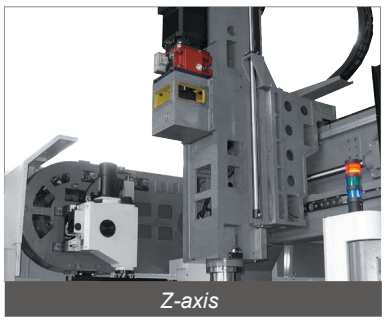
Roller type linear guideways on X and Y axes

Box way on Z axis

*X-axis*



*Y-axis*



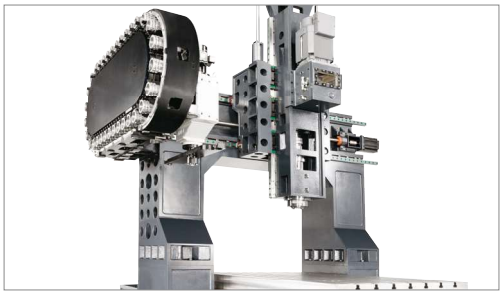
*Z-axis*

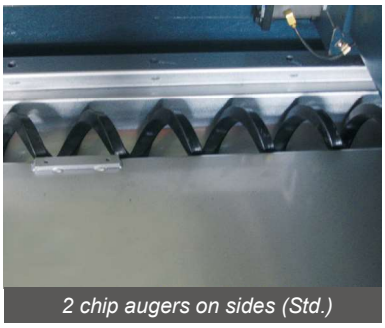
## Base

The solid one-piece box type base construction is for maximum stability when loading extra large workpiece

## Beam and column

The beam and the columns are one-piece constructed to minimize beam deformation and improve the rigidity.





*2 chip augers on sides (Std.)*

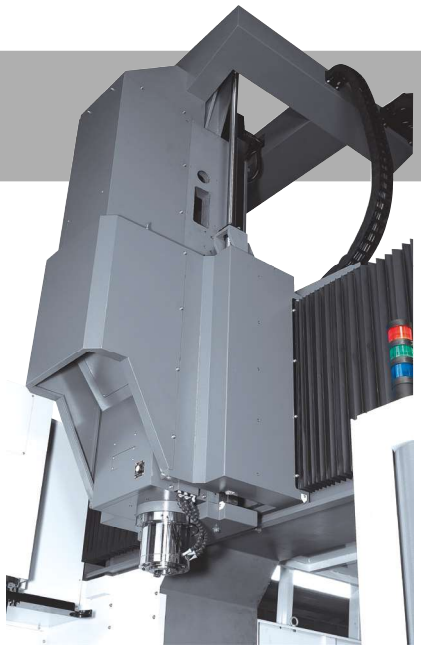
*Chain type chip conveyor (opt.)*

## Chip Management

There are two screw-type chip augers provided at both sides of the base. During cutting, the chips are delivered through these chip augers to a chip conveyor for easy chip removal.

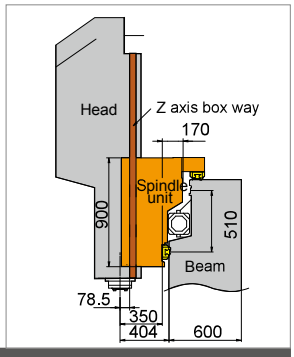
## Arm type magazine with 32/40(Opt.) tools

- The magazine is driven by a precision cam, featuring fast and accurate tool positioning
- Tool selection is bi-directional and random for fast tool change
- The magazine accepts ISO 50 tool shank
- The magazine is separately mounted from the cutting area combined with a protection door to prevent tools contamination from chips or coolant.



# Rigid Spindle Head

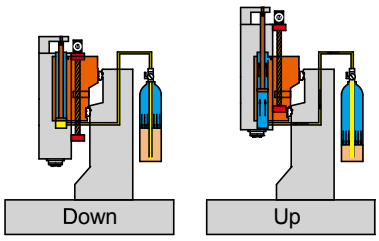
- ZF gearbox transmission for the high speed and heavy cutting capability.
- Wide spindle speed ranges from 10 to 8,000 rpm for the heavy cutting and fine finishing performance.
- The spindle head is manufactured from ductile iron for minimizing deformation and upgrading rigidity.
- The box ways on Z axis are specially designed for better rigidity of the spindle head.
- All gears and bearings in the gear box are oil-bath lubricated.
- Coolant through spindle is available for efficient cooling on workpiece and tool when cutting which also results in longer tool life and higher parts accuracy.




*The rigid spindle head is a symmetrical layout with box type construction*

*High ratio gear box*

*ISO 50 taper spindle*




*Pneumatic balance on Z-axis*

*Nitrogen Canister*

The Z-axis movement is counter-balanced through a pneumatic counter-balance system. An accumulator is equipped in the air circuit, ensuring fast and stable movement of Z-axis.

## Choice of various milling heads (opt.)

*Manual 90° Milling head*

*Automatic 90° Milling head*

*Manual universal Milling head*

*Straight extension head*

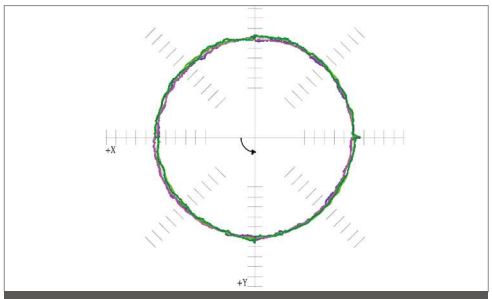
*90° boring milling head*

# Measuring system

Laser inspection


ball bar inspection


Right angle test on X and Y axes



Ball bar diagnostics

## Accuracy

Each machine is subject to dynamic and static accuracy tests. Machine accuracy meets ISO 10791，VDI 3441，ISO 230，JIS B6388 and ASME B5 standards.

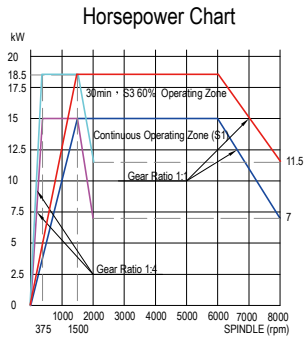
| Standard / Tolerances | | ISO 10791-4 | MICROCUT |
|---|---|---|---|
| | | Axis Travel | |
| | | >1250mm<2000mm | |
| Bi-directional Positioning | A: | 0.042 | 0.008mm |
| Bi-directional Repeatability | R: | 0.020 | 0.008mm |

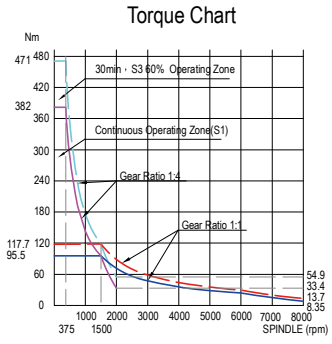
JIS B6336-4 shows the same value as ISO standard:
P value of VDI/DGQ3441 is equivalent to A of ISO10791-4, and PS is equivalent to R
All values shown above are measured for machine in good air conditioned environments.

## Horsepower and torque chart

Fanuc 15/18.5 kW, 8000 rpm

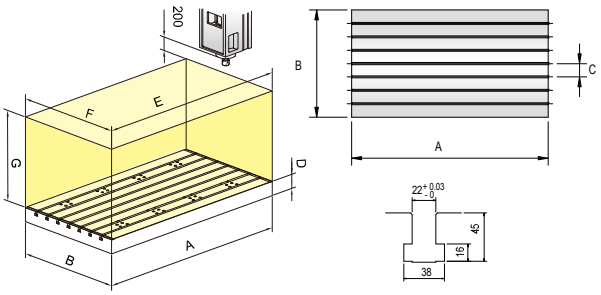
| Torque / Horsepower Chart Data | | |
|---|---|---|
| Spindle Taper | ISO | BT50 |
| | | CAT50 |
| | DIN | DIN 69871 |
| Spindle Speed | 8000 rpm | |
| Spindle Motor | Fanuc αil15/8000 | |
| Motor Output | 15/18.5 kW | |
| Gear Ratio | 1:1 & 1:4 | |
| Pulley Ratio | - | |



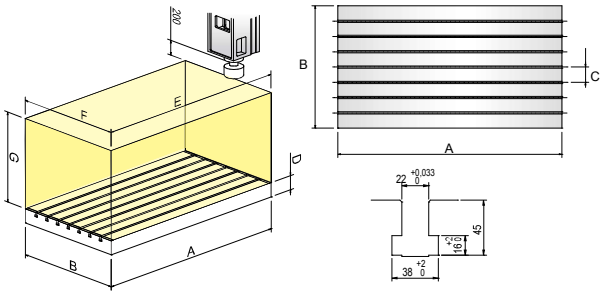



# Work range / Table size

DMC-A




DMC-B / DMC-C




**DMC-A**

| | A | B | C | D | E | F | G |
|---|---|---|---|---|---|---|---|
| 1700A | 1700 | 1200 | 150 | 150 | 1700 | 1200 | 725 |
| 2200A | 2200 | 1200 | 150 | 150 | 2200 | 1200 | 725 |
| 3200A | 3200 | 1200 | 150 | 150 | 3200 | 1200 | 725 |
| 4200A | 4200 | 1200 | 150 | 150 | 4200 | 1200 | 725 |

**DMC-B**

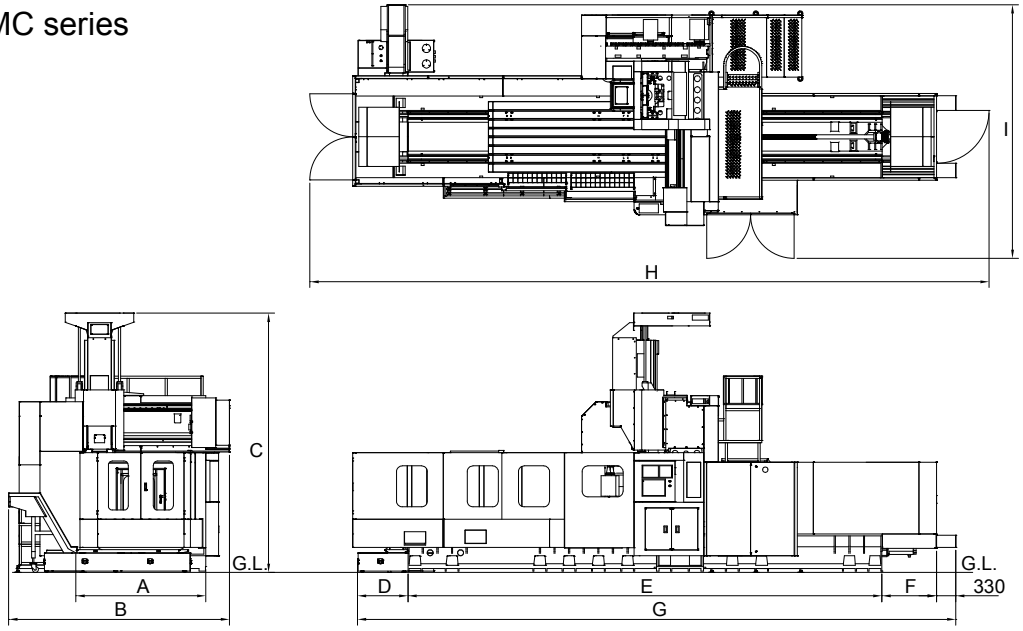
| | A | B | C | D | E | F | G |
|---|---|---|---|---|---|---|---|
| 2200B | 2200 | 1500 | 150 | 150 | 2200 | 1500 | 725 |
| 3200B | 3200 | 1500 | 150 | 150 | 3200 | 1500 | 725 |
| 4200B | 4200 | 1500 | 150 | 150 | 4200 | 1500 | 725 |

**DMC-C**

| | A | B | C | D | E | F | G |
|---|---|---|---|---|---|---|---|
| 2200C | 2200 | 1700 | 150 | 150 | 2200 | 1700 | 725 |
| 3200C | 3200 | 1700 | 150 | 150 | 3200 | 1700 | 725 |
| 4200C | 4200 | 1700 | 150 | 150 | 4200 | 1700 | 725 |

# Floor space

DMC series




**DMC-A**

| | A | B | C | D | E | F | G | H | I |
|---|---|---|---|---|---|---|---|---|---|
| 1700A | 2200 | 3850 | 4420 | 860 | 4100 | 735 | 6025 | 8600 | 4335 |
| 2200A | 2200 | 3850 | 4420 | 860 | 4100 | 735 | 6025 | 8600 | 4335 |
| 3200A | 2200 | 3850 | 4420 | 860 | 6100 | 840 | 8130 | 10600 | 4335 |
| 4200A | 2200 | 3850 | 4420 | 950 | 8100 | 932 | 10312 | 13300 | 4335 |

**DMC-B**

| | A | B | C | D | E | F | G | H | I |
|---|---|---|---|---|---|---|---|---|---|
| 2200B | 2570 | 4680 | 4420 | 860 | 4100 | 735 | 6025 | 8600 | 4810 |
| 3200B | 2570 | 4680 | 4420 | 860 | 6100 | 840 | 8130 | 10600 | 4810 |
| 4200B | 2570 | 4680 | 4420 | 950 | 8100 | 930 | 10310 | 13300 | 4810 |

**DMC-C**

| | A | B | C | D | E | F | G | H | I |
|---|---|---|---|---|---|---|---|---|---|
| 2200C | 2570 | 4680 | 4420 | 860 | 4100 | 735 | 6025 | 8600 | 4810 |
| 3200C | 2570 | 4680 | 4420 | 860 | 6100 | 840 | 8130 | 10600 | 4810 |
| 4200C | 2570 | 4680 | 4420 | 860 | 8100 | 930 | 10310 | 13300 | 4810 |

# Technical Data

| Model | DMC-A | | | | DMC-B | | | DMC-C | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 1700A | 2200A | 3200A | 4200A | 2200B | 3200B | 4200B | 2200C | 3200C | 4200C |
| **TRAVEL** | | | | | | | | | | |
| Travel Ranges (X/Y/Z mm) | 1700x1400x850 | 2200x1400x850 | 3200x1400x850 | 4200x1400x850 | 2200x1700x850 | 3200x1700x850 | 4200x1700x850 | 2200x1900x850 | 3200x1900x850 | 4200x1900x850 |
| Spindle Nose to Table Surface (mm) | 100~950 | | 50~900 | | 100~950 | 50~900 | | 100~950 | 50~900 | |
| Spindle Center to Column (mm) | 404 | | | | 404 | | | 404 | | |
| Distance Between Column (mm) | 1400 | | | | 1900 | | | 1900 | | |
| **Table** | | | | | | | | | | |
| Table Size (mm) | 1700x1200 | 2200x1200 | 3200x1200 | 4200x1200 | 2200x1500 | 3200x1500 | 4200x1500 | 2200x1700 | 3200x1700 | 4200x1700 |
| T-Slot (W x D x N mm) | 22x150x7 | | | | 22x150x9 | | | 22x150x11 | | |
| Max. Table Load (Kgs) | 5000 | 5000 | 8000 | 8000 | 8000 | 10000 | 12000 | 8000 | 10000 | 12000 |
| **Spindle** | | | | | | | | | | |
| Tool Shank & Pull Stud | ISO50 | | | | ISO50 | | | ISO50 | | |
| Spindle Inner Diameter (mm) | Ø100 | | | | Ø100 | | | Ø100 | | |
| Spindle speed (rpm) Gear | 8000 | | | | 8000 | | | 8000 | | |
| Draw Bar Force (Kgf) | 1800 | | | | 1800 | | | 1800 | | |
| Main Motor (con/30min kW) | 15/18.5 | | | | 15/18.5 | | | 15/18.5 | | |
| **Axis Servo Motor** | | | | | | | | | | |
| Rapid Feed Rate (X/Y/Z m/min) | 20/20/20 | 16/20/20 | 16/20/20 | 12/20/20 | 16/16/20 | 16/16/20 | 12/16/20 | 12/16/20 | 12/16/20 | 10/16/20 |
| X axis Fanuc model (rpm/kW) | α30i (4000/7.0) | | | α40i (3000/6.0) | α30i (4000/7.0) | | α40i(3000/6.0) | α30i (4000/7.0) | | α40i(3000/6.0) |
| Y/Z axes Fanuc (rpm/kW) | α30i (4000/7.0) | | | | α30i (4000/7.0) | | | α30i (4000/7.0) | | |
| **Auto Tool Changer** | | | | | | | | | | |
| ATC Type | Chain | | | | Chain | | | Chain | | |
| CAM Type | ARM | | | | ARM | | | ARM | | |
| Tool Storage Capacity (PCS) | 32/40(opt.) | | | | 32/40(opt.) | | | 32/40(opt.) | | |
| Max. Tool Diameter (mm) | Ø160/Ø250 | | | | Ø160/Ø250 | | | Ø160/Ø250 | | |
| Max. Tool Length | 350 | | | | 350 | | | 350 | | |
| Max. Tool Weight | 20 | | | | 20 | | | 20 | | |
| **Miscellaneous** | | | | | | | | | | |
| Air Requirement ($kg/cm^2$) | 6 | | | | 6 | | | 6 | | |
| Hydraulic Requirement ($kg/cm^2$,L) | 60,40L | | | | 60,40L | | | 60,40L | | |
| Power Requirement (KVA) | 50 | | | | 50 | | | 50 | | |
| Coolant Tank Capacity (L) | 900 | | | | 900 | | | 900 | | |
| Machine Weight (kgs) | 15500 | 16000 | 17000 | 18000 | 21000 | 22500 | 24000 | 22000 | 23500 | 25000 |
| Machine Height (mm) | 4500 | | | | 4500 | | | 4500 | | |
| Floor Space (LxW mm) | 5800x4150 | 6090x4150 | 8130x4150 | 10310x4150 | 6090x5300 | 8130x5300 | 10310x5300 | 6090x5300 | 8130x5300 | 10310x5300 |

**Specifications subject to change without notice.*

## Standard Accessories:

- Coolant flushing system
- 3 axes telescopic covers
- Automatic lubrication system
- Working lamp
- Operation status light
- Screw type chip conveyors
- Chain type 32-tool ATC
- Gear head spindle
- Cooling system
- Z axis pneumatic balance system
- Air gun/water gun
- MPG handwheel
- Heat exchanger
- Spindle oil cooler
- Adjusting tools and box
- Leveling bolts and pads
- Operation and programming manual
- Semi-full splash safety guard

## Options:

- Transformer
- Full splash guard
- Chain type chip conveyor
- Coolant through spindle
- Linear scales
- Auto tool length measurement
- Auto workpiece measurement
- Manual universal head (90 Degree)
- Auto universal head (90 Degree)
- Rotary table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