

## MDS-13 series

The world's smallest direct drive motor.  
Perfect for light work gripper such as electronic part.

- Body diameter:  $\phi 13$  mm  
Body length: 26/32/38 mm
- Max torque: 7/15/25 mN·m
- Max speed: 3000 rpm
- Max resolution: 11 bit



## MDS/MDH-20 series

The smallest through-shaft servomotor in the world.  
Perfect for end effector (hand, gripper, Z $\theta$  unit) with through-shaft.  
It could be used for small hand in combination with low slowdown rate gear.

- Body diameter:  $\phi 21$  mm  
Body length: 32/38/44 mm
- Max torque: 40/90/130 mN·m
- Max speed: 3000 rpm
- Max resolution: 288,000 P/R (Multiplied by 4), 18 bit
- Hollow diameter:  $\phi 2.6$  mm (MDH type)



## MDS/MDH-30 series

Perfect for highly-precise dispenser and small gimbal driving.

- Body diameter:  $\phi 30$  mm  
Body length: 32/38/44 mm
- Max torque: 140/280/420 mN·m
- Max speed: 1000 rpm
- Max resolution: 432,000 P/R (Multiplied by 4), 19 bit
- Hollow diameter:  $\phi 4$  mm (MDH type)



## MDH(12)-40 series

Series of MDH-40 with larger internal diameter.  
Internal diameter of  $\phi 12$ mm allows passing cable and laser etc.

- Body diameter:  $\phi 40$  mm  
Body length: 32/38/44 mm
- Max torque: 0.33/0.70/1.0 N·m
- Max speed: 450 rpm
- Max resolution: 1,296,000 P/R (Multiplied by 4)
- Hollow diameter:  $\phi 12$  mm (MDH type)



## MDH-60 series

Small-sized large bore hollow shaft.  
Perfect for end effector and robot joint etc.

- Body diameter:  $\phi 60$  mm  
Body length: 32/38/44 mm
- Max torque: 1.1/2.1/2.7 N·m
- Max speed: 300 rpm
- Max resolution: 2,000,000 P/R (Multiplied by 4), 20 bit
- Hollow diameter:  $\phi 20$  mm



## MDH-70 series

Small-sized large diameter hollow shaft.  
Perfect for index table, replacement of rotary actuator, robot (corresponds to elbow and shoulder)

- Body diameter:  $\phi 70$  mm  
Body length: 32/38/44 mm
- Max torque: 1.0/2.2/3.1 N·m
- Max speed: 200 rpm
- Max resolution: 2,592,000 P/R (Multiplied by 4), 21 bit
- Hollow diameter:  $\phi 25$  mm



# $\mu$ DD Motor Product guide



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MICROTECH LABORATORY INC.



# μDD Motor series



Motor Details Page



φ13mm

## MDS-13 series

**Smallest DD Motor in the World**  
suitable for lightwork grippers and robot hands.



φ21mm

## MDS/MDH-20 series

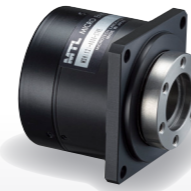
**Smallest Hollow-shaft Motor in the World**  
Perfectly work for Robot Hands/Grippers with Zθ unit.



φ30mm

## MDS/MDH-30 series

**Perfectly work for high precision dispencer and gimbal drives.**  
Hole tap inside is customizable.



φ40mm

## MDH(12)-40 series

**"LESS SPACE" because the hollow shaft can be used to pass cables and laser beam.**



φ60mm

## MDH-60 series

**(Multifunction ) product that can be applied in various ways such as End Effector, index drive shaft, robot joints, etc.**



φ70mm

## MDH-70 series

**suitable for indexing table, hollow geared motor replacement and robot arms.**



Inventory status



## High-precision Options

### Standard features

- Precisely built with high resolving power and accuracy in the started at 1arc sec.  
Available in incremental and absolute.
- Built in angular bearing and deep groove bearing make it extremely durable and can handle high direct load.

### Upgrade Options

- Based on encoder type, rotation accuracy and maximum rotation speed can be improved.
- High precision enabling shaft runout of ±5μm can be achieved.
- Cross roller bearing improve shaft rigidity, pursuing high precision and NRRO.
- Built in Flange mounting is changeable to freestanding type.



Customization page

## High Torque Options

### Standard features

- World's smallest rotary encoder designed by our expert. SMALL but HIGH DENSITY and ACCURACY.  
3TIMES faster than conventional AC servo Motors.

### High Torque Options

- low-speed gears design and compact with back driveability, low inertia and reduction ratios by 1/3 and 1/9.
- Torque diameter is expandable up to φ70 or more.



Low-speed Gears page

## Hollow-shaft Options

### Standard features

- Hollow shaft outer diameter is available up to 30%.

### Hollow shaft optimization options

- Hollow shaft taps is customizable by request.  
rotary joints directly connected and cables or air tubes can pass through without touching the ends of hollow shaft.
- Hollow inner diameter is customizable.
- Shaft can be designed as request.  
Shaft is customizable as request.



Customization page

## Customization Examples

- Encoder resolution is changeable
- Hollow shaft expansion
- Flangeless structure for motor cases
- Customable hole tap
- Cable extension and connector
- Support for low dust-generation
- Output shaft structure change  
(Change to pinion gear, positioning pin addition, knurling, alumite aluminum, etc.)
- Built-in motors
- IP improvement
- Customable Vacuum

To meet your needs of specification, we accept customization even just one unit. Feel free to contact us.

## Collaboration amplifiers



Catalog Download page

**Panasonic**

**EtherCAT**

**RTEX**  
Realtime Express



**MINAS A6 Family**



**MELSERVO-J4**

**MITSUBISHI ELECTRIC**

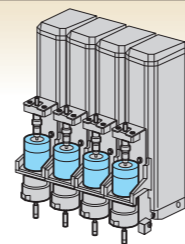
**SSCNET III/H**  
SERVO SYSTEM CONTROLLER NETWORK

## Drive μDD motors with a conventional system

We offer various conversion cables

### Super-compact with hollow shaft

We have shafts with super-compact outer diameters of φ21-70 that are also hollow all the way through. (φ2.6-25mm)  
Compressed air tubes, laser beams, and more can pass through hollow shafts, enabling smaller and faster-acting end effectors.



- Die bonders, chip mounters, chip conveyors, bonding devices, laminators, test handlers, etc.

### Advantages

- Hollow shafts  
(Cables, compressed air tubes, laser beams, ball screws, or spline shafts can pass through)
- Compact and efficient
- High-precision positioning, high speed precision and torque accuracy
- Compliance control, high back-drivability
- Low-speed, high-torque drive, speed ripple reduction
- Less noise great performance

We also have another collaboration amplifier available. Feel free to contact us for support.

## MTL Drivers

### Specialized compact drivers for researchers and engineers

Compatible with all μDD motor types  
Pulse stream, analog voltage, SPI communication

We offer various optional cables



Product Details page



## Cables

We can provide you extension cables and conversion



Product and inventory status

## Devices and mechanical units

We propose devices and mechanical units that use μDD motors



Product Details page