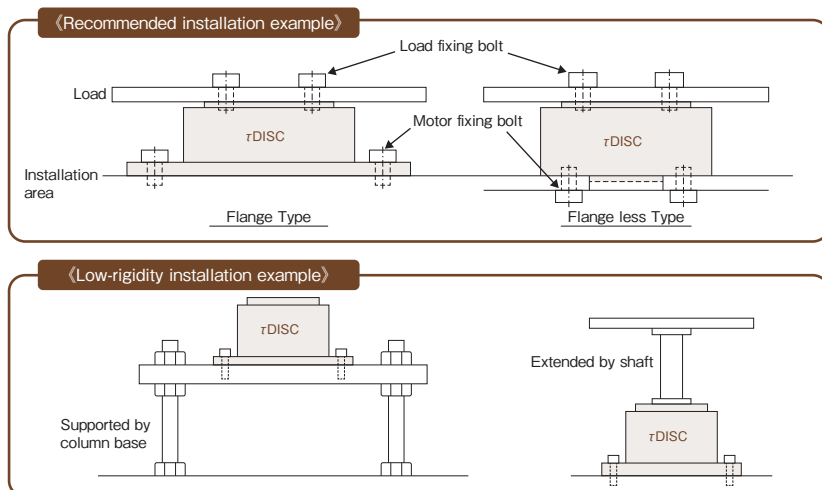# ■ τ DISC Notes on selection and design

◎ About installation of τ DISC

When installing the τDISC, follow the instructions below to maximize its performance.

・To ensure motor accuracy and heat radiation, install the motor on a highly rigid surface having a sufficiently large radiation area. Make sure that the entire base of the motor firmly adheres to the installation surface with no space between the base and the surface.

・If the motor is to be installed in a small installation surface with poor radiation performance, consult with our sales staff. Especially, in cases where a sufficiently large installation surface cannot be secured, such as when the motor is hung from the ceiling or supported by column bases, heat radiation conditions are poor, potentially preventing the motor from fulfilling its performance.

・Make sure that the entire load table firmly adheres to the rotating surface of the motor with no space between the table and the surface. Low rigidity prevents the motor from fulfilling its performance. Be sure to have as much rigidity as possible when installing the motor.

《Recommended installation example》

Load fixing bolt

Load

τDISC   τDISC

Motor fixing bolt

Installation area

Flange Type   Flange less Type

《Low-rigidity installation example》

τDISC

Extended by shaft

Supported by column base

τDISC

◎ About the allowable loads of τ DISC

・The allowable axial load and allowable moment load shown in the individual specifications of the τDISC are the maximum loads that are allowed when they are applied independently. If the combined load of an axial load, radial load, and moment load is applied, contact our sales staff.

・An excessive load or unbalanced load may cause rotor deformation or bearing abnormality. When selecting the motor, ensure that there is enough allowance in the allowable axial load and allowable moment load.

・Use the following allowable values as a guide. If these allowable values are exceeded, consult with our sales staff.

Installation direction	Series	Allowance value guide
When using the motor with the rotor facing upward or sideways	All τDISC Series	70% or less of each allowable value *
When using the motor with the rotor facing downward	DD-s Series	30% or less of allowable axial load, 70% or less of allowable moment load
	Other than the DD-s Series	Consult with our sales staff.

 * If you have the motor keep rotating with a load applied, make sure that each load is within 30% of the relevant allowable value.

◎ About magnetic pole detection of τ DISC

・The τDISC is a synchronous AC servo motor. Exercise due care because the output toque may fall below the specification value if magnetic pole detection is not ompleted normally.

・For a motor equipped with an incremental encoder, magnetic pole detection can be done in two ways. One is to use the magnetic pole sensor built in the motor, and the other is to use the automatic magnetic pole detection function of the servo driver. When the magnetic pole is detected using the magnetic pole sensor, magnetic pole detection may fail to be completed normally unless the rotor of the motor is moved several degrees from the power-on position. In the case of automatic magnetic pole detection, the magnetic pole is automatically detected as the rotor makes an oscillatory movement at the first servo-on after the power is turned on. The oscillation angle in each of these cases differs depending on the motor type. For details, refer to "Notes on magnetic pole detection" of the instruction manual of the τDISC servo motor.

◎ About the small angle operation of τ DISC

・For a machine that is operated in a small range of angles, turn the rotary table of the motor by 90° or more on a regular basis to prevent uneven wear due to lack of grease in the bearing as well as to maintain accuracy.

・When the motor is reciprocated continuously within a small range of angles or torque is output without rotating the motor, make sure that the effective torque is 70% or less of the rated torque of the motor. We can also meet the anti-fretting specifications intended to extend the life of the bearing when the rolling elements reciprocate repeatedly within a very small range of angles and cannot turn periodically.

◎ About the selection calculation of τ DISC

・The selection calculation sheet for rotor index positioning can be downloaded from our website.

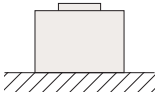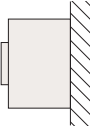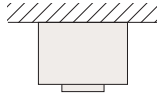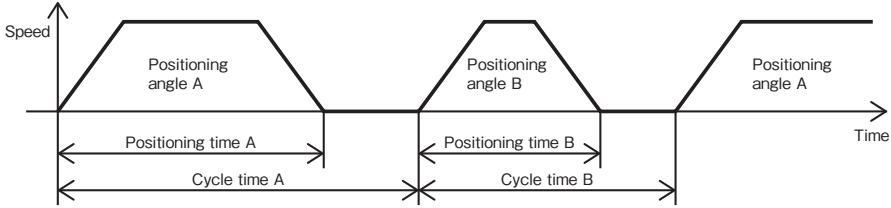* For information about the selection of the HD-s Series, contact our sales staff.

⚠ Details about τDISC mounting, installation, usage instructions, etc. are given in the instruction manual of the τDISC servo motor. Read the manually carefully before use.

■ τ DISC Required specification sheet

Fill out the sheet according to your required specifications. Check the box corresponding to your requirement, or put necessary information in parentheses.

If you are not sure or have no specific requirement about an item, you may skip it. After completing this sheet, fax it to your local distributor or contact our sales staff.

Entry date:

Purpose and device name	
Motor installation and fixing conditions	☐Rotor facing upward　　☐Rotor facing sideways　　☐Rotor facing downward Whether the motor can be moved ☐ No　　☐ Yes(when the motor is mounted on an XY stage, vertically moving mechanism, etc.) Fixing conditions: Put the shape, material, thickness, etc. of the stator of the motor. Separate document(s) ☐ Not attached　　☐ Attached
Load specifications and mounting condition	Load inertia moment on the motor　(　　　　　)kg·㎡　　Load weight　(　　　　　)kg Also, describe the shapes, weights, materials, and quantities of the tables, workpieces, tools, etc. that constitute the load on the motor, as well as the load mounting condition(even load or unbalanced load). Separate document(s) ☐ Not attached　　☐ Attached Outline, numerical values, etc.
External force	☐None　　☐With (　　　　)N Direction and position of the External force　(　　　　　　　　　　　　　　　) ☐ At all times　　☐ When stopped　　☐ When rotating
Operation specifications	Positioning angle A　(　　　　)°　　　　　　　　Positioning angle B　(　　　　)° Positioning time A　(　　　　)sec　　　　　　　Positioning time B　(　　　　)sec Cycle time A　(　　　　)sec　　　　　　　　　Cycle time B　(　　　　)sec Speed Positioning angle A　　Positioning angle B　　Positioning angle A Positioning time A　　Positioning time B　　Time Cycle time A　　Cycle time B
Required accuracy	Positioning accuracy　　Repeated Positioning accuracy　　±(　　　　)arcsec 　　　　　　　　　　　　Absolute Positioning accuracy　　±(　　　　)arcsec 　　　　　　　　　　　　Or distance from the rotation center　　Accuracy at the radius of(　　) mm 　　　　　　　　　　　　Repeated Positioning accuracy　　±(　　　　) μm 　　　　　　　　　　　　Absolute Positioning accuracy　　±(　　　　) μm Table surface rotation accuracy　　Axial run out　　(　　　　) μm 　　　　　　　　　　　　Radial run out　　(　　　　) μm
Outline requirements	Size limitations　　Height　　(　　　　)mm or less 　　　　　　　　　Outside diameter　　(　　　　)mm or less Use of middle hole diameter ☐None　　☐With (　　　　)mm or more
Other requirements	

■ Your company name			
■ Your department name		■ Your name	
■ E-mail		■ Tel	