

中空旋转式传动装置的特征/Features

一体入力轴/Integrated Input Shaft

一体式入力轴，高承载刚性，无打滑风险
Integrated input shaft, high bearing rigidity, no risk of slipping



大口径中空旋转平台可简洁地配线、配管

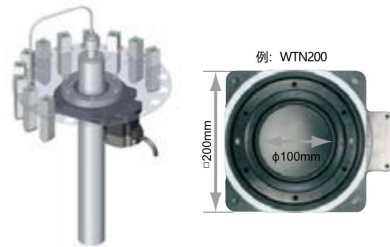
The large diameter hollow Rotary Actuator could simplify wiring and piping

大口径中空孔（贯穿）可用于布线复杂的配线与配管等场合，使装置设计更为简洁。

- 时输液管贯穿机构的装置

The large diameter hollow hole (through-hole) helps reduce the complexity of wiring and piping, thus simplifying equipment design.

- Filling equipment with piped-in liquid

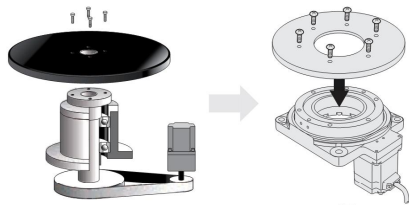


例: WTN200

削减设计工时/Simplified Design

可直接将装置的工作台及机械手臂安装在旋转平台上。与使用皮带轮等机构零件时相比，可减少机构设计、零件调配、皮带状态调节等的工时与费用。

Tables and arms can be installed directly onto the output table. This saves the hassle and cost of designing an installation mechanism, arranging necessary mechanism parts, adjusting the belt tension, etc., when mechanical components such as a belt Motor + and pulley are used for installation.



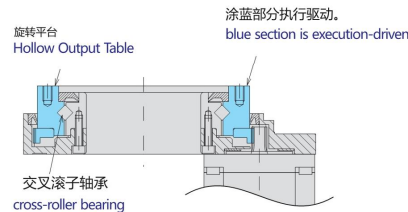
电动机 + 机构部件
(单独设计·采购)
Motor + Mechanical Components
(Designed separately, Purchase)

DG II 系列
(一体化产品)
DG II Series
(Integrated product)

大口径中空旋转平台/The large diameter hollow Rotary Actuator

型号 Model	安装尺寸 Frame Size(mm)	中空径 Hollow Diameter (mm)
WTN60	60	φ28
WTN85	85	φ33
WTN130	130	φ62
WTN200	200	φ100

标准型的构造 /Standard Structure



旋转平台
Hollow Output Table

涂蓝部分执行驱动。
blue section is execution-driven

交叉滚子轴承
cross-roller bearing

高负载·高刚性/High Load and High Rigidity

重载型的旋转平台的轴承采用交叉滚子轴承，实现了高负载、高刚性。

- 最大容许轴向负载 4000N
- 最大容许惯性力矩 100N·m

The heavy load rotary actuator uses a cross-roller bearing which allows for both high load and high rigidity.

Maximum Permissible Axial Load 4000 N
Maximum Permissible Inertia Moment 100 N·m

[运行示例]

品名: WTN200010
Example Operation
Actuators Name: WTN200010

搬运质量 91kg(工作物6个+工作台)
: 工作物10kg/个×6个
: 工作台31kg(直径500mm、厚20mm、铁制)

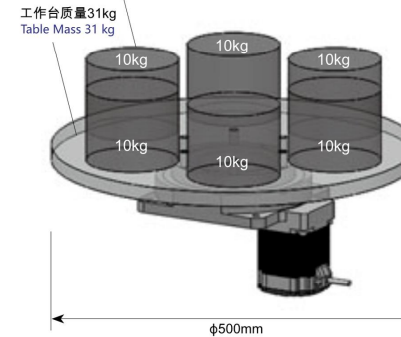
伸出的距离: 160mm
安装方向: 水平

Load: 91 kg (load 6pcs + working table)
Load 10 kg/piece × 6 pieces
Table 31 kg
(Diameter 500 mm (19.7 in.), thickness 20 mm (0.79 in.), iron)

Overhang Distance: 160 mm (6.3 in.)
Installation Direction: Horizontal

工作物10kg×6个
Load 10 kg × 6 pieces

总质量91kg
Total Mass 91 kg



- 高负载
High Load

总质量91kg的轴向负载为893N。
(10kg×6个+31kg) × gm/s²=893N
DG200R的容许轴向负载为4000N，在容许值内。

The axial load for a total mass of 91 kg is 893 N.
The permissible axial load of the WTN200 is 4000 N, so this is within the permissible value.

可高负载驱动/High Load Driving

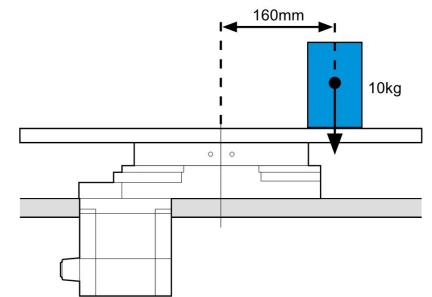
- 高刚性

距工作台中央部160mm的位置有10kg的工作物时，惯性力矩为15.7N·m。10kg×gm/s²×0.16m=15.7N·m

WTN200的容许惯性力矩为100N·m，在容许值内。

• High Rigidity
When a working load of 10kg is placed at a distance of 160 mm (6.3 in.) from the center of the table, the Inertia Moment is 10kg×gm/s²×0.16m=15.7N·m

The permissible moment of the WTN200 is 100 N·m, within the permissible value.



高刚性旋转式传动装置

将高负载加载到非工作台中央部的位置时能够顺畅驱动

A high-rigidity rotary actuator allows a large load that is far away from the table center to be driven

无齿隙的高精度定位/High Positioning Accuracy with Non-Backlash

- 无齿隙
- 重复定位精度 ±15arcsec (±0.004°)

[请注意] 精度是在一定负载、一定温度（常温）下的数值。

- Non-Backlash
- Repeated positioning Accuracy ±15 arc seconds (±0.004°)

Note
The repetitive positioning accuracy is measured at a constant temperature (normal temperature) under a constant load.

用途范例/Applications

利用中空孔的用途

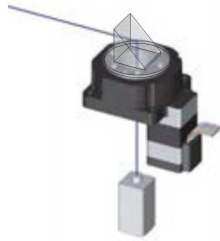
Applications that require hollow shaft

• 输液管贯穿机构的装置

Filling equipment with piped-in liquid



• 光学用途 Optical Application



需要高刚性的用途

Applications that Require High Rigidity

• 施加惯性力矩负荷的用途(倒挂安装)

Applications in which a Moment Load is Applied (Ceiling installation)



需要高性能电动机的用途 Applications that Require High Performance Motors

• 高精度定位用途(图像检查装置)

High Positioning Accuracy (Image inspection equipment)



• 负载惯性发生变化的用途(磁盘制造装置)

Applications with Load Fluctuations (Disc manufacturing equipment)



安装方向自由 Install in Any Direction

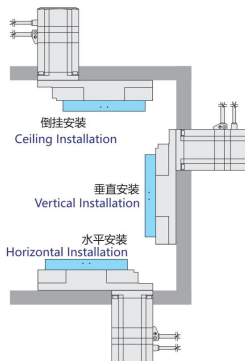
DG II 系列除水平安装外，还可垂直安装或倒挂安装，装置设计的范围较广。

The DG Series can not only be installed horizontally, but can also be ceiling mounted or wall mounted. More options for equipment design.

【请注意】

中空旋转式传动装置偶尔会有少量润滑油渗出。如果润滑油渗出导致周围环境污染，请在定期检查时进行确认或安装接油盘等装置。

Note
A small amount of grease will occasionally seep out of the hollow rotary actuator. If a grease leak would cause a contamination issue near the machine, either perform routine inspections, or install protective equipment such as an oil sump.

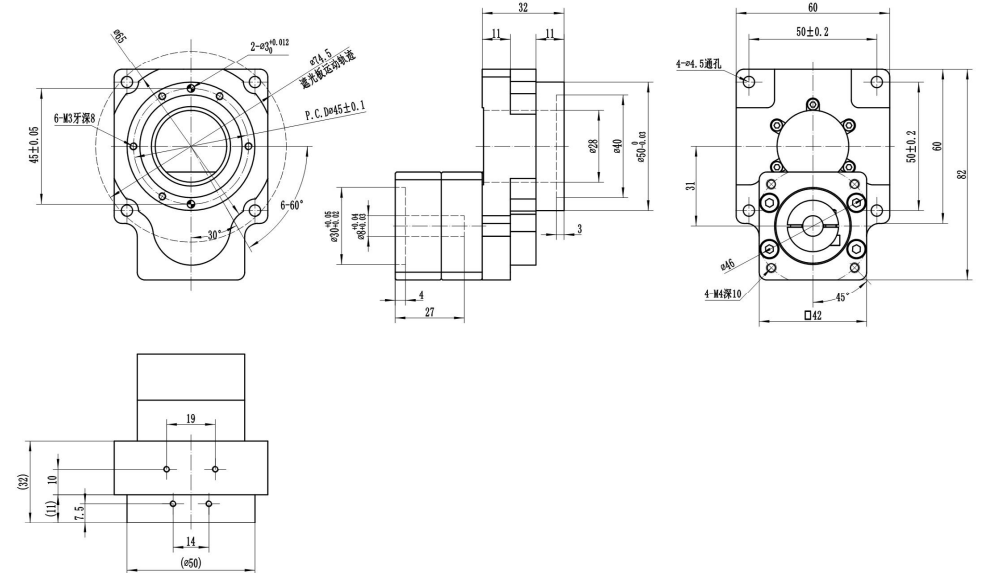


重载型/Overloading type

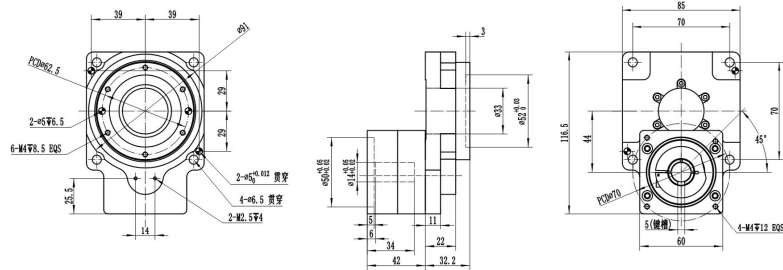
WTN系列性能表/WTN series Performance data sheet

品名	WTN060	WTN085	WTN130	WTN200				
搭载马达型号 Equipped motor type	42型步进马达 Stepper motor 50W~100W伺服电机 Servo motor		57型步进马达 Stepper motor 200W~400W伺服电机 Servo motor	86型步进马达 Stepper motor 750W伺服电机 Servo motor				
支撑旋转平台轴承 Bearing type	交叉滚子轴承 Crossed roller bearing							
减速比 Ratio	5	18	5	10	10	18	10	18
转动惯量 Rotational inertia	3507×10 ⁻⁷	4324×10 ⁻⁷	12593×10 ⁻⁷	12593×10 ⁻⁷	81556×10 ⁻⁷	81556×10 ⁻⁷	361220×10 ⁻⁷	361220×10 ⁻⁷
允许输出转矩 Allowable output torque	5.2N.m	1.2N.m	12N.m	10N.m	32N.m	20N.m	70N.m	70N.m
额定输出转速 Rated output speed	200r/min							
角度传动精度 Angle transmission precision	3arcmin							
反复定位精度 Reset positioning precision	±15arcsec							
齿隙 Backlash	无齿隙(可调节结构) No backlash(Adjustable structure)							
允许轴向负载 Allowable axial load	250N		500N		2000N		4000N	
允许惯性力矩 Allowable moment of inertia	5N.m		10N.m		50N.m		100N.m	
旋转平台平行度 Parallelism of rotating platform	<0.015		<0.02		<0.02		<0.04	
旋转平台同心度 Concentricity of rotating platform	<0.015		<0.015		<0.015		<0.015	
噪音 Noise			65dB				67dB	
防护等级 Protection level	IP40							
重量 Weight	0.6kg		1.2kg		2.8kg		9.6kg	

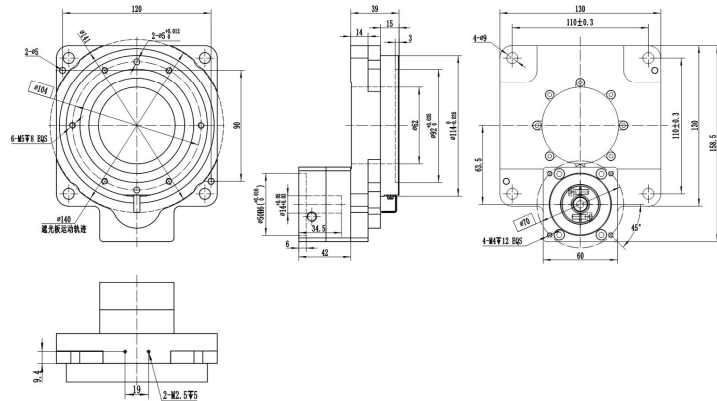
WTN060



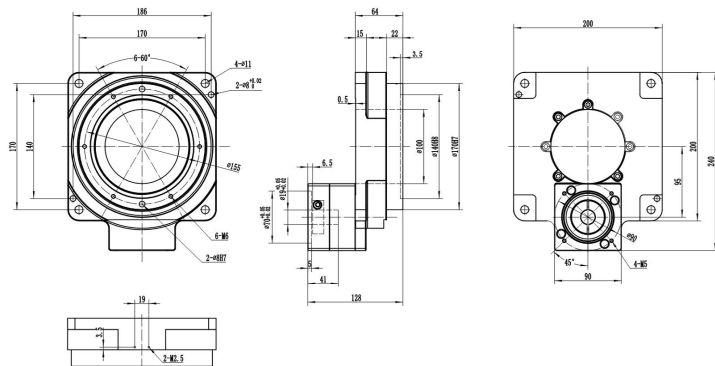
WTN085



WTN130



WTN200



INSTALLATION OF PLANETARY REDUCERS

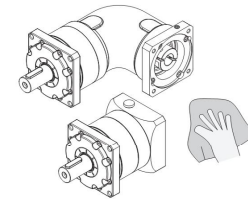
减速机安装方法

减速机如由贵司安装，请遵守以下要求。

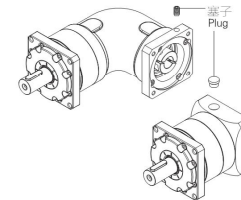
行星减速机马达安装法兰部的尺寸因伺服马达而异，有可能无法安装指定的伺服马达。（请务必安装订购时所指定的伺服马达。）
伺服马达的输出轴可能涂有防锈剂。

If your company install the planetary reducers by yourself, please comply with the following requirements:
The size of the motor mounting flange of the planetary reducer differs according to the servo motor, the designated servo motor maybe not able to be installed. (Please be sure to install the designated servo motor when purchased)
There may be rust inhibitor on the output shaft of the servo motor.

- 1 将马达轴安装面的防锈剂、油等擦拭干净。
Clean up the rust inhibitor and grease on the installing side of the motor shaft

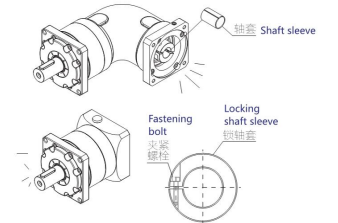


- 2 取下塞子。
Take off the plug



- 3 转动输入轴，使加紧螺栓等头部对准塞孔。此时请确认加紧螺栓处于松弛状态。将减速机垂直放置在平整场所，使减速机的马达安装面朝上。（如有轴套，请按图示进行安装。）

Rotate the input shaft, and align the top of the fastening bolt at the plug hole. Make sure that the fastening bolt is loose at the time. Lay the reducer vertically on the flat place, and face up the installing side of the motor. (If there is a shaft sleeve, please install it as the picture shows below)



- 4 请将马达轴缓缓地插入输入轴中以免造成撞击，确认马达法兰面与减速机法兰面紧贴。按规定的紧固扭矩紧固马达安装螺栓。（参见表3）

Please insert the motor shaft into the input shaft slowly to avoid impact, and make sure the surfaces of the motor flange and the reducer flange are stick together. Fasten the motor mounting bolt according to the specified fastening torque. (Refer to the Table 3)

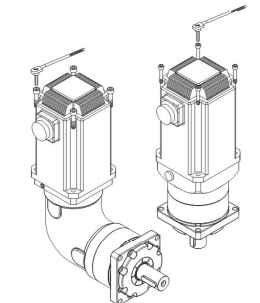


表3 螺栓紧固扭矩 Diagram 3 Bolt fastening torque

螺栓大小 Bolt size		M3	M4	M5	M6	M8	M10	M12	M16
马达安装螺栓 Motor mounting bolt	N·m	1.0	2.5	5.1	8.7	21	42	72	134
	kgf·m	0.11	0.26	0.52	0.89	2.1	4.3	7.3	14
夹紧螺栓 Fastening bolt	N·m	1.9	4.3	8.7	15	36	71	125	-
	kgf·m	0.18	0.44	0.89	1.5	3.7	7.2	13	-