

Motorized goniometers

TBG series motorized goniometers

FA stage



Description:

Zolix's TBG series motorized goniometers are designed for the applications in which small size and high operation rate are needed. Hard black anodic-oxidation aluminum-alloy are employed as main body materials to present good wear-resistance and excellent appearance. It is arc V-shaped ball guides that provide higher strength, higher load capability and longer-term durability. Worm, tin-bronze-made worm gear and standard two-phase stepping motors are used in driving mechanism to offer higher resolution and positioning accuracy. This series of rotation stages are suitable for being integrated in automation equipment and instruments in which there are strict requirements of space, dimension and weight. Another suitable application scenario is industrial production lines on which limited motion space and high repetition rate are present.

Main characteristics:

- Fine grinding worm/worm gear is used in driving mechanism. Tin-bronze-made worm gears present longer-term durability
- Smooth running is benefit from employed arc V-shaped ball guide

Naming rules:

TBG 100-80 (-ST542)

Series code:
TBG:wear-resistant tin-bronze-made worm gears, precise, aluminum alloy, arc V-shaped ball guides

Designed height at center:
100:100mm
140:140mm

Dimension of tables:
60:60mm×60mm
80:80mm x 80mm

Type of motor:
None (default): standard two-phase stepping motors
ST542:optional five-phase 42 stepping motors

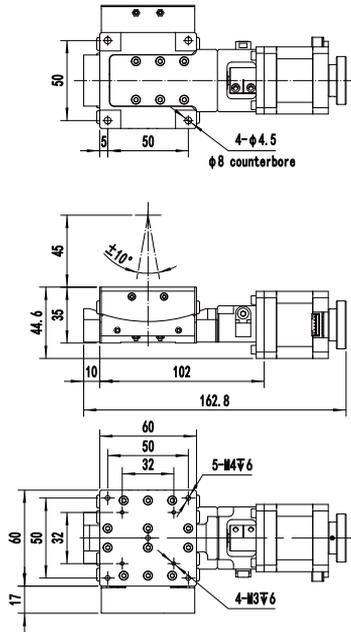
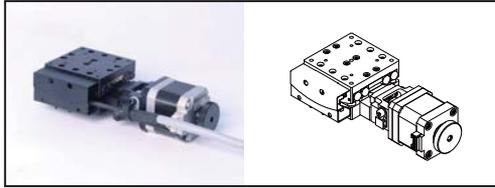
Selection chart:

	Model number	TBG45-60	TBG80-60	TBG100-80	TBG140-80
Mechanical specifications	Designed height at center (mm)	45	80	100	140
	Table dimensions(mm)	60×60		80×80	
	Swing angle range (°)	±10	±8	±8	±6
	Worm gear/worm transmission ratio	159:1	247:1	299:1	399:1
	Guides (guiding mechanism)	Arc V-shaped ball guides			
	Worm gear materials	Wear-resistant tin bronze			
	Worm materials and treatment techniques	Stainless steel, high-frequency quench			
	Main body materials and surface treatments	Black anodic-oxidation 2024 aluminum-alloy			
	Weight (Kg)	0.9		1.2	
Accuracy specifications	Shaft coupling (external diameter-diameter of aperture 1-diameter of aperture 2) (mm)	16-5-5		19-5-5	
	Step resolution (°)	≈0.011	≈0.007	≈0.006	≈0.0045
	8-fine-subdivision resolution (°)	≈0.001	≈0.0009	≈0.0007	≈0.0005
	Highest speed (°/s) *	≈22	≈14	≈12	≈9
	Repositioning accuracy (°)	≤±0.005			
	Static clearance (μm)	≤7	≤10	≤12	≤15
	Backward rotation clearance (°)	≤0.01			
	Thickness(mm)	35		40	
	Swing accuracy at rotation center (mm)	≤0.01			
Electrical specifications	Motor and its stepping angle (°)	Two-phase 42 stepping motor, 1.8			
	Model number of motor	SST43D2126-10			
	Working current (A)	1.7			
	Torque of motor (N·m)	0.456			
	Brand and model number of stepping driver (optional)	Moons, SR2			
	Type of plugs for stages	DB9 (pin)			
	Type of connection cables of stages	High flexible cables (Helukabel, Germany)			
	Length of connection cables of stages	0.2			
	Position-limit sensors (built-in)	2*GP1S09xHCPI (Sharp, Japan)			
	Origin-point sensors (built-in)	1*GP1S09xHCPI (Sharp, Japan)			
	Voltage of power supply for sensors (V)	DC5~24V ±10%			
	Consuming current (mA)	<60 (total)			
	Output for control	NPN open-collector output			
Status of output ports	output ON when sensor is blocked				
Operating load	Horizontal direction (Kg)	4	5	4	5
	Invert direction (Kg)	1.5	2.5	1.5	2.5
	Vertical direction (Kg)	2	3	2	3

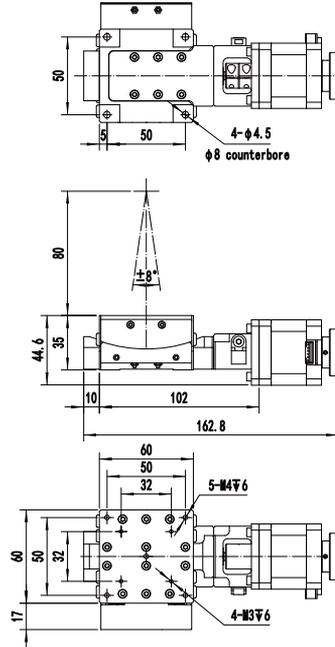
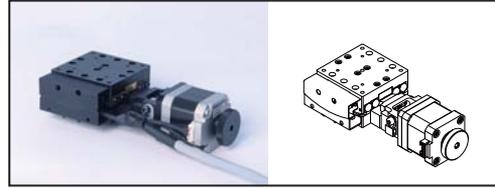
* Highest speed is measured with the conditions of zero-load and motors being worked at 600rpm

Drawing:

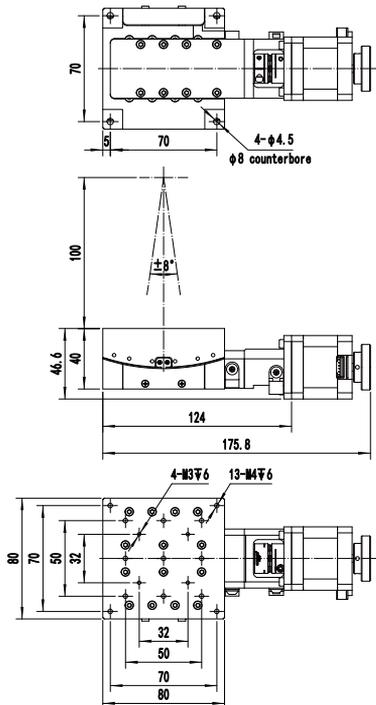
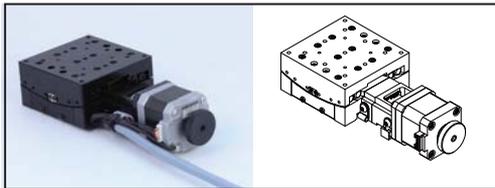
TBG45-60



TBG80-60



TBG100-80



TBG140-80

