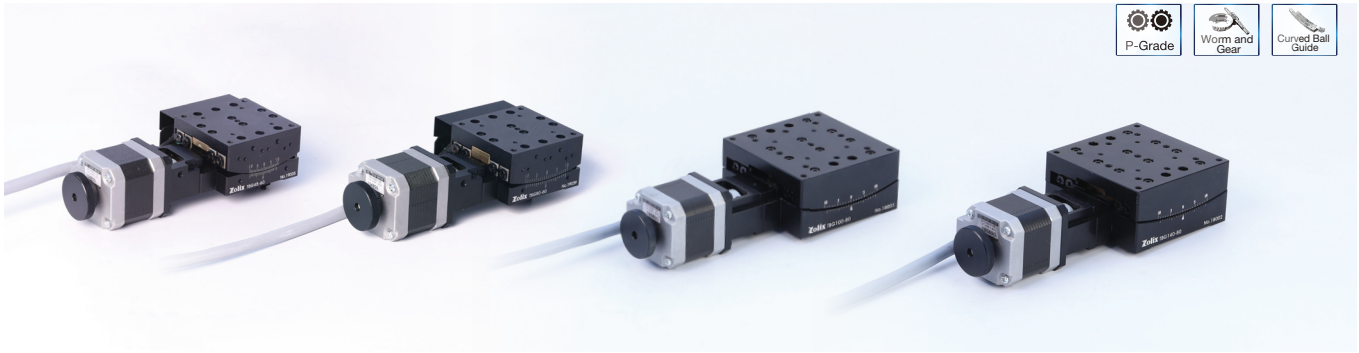
TBG Series Motorized Goniometers

FAstage



Description:

Zolix's TBG series motorized goniometers are designed for the applications which small size and high operation rate are needed. Hard black anodized aluminum-alloy are employed as main body material 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 which limited motion space and high repetition rate.

Features:

- The driving mechanism utilizes a finely ground worm and worm gear. The worm gears, made from tin-bronze, offer enhanced long-term durability.
- Smooth operation is ensured by the use of an arc crossed-roller guide.

Naming rules:

TBG 100-80 (-ST542)

- TBG: Series code: TBG:wear-resistant tin bronze-made worm gears, precise, aluminum alloy, arc V-shaped ball guide.
- 100: Designed height at center: 45:45mm 80:80mm 100:100mm
- 80: Dimension of table: 60:60mm × 60mm 80:80mm × 80mm
- (-ST542): Motor type: None (default): standard two phase stepping motorsST542: optional five-phase 42 stepping motor

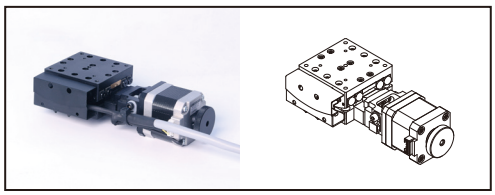
Selection chart:

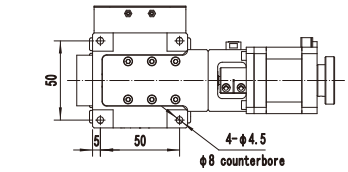
Model		TBG45-60	TBG80-60	TBGX100-80	TBGX140-80
Mechanical specifications	Designed height at center(mm)	45	80	100	140
	Stage surface size(mm)	60×60		80×80	
	Angle range(°)	±10	±8	±8	±6
	Worm gear/worm transmission ratio	159: 1	247: 1	299: 1	399: 1
	Guide mechanism	Arc V shaped ball guide		Arc crossed-roller guide	
	Worm gear material	Wear-resistant tin bronze			
	Material and process technology of worm	Steel, high-frequency quench			
	Main body material, surface treatment	Black anodized aluminum alloy			
	Weight(Kg)	0.9		1.2	
	Shaft coupling(OD - OD1- OD2)(mm)	16-5-5		19-5-5	
Accuracy specifications	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
	Backlash(°)	⩽0.01			
	Thickness(mm)	35		40	
	Swing accuracy at rotation center(mm)	⩽0.01			
Electrical specifications	Stepping motor and its stepping angle(°)	Two-phase 42 stepping motor, 1.8			
	Working current(A)	1.7			
	Torque of motor(N-m)	0.456			
	Model of motor	SST43D2126-10			
	Brand and model number of stepping driver(optional)	Moons, SR2			
	Type of plug for stage	DB9(pin)			
	Type of cable for stage	High flexibility cable(Helukabel, Germany)			
	Length of connection cable(m)	0.2			
	Position-limit sensors(built-in)	2×GP1S092HCPI(Japan SHARP)			
	Origin-point sensors(built-in)	1×GP1S092HCPI(Japan SHARP)			
	Voltage of power supply for	DC5~24V±10%			
	sensors(V)	<60(total)			
	Current consumption(mA)	NPN open controller output, DC5 ~ 24V 8mA or less Residual voltage 0.3V or less(when load current is 2mA)			
	Control output	Output ON when sensor is blocked			
Maximum load capacity	Horizontal direction(Kg)	4	5	4	5
	Vertical direction(Kg)	1.5	2.5	1.5	2.5
	Inverted direction(Kg)	2	3	2	3

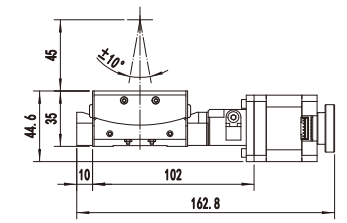
*Note: Highest speed is measured under zero-load conditions with the motor running at 600 RPM.

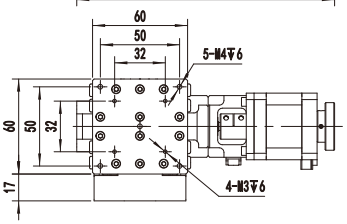
Dimensions:

TBG45-60

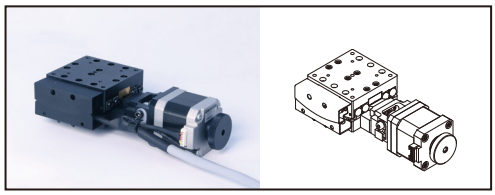


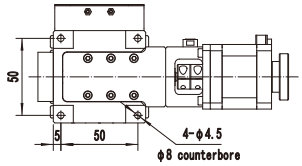


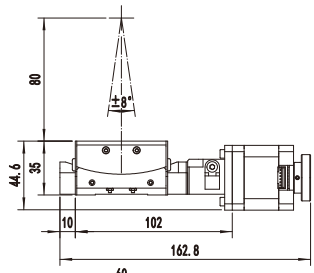


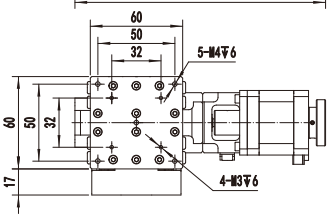


TBG80-60

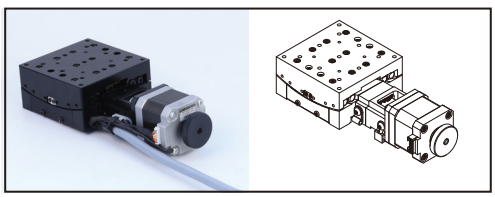


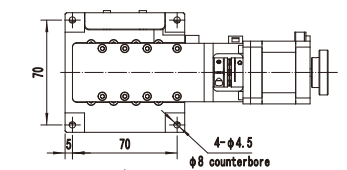


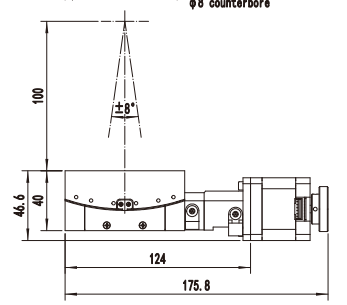


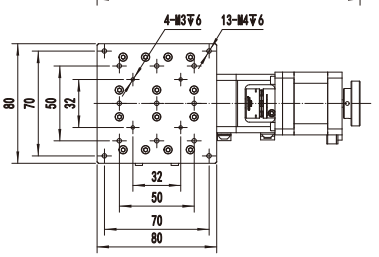


TBGX100-80









TBGX140-80