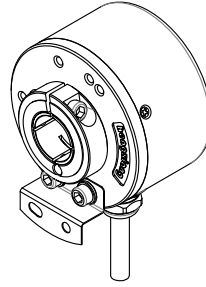


# K50

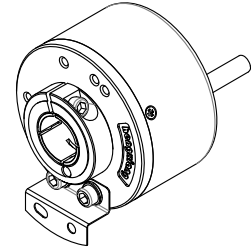
## Specifications 1/5

■ Incremental Type (Hollow shaft, blind hole and through hole)

- Feature: compact configuration, optional various output mode, easy to install, etc
- Application: textile industry, packing machinery, production line, etc, for automation control
- External dimensions: external diameter  $\varnothing 50\text{mm}$ , thickness 30mm, diameter of shaft  $\varnothing 15\text{mm}$ (blind hole);  $\varnothing 14\text{mm}$ ;  $\varnothing 12\text{mm}$ ;  $\varnothing 10\text{mm}$ ;  $\varnothing 8\text{mm}$ (blind hole & through hole)
- Resolution: up to 23040P/R
- Supply voltage: DC5V; DC8-30V
- Protection: IP50; IP65
- Cable length: 1000mm
- Weight: about 200g



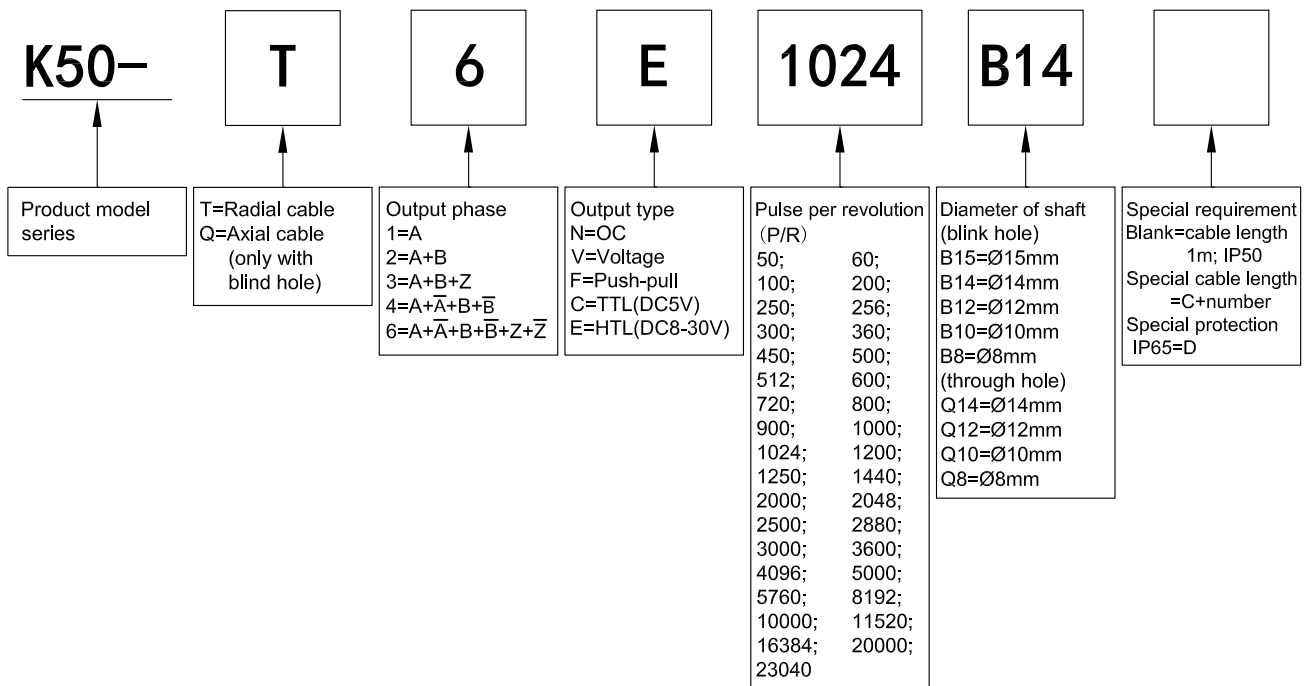
K50-T



K50-Q

■ Model Guide

- Model form (filled required parameters in the box as following)
- Must choose supply voltage: DC5V; DC8-30V
- Must choose leaf spring (Please refer to accessory at specifications 5/5)



# K50 Specifications 2/5

## Output Mode

Output type	Output circuit	Output wave form	Connection
OC		<p> <math>a.b.c.d = \frac{T}{4} \pm \frac{T}{8}</math>                      Phase A is ahead of B by <math>\frac{T}{4} \pm \frac{T}{8}</math>, rotate direction CW (View from shaft end, direction is clockwise rotation)                      CW direction <math>\rightarrow</math> </p>	0=GND 1=red=DC5V; DC8-30V 2=black=OV 3=white=A 4=green=B 5=yellow=Z
Push-Pull		<p> <math>a.b.c.d = \frac{T}{4} \pm \frac{T}{8}</math>                      Phase A is ahead of B by <math>\frac{T}{4} \pm \frac{T}{8}</math>, rotate direction CW (View from shaft end, direction is clockwise rotation)                      CW direction <math>\rightarrow</math> </p>	
Voltage		<p> <math>a.b.c.d = \frac{T}{4} \pm \frac{T}{8}</math>                      Phase A is ahead of B by <math>\frac{T}{4} \pm \frac{T}{8}</math>, rotate direction CW (View from shaft end, direction is clockwise rotation)                      CW direction <math>\rightarrow</math> </p>	
TTL HTL		<p> <math>a.b.c.d = \frac{T}{4} \pm \frac{T}{8}</math>                      Phase A is ahead of B by <math>\frac{T}{4} \pm \frac{T}{8}</math>, rotate direction CW (View from shaft end, direction is clockwise rotation)                      CW direction <math>\rightarrow</math> </p>	

## K50

## Specifications 3/5

## ■ Electrical Characteristics

Parameter Item	Output type	OC		Voltage		Push-pull		TTL		HTL		
Supply voltage		DC+5V±5%; DC8V-30V±5%						DC+5V±5%		DC8-30V±5%		
Consumption current		100mA Max										
Allowable ripple		≤3%rms										
Top response frequency		100KHz						200KHz		300KHz		
Output volume	Output current	Input	≤30mA		Load resistance 2.2K	≤30mA		≤±20mA		≤±50mA		
		Output	—			≤10mA						
	Output voltage	"H"	—		—		≥[(Supply voltage)-2.5V]		≥2.5V		≥V <sub>CC</sub> -3 V <sub>DC</sub>	
		"L"	≤0.4V		≤0.7V(less than 20mA)		≤0.4V(30mA)		≤0.5V		≤1V V <sub>DC</sub>	
	Load voltage	≤DC30V		—		—		—		—		
Rise & Fall time		Less than 2us(cable length: 2m)						Less than 1us (Cable length: 2m)		≤100ns		
Insulation strength		AC500V 60s										
Insulation resistance		10MΩ										
Mark to space ratio		45% to 55%										
Phase shift between A & B		90°±10° ( low speed,frequency ≤1000Hz )										
		90°±20° ( high speed,frequency >1000Hz )										
Origin motion		Low level available		High level available		Low level available		—				
GND		not connect to encoder										

## ■ Mechanical Characteristics

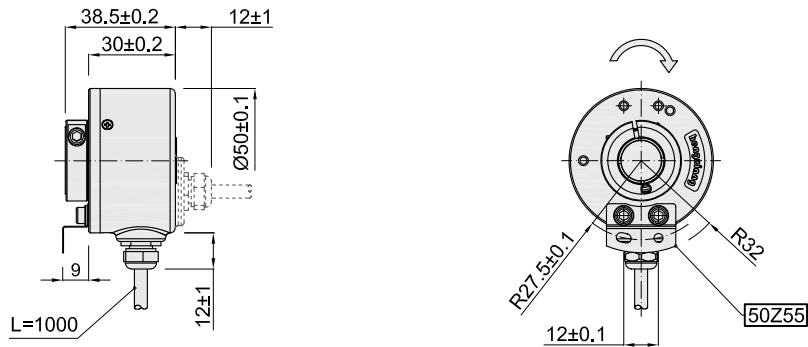
Shaft	Ø8mm; Ø10mm; Ø12mm; Ø14mm; Ø15mm(stainless steel)
Starting torque	Less than $9.8 \times 10^{-3}$ N·m
Inertia moment	Less than $6.5 \times 10^{-6}$ kg·m <sup>2</sup>
Shaft load	Radial 40N; Axial 20N
Slew speed	≤5000 rpm; IP65≤3000 rpm; (Through hole) IP65≤1500 rpm
Bearing Life	$1.5 \times 10^9$ revs at rated load(100000hrs at 2500RPM)
Shell	Die cast aluminum
Weight	about 200g

## ■ Environmental Specifications

Environmental temperature	Operating: -20~+90°C(repeatable winding cable: -10°C); Storage: -25~+100°C
Environmental humidity	Operating and storage: 35~85%RH(noncondensing)
Vibration(endure)	Amplitude 0.75mm,5~55Hz,2h for X,Y,Z direction individually
Shock(endure)	490m/s <sup>2</sup> 11ms three times for X,Y,Z direction individually
Protection	IP50; IP65

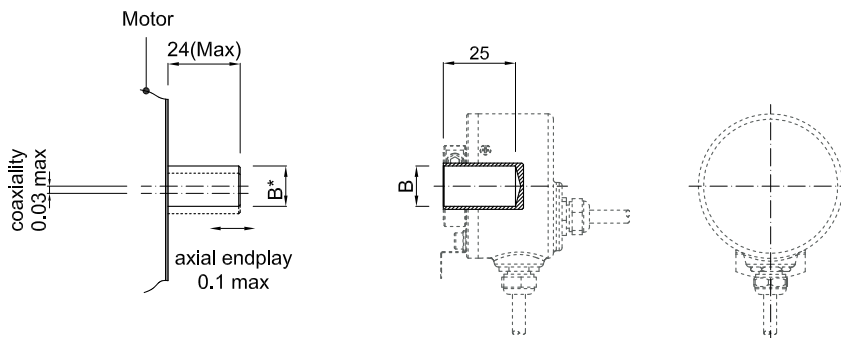
# K50 Specifications 4/5

## Basic Dimensions



## Assembling requirement

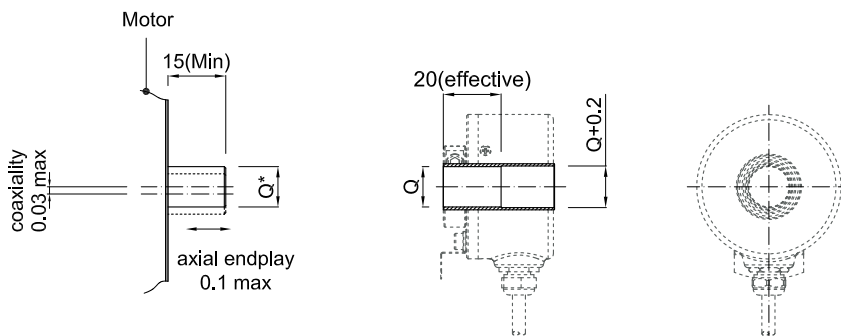
- Blind hole(B)



B	B*
Ø8 <sup>H7</sup>	Ø8 <sub>g4</sub>
Ø10 <sup>H7</sup>	Ø10 <sub>g4</sub>
Ø12 <sup>H7</sup>	Ø12 <sub>g4</sub>
Ø14 <sup>H7</sup>	Ø14 <sub>g4</sub>
Ø15 <sup>H7</sup>	Ø15 <sub>g4</sub>

B\* Motor shaft diameter tolerance

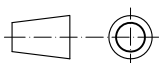
- Through hole(Q)



Q	Q*
Ø8 <sup>H7</sup>	Ø8 <sub>g4</sub>
Ø10 <sup>H7</sup>	Ø10 <sub>g4</sub>
Ø12 <sup>H7</sup>	Ø12 <sub>g4</sub>
Ø14 <sup>H7</sup>	Ø14 <sub>g4</sub>

Q\* Motor shaft diameter tolerance

Unit: mm



50Z55 = Leaf Spring

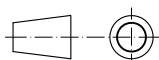
↻ = Rotate direction of signal output shaft

# K50 Specifications 5/5

■ Accessory (Leaf spring Optional)

<p>(Standard) 50Z55</p>			
<p>(Optional) 50T55</p>			
<p>(Optional) 50T60</p>			
<p>(Optional) 76T69</p>			

Unit: mm



About vibration

Vibration act on encoder always cause wrong pulse ,so we should pay attention to working place. More pulse per revolution , narrower groovy spacing of grating ,more effect to encoder by vibration,when rev is low or stop , vibration act on shaft or main body would cause grating vibrating ,so encoder might make wrong pulse.