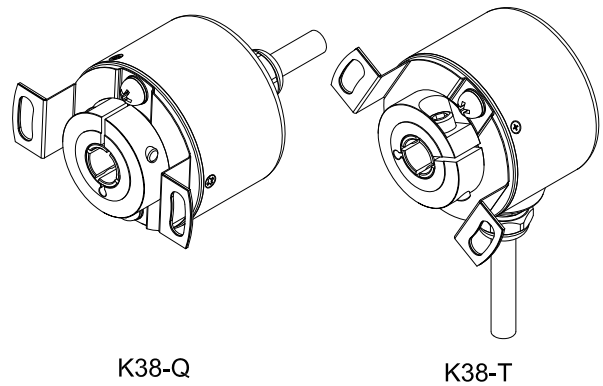
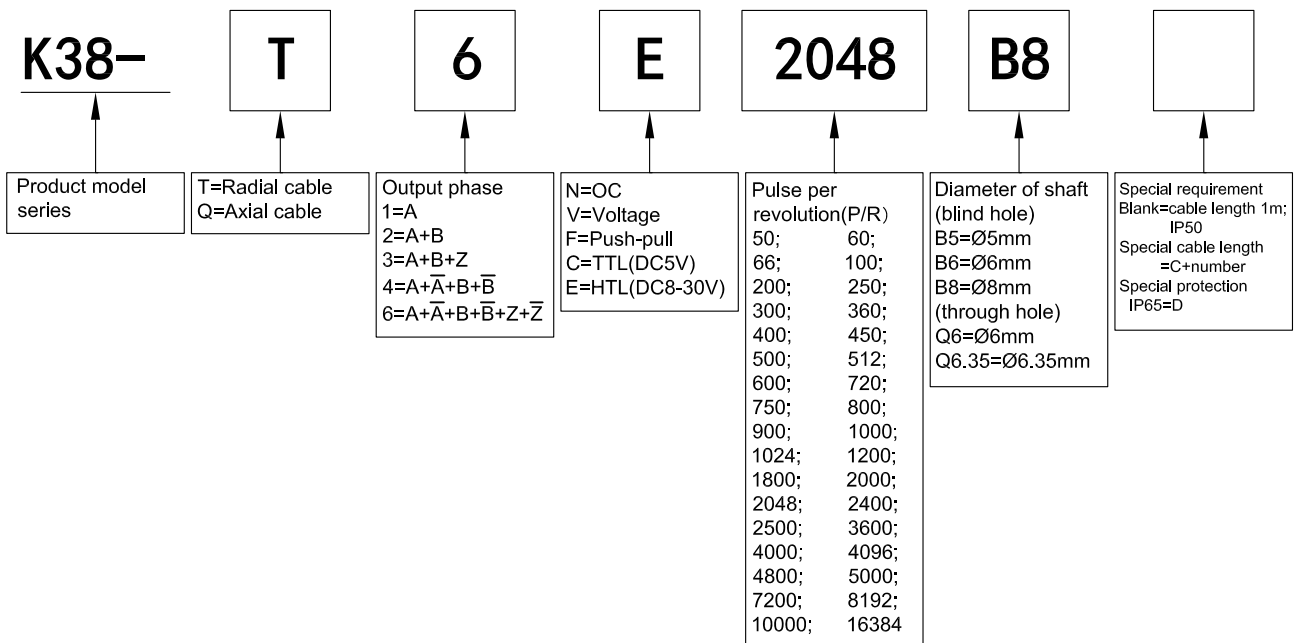


# K38 Specifications 1/4

- Incremental Type (Hollow shaft, blind hole and through hole)
  - Feature: general,small,optional various output mode,long service life,low price,etc
  - Application: textile industry、 packing machinery、 production line,etc,for automation control
  - External dimensions: external diameter  $\varnothing 38\text{mm}$ ,thickness 38mm,
  - Diameter of shaft:  $\varnothing 5$ 、 $\varnothing 6\text{mm}$ 、 $\varnothing 8\text{mm}$ (depth 18mm) ; through hole $\varnothing 6$  、 $\varnothing 6.35\text{mm}$
  - Resolution: up to 16384P/R
  - Supply voltage: DC5V; DC8-30V
  - Protection: IP50; IP65
  - Cable length: 1000mm
  - Weight: about 140g



- Model Guide
  - Model form (filled required parameters in the box as following)
  - Must choose supply voltage: DC5V; DC8-30V
  - leaf spring 38T45



# K38 Specifications 2/4

## 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>, rotation direction CW (Viewing 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>, rotation direction CW (Viewing 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>, rotation direction CW (Viewing 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>, rotation direction CW (Viewing from shaft end, direction is clockwise rotation)                      CW direction <math>\rightarrow</math> </p>	

## ■ Electrical Characteristics

Parameter		Output type		OC	Voltage	Push-pull	TTL	HTL
Item								
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 capacity	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° ( frequency in low speed )						
		90°±20° ( frequency in high speed )						
Origin motion		Low level available	High level available	Low level available	—			
GND		not connect to encoder						

## ■ Mechanical Characteristics

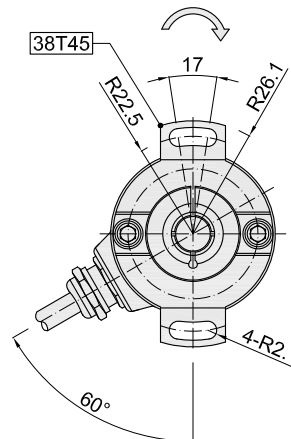
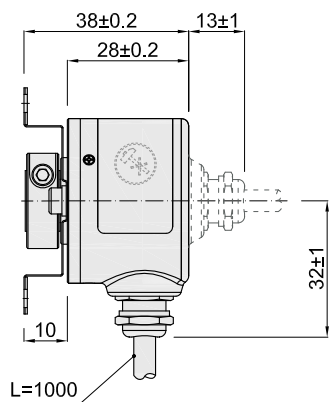
Shaft	Ø5mm; Ø6mm; Ø6.35mm; Ø8mm(stainless steel)
Starting torque	Less than $9.8 \times 10^{-3}$ N·m
Inertia moment	Less than $6.5 \times 10^{-6}$ kg·m <sup>2</sup>
Shaft load	Radial 40N; Axial 20N
Slew speed	≤5000 rpm; IP65≤3000 rpm
Bearing Life	1.5X10 <sup>9</sup> revs at rated load(100000hrs at 2500RPM)
Shell	Aluminium alloy
Weight	about 140g

## ■ 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(Endurance)	Amplitude 0.75mm,5~55Hz,2h for X,Y,Z direction individually
Shock(Endurance)	490m/s <sup>2</sup> 11ms three times for X,Y,Z direction individually
Protection	IP50; IP65

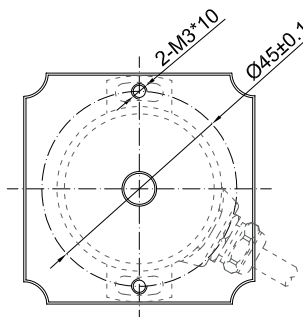
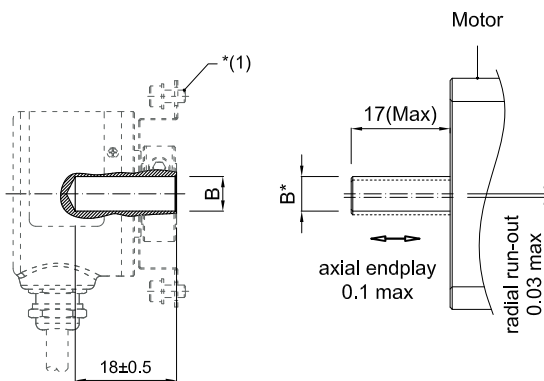
# K38 Specifications 4/4

## Basic Dimensions



## Assembling requirement

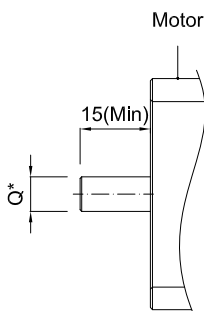
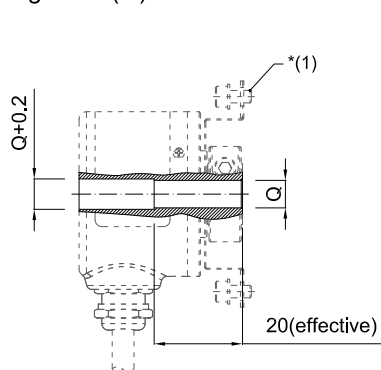
- Blind hole(B)



B	B*
Ø5 <sup>G7</sup> <sub>+0.004</sub> <sup>+0.016</sup>	Ø5 <sub>g5</sub> <sup>-0.004</sup> <sub>-0.009</sub>
Ø6 <sup>G7</sup> <sub>+0.005</sub> <sup>+0.020</sup>	Ø6 <sub>g5</sub> <sup>-0.005</sup> <sub>-0.011</sub>
Ø8 <sup>G7</sup> <sub>+0.005</sub> <sup>+0.020</sup>	Ø8 <sub>g5</sub> <sup>-0.005</sup> <sub>-0.011</sub>

B\* Motor shaft diameter tolerance

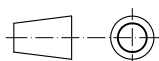
- Through hole(Q)



Q	Q*
Ø6 <sup>G7</sup> <sub>+0.005</sub> <sup>+0.020</sup>	Ø6 <sub>g5</sub> <sup>-0.005</sup> <sub>-0.011</sub>
Ø6.35 <sup>G7</sup> <sub>+0.005</sub> <sup>+0.020</sup>	Ø6.35 <sub>g5</sub> <sup>-0.005</sup> <sub>-0.011</sub>

Q\* Motor shaft diameter tolerance

Unit: mm



38T45 = Leaf Spring

= Rotate direction of signal output shaft

Note:

\*(1): Inner hexagon screw M3\*8 with flat gasket and spring ring is recommended to use

## 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.