1. Absolute Type-Parallel output (Hollow shaft,Thru-hole & Blind-hole)

1.1 Introduction:
KJ50 is an economic universal hollow shaft design, it is compact,sturdy,high safety,and commonly used in industrial automations

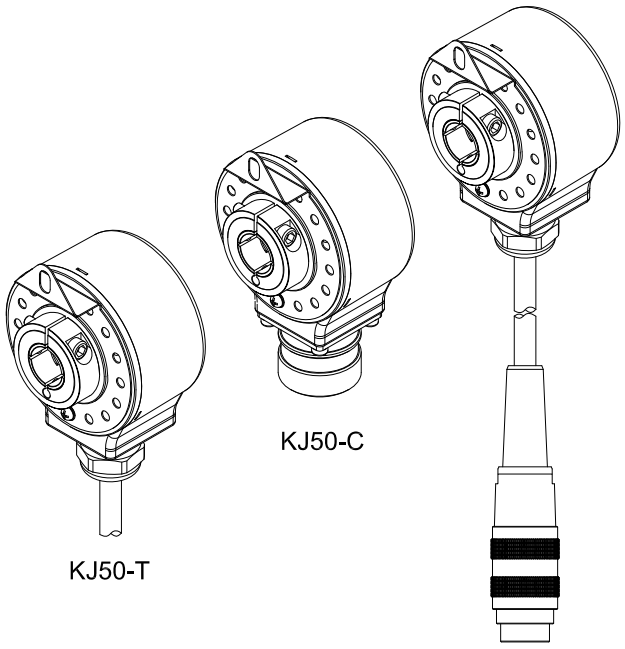
1.2 Feature:
- Encoder external diameter Ø51mm、thickness 39mm、diameter of shaft up to Ø15mm;
- Adopt non-contact photoelectric principle;
- Multiple electrical interfaces available;
- Gray code parallel output absolute position information;
- Resolution per turn up to 12Bits(4096)

1.3 Application:
Textile, packaging, motor, elevator, CNC and other automation control fields.

1.4 Connection:
- Radial cable (STD length 1000mm)
- Radial socket (M23*1 16P Male-connector)
- Radial cable with plug (STD length 1000mm,Plug M16F-16K)

1.5 Protection:
IP50 & IP65

1.6 Weight:
About 310g

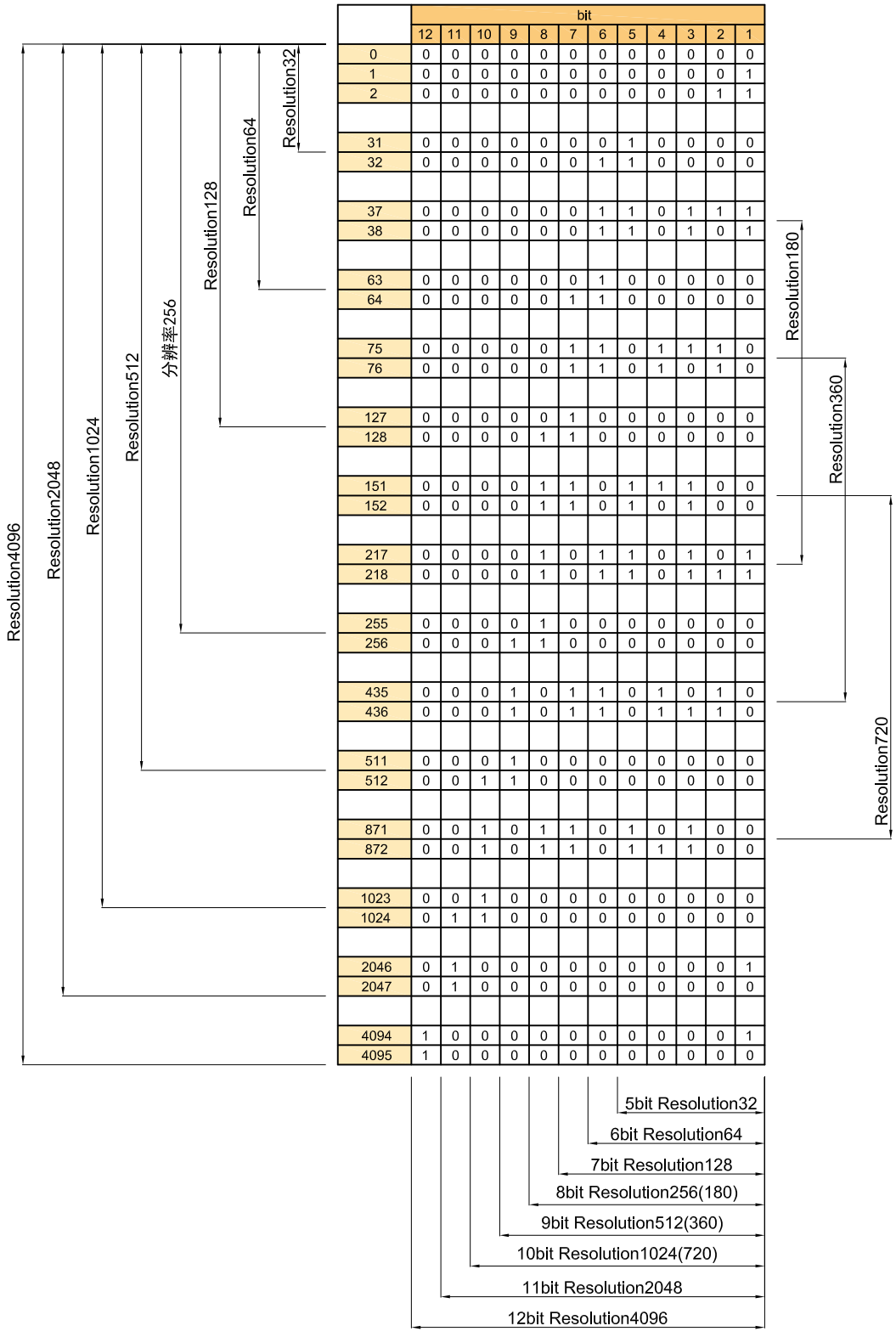


2. Model Selection Guide

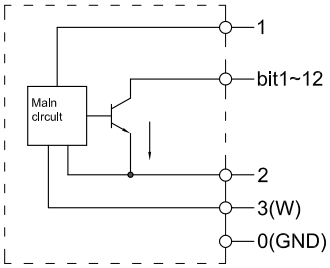
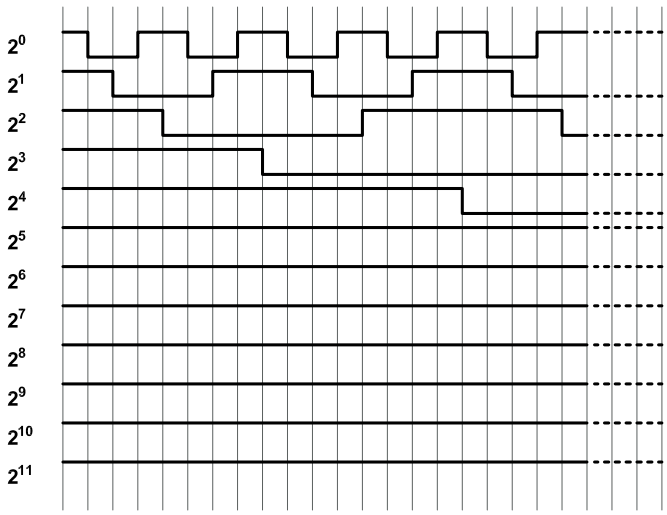
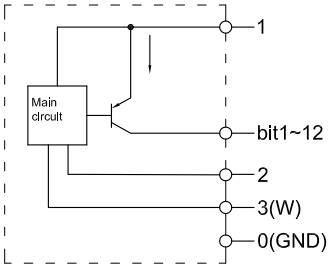
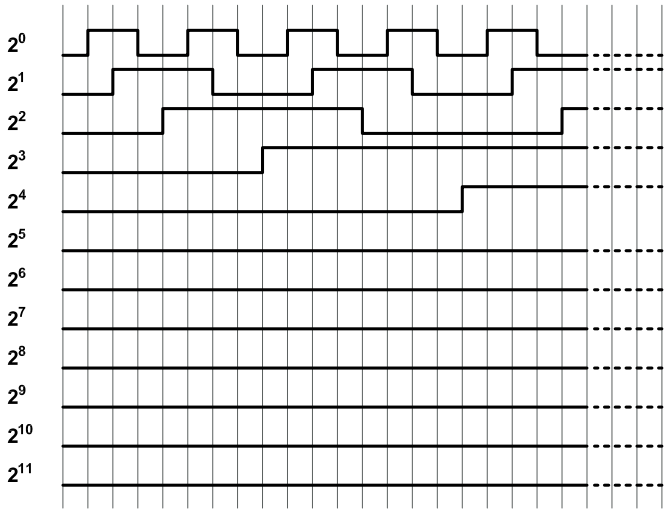
KJ50- **T** **12** **N** **W** **B15** ☐ ☐

Product model series	T=Radial cable C=Radial socket (M23-16P) TE=Radial cable with plug (M16-16P)	Bit(Steps): 5=5bit(32) 6=6bit(64) 7=7bit(128) 8=8bit(256) 8D=8bit(180) 9=9bit(512) 9D=9bit(360) 10=10bit(1024) 10D=10bit(720) 11=11bit(2048) 12=12bit(4096)	Interface (Parallel): N=OC (low level effective) NH=OC (high level effective) P=OC (low level effective) PH=OC (high level effective)	Count Direction Blank=clockwise (CW) C=counterclockwise(CCW) W=outside control direction (non-contact is CCW; connect to oV is CW)	Shaft: (B=blind hole) B15=Ø15mm B14=Ø14mm B12=Ø12mm B10=Ø10mm B8=Ø8mm (Q=through hole) Q14=Ø14mm Q12=Ø12mm Q10=Ø10mm Q8=Ø8mm	Special requirement Blank=cable length 1M; IP50 Special cable length =C+number Special protection IP65=D	Supply voltage: Blan=DC5V; DC30=DC8-30V

3. Resolution Output Table



4. Output Mode

Interface(Parallel)	Output circuit	Output wave form
OC (NPN)		 **Position: 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21.....4095** View from shaft end,rotate direction is clockwise(CW)
OC (PNP)		 **Position: 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21.....4095** View from shaft end,rotate direction is clockwise(CW)

5. Electrical Characteristics

Parameter / Interface (Parallel) / Item			OC(NPN)	OC(PNP)
Supply voltage			DC5V±5%； DC8V-30V±5%	
Allowable ripple			≤3%rms	
Consumption current			100mA Max	
Output code			gray code	
Precision			[360/(resolutionx4)]°	
Top response frequency			100kHz Max	
Output capascity	Output current	Input	≤30mA	
		Output	—	
	Output voltage	“H”	—	
		“L”	≤0.4V	
	Load voltage		≤DC30V	
Rise & Fall time			Less than 2us (Load resistance 1KΩ、cable length: 2m)	
Output level			Low level available	High level available
Insulation strength			AC500V 60s	
Insulation resistance			10MΩ	
GND			not connect to encoder	

6. Mechanical Characteristics

Shaft	Ø15mm(blind hole); Ø14mm; Ø12mm; Ø10mm; Ø8mm(stainless steel)
Starting torque	Less than 9.8×10^{-3} N·m
Inertia moment	Less than 6.5×10^{-6} kg·m²
Shaft load	Radial 40N; Axial 30N
Slew speed	≤4000 rpm； IP65≤3000 rpm； IP65≤2000 rpm (Through hole)
Bearing Life	$1.5\text{x}10^{9}$ revs at rated load(10000hrs at 2500RPM)
Shell	Die cast aluminum
Weight	about 310g (With package)

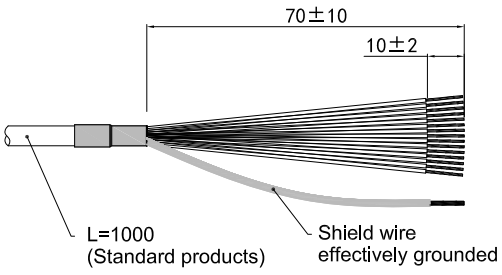
7. Environmental Specifications

Environmental temperature	Operating:—20～+85°C(repeatable winding cable: -10°C); storage:—25～+90°C
Environmental humidity	Operating and storage：35～85%RH(noncondensing)
Vibration(endure)	Amplitude 0.75mm, 10~50Hz, 1h for X,Y,Z direction individually
Shock(endure)	49m/s² ,three times for X,Y,Z direction individually
Protection	IP50 & IP65

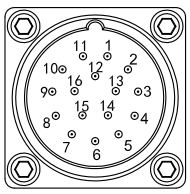
8. Wiring table

Socket Pin No. & Color	Resolution4096	Resolution2048	Resolution1024 (720)	Resolution512 (360)	Resolution256 (180)	Resolution128	Resolution64	Resolution32
15=R=pink /black	bit1(2^0)	Not connect	←	←	←	←	←	←
14=P=gray /black	bit2(2^1)	bit1(2^0)	Not connect	←	←	←	←	←
13=O=blue /black	bit3(2^2)	bit2(2^1)	bit1(2^0)	Not connect	←	←	←	←
12=N=yellow /black	bit4(2^3)	bit3(2^2)	bit2(2^1)	bit1(2^0)	Not connect	←	←	←
11=M=green /black	bit5(2^4)	bit4(2^3)	bit3(2^2)	bit2(2^1)	bit1(2^0)	Not connect	←	←
10=L=white /black	bit6(2^5)	bit5(2^4)	bit4(2^3)	bit3(2^2)	bit2(2^1)	bit1(2^0)	Not connect	←
9=K=pink	bit7(2^6)	bit6(2^5)	bit5(2^4)	bit4(2^3)	bit3(2^2)	bit2(2^1)	bit1(2^0)	Not connect
8=I=gray	bit8(2^7)	bit7(2^6)	bit6(2^5)	bit5(2^4)	bit4(2^3)	bit3(2^2)	bit2(2^1)	bit1(2^0)
7=H=blue	bit9(2^8)	bit8(2^7)	bit7(2^6)	bit6(2^5)	bit5(2^4)	bit4(2^3)	bit3(2^2)	bit2(2^1)
6=G=yellow	bit10(2^9)	bit9(2^8)	bit8(2^7)	bit7(2^6)	bit6(2^5)	bit5(2^4)	bit4(2^3)	bit3(2^2)
5=F=green	bit11(2^{10})	bit10(2^9)	bit9(2^8)	bit8(2^7)	bit7(2^6)	bit6(2^5)	bit5(2^4)	bit4(2^3)
4=E=white	bit12(2^{11})	bit11(2^{10})	bit10(2^9)	bit9(2^8)	bit8(2^7)	bit7(2^6)	bit6(2^5)	bit5(2^4)
3=D=brown	W (outside control direction: non-contact is CCW; connect to oV is CW)							
2=C=black	OV							
1=B=red	DC5V & DC8-30V							
0=A=shielding	GND							

Cable connection

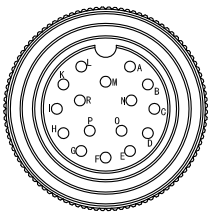


Radial socket connection



M23*1 16P
Male-connector pin Assignment

Radial cable with plug

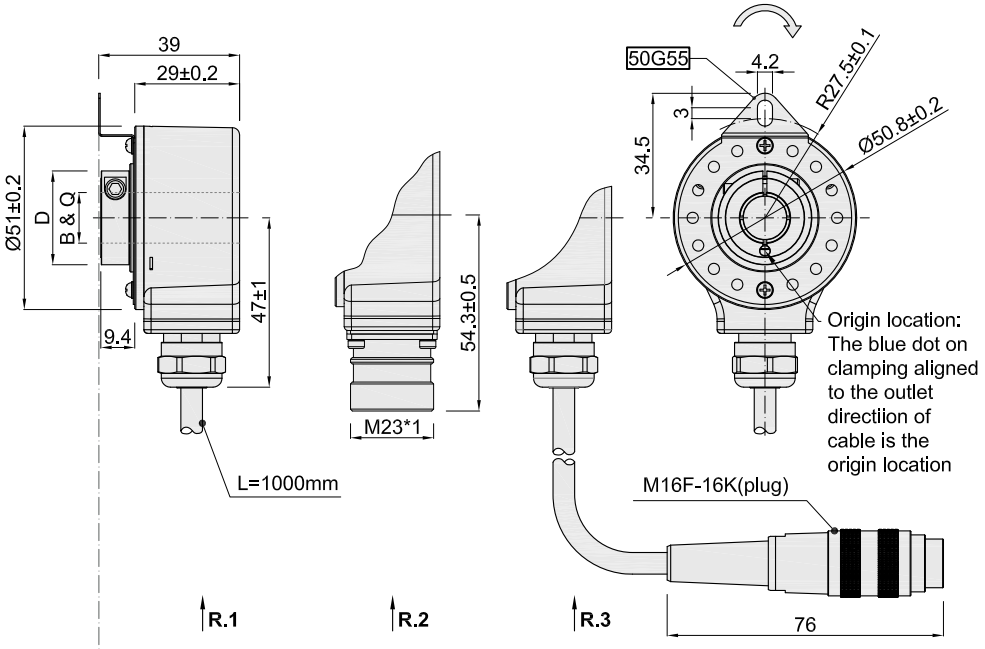


M16F-16K
Male-head pin Assignment

9. Basic Dimensions

9.1 Dimensions

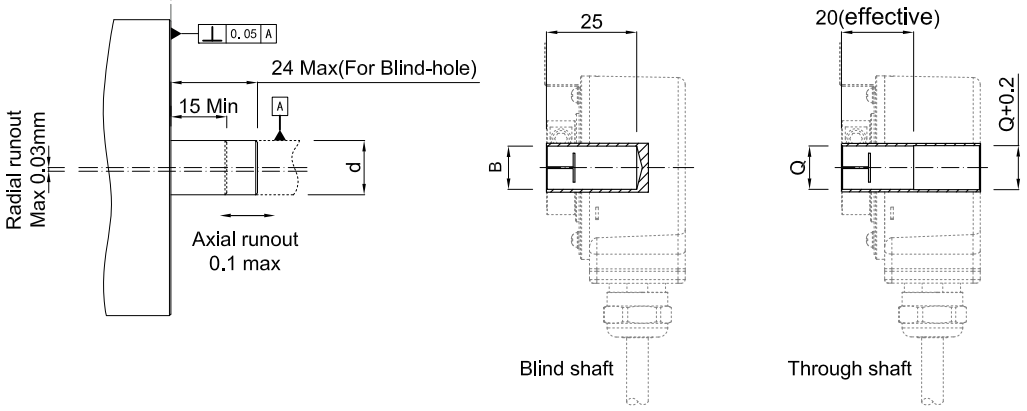
B(Blind -Shaft)	Q(Thru -shaft)	D
Ø8$^{G7}_{(+0.005)}$		Ø24
Ø10$^{G7}_{(+0.006)}$		Ø24
Ø12$^{G7}_{(+0.006)}$		Ø26
Ø14$^{G7}_{(+0.006)}$		Ø28
Ø15$^{G7}_{(+0.006)}$	-	Ø28



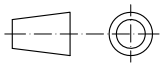
9.2 Assembling requirement

d
Ø8$_{g6}$($^{-0.005}_{-0.014}$)
Ø10$_{g6}$($^{-0.005}_{-0.014}$)
Ø12$_{g6}$($^{-0.006}_{-0.017}$)
Ø14$_{g6}$($^{-0.006}_{-0.017}$)
Ø15$_{g6}$($^{-0.006}_{-0.017}$)

Mounting screws
Inner hexagon bolt +flat washer Specification: M4*8 Material: stainless steel Quantity: 1



Unit: mm



= Shaft rotation direction of the signal output

R.1 = Radial cable (Standard length 1000mm)

R.2 = Radial socket (M23x1 16P Male-connector)

R.3 = Radial cable with plug (Standard length 1000mm， plug M16F-16K)

50G55 = Standard spring plate(pls refer to Page 7 for more options)

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.

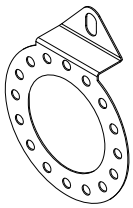
10. Accessories(Recommended purchase)

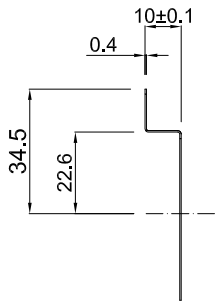
10.1 Plug connection

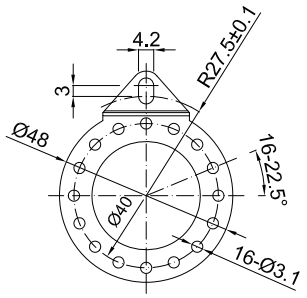
Plug and cable	Brief description	No.	Order No.
	C01=Connection type head A: M23, 16-pin female straight connector; Connection type head B: Bare wire end; Cable length: 1M 15-core with shield,halogen-free PUR	SJ50C01	44400027
	C02=Connection type head A: M23, 16-pin female straight connector; Connection type head B: Bare wire end; Cable length: 2M 15-core with shield,halogen-free PUR	SJ50C02	44400028
	C03=Connection type head A: M23, 16-pin female straight connector; Connection type head B: Bare wire end; Cable length: 5M 15-core with shield,halogen-free PUR	SJ50C03	44400029

10.2 Accessories(Spring plate option)

Standard： 50G55 No: 03700137

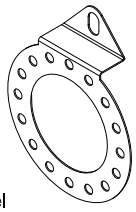


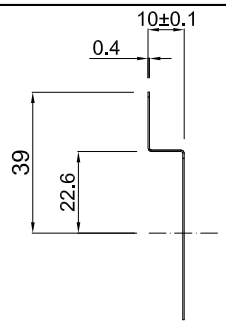


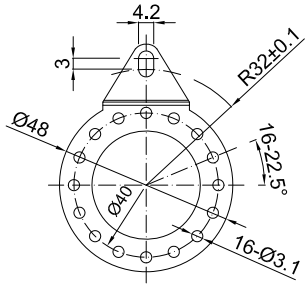


Mounting screws
Specification: M4*8
Material: stainless steel
Quantity: 1

Optional： 50G64 No: 03700150A

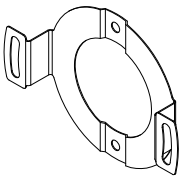


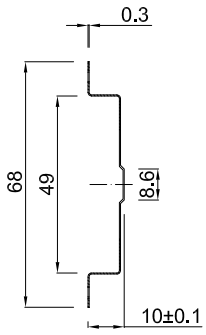


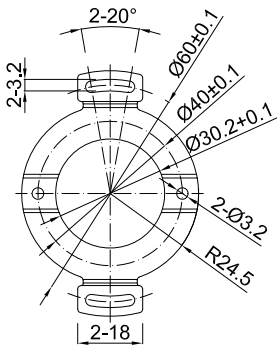


Mounting screws
Specification: M4*8
Material: stainless steel
Quantity: 1

Optional： 50Z60 No: 03700165







Mounting screws
Specification: M3*6
Material: stainless steel
Quantity: 2