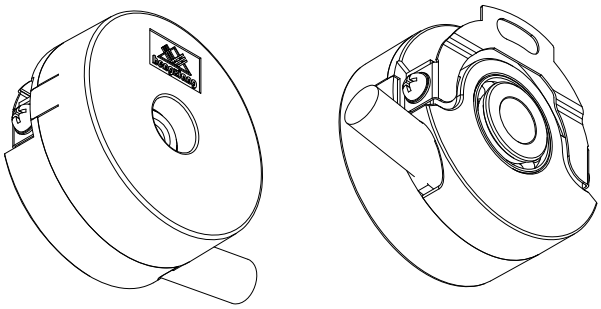
KN35

Incremental Type (Hollow shaft)

- Feature: Small size,thin,optional circuit outputs
- Application: Automation control for servo motor、textile industry、packing machinery、robot、small instrument,etc
- External dimensions: External diameter Ø35mm, thickness 18mm,various shaft size
- Resolution: Up to 14400P/R
- Supply voltage: DC5V; DC8-30V
- Protection: IP40
- Cable length: 500mm
- Weight: About 80g

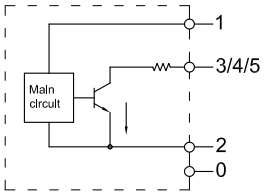
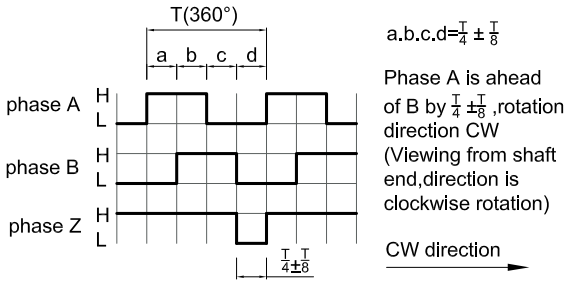
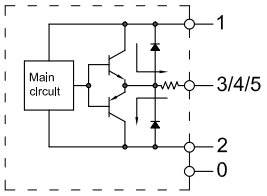
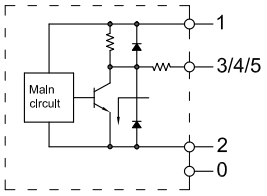
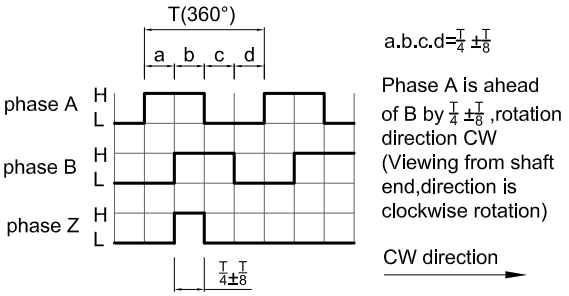


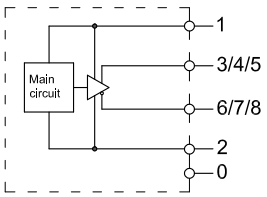
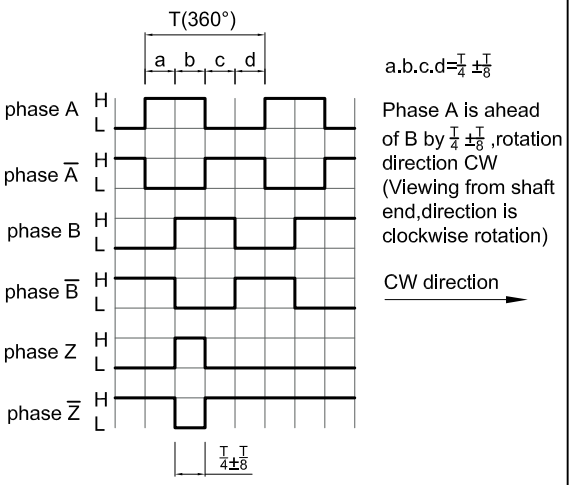
Model Guide

- Model form（filled required parameters in the box as following ）
- Must choose supply voltage: DC5V; DC8-30V
- Must choose leaf spring 35T27、35T29、35T40、35G29、35G40 (Please refer to the specifications 7/7)

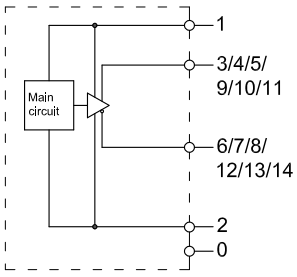
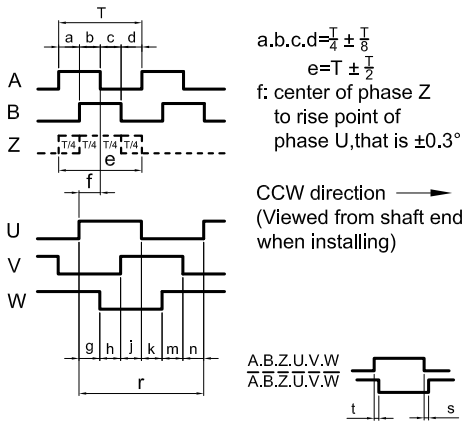
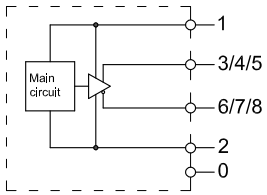
KN35-	J	12	C	2500/8	Z7	
Product model series	J=Radial cable	Output phase 2=A+B 3=A+B+Z 4=A+$\overline{A}$+B+$\overline{B}$ 6=A+$\overline{A}$+B+$\overline{B}$+Z+$\overline{Z}$ 12=A+$\overline{A}$+B+$\overline{B}$+Z+$\overline{Z}$ +U+$\overline{U}$+V+$\overline{V}$+W+$\overline{W}$	N=OC V=Voltage F=Push-pull C=TTL(DC5V) 26LS31 E=HTL (DC8-30V) L=TTL(DC5V) 26C31 S=TTL(DC5V) (Phase A.B.Z are back of phase U.V.W)	Incremental: Resolution（P/R） 1024; 2048; 2500; 3600; 5000; 7200; 10000; 14400 Servo: Resolution/pole 1000/4; 1024/4; 1000/6; 1024/6; 1000/8; 1024/8; 2048/4; 2500/4; 2048/6; 2500/6; 2048/8; 2500/8; 4096/4; 5000/4; 4096/6; 5000/6; 4096/8; 5000/8	Diameter of shaft (Blind hole) B6=Ø6mm B8=Ø8mm (Through hole) Q6=Ø6mm Q8=Ø8mm (Taper hole) Z7=Ø7mm (taper 1:10)	Special requirement Blank=cable length 500mm IP40 Special cable length =C+number

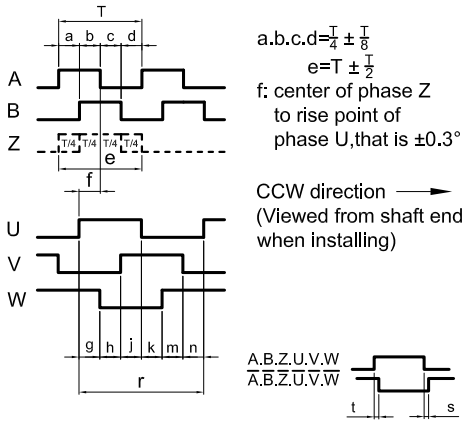
■ Output Mode

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<tr><th>Output type</th><th>Output circuit</th><th>Output wave form</th><th>Connection</th></tr>
<tr><td>OC</td><td rowspan="2">
</td><td rowspan="2">
</td><td rowspan="3">0=GND
1=red=DC5V;
DC8-30V
2=black=OV
3=white=A
4=green=B
5=yellow=Z</td></tr>
<tr><td>Push-Pull</td><td>
</td></tr>
<tr><td>Voltage</td><td>
</td><td>
</td></tr>
<tr><td>TTL

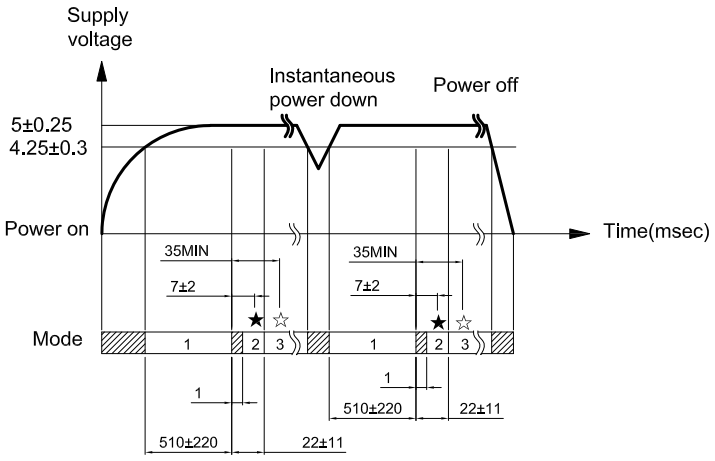
HTL</td><td>
</td><td>
</td><td>0=shielding=GND
1=red=DC5V;
DC8-30V
2=black=OV
3=white=A
4=green=B
5=yellow=Z
6=white/black=Ā
7=green/black=B̄
8=yellow/black=Z̄</td></tr>
</table>

Output Mode

<table>
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</td><td>
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5=yellow=Z
6=white/black=$\overline{A}$
7=green/black=$\overline{B}$
8=yellow/black=$\overline{Z}$
9=blue=U
10=grey=V
11=pink=W
12=blue/black=$\overline{U}$
13=grey/black=$\overline{V}$
14=pink/black=$\overline{W}$</td></tr>
<tr><td>TTL
(phase A.B.Z are back of phase U.V.W)</td><td>

<table>
<tr><th>pole</th><th>g.h.j.k.m.n</th><th>r</th></tr>
<tr><td>4</td><td>30±1°</td><td>180°</td></tr>
<tr><td>6</td><td>20±1°</td><td>120°</td></tr>
<tr><td>8</td><td>15±1°</td><td>90°</td></tr>
</table></td><td>
</td><td>
<table>
<tr><th rowspan="2">No.</th><th>Function</th><th colspan="3">Mode</th></tr>
<tr><th>Color</th><th>1</th><th>2</th><th>3</th></tr>
<tr><td>3</td><td>white</td><td>HZ</td><td>U</td><td>A</td></tr>
<tr><td>6</td><td>white/ black</td><td>HZ</td><td>$\overline{U}$</td><td>$\overline{A}$</td></tr>
<tr><td>4</td><td>green</td><td>HZ</td><td>V</td><td>B</td></tr>
<tr><td>7</td><td>green/ black</td><td>HZ</td><td>$\overline{V}$</td><td>$\overline{B}$</td></tr>
<tr><td>5</td><td>yellow</td><td>HZ</td><td>W</td><td>Z</td></tr>
<tr><td>8</td><td>yellow/ black</td><td>HZ</td><td>$\overline{W}$</td><td>$\overline{Z}$</td></tr>
<tr><td>1</td><td>red</td><td colspan="3">DC+5V</td></tr>
<tr><td>2</td><td>black</td><td colspan="3">OV</td></tr>
<tr><td>0</td><td>shielding</td><td colspan="3">GND</td></tr>
</table>
</td></tr>
</table>

Timing Chart



Symbol signification

★: indicate position of UVW channel
☆: position to start counting ABZ channel
▨: non-using zone
HZ: high impedance

■ Electrical Characteristics

Parameter / Output type / Item			OC	Voltage	Push-pull	TTL(26LS31)	TTL(26C31)	TTL(26C31) (Phase A.B.Z are back of phase U.V.W)	HTL(HD7)
Supply voltage			DC+5V±5% & DC8V-30V±5%			DC+5V±5%			DC8-30V±5%
Consumption current			100mA Max			120mA Max			
Allowable ripple			≤3%rms						
Top response frequency			100KHz			200KHz			300KHz
Output capascity	Output current	Input	≤30mA	Load resistance 2.2K	≤30mA	≤±20mA			≤±50mA
		Output	—		≤10mA				
	Output voltage	"H"	—	—	≥[(Supply voltage) -2.5V]	≥2.5V			≥Vcc-3 VDC
		"L"	≤0.4V	≤0.7V(less than 20mA)	≤0.4V(30mA)	≤0.5V			≤ 1V VDC
	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	—		Low level available	—
Delay motion time *			—					510±220ms	—
GND			not connect to encoder						

* Phase A.B.Z are back of phase U.V.W when power on。

■ Mechanical Characteristics

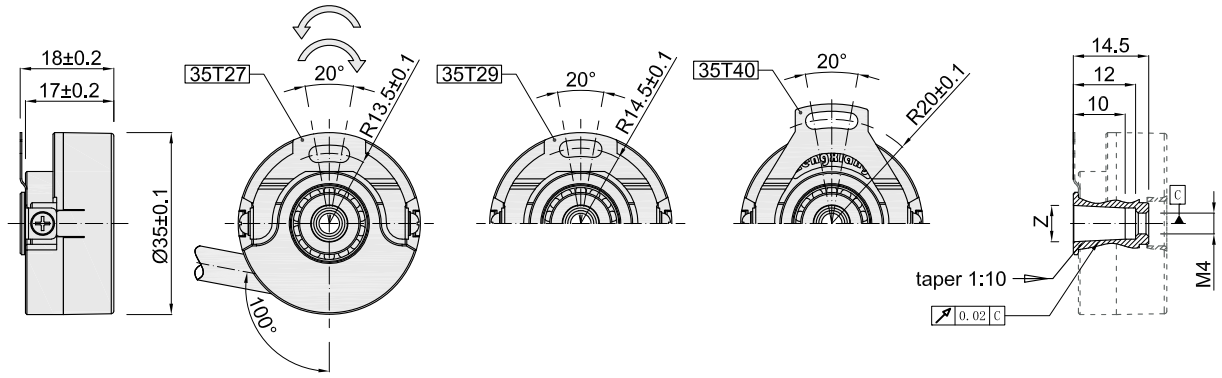
Shaft	Ø6mm; Ø8mm; Ø7mm (optional)
Starting torque	Less than 5.9×10^{-3}N·m
Inertia moment	Less than 1.5×10^{-6} kg·m²
Shaft load	Radial 30N; Axial 20N
Slew speed	≤5000 rpm
Bearing Life	$1.5X10^{9}$ revs at rated load(100000hrs at 2500RPM)
Shell	Die cast aluminum
Weight	about 80g

■ Environmental Specifications

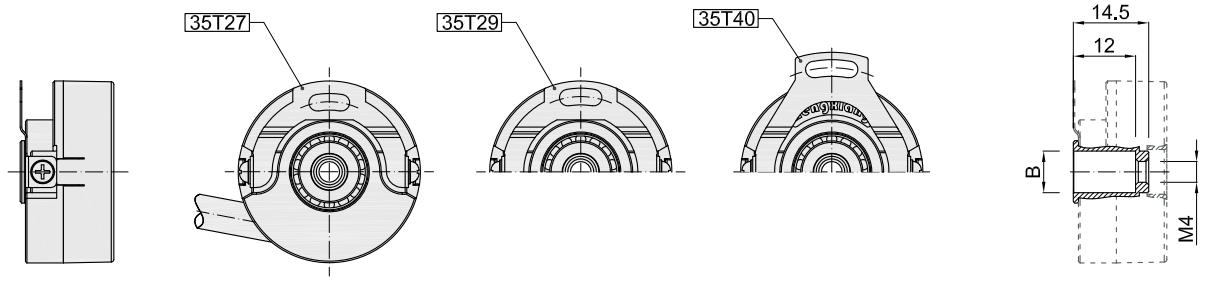
Environmental temperature	Operating:—20～+100°C(repeatable winding cable: -10°C); Storage:—25～+100°C
Environmental humidity	Operating and storage：35～85%RH(noncondensing)
Vibration(Endurance)	Amplitude 0.75mm,5~55Hz,2h for X,Y,Z direction individually
Shock(endure)	490m/s² 11ms three times for X,Y,Z direction individually
Protection	IP40

Basic Dimensions

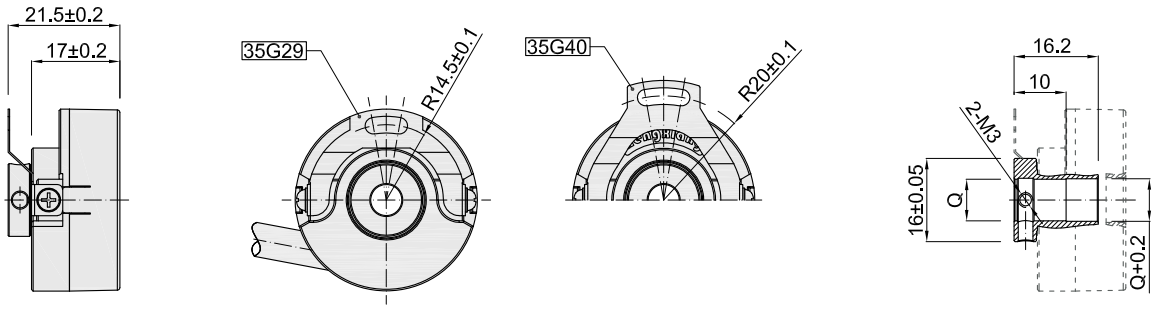
- Z (Taper hole)



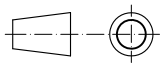
- B (Blind hole)



- Q (Through hole)



Unit: mm



= Rotate direction of incremental signal output shaft

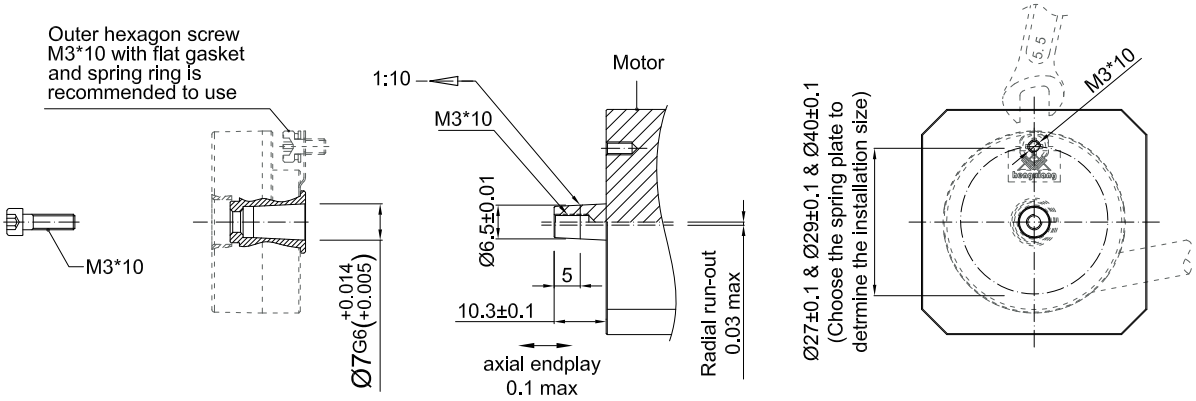
= Rotate direction of servo signal output shaft

About vibration

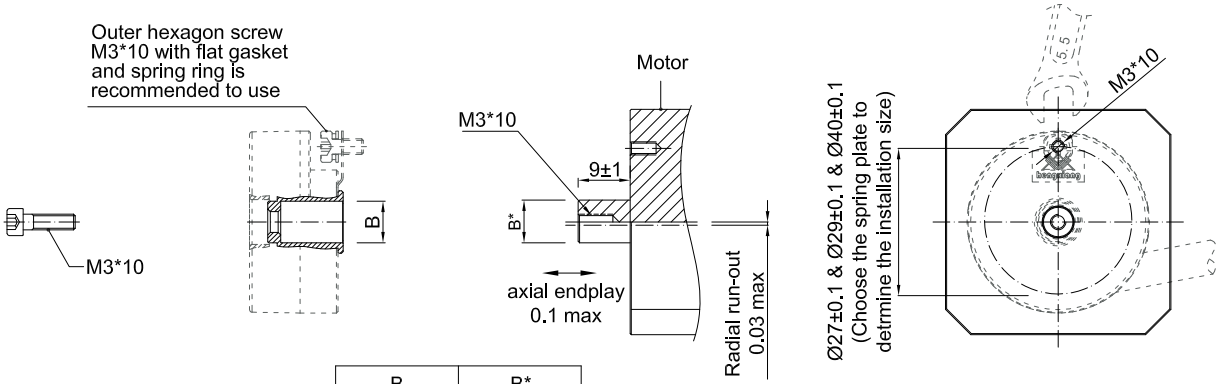
Vibration act on encoder always cause wrong pulse ,
so we should pay attention to working place.
More pulse per revolution ,
narrower groovy spacing of grating ,
more effect to encoder by vibration,
when rev is low or stop ,
vibration act on shaft or main body would cause grating vibrating ,
so encoder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

Assembling requirement

- Z (Taper hole)

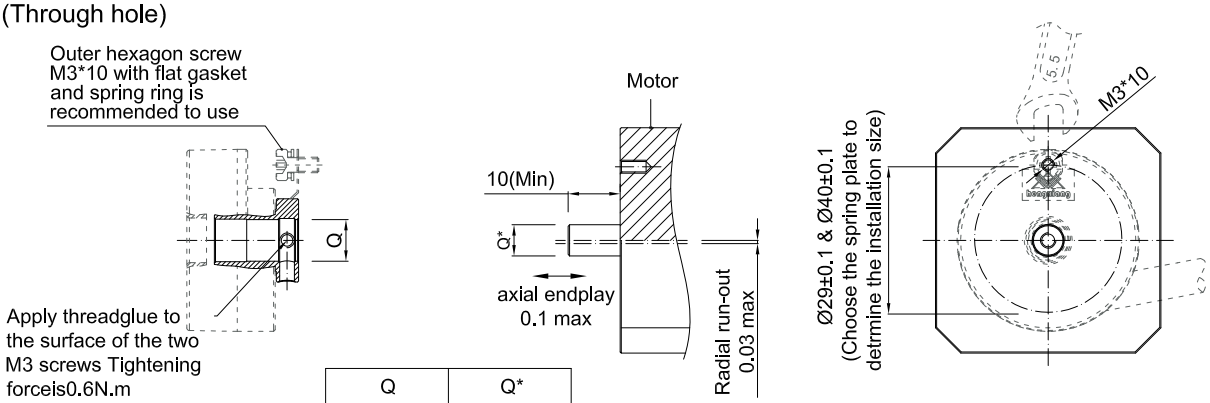


- B (Blind hole)



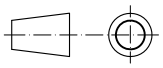
B	B*
$Ø6^{G6}_{(+0.005)}$	$Ø6_{g4}$
$Ø8^{G6}_{(+0.005)}$	$Ø8_{g4}$

- Q (Through hole)



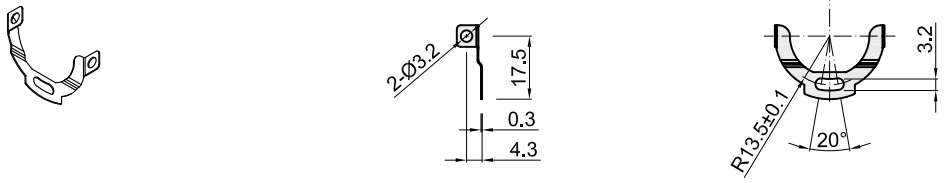
Q	Q*
$Ø6^{G6}_{(+0.005)}$	$Ø6_{g4}$
$Ø8^{G6}_{(+0.005)}$	$Ø8_{g4}$

Unit: mm

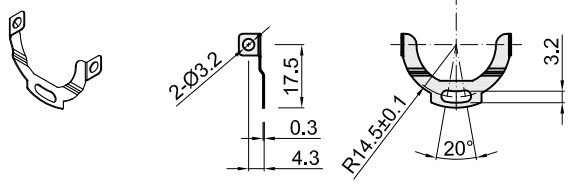


Accessory(leaf spring optional)

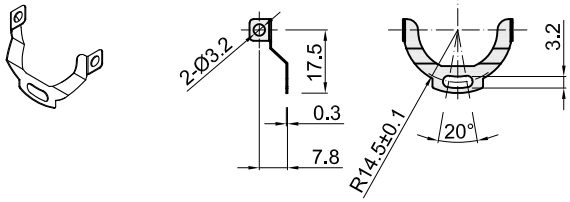
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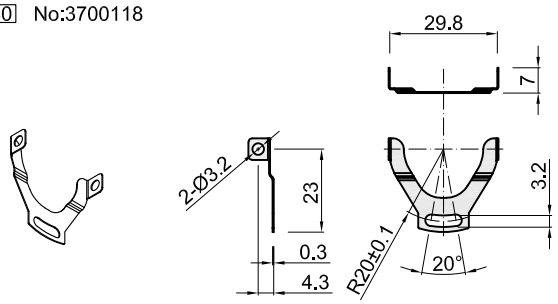
35T29 No:3700117



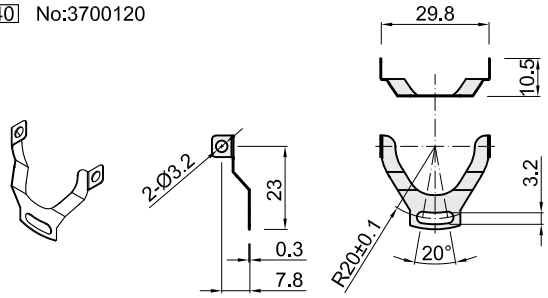
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35T40 No:3700118



35G40 No:3700120



Unit: mm