

# INCREMENTAL ENCODERS

## ► UZ Series

### APPLICATION

Servo motor control

### FEATURES

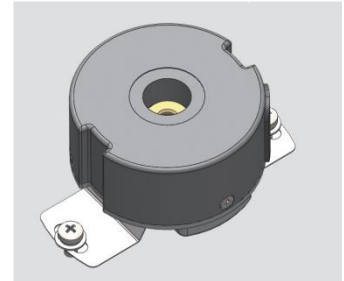
Resolution 1,000-5,000 CPR.

Differential output.

Count Frequency Up To 500 KHZ.

Working temperature -20 °C —+105 °C

Single 5V Supply

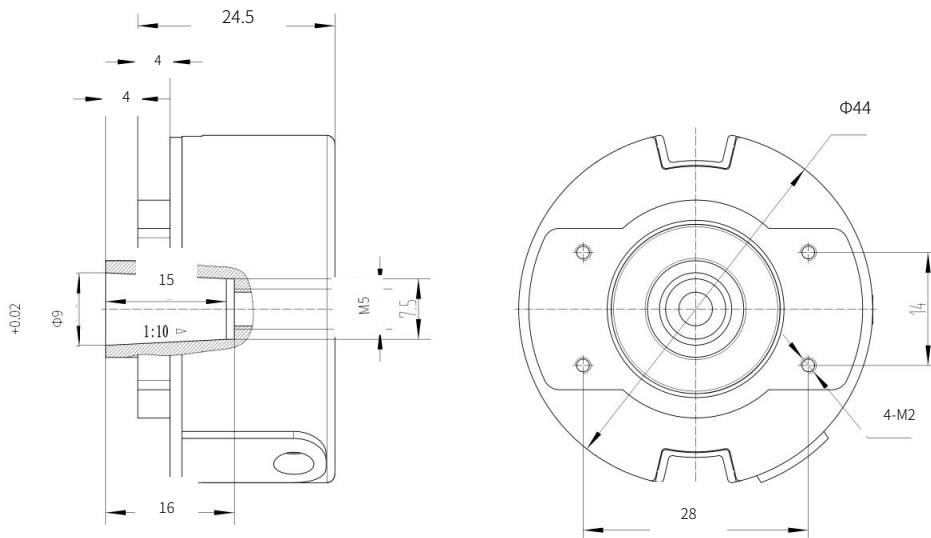


Product Introduction: Well protected, High frequency response, high speed, High reliability.

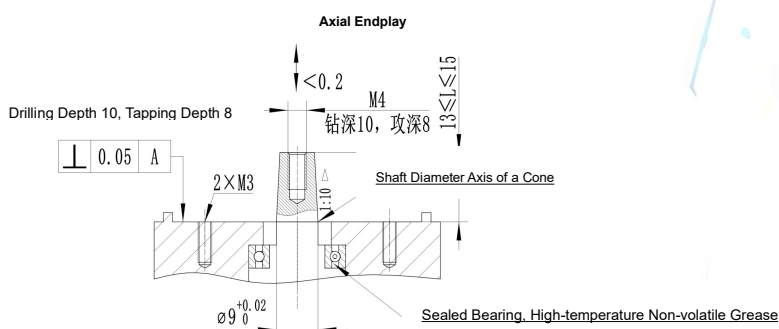


**Model: UZ4409**

## Main Size Selection

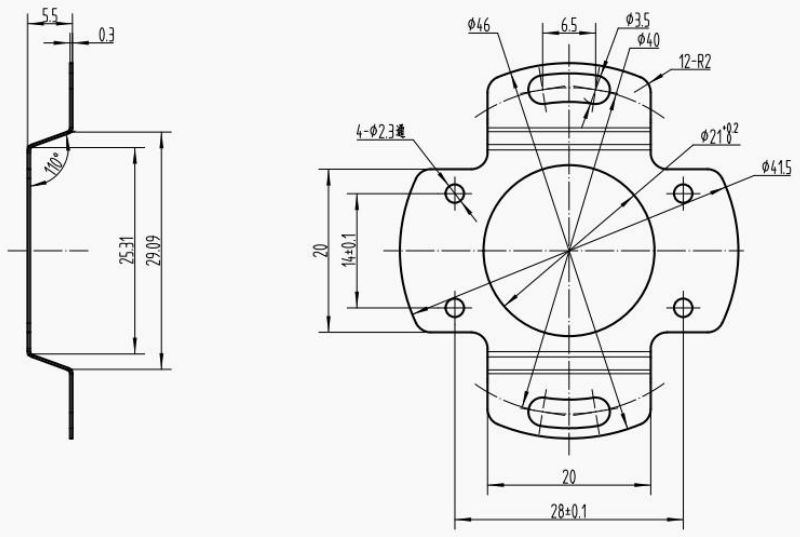


4409 Encoder Motor End Face Dimensional Requirements:



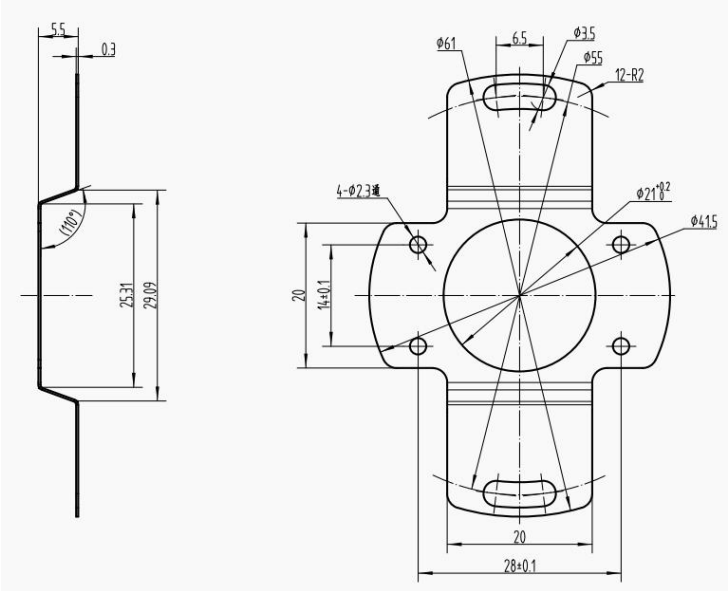
**Spring Tab Size Selection**

**ENCODERS**

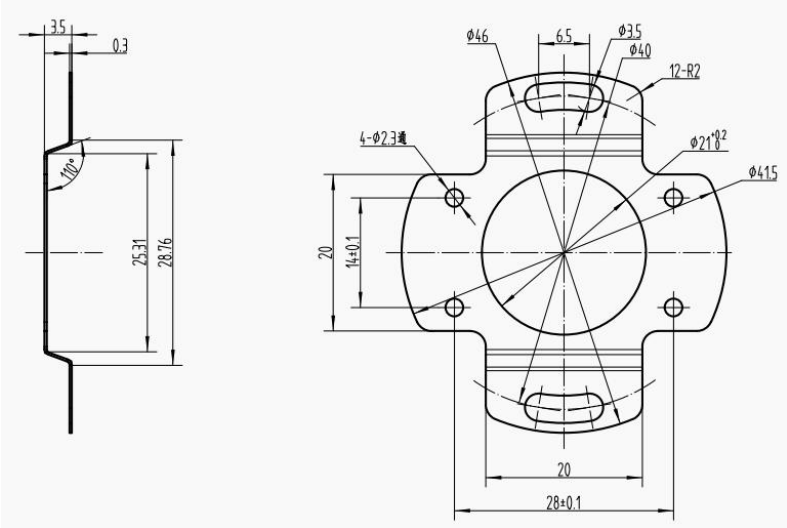


**MP4409-002A-40 (C-Mounting hole d40)**

**MP4409-001A-55 (D-Mounting hole d55)**



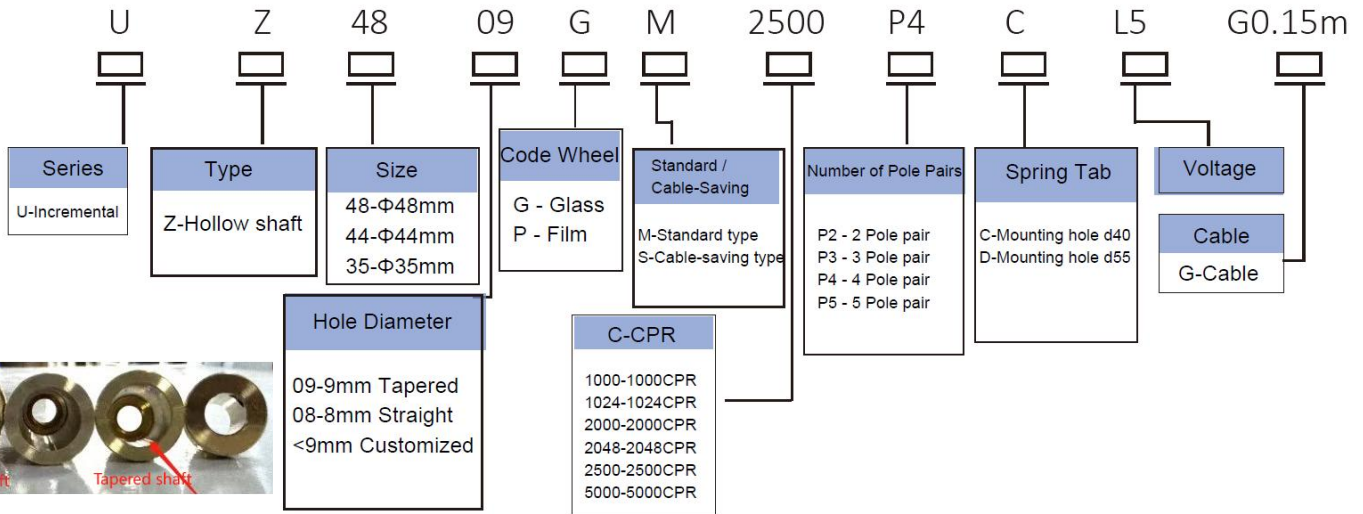
**MP4409-003A-40 (CL-Mounting hole d40)**



**Note: The spring tab should be selected according to the motor end size.**

## ORDERING INFORMATION / PART NUMBER

ENCODERS



## CONNECTIONS

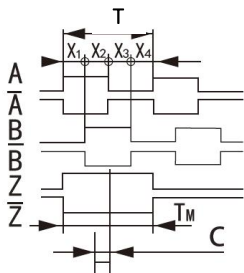
SIGNAL	A	B	Z	-A	-B	-Z	U	V	W	-U	-V	-W	Vcc	GND
COLOR	GREEN	WHITE	YELLOW	GREEN/BLACK	WHITE/BLACK	YELLOW/BLACK	BROWN	GREY	ORANGE	BROWN/BLACK	GREY/BLACK	ORANGE/BLACK	RED	BLACK

### Cable-Saving Type

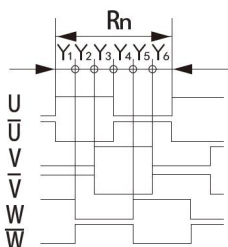
SIGNAL	A	B	Z	-A	-B	-Z	Vcc	GND
COLOR	BLUE	GREEN	YELLOW	BLUE/BLACK	GREEN/BLACK	YELLOW/BLACK	RED	BLACK

## OUTPUT PHASE

### OUTPUT WAVEFORM STANDARD TYPE

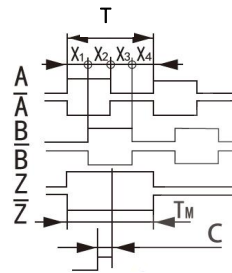


U Phase Rising Edge Z Signal Center

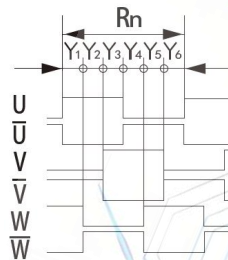


Waveform Ratio:  $X1+X2=0.5T\pm0.1T$   
 $X2+X3=0.5T\pm0.1T$   
 Phase Difference:  $Xn=0.25T\pm0.1T$   
 Z Signal Width:  $Z=1T\pm0.5T$   
 $T=360^\circ/N$  (N is the number of pulses per revolution)  
 Period  $P = 360^\circ/N1\pm1.5^\circ N1=2, 3, 4$   
 Phase Difference Y:  $P / 6\pm1.5^\circ$  (n=1, 2, 3, 4, 5, 6)  
 The Phase Position between A, B Signals and U, V, W Signals is -Not Specified.  
 Z Phase and U Phase Relationship:  $C\pm1^\circ$  (Mechanical Angle)

### OUTPUT WAVEFORM CABLE-SAVING TYPE



U Phase Rising Edge Z Signal Center



Waveform Ratio:  $X1+X2=0.5T\pm0.1T$   
 $X2+X3=0.5T\pm0.1T$   
 Phase Difference:  $Xn=0.25T\pm0.1T$   
 Z Signal Width:  $Z=1T\pm0.5T$   
 $T=360^\circ/N$  (N is the number of pulses per revolution)  
 Period  $P = 360^\circ/N1\pm1.5^\circ N1=2, 3, 4$   
 Phase Difference Y:  $P / 6\pm1.5^\circ$  (n=1, 2, 3, 4, 5, 6)  
 The Phase Position between A, B Signals and U, V, W Signals is -Not Specified.  
 Z Phase and U Phase Relationship:  $C\pm1^\circ$  (Mechanical Angle)  
 \*Difference from Standard Type: During the first 20ms after power-on, ABZ lines output UVW signals. After 20ms, ABZ lines continuously output ABZ signals.