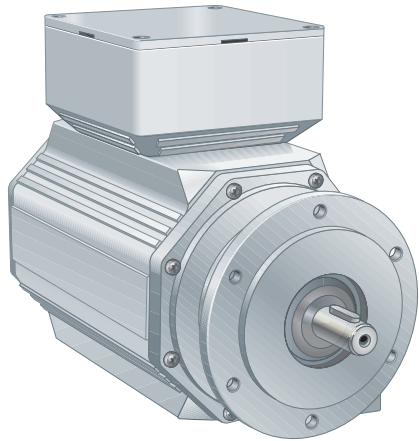
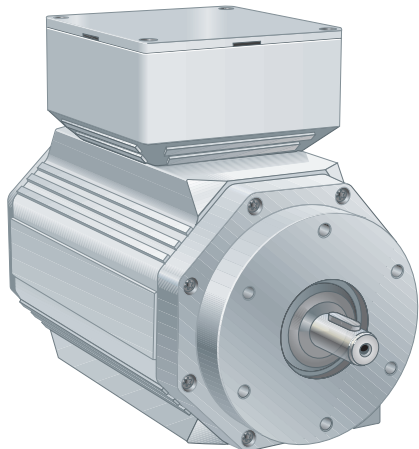


# 1504

## Extreme Shaft encoder, Incremental



**85, Euro-flange**



**91, Standard flange**

### Short description:

- >> Extreme resistance to mechanical loads, vibrations and shock
- >> Exceptional durability in tough environments of high temperatures and dust
- >> Modular mechanics with flexible mounting of terminal box orientation
- >> Stainless steel options available on request

### Suitable applications:

- >> Specially designed for heavy industries such as steel, crane and oil

### General information

Encoder data		
Type	ESI 1504	
Operating temperature	-20 °C .. +100 °C	
Storage temperature	-20 °C .. +80 °C	
Ingress protection class	IP-67 according to IEC 60529	
At shaft inlet	IP-67 according to IEC 60529	
Vibration (55 to 2000Hz)	< 300 m/s <sup>2</sup> according to IEC 60068-2-6	
Shock (6ms)	< 2000 m/s <sup>2</sup> according to IEC 60068-2-27	
Cover material	Aluminium	
Cover surface treatment	Anodized	
Weight	Approx. 6900 g	
Accuracy and resolution		
Line count	1..5000 ppr	5001..10 000 ppr
Dividing error	± 50 °el	± 90 °el
Channel separation	90 ± 25 °el	90 ± 45 °el
Measuring steps	4 x Line count	

### Flange option

Flange type	85, Euro-flange	91, Standard flange
Outer diameter	ø115 mm	ø100 mm
Mounting holes	6 x M6	6 x M6
Flange material	Aluminium	Aluminium
Surface treatment	Anodized	Anodized

### Shaft option

Shaft type	Ø11 with key nut	Ø15 with key nut
Axial shaft load	1000 N	1000 N
Radial shaft load	260 N	680 N
Mech. permissible speed	4000 rpm	4000 rpm
Shaft material	Stainless steel	Stainless steel
Moment of inertia	0,32 x 10 <sup>-6</sup> kgm <sup>2</sup>	0,32 x 10 <sup>-6</sup> kgm <sup>2</sup>

## Connection option

Connection	
Terminal, M25 cable gland for $\varnothing$ 13-16 mm cable	
Connecting direction	
Axial or Radial	
Terminal	Function
1	+E Volt
2	0 Volt
3	S00
4	S00 inverted
5	S90
6	S90 inverted
7	Sref
8	Sref inverted
9	Status
10	Case

## Accessories

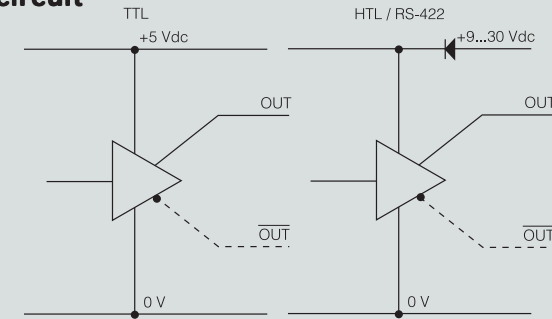
Base plate for mounting	680846-01
Shaft coupling 11-11 mm	46441P33P33
Shaft coupling 15-15 mm	46441P40P40
OptoLink Transmitter	01300320
OptoLink Receiver	01300330

## Electrical option

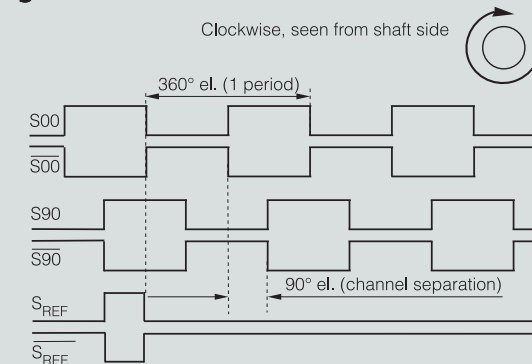
Power supply	5 Vdc $\pm$ 10%	9-30 Vdc	
Polarity protected	No	Yes	
Output signals	TTL <sup>1</sup>	HTL	RS-422
Short circuit protected	Yes	Yes	Yes
Current consumption	45 mA	50 mA at 24 Vdc	25 mA at 24 Vdc
Max consumption	75 mA	75 mA	40 mA
Output load (max)	$\pm$ 20 mA	$\pm$ 40 mA	$\pm$ 20 mA
Output frequency (max)	300 kHz	300 kHz	300 kHz
$U_{high}$ at 10mA load	> 3.0 V	> +EV - 2.0 V	> 3.0 V
$U_{low}$ at 10mA load	< 0.4 V	< 1.15 V	< 0.4 V
Cable length (max)	50 m	200 m @ 50 kHz	1 km (TIA/EIA-422-B)
STATUS output	Yes	Yes	Yes
High level	Encoder OK	Encoder OK	Encoder OK
Low level	Warning/Failure	Warning/Failure	Warning/Failure

<sup>1</sup>TTL output comply to the RS-422 standard when differential transmission is used

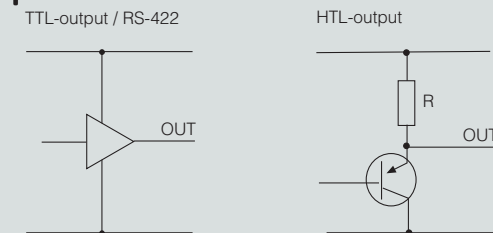
## Output circuit



## Output signals



## Status outputs



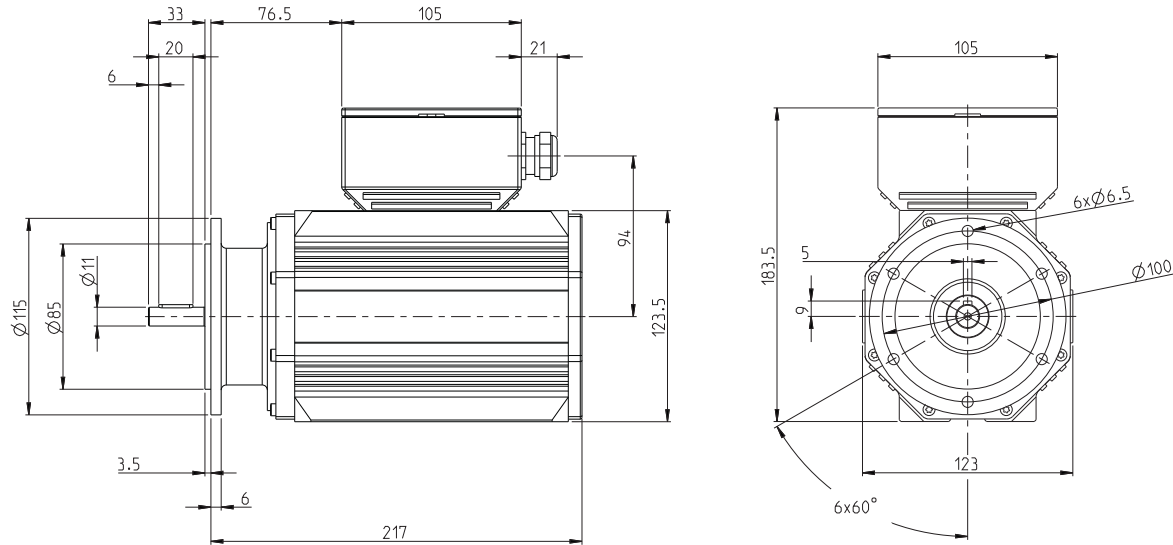
# 1504

## Extreme Shaft encoder, Incremental

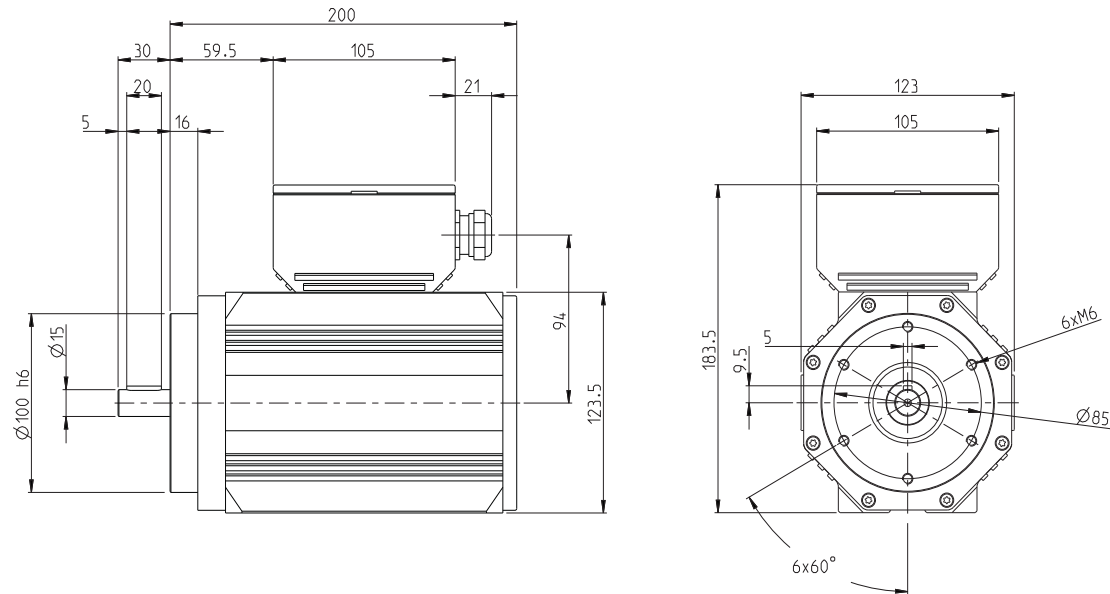
ESI

### Dimensions

#### 85, Euro-flange



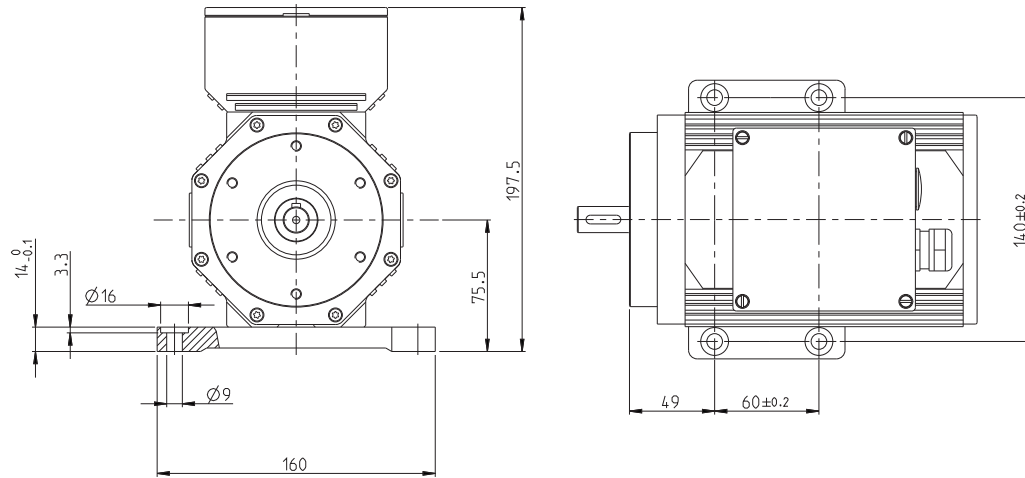
#### 91, Standard flange



# 1504 — Extreme Shaft encoder, Incremental



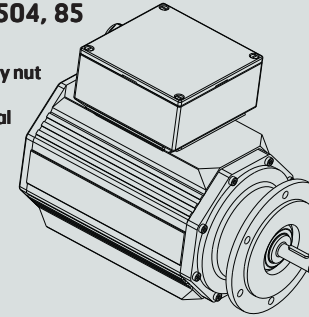
Mounted with base plate



## Various combinations

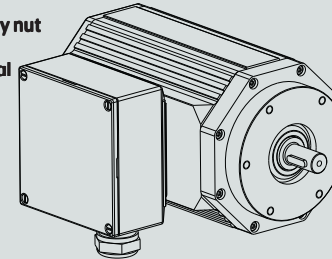
### ESI 1504, 85

11 mm  
with key nut  
axial  
terminal  
box



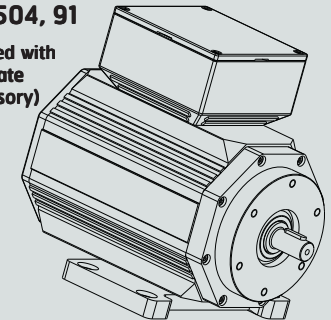
### ESI 1504, 91

15 mm  
with key nut  
radial  
terminal  
box



### ESI 1504, 91

Mounted with  
base plate  
(accessory)



## Ordering information Tick your choice

Type	ESI 1504		
Flange <sup>(1)</sup>	85, Euro-flange	91, Standard flange	
Shaft <sup>(1)</sup>	Ø11 mm with key nut	Ø15 mm with key nut	
Electronics	Supply	5 Vdc	9-30 Vdc
	Output	TTL	HTL RS-422
Connection	Terminal		
Connecting direction	Axial	Radial	
Line count	1..5000	5001..10000	

<sup>(1)</sup> Possible combinations: Euro-flange / Ø11 mm shaft or Standard flange / Ø15 mm shaft

Ordering example: ESI 1504 91 Ø15 wk 9-30 Vdc HTL Terminal Axial 1024 ppr