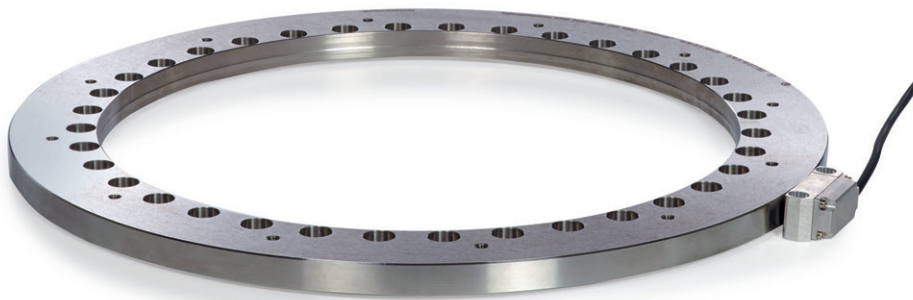




# HEIDENHAIN



Product Information

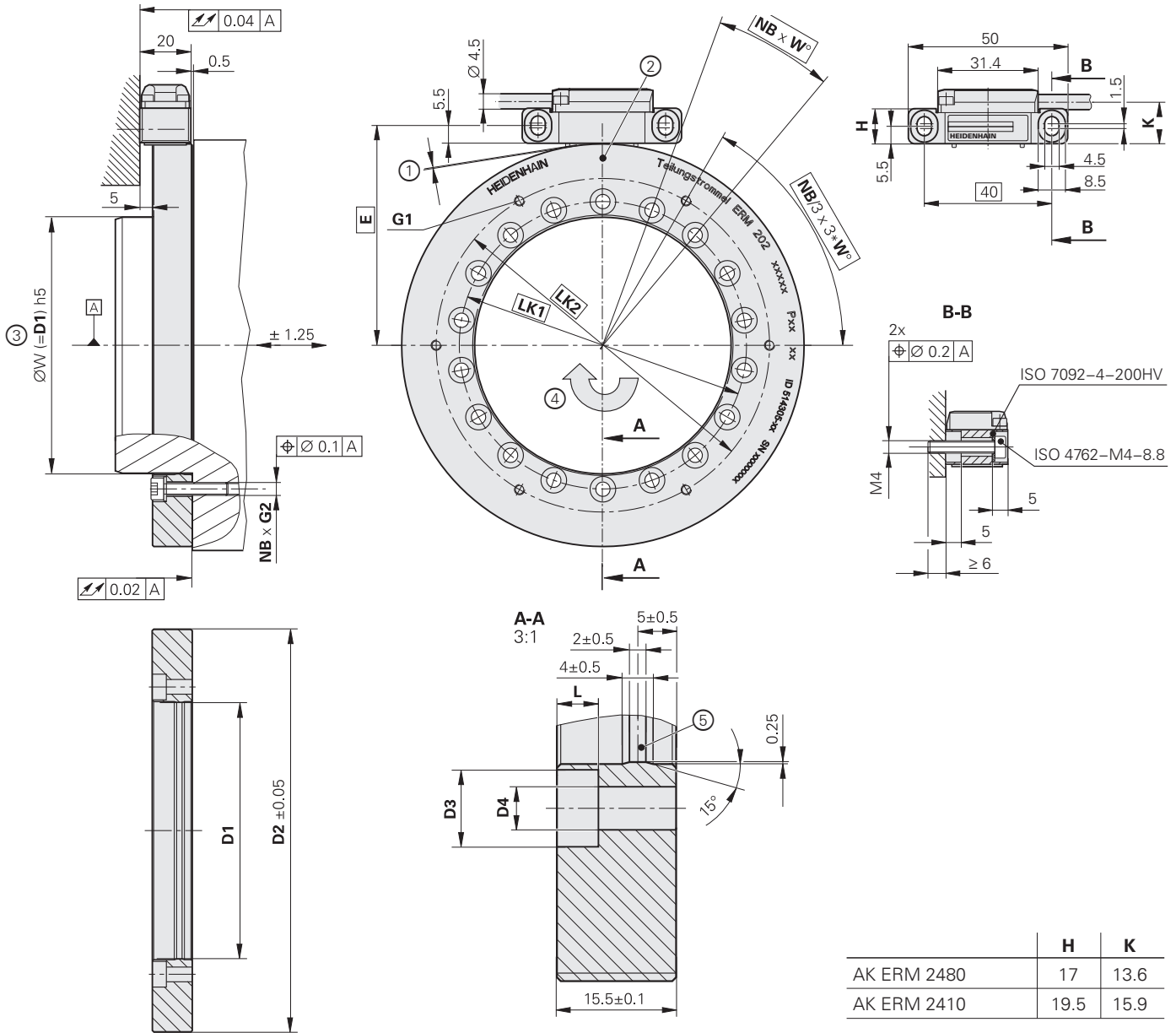
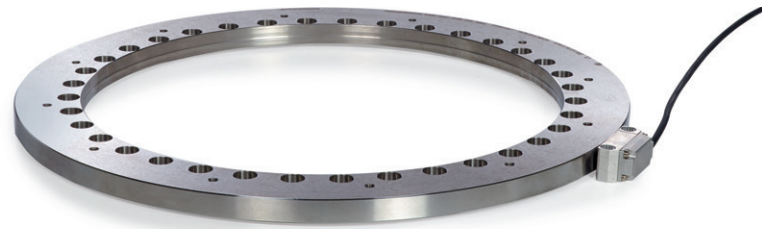
## **ERM 202 C**

Modular Angle Encoder with  
Magnetic Scanning

# ERM 202C

## Incremental angle encoder

- For large hollow-shaft diameters
- Magnetic scanning principle
- Insensitive to contamination



	H	K
AK ERM 2480	17	13.6
AK ERM 2410	19.5	15.9

D1	D2	LK1	LK2	G1	G2	NB	W	L	D3	D4	E
Ø 200	Ø 273.59	Ø 215	Ø 237	M5	M6	48	7.5°	6.2	Ø 11	Ø 7	142.5
Ø 260	Ø 341.99	Ø 280	Ø 306	M6	M8	36	10°	8.2	Ø 15	Ø 9.3	176.7
Ø 325	Ø 414.41	Ø 342	Ø 371	M6	M8	36	10°	8.2	Ø 15	Ø 9.3	212.9
Ø 395	Ø 482.81	Ø 415	Ø 443	M6	M8	48	7.5°	8.2	Ø 15	Ø 9.3	247.1
Ø 460	Ø 559.26	Ø 482	Ø 512	M6	M8	48	7.5°	8.2	Ø 15	Ø 9.3	285.3

mm  
  
 Tolerancing ISO 8015  
 ISO 2768 - m H  
 < 6 mm: ±0.2 mm

- ☐ = Bearing
- 1 = Mounting distance of 0.15 mm set with spacer shim
- 2 = Reference mark position
- 3 = Shaft tolerance
- 4 = Direction of shaft rotation for output signals in accordance with the interface description
- 5 = Centering collar

Scale drum	TTR ERM 202C				
<b>Measuring standard</b> Coefficient of expansion	Steel drum $\alpha_{\text{therm}} \approx 10 \cdot 10^{-6} \text{ K}^{-1}$				
<b>Signal periods</b>	2176	2720	3296	3840	4448
<b>Drum inside diameter*</b>	200 mm	260 mm	325 mm	395 mm	460 mm
<b>Drum outside diameter*</b>	273.59 mm	341.99 mm	414.41 mm	482.81 mm	559.26 mm
<b>Accuracy of graduation</b>	±4"	±3"	±3"	±3"	±2"
<b>Interpolation error per signal period</b>	±5"	±4"	±3.5"	±3"	±3"
<b>Reference marks</b>	32 (distance-coded)				
<b>Nominal increment in signal periods</b>	136	170	206	240	278
Mech. permissible speed	≤ 2500 rpm	≤ 2500 rpm	≤ 2000 rpm	≤ 1500 rpm	≤ 1500 rpm
Moment of inertia	$42.3 \cdot 10^{-3} \text{ kgm}^2$	$95.1 \cdot 10^{-3} \text{ kgm}^2$	$197 \cdot 10^{-3} \text{ kgm}^2$	$317 \cdot 10^{-3} \text{ kgm}^2$	$575 \cdot 10^{-3} \text{ kgm}^2$
Permissible axial movement	±1.25 mm				
<b>Mass</b>	2.9 kg	4.0 kg	5.6 kg	6.5 kg	8.7 kg

\* Please select when ordering

Scanning head	AK ERM 2480	AK ERM 2410
<b>Interface</b>	$\sim 1 V_{PP}$	EnDat 2.2 <sup>1)2)</sup>
Cutoff frequency -3 dB	$\geq 300$ MHz	-
Integrated interpolation	-	16384 (14 bits)
Clock frequency	-	$\leq 8$ MHz
Calculation time $t_{cal}$	-	$\leq 5 \mu s$
<b>Electrical connection</b>	Cable (1 m) with or without 12-pin M23 coupling	Cable (1 m) with 8-pin M12 coupling
Cable outlet	Tangentially to the left or right, axially	Tangentially to the right
Supply voltage	DC 5 V $\pm 0.5$ V	DC 3.6 V to 14 V
Current consumption (typical)	$\leq 150$ mA (without load)	At 5 V: $\leq 90$ mA (without load)
Power consumption (max.)	-	At 3.6 V: 1 080 mW At 14 V: 1 300 mW
Cable length	$\leq 150$ m (with HEIDENHAIN cable)	
<b>Vibration</b> 55 Hz to 2000 Hz	$\leq 400$ m/s <sup>2</sup> (EN 60068-2-6)	$\leq 300$ m/s <sup>2</sup> (EN 60068-2-6)
<b>Shock</b> 6 ms Without fault exclusion With fault exclusion	$\leq 1000$ m/s <sup>2</sup> (EN 60068-2-27) $\leq 400$ m/s <sup>2</sup> (EN 60068-2-27)	
<b>Operating temperature</b>	-10 °C to 100 °C	
<b>Protection rating</b> EN 60526	IP67	
<b>Mass</b> Scanning head Cable Coupling (M12) Coupling (M23)	$\approx 30$ g (without cable) $\approx 37$ g/m $\approx 15$ g $\approx 50$ g	

<sup>1)</sup> Absolute position value after traverse of two neighboring reference marks without changing direction

<sup>2)</sup> EnDat 2.2 for incremental encoders can be used only after consultation with the control manufacturer

# HEIDENHAIN

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This Product Information document supersedes all previous editions, which thereby become invalid. The basis for ordering from HEIDENHAIN is always the Product Information document edition valid when the order is placed.



## Further information:

Comply with the requirements described in the following documents to ensure correct and intended operation:

- Brochure: *Modular Angle Encoders with Magnetic Scanning* 745168-xx
- Brochure: *Interfaces of HEIDENHAIN Encoders* 1078628-xx
- Brochure: *Cables and Connectors* 1206103-xx
- Mounting Instructions: *TTR ERM 202 C* 527530-xx
- Mounting Instructions: *AK ERM 2420/2480* 1156255-xx
- Mounting Instructions: *AK ERM 2410/2490* 1156254-xx