

ERA 180

- Grating on steel drum



Incremental signals
Reference mark
Cutoff frequency -3 dB
Power supply without load
Electrical connection
Cable length
Drum inside diameter*
Drum outside diameter*
Line count
System accuracy²⁾
Accuracy of the graduation³⁾
Recommended measuring step for position measurement
Mech. permissible speed
Moment of inertia of rotor
Permissible axial motion
Vibration 55 to 2000 Hz Shock 6 ms
Operating temperature
Protection* IEC 60529
Weight
Scale drum (approx.)
Protective cover (approx.)
Scanning head with cable (approx.)

Incremental ERA 180 ¹⁾							
~ 1 V _{PP}							
One							
≥ 500 kHz							
5 V ± 10% max. 150 mA							
Cable 1 m, with M23 coupling							
≤ 150 m (with HEIDENHAIN cable)							
40 mm	80 mm	120 mm	180 mm	270 mm	425 mm	512 mm	
80 mm	130 mm	180 mm	250 mm	330 mm	485 mm	562 mm	
6000	9000	9000	18000	18000	36000	36000	
± 75"	± 5"	± 5"	± 4"	± 4"	± 2.5"	± 2.5"	
± 5"	± 3"	± 3"	± 3"	± 3"	± 2"	± 2"	
0.0015°	0.001°	0.001°	0.0005°	0.0005°	0.0001°	0.0001°	
≤ 20000 rpm	≤ 14500 rpm	≤ 11000 rpm	≤ 7500 rpm	≤ 5500 rpm	≤ 3500 rpm	≤ 3000 rpm	
0.58 · 10 ⁻³ kgm ²	3.45 · 10 ⁻³ kgm ²	11.1 · 10 ⁻³ kgm ²	35.7 · 10 ⁻³ kgm ²	82.6 · 10 ⁻³ kgm ²	281.8 · 10 ⁻³ kgm ²	399.7 · 10 ⁻³ kgm ²	
≤ ± 0.5 mm (scale drum relative to scanning head)							
≤ 100 m/s ² (IEC 60068-2-6) ≤ 1000 m/s ² (IEC 60068-2-27)							
-10 °C to +80 °C							
Without protective cover: IP 00 With protective cover and compressed air: IP 40					IP 00		
0.5 kg	1.08 kg	1.17 kg	2.85 kg	3.3 kg	5 kg	5.3 kg	
0.23 kg	0.37 kg	0.51 kg	0.68 kg	-			
0.2 kg							

* Please indicate when ordering

¹⁾ For new applications please use the ERA 4000

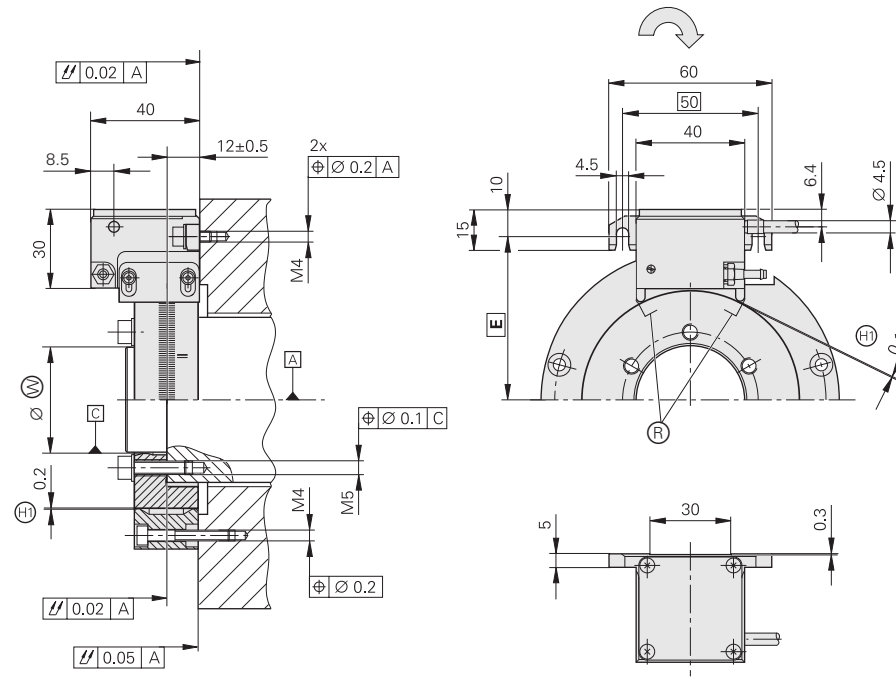
²⁾ Before installation. Additional error caused by mounting inaccuracy and inaccuracy from the bearing of the drive shaft are not included.

³⁾ For other errors, see *Measuring Accuracy*

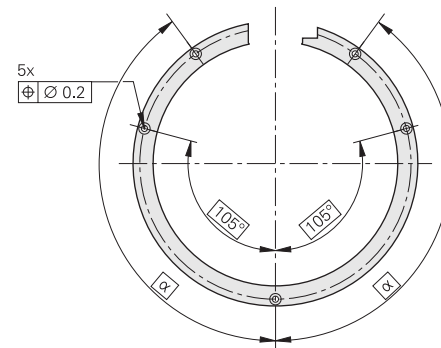
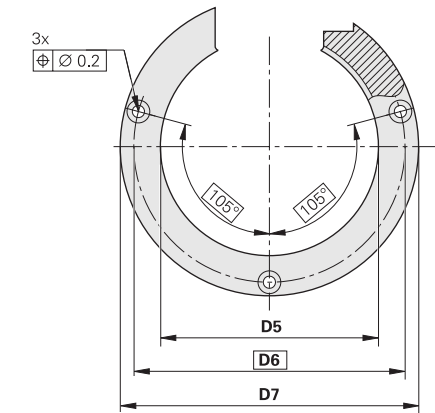
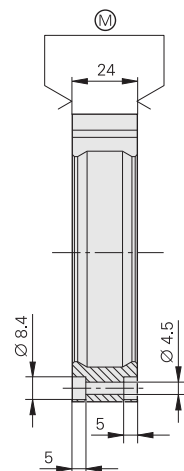
ERA 180

Dimensions in mm

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



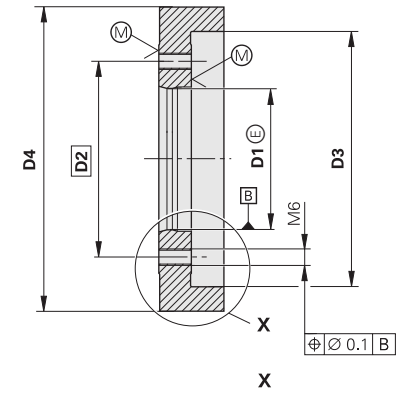
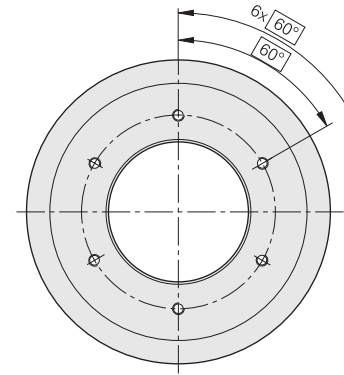
Protective cover



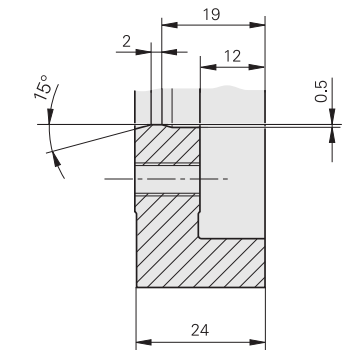
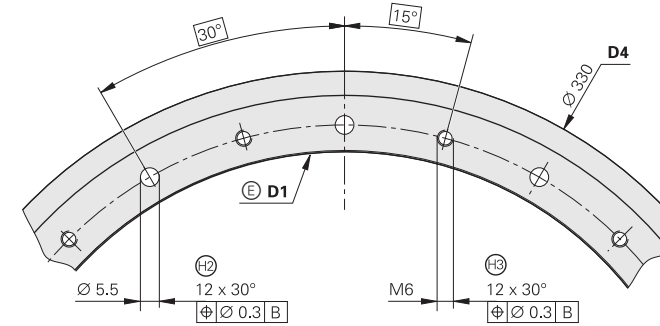
- Ⓜ = Reference mark at midpoint between marks
- Ⓐ = Bearing
- Ⓜ = Mounting surfaces
- Ⓜ = Mounting clearance set with spacer foil
- Ⓜ = Mounting hole
- Ⓜ = Back-off thread
- Ⓜ = Mating shaft
- ↻ Direction of shaft rotation for output signals as per the interface description

Scale drum inside diameter

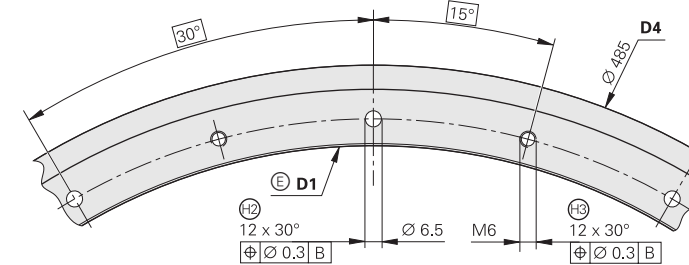
40 mm to 180 mm



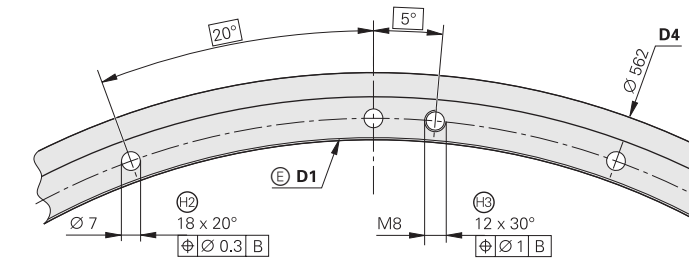
270 mm



425 mm



512 mm



Scale drum inside diameter	D1	E	W	D2	D3	D4	D5	D6	D7	α	E	
40 mm	∅ 40	-0.001 -0.005	∅ 40	+0.009 +0.002	∅ 50	∅ 64	∅ 80	∅ 80.4	∅ 100	∅ 110	-	60
80 mm	∅ 80	-0.001 -0.005	∅ 80	+0.013 +0.003	∅ 95	∅ 112	∅ 130	∅ 130.4	∅ 150	∅ 160	-	85
120 mm	∅ 120	-0.001 -0.008	∅ 120	+0.015 +0.003	∅ 140	∅ 162	∅ 180	∅ 180.4	∅ 200	∅ 210	144°	110
180 mm	∅ 180	-0.001 -0.008	∅ 180	+0.018 +0.004	∅ 200	∅ 232	∅ 250	∅ 250.4	∅ 270	∅ 280	150°	145
270 mm	∅ 270	-0 -0.010	∅ 270	+0.020 +0.004	∅ 290	∅ 312	∅ 330	-	-	-	-	185
425 mm	∅ 425	-0 -0.010	∅ 425	+0.020 +0.004	∅ 445	∅ 467	∅ 485	-	-	-	-	262.5
512 mm	∅ 512	-0 -0.015	∅ 512	+0.025 +0.005	∅ 528	∅ 544	∅ 562	-	-	-	-	301