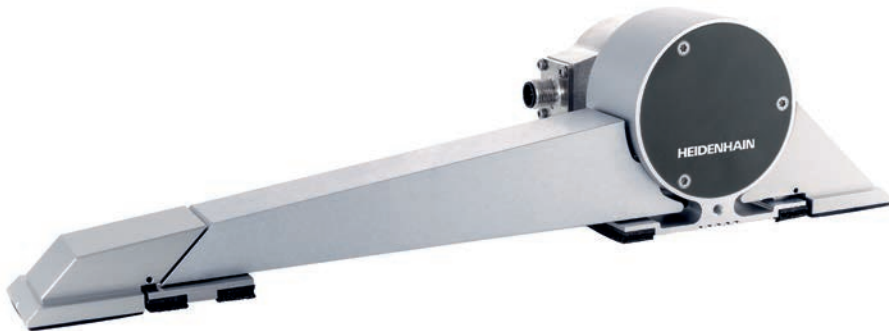




HEIDENHAIN

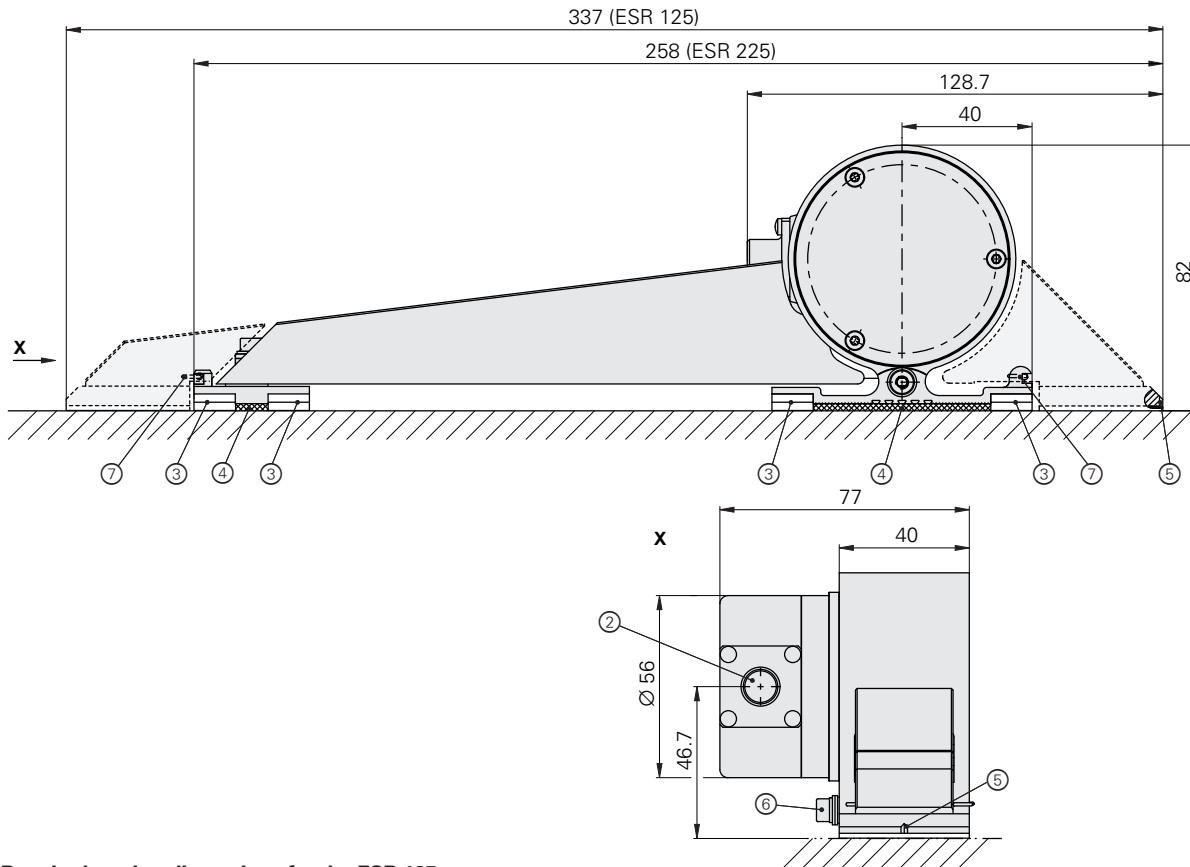


Preliminary
Product Information

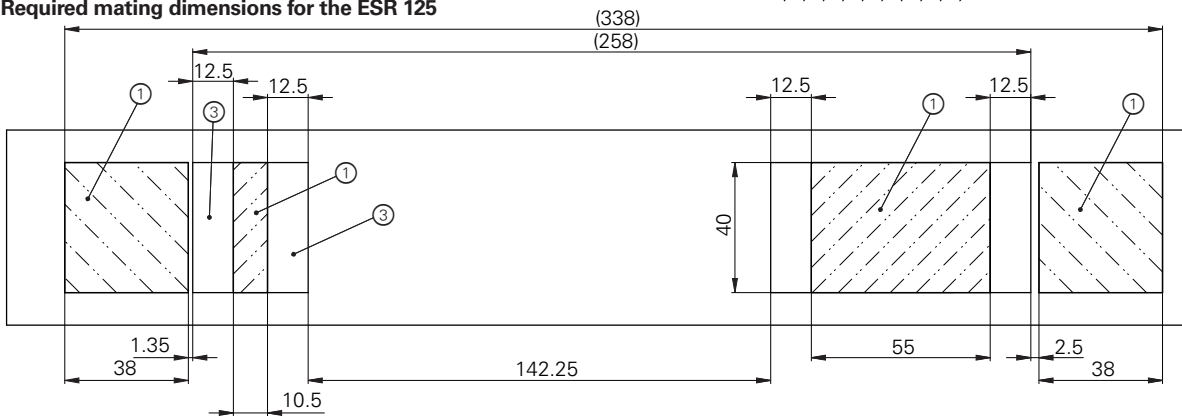
ESR Series Strain Sensors

Dimensions

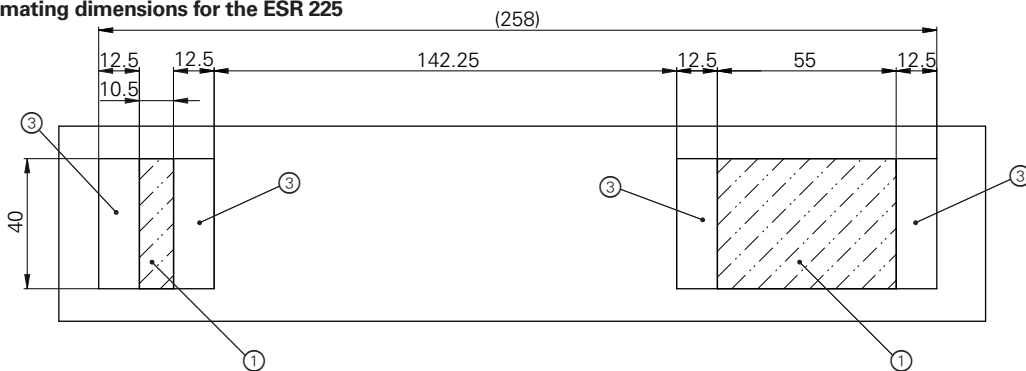
ESR 125, ESR 225



Required mating dimensions for the ESR 125



Required mating dimensions for the ESR 225

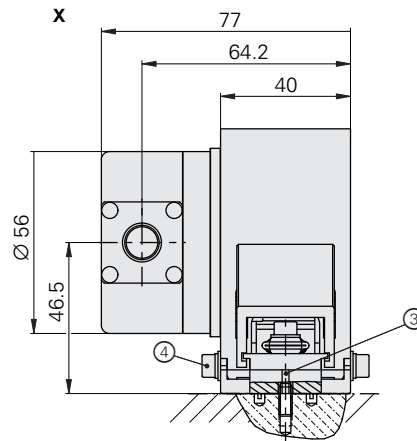
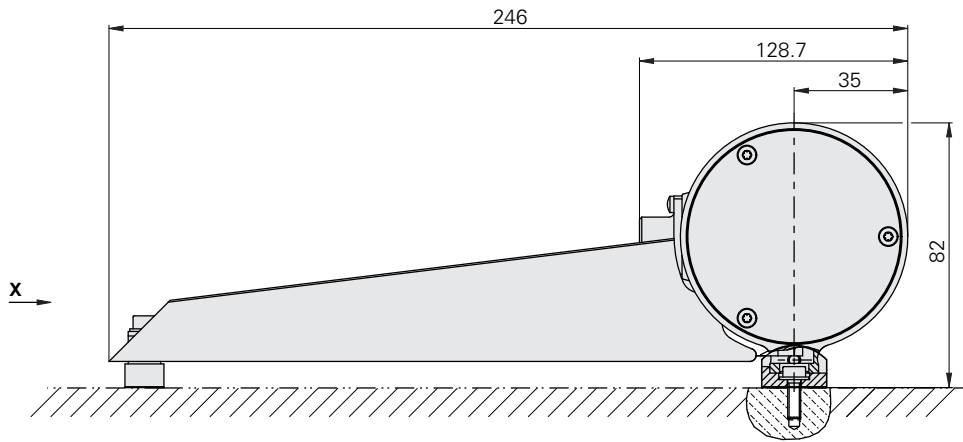


- 1 = Adhesive surface
- 2 = 8-pin M12 flange socket
- 3 = Velcro fastener for attachment
- 4 = Adhesive gap completely filled with Plexus MA300 two-component adhesive
- 5 = Adjustment mark
- 6 = Ground connection
- 7 = Insert cutter here (ESR 125)

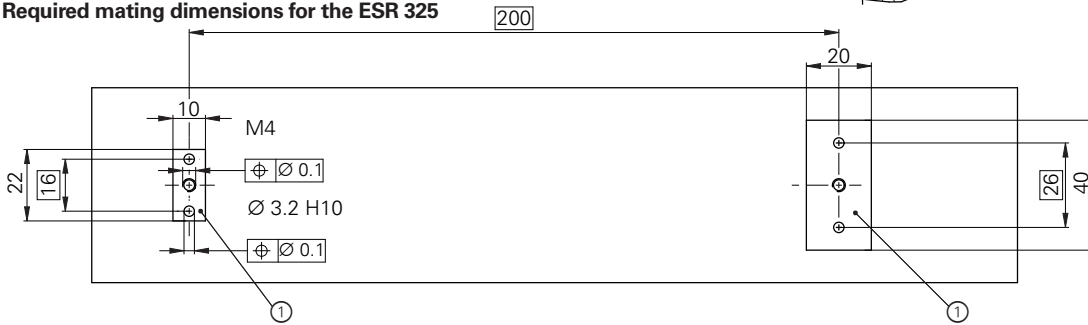
mm

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

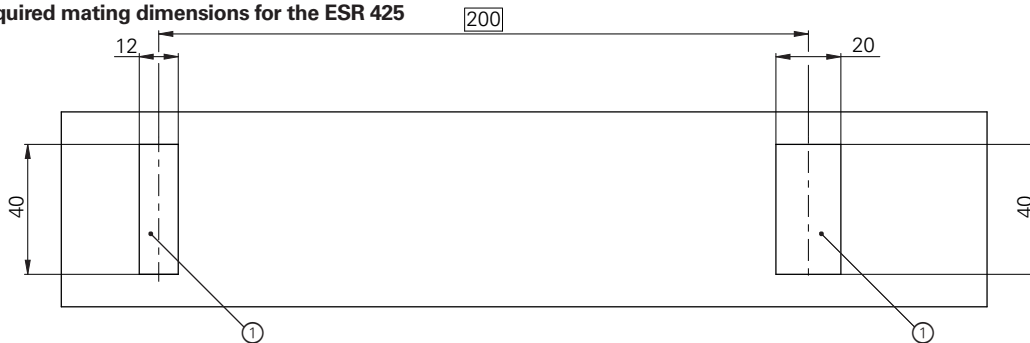
ESR 325, ESR 425



Required mating dimensions for the ESR 325



Required mating dimensions for the ESR 425



1 = Screw-fastening surface (ESR 325), for magnet (ESR 425)

2 = 8-pin M12 flange socket

3 = Adjustment mark

4 = Ground connection

mm



Tolerancing ISO 8015

ISO 2768 - m H

≤ 6 mm: ±0.2 mm


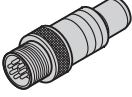



Specifications	ESR 125	ESR 225	ESR 325	ESR 425
Measuring arm material*	CFRP, GFRP, steel, aluminum ¹⁾			
Measuring arm length	200 mm			
Strain measurement				
Measuring step	0.025 µε			
Measuring range	±5000 µε			
Permissible mechanical range of operation	±17 500 µε			
Accuracy (of the measurement)	< ±0.2 %			
Linearity (of the measurement)	< ±0.2 %			
Hysteresis	< 0.2 µε			
Repeatability	< 1 µε			
Temperature measurement				
Measuring step	0.2 K			
Measuring range	-40 °C to +100 °C			
Offset for the ambient temperature	+10 K			
Accuracy	±2 K			
Electrical data				
Supply voltage	DC 3.6 V to 14 V			
Power consumption	3.6 V ≤ 0.6 W, 14 V ≤ 0.7 W			
Output signal	EnDat 2.2			
Max. cable length	100 m (with HEIDENHAIN cable)			
Clock frequency	≤ 8 MHz			
Sampling rate	≤ 30 kHz			
Connection	8-pin M12 flange socket (male)			
Mechanical data				
Type of mounting	Bonded	Bonded and screw-fastened	Screw-fastened	Magnetic
Operating temperature	-40 °C to 100 °C			-40 °C to 70 °C
Protection	IP66			
Vibration 55 Hz to 2000 Hz Shock 11 ms	≤ 200 m/s ² (EN 60068-2-6) ≤ 300 m/s ² (EN 60068-2-27)	< 50 m/s ² < 100 m/s ²		< 20 m/s ² < 40 m/s ²
Mass	0.65 kg			

* Select when ordering

¹⁾ Thermal coefficient of expansion
CFRP: $\approx 1 \cdot 10^{-6} \text{ K}^{-1}$
GFRP: $\approx 8 \cdot 10^{-6} \text{ K}^{-1}$
Structural steel: $\approx 12 \cdot 10^{-6} \text{ K}^{-1}$
Austenitic steel: $\approx 16 \cdot 10^{-6} \text{ K}^{-1}$
Aluminum: $\approx 23 \cdot 10^{-6} \text{ K}^{-1}$

Electrical connection




Pin layout

8-pin M12 coupling								
								
	Power supply				Serial data transmission			
	8	2	5	1	3	4	7	6
	U_P	Sensor U_P	0V	Sensor 0V	DATA	$\overline{\text{DATA}}$	CLOCK	$\overline{\text{CLOCK}}$
	Brown/Green	Blue	White/Green	White	Gray	Pink	Violet	Yellow

Cable shield connected to housing; U_P = Power supply voltage

Sensor: The sense line is connected in the encoder with the corresponding power line.

Vacant pins or wires must not be used!

PUR connecting cables	8-pin: $2 \times (2 \times 0.09 \text{ mm}^2) + 2 \times (2 \times 0.16 \text{ mm}^2)$; $A_P = 2 \times 0.16 \text{ mm}^2$	
	Cable diameter	6 mm
With connector (female) and coupling (male)		1036372-xx
With connector (female) and 15-pin D-sub connector (male), for IK 215, PWM 20, EIB 74x, etc.		1036526-xx
With connector (female) and unassembled cable end		1129581-xx

A_P : Cross section of power supply lines

HEIDENHAIN

DR. JOHANNES HEIDENHAIN GmbH

Dr.-Johannes-Heidenhain-Straße 5

83301 Traunreut, Germany

☎ +49 8669 31-0

☎ +49 8669 32-5061

E-mail: info@heidenhain.de

www.heidenhain.de

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.