

# EM

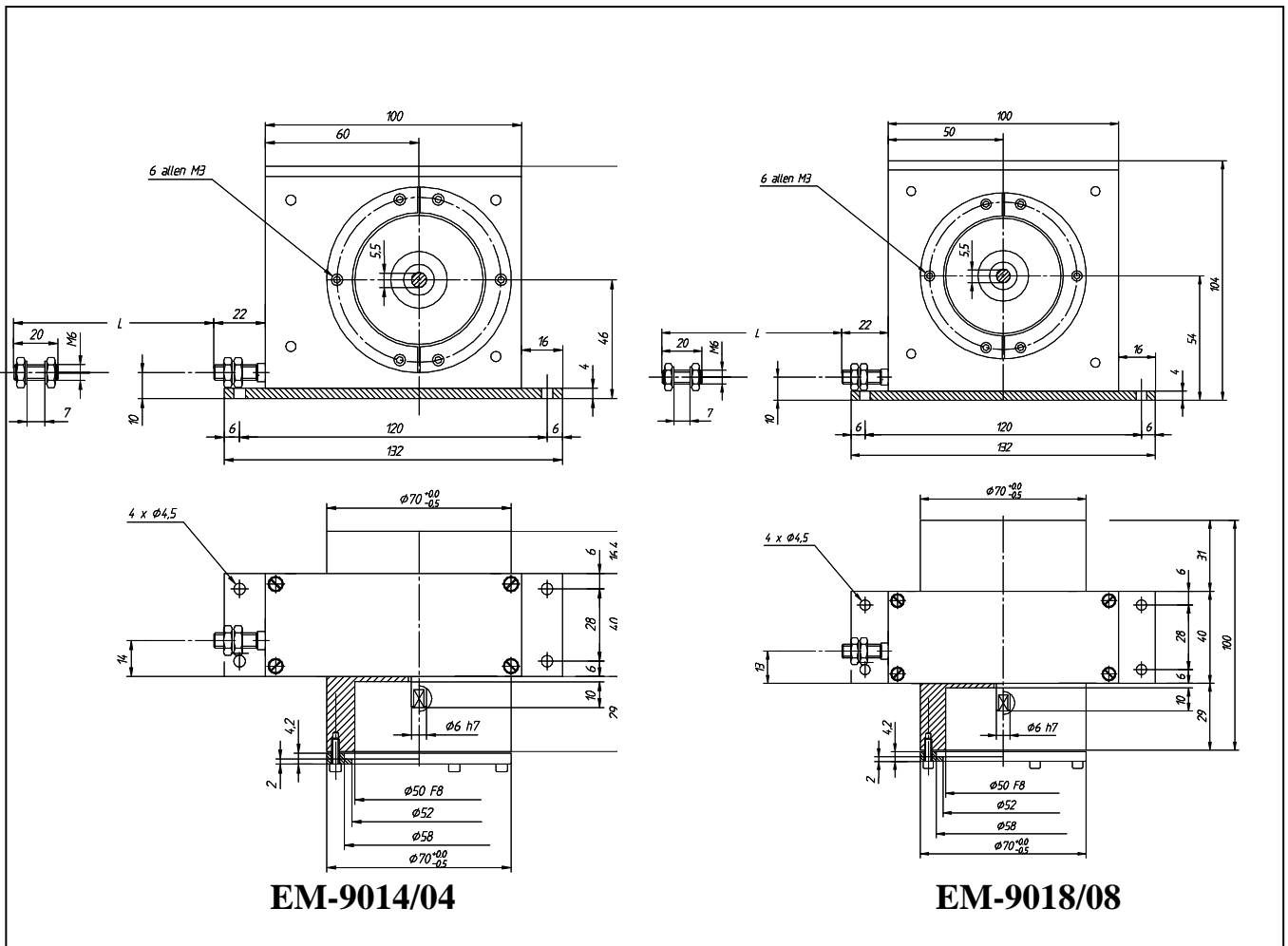
## ENCO-METER: Rotary/Linear cable converter

- ◆ Simple direct measurement of distances
- ◆ Up to 0.1 mm resolution
- ◆ Up to 8 m extension cable
- ◆ Simple and quick to install., does not require precise alignment or expensive modifications of the machine.
- ◆ The transducer can be located away from the area where measurement is carried out (furnaces, radiation areas, noisy electrical apparatus ...)
- ◆ The cable can be guided by a pulley or flexible channels

There is a wide range of output devices (potentiometers, 0-10 V, 4-20 mA, incremental encoders, absolute encoders ...)



Dimensions in mm



# EM

## Working Principle

The ENCO-METER rotary/linear converters are electro-mechanical devices designed to transform the linear movement of the end of a cable into a proportional electrical signal.

The device consists of a micro-cable made from stainless steel wrapped around a drum of precise diameter to obtain an accurate winding of 200 or 250 mm per revolution. A spring sets a constant torque on the drum which rewinds the cable and ensures that it always maintains the same tension. A roller guide system ensures that the cable is correctly rewound. The mechanics described ensure that the angular movement of the drum's axis is in direct proportion to the movement of the cable. The rotation of the drum's axis is transmitted via a coupling to the electronic device which receives the signal. This can be an accurate potentiometer (analog output), an incremental encoder or single absolute encoder and parallel or serial multiturn (digital output).

The converters in the ENCO-METER range are produced in duraluminium and stainless steel.

They do not require any lubrication or maintenance.

Model (Order code)	EM - 9014/04	EM-9018/08
Measuring distance	Up to 4 metres	Up to 8 metres
Size	100x90x40mm	100x114x40mm
Measurement cable exit	Lateral	Lateral
Fitting of base	4 M4 type screws	4 M4 type screws
Transduction ratio	1 rev. of axis=200mm linear	1 rev. of axis=250mm linear
Materials	Aluminium/ copper / Stainless steel	
Cable	Stainless steel AISI316 (7x7+0, Ø0,5mm, Rt=200N)	
Weight	Approx. 0,750 Kg.	Approx. 0,880 Kg.
Maximum extension of cable	4010 mm.	8020 mm.
Torque required.	10,6 N	17 N
Minimum static torque of cable	4,2 N	9,5 N
Maximum static torque of cable	8,9 N	13,9 N
Maximum acceleration	20 m/s <sup>2</sup> (Safety coefficient for breakage of cable factor = 3)	
Maximum rewind acceleration	10 m/s <sup>2</sup> (*1)	14 m/s <sup>2</sup>
Maximum rewind speed	1,2 m/s	
Protection from splashes and particulates as per DIN 40050	IP51	
Normal working temperature (with encoder)	-10°C a 60°C	
Normal working temperature at free end of cable	-20°C a 100°C	
Shock resistance	300 m/s <sup>2</sup>	
Vibrations	100 m/s <sup>2</sup>	
Maximum relative humidity	98% without condensation	

(\*1) We can supply Enco-meters with twin starting torque providing rewind acceleration rates of up to 20m/s<sup>2</sup>