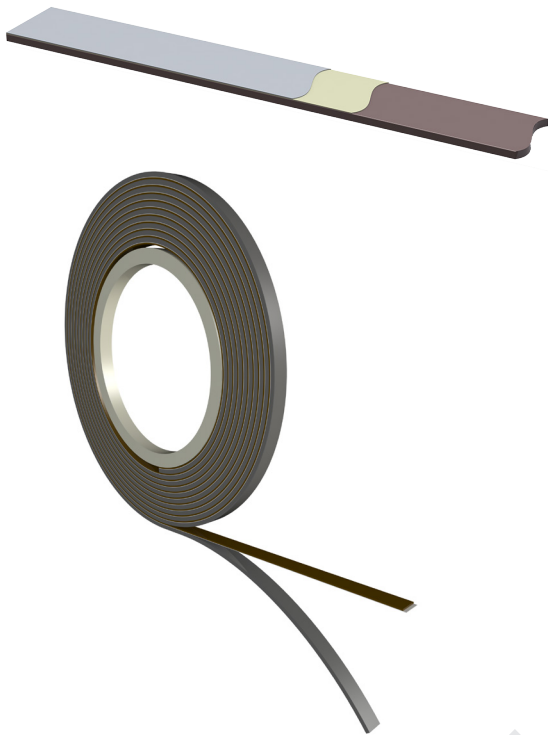




Counting



Controlling



## LMSI Linear Magnetic Scale Incremental

- Linear applications
- Different scale materials available
- Different pole pitches

### Features

- From low to very high accuracy producible on demand
- One or multiple track magnetization
- Different scale geometries
- Customizable for many applications
- No attrition from usage
- Resistant to dust, cooling lubricant emulsion, oil, etc.
- Wide range of selectable magnetic scale characteristics
- A variety of magnetic materials for several applications

## Controlling movements with the LMSI Simple – precise – economic

BOGEN produces magnetic scales for a large variety of different applications. The Linear Magnetic Scale Incremental can be written one track or multiple tracks. Using different accuracy classes scales can be tailored to the requirements. The scales can be used for many different solutions.

## Linear Magnetic Scale

### Characteristics Linear Magnetic Scale

Accuracy class	$\pm 3 \mu\text{m}, \pm 10 \mu\text{m}, \pm 20 \mu\text{m}, \pm 40 \mu\text{m}, \pm 100 \mu\text{m}$
Material	Magnetic Tape: Elastomer filled with ferrite Carrier Tape: Stainless Steel
Width [mm]	5, 6, 8, 10, 20, 25 $\pm 0.2$ (others on request)
Thickness [mm]	0.5 to 1.66 (depending on scale setup)
Pole pitch [mm]	any pole pitches in 0.01 increments (e.g. 0.5 ; 1; 1.2; 2; 2.5; 2.54; 3; 3.2; 4; 5)
Magnetic flux density	Pole pitch    Magnetic flux    Distance
	1 mm          20mT +10/-7 mT    0.4 mm
	2 mm          30mT +10/-10 mT    0.7 mm
	2.54 mm      30mT +10/-12 mT    0.8 mm
5 mm          30mT +10/-15 mT    1.4 mm	
Operating temperature	-20°C to +100°C max.
Expansion coefficient	$\sim 17 \times 10^{-6}/\text{K}$
Minimum bending radius [mm]	65
Length on reel	25 m, 50 m (others on request)
Length in pieces	on request
End processing for pieces	Multiple hole combinations and angle cuts possible (on request)

### Characteristics Adhesive Tape (optional)

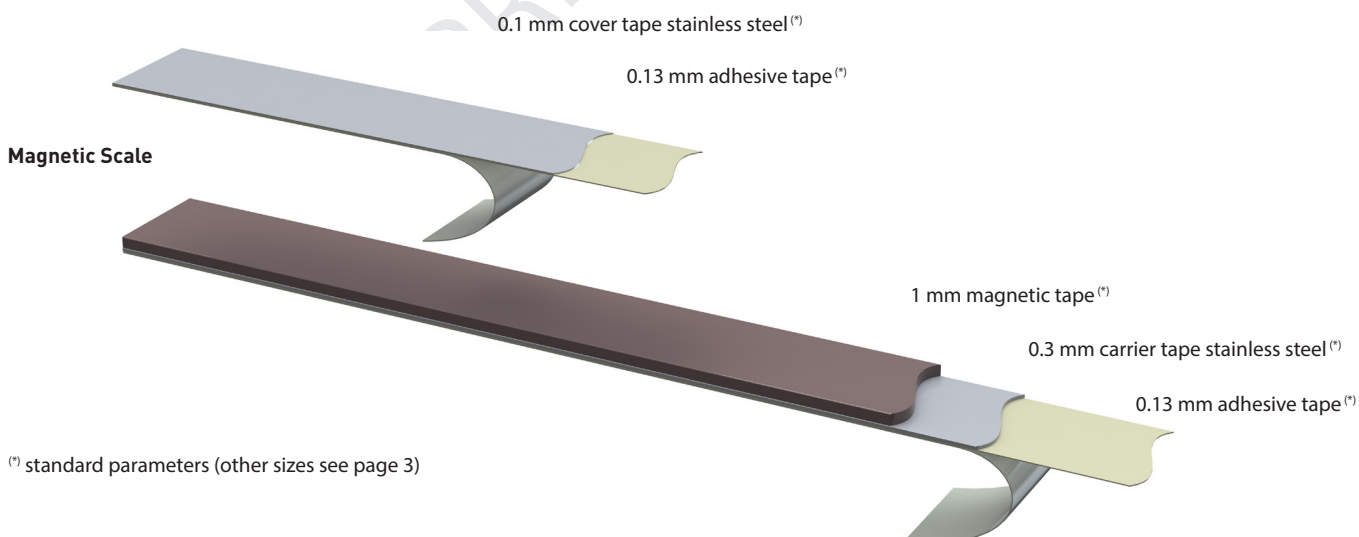
Material	Double sided acrylic adhesive tape
Width [mm]	4.5, 7, 9, 14, 19, 24 others on request
Thickness [mm]	0.13

### Characteristics Cover Tape (separate accessory)

Material	Cover tape: Stainless steel, non magnetic Adhesive tape: Acrylic adhesive tape
Width [mm]	5 $\pm 0.2$
	8 $\pm 0.2$
	10 $\pm 0.2$
	20 $\pm 0.2$
Thickness [mm]	0.23 total thickness (0.1 mm stainless steel tape + 0.13 mm adhesive tape)
Length on reel [m]	50

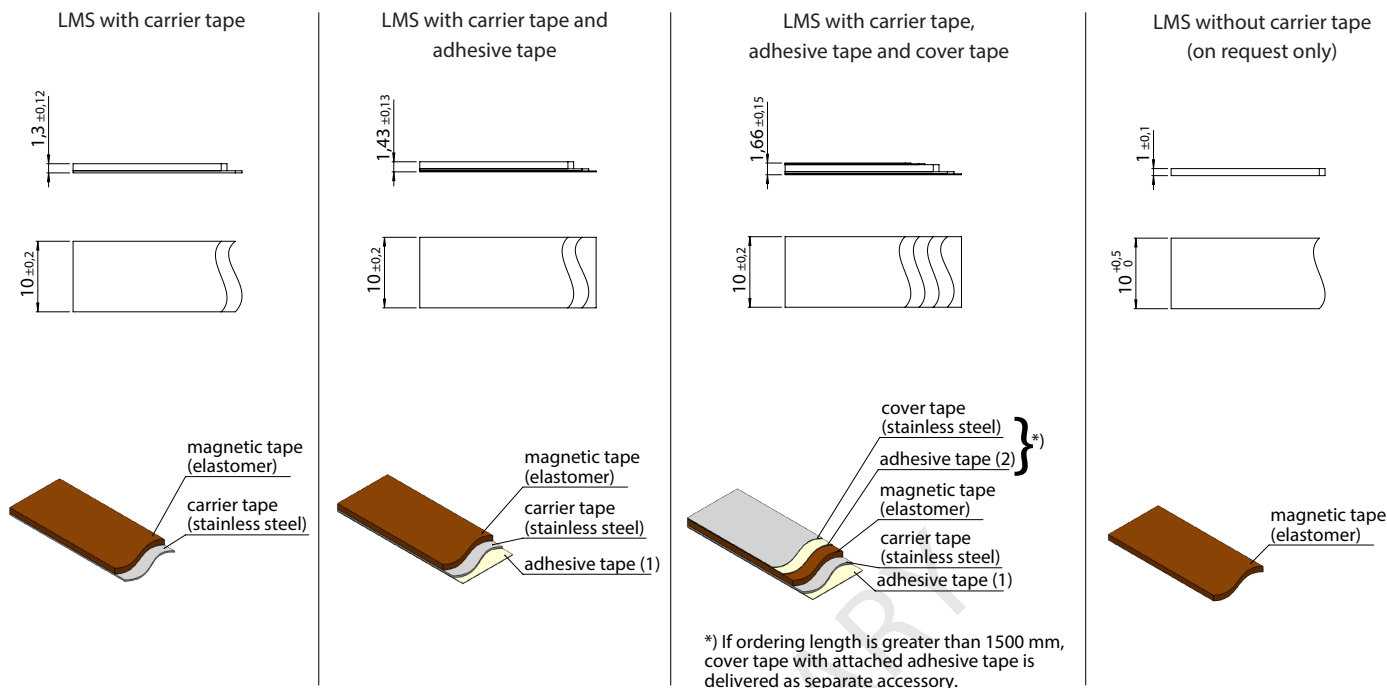
### Dimension Magnetic Scale

#### Cover Tape (separate accessory)



<sup>(\*)</sup> standard parameters (other sizes see page 3)

Scale Dimensions with Standard Layer Stackup



Scale Dimensions with optional Layer Stackup \*)

For individual scale setups following layer dimensions can be used

Magnetic tape	0.5 mm or <b>1.0 mm</b>
Carrier tape	0.1 mm or <b>0.3 mm</b>
Adhesive tape	<b>0.13 mm</b> , 0.212 mm or 0.050 mm
Cover tape	0.076mm, <b>0.1 mm</b> , 0.15mm

\*) standard parameters are bold

Length

Linear magnetic scales cut in pieces or supplied on reel

Marking<sup>1)</sup>

The marking distance is 250 mm and builds up as follows:  
 accuracy class . pole pitch [µm] . year/week . reel no. . magnetic strip counter (optional)  
 e.g. A20.2000.1605.19 (marking every 250 mm)  
 A20.2000.1608.19.012 ( marking one time per magnetic strip)

<sup>1)</sup> The magnetic strip counter indicates the number of remaining strips on the reel. The strip is marked only once per length.

Optional Accessory

- Extruded aluminum profile
- Scale applicator

Order Code

## Parameters

LMSI - 

W	P	Z	L	A	K	C	T
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			Code	Explanation <sup>(*)</sup>
Parameters	W	Width (mm)	W5	5 mm
			W8	8 mm
			W8-10	8 mm Elastomer
				10 mm stainless steel carrier tape
			W10	10 mm
			W15	15 mm
			W20	20 mm
			W25	25 mm
	P	Pole Pitch (mm)	P ...	0.5 to 20 mm (in steps of 0.01 mm)
	Z	Reference Track		<b>without reference track</b>
			Z	with reference track (only delivered up to piece length 2300 mm)
	L	Length	LR25	length on reel, 25 m
			LR50	length on reel, 50 m
			L ...	piece, length in mm
	A	Accuracy Class	A03	± 3 µm/m (only delivered up to piece length 2300 mm)
			A10	± 10 µm/m (only delivered up to piece length 2300 mm)
			A20	± 20 µm/m
			<b>A40</b>	<b>± 40 µm/m</b>
			A100	± 100 µm/m
	K	Adhesive Tape		without adhesive tape
<b>K</b>			<b>equipped with adhesive tape</b>	
C	Cover		<b>without cover tape</b>	
		C	equipped with cover tape (only delivered up to piece length 1500 mm)	
T	Text Imprint		<b>with BOGEN text imprint</b>	
		T0	without text imprint	
		T2	with customer specific text imprint (on request)	

(\*) standard parameters are bold

## Ordering Example

**Customization:**

Linear scales can be customized beyond these standard settings with different pole patterns including irregular patterns, different tracks and other options. Please contact BOGEN with your requests.

LMSI-W10P5ZL200A100T1

Linear magnetic scale incremental, width 10 mm, pole pitch 5 mm, with reference track, supplied as piece with 200 mm length, accuracy class ± 100 µm/m, with standard text imprint

LMSI-W25P0.7LR25A20T1

Linear magnetic scale incremental, width 25 mm, pole pitch 0.7 mm, without reference track, supplied on reel with 25 m length, accuracy class ± 20 µm/m, with standard text imprint