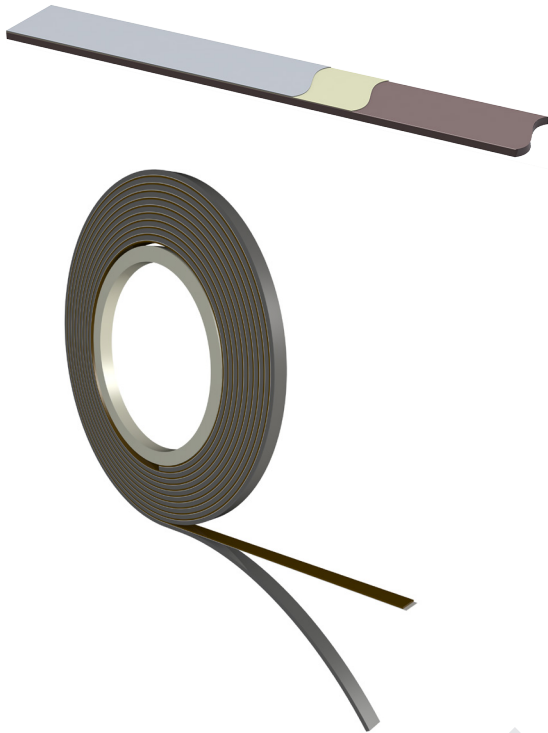




Counting



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 ± 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)

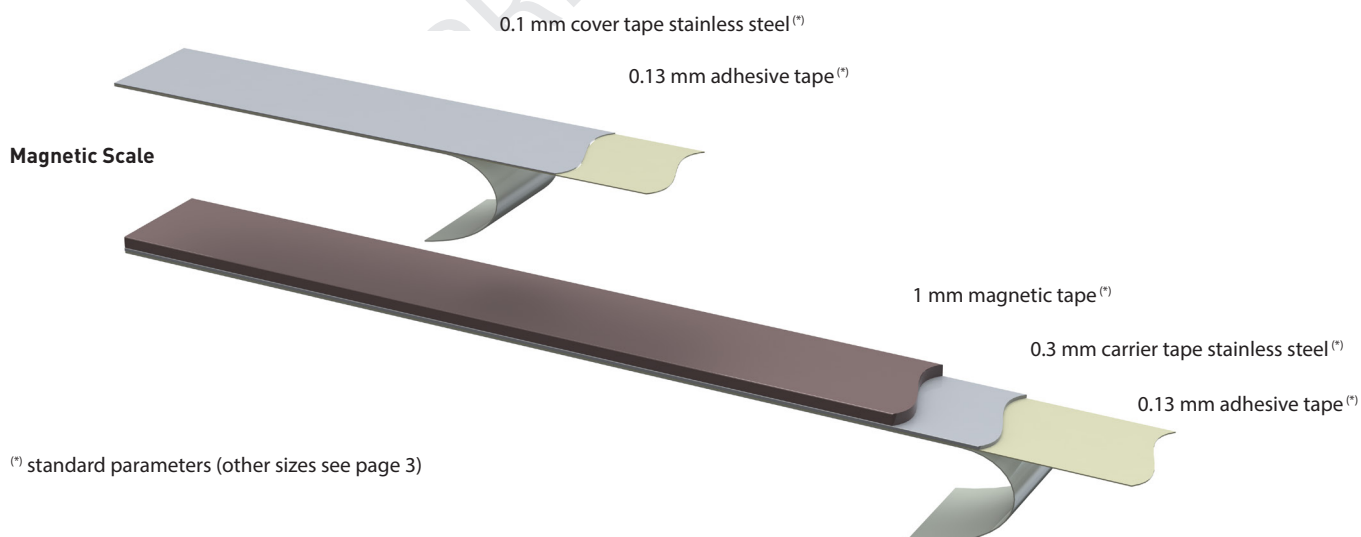
Material	Double sided acrylic adhesive tape
Width [mm]	4.5, 7, 9, 14, 19, 24 others on request
Thickness [mm]	0.13

Characteristics Cover Tape (separate accessory)

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

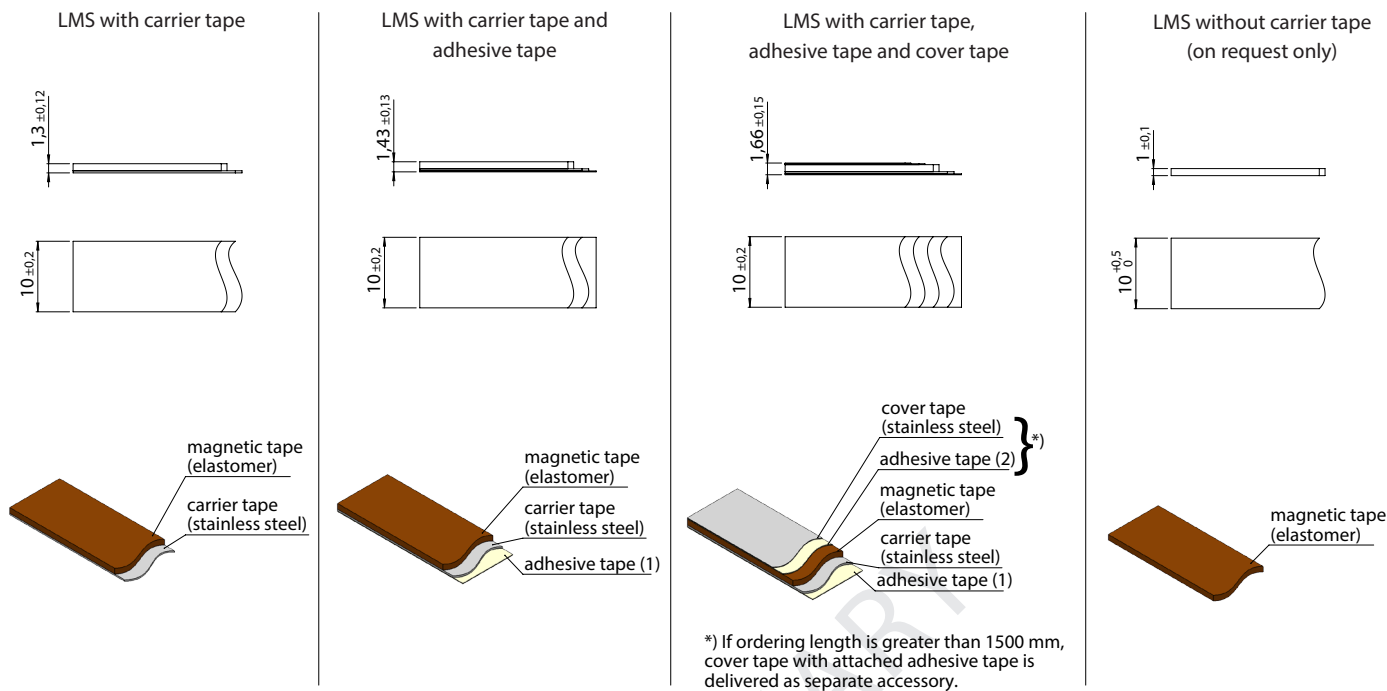
Dimension Magnetic Scale

Cover Tape (separate accessory)



(*) 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 1.0 mm
Carrier tape	0.1 mm or 0.3 mm
Adhesive tape	0.13 mm , 0.212 mm or 0.050 mm
Cover tape	0.076mm, 0.1 mm , 0.15mm

*) standard parameters are bold

Length

Linear magnetic scales cut in pieces or supplied on reel

Marking¹⁾

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)

¹⁾ 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	H	P	Z	L	A	K	C	T
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			Code	Explanation (*)
			Parameters	W
W8	8 mm			
W8-10	8 mm Elastomer (only for P95-05 extrusion)			
	10 mm stainless steel carrier tape (only for P95-05 extrusion)			
W10	10 mm			
W15	15 mm			
W20	20 mm			
W25	25 mm			
H	Height (mm)			1 mm magnetic tape, 0.3 mm carrier tape
		H1-0.1		1 mm magnetic tape, 0.1 mm carrier tape
		H0.5-0.3		0.5 mm magnetic tape, 0.3 mm carrier tape
		H0.5-0.1		0.5 mm magnetic tape, 0.1 mm carrier tape
P	Pole Pitch (mm)	P ...		0.5 to 20 mm (in steps of 0.01 mm)
Z	Reference Track			without reference track
		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
		A40		± 40 µm/m
		A100		± 100 µm/m
K	Adhesive Tape			without adhesive tape
		K		equipped with adhesive tape
C	Cover			without cover tape
		C		equipped with cover tape (only delivered up to piece length 1500 mm)
T	Text Imprint			with BOGEN text imprint
		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-W10P5ZL200A100

Linear magnetic scale incremental, width 10 mm, height magnetic tape 1 mm, height carrier tape 0.3 mm, pole pitch 5 mm, with reference track, supplied as piece with 200 mm length, accuracy class ± 100 µm/m, without adhesive tape, without cover tape, with standard text imprint

LMSI-W25H1-0.1P0.7LR25A20

Linear magnetic scale incremental, width 25 mm, height magnetic tape 1 mm, height carrier tape 0.1 mm, pole pitch 0.7 mm, without reference track, supplied on reel with 25 m length, accuracy class ± 20 µm/m, without adhesive tape, without cover tape, with standard text imprint