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Revision History

Revision	Date	Owner	Description
0.2	8 Sept 2014	ekno	New design layout

1 General

This specification defines the dimensional and magnetic properties of a multi pole magnetic strip for use with the AS5304 magnetic linear motion and off-axis rotary angle encoder.

Material: rubber bonded Strontium Ferrite SrFe.

2 Dimensional Specification

Magnet Order # MS20-50 on ams web shop, refer to Figure 1

Parameter	Symbol	Min	Typ	Max	Unit	Note
Strip Width	W	100,8 4	101, 6	102,36	mm	4.00" +/- 0.030"
Strip Cut Length	S	4,62	5,0	5,38	mm	0.197" +/- 0.015"
Strip Thickness	T	0,762	0,76 2	0,813	mm	0.030" +0.00" / – 0.002"
Thermal expansion			49		x10-6/K	Mechanical length expansion
Density			3,4		g/cm3	estimated
Delivery	4,00" x 0.030" x 200' Outdoor adhesive, cut thru .197". Minimum 1 rolls (~ 12.000 strips).					

3 Magnetic Input Specification

Magnet Order # MS20-50 on ams web shop, refer to Figure 1

Parameter	Symbol	Min	Typ	Max	Unit	Note
Pole length	L _p		2,00		mm	results in pole pair length of 4mm (50 poles @ 2,0mm, 2 border poles ~1,0mm)
Resolution	Res		25		µm	With AS5304 @ maximum interpolation
Pole length deviation				+/- 50	µm	Measured at B _z =0, all poles (L _p) within active region
Number of poles			50		poles	Excluding poles with L<L _P at the ends of the strip
Magnetic field amplitude @ 0.5mm distance	B _{pk}		15		mT	Vertical component of the magnetic field strength in the center of the strip at 25°C
Amplitude variation				+/-1,5	mT	All poles within active region
Active Region to strip edge	A			0,5	mm	estimated

Parameter	Symbol	Min	Typ	Max	Unit	Note
First Bz=0 position to strip edge	D1	TBD	1,0	TBD	mm	Tolerance estimated +/-0,25µm
Last Bz=0 position to strip edge	D2	TBD	1,0	TBD	mm	Tolerance estimated +/-0,25µm
Temperature range	Tamb	-18	25	80	°C	
Temperature drift	TkBr		+0,2		%/K	Magnetic field temp. drift

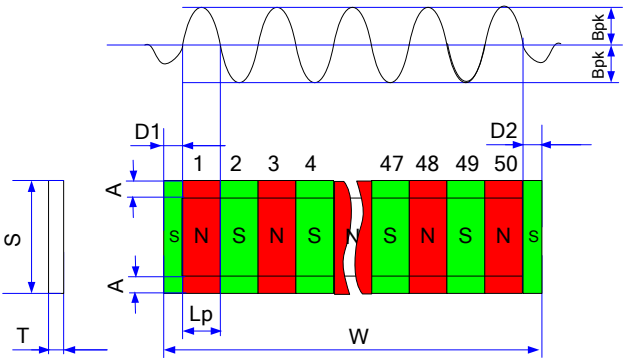


Figure 1

4 Magnet Supplier Information

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<http://www.arnoldmagnetics.com/sales/index.htm>

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