ELMETA MDA1005, MDA1006

During the production of textiles, small metal particles find their way into the web due to the various processing steps. If these are not all detected, extremely costly damage may occur on the downstream calender rollers and shearing tools. Furthermore, there is also a risk of catalytic reactions in wet finishing. As a result, whole web sections are often converted into scrap.

The metal detection system ELMETA MDA1005 / MDA1006 reliably and accurately detects the smallest metal particles over the entire width of the web. Per segment (300 mm) a signal LED on the sensor indicates the position of the metal particle in the web. The integrated segment-wise evaluation as well as the gain setting and a reset button ensure commissioning is straightforward.
The operating voltage of 100 – 240 V, 50/60 Hz is applied to the control unit SG 1031 or SG 1032 delivered together with the system. As standard no other control or evaluation units are required. Fast or slow production speeds from 2 to 500 m/min (depending on the size and material of the particles) are not a problem for the MD 1005 / MD 1006 metal detector. The special scanning surface and the aluminum housing prevent damp webs or electromagnetic interference affecting the detection result.

Usage
The metal detector can be used for dry and damp web textiles, non-woven fabrics and carpets.

Application
The metal detector can be installed in any orientation in any production machine.

There must not be any moving parts, e.g. rollers, installed within an area of 500 mm.

Function
An alternating magnetic field of 200 kHz is generated by an AC current in a transmit coil. A web soiled with metal disrupts this alternating field and triggers a signal. Other effects such as moisture or contact have no effect on the detection result thanks to capacitive shielding. The result can be used as a continuous or pulsed signal to stop the machine, to output a visual or acoustic alarm, or to operate marking or counting systems. The segmented LED display indicates the position of the metal particle. Optionally it is possible to connect an external reset button.

Special features

- Reliable detection of spherical metals at a distance of < 1 mm from the scanning surface
- One signal LED per segment (300 mm)
- Pulsed signal can be set from 0.5 to 5 s
- Compact design with integrated electronics
- Straightforward mounting at two points

LED lamps indicate in which segment of the web the metal particle is located

Material	Weight of the particle (Distance to the surface of the sensor 0 mm)	Web speed
Steel AISI 52100	2 mg	2 – 350 m/min
Aluminum EN AW 2017	5 mg	2 – 500 m/min
Copper	10 mg	2 – 250 m/min
Stainless steel AISI 316	50 mg	2 – 350 m/min

Product type	Characteristics
MDA1005 (Standard) (MD 1005 + SG 103.)	• Single-segment display on the sensor
MDA1006 (MD 1006 + SG 103. + LK 0501)	• Single-segment display on the sensor • External single-segment evaluation (by means of logic card LK 0501)
SG 1031	• RESET button (collective indicator)
SG 1032	• RESET button (collective indicator) • Sensitivity potentiometer

Technical data

Nominal width NB	600 – 6000 mm (300-mm steps)
Web type	Woven and knitted fabrics, non-woven fabrics, felt, carpet
Web condition	Dry, damp (squeezed)
Web speed	See table
Ambient temperature	0 to +60 °C
Storage temperature	-20 to +80 °C
Protection class	IP 54
Line voltage SG 103.	100 – 240 V, 50/60 Hz
RESET signal	Continuous signal with reset button or pulsed signal (0.5 to 5 s)
Output signal LK 0501 (MD 1006 only)	Per individual segment 1 floating output

min. 185 / max. 535

NB

AB = NB - 50

min. 185 / max. 535

∅13

134

134

35

130

160

M

GA = M + 35

Use dimensioned drawing for planning

Subject to technical changes without notice