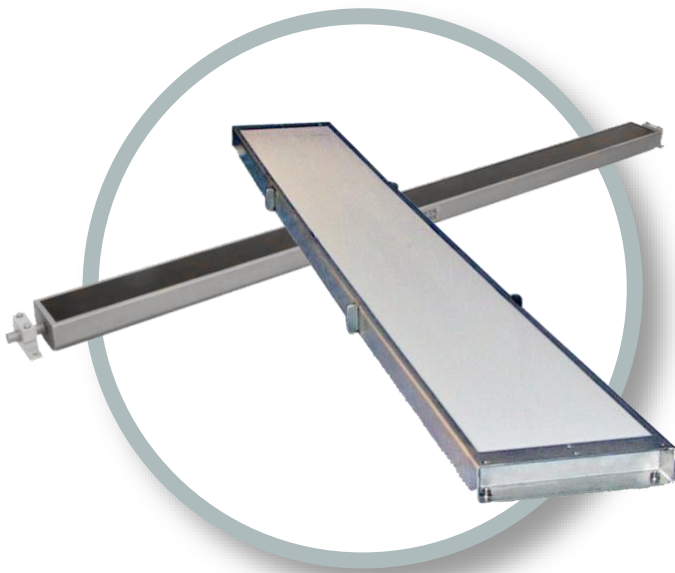




# METAL SHARK<sup>®</sup> FL

## METAL DETECTION FOR WEBS

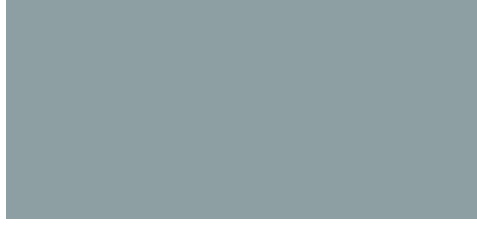


### Features

- Reliably detects magnetic and non-magnetic metals in fabrics, webs and flat products
- Flat detector surface with rotatable mounting hardware to align with ascending or descending product path.
- Easy-to-install under or between conveying lines
- Intuitive control and easy installation with autocalibration and TeachAssistant
- Very low maintenance with automatic balance and calibration control

### Highlights

- Best detection sensitivities due to CASSEL's proprietary signal analysis (4-quadrant technology)
- Memory for up to 250 products
- Easy-to-use with intuitive and multilingual menus
- 4-level password system, automatic log out upon timeout
- Documentation of all events and metal detection alerts
- IFS and HACCP reports available on display at the touch of a button
- Optional: Data transfer to USB interface or connection to the company network via SHARKNET<sup>®</sup> software
- Cyclical function monitoring with Performance Validation System (PVS)



# METAL SHARK® FL

Metal Detection for Webs and Flat Products



## Overview

The METAL SHARK® FL and FL compact metal detectors are typically used for the inspection of non-wovens, textiles/fabrics and films.

Both detectors are particularly flat and available in widths of 1,000 - 4,000 mm (39" to 157"). The FL compact features a rotatable mount so that it can be adapted to sloping webs.

Due to the high sensitivity of the FL models, even tiny magnetic and non-magnetic metal particles (e.g. iron, aluminium and stainless steel) are detected across the entire width.

## Included

- FL detection unit (sensor)
- METAL SHARK® control unit

or

- FL compact detection unit
- METAL SHARK® control unit

## Accessories & Extras

- Washable versions for hose cleaning (LPW) or optional high-pressure washdown (HPW)
- SHARKNET® connection for automatic documentation including HACCP, IFS or BRC standard
- Separate mounting of the control unit (e.g. wall mounting)
- Signalling devices (visual/acoustic)
- Issue of a Performance Verification Certificate (proof of functionality for audits) by CASSEL service technicians, e.g. during commissioning or maintenance

## Application

- Monitoring of fabric, non-woven or synthetic webs, very shallow products moving on conveyor belts
- Quality assurance for incoming goods, outgoing goods or during ongoing production
- Machine or end user protection, e.g. against needle

## Industries

- Textile, fabric and fleece
- Hygiene
- Paper, cardboard, packaging
- Various industries, when mounted under conveyor belt





# METAL SHARK® FL

Metal Detection for Webs and Flat Products



## Specifications

<b>Electronics</b>	Digital signal processor, digital frequency generation, digital balance control, automatic calibration, digital noise filters, integrated flexible control functions
<b>Input</b>	2 analog 0 ... 10 V DC (option: 4-20 mA) 8 freely configurable 24 V DC signals, e.g. for rotary encoders, product identification, buttons
<b>Output</b>	2 floating: "error" and "metal" 8 freely configurable 24 V DC signals
<b>Inspection method</b>	High-frequency magnetic field, multi-channel operation, balanced receiver coils
<b>Metal detection</b>	Ferrous, non-ferrous (e.g. aluminium or copper) and stainless steel
<b>Product compensation</b>	250 memory locations, automatic product compensation
<b>Enclosure rating</b>	Control unit: IP65 Sensor: IP54 (optional: IP66)
<b>Environmental conditions</b>	Control unit: -20°C to +40°C / -4°F to +104°F Optional: to -40°C / -40°F or +55°C / 131°F Rel. humidity: 20% to 90% (non-condensing) Sensor: -30°C to +60°C / -22°F to 140°F, optionally up to +90°C / 194°F
<b>Temperature of goods inspected</b>	Standard: -30°C to +40°C / -22°F to +104°F Optional: -40°C to +60°C / -40°F to 140°F
<b>Power supply</b>	Single-phase 110-230 V AC +/- 5%, 20 W typ. (60 W max.)
<b>Interface</b>	RS232, LAN (optional, for SHARKNET®), USB (optional)
<b>Maintenance</b>	Very low maintenance, self-calibrating sensors
<b>Diagnostics</b>	Integrated diagnostic software, automatic self-test

## Special version & optional extras

- Temperature extension cold: Temperature range extended to -40°C (-40° F), resin seals remain elastic at low temperatures, special insulation, heated enclosure and other features.
- Temperature extension hot: Temperature range extended to +55° C, (+131° F), adapted enclosure, additional thermal insulation, replaceable filter fan, heat exchanger and/or active cooling units.
- High temperature extension for goods inspected: Goods temperature up to +120°C (248° F) max., this option provides IP54 grade enclosure for the sensor.
- High Pressure Washdown (HPW) / Low Pressure Washdown (HPW): IP rating upgrade, adapted sensor seal, additional seals installed and a double housing for the controller electronics
- SHARKNET® software connects METAL SHARK® metal detectors with a central computer, providing centralized storage of all operating data plus batch and alert documentation for HACCP and IFS compliance.



# METAL SHARK® FL

Metal Detection for Webs and Flat Products



## Sensitivities of METAL SHARK® FL

Sensor width 200 – 1,000 mm								
Distance from sensor (mm)	10	20	30	40	50	60	70	80
Iron ball (Ø mm)	0.8	1.0	1.8	2.2	2.5	3.8	5.0	6.0
Non-magnetic metal (Ø mm)	1.0	1.2	2.2	2.6	3.0	4.6	6.0	7.2
Stainless steel (Ø mm)	1.2	1.5	2.7	3.3	3.8	5.7	7.5	9.0

Sensor width 1,000 – 4,000 mm								
Distance from sensor (mm)	10	20	30	40	50	60	70	80
Iron ball (Ø mm)	1.0	1.5	2.2	3.0	3.4	5.5	7.0	8.0
Non-magnetic metal (Ø mm)	1.2	1.8	2.6	3.6	4.1	6.6	8.4	9.6
Stainless steel (Ø mm)	1.5	2.3	3.3	4.5	5.1	8.3	10.5	12

Disclaimer: Sensitivities largely depend on ambient conditions as well as on the properties and conditions of the goods to be inspect-ed. The dimensions listed above are provided for general indication only. Please note that these dimensions are not contractually guaranteed.

- Metal-free zone (Upstream/downstream of detector)  
Non-moving metal = 250 mm, moving/vibrating metal = 500 mm
- Speed of goods being inspected: 25 – 3,000 mm/s (1“ – 9.8 ft/s)

## Sensitivities of METAL SHARK® FL compact

Sensor width 200 – 1,500 mm								
Distance from sensor (mm)	10	20	30	40	50	60	70	80
Iron ball (Ø mm)	1.0	1.5	1.8	2.5	3.3	5.5	6.5	8.0

Sensor width 1,500 – 4,000 mm								
Distance from sensor (mm)	10	20	30	40	50	60	70	80
Iron ball (Ø mm)	1.5	2.0	3.0	4.0	4.5	6.5	8.0	10.0

Disclaimer: Sensitivities largely depend on ambient conditions as well as on the properties and conditions of the goods to be inspect-ed. The dimensions listed above are provided for general indication only. Please note that these dimensions are not contractually guaranteed.

- Metal-free zone (Upstream/downstream of detector)  
Non-moving metal = 250 mm, moving/vibrating metal = 500 mm
- Speed of goods being inspected: 25 – 4,000 mm/s (1“ – 13.1 ft/s)

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