

- Reliably detects metals in packaged and unpackaged goods on conveyor belts
- Very high sensitivity in dry, moist, salty, or frozen goods
- Easy setup and intuitive operation due to auto-calibration and wizard guidance
- Maintenance-free design with automatic and continuous calibration of detector coils
- Compliant with food safety standards (IFS Food, HACCP, BRC)



- Maximum detection performance with high reliability in the entire detection area due to 4-quadrant technology
- Stable against temperature or product changes with 3D detection
- Simple setup with TeachAssistant
- Storage spaces for up to 250 products
- Easy to use with intuitive and multilingual menus
- 4-level password system, automatic log out after time lapse
- Documentation of all events and metal messages
- IFS5 and HACCP reports available on the display at the touch of a button
- Optional: Data transfer to USB interface or connection to the company network via SHARKNET® software
- Cyclical function monitoring with Performance Validation System (PVS)
- Available as a system solution with additional devices



METAL SHARK BD with HQ conveyor

Scope of delivery:

- BD sensor head
- METAL SHARK® controller

Detection systems using conveyors:

For the METAL SHARK® BD, CASSEL offers custom conveyors that fit perfectly into existing production lines. A wide range of reject devices and other accessories, such as signalling devices or covers, are available for these conveyors (see HQ conveyor belt product data).

Accessories & optional extras:

- Additional version: UltraSens, Ferrous-in-foil, Twin-head or versions for high temperature, low-pressure hose cleaning (LPW) or high-pressure cleaning (HPW)
- SHARKNET® link for automatic documentation to comply with HACCP, IFS or BRC standards
- Performance Verification Certificate (proof of functionality for audits) by CASSEL service technicians, e.g. during commissioning or maintenance
- BRC-kit for a fail-safe system (MD failure, reject failure, reject bin full, air pressure failure) including product jam monitor, required covers, ejection, container and compressed air monitoring, product counter etc.



Function:

The METAL SHARK® BD metal detector can be used in free-standing mode or combined with conveyors or chutes. Using 3D detection technology, it accurately and reliably detects even the smallest presence of magnetic and non-magnetic metallic foreign bodies (iron, stainless steel, aluminum, etc.) even under adverse conditions. Made of stainless steel, the detector's rugged enclosure is easy to clean and perfectly suited to the needs of the food industry.

Application:

- Monitoring of packaged or unpackaged goods –fed via conveyor belts or chutes
- Quality assurance for incoming goods and outgoing goods as well as in production
- Machine protection, e.g. in meat processing facilities

Industries:

- Food and beverage.
- Chemicals, pharmaceuticals and hygiene
- Grain
- Recycling
- Paperboard, corrugated packaging
- Textile and fleece
- Timber and lumber



BRC kit for the food industry:

With the optional BRC kit, the device meets the requirements of the Global Standard of the British Retail Consortium (BRC) for food safety and thus also the established and generally recognized standards for HACCP and IFS.

Specifications:

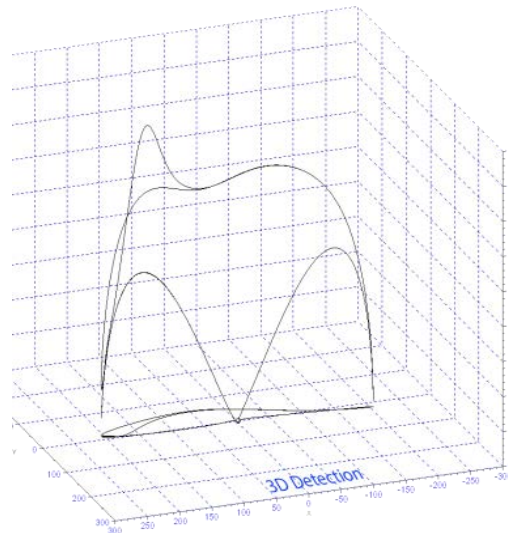
Electronics	Digital signal processor, noise filter, digital balance control, digital frequency control, PowerDrive circuit
Input	8 freely configurable 24 V DC signals, e.g. for reject or compressed air control
Output	2 floating: "error" and "metal" 8 freely configurable 24 V DC signals, e.g. for metal or start conveyor belt
Measuring method	Inductive, multi-channel mode, balanced receiver coils
Metal detection	Ferrous, non-ferrous (e.g. aluminum or copper) and stainless steel
Product compensation	250 memory locations
Enclosure rating	IP 65, with optional IP66 or IP67
Environmental conditions	Standard: -20°C to +40°C / -4°F to +104°F, Optionally: -40°C or +55°C / -40°F or +131°F rel. humidity 20% up to 90% (non-condensing) >95% relative humidity (condensing) with closed control cabinet
Temperature of goods inspected	Standard: -30°C to +55°C / -22°F to +131°F Optionally: -40°C to +120°C / (-40°F to 248°F
Power supply	1 phase, 110 to 240 VAC, 50/60 Hz, typical power consumption: 20 W (60 W max.)
Interface	RS232, optional USB and/or Ethernet for HACCP and IFS documentation
Maintenance	Maintenance-free, self-calibrating sensors
Diagnostics	Integrated diagnostics software, automatic self-test

All BD series metal detectors can be combined with HQ series conveyors.



3D detection:

CASSEL's unique 4-quadrant technology has evolved into the 3rd dimension. The MultiPhase and BOOST FACTOR technologies add multi-phase measurement and signal amplification capabilities to this proven technology, thus creating 3-dimensional signal models of your products signatures that are as unique as a fingerprint.



BOOST FACTOR – Up to 50% higher accuracy: SHARK detects foreign bodies of stainless steel up to 1 mm smaller than those found by conventional detectors. This is particularly useful when scanning is performed in challenging places such as the front and rear edges of packaging.

MultiPhase – Continuous adjustment to changing conditions for even greater stability: SHARK can easily cope with frozen or heated goods, variations in item orientation or temperature as well as with refrigerated, heated, or humid environments.

Special versions & optional extras:

3D detection	Additional photocells and upgraded control software (BOOST FACTOR) enable accurate evaluation during the detection period of each item inspected (MultiPhase).
Multi-frequency	Provides selection of four different frequencies, resulting in significantly increased performance in situations where product variations occur (density, location/position, temperature, etc.)
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
LPW/HPW (Low Pressure/High Pressure Washdown)	IP enclosure upgrade through adapted sensor seal, installation of additional seals and dual housing for the controller electronics.
SHARKNET®	The SHARKNET® software connects METAL SHARK® metal detectors, check weighers and X-Rays with a central computer, providing centralized storage of all operating data plus batch and alarm documentation for HACCP and IFS compliance.
UltraSens model	Fast Power Drive booster (FPD) significantly enhances metal detection and reliability in industrial environments that fail to comply with pertinent electromagnetic compatibility standards. Available with a range of enclosure grades.
Ferrous in Foil model	Special version for detecting magnetic metals packaged in aluminum-coated foils or aluminum trays.
Twinhead model	To overcome the orientation effect, whereby conductive or magnetic contaminants run parallel to their respective fields, a special twinhead version is available. Two metal detectors at a 90° angle to one-another offset to ensure metal detection even in such cases.



METAL SHARK® BD Ferrous in Foil detects magnetic metals in aluminum foil or trays



METAL SHARK® BD UltraSens provides a powerful boost to sensitivity



METAL SHARK® BD, Twinhead model with HQ conveyor

BD standard – dimensions and sensitivities:

CASSEL manufactures metal detectors to customer specifications and can supply virtually any required dimension. For particularly popular formats, a list of known sensitivities is provided below.

Width	Clearance (mm)		FE	Sensitivity, FE (∅ mm)	
	Height			AI	SS
60	60		0.4	0.5	0.6
100	80		0.4	0.5	0.6
125	350		0.7	1.1	1.4
150	225		0.8	1.2	1.5
200	250		1.0	1.5	1.9
200	300		1.0	1.5	1.9
250	300		1.3	1.9	2.3
300	150		0.8	1.3	1.6
350	150		0.8	1.3	1.6
350	175		0.9	1.5	1.8
400	200		1.1	1.6	2.0
450	175		1.0	1.5	1.9
450	200		1.0	1.4	1.7
450	250		1.4	2.0	2.4
450	1000		3.1	3.8	4.4
500	300		1.7	2.3	2.7
500	375		2.1	2.7	3.1
650	200		1.3	1.8	2.2

Disclaimer: Sensitivities largely depend on ambient conditions as well as on the properties and conditions of the goods to be inspected. The dimensions listed above are provided for general indication only. Please note that these dimensions are not contractually guaranteed. Also note, sensitivities listed do not take into account product effect.

BD UltraSens – dimensions and sensitivities:



The BD UltraSens additionally features a Fast Power Drive (FPD) that significantly enhances metal detection capability and reliability in industrial environments that fail to comply with pertinent electromagnetic compatibility standards.

A range of IP enclosures are available for this model.

Width	Clearance (mm)		FE	Typical sensitivity to FE in goods dry as dust (∅ mm)	
	Height			AI	SS
350	125		0.8	1.0	1.2
375	500		1.6	2.0	2.5
450	1000		2.0	2.5	3.5
460	460		2.5	3.0	3.0
500	375		1.6	2.0	2.5
550	550		2.5	3.0	3.0
650	375		2.3	2.8	3.0
700	250		1.5	1.6	2.0
800	500		2.5	3.0	3.0

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BD Ferrous in Foil – dimensions and sensitivities:



The BD Ferrous in Foil reliably detects metals in goods wrapped in aluminum foil or trays.

A range of IP enclosures are available for this model.

Clearance (mm)		Height	Sensitivity (Ø mm) FE	Application
Width				
300		200	3.0	Coffee beans in metalized film
350		150	3.5	Ready meals in trays
350		175	3.5	Meat in shrink film
450		125	2.8	Apple pie in aluminum trays
450		150	2.0	Bakery products in aluminum trays

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

Accessories:



Complementing the METAL SHARK® BD, we supply our HQ series conveyors with a wide range of accessories:

- Conveyors
- Reject systems
- Lateral guide rails
- Reject bins, open or lockable
- Polycarbonate covers and much more ...

The CASSEL quality promise:

As a premier manufacturer, CASSEL is committed to the highest quality standards. For more than twentyfive years, our goal has been to ensure the uncompromising quality of your products. We supply customers worldwide in various industries, including food, plastics, pharmaceuticals, textiles, lumber and mining.

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