METAL SHARK® GF

Metal detection for free-falling products

- Reliably detects metals in free-falling goods
- Simple assembly due to mounting frame and quick release rings
- Highest sensitivity with 4-quadrant technology
- Autokalibration and teach assistant for intuitive control and easy installation
- Maintenance-free through automatic balance and calibration control
- BRC-Kit option: Conformity with the Global Standard of the British Retail Consortium (BRC) for food safety

- Maximum search performance with high reliability due to 4-quadrant technology
- Simple setup with TeachAssistant, preset product types like salty, sweet, wet, dry etc.
- Memory 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
- IFS 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)

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METAL SHARK® GF

Metal detection for free-falling products

METAL SHARK® GF Twin Installation for particularly high flow rates.

Function:

The METAL SHARK® GF (Gravity Feed) is used for pipelines with free-falling products to detect metal contaminations in continuously flowing granulates or powders such as sugar, flour, grain or spices. The sensitive sensors detect even the smallest metal contaminants, and fast-switching separation flaps remove them directly from the product stream during ongoing production.

Application:

- Monitoring of loose, free-falling or compressed air conveyed products in pipelines
- Quality assurance for incoming goods, outgoing goods or during running production
- Machine protection, e.g. for mills or extruders

Industries:

- Food
- Pet food
- Chemicals and Pharmaceuticals
- Plastics
- etc.

Scope of Delivery:

- Detection unit incl. mounting frame
- Controller METAL SHARK®
- Reject unit
  (also possible without ejection unit)
- Pipe piece for metal-free zone incl. quick clamping rings

Accessories & Extras:

- High temperature version
- versions for hose cleaning (LPW) or cleaning with high-pressure cleaner (HPW) possible
- SHARKNET® connection for automatic documentation according to HACCP, IFS or BRC standard
- separate mounting of the control unit (e.g. wall mounting)
- signalling devices (optical/acoustic)
- ATEX version
- BRC-kit for a fail-safe system (MD failure, ejection failure, ejection box full, air pressure failure) including product jam monitor, required covers, ejection, container and compressed air monitoring, product counter etc.

METAL SHARK® GF in a mobile frame for use at several locations.

Specifications:

METAL SHARK® GF is available in three versions: standard, compact and TD-R. METAL SHARK® GF standard and compact are also available as complete solutions including ejection mechanism/separation flaps. All versions are supplied as standard with the current METAL SHARK® control unit.

Electronics	Digital signal processor, digital frequency generation, digital balance control, automatic calibration, digital noise filters, integrated flexible control functions
Input	2 analog 0…10 VDC (Option: 4-20 mA) 8 freely configurable 24 V DC signals, e.g. for reject confirmation
Output	2 floating: "error" and "metal" 8 freely configurable 24 V DC signals, e.g. for metal or acoustic alarm
Inspection method	High-frequency magnetic field, multi-channel operation, symmetrical 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
Environmental conditions for controller	-30°C to +40°C / -22°F to 104°F, UL version: -20°C to +40°C / -4°F to 104°F rel. humidity 20% up to 90% (non-ondensing) Option: -40°C / -40°F or +55°C / 131°F
Environmental conditions for sensor	-30°C to +60°C / -22°F to 140°F Option: up to +90° C / 194°F
Temperature of goods inspected	standard: -30°C up to 55°C / -22°F up to 131°F option: -40°C / -40°F or up to 120°C / 248°F or up to 180°C / 356°F
Power Supply	one phase 110-230 V AC +/-5%, typ. consumption 20 W (max. 60 W)
Interface	RS232, provides documentation according to HACCP- and IFS-standard, USB- or ethernet option
Maintenance	maintenance-free, selfcalibrating sensors
Diagnostics	integrated diagnostic software, automatic self-test

METAL SHARK® GF standard:

METAL SHARK® standard is the ideal design for various types of products or environments. The device is designed for optimal detection results and is supplied with all necessary parts for direct installation in your production line:

- Mounting frame
- metal-free tube for reliable detection (depending on model incl. weldable terminations)
- Quick release fasteners

Ø d	Ø d (mm)	typ. Material Flow		Approx. Sensitivity (Ø mm @ 300 kHz)		
		cu ft/hr	l/h	FE	Al	SS
2"	50			0,3	0,5	0,6
3"	70			0,4	0,6	0,7
4"	100	700	20000	0,5	0,7	0,8
5"	120	1000	28000	0,7	0,9	1,0
6"	150	1500	43000	0,8	1,0	1,2
7"	175			1,0	1,3	1,6
8"	200	2600	74000	1,2	1,6	1,8
10"	250	4000	115000	1,5	2,0	2,3
12"	300	5800	165000	1,9	2,4	3,0
14"	350	7900	225000	2,2	2,7	3,3
16"	400	10300	290000	2,4	3,0	3,6
20"	500	16200	460000	2,8	3,5	4,2
24"	600	23200	656000	4,0	5,0	6,0

METAL SHARK® GF compact:

METAL SHARK® compact can be used where space is limited. It is also supplied with the following assembly parts.

- Mounting frame
- metal-free tube for reliable detection (depending on model incl. weldable terminations)
- Quick release fasteners

Ø d	Ø d (mm)	typ. Material Flow		Approx. Sensitivity (Ø mm @ 300 kHz)		
		cu ft/hr	l/h	FE	Al	SS
2"	50			0,5	0,7	0,9
3"	70			0,6	0,8	1,0
4"	100	700	20000	0,7	1,0	1,1
5"	120	1000	28000	1,0	1,2	1,4
6"	150	1500	43000	1,1	1,5	1,8
7"	175			1,4	1,8	2,2
8"	200	2600	74000	1,6	2,2	2,4
10"	250	4000	115000	2,0	2,7	3,1
12"	300	5800	165000	2,0	3,2	4,1
14"	350	7900	225000	2,8	3,5	4,5
16"	400	10300	290000	3,6	4,8	6,0

METAL SHARK® GF TD-R:

METAL SHARK® TD-R is specially designed for use with vertical form-fill-seal packaging machines.

Ø d	Ø d (mm)	typ. Material Flow		Approx. Sensitivity (Ø mm @ 300 kHz)		
		cu ft/hr	l/h	FE	Al	SS
4"	100	700	20000	0,8	1,1	1,3
5“	120			0,9	1,2	1,4
6"	150	1500	43000	1,0	1,3	1,5
7"	180			1,2	1,5	1,7
8"	200	2600	74000	1,3	1,6	1,9
8.7"	220			1,4	1,8	2,0
11"	275			1,6	2,0	2,4
12"	325	5800	165000	1,8	2,3	2,7

CASSEL quality promise:

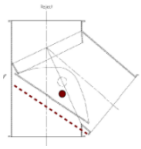
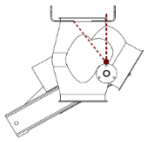
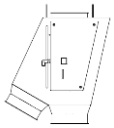
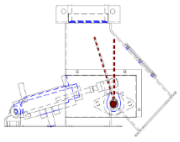
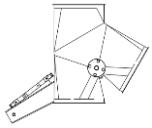
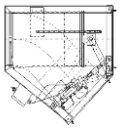
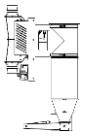
Every single device is thoroughly tested during and after production. Before leaving the factory, each unit is exposed to the stress of several days of continuous use. Only devices that survive our tests leave the factory.

EX Reject for METAL SHARK® GF:

The METAL SHARK® GF standard or compact can be combined with reject units for different applications.

All EX reject flaps meet the following criteria

- 100% stainless steel housing for easy cleaning (IP 65)
- Parts in contact with the product comply with FDA standard
- Product temperature up to 120° C (optionally up to 200°C)
- different versions also for abrasive products, powder and powder, especially heavy products or the use in compressed air lines
- easy mounting with quick release rings on the supplied downpipe
- Versions for cleaning with hose (LPW) or high-pressure cleaner (HPW) possible

	Type	Properties
	EX-S	switches particularly fast, therefore suitable for large drop height/product speed GF standard: 100 - 300 mm GF compact: 100 - 300 mm
	EX-P	for powders and granulates with additional sealing lip on the separating flap GF standard 100 - 300 mm GF compact 100 - 300 mm
	EX-CB	for powders and granulates guaranteed separation without residue by switching an internal tube GF standard: 150 and 200 mm
	EX-K	for abrasive products robust mechanics, with additional sealing lip on the separating flap GF standard: 100 - 300 mm GF compact: not available
	EX-R	Heavy duty especially for heavy products (e.g. stones) Especially robust design (30 mm shaft, 5 mm flap thickness) GF standard: 250 mm, 300 mm GF compact: not available
	EX-D	For use in line systems with compressed air GF standard: 100 - 350 mm GF compact: not available
	EX-A	For use in pipeline systems with compressed air No air pressure drop behind the separating unit during product ejection GF standard: 100 - 150 mm GF compact: not available

Down pipes:

In the detection area the downpipe must not be metallic. To ensure that the products can be analysed cleanly and reliably, CASSEL supplies tubes made of suitable material directly: Food-safe, heat or abrasion resistant.

Material	Colours	Properties
PVDF	white, black	FDA compliant, heat resistant up to 120° C
PA6 / Nylon	nature	suitable for dry, abrasive products like sugar, salt
Werkstoff S (Material S)	black	antistatic/ATEX-compatible, FDA-compliant, can be used in ESD protection areas, temperature resistant -200 °C to 80°C
Ceramics	white	food safe, FDA compliant, suitable for abrasive and very hot products
PUR	transparent	flexible transport hose, FDA, -40° C to +90° C, typical application with GF TD-R when used with flow wrapping machines

METAL SHARK® GF Self-monitoring:

Metal detectors are critical control points in every production line. Therefore, they themselves and the components connected to them should also be continuously monitored.

Material	Properties
Compressed air monitoring	Reports an error if the air pressure is too low for the functionality of the reject flaps.
Reject monitoring	Warns if the reject flap has not switched correctly after metal detection.
Damper position monitoring	Monitors the flaps for complete switching to the good or not good position.
Check & Catch	Material for simple functional testing, consisting of an insertion flap, through which spherical test specimens can be inserted into the pipeline, and a catchment grille for the test specimen including removal flap.
Autotest	Functional test that does not require opening the product pipelines: Test pieces (FE/NFE/VA) are moved with compressed air through a separate test tube. The control unit indicates which sphere sizes are to be tested. Incl. push button for FE, NFE and VA testing, pneumatic valve, test specimen.
Test balls	Test balls, diameter 10 mm made of plastic POM, with embedded metal ball made of iron, brass and stainless steel, certified Ball size, metal type and certificate number are embedded in the test ball