



METAL SHARK® **Digital Metal Detectors**

USA Distributor: MCR Technologies Group, Inc. Sterling, IL. 61081
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Metal Detection Systems for Industrial Purposes.



METAL SHARK® Controller



METAL SHARK® BD



METAL SHARK® HQ



METAL SHARK® LC



METAL SHARK® HW



METAL SHARK® GF



METAL SHARK® GF compact



METAL SHARK® IN Liquid



METAL SHARK® IN MEAT



METAL SHARK® INA MEAT



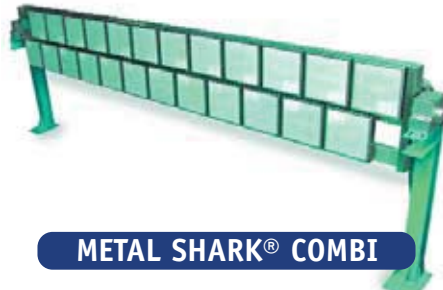
METAL SHARK® PH



METAL SHARK® R



METAL SHARK® FL



METAL SHARK® COMBI



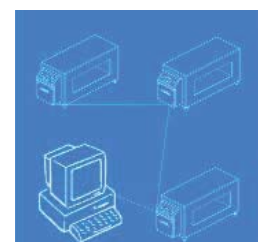
METAL SHARK® TU



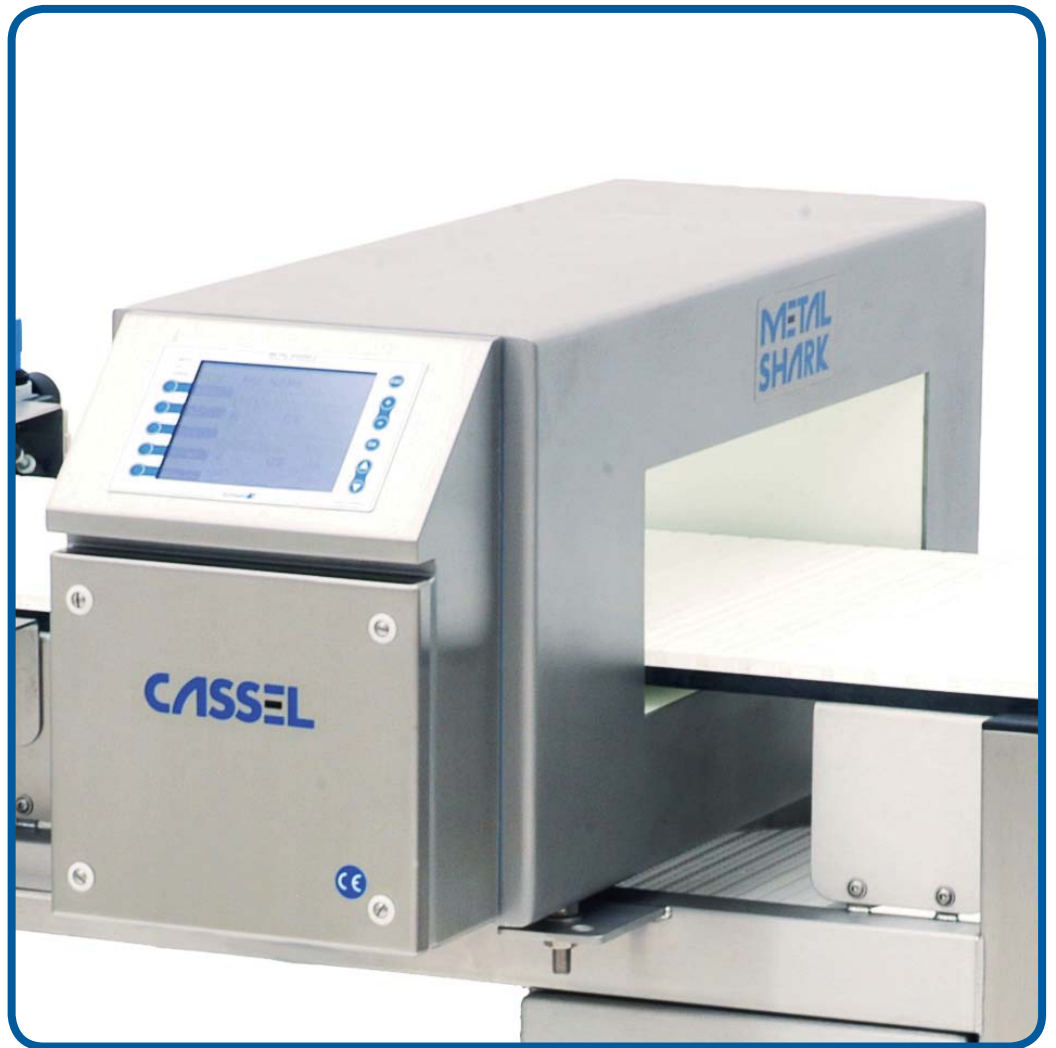
METAL SHARK® BIG



METAL SHARK® BIG pba



SHARKNET®



METAL SHARK® 2

NEW 4 Quadrant Technology

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METAL SHARK® Controller

Digital Control Box for All METAL SHARK® Types

No Maintenance

■ The *automatic balance and calibration control* ensures many years of reliable performance. The requirement for costly routine manufacturer actions is eliminated. Once set, the METAL SHARK® does not require any manufacturer adjustment at all. Therefore implementing the METAL SHARK® will help to save your service budget.

■ By using *SMD technology* all circuits have been miniaturized and housed on just one multilayer main board. In the unlikely case of a malfunction, most factory electricians should be able to replace the board.

Intuitive Operation

■ The display shows solely necessary information, which is really required. The software is self-explanatory. *Reduction to the essentials* results in easy, clear and transparent operation.

■ *Teaching menu* – product features are captured and taught automatically by pushing one single button.

■ *Product library* – features of 120 different products can easily be stored and recalled.

■ *Automatic self-control* – if a malfunction occurs it will be displayed on a separate output contact.

■ *Password protection* prevents any unauthorized operation of the metal detector.

Outstanding Sensitivity and Stability

■ The METAL SHARK® provides outstanding sensitivity, accuracy, stability and precise compensation of product effects.

■ *Auto calibration* – enables easy and fast teaching of product features, which allows the compensation of product effects. Due to the selectable pre-set features DRY, WET, SALTY and MEAT it is exceptionally effortless to set the metal detector for new products.

■ *Phase Tracking* – product effects are compensated and readjusted in an intelligent way.

■ *Precise metal detection at highest level* – digital noise filters eliminate any undesired signals.

■ *Multi-channel technology* for the optimum detection of all kinds of metal: ferrous, non-ferrous (like aluminum or copper) and stainless steel.

■ *Highest endurance* – the extra sturdy construction of the sensor is designed to operate in extreme and harsh applications, in which other brands fail. The sensor head is encapsulated entirely in a solid epoxy block, sealing and protecting the aperture long-term. This qualifies the METAL SHARK® perfectly even for wet and most challenging environments.



Specifications

Model	METAL SHARK® BD
Housing	stainless steel, rust-proof
Control Electronics	digital signal processor, digital noise filter, digital balance control, digital frequency control with synthesizer, digital temperature shift control, continuous self monitoring, maintenance-free, no need for calibration, self calibration of all circuits, PowerDrive circuit
Output Signal	metal alarm with potential-free changeover contact, metal alarm for 24 V SPS activation, metal alarm for activation of 24 V pusher magnetic valve, operating state/disturbance with potential-free changeover contact (230 V/5 A), performance validation upon request, visual and acoustic alarm
Input Signal	(all 24 V DC) reject trigger, e.g. photo sensor, monitoring of compressed air, reject affirmation, metal alarm confirmation, keyboard interlock, conveyor belt control, change of product, teaching mode
Measuring Method	inductive, multi channel operation, balanced receiver coil
Metal Detection	ferrous, non-ferrous (e.g. aluminum or copper) and stainless steel
Product Library	120 storage spaces
Product Compensation	performed automatically, with teaching mode
Protection Type	IP65, with option LPW = IP66, with option HPW = IP67
Ambience	temperature -10 to +50 °C, humidity 30 to 85%
Product Temperature	-30 °C to +80 °C
Power Supply	one phase 85 ~ 264 V AC, 50/60 Hz, 100 Watt
Interface	RS232, RS485, provides documentation according to HACCP and IFS standards

METAL SHARK® BD

For Conveyor Installation

HACCP and IFS Compliance

■ *Performance validation* – according to HACCP metal detectors are classified as critical control points. Continuous checking is required to fulfill the standards. If desired our performance validation automatically prompts the operator to test the performance of the METAL SHARK® at pre-set intervals.

■ *Operation history* – metal detections or changes in parameter settings etc. are stored in a log list stating date and time. The list can be read on the display or exported via serial port.

■ *Ready for SHARKNET® software* – SHARKNET® enables an automatic data documentation onto a Windows-based PC to fulfill HACCP and IFS standards.

LPW Option for Low Pressure Wash-up According to IP66

This option features the METAL SHARK® electronics protected in a double housing made of stainless steel. The device is suited for wash-up with a non-pressure water hose.



sealed aperture ensure that the metal detector meets IP67 standards. Daily wash-ups with a steam hose at maximum pressure of 60 bar/900 psi can be conducted. This feature has proved its worth in sausage productions with several wash-ups a day.



HPW Option for High Pressure Wash-up According to IP67

A double housing of stainless steel securing the METAL SHARK® electronics and a specially



Examples for Installation Solutions



METAL SHARK® BD with LPW option during wash-up



METAL SHARK® BD in line behind a deep drawing machine



Standard conveyor type METAL SHARK® HW



METAL SHARK® on conveyor for bottles type JAR 2



METAL SHARK® HQ

Highest Quality Conveyor with Custom Made Options

Cassel takes great pride in engineering and manufacturing the HQ series conveyors to compliment the METAL SHARK® metal detectors. To provide optimum performance, the conveyor's design has been adapted to the special requirements of metal detectors. The high quality HQ conveyors are available in standard as well as custom-made versions. Due to the excellent manufacturing the conveyors are maintenance-free. They are suitable for permanent and reliable application even in harshest environments with highest quality standards (like in the food industry).



- **Stop on Detect & Alarm with Intralox Belt**
 - # 10100153, HQ-GK conveyor with Intralox belt
 - # 10105035, Intralox belt, blue
 - # 10100338, Side rails, in feed only
 - # 10100306, HQ Belt control STR
 - # 10100328, HQ, HPW, LPW



- **Transversal Pusher TP with Intralox Belt**
 - # 10100129, HQ-GK conveyor with Intralox belt
 - # 10100314, Pusher TP transversal
 - # 10100318, Photo gate reject trigger
 - # 10100319, Conveyor cover
 - # 10100322, Reject chute



- **Air Jet Rejector AJ**
 - # 10100316, Air jet rejector AJ
 - # 10105241, HPW, LPW option for AJ
 - # 10100318, Photo gate reject trigger
 - # 10250021, Air pressure monitor
 - # 10100382, Belt control KLM
 - # 10100327, Castors



- **High Pressure Wash Down (Option for HPW), IP 67**
 - # 10100129, HQ-GK conveyor with Intralox belt
 - # 10100309, HQ belt control HPW
 - # 10100328, HPW, LPW option for conveyor HQ
 - # 10100314, Pusher TP transversal
 - # 10100315, HPW, LPW Option for TP
 - # 10100318, Photo gate reject trigger
 - # 10050225, HPW option for BD



- **Air Jet Rejector AJ with Reject Bin**
 - # 10100316, Air jet rejector AJ
 - # 10100318, Photo gate reject trigger
 - # 10250021, Air pressure monitor
 - # 10100319, Conveyor cover
 - # 10100320, Reject bin
 - # 10105022, Reject control + bin full



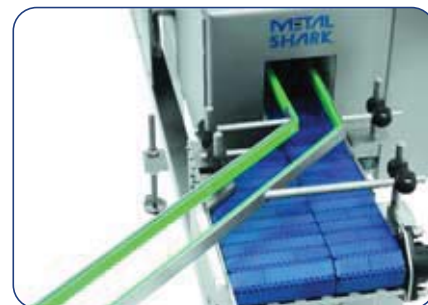
- **Bottle Conveyor JAR 1**
 - # 10100129, HQ-GK conveyor with Intralox belt
 - # 10100386, JAR 1 option for HQ as bottle conveyor



- **Linear Pusher LP**
 - # 10100313, Pusher LP linear
 - # 10100318, Photo gate reject trigger
 - # 10100322, Reject chute
 - # 10100333, Side rails, full length



- **Tower Stack Lamp**
 - # 10100345, Tower stack lamp red/yellow/green
 - # 10100333, Side rails, full length



- **Bottle Conveyor JAR 2**
 - # 10100129, HQ-GK conveyor with Intralox belt
 - # 10100387, JAR 2 option for HQ as bottle conveyor

METAL SHARK® LC

Conveyor for Low Weight Products. Short Delivery Time. Low Budget.

■ The LC conveyor is *especially designed for low weight product inspection of max. 6 kg*. The LC is installed into an existing production line. The complete system is ready for operation immediately after installation.

■ The LC conveyor is made of *sturdy stainless steel*, appropriate for use in food industry. They are maintenance-free and constructed for a durable operation in an industrial environment.

■ Cassel takes great pride in the engineering and manufacturing of their series LC

conveyors to compliment their METAL SHARK® metal detectors.

■ The conveyor's design has been adapted to the special requirements of metal detectors to provide *optimum operation*. All Cassel conveyors are constructed of high quality stainless steel rectangular tubing. All welds are inspected for quality and solid construction. All welds are ground and polished to provide a clean surface. Welded inserts in the support frame prevent water entry into the frame.

Conveyor Controls

■ Conveyor controls are conveniently located in one stainless steel enclosure. START, STOP and RESET buttons are located on the enclosure for ease of operation. Optional key reset switches can be provided to allow security of the monitoring of metal detector reset due to company policy of HACCP requirements.



Specifications

Model	METAL SHARK® LC
Conveyor Lengths	800 mm (without reject)
Line Height	800 mm ±50mm
Design	stainless steel 304, rectangular tubing, Polyurethan belt white
Metal Detector	prepared for METAL SHARK® BD assembly
Motor	Groschopp gear motor drive, 3 Ph, 40 W (German high quality brand motor)
Belt Speed	19 m/min (fix speed, KLM option) or 5 – 30 m/min (variable speed, STR option)
Belt Width	400 mm
Product Weight	max. 6 kg
Reject	stop on detect, buzzer alarm
Options	drop-End conveyor for reject, 400 mm length reject bin, mobile with castors protective cover, transparent

METAL SHARK® HW

Conveyor System for Wet Environments. Exceptionally Easy to Clean.

METAL SHARK® HW



Specifications

Model	HW1000/100	HW1000/125	HW1000/150	HW1200/100	HW1200/125
Pass Height	75 mm	100 mm	125 mm	75 mm	100 mm
Max. Pass Width	350 mm	350 mm	350 mm	450 mm	450 mm
Belt Width	250 mm	250 mm	250 mm	350 mm	350 mm
Conveyor Length	1000 mm	1000 mm	1000 mm	1200 mm	1200 mm
Max. Product Weight	10 kg	10 kg	10 kg	15 kg	15 kg
Memory Numbers	120	120	120	120	120
Protection Class	IP66	IP66	IP66	IP66	IP66
Belt Speed	19 m/min (fix speed, KLM option) or 5 – 30 m/min (variable speed, STR option)				
Metal Detection	stop on detect and buzzer alarm, optional auto reject				
Product Packaging	standard plastic or carton, metalized film (aluminium evaporated)				
Environment	temperature -18 to +50°C, relative humidity 30 to 85 %				
Power Supply	200 – 240 V AC, 50/60 Hz, 250 W, 3 phase (standard) or 1 phase (with STR option)				
Exteriors	stainless steel (SUS 304), belt FDA/USDA compliance, drum motor				

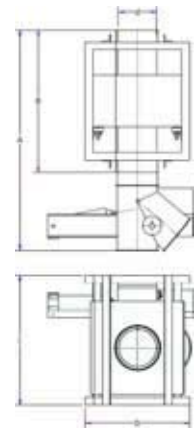
Model	HW1200/150	HW1200/175	HW1200/200	HW1200/225	HW1200/250
Pass Height	125 mm	150 mm	175 mm	200 mm	225 mm
Max. Pass Width	450 mm	450 mm	450 mm	450 mm	450 mm
Belt Width	350 mm	350 mm	350 mm	350 mm	350 mm
Conveyor Length	1200 mm	1200 mm	1200 mm	1200 mm	1200 mm
Max. Product Weight	15 kg	15 kg	15 kg	15 kg	15 kg
Memory Numbers	120	120	120	120	120
Protection Class	IP66	IP66	IP66	IP66	IP66
Belt Speed	19 m/min (fix speed, KLM option) or 5 – 30 m/min (variable speed, STR option)				
Metal Detection	stop on detect and buzzer alarm, optional auto reject				
Product Packaging	standard plastic or carton, metalized film (aluminium evaporated)				
Environment	temperature -18 to +50°C, relative humidity 30 to 85 %				
Power Supply	200 – 240 V AC, 50/60 Hz, 250 W, 3 phase (standard) or 1 phase (with STR option)				
Exteriors	stainless steel (SUS 304), belt FDA/USDA compliance, drum motor				

METAL SHARK® GF

For Gravity Feed Pipelines

Typically, GF metal detectors are used in gravity feed pipes and provide highest performance in detecting magnetic and non-magnetic metals. The bulk material falls through the metal detector. With the reject flap EX-S even smallest metal objects are separated out of the product stream promptly.

Maintenance free design and high quality construction, for reliable operation in the most challenging industrial environments.



Specifications

ø d	ø d (mm)	A	B	C	D	A (mm)	B (mm)	C (mm)	D (mm)	Typical Material Flow cu ft/hr	Typical Material Flow l/h	Approximate Sensitivity ø mm		
												FE	AI	SS
4"	100	23.6"	15.8"	17.7"	12.5"	600	400	450	318	700	20000	0.5	0.7	0.8
5"	120	28.4"	19.3"	17.7"	13.3"	720	490	450	338	1000	28000	0.7	0.9	1.0
6"	150	33.5"	21.7"	19.8"	15.8"	850	550	502	400	1500	43000	0.8	1.1	1.3
8"	200	47.2"	31.1"	24.2"	20.0"	1200	790	615	508	2600	74000	1.2	1.6	1.8
10"	250	54.9"	36.8"	31.5"	26.0"	1395	935	800	685	4000	115000	1.5	2.0	2.3
12"	300	63.2"	43.3"	37.0"	31.5"	1605	1100	940	800	5800	165000	1.9	2.4	3.0
14"	350	76.2"	49.8"	40.2"	34.7"	1935	1265	1020	880	7900	225000	2.2	2.7	3.3
16"	400	82.7"	53.2"	42.9"	37.4"	2100	1350	1090	950	10300	290000	2.4	2.9	3.6
20"	500		59.1"	48.8"	43.3"		1500	1240	1100	16200	460000	2.8	3.5	4.2
24"	600		63.0"	54.5"	50.6"		1600	1385	1286	23200	65600	4.6	5.8	6.9

METAL SHARK® GF compact

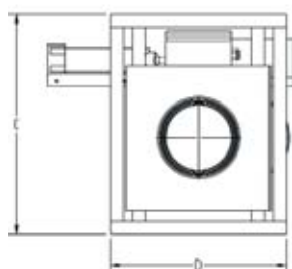
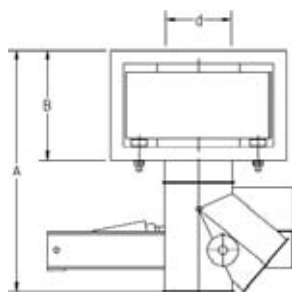
For GF Pipelines in Height Limited Installation Locations.

Typically, GF compact metal detectors are used in gravity feed pipes and provide high performance in detecting magnetic and non-magnetic metals. The bulk material falls through the metal detector. With the reject flap EX-S even smallest metal objects are separated out of the product stream promptly.

The GF compact types have a low assembly height and are especially designed for height limited installation locations. Due to the ultracompact sensor head, the metal detection performance is slightly lower compared to the GF types.

Maintenance free design and high quality construction, for reliable operation in the most challenging industrial environments.

METAL SHARK®
GF compact



Specifications

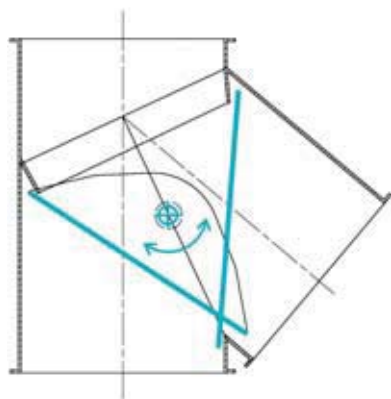
ø d	ø d (mm)	A	B	C	D	A (mm)	B (mm)	C (mm)	D (mm)	Typical Material Flow cu ft/hr	Typical Material Flow l/h	Approximate Sensitivity ø mm		
												FE	AI	SS
4"	100	17.7"	7.9"	17.7"	12.5"	450	200	450	318	700	20000	0.7	1.0	1.1
5"	120	20.9"	9.8"	17.7"	13.3"	530	250	450	338	1000	28000	1.0	1.2	1.4
6"	150	23.6"	9.8"	19.8"	15.8"	600	250	502	400	1500	43000	1.1	1.5	1.8
8"	200	35.8"	11.8"	24.2"	20.0"	910	300	615	508	2600	74000	1.6	2.2	2.4
10"	250	41.3"	15.4"	31.5"	25.2"	1050	390	800	685	4000	115000	2.0	2.7	3.1
12"	300	43.1"	15.4"	37.0"	31.5"	1095	390	940	800	5800	165000	2.6	3.2	4.1

EX Reject for METAL SHARK® GF

Reject Devices for GF Pipeline Metal Detectors

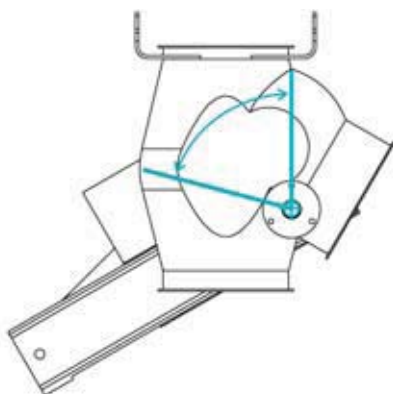
The EX-S is standard type for the GF, suitable for most products. The EX-S is very fast switching into reject position, therefore it works properly even with large falling heights or high product speeds.

*EX-S for GF standard 0100 – 0300 /
GF compact 0100 – 0300*



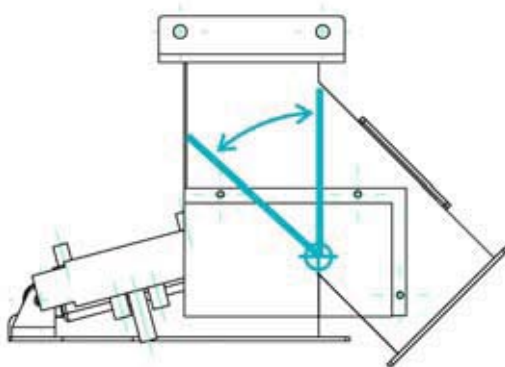
The EX-P has been specially designed for very fine and powdery products. The EX-P has a sealing around the flap, which prohibits any leakage during normal production in good position.

*EX-P for GF standard 0100 – 0300 /
GF compact 0100*



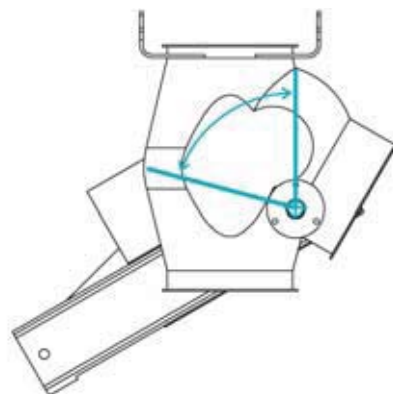
The EX-K is our heavy duty rejector, for rough and harsh environments. It is a flap with sealing, similar to the EX-P, but with much more sturdy mechanics.

*EX-K for GF standard 0100 – 0300 /
GF compact 0100*



The EX-R has been specially designed for very rough environment (e.g. stones): Consider this reject as wearing part which must be replaced every few months. The EX-R is a reinforced version with 30 mm shaft diameter, reject flap 5 mm sheet thickness, stainless, angular on round, without flap sealing.

EX-R for GF standard 0300



METAL SHARK® IN Liquid

For Pipelines with Fluid and Semifluid Products

The IN LIQUID is a metal detector specifically designed for fluid and paste-like products. Sensor and control unit housing are made of sturdy stainless steel, appropriate for use in the food industry. With a maintenance free design and high quality construction, for reliable operation in the most challenging industrial environments.

Throughput Hose Under High Pressure

- Special care has been taken to design a reliable high pressure throughput piping. The sturdy pipe resists high pressures up to 16 bar (220 psi).
- Stainless pipe flanges can be tri-clamp, milk-thread and special aseptic links.
- The standard hose is suitable for high-temperature and CIP/SIP cleaning ability. Available pipe diameter are 40/50/65/80/100 mm (1,5/2/2,5/3/4 inch).



Choose the Most Appropriate Rejector for Your Application

- With the *reject valve metal objects* are separated out of the stream promptly. Cassel has different valve designs available:
- The *EX-BF Butterfly* valve is operationally reliable, easy to maintain and have especially been developed for CIP/SIP applications.



- The *EX-MH Arc Valve* is used in fully aseptic applications. A full unrestricted flow that allows no product restrictions through the valve.

Assembly Frame Options

- The hygienic design is easy to clean and all tubing are complete closed welded on all sides.
- Available options are:
 - *Floor stand*, with/without castors wall mounting frame
 - *OEM frames* to adapt into other machinery
 - *Control unit* attached to sensor/control unit for separate wall mounting



Performance Check

- According to *HACCP* the metal detector is a critical control point and therefore, it must be checked regularly. A special inspection hole in the pipeline allows to test the detector function regularly and easily. To this aim a flexible test stick with small metal balls is pushed through the pipe.



METAL SHARK® IN MEAT

For Sausage Meat Pump (Clipping Version)

Compact metal detector for sausage filling machines. Mobile base frame, stand with integrated gas spring for easy height adjustment 850–1200 mm (33.5–47.2"), for installation between filling and clipping machine. Including connection cable with external device plug and socket. Please advise type of filling machine upon ordering metal detector.

METAL SHARK®
IN MEAT



Specifications

Model	IN MEAT 0065	IN MEAT 0065/EX-PWC
Type	no reject	with automatic reject piston
Installation Length	490 mm	690 mm
Metal Alarm	double-length sausage	automatic reject
Reject Time	–	adjustable 0.1–9.9 sec.
Compressed Air	–	minimum 5 bar
Filling Pressure	maximum 80 bar	maximum 80 bar
Sensitivity Diameter in mm	FE 0.5 VA 0.8 (no product effect), FE 1.0–1.5 VA 2.0–2.5 with meat	
Protection Type	IP 68/NEMA6P for daily water/steam hose rinsing in wet environment	
Ambience	temperature -10 to +50 °C, humidity 30 to 85 %	
Product Temperature	-10 to +80 °C	
Power Supply	One phase 85 ~ 264 V AC, 50/60 Hz, 100 Watt	

METAL SHARK® INA MEAT

For Sausage Meat Pump (Link Gear Version)

Compact metal detector for sausage filling machines. Mobile base frame, stand with integrated gas spring for easy height adjustment 850–1200 mm (33.5–47.2"), or installation between filling machine and linking gear box. Twisting device is hooked into and attached to METAL SHARK® INA MEAT. Including connection cable with external device plug and socket. Please advise type of filling machine Handtmann or REX upon ordering.

Production Line Integration

■ The *twisting device* is hooked into and attached to the METAL SHARK® INA MEAT just the way it is usually done at the filling machine.

■ *Sturdy frame* – the hygienic design is easy to clean. All rods are completely welded on all sides. Due to an integrated gas spring, *height adjustment* is easy to handle for one operator. Four castors make it comfortable to move the metal detector.

■ *Plug in & ready to go* – the METAL SHARK® INA MEAT is universally applicable with linking gear boxes as well as clipping machines.



Specifications

Model	INA MEAT 0065/Handtmann	INA MEAT 0065/REX
Type	with driveshaft for Handtmann VF	with driveshaft for REX
Installation Length	490 mm	490 mm
Metal Alarm	0.1–10 sec. adjustable, discontinues twister or clipper which results in double-length sausage.	
Compressed Air	-	
Filling Pressure	maximum 80 bar	maximum 80 bar
Sensitivity Diameter in mm	FE 0.5 VA 0.8 (no product effect), FE 1.0–1.5 VA 2.0–2.5 with meat	
Protection Type	IP 68/NEMA6P for daily water/steam hose rinsing in wet environment	
Ambience	temperature -10 to +50 °C, humidity 30 to 85%	
Product Temperature	-10 to +80 °C	
Power Supply	one phase 85 ~ 264 V AC, 50/60 Hz, 100 Watt	

METAL SHARK® PH

For Pharmaceuticals

Typically, the PH types are used at the outlet of a tablet press and provide highest performance in detecting magnetic and non-magnetic metals. The tablets fall through the metal detector. With the reject flap smallest metal objects are separated out of the goods' stream promptly. With a maintenance free design and high quality construction, for reliable operation in the most challenging industrial environments.

IQ, OQ, PQ, SQ Qualification Templates

■ Cassel supplies the required *qualification templates* along with the METAL SHARK® PH metal detector.

Performance validation

■ The *performance validation* automatically prompts the operator to test the performance of the Metal Shark at pre-set intervals.

Infeed and Reject

■ System Chutes, moulded, for both infeed and reject, throughput max. 5000 tablets per minute. Solenoid driven stainless steel reject diverter mechanism, mirror polished, variable infeed / outfeed height *Quick demount design for easy cleaning*.

Support Stand

■ Stainless steel support stand, *mirror polished*, mobile through castors and fixed feet, height adjustable.



Specifications

Model	Throughput	Best sensitivity
PH 0070x0020	5000 tab/min	Fe Ø 0.25 / NFe Ø 0.35/VA (316) Ø 0.5 mme

METAL SHARK® R

Ultra High Sensitivity

The R types provide highest performance in detecting magnetic and non-magnetic metals. Typically, applications are in the medical pharmaceutical sector as well as sanitary items, foods and chemical powders. The product falls through the R sensor head and an optional reject unit. With the reject unit smallest metal objects are separated out of the goods' stream promptly.

SG Reject Device for R Sensor Head

■ Metal particles are rejected automatically. Material in contact with product = FDA approved quality (PTFE, stainless steel). Reject unit is suitable for pipe diameter 35. Reject timing through metal detector control box. Pneumatic driven. Hygienic design. Applications: Sanitary items, pharmaceuticals, high-end plastic resins. Max. flow rate 600 liter per hour (depending on product density and separation time).



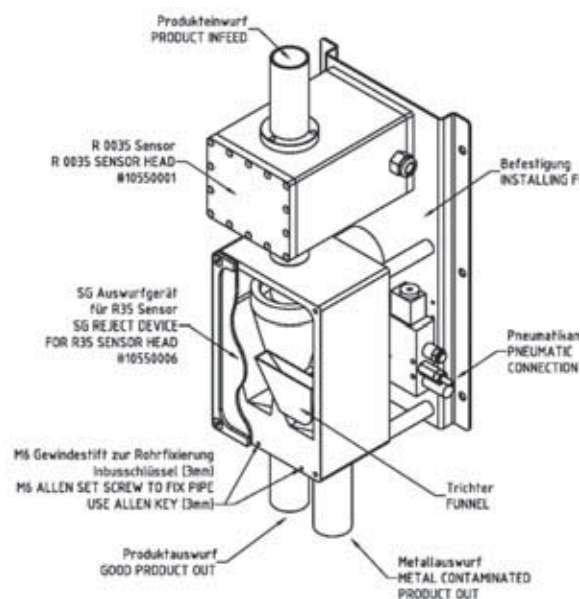
Best Sensitivity*

*depends on product effect and installation

Aperture ø [mm]	10	25	35
Fe ball ø [mm]	0.05	0.07	0.10
Stainless	1.5 ... 10 x of Fe ball ø		
Bronze, Alu etc.	1.5 ... 2 x of Fe ball ø		

Note:

The sensitivities depend on shape, orientation and metal alloy of the metal object.



METAL SHARK® FL

Flat sensor for conveyor installation below or above conveyed material

Typically, the FL types are used in fleece, textile and foil production and provide highest performance in detecting magnetic and non-magnetic metals.



METAL SHARK® FL

Specifications

Type	METAL SHARK® FL								
Installation	Conveyor installation below or above conveyed material typical horizontal, but each angle is applicable								
Sensing Width	200 – 4000 mm (4 in – 13.2 ft)								
Best Sensitivity (depending on product effects and proper installation)									
	Sensing Width 200 – 1000 mm								
Height Above Sensor mm	10.0	20.0	30.0	40.0	50.0	60.0	70.0	80.0	
Ferrous Ball Ø mm	0.8	1.0	1.8	2.2	2.5	3.8	5.0	6.0	
	Sensing Width 1000 – 4000 mm								
Height above sensor mm	10.0	20.0	30.0	40.0	50.0	60.0	70.0	80.0	
Ferrous ball Ø mm	1.0	1.5	2.2	3.0	3.4	5.5	7.0	8.0	
Metal Free Zone	fix metal = 250 mm								
Before/After Detector	moving/vibrating metal = 500 mm								
Degree of Protection	controller IP65 (Nema 4 x, 12), Sensor IP67 (Nema 6P, 12)								
Sensor Head	stainless steel housing								
Conveyor Speed	25 – 4000 mm/sek. (1"– 13,2 feet/sec.)								
Controller	METAL SHARK® for wall mounting								

METAL SHARK® COMBI

For Nonwovens & Textiles

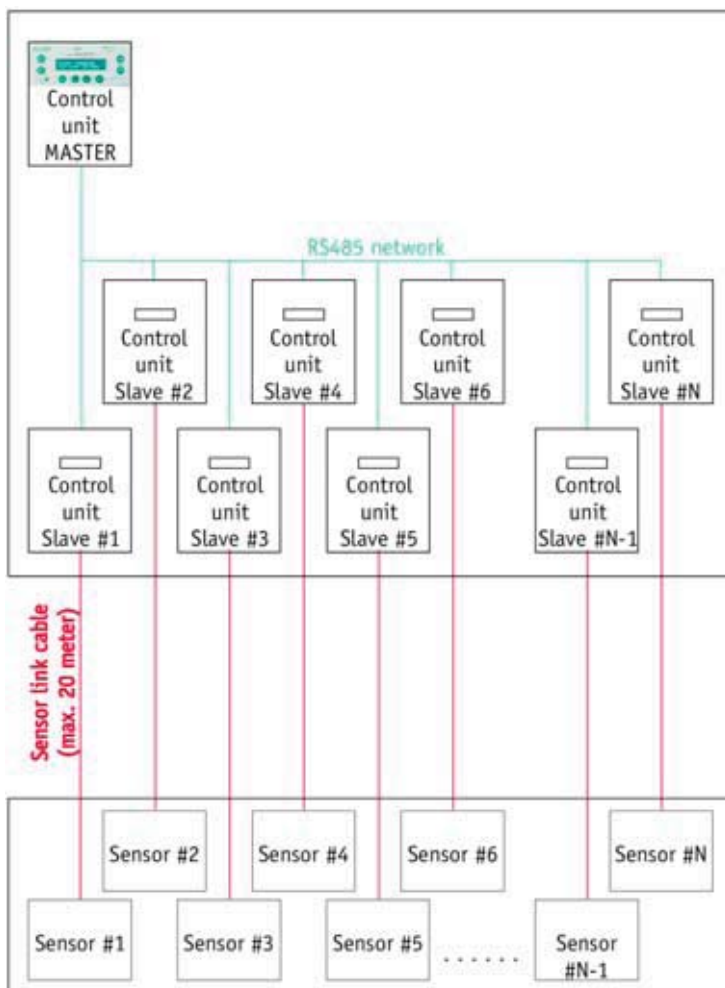
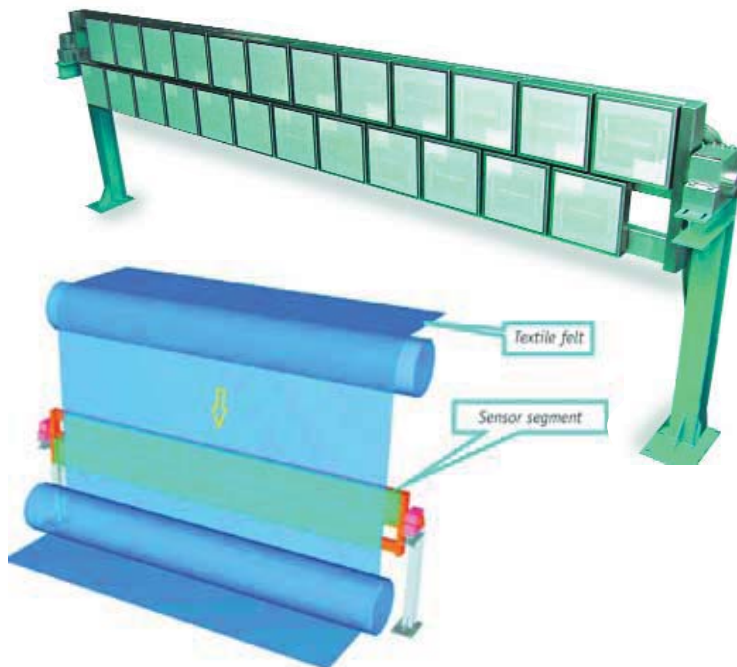
Ultra-Sensitive Flat Metal Detector with Metal Sensitivity from Fe 0.3 mm

■ Typically, the *METAL SHARK® COMBI* is used for inspection of textile widths to detect smallest magnetic and non-magnetic metal particles.

■ The metal detector is constructed as a *multi-segment-sensor*. The total detection zone of the detector is thus divided into several single zones, each of them being about 300 mm wide.

■ This makes it possible to assign detected metal particles to a definite area of the textile width. Neighbour segments overlap each other to have the full sensitivity even at the segment edges.

■ Due to extremely *high sensitivities of the single segments*, minute particles of metal are detected over the whole width. Diameter of smallest observable metal-balls: about 0,3–0,6 mm (depending on distance to the sensor).



Slave Control Unit

■ Each sensor segment consists of a balanced pair of inductive coils and a slave control unit.

Master Control Unit/ Network RS485

■ Parameter setup is done at the Master control unit only. All parameters are transmitted to the Slave control units through the integrated RS485 digital network. This ensures that all sensor segments are always configured with the same metal sensitivity.

Features

- Multiple METAL SHARK® controller
- Segment metal alarm (dry contact and red lamp per segment)
- Run indicator (green lamp) and Error indicator (red lamp)
- Reset metal alarm push button (internal + remote)
- Double shielded sensor coax cable
- Power-on timer for proper boot procedure
- Electric equipment = Kloeckner Moeller brand
- Cabinet = Rittal brand, grey RAL 7035

METAL SHARK® TU

Tunnel for Conveyor Installation on Bottom and Top of the Conveyed Material

Typically, the TU types are used in plastic recycling, rubber production, wood and paper processing and food related industries. The TU provides highest performance in detecting magnetic and non-magnetic metals.



The Tu type has a dividable sensor head. Installation into an existing conveyor is exceptionally easy. The belt needs no cut.



METAL SHARK® TU sensor with SHARK controller directly attached (available if tunnel height 400 mm or higher), with optional tower stack lamp.

Specifications

Type	METAL SHARK® TU
Installation	conveyor, typical horizontal, but each angle is applicable. Sensor head able to divide: No belt cut required.
Sensing Width	200 – 4000 mm (4 in–13,2 ft)
Metal Free Zone	fix metal = 100 mm
Before/After Detector	moving/vibrating metal = 1.5 x aperture height
Degree of Protection	Controller IP65 (Nema 4 x, 12), Sensor IP67 (Nema 6P, 12)
Sensor Head	stainless steel housing
Conveyor Speed	25 – 4000 mm/sec. (1" – 13.2 feet/sec.)
Controller	METAL SHARK® for wall mounting, optional attached to sensor (available if tunnel height 400 mm or higher)

METAL SHARK® BIG

For Whole Logs



Specifications

Type	METAL SHARK® BIG
Installation	conveyor, typical horizontal, but each angle is applicable. sensor head not able to divide.
Aperture Width	800 – 4500 mm (2.6 ft – 14.8 ft)
Aperture Height	max. 2000 mm (4.6 ft)
Metal Free Zone Before/After Detector	fix metal = 200 mml moving/vibrating metal = 1.5 x aperture height
Degree of Protection	controller IP65 (Nema 4 x, 12), Sensor IP67 (Nema 6P, 12)
Sensor Head	aluminium alloy housing, corrosion proof, the aluminium housings provide total shielding against transient influences that cause false/nuisance tripping.
Conveyor Speed	25 – 2000 mm/sek. (1" – 6.6 feet/sec.)
Controller	METAL SHARK®, attached to sensor (with optional alarm lamp and alarm horn)

METAL SHARK® BIG pba

For Wood Based Panel Board Forming Lines

More than 300 Cassel metal detectors installed world-wide in MDF, particleboard, OSB and other wood board production plants. An impressive list of references is available on request. Application range spans both thin and thickboard production lines.



Preferred OEM supplier to leading MDF, particleboard and OSB equipment manufactures:



DIEFFENBACHER



Specifications

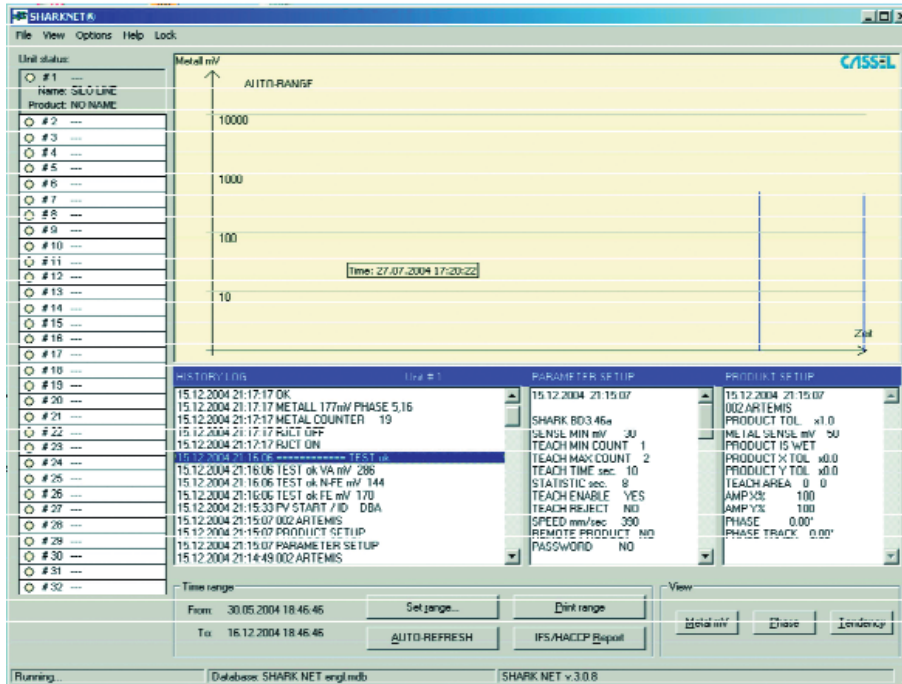
Type	METAL SHARK BIG pba (pba = panel board application)
Installation	conveyor, typical horizontal, but each angle is applicable. sensor head not able to divide.
Aperture Width	800 – 4500 mm (2.6 ft – 14.8 ft)
Aperture Height	max. 2000 mm (4.6 ft)
Sensitivity	starts from Ferrous 1.5 mm
Metal Free Zone	fix metal = 200 mm
Before/After Detector	moving/vibrating metal = 1.5 x aperture height
Degree of Protection	controller IP65 (Nema 4x, 12), Sensor IP67 (Nema 6P, 12)
Sensor Head	aluminium alloy housing, corrosion proof, the aluminium housings provide total shielding against transient influences that cause false/nuisance tripping.
Conveyor Speed	25 – 2000 mm/sec. (1"-6.6 feet/sec.)
Controller	METAL SHARK® BIG pba, attached to sensor with AutoSens system for mat height and variable belt speed
Options	belt splice detector, power booster

METAL SHARK® BIG pba

SHARKNET®

HACCP & IFS Software

Data log and report software for WIN2000/XP, links max. 32 SHARK metal detectors, reports metal trips, errors, product name, product change, performance validation tests, parameter setup and others, graphical illustration, logs data in a Microsoft Access database.



SHARKNET® is easy to use and intuitive

■ Operation is simple with installation in the familiar Windows environment. All functions are called up by mouse click. All unit data will be displayed by point-and-click on the particular unit number.

■ The *archive function* enables the recall of any previous time span. For instance it is possible to prove that metal detection was active during any historical batch.

■ SHARKNET® software *networks all your METAL SHARK® metal detectors with one personal computer* and displays the status of all detectors online on your monitor. Operating data will be recorded automatically and displayed in report format. Any additional manual recording becomes unnecessary.

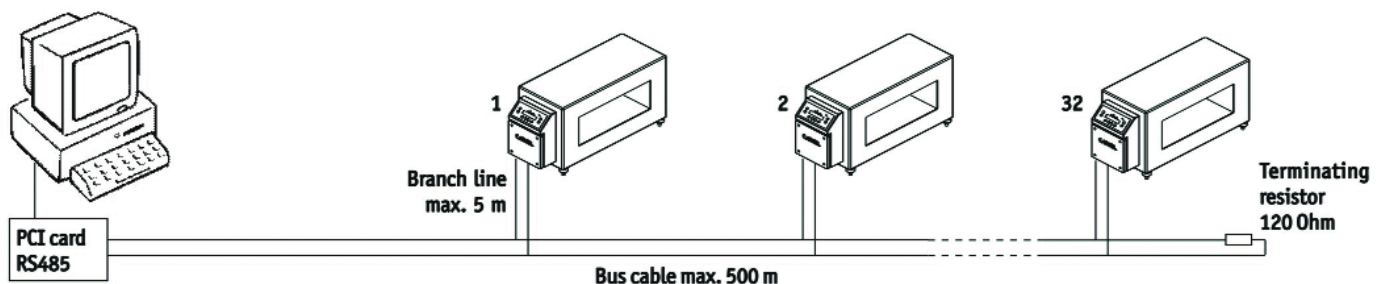
■ SHARKNET® *simplifies documentation for HACCP and IFS compliance*. The program collects all the required data and prints out any user defined report requests.

■ The software *controls the metal detectors* and displays the operational status of all the connected metal detectors on a central workstation computer:

- Metal detections and quantity
- Product number and name
- Error messages
- Performance validation test and results
- All parameters and amendments

System requirements

- Windows 2000 or XP operating system
- Pentium II, 200 MHz or higher
- 128 MB RAM, CD-ROM drive
- 100 MB fixed-disk storage
- SVGA Monitor (resolution 1024x768)
- PCI slot for RS485 Interface



Questionnaire – For Your Inquiry

Please fax to +49 (0) 5502 911 532
Please email to info@cassel.de

Sender

Company:

Contact:

Address:

.....

Telephone:

Telefax:

Metal Detector

1.1. Product to be Monitored:

1.2. Maximum Dimensions of the Products (length x width x height): (length = dimension in direction of movement; width = dimension perpendicular to the direction of movement) mm

1.3. Consistency of Products:

1.4. Temperature of the Products: °C Belt Speed: m/min

1.5. If the products have to be monitored in the packed state, please specify the type of packaging:

1.6. Can a product sample be made available to Cassel Messtechnik? ☐ yes ☐ no

1.7. Required Opening Width of Sensor: mm Required Opening Height of Sensor: mm

1.8. Control Unit in ☐ stainless steel ☐ mild steel

1.9. Control Unit ☐ attached to the side of the sensor or ☐ wall mounting?

1.10. Supply Voltage:

1.9. Is there a suitable conveyor belt available for installing the sensor? ☐ yes ☐ no

Conveyor Belt

2.1. Belt Width: mm Length Overall: mm

2.2. Working Height: mm Height Adjustable range: ± mm

2.3. Belt Speed
(constant or adjustable from/to): m/min Inclination:

2.4. Mobile with Castors and Brakes: ☐ yes ☐ no

2.5. Automatic ejection system required: ☐ yes ☐ no

2.6. Product Weight:

2.7. Special Remarks (if necessary enclose a drawing):

2.8. Miscellaneous:

Cassel – Best Quality at Best Price

Cassel Messtechnik GmbH was founded in 1994. Our headquarters and state of the art manufacturing facility are located near Hannover, in the heart of Germany. Cassel specialises in building metal detection systems for industrial appliances. These systems are used to protect valuable production machinery against damage caused by undiscovered metal parts. Quality control in the consumer goods industry is another important field of application.



Presently our company manufactures about 1000 metal detection systems per year. Approximately 80 percent of the production is going to other countries in the EU and to export markets like Southeast Asia, the USA, Australia, South Africa and South America. Cassel supplies customers in different industries worldwide such as Foods, Plastics, Pharmaceuticals, Textile, Timber and Mining. Among our pleased customers are many internationally well-known companies producing leading brands.

All systems are constructed in modular design and therefore fulfill even the most ambitious demands. Cassel strongly invests in Research & Development and highly trained and motivated staff. This ensures the metal detection systems are state of the art and can satisfy even the highest requirements. As a result, our METAL SHARK® is an example for successful product development heading the competition regarding technology as well as price.

Cassel is committed to highest standards of quality. Our goal is to ensure the quality of our customers' products. Over the past 13 years Cassel's reputation has been earned by protecting yours. Our aim is to supply top quality at the best price.

Our customers receive valuable service and support wherever on the globe they are using Cassel metal detectors. More than 50 representations worldwide provide service through factory-trained technicians.

In Cassel Messtechnik GmbH you found a professional and reliable partner for any metal detection system needs. We are looking forward to an effective co-operation with you.

