METAL DETECTION SYSTEMS

FOR GRANULAR & POWDER PRODUCTS

THS/G21 *SERIES FOR FREE-FALL OR PIPE LINE APPLICATIONS*

THS/FFV21-CB *FOR FREE-FALL APPLICATIONS WITH COW BELL VALVE*

THS/FFV21-S
FOR FREE-FALL APPLICATIONS WITH FLAP EJECTION VALVE

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Quality control at its finest

THS/G21

METAL DETECTORS SERIES FOR **FREE-FALL** OR **PIPE LINE APPLICATIONS**

THS/G21-F series with Reduced Metal Free Zone for limited space installations, while maintaining optimal detection of all metals.

GENERAL DESCRIPTION

- The **THS/G21** series is designed to inspect powders, granules and other loose materials transported in free-fall through tubes and pipelines.
- When fitted with a deflector, the THS/G21 becomes a system that **detects and removes any contaminating metals, both magnetic and non-magnetic**.
- **Alternatively, when mounted on a packaging machine, the THS/G21 system** is able to send a command to produce a double bag around the contaminated product. This can later be identified and removed from the production cycle automatically.
- Digital analysis of the signal provided by the antenna allows extremely **high levels of sensitivity, immunity to interference and operational stability** to be achieved.
- **The very high detection speed** of the THS/G21 allows the contaminated portion of product to be removed without slowing down the production flow.
- The system is designed to **communicate with external control systems**, either connected directly or via a communications network.

FUNNEL KIT

CONTROL POWER BOX

***THS/G21 series** - Standard anti-static pipe sizes available to suit all applications (ATEX ZONE 21 version available)*

CEIA reserves the right to make changes, at any moment and without notice, to the models (including programming), their accessories and options, to the prices and conditions of sale.

THS/FFV21-S

FREE-FALL INTEGRATED SYSTEM WITH METAL DETECTOR AND **FLAP EJECTION VALVE** FOR **POWDER PRODUCTS**

GENERAL DESCRIPTION

- **THS/FFV21-S** Integrated System is especially designed for the inspection of **powder products** and the **elimination of any contaminating metals, whether magnetic, non-magnetic or stainless-steel**.
- The **carefully selected materials** used in construction of the **THS/FFV21-S do not interact with food products**, and thus do not modify or alter their composition.
- The design of the system incorporates a **fast reject valve drive response time** to detect and reject the contaminant without slowing down the product flow.
- The construction guarantees **quick, easy cleaning of the components that are in contact with the product**. The technological choices made by CEIA allow the parts in contact with the product to be disassembled and maintained in a short time.
- **ATEX ZONE 21** available on demand

FAST DETECTION AND REJECTION SPEED

THROUGHPUT
Available inlet aperture diameters:
75-100-150-200 mm

ADVANCED AUTOTEST FUNCTION

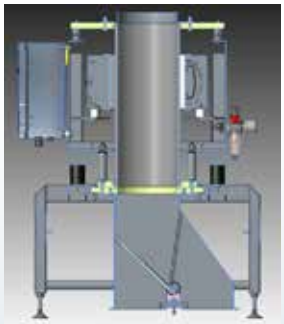
ROBUST
AISI 316L stainless steel construction

FAIL-SAFE OPERATIONS

FAST DETECTION AND REJECTION SPEED

MULTI-SPECTRUM TECHNOLOGY
Unique metal detection technology that both optimises sensitivity to all metal contaminants and minimizes product effect in a very wide range of possible products

Parts in contact with the product have a surface roughness below 1 Ra



FLAP REJECTION VALVE

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THS/FFV21-CB

FREE-FALL INTEGRATED SYSTEMS WITH **COW BELL VALVE** FOR **GRANULAR PRODUCTS**

GENERAL DESCRIPTION

- The **THS/FFV21-CB** Integrated System is **especially designed for the inspection of granular products** and the elimination of any contaminating metals, whether magnetic, non-magnetic or stainless-steel.
- The carefully selected **materials do not interact with food products**, and thus do not modify or alter their composition.
- The design of the system incorporates a **fast reject valve drive response time** to detect and reject the contaminant without slowing down the product flow.
- The construction guarantees **quick, easy cleaning of the components** that are in contact with the product.
- The technological choices made by CEIA allow the **parts in contact with the product to be disassembled** and **maintained in a short time**.

OPTIMIZED DESIGN FOR GRANULES

DETECTION
Best in class detection to magnetic and non-magnetic metals

ROBUST
AISI 316L stainless steel construction

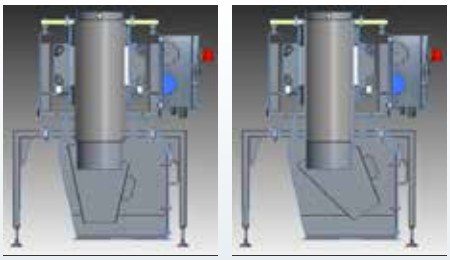
STRAIGHT PASSAGE OF THE PRODUCT
on the rejection system area in order to avoid product jam

THROUGHPUT
Available inlet aperture diameters:
75-100-150-200 mm

MARKED COMPLIANCE
Control Power Box available according to UL 508A and CSA-C22.2 No. 286

MINIMUM MAINTENANCE REQUIRED (no gasket)

CERTIFIED TEST SAMPLES



COW BELL REJECTION VALVE

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THS/PH21N-FFV

INTEGRATED SYSTEMS FOR GRANULAR AND POWDER PRODUCTS

KEY FEATURES

- State-of-the Art Quality Control of powder and granular products
- Detection and ejection of magnetic, non-magnetic and stainless steel metal contaminants
- Automatic Calibration Test
- Very Compact size
- FDA 21 CFR part 11 compliant
- Fast detection and rejection speed
- Fail-Safe Operations
- AISI 316L stainless steel construction
- ATEX ZONE 21 available on demand

AUTO-QC™ TEST FUNCTIONS

THS/FFV21SG

INTEGRATED SYSTEMS FOR GRANULAR AND POWDER PRODUCTS

KEY FEATURES

- Superior and consistent detection
- Ultra High Sensitivity to all metals
- Automatic Calibration Test
- FDA 21 CFR part 11 compliant
- Marked Control Power Box available according to UL 508A and CSA-C22.2 No. 286
- ATEX ZONE 22 available on demand

BENEFITS

- ✔ INCREASE PRODUCTIVITY
- ✔ ENSURE COMPLIANCE
- ✔ ENHANCE OPERATOR SAFETY

AISI 316L STAINLESS STEEL CONSTRUCTION

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AUTOTEST AND **AUTO-QC™ TEST** FUNCTIONS

Industrial Metal Detectors for food application are usually equipped with basic diagnostic functions based on their emitter/receiver signals monitoring.

This type of diagnosis is not able to detect aging as well as thermal drift and other sources of minor deviations. Any of the above may result on a sensitivity reduction that could lead to non-detection of metal contamination.

THS/21 & **THS/MS21 SERIES** METAL DETECTORS ARE NATIVELY EQUIPPED WITH AN **ADVANCED AUTOTEST FUNCTION** ENSURING THE FOLLOWING FEATURES:

- **CONTINUOUS BACKGROUND REAL-TIME MONITORING** and **STABILIZATION** of the amplitude and phase response for each working frequency

- **CONTINUOUS COMPENSATION** of environmental and age-related changes

- **IMMEDIATE ALERTING** in case of permanent out of standard conditions

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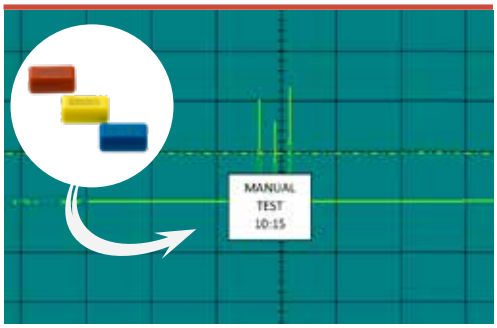
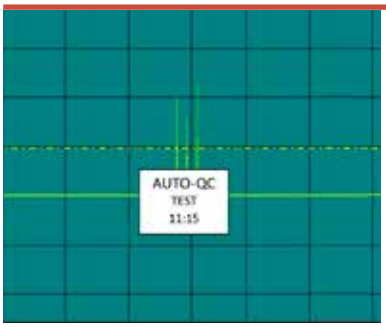
In addition to the AUTOTEST function, THS/21 and THS/MS21 detectors can be programmed so that **periodic verifications of the calibration are carried out automatically. This feature is called AUTO-QC™ TEST**.

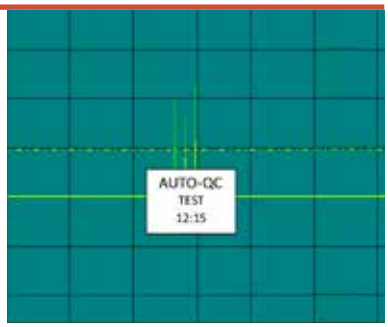
AUTO-QC™ TEST EXAMPLE

AT 10:15 A MANUAL TEST, after product setup, is requested during which the Metal Detector records the signals of three user-defined Test Samples.

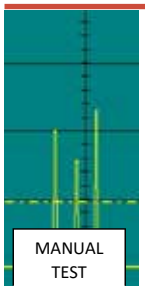


AT 11:15 AND 12:15 THE METAL DETECTOR PERFORMS TWO AUTO-QC TESTS, providing the previously recorded signal stimuli to the probe-emitter-receiver system and verifying the actual detection and product ejection (if applicable).





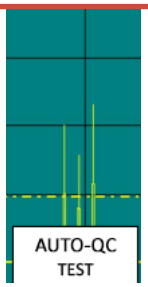
*The example below shows an **extract of the Metal Detector Events Buffer** relevant to a manual and automatic test:*




```
[015]   10/11/22 - 14:16:06     Test Passed
        Product: PRODUCT1       Fe diameter: 0.8        Amplitude(FE): 6.1 dB
        Name: USER04            Surname: USER04         Descript: USER04
        -066133-

[015]   10/11/22 - 14:16:07     Test Passed
        Product: PRODUCT1       Fe diameter: 0.8        Amplitude(NFE): 5.0 dB
        Name: USER04            Surname: USER04         Descript: USER04
        -036533-

[015]   10/11/22 - 14:16:08     Test Passed
        Product: PRODUCT1       Fe diameter: 0.8        Amplitude(SS): 7.2 dB
        Name: USER04            Surname: USER04         Descript: USER04
        -135178-
```




```
[058]   10/11/22 - 15:16:06     AUTO-QC Test Passed
        Product: PRODUCT1       Ej.Op.time: 0.102       Amplitude(FE): 6.1 dB
        -120135-

[058]   10/11/22 - 15:16:07     AUTO-QC Test Passed
        Product: PRODUCT1       Ej.Op.time: 0.105       Amplitude(NFE): 5.0 dB
        -156237-

[058]   10/11/22 - 15:16:08     AUTO-QC Test Passed
        Product: PRODUCT1       Ej.Op.time: 0.103       Amplitude(SS): 7.2 dB

        -033510-
```

AUTO-QC™ BENEFITS

- The **AUTO-QC TEST** allows the manual verification of calibration by the operator to be reduced or eliminated
- The **METAL DETECTOR** provides a programmable output that can be connected to the conveyor line stop during the AUTO-QC test to avoid product ejection and waste during automatic test
- **CEIA AUTO-QC TEST provides an effective calibration check along with a programmable 0 ÷ 100 % reduction of the manual verifications**, resulting in a corresponding reduction of:
  - LABOUR COST
  - ACCIDENTAL PRODUCT CONTAMINATION
  - PRODUCT WASTE

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ACCESSORIES

PART	DESCRIPTION
	TEST SAMPLES Ferrous / Non Ferrous / AISI 316L Certified metal spheres to verify the system correct detection capability and ejection functioning.
	TRANSITION KIT FROM RECTANGULAR TO ROUND
	RCU (REMOTE CONTROL UNIT)
	MODULE FOR SAMPLE RETRIEVING DURING TEST ROUTINE

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