



METAL DETECTION SYSTEMS

FOR LIQUID & VISCOUS PRODUCTS



THS/PL21 SERIES
FOR LIQUID AND VISCOUS PRODUCTS



THS/PLV-MEAT21 SERIES
FOR APPLICATIONS ON MEAT VACUUM FILLER MACHINES



THS/PLV21 SERIES FOR LIQUID AND VISCOUS PRODUCTS



HEAT AND CONTROL

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Quality Control at its finest

The **CEIA Pipeline Integrated Systems** are especially designed for the inspection of liquid, and viscous products and the elimination of any contaminating metals, whether magnetic, non-magnetic or stainless-steel.

THE CEIA INTEGRATED SYSTEMS are especially designed for metal contaminant detection in products transported by pipeline especially meat, soup, preserves...

The carefully selected materials used in construction do not interact with food products, and thus do not modify or alter their composition. The design of these systems 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. **The systems operate in fail-safe mode**, thus avoiding the risk of contaminants passing through even when the system is deactivated or when the electrical power supply is interrupted.

MULTI-SPECTRUM TECHNOLOGY

EXCLUSIVELY DEVELOPED BY CEIA, this is a **unique metal detection technology that both optimizes sensitivity to all metal contaminants and minimizes product effect** in a very wide range of possible products.

By recognizing the different frequency response of conductive products and metals, this **innovative technology cancels product effect and maintains high performance levels** for all types of metal contaminants, both magnetic and non-magnetic.

EXCLUSIVE AUTO-LEARN SYSTEM

THE AUTO-LEARN SYSTEM for food products provides **simultaneous maximum sensitivity to all metals starting from a single learning transit**.

- ✓ The system allows **optimization of the detection sensitivity to all metals with the maximum speed and precision**, equivalent to hundreds of conventional learning transits: these results in levels of precision and efficiency have never been obtained before.
- ✓ For products with changing or varying product signal after autolearn, the **THS/21 Series includes an advanced autolearn function** that runs in the background, to capture this product signal during normal production while still detecting metal. When the recording is ended, the operator has the option to analyze the data immediately, or wait until a later time when the line is stopped so as not to interrupt production.
- ✓ **The data that was added during the background autolearn is analyzed**, along with the original autolearn data, and the detection parameters are modified in order to also cancel the varying product signal.

THS/PL21 SERIES



THS/PLV21 SERIES



THS/PLV-MEAT21 SERIES



THS/PL21 SERIES

PASS-THROUGH INTEGRATED SYSTEM FOR LIQUID AND VISCOUS PRODUCTS

KEY FEATURES

- Detection of magnetic, non-magnetic and stainless steel metal contaminants
- Very high sensitivity. Multi spectrum technology available
- Standard pipe sizes available to suit all applications
- AISI 316L stainless steel construction to IP66 and IP69K protection levels
- High immunity to environmental interference
- Control Panels are listed according to UL 508A and CSA-C22.2 No. 14-05
- Easy to clean and inspect



THS/PLH21 MODEL WITH INTEGRATED TWISTING EXTENSION KIT

ADVANCED AUTOTEST FUNCTION

ROBUST
AISI 316L stainless steel construction to **IP66** and **IP69K** protection levels

MINIMUM INSTALLATION SPACE REQUIRED

WIDE RANGE OF FLANGES
for connection to bagging and clipping machines

STANDARD PIPE SIZES AVAILABLE TO SUIT ALL APPLICATIONS

LOCAL AND ADVANCED CONNECTIVITY



THS/PLV21 SERIES

PASS-THROUGH WITH EJECTION VALVE INTEGRATED SYSTEM FOR LIQUID AND VISCOUS PRODUCTS

KEY FEATURES

- Detection and ejection of magnetic, non-magnetic and stainless steel metal contaminants
- Very high sensitivity: multi spectrum technology available
- Wide range of flanges available for connection to bagging and clipping machines
- Very High Reliability
- Maximum Operator Safety

PRODUCT TRANSIT PIPE FEATURES

- FDA and EC 1935/2004 compliant
- High resistance to food industry C.I.P.
- Flanges integrated with pipe for best cleanability



THS/PLV21-C MODEL DESIGNED TO BE MOUNTED ON CUSTOM STRUCTURES, WITHOUT THE REJECTED MATERIAL BIN



FAST ACTING REJECT DEVICE

for a limited quantity of rejected product

EASY TO CLEAN AND INSPECT

ROBUST

AISI 316L stainless steel construction to **IP66** and **IP69K** protection levels

STANDARD PIPE SIZES AVAILABLE TO SUIT ALL APPLICATIONS

CONTROL PANELS LISTED ACCORDING TO UL 508A AND CSA-C22.2 NO. 14-05

THS/PLV-MEAT21 SERIES

PASS-THROUGH WITH EJECTION VALVE INTEGRATED SYSTEM FOR APPLICATIONS ON MEAT VACUUM FILLER MACHINES

KEY FEATURES

- Detection and ejection of magnetic, non-magnetic and stainless steel metal contaminants
- Very high sensitivity. Multi spectrum technology available
- High immunity to environmental interference
- Easy to clean and inspect

The THS/PLV-Meat21 series is design to operate in Harsh conditions

- Use of high pressure levels
- High risk of impact during movement and handling operations
- Strong vibration working conditions due to the filler and clipper machines
- Hard wash down conditions

FAST ACTING REJECT DEVICE

for a limited quantity of rejected product

STANDARD PIPE SIZES AVAILABLE TO SUIT ALL APPLICATIONS

ROBUST

AISI 316L stainless steel construction to IP69K protection level

LOCAL AND ADVANCED CONNECTIVITY



ALARM SIGNALING

High-visibility LED with IP69K water protection. The cap is completely filled with resin, which ensures mechanical resistance and water tightness.



RESET AND EMERGENCY BUTTON

Integrated in a Stainless Steel waterproof box in order to reduce possible effects of dirt and to protect electrical cables.



STAINLESS STEEL CABINET

Completely watertight, the cabinet protects both pneumatic and electronic components.

METAL DETECTORS CALIBRATION

A BEST-PRACTICE FOR QUALITY CONTROL

Standard ISO practices in instrumentation require a verification of the calibration at least once per year. In the food industry, Metal Detectors are typically verified, depending on the User internal Quality requirements, from one to four times per year.

Clearly, a complete calibration cannot be limited to the verification of the detection of the reference samples, as this single operation does not provide any information on the real sensitivity setting of the Metal Detector but that the alarm threshold is under the samples signal amplitude.

A COMPLETE CALIBRATION REQUIRES THE TRANSIT:

- **OF MULTIPLE DIAMETER CERTIFIED SPHERES**, in order to determine the diameter of the metal samples corresponding to the detection limit (or an equivalent instrumental method of signal quantification);
- **THROUGH THE AREA OF MINIMUM DETECTION STRENGTH** (typically, the centre of the aperture);
- **AT A MINIMUM AND MAXIMUM SPEED OF THE PRODUCT TRANSIT**

Beside the certified annual calibration, at least one daily verification of the calibration is customarily performed by the operators of the production lines by simply transiting through the aperture area of the Metal Detector certified metal spheres and verifying the system correct detection capability and ejection functioning.

The test should be performed by transiting the samples simultaneously to the product and in the centre of the aperture.

Depending on the number of detectors involved and of the test repetitions per day, this process can be quite time consuming, i.e. costly, involve the waste of a certain quantity of products and the risk to unintentionally contaminate the production with the metal samples. In addition, there is a risk of lack of consistency depending on operators skills and experience.



CEIA AUTOMATIC CALIBRATION TEST

INCREASING TIME OPTIMIZATION AND PRODUCTIVITY

- ✓ **A full digital internal structure, completely free from internal trimmers to be calibrated**, as the analog processing has been replaced by digital numerical analysis. Therefore, there is no impact of mechanical or temperature stresses on the calibration of the Detector.
- ✓ **An automatic, wide dynamics, antenna balance tracking system** to maintain in-range performances in all installation environments.
- ✓ **A continuous embedded Self-Calibration control** which spans from the emission up to the reception and processing circuitry, ensuring stability and both detection and product-effect cancellation consistency.
- ✓ **A continuous Auto-Test function which generates stimuli corresponding to the manual metal samples transits.**
The resulting detection signals are compared to the references recorded during the Factory Acceptance Testing calibration, thus providing an outside of tolerance notification capability with a few seconds reaction time, independently from the sensitivity setting.
- ✓ **A calibration test in automatic mode.** During the automatic test, the Metal Detector provides a stimulus equivalent to the same excitation signal of the last manual test, verifying the correct activation of the alarm and the ejector.

All test results are recorded into the Events buffer and are available for data traceability. The THS 21 Series provides the possibility to determine and program the mix of manual and automatic test operation in a wide ratio range, depending on the User Quality procedures, through the MTI parameter.

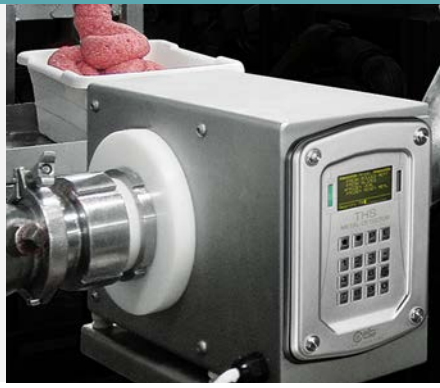
BENEFITS OF THE CALIBRATION TEST IN AUTOMATIC MODE

ENSURE COMPLIANCE

Electronic records are generated for every single automatic test, giving the customer reliable references in case of audit compliance.

ENHANCE PRODUCTIVITY

Approximately 3-4 minutes are required for performing a triple test (FE, NFE, AISI 316) which involves two operators, while automatic testing is completed in 10 seconds. Therefore, considering a testing frequency of 2 hours, by adding 5 automatic tests between two manual ones to reduce the manual test frequency to 12 hours, a typical powder ingredients manufacturer with 5 lines could save more than 2,000 man-hours and increase the production accordingly.



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