



# THS/FFV21 SERIES

## *Quality Control at its finest*



**FREE-FALL INTEGRATED SYSTEM** WITH METAL DETECTOR AND EJECTION VALVE

### FEATURES

- State-of-the Art Quality Control of powder and granular products
- Detection and ejection of magnetic, non-magnetic and stainless steel metal contaminants
- Fast detection and rejection speed
- Fail-Safe Operations
- Structure and components in AISI 316L Stainless Steel and food-compatible plastics [EU, FDA compliant]
- Very compact size
- ATEX version available



**THS/FFV21**

Very high sensitivity.  
Multi-Spectrum technology available



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**CEIA THS/FFV21 Integrated System** is especially designed for the inspection of granular and powder products and the elimination of any contaminating metals, whether magnetic, non-magnetic or stainless-steel.

## INTEGRATED SYSTEM FOR GRAVITY FEED

The carefully selected materials used in construction of the THS/FFV21 Integrated System 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. The system operates 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.

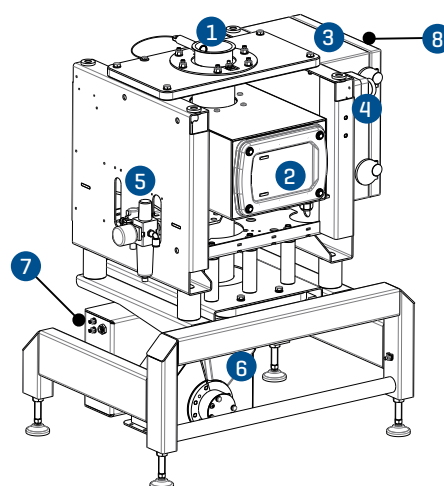
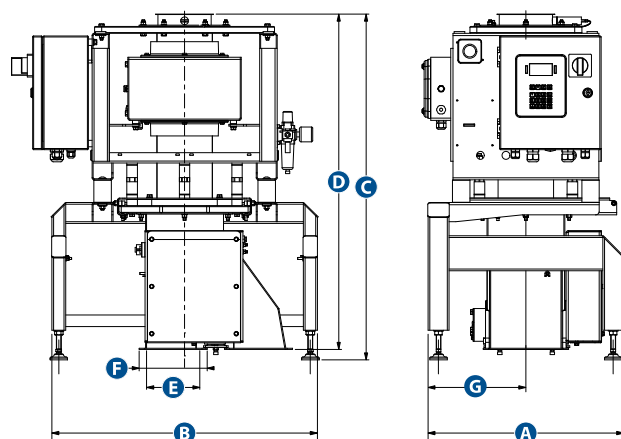
## MULTI-SPECTRUM TECHNOLOGY

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.

The autolearn function used by CEIA Multi-Spectrum metal detectors equates to the repetition of hundreds of conventional transits. It explores the whole spectrum of available frequencies in order to determine the best operating conditions resulting in unique detection performance.

### THS/FFV21ES and THS/FFV21S models



| MODEL         |                    | A   | B   | C           | D    | E         | F         | G   |
|---------------|--------------------|-----|-----|-------------|------|-----------|-----------|-----|
| THS/FFV x-75  | STANDARD           | 505 | 660 | 856 ÷ 906   | 826  | 73 x 117  | 107 x 151 | 275 |
|               | WITH REDUCTION KIT |     |     | 766 ÷ 851   | 736  |           |           |     |
| THS/FFV x-100 | STANDARD           | 505 | 660 | 849 ÷ 899   | 819  | 73 x 117  | 107 x 151 | 275 |
|               | WITH REDUCTION KIT |     |     | 759 ÷ 844   | 729  |           |           |     |
| THS/FFV x-150 | STANDARD           | 560 | 760 | 990 ÷ 1030  | 960  | 155 x 204 | 195 x 244 | 380 |
|               | WITH REDUCTION KIT |     |     | 900 ÷ 975   | 870  |           |           |     |
| THS/FFV x-200 | STANDARD           | 560 | 760 | 1030 ÷ 1070 | 1000 | 155 x 204 | 195 x 244 | 380 |
|               | WITH REDUCTION KIT |     |     | 940 ÷ 1015  | 910  |           |           |     |

x = 21S / MS21S / 21ES

|   |                                            |
|---|--------------------------------------------|
| 1 | Infeed flange for material to be inspected |
| 2 | Metal Detector probe                       |
| 3 | Power supply and control unit              |
| 4 | Emergency push button                      |
| 5 | Compressed air group                       |
| 6 | Ejection valve (deviator)                  |
| 7 | Valve actuating group                      |
| 8 | Main switch                                |

## THS/FFV21 ATEX series



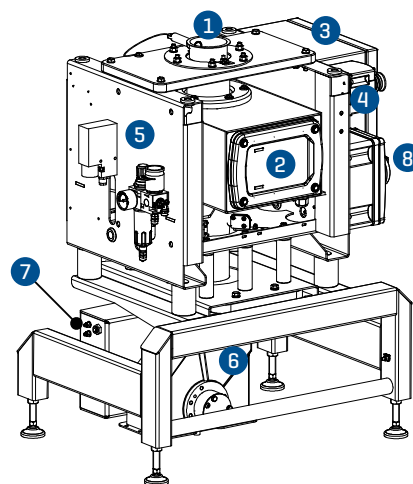
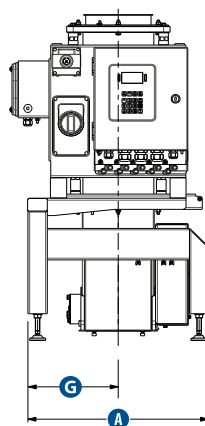
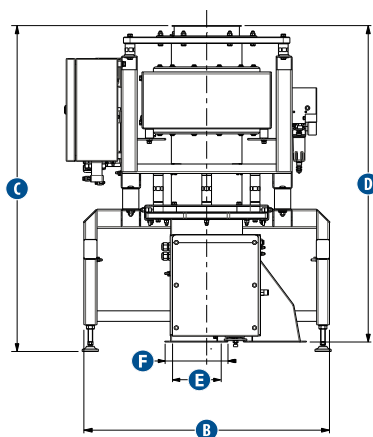
### THS/FFV21 ATEX COMPLIANCE

- Compliant with ATEX Directive 2014/34/UE  
“on equipment and protective systems intended for use in potentially explosive atmospheres”
- IP66/69K protection rating  
[control power box and detector]
- Classified as Group II, Category 1/2D equipment

LOCAL AND  
ADVANCED  
CONNECTIVITY  
[optional]



### THS/FFV21-ATEX model



| MODEL                 |                    | A   | B   | C           | D    | E         | F         | G   |
|-----------------------|--------------------|-----|-----|-------------|------|-----------|-----------|-----|
| THS/FFV y-75-ATEX     | STANDARD           | 505 | 660 | 856 ÷ 906   | 826  | 73 x 117  | 107 x 151 | 275 |
|                       | WITH REDUCTION KIT |     |     | 766 ÷ 851   | 736  |           |           |     |
| THS/FFV y-100-ATEX    | STANDARD           | 505 | 660 | 849 ÷ 899   | 819  | 73 x 117  | 107 x 151 | 275 |
|                       | WITH REDUCTION KIT |     |     | 759 ÷ 844   | 729  |           |           |     |
| THS/FFV y-150-ATEX    | STANDARD           | 560 | 760 | 990 ÷ 1030  | 960  | 155 x 204 | 155 x 204 | 280 |
|                       | WITH REDUCTION KIT |     |     | 900 ÷ 975   | 870  |           |           |     |
| THS/FFV y-200-ATEX    | STANDARD           | 560 | 760 | 1030 ÷ 1070 | 1000 | 155 x 204 | 195 x 244 | 280 |
|                       | WITH REDUCTION KIT |     |     | 940 ÷ 1015  | 910  |           |           |     |
| THS/FFV y-100x40-ATEX | STANDARD           | 525 | 685 | 798 ÷ 883   | 768  | 73 x 117  | 107 x 151 | 286 |

y = 21S / MS21S

|   |                                            |
|---|--------------------------------------------|
| 1 | Infeed flange for material to be inspected |
| 2 | Metal Detector probe                       |
| 3 | Power supply and control unit              |
| 4 | Emergency push button                      |
| 5 | Compressed air group                       |
| 6 | Ejection valve (deviator)                  |
| 7 | Valve actioning group                      |
| 8 | Main switch                                |

## THS/FFV21 SERIES SPECIFICATIONS



## SPECIAL FEATURES

| SPECIAL FEATURES            |                                                                                                                                                                                                                                        | THS/FFV21E                                                               | THS/FFV21                                                                                                                                                 | THS/FFV21-ATEX |
|-----------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|
|                             | Detection sensitivity                                                                                                                                                                                                                  | High                                                                     | Ultra High                                                                                                                                                |                |
|                             | Immunity to environmental interference                                                                                                                                                                                                 | High                                                                     | High                                                                                                                                                      |                |
|                             | Data display type                                                                                                                                                                                                                      | Alphanumeric OLED<br>4x20 characters                                     | High-contrast graphical OLED<br>128x64 pixels                                                                                                             |                |
|                             | Local programming                                                                                                                                                                                                                      | 4 keys,<br>3 with double function                                        | 16 keys, 3 with double function                                                                                                                           |                |
|                             | Construction compliant with 21 CFR Parts 210 and 211                                                                                                                                                                                   |                                                                          |                                                                                                                                                           |                |
|                             | Inspected/contaminated product counter                                                                                                                                                                                                 |                                                                          |                                                                                                                                                           |                |
|                             | Autolearn and automatic tracking of the product effect                                                                                                                                                                                 |                                                                          |                                                                                                                                                           |                |
|                             | ISO 9001 certified manufacturer                                                                                                                                                                                                        |                                                                          |                                                                                                                                                           |                |
| DATA<br>MANAGEMENT          | Management of electronic production data<br>and electronic signatures<br>as per CFR 21, Part 11                                                                                                                                        | Data security                                                            |                                                                                                                                                           |                |
|                             |                                                                                                                                                                                                                                        | Data integrity                                                           |                                                                                                                                                           |                |
|                             |                                                                                                                                                                                                                                        | Data traceability                                                        |                                                                                                                                                           |                |
| I/O INTERFACES              | RS232, Auxiliary RS232, Bluetooth, Ethernet interface (on request), WI-FI and USB (on request)                                                                                                                                         |                                                                          |                                                                                                                                                           |                |
| SIGNALLING                  | Acoustic                                                                                                                                                                                                                               | Via internal buzzer                                                      |                                                                                                                                                           |                |
|                             | Optical                                                                                                                                                                                                                                | Graphic display with bar-graph indication                                |                                                                                                                                                           |                |
|                             |                                                                                                                                                                                                                                        | Light indicators on control unit: RED: Alarm or Fault / GREEN: Power on  |                                                                                                                                                           |                |
| PROGRAMMING                 | LOCAL: built-in keyboard and high-contrast display                                                                                                                                                                                     |                                                                          |                                                                                                                                                           |                |
|                             | REMOTE: through computer connected via Bluetooth, RS232, Ethernet or WiFi and managed with CEIA MD Scope software, THS Production Plus software or any other terminal emulation program or through Web Server (with optional IXC card) |                                                                          |                                                                                                                                                           |                |
| SAFETY<br>AND SECURITY      | Protection degree                                                                                                                                                                                                                      | THS/FFV21E                                                               | IP65                                                                                                                                                      |                |
|                             |                                                                                                                                                                                                                                        | THS/FFV21                                                                | IP66 – IP69K (control power box)                                                                                                                          |                |
|                             |                                                                                                                                                                                                                                        |                                                                          | IP65 (all other components)                                                                                                                               |                |
|                             |                                                                                                                                                                                                                                        | THS/FFV21-ATEX                                                           | IP66 – IP69K (control power box and detector)                                                                                                             |                |
|                             |                                                                                                                                                                                                                                        |                                                                          | IP65 (all other components)                                                                                                                               |                |
|                             | Electrical insulation                                                                                                                                                                                                                  | Galvanic isolation of the mains voltage                                  |                                                                                                                                                           |                |
|                             |                                                                                                                                                                                                                                        | Compliant with international standards for safety and radio interference |                                                                                                                                                           |                |
|                             | Pollution degree (IEC61010-1)                                                                                                                                                                                                          | Class 2                                                                  |                                                                                                                                                           |                |
|                             | Installation category (IEC61010-1)                                                                                                                                                                                                     | Category II                                                              |                                                                                                                                                           |                |
|                             | SUPPLY                                                                                                                                                                                                                                 | Control Power Box                                                        | Main voltage                                                                                                                                              | 100-240 VAC    |
| Frequency and phase         |                                                                                                                                                                                                                                        |                                                                          | 50/60 Hz - single phase                                                                                                                                   |                |
| Full load current (FLA)     |                                                                                                                                                                                                                                        |                                                                          | 2.2 A                                                                                                                                                     |                |
| Compressed air              |                                                                                                                                                                                                                                        | Pressure                                                                 | 0,6 ÷ 1 Mpa                                                                                                                                               |                |
|                             |                                                                                                                                                                                                                                        |                                                                          | 0,6 ÷ 0,8 Mpa (THS/FFV21-ATEX)                                                                                                                            |                |
|                             |                                                                                                                                                                                                                                        | Flow                                                                     | 100 l/min                                                                                                                                                 |                |
|                             | 600 l/min (THS/FFV21-ATEX)                                                                                                                                                                                                             |                                                                          |                                                                                                                                                           |                |
| ENVIRONMENTAL<br>CONDITIONS | Temperature                                                                                                                                                                                                                            | Operating                                                                | -10 to +55 °C                                                                                                                                             |                |
|                             |                                                                                                                                                                                                                                        |                                                                          | 0 to +40 °C (THS/FFV21-ATEX)                                                                                                                              |                |
|                             |                                                                                                                                                                                                                                        | Storage                                                                  | -40 to +70 °C                                                                                                                                             |                |
|                             |                                                                                                                                                                                                                                        |                                                                          | -25 to +70 °C (THS/FFV21-ATEX)                                                                                                                            |                |
|                             | Relative humidity                                                                                                                                                                                                                      | Operating / Storage                                                      | 5 – 90 %, non-condensing                                                                                                                                  |                |
| PRODUCT<br>CONDITIONS       | Maximum temperature                                                                                                                                                                                                                    | Product in transit                                                       | 70°C                                                                                                                                                      |                |
|                             |                                                                                                                                                                                                                                        |                                                                          | 40 °C (THS/FFV21-ATEX)                                                                                                                                    |                |
|                             | Maximum allowed pressure                                                                                                                                                                                                               | Internal pressure                                                        | The ejection valve is suitable for plants with differences in pressure of 0.1 bar maximum respect to the external pressure or the other internal sections |                |



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