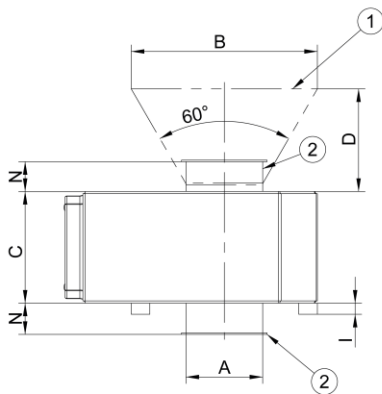
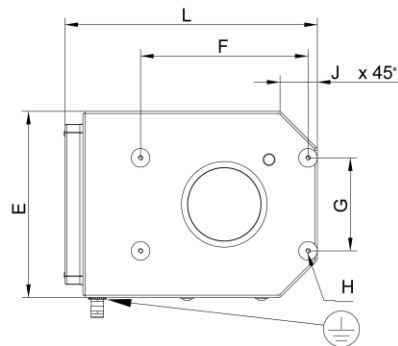
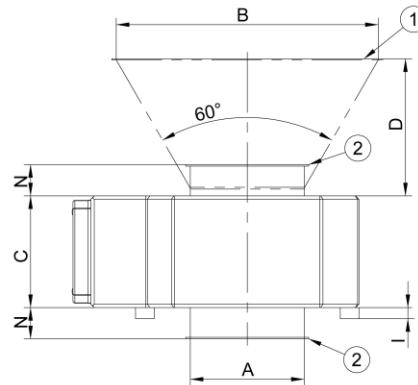
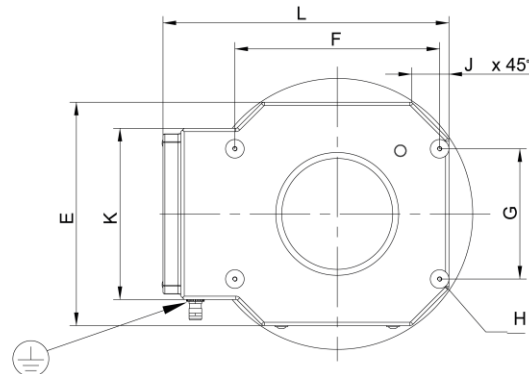


## Dimensions – Vertical version


**DN 80 – DN 120**

**DN 150 – DN 250**

- 1 HO version: With welded-on funnel  
 2 Pipe connection: Jacob system

| ØA         | ØB  | C   | D   | E   | F   | G   | H  | I  | J   | K   | L   | N  | Weight [kg]* |
|------------|-----|-----|-----|-----|-----|-----|----|----|-----|-----|-----|----|--------------|
| <b>80</b>  | 200 | 150 | 114 | 230 | 175 | 115 | M6 | 15 | 45  | 230 | 289 | 42 | 20           |
| <b>100</b> | 250 | 150 | 138 | 250 | 225 | 125 | M6 | 15 | 50  | 250 | 339 | 42 | 25           |
| <b>120</b> | 250 | 150 | 120 | 250 | 225 | 125 | M6 | 15 | 50  | 250 | 339 | 42 | 28           |
| <b>150</b> | 350 | 150 | 184 | 300 | 275 | 175 | M6 | 15 | 50  | 230 | 384 | 42 | 30           |
| <b>175</b> | 350 | 150 | 162 | 300 | 275 | 175 | M6 | 15 | 50  | 230 | 384 | 42 | 35           |
| <b>200</b> | 350 | 150 | 141 | 365 | 310 | 170 | M8 | 30 | 88  | 230 | 451 | 42 | 38           |
| <b>250</b> | 350 | 200 | 97  | 450 | 400 | 200 | M8 | 30 | 115 | 230 | 534 | 80 | 55           |

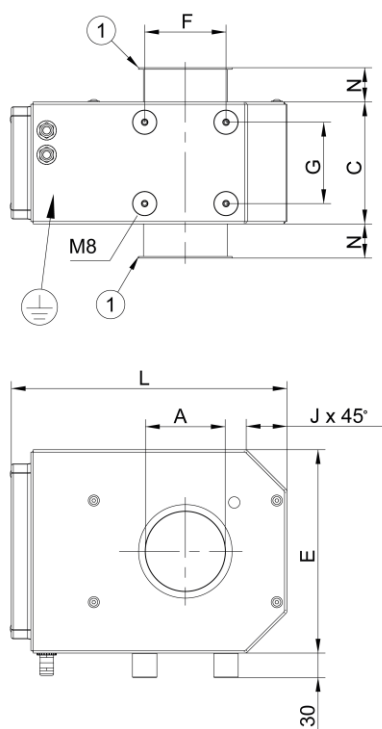
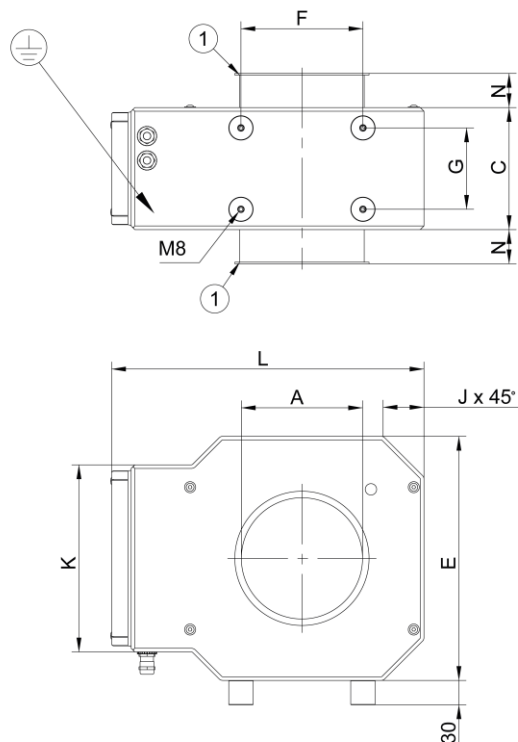
All dimensions in [mm]

\* Weight without packaging, including standard equipment

**Note:** The area around the metal detector, the metal-free zone (MFZ), must be free of any metallic components. Detailed information can be found in the operating instructions under the chapter "Assembly guidelines".

**Note:** All earthing points must fall within the same earthing potential. Potential differences are not permitted.

## Dimensions


**DN 80 – DN 120**

**DN 150 – DN 250**

1. Pipe connection: Jacob system

| ØA         | ØB  | C   | D   | E   | F   | G   | H  | I  | J   | K   | L   | N  | Weight [kg]* |
|------------|-----|-----|-----|-----|-----|-----|----|----|-----|-----|-----|----|--------------|
| <b>80</b>  | 200 | 150 | 114 | 230 | 175 | 115 | M6 | 15 | 45  | 230 | 289 | 42 | 20           |
| <b>100</b> | 250 | 150 | 138 | 250 | 225 | 125 | M6 | 15 | 50  | 250 | 339 | 42 | 25           |
| <b>120</b> | 250 | 150 | 120 | 250 | 225 | 125 | M6 | 15 | 50  | 250 | 339 | 42 | 28           |
| <b>150</b> | 350 | 150 | 184 | 300 | 275 | 175 | M6 | 15 | 50  | 230 | 384 | 42 | 30           |
| <b>175</b> | 350 | 150 | 162 | 300 | 275 | 175 | M6 | 15 | 50  | 230 | 384 | 42 | 35           |
| <b>200</b> | 350 | 150 | 141 | 365 | 310 | 170 | M8 | 30 | 88  | 230 | 451 | 42 | 38           |
| <b>250</b> | 350 | 200 | 97  | 450 | 400 | 200 | M8 | 30 | 115 | 230 | 534 | 80 | 55           |

All dimensions in [mm]

\* Weight without packaging, including standard equipment

**Note:** The area around the metal detector, the metal-free zone (MFZ), must be free of any metallic components. Detailed information can be found in the operating instructions under the chapter "Assembly guidelines".

**Note:** All earthing points must fall within the same earthing potential. Potential differences are not permitted.

## Product description

The **METRON FLATLINE EX** has been designed in accordance with the applicable explosion protection directives for use in areas with a risk of explosion with dust and/or gas atmospheres. The system facilitates safe and reliable metal separation in free-fall applications.

The device has been designed in accordance with the respective zone classification in the product contact area (inside) and the surrounding area (outside). In doing so, the required device categories for dust, e.g. Zone 20 (1D), Zone 21 (2D), or Zone 22 (3D) as well as, depending on the application, for gas, e.g. Zone 2 (3G), have been taken into account.

The following information applies to the European ATEX version. Country-specific versions and approvals, e.g. in accordance with IECEx or NEC/CEC, must be coordinated with MESUTRONIC.

## Areas of application

The METRON FL is suitable for applications in the **food** and **industrial** sectors.

### Food

Suitable for applications in the food industry.

### Industrial

For applications in the plastics, chemical and recycling industries, as well as in other industrial sectors with comparable products and requirements.

## Bulk material classification

|                                                        |                                                                                                                                                                                                            |
|--------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Product shape</b>                                   | Powder, fine-grained bulk materials, granulate, flakes, etc.                                                                                                                                               |
| <b>Grain size max. in mm</b>                           | Depending on the nominal width                                                                                                                                                                             |
| <b>Properties of the bulk material</b>                 | Dry, moist, non-abrasive, possible product effect<br>(Intrinsic conductivity of the product) can be compensated for                                                                                        |
| <b>Flowability</b>                                     | Good, medium, bad                                                                                                                                                                                          |
| <b>Type of material flow</b>                           | - Free-fall applications - Vertical installation e.g. tubular bag application<br>- Pneumatic conveying lines - Vertical and horizontal installation<br>- Pump lines - Vertical and horizontal installation |
| <b>Max. permissible pressure in the conveying line</b> | Max. +/- 0.5 bar (relative pressure)                                                                                                                                                                       |
| <b>Ignition energy of the product</b>                  | > 3 mJ                                                                                                                                                                                                     |
| <b>Maximum media temperature</b>                       | + 60°C                                                                                                                                                                                                     |

## Typical throughput

| NWø [mm]  | 80     | 100    | 120    | 150    | 175    | 200     | 250     |
|-----------|--------|--------|--------|--------|--------|---------|---------|
| DL [l/h]* | 16,900 | 26,500 | 38,200 | 59,700 | 81,300 | 106,200 | 165,900 |

\* The throughput capacity (DL) was determined on the basis of free-flowing granulate at a pipe filling level of 30 % and a free-fall height of 0.5 m. The data refer to continuous conveying. Deviations occur depending on the particle shape and flow properties.

## Ambient conditions

**Installation type** Vertical and horizontal installation

**Ambient temperature** -10°C to +50°C

**Storage / transport conditions** -10°C to +60°C

**Relative humidity** 0% to 95% (without condensation)

**Dust deposits** > 5 mm not permitted

## Equipment & specifications

**Electronics version** AMD 05: Zone 21 (2D) | Zone 22 (3D)  
 AMD 07: Zone 21 (2D) | Zone 22 (3D)

**Operator interface** AMD 05: Graphic display with membrane keypad, keypad  
 AMD 07: 5.7" Touch display

**Operating unit - Assembly type** Separated (min. 2m)

**Detector coil** Stainless steel (AISI 304), sandblasted

**Electronics housing** Stainless steel (AISI 304), sandblasted

**Protection class of overall device** IP 65

**Parts in contact with the product** Stainless steel (AISI 304), sandblasted  
 Sensing tube material: PE-EL (polyethylene, electrically conductive)

**Device connection** FLATLINE – Standard:  
 - Infeed: Jacob pipe connection  
 - Outlet: Jacob pipe connection

## Detection accuracy

| NWØ | FE Ø | Non-FE Ø | AISI 304 Ø |
|-----|------|----------|------------|
| 80  | 0.50 | 0.50     | 0.80       |
| 100 | 0.60 | 0.60     | 1.00       |
| 120 | 0.70 | 0.80     | 1.00       |
| 150 | 0.80 | 0.80     | 1.20       |
| 175 | 1.00 | 1.00     | 1.50       |
| 200 | 1.20 | 1.50     | 1.75       |
| 250 | 1.50 | 2.00     | 1.75       |

All dimensions in [mm]

The specified sensitivities (ball Ø in mm) are based on factory settings and were determined under simulated production conditions in the centre of the passage opening. They refer to typical products according to the bulk materials classification and serve as a guide. The actual detection performance depends on the selected frequency as well as on product properties such as shape, conductivity and flow properties. An individual assessment is required for deviating product or process conditions.

## Explosion protection

The following overview shows the available combinations of ATEX zones and equipment markings.

### Dust EX

| Combination         | Description                                                                          | Marking*                                                         |
|---------------------|--------------------------------------------------------------------------------------|------------------------------------------------------------------|
| <b>Zone 20 / 21</b> | Zone 20 inside (product area, inside)<br>Zone 21 outside (surrounding area, outside) | II 1 D Ex h IIIC T135°C Da<br>II 2 D Ex tb IIIC T135°C Db IP65** |
| <b>Zone 20 / 22</b> | Zone 20 inside (product area, inside)<br>Zone 22 outside (product area, outside)     | II 1 D Ex h IIIC T135°C Da<br>II 3 D Ex tc IIIC T135°C Dc IP65   |
| <b>Zone 21 / 21</b> | Zone 21 inside (product area, inside)<br>Zone 21 outside (product area, outside)     | II 2 D Ex h IIIC T135°C Db<br>II 2 D Ex tb IIIC T135°C Db IP65** |
| <b>Zone 21 / 22</b> | Zone 21 inside (product area, inside)<br>Zone 22 outside (product area, outside)     | II 2 D Ex h IIIC T135°C Db<br>II 3 D Ex tc IIIC T135°C Dc IP65   |
| <b>Zone 22 / 22</b> | Zone 22 inside (product area, inside)<br>Zone 22 outside (product area, outside)     | II 3 D Ex h IIIC T135°C Dc<br>II 3 D Ex tc IIIC T135°C Dc IP65   |

### Gas EX by request only

| Combination   | Description | Marking*               |
|---------------|-------------|------------------------|
| <b>Zone 2</b> | Zone 2      | II 3 G Ex nA IIB T4 Gc |

\* The marking describes the zone classification for the product contact area (inside) and the surrounding area (outside) in accordance with the ATEX Directive, as well as the device's constructive safety measures

\*\* The maximum surface temperature can vary depending on the electronics used.

For versions designed for Zone 21 (outside), the respective marking on the rating plate is authoritative.

### Technical notes:

#### General requirements:

- The device may only be used for its intended purpose.
- The operating manual and the specified servicing and maintenance conditions must be observed.
- Operation is only permissible within the specified Ex zones and usage conditions.
- The device is to be protected against non-permissible dust deposits, mechanical damage and direct UV radiation.
- All metallic components must be incorporated into the equipotential bonding system.
- Permissible temperature, voltage and ambient conditions.

#### Non-permissible applications:

- Modifications or conversions to the unit without manufacturer approval.
- Operation while bypassing or disabling safety devices.
- Operation outside the specified explosion protection, temperature or ambient conditions.
- Operation with damaged housings, components or protective devices.
- Use with non-approved products or applications

**Note:** Further safety-relevant requirements as well as detailed information on operation, installation, and maintenance can be found in the associated operating manual.

## Standard scope of delivery

Metal detector and evaluation electronics

Operating manual with spare parts list

EU Declaration of Conformity:

- 2014/35/EU (Low Voltage Directive)
- 2014/30/EU (EMC Directive)
- 2011/65/EU (RoHS Directive)
- Delegated Directive (EU) 2015/863 (extension of the RoHS Directive)
- 2014/34/EU (ATEX Directive)

## Versions

- HO version: With welded-on funnel - regardless of zone

## Conformity

Optionally available:

- Regulation (EC) No. 1935/2004 + FDA (Food and Drug Administration)
- NRTL certification (61010-1)
- IEC certification (61010-1)
- Test piece certificate
- ATEX Certificate of Conformity

## Options

Optionally available for AMD 07:

- autoTEST System E EX (electrical) – suitable for dust zones 21 and Zone 22, no gas EX-approval
- autoTEST System P EX (pneumatic) – suitable for dust zone 22, no gas EX-approval

## Accessories

- Test piece (FE Ø, Non-FE Ø, AISI 304 Ø) - regardless of zone
- mesuINSERT (test piece insertion station) - regardless of zone
- Signal combination for error status warning - outside the EX range
- mesuEXPORT (automatic protocol export) - outside the EX range
- mesuREMOTE (remote maintenance kit) – regardless of zone
- mesuLINK (networking software) – regardless of zone

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### Note:

If you require further product information that goes beyond the content of this technical data sheet and in particular concerns a specific use and the application of this product, please contact us.