

# GFR5000

Metal Detector for free-fall applications

Artemis

- Metal separator for the inspection of powdery and fine-grained bulk materials
- Detects magnetic and non-magnetic metal contaminations
- Separation by way of stainless steel reject flap
- Hygienic design without any corners and edges in the separation unit
- Complies with IFS and HACCP
- Separation unit and product-contacting metal parts completely made of stainless steel 1.4301 (AISI 304)
- Low mounting height guarantees easy integration of the metal separator in existing pipe systems
- Separate detection and separation units:
  - The free-fall height can be adapted on site
  - The position of the reject outlet can be swivelled to match the position of the collecting container
- Quick and minimum-effort installation due to standard Jacob connection system
- Auto-learn function with product compensation for optimal adaptation to the intrinsic conductivity of the product to be inspected
- Increased interference immunity to electromagnetic pollution and vibration
- Highest scanning sensitivity for all metals



## Function

The GFR5000 metal separator is used for the inspection of bulk materials in free-fall conveyor pipes. It detects all magnetic and non-magnetic metal contaminations (steel, stainless steel, aluminium, ...) - even if such contaminations are embedded in the product. Metal contaminations are rejected by means of the separation unit ("Quick Flap").

The GFR5000 metal separator primarily is used in industries with very high hygienic demands.

## Application

- Incoming inspection (product purity and machine protection) of raw spices, ingredients, raw materials, etc. prior to the processing machine (e.g. mill).
- Quality inspection (product purity) of herbs, tea, spices, chemical additives (e.g. ascorbic acid, surfactants), etc. directly before filling in big bags and silos.
- Quality inspection of milk powder, flour, sugar, etc. directly before a bag-forming, filling, and sealing machine.

## Control units

- Two control units (Interact+ and SENSITY) with graded performance features are available.

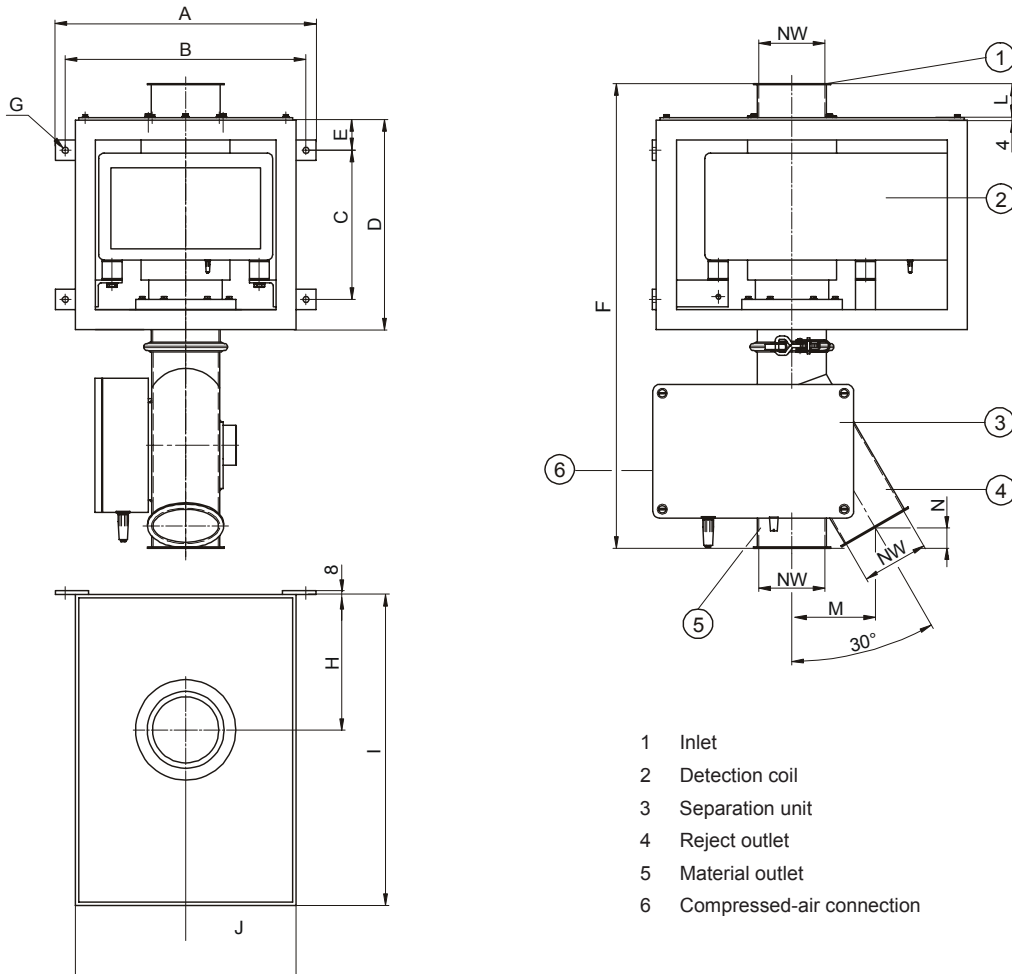
## Common features

- Highest sensitivity for all metals (2-channel technology)
- Digital signal processing and quartz-stable search frequency
- State-of-the-art microprocessor technology with self-monitoring, auto-balancing, and temperature compensation
- Product compensation with auto-learn function
- Multi-product memory
- Password protection / access protection
- Special EMC combifilter for suppressing external interference

## Typical fields of application

- Chemical industry
- Pharmaceutical industry
- Food industry

## Dimensions GFR5000



## Technical Data GFR5000

	Nominal width $\varnothing$ NW System Jacob	Maximum sensitivity <sup>1)</sup> $\varnothing$ Ferrous ball	Max. throughput <sup>2)</sup>	Weight (kg)
<b>GFR5000/80</b>	80	0.45	8000 l/h	75
<b>GFR5000/100</b>	100	0.57	12000 l/h	75
<b>GFR5000/120</b>	120	0.60	16000 l/h	75
<b>GFR5000/150</b>	150	0.77	25000 l/h	125
<b>GFR5000/200</b>	200	0.95	44000 l/h	145
<b>GFR5000/250</b>	250	1.20	69000 l/h	190

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
<b>GFR5000/80</b>	390	360	203	293	55	615	9	221.0	496	165	330	51	app. 108	app.23
<b>GFR5000/100</b>	390	360	223	313	45	695	9	202.5	471	165	33	51	app. 124	app.30
<b>GFR5000/120</b>	390	360	238	328	45	749	9	215.0	496	165	033	51	app. 148	app.43
<b>GFR5000/150</b>	470	440	375	465	45	947	11	240.0	540	205	410	51	app.175	app.51
<b>GFR5000/200</b>	570	540	450	600	75	1183	1	265.0	590	245	490	37	app.228	app.68
<b>GFR5000/250</b>	640	650	650	800	75	1482	1	320.0	708	280	560	42	app.272	app.75

All dimensions in mm unless stated

Larger types on request

<sup>1)</sup> The stated detection sensitivity (ferrous ball  $\varnothing$  in mm) applies for non-conductive products at the standard operation frequency and refers to the centre of the detection aperture (most disadvantageous position). Products that show intrinsic conductivity due to moisture content, electrolytes or other conductive contents may reduce the sensitivity as well as variations of product temperature, environmental effects (mechanical shocks and vibrations, electromagnetic pollution) or the set product angle. The detectable size of metal particles depends on their nature, shape and position while passing the metal detector.

<sup>2)</sup> The stated throughput rate is based on well pourable granules. The shape of the particles and thus the flow characteristic of the bulk material determine the throughput rate which can vary. Upstream installed magnet separators may also reduce the throughput rate due to reduction of the cross section

## Conditions of use

<b>Use:</b>	For inspection of free falling bulk materials in the food industry, i.e. spices, herbs, grain, flour, milk powder, etc. or in the chemical and pharmaceutical industry for similar applications with high hygienic requirements.
<b>Bulk material classification:</b>	
• <b>Grain shape:</b>	Powder, fine-grained bulks, granules
• <b>Max. grain size:</b>	Ball shape $\varnothing < 8\text{mm}$
• <b>Pourability:</b>	Good, medium, poor
• <b>Attributes:</b>	Dry, damp, not abrasive, product effects (material conductivity) can be compensated
• <b>Material flow:</b>	Free fall, falling height max 500 mm above top edge <sup>1)</sup> (no back draft of material)
• <b>Bulk material temperature:</b>	Maximum +80° C
• <b>Ambient conditions:</b>	-10°C to +50°C, 25% to 85% rH, no condensation
• <b>Storage and shipping conditions:</b>	-10°C to +50°C, 25% to 85% rH, no condensation
• <b>Max. conveying pipe pressure:</b>	Maximum 0.1 bar

<sup>1)</sup> The permissible drop height refers to standard overall heights. Larger drop heights also cause larger overall heights

## Scope of delivery / design / Connections

<b>Scope of delivery</b>	Metal separator composed of detection and separation unit connected together by a pull ring and separated control unit Interact+, inlet and outlets made according to Jacob pipe system	
<b>Mechanical design:</b>	Detection unit and electronics housing:	Stainless steel 1.4301 (AISI 304), bead blasted
	Separation unit complete:	Stainless steel 1.4301 (AISI 304)
	Scanning pipe:	PP (antistatic coating see options)
	Parts in contact with product:	Stainless steel 1.4301 (AISI 304), PP, NBR
	Compressed air connection:	5-8 bar; 6/8 mm hose connection
	Compressed air consumption:	Approx. 0.5 – 3.0 l / switching operation (depending on size)
<b>Electrical design:</b>	Operating voltage:	100-240 VAC ( $\pm 10\%$ ), 50/60 Hz
	Current consumption:	Approx. 250 mA/115 VAC, approx. 120 mA/230 VAC
	Mains cable:	1.8 m with safety plug
	Connecting cable (device / control unit):	3 m
	Ingress protection:	IP 65, (rain shelter required if operated outdoor)
	Eject duration (metal impulse):	Adjustable from 0.05 to 60 sec
	Self-monitoring system:	Detection coil and outputs
	Operation:	See technical data sheet for control unit GENIUS+

## Accessories

- |   |   |   |
|---|---|---|
| <input type="checkbox"/> Visual alarm                                       | <input type="checkbox"/> Digital counter  | <input type="checkbox"/> Air pressure regulator with filter |
| <input type="checkbox"/> Failure indication                                 | <input type="checkbox"/> Compressed-air monitor   | <input type="checkbox"/> Manual test facility               |
| <input type="checkbox"/> Failure and metal indication                       | <input type="checkbox"/> Monitor system for diverter  | <input type="checkbox"/> Semi-automatic test facility       |
| <input type="checkbox"/> Audible alarm                                      | <input type="checkbox"/> Button for manual ejection   | <input type="checkbox"/> Test samples                       |
| <input type="checkbox"/> Failure indication                                 | <input type="checkbox"/> Antistatic coated scanning pipe  | <input type="checkbox"/> Central data management system     |
| <input type="checkbox"/> Failure and metal indication                       | <input type="checkbox"/> Drop height above 500 mm   | <input type="checkbox"/> INSIGHT II (only RS232 or RS485)   |
| <input type="checkbox"/> Combination alarm (visual alarm and audible alarm) | <input type="checkbox"/> Cable set for remoted control unit   | <input type="checkbox"/> Insight-Net (Ethernet or WLAN)     |
| <input type="checkbox"/> Failure indication                                 | <input type="checkbox"/> Length 6 m <input type="checkbox"/> Length 10 m <input type="checkbox"/> Length 15 m                 | <input type="checkbox"/> UL/CSA certificate                 |
| <input type="checkbox"/> Failure and metal indication                       | <input type="checkbox"/> Interfaces   |   |
|   | <input type="checkbox"/> RS232 <input type="checkbox"/> RS485 <input type="checkbox"/> Ethernet <input type="checkbox"/> WLAN |   |

## Special versions / Supplementary systems

- |   |   |
|---|---|
| <input type="checkbox"/> Explosion-proof version ATEX                       | <input type="checkbox"/> Pipe transition pieces with flanges                                |
| <input type="checkbox"/> Pharmaceutical version on request                  | <input type="checkbox"/> Different temperature range for environment and product on request |
| <input type="checkbox"/> Low wear version for highly abrasive bulk material |   |

If you have any more questions, require technical assistance or would like a quotation, please contact us.

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