

# GFR4000

## Metal Detector for free-fall applications



- Detects and separates magnetic and non-magnetic metal contamination, even when enclosed in product
- Reduces expensive machinery failure and minimises production downtime
- Ensures product quality
- Prevents customer complaints
- Break even within a very short period of time
- Separated detection and separation units:
  - Free-fall height can be individually adjusted on site
  - Position of waste reject unit can be turned to match position of collecting tray
- Learn automatic or manual product compensation (not pre-adjusted) to improve adaption to product and conveyor belt conductivity
- Pre-installed parameters simplify operation
- High scanning sensitivity to all metals
- Minimal waste through "Quick-Flap" rejection system
- Low installation height, the metal separator can be easily fitted into existing pipeline systems
- Standard adaptor system "Jacobs" enables quick, hassle-free installation
- Increased signal-to-noise-ratio towards electromagnetic pollution and vibrations



### Scope of delivery

- Metal separator with separated detection and separation units (installation via "Jacob" fastener)
- Control Unit Interact+

### Options/Accessories

- Optical and acoustic signal system
- Feed hopper and filler neck
- Digital incident counter
- Air pressure monitoring
- Magnet system enables pre-rejection of iron
- High temperature resistant
- Special design for abrasive bulk goods
- Control unit Interact+ for higher scanning sensitivity
- ATEX design
- UL/CSA Certification
- Removable control unit

### Product Description

The metal separator GFR4000 is used to analyse bulk goods in free-fall conveyor pipes. It detects all magnetic

and non-magnetic metal contaminations (steel, stainless steel, aluminium) – even if enclosed in the product. Metal contaminations are rejected through the "Quick Flap" reject unit.

The metal separator GFR4000 is mainly used in industries with low hygienic requirements.

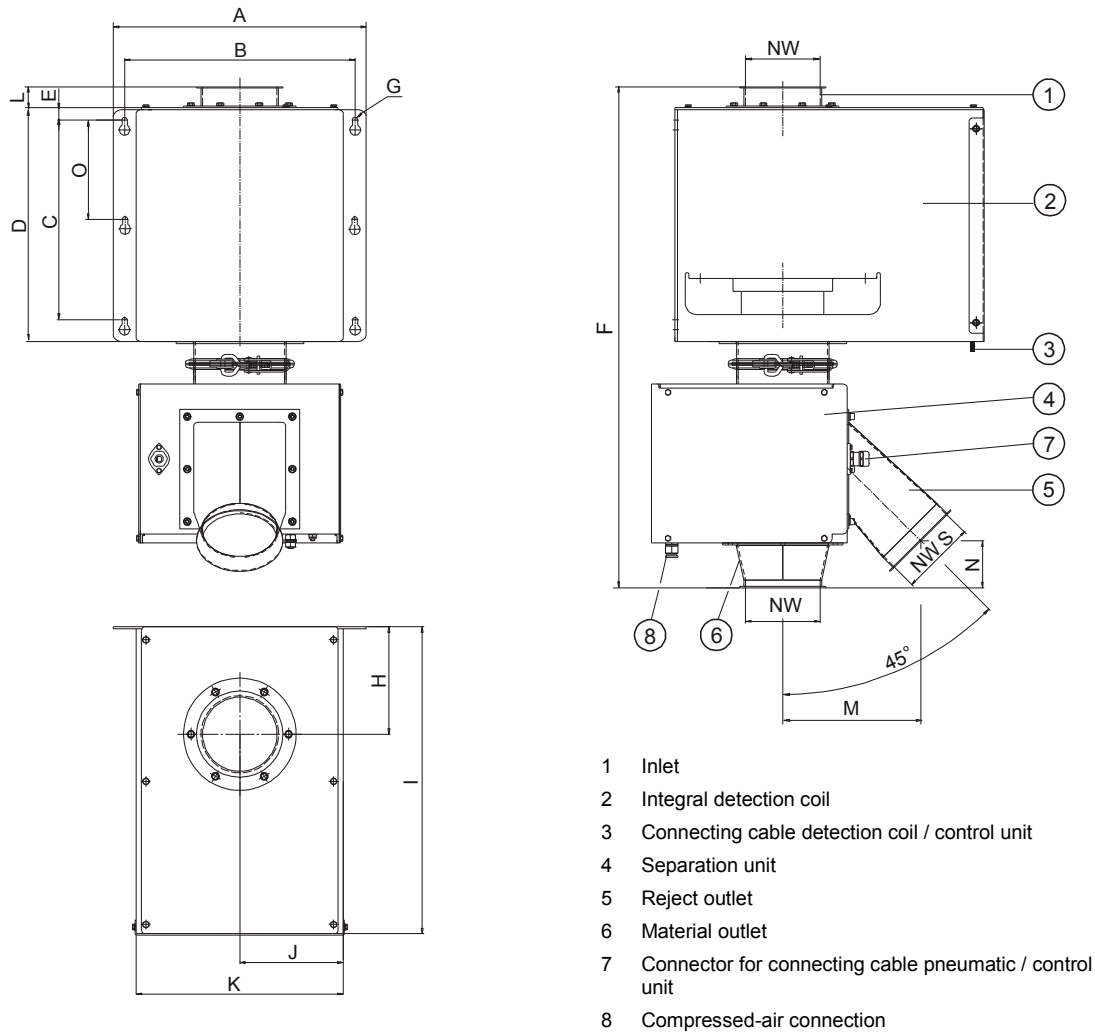
### Typical Application Areas

- Plastics industry, In-house recycling
- Recycling industry
- Wood industry
- Chemical industry
- Food industry
- Feed stuff industry

### Application:

- Machinery protection for extruders, blow moulding machines, fine grinding mills, after dose units (rotary valve, vibro chamfer)
- Quality control e.g. for pre-delivery inspection of new goods, granulate, furnish, reclaim before octabins, big-bag stations, dryers and packing stations

# GFR4000



## Technical Data GFR4000

	Nominal passage Ø NW System Jacob	Nominal passage reject outlet Ø NW "S" System Jacob	Maximum scanning sensitivity <sup>1)</sup> Ø Fe-ball	Maximum throughput <sup>2)</sup>	Weight (kg)
GFR4000/080	80	80	0.45	8000 l/h	65
GFR4000/100	100	100	0.57	12000 l/h	70
GFR4000/120	120	100	0.60	16000 l/h	75
GFR4000/150	150	150	0.77	25000 l/h	95
GFR4000/200	200	200	0.95	44000 l/h	145
GFR4000/250	250	200	1.20	69000 l/h	180

	A	B	C	D	E	F	G	H	I <sup>3)</sup>	J	K	L	M	N	O <sup>*)</sup>
GFR4000/080	337	307	267	312	16.5	639	7	143.5	411.5	138	276	35	app.158	app.38	/
GFR4000/100	337	307	267	312	16.5	660	7	143.5	412.0	138	276	28	app.183	app.50	/
GFR4000/120	337	307	267	312	16.5	660	7	143.5	412.0	138	276	28	app.183	app.50	/
GFR4000/150	416	386	400	475	32.0	882	9	175.0	475.0	168	336	36	app.207	app.60	200
GFR4000/200	520	490	560	640	29.0	1272	9	210.0	543.0	220	440	37	app.340	app.100	280
GFR4000/250	580	540	710	809	29.0	1490	9	255.0	635.5	245	490	48	app.340	app.118	355

All dimensions in mm unless stated

Larger types on request <sup>1)</sup> starting from size 150

<sup>1)</sup> The stated detection sensitivity (ferrous ball Ø 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.

<sup>3)</sup> Observe the projection of the mechanical unit: NW 80 +21 mm, NW 100 and 120 +32 mm.

## Conditions of use

**Use <sup>1)</sup>:** In unpressurized pipe systems for the inspection of gravity feed bulk materials in plastics processing lines as well as other industries with similar applications

### Bulk material classification:

- **Grain shape:** Granulates, grinding stock, pellets
- **Max. grain size:** Ball shape Ø < 8mm
- **Pourability:** Good, medium
- **Attributes:** Dry, damp, not abrasive, product effects (conductivity) can potentially be compensated
- **Material flow:** Free fall, falling height max 500 mm above top edge (No back draft of material), depressurized
- **Material flow<sup>2)</sup>:** Free fall, fall height max. 450 mm above equipment top edge (No back draft of material)
- **Bulk material temperature:** Maximum +80° C
- **Ambient temperature:** -10° C to +55° C

<sup>1)</sup> In vertical mounting position

<sup>2)</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>	Compact unit with integrated metal detector, separation unit and remote control unit GENIUS+; Inlet and outlets designed according to the "Jacob" system	
<b>Mechanical design:</b>	Detection unit:	Stainless steel 1.4301 (AISI 304), glass bead blasted
	Control enclosure:	Stainless steel 1.4301 (AISI 304), glass bead blasted
	Separation unit:	Stainless steel 1.4301 (AISI 304), glass bead blasted
	Scanning pipe:	PE-EL
	Parts in touch with material:	Stainless steel 1.4301 (AISI 304), PE-EL, Teflon, POM
	Compressed-air connection:	5-8 bar, 6/8 mm tube connection
	Compressed-air consumption	approx 0.5 - 3.0 litre / switch operation (depending on the size of the unit)
	<b>Electrical design:</b>	Control unit:
Operating voltage:		100-240 VAC (±10%) 50/60 Hz
Current consumption:		app. 200 mA/230 VAC or 400 mA/115 VAC
Type of protection:		IP 54
Eject duration (metal impulse):		Adjustable from 0.05 to 60 sec
Self monitoring:		Detection coil and outputs
Scanning sensitivity:		Selectable with 8 adjustments
Operation:	See technical data sheet for Control Unit SENSITY	

## Accessories Accessories

- |   |   |  |
|---|---|--|
| <input type="checkbox"/> Visual alarm                                       | <input type="checkbox"/> Failure indication                           | <input type="checkbox"/> Dual frequency technology to optimise sensitivity (used in case of significantly different product effects) |
| <input type="checkbox"/> Failure indication                                 | <input type="checkbox"/> Failure and metal indication                 |  |
| <input type="checkbox"/> Failure and metal indication                       | <input type="checkbox"/> Compressed-air monitor                       | <input type="checkbox"/> UL/CSA certificate  |
| <input type="checkbox"/> Audible alarm                                      | <input type="checkbox"/> Filter control valve                         | <input type="checkbox"/> US-power cable  |
| <input type="checkbox"/> Failure indication                                 | <input type="checkbox"/> Monitor system for diverter                  | <input type="checkbox"/> Test samples  |
| <input type="checkbox"/> Failure and metal indication                       | <input type="checkbox"/> Cable set for remote control unit: 6m or 10m | <input type="checkbox"/> Increased free fall height up to 1m   |
| <input type="checkbox"/> Combination alarm (visual alarm and audible alarm) | <input type="checkbox"/> 5.7" Colour Touch-Screen                     |  |

## Options

- |   |   |  |
|---|---|--|
| <input type="checkbox"/> Compressed -air- monitor           | <input type="checkbox"/> Explosion-proof version ATEX | <input type="checkbox"/> Cable set for remote control unit: 3m, 6m, 10m, 15m |
| <input type="checkbox"/> Monitor system for separation unit | <input type="checkbox"/> US-power cable               |  |

## Special versions / Supplementary systems

- |   |  |   |
|---|--|---|
| <input type="checkbox"/> Design for bulk material temperatures of up to 140° C        | <input type="checkbox"/> Explosion-proof version ATEX depending on zone          | <input type="checkbox"/> Magnet systems for pre-removal of ferrous metals |
| <input type="checkbox"/> Design suitable for direct contact with food products        | <input type="checkbox"/> Interfaces RS232, RS485, Ethernet, WLAN, USB            | <input type="checkbox"/> Hopper magnet                                    |
| <input type="checkbox"/> Model with improved wearout protection in use range plastics | <input type="checkbox"/> Software for logbook filling                            | <input type="checkbox"/> Inline magnet                                    |
| <input type="checkbox"/> Pipe transition pieces with flanges                          | <input type="checkbox"/> Navigator or INSIGHT.Net central data management system | <input type="checkbox"/> Inline chute magnet system                       |

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

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While every effort has been made to ensure the accuracy of the information in this publication please note that specifications may change without notice.



FM31278



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