

GFR Vario Metal Detector

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
- Separation unit and product contacting metal parts completely made of stainless steel 1.4301 (AISI 304)
- Low installation height; the metal separator can be easily fitted into existing pipeline systems
- 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 allow flexible adaption to product conductivity
- Pre-installed parameters for simplified operation
- Enhanced signal-to-noise-ratio minimises electromagnetic pollution and vibrations



Scope delivery:

- Metal detector with material reject
- Control Unit Primus

Options/Accessories

- Audible and visual alarm systems
- Feed hopper and filler inlet
- Digital incident counter
- Air pressure monitor
- Magnet system to remove ferrous contaminants
- High temperature resistant
- Special design for abrasive bulk goods
- UL/CSA Certification
- ATEX design

Product Description

The GFR Vario Metal Separator is used to inspect bulk goods under free-fall conditions. It detects all magnetic and nonmagnetic metal contaminations (steel, stainless steel, aluminium) – even when enclosed in the product. Metal contaminations are rejected through the “Quick

Flap” reject unit. The GFR Vario is used mainly in industries with low hygiene applications.

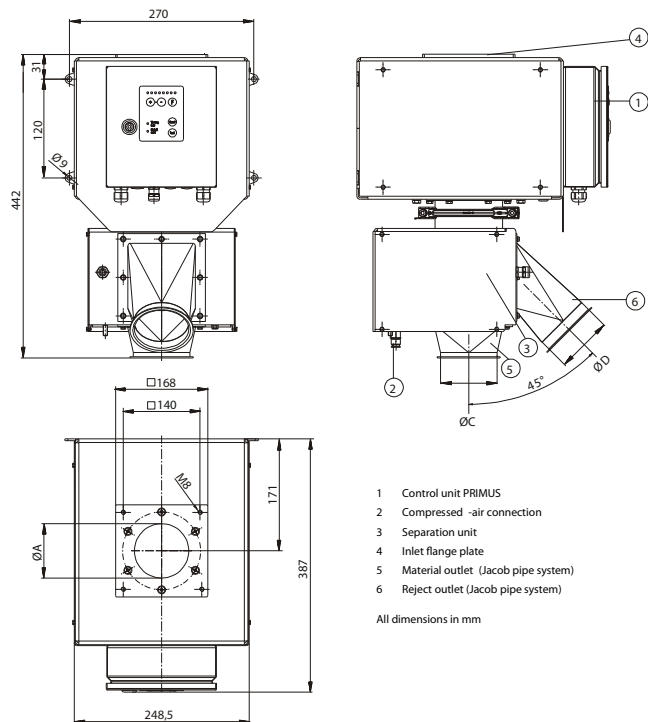
Typical Application Areas

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

Application

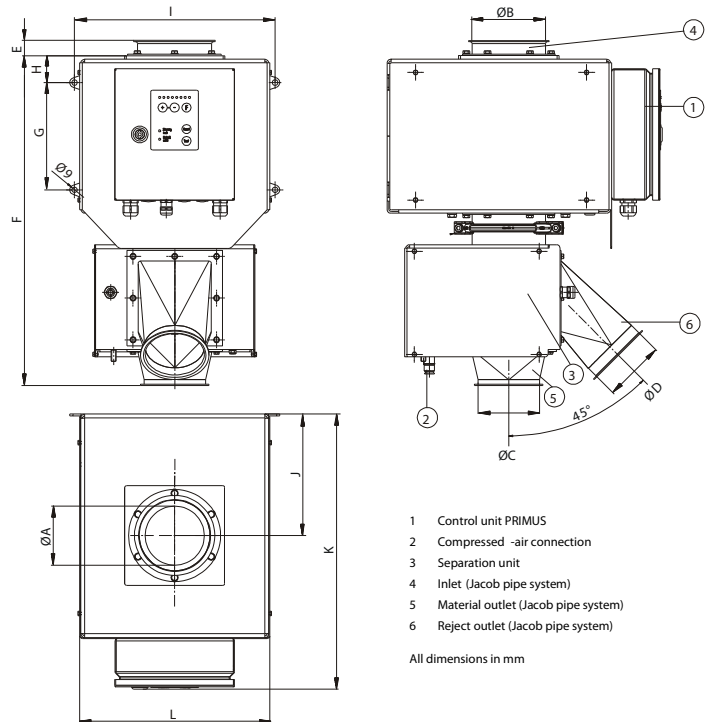
- Machinery protection for extruders, blow moulding machines, fine grinding mills, after dosing (rotary valve, vibratory feed chutes)
- Quality control e.g. for final inspection of outgoing goods, granulate, reclaim, bagging stations, dryers and packing stations

GFRVario30-70



- 1 Control unit PRIMUS
 - 2 Compressed -air connection
 - 3 Separation unit
 - 4 Inlet flange plate
 - 5 Material outlet (Jacob pipe system)
 - 6 Reject outlet (Jacob pipe system)
- All dimensions in mm

GFRVario100-150



- 1 Control unit PRIMUS
 - 2 Compressed -air connection
 - 3 Separation unit
 - 4 Inlet (Jacob pipe system)
 - 5 Material outlet (Jacob pipe system)
 - 6 Reject outlet (Jacob pipe system)
- All dimensions in mm

Dimensions GFRVario30-70

Article number	Maximum sensitivity ¹⁾ Ø Ferrous ball	Maximum throughput ²⁾	Inlet flange plate effective ID of inlet pipe Ø A	Inlet, nominal width Ø B	Material outlet, nominal width Ø C	Reject outlet, nominal width D	Weight (kg)
GFRVario30	0.40	400l/h	27.2	/	78	78	26
GFRVario50	0.50	2000 l/h	44.0	/	78	78	26
GFRVario70	0.70	5000l/h	67.8	/	78	78	26

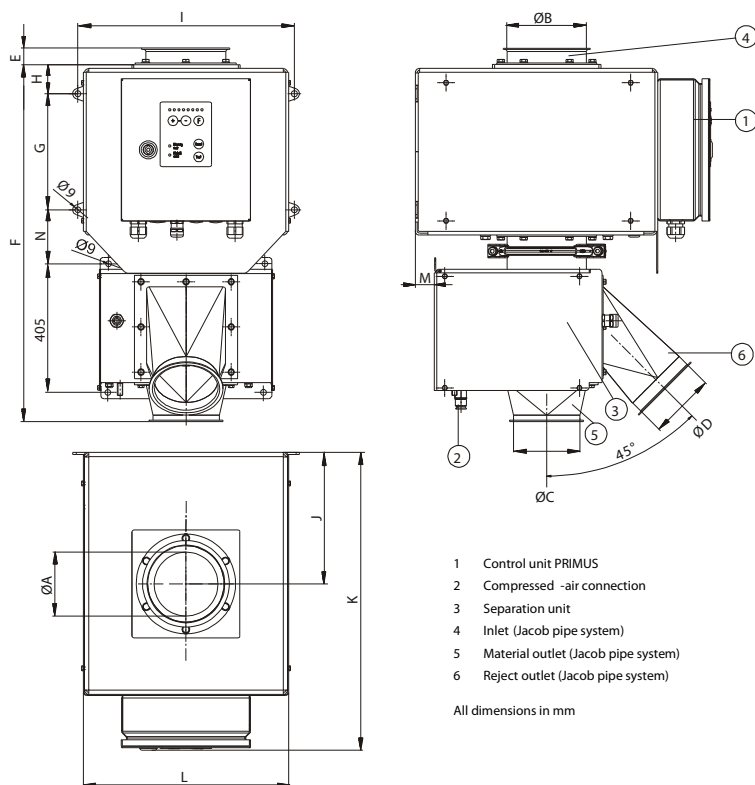
Dimensions GFRVario100-150

Article number	Maximum sensitivity ¹⁾ Ø Ferrous ball	Maximum throughput ²⁾	Inlet flange plate effective ID of inlet pipe Ø A	Inlet, nominal width Ø B	Material outlet, nominal width Ø C	Reject outlet, nominal width Ø D	Weight (kg)
GFRVario100	0.90	12000l/h	99	99	99	99	31
GFRVario120	1.00	16000 l/h	119	119	119	99	31
GFRVario150	1.50	25000l/h	149	149	149	149	40

Article number	E	F	G	H	I	J	K	L
GFRVario100	28	553	180	45	336	204	462	318.5
GFRVario120	28	553	180	45	336	204	462	318.5
GFRVario150	36	649	215	45	400	190	462	318.5

All dimensions in mm unless stated.

GFR Vario200-250



Dimensions GFR Vario 200-250

Article number	Maximum sensitivity ¹⁾ Ø Ferrous ball	Maximum throughput ²⁾	Inlet flange plate effective ID of inlet pipe Ø A	Inlet, nominal width Ø B	Material outlet, nominal width Ø C	Reject outlet, nominal width Ø D	Weight (kg)
GFRVario200	1.70	44000 l/h	188	199	199	199	57
GFRVario250	2.35	69000 l/h	234	249	249	199	63

Article number	E	F	G	H	I	J	K	L	M	N
GFRVario200	35	931	240	55	485	248	587	458.5	47	135
GFRVario250	48	1044	320	55	565	258	667	538.5	57	148

All dimensions in mm unless stated.

¹⁾ 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.

²⁾ 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

Use: For inspection free inspecting free falling bulk materials in the plastics industry and similar applications in other industries as well as applications with low hygienic requirements.

Bulk material classification:

- **Grain shape:** Powder, Granulations, flakes
- **Max. grain size:** Ball shape Ø < 8mm
- **Pourability:** Good, medium, poor
- **Attributes:** Dry, damp, not abrasive, product effects (material conductivity) can compensated
- **Material flow:** Free fall, falling height max 500mm above top edge (No back draft of material), depressurized
- **Bulk material temperature:** Maximum +80° C
- **Ambient conditions:** -10°C to +50°C, 25% to 85% rH, no condensation
- **Storage and shipping conditions:** -10°C to +50°C, 25% to 85% rH, no condensation

Scope of delivery / design

Scope of delivery	Metal separator comprising two models, a detection model with the attached control unit PRIMUS and a separation module connected by a pull ring.	
Mechanical design:	Electronics housing:	Sheet steel, varnished, aluminium grey (RAL 9007)
	Detection unit:	Nominal width 30-70, cover plate varnished, aluminium grey (RAL 9007) Nominal width 100-250 cover plate stainless steel 1.4301 (AISI 304), surface brushed
	Separation unit complete:	Stainless steel 1.4301 (AISI 304), bead blasted
	Scanning pipe:	PE-EL (electrical conductive to avoid false tripping)
	Parts in contact with product:	Stainless steel 1.4301 (AISI 304) PE-EL, Teflon POM
Electrical design:	Compressed air consumption:	GFRVario30 - 120: approx 0.5 l/switch operation GFRVario150: approx 0.5 l/switch operation GFR Vario200-250: approx 1.3 l/switch operation
	Operating voltage:	100-240 VAC (±10%), 50/60 Hz
	Current consumption:	Approx. 160mA/80 mA
	Mains cable	1.8m with plug
	Ingress protection:	IP 65, (rain shelter required if operated outdoor)
Self-monitoring system:	Detection coil and outputs	
Eject duration (metal impulse):	Adjustable from 0.05 to 29 sec	
Scanning sensitivity:	Selectable with 8 adjustments	
Operation:	See technical data sheet for control unit PRIMUS	

Accessories

- Visual alarm
- Failure indication
- Failure and metal indication
- Audible alarm
- Failure indication
- Failure and metal indication
- Failure and metal indication
- Combination alarm (visual alarm and audible alarm)
- Failure indication
- Failure and metal indication
- Feed hopper
- Adapter inlet nozzle
- Filter control valve
- Counter (Detection counter) in a separate housing
- Push button for manual rejection in a separate housing
- Push button for functional test in a separate housing
- Test samples
- UL/CSA certificate
- Hopper magnets
- Magnets systems Extractor ER-SE
- Increased free fall height up to 1m

Options

- Compressed -air- monitor
- Monitor system for separation unit
- Explosion-proof version ATEX
- US-power cable
- Cable set for remote control unit: 3m, 6m, 10m, 15m

Special versions

- Special varnishes
- Special supply voltages
- Design for bulk material temperatures up to 140°C
- Design suitable for direct contact with food stuff
- Model with improved wear out protection in plastics applications
- Pipe transition pieces, customised flanges
- Magnet systems for pre-removal of ferrous metals
- Inline magnet
- Magnet drum separator

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

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