

RAPID 6000

For testing coarse-grained, flaky, fibrous and humid bulk materials in free-fall conveying lines with high hygienic requirements

Swivel funnel	up to 69,000 l/h	up to 20 mm
Mechanics	Throughput	Grain size

Hygienic design

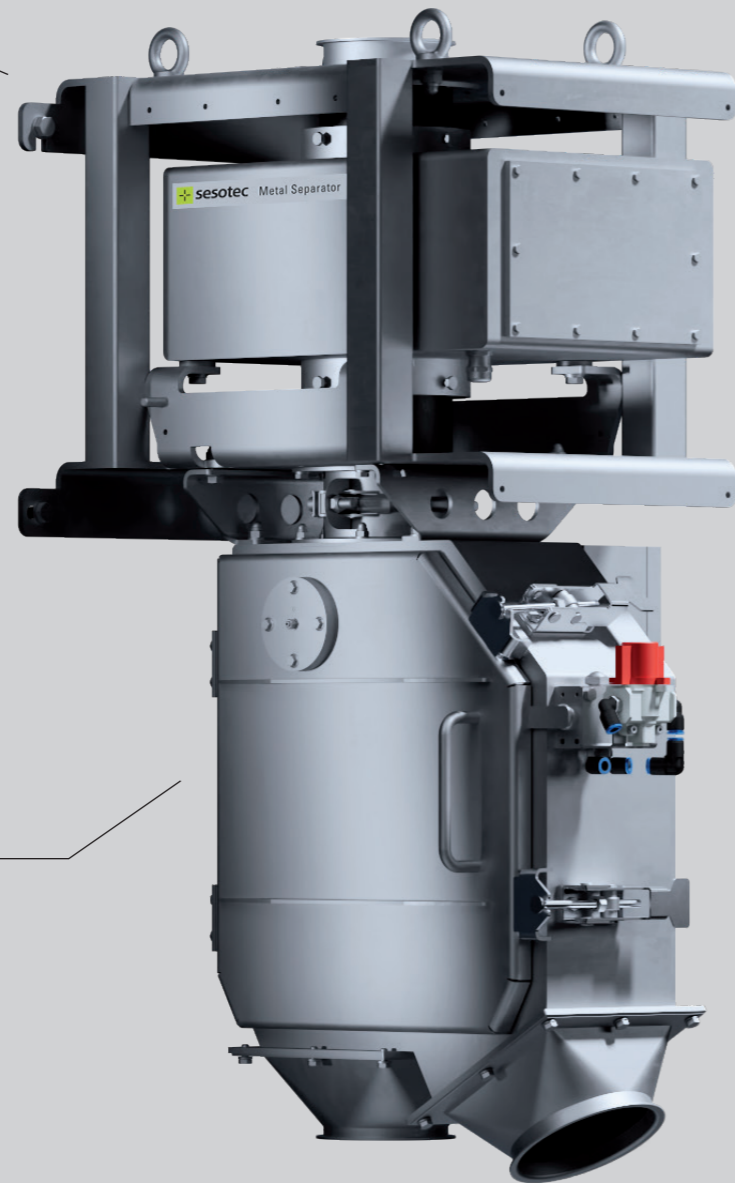
- Hygienic design of the separation unit with cleaning flap on the reject mechanism
- Cleaning opening with tool-free access for quick and easy cleaning in lines where frequent cleaning cycles are necessary – through a removable hopper and freely accessible separating unit

Auto learn function

Auto-learn function or manual product compensation for optimal adaptation to the intrinsic conductivity of the product under investigation and consequently a lower false rejection rate.

Swivel funnel

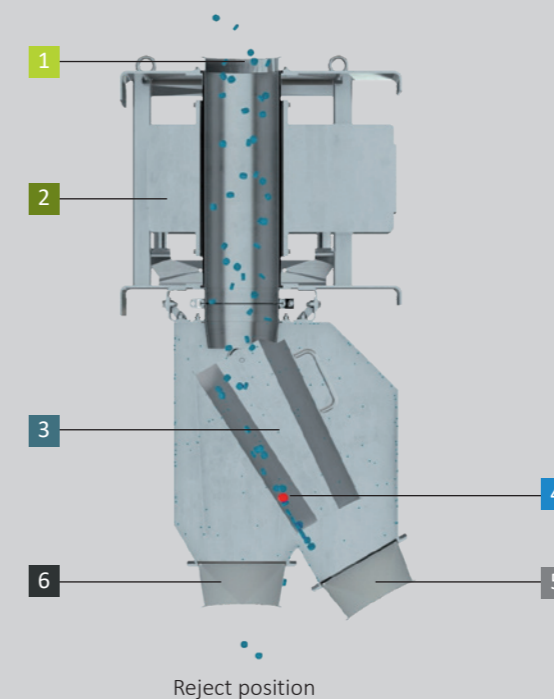
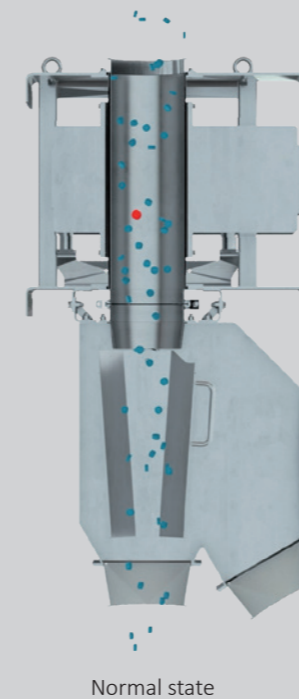
Reliable automatic separation of metal impurities by means of a swivel hopper.



For coarse-grained, flaky, fibrous and moist bulk materials in free fall

Free consultation

<https://www.sesotec.com/emea/en/contact>



- 1 Inlet
- 2 Detection coil
- 3 Swivel funnel
- 4 Metal contamination
- 5 Bad outlet
- 6 Good outlet

Technical data RAPID 6000

Nominal widths	50–250 mm
Detection accuracy	from \varnothing 0.30 mm FE and 0.50 mm V2A
Installation height	954-1,464 mm
IP protection class	IP 65
Throughput	max. 69,000 l/h
Free fall height	500 mm (optionally up to 1 m)
Grain size	\varnothing < 20 mm, but also fibrous and lumpy
Grain shape	Fine-grained bulk materials, granules, fibers, flakes
Reject mechanism	Funnel reject mechanism with cleaning opening
Product temperature	max +80°C
Delivery pressure	Unpressurized (free fall)
Flowability	Medium to good

Options

Automatic function test module	for continuous function testing without additional effort
Interfaces options	Ethernet, WLAN, USB, Profibus, Profi.NET
Available protocols for integration into the company network	OPC-UA, MQTT, Sesotec SSTPROT, Rest API (via COMGateway.Embedded and INTERLINK)

MAGBOX FOOD – Tubular magnet for free-fall applications

Our tubular magnets have been specially developed for free-fall applications and can be quickly and easily integrated into all production lines for powdery and granular bulk materials. Thanks to their extremely high magnetic performance, they reliably separate the finest magnetic metal contaminants from the bulk material falling through them.

Advantages of MAGBOX FOOD

By combining metal separators and magnetic separators, you benefit from:

- Significantly less loss of good material
- a lower stress on the excretory mechanics
- thorough separation of fine and ultra-fine ferrous metal contaminants and even slightly magnetized stainless steel particles thanks to the high magnetic performance of up to 1,370 mT (13,700 Gauß)
- applicable in ATEX up to zone 20











Magnet with Easy Clean

- The magnetic cores can be pulled out of the stainless steel sleeves by hand
- The impurities then fall off without any problems
- This Easy Clean function results in user-friendly, clean separation

Typical fields of application

The application matrix below shows the possible uses of the individual systems – metal detector, metal separators and pipe magnet – for various free-fall applications.

	Metal detector	Metal separators				Magnets
	Detection Unit RG	RAPID 4000	RAPID 5000	RAPID 6000	RAPID 8000	MAGBOX FOOD
 Powder poor flowability, may deposit in the separating unit, e.g. flour, powdered sugar, fine spices	✓	✗	✓	✗	✓	✓ ¹
 Sticky powder poorly free-flowing, e.g. cocoa powder	✓	✗	✓	✗	✗	✗
 Crystalline bulk solids good free-flowing, e.g. salt, sugar	✓	✗ ²	✗ ²	✓ ³	✓ ³	✓ ⁴
 Ground bulk materials free-flowing, e.g. coarsely ground herbs, oat flakes, semolina	✓	✓	✓	✗	✓	✓
 Grains free-flowing well, e.g. rice, corn, coffee beans	✓	✓	✓	✓	✓	✓
 Flakes poorly free-flowing, tends to form „bridges“, e.g. chips, popcorn, cornflakes	✓	✗	✗	✓	✓	✓ ⁵
 Fibers and leaves medium to poor flowability, e.g. tea	✓	✗	✗	✓	✓	✗
 Larger pieces medium free-flowing due to the size of the piece, e.g. nuts, pasta, dried fruits	✓	✗	✗	✓	✓	✗ ⁶

¹ design changes may be necessary (not possible in the standard version)

² Wear of the damper seal is to be expected

³ with wear-protected sensing tube

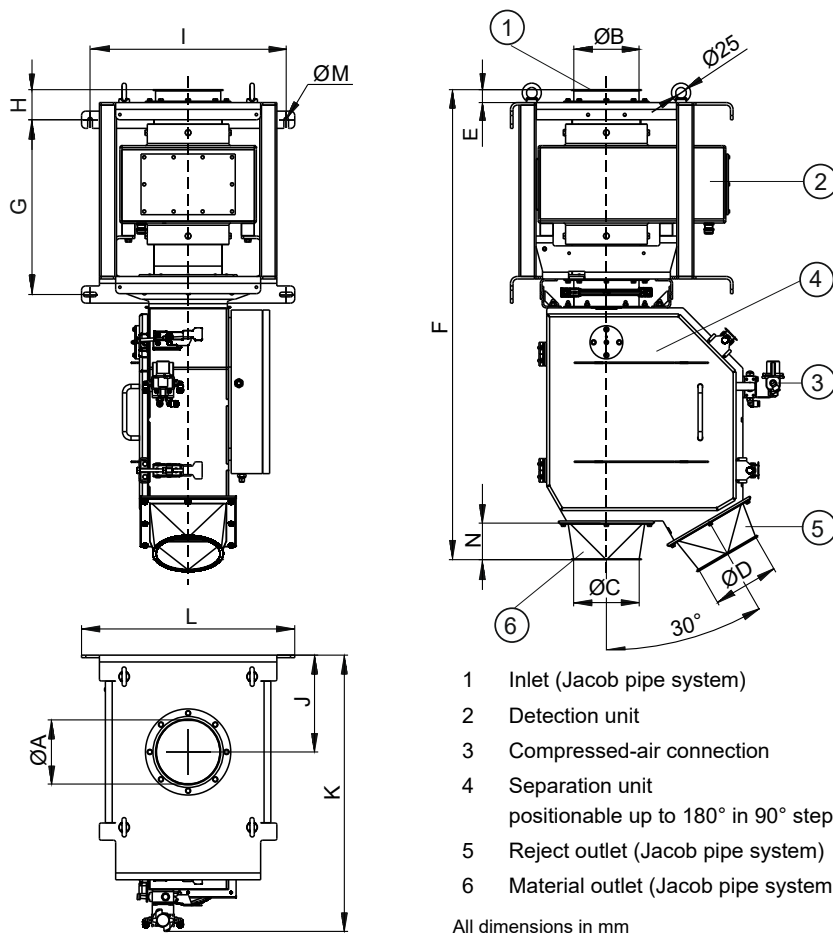
⁴ with wear protection coating

⁵ depending on the concrete size of the pieces (not possible in the standard version)

⁶ depending on the size of the pieces, design changes may be necessary (not possible in the standard version)

RAPID 6000 metal separator

■ Dimensions



- 1 Inlet (Jacob pipe system)
- 2 Detection unit
- 3 Compressed-air connection
- 4 Separation unit positionable up to 180° in 90° steps
- 5 Reject outlet (Jacob pipe system)
- 6 Material outlet (Jacob pipe system)

All dimensions in mm

■ Technical data

Type ³⁾			Maximum sensitivity ¹⁾			Typical throughput ²⁾	Effective ID of inlet pipe Ø A	Inlet, nominal width Ø B	Material outlet, nominal width Ø C	Reject outlet, nominal width Ø D
RAPID	NW	CU	Ø Fe	Ø V2A	Ø NonFe					
6000	50	-GO	0.3	0.5	0.3	2000 l/h	40	80	80	120
6000	80	-GO	0.4	0.8	0.5	8000 l/h	78	80	80	120
6000	100	-GO	0.5	0.9	0.6	12000 l/h	99	100	100	120
6000	120	-GO	0.6	0.9	0.6	16000 l/h	119	120	120	120
6000	150	-GO	0.7	1.1	0.7	25000 l/h	149	150	150	150
6000	200	-GO	0.8	1.2	0.8	44000 l/h	188	200	200	200
6000	250	-GO	1.0	1.3	1.0	69000 l/h	234	250	250	250

Type ³⁾			E	F	G	H	I	J	K	L	Ø M	N	Weight ⁴⁾ [kg]
RAPID	NW	CU											
6000	50	-GO	50	954	318	90	400	208.5	566	440	11	100	90
6000	80	-GO	30	934	318	70	400	208.5	566	440	11	100	90
6000	100	-GO	30	904	318	70	400	208.5	566	440	11	70	90
6000	120	-GO	30	904	318	70	400	208.5	566	440	11	70	90
6000	150	-GO	30	1092	406	70	460	225	642	500	11	85	112
6000	200	-GO	35	1404	454	75	520	255	870	560	11	155	197
6000	250	-GO	48	1464	544	88	590	290	905	630	11	150	225

All dimensions in mm

¹⁾ The stated detection sensitivity (ball Ø in mm) applies for nonconductive 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.

³⁾ Example for Type-Naming: RAPID 6000-50-GO.

⁴⁾ Guide value, the actual weight may be different depending on options and configuration.

RAPID 6000 metal separator

■ Conditions of use

Use: For inspection of free falling bulk materials in the food industry, i.e. spices, herbs, noodles, chips, etc. or in the chemical and pharmaceutical industry for similar applications with high hygienic requirements.

Bulk material classification:

- **Grain shape:** Fine-grained bulks, granules, fibres, flakes
- **Max. grain size:** 0 – 20 mm, but also lumpy and fibered
- **Pourability:** Good, medium, poor
- **Attributes:** Dry, damp, not abrasive, product effects (material conductivity) can be compensated
- **Material flow:** Free fall, falling height max 500 mm above top edge¹⁾
(no back draft of material)
- **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
- **Max. conveying pipe pressure:** Pressureless conveying

¹⁾ The permissible drop height refers to standard overall height in vertical pipe systems. For aslope installing please contact the Sesotec sales technician.

■ Scope of delivery / Design / Connections

Scope of delivery: Metal separator composed of detection and separation unit connected together by a pull ring and separated Control Unit GENIUS ONE, Inlet and material/reject outlets with Jacob pipe connectors. Scope of supply includes a certificate of food conformity acc. to (EG) Nr. 1935/2004 and to FDA.

Mechanical design:

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 (outside antistatic coated)
Parts in contact with product:	Stainless steel 1.4301 (AISI 304), PP, silicone, FKM
Compressed air connection:	Nominal width 50 – 150: 5-8 bar; 6/8 mm hose connection Nominal width 200 – 250: 5-8 bar; 8/10 mm hose connection
Compressed air consumption:	Approx. 0.5 – 3.0 standard litres / switching operation (depending on size)

Electrical design:

Control unit:	GENIUS ONE remote, cable length 3 m
Nominal voltage:	100-240V AC,N,PE
Maximal current:	0.8 A-0.4 A
Mains cable:	1.8 m with safety plug
Ingress protection:	IP 65, (rain shelter required if operated outdoor)
Eject duration (metal impulse):	Adjustable from 0.05 to 60 s
Self-monitoring system:	Detection coil and outputs
Interfaces:	Ethernet (TCP/IP 100 Mbit/s), USB (on board – without hardware connectors)
Operation:	See technical data sheet for Control Unit GENIUS ONE

RAPID 6000 metal separator

Options

- Dual frequency - two different operation frequencies (only in combination with operation frequency 7/8, 6/8, 5/8, 5/7)
- Design for bulk material temperatures up to 140 °C (only in combination with scanning pipe made of PVDF)
- Scanning pipe made of PVDF (for bulk material temperatures up to 140 °C or for improved wear protection)
- UL/CSA certificate (only in combination with US-power cable)
- Power cable
 - US-power cable
 - UK-power cable
 - Indian power cable
 - China power cable
- Signal devices
 - Combination alarm (visual / audible); failure and metal indication
 - Combination alarm (visual / audible); failure and metal indication + blue visual, audit-check display
 - Combination alarm (4 visual / audible); failure-, metal-, audit-check and ready for operation display
- Push button for manual rejection in a separate housing
- Control Unit – installation type:
 - mounted at detection unit
 - remote, cable length 6 m
 - remote, cable length 10 m
- Connect-Bundle (hardware connectors implemented in the Control Unit housing for USB-Port and Ethernet Interface)
- Additional Interface (only one selection possible; the serial interface is thus occupied)
 - COMGateway.Embedded
 - Profibus
 - PROFINET
- Compressed-air monitor (not in combination with compressed air tank, as already included)
- Monitor system for separation unit
- Filter control valve
- Compressed air tank (incl. compressed-air monitor)
 - For the compensation of non-constant compressed air supply
 - To secure a single separation in the event of a failure of the compressed air supply
- Testing device
 - Inline test device free-fall XS – set consists of an insertion nozzle, a collecting grid and cover (increased installation height)
 - Center insertion nozzle
 - Hygienic cover (no deposits)
 - Additional collecting grid for the reject pipe
 - Hygienic cover (no deposits) for reject pipe (only in combination with additional collecting grid for the reject pipe)
 - Automatic function testing device – no test in the product flow (only in combination with nominal width 80 up to 250) (optional with 1 or 3 test balls)
- Design for product freefalling height up to 1m (increased installation height)

Accessories

- Test samples (see separate price list)
- Insight.NET (visualization, data saving and remote maintenance)