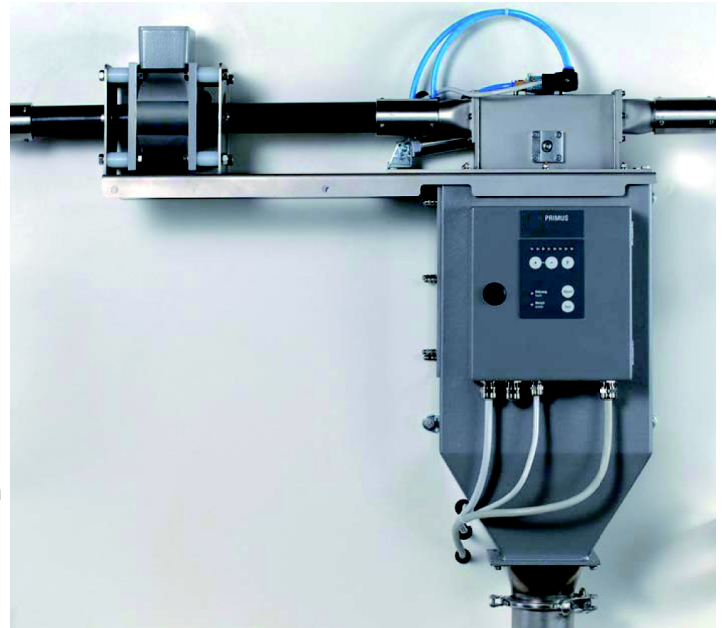


- Detects and separates magnetic and non magnetic metal contamination, even when enclosed in product
- Reduces costly tool and machinery damage and prevents machinery downtimes
- Ensures product quality
- Prevents customer complaints
- Breaks even within a short period of time
- Highest sensitivity for all metals with high noise immunity against vibrations and electric interface
- Separates metallic contaminants without disrupting production flow or reducing conveying speed
- Shuttle valve prevents leak of air in pipeline
- Assembling frame guarantees quick and easy installation; mounting position (vertical, horizontal)
- Stainless steel separation mechanics, junctions and separation flaps (1.4301)
- All units are pre-assembled for easy installation; Space-saving and compact design
- Minimal loss of good material through "Quick Flap" separation unit
- Easy operation of the control unit through pre-set parameters
- Product compensation with auto-teach function or manual setting. Product compensation can thus be individually matched to the product (in conventional systems this setting cannot be changed or can only be changed with great difficulties).



Function

Small metal particles in the plastic melting process often result in costly breakdowns of injection moulders, extruders and blow moulders. The quantity of such metal contaminants increases throughout the processing of regranulates and grinding stock. As a result, clogged nozzles, filters and hot channel systems can lead to production downtime and delayed delivery.

The metal separator PC PRIMUS is used in vacuum and pressure pipelines to protect injection moulders and converting machines.

It detects all magnetic and non-magnetic metal contaminants (steel, stainless steel, aluminium, etc.) – even when they are enclosed in the product. Metal contaminants are ejected via the "Quick-Flap" separation unit.

Scope of Delivery

- Metal separator PC PRIMUS with detection- and separation unit
- Collecting tray for reject material
- Control Unit PRIMUS

Accessories/Options

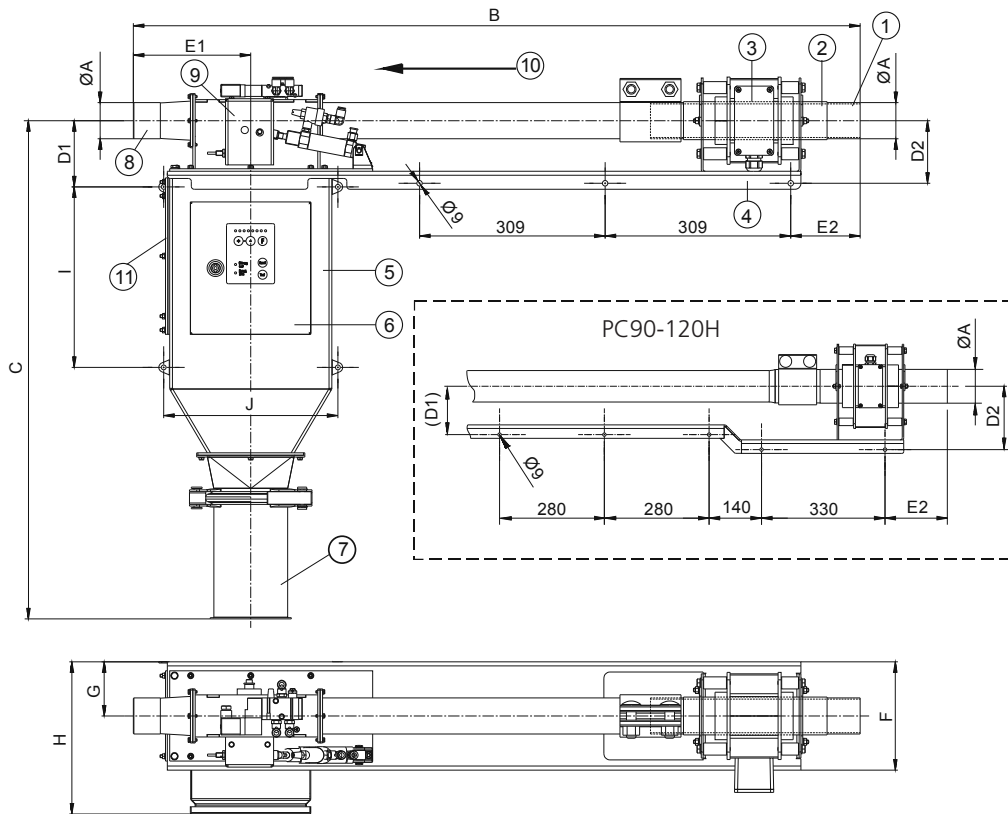
- Optical and audible signal
- Digital incident counter
- Air pressure monitoring
- Design for bulk material temperature of up to 140° C
- Adapter plate system
- UL/CSA Certificate

Application

- Tool and machinery protection for extruders, injection moulders and blow moulders

Typical Application Areas

- Plastics industry

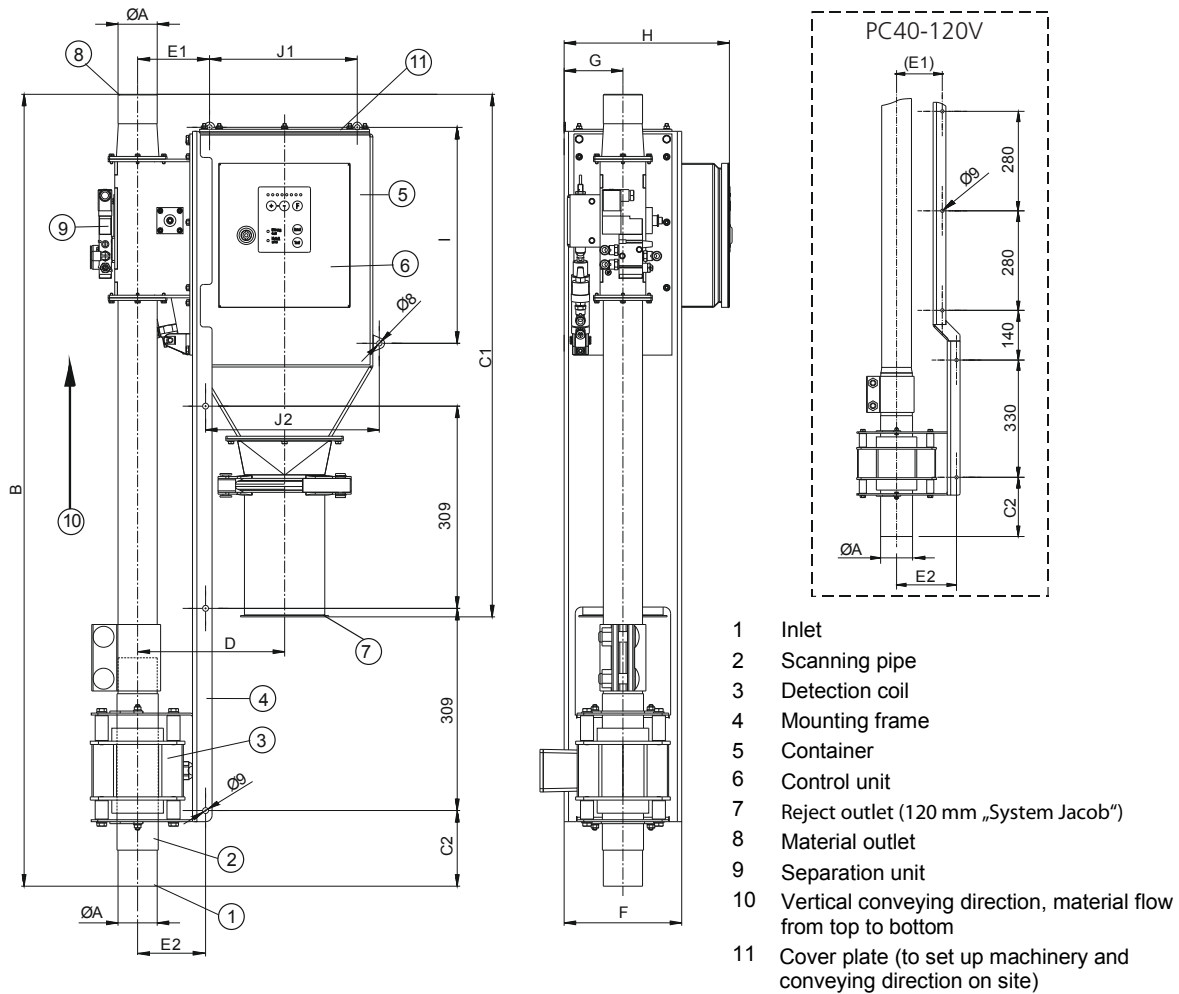


- | | |
|------------------|--|
| 1 Inlet | 7 Reject outlet (120 mm „System Jacob“) |
| 2 Scanning pipe | 8 Material outlet |
| 3 Detection coil | 9 Separation unit |
| 4 Mounting frame | 10 Conveying direction horizontal |
| 5 Container | 11 Cover plate (to set up machinery and conveying direction on site) |
| 6 Control unit | |

Type	PC40/H	PC50/H	PC60/H	PC70/H	PC90/H	PC100/H	PC120/H
Inlet and outlet pipe diameter Ø A	40 x 3.7	50 x 4.6	60 x 2.1	70 x 1.8	90 x 5	100 x 2	120 x 2
Effective ID of inlet pipe	32.6	40.8	55.8	66.4	80.0	96	100
B	1156	1196	1210	1266	1880	2200	2084
C	818	823	828	831	1153	1185.5	1185.5
D1/ D2	100 / 100	105 / 105	110 / 110	113 / 113	129 / 169	161.5 / 201.5	161.5 / 201.5
E1/ E2	187.5 / 69.5	195.5 / 101.5	195.5 / 115.5	227.5 / 139.5	282.5 / 166.5	384 / 285	384 / 219
F	180	180	180	180	256	256	256
G	90	90	90	90	128	128	128
H	253	253	253	253	329	329	329
I/J	300 / 290	300 / 290	300 / 290	300 / 290	530 / 530	530 / 530	530 / 530
Maximum scanning sensitivity¹⁾ Ø Fe-ball:							
at V = 10 m/sec	0.50	0.50	0.62	0.70	0.88	1.12	1.19
at V = 20 m/sec	0.61	0.61	0.77	0.86	1.09	1.38	1.46
Weight (kg)	26.5	26.5	26.5	27.5	34.0	36.5	43.0

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.

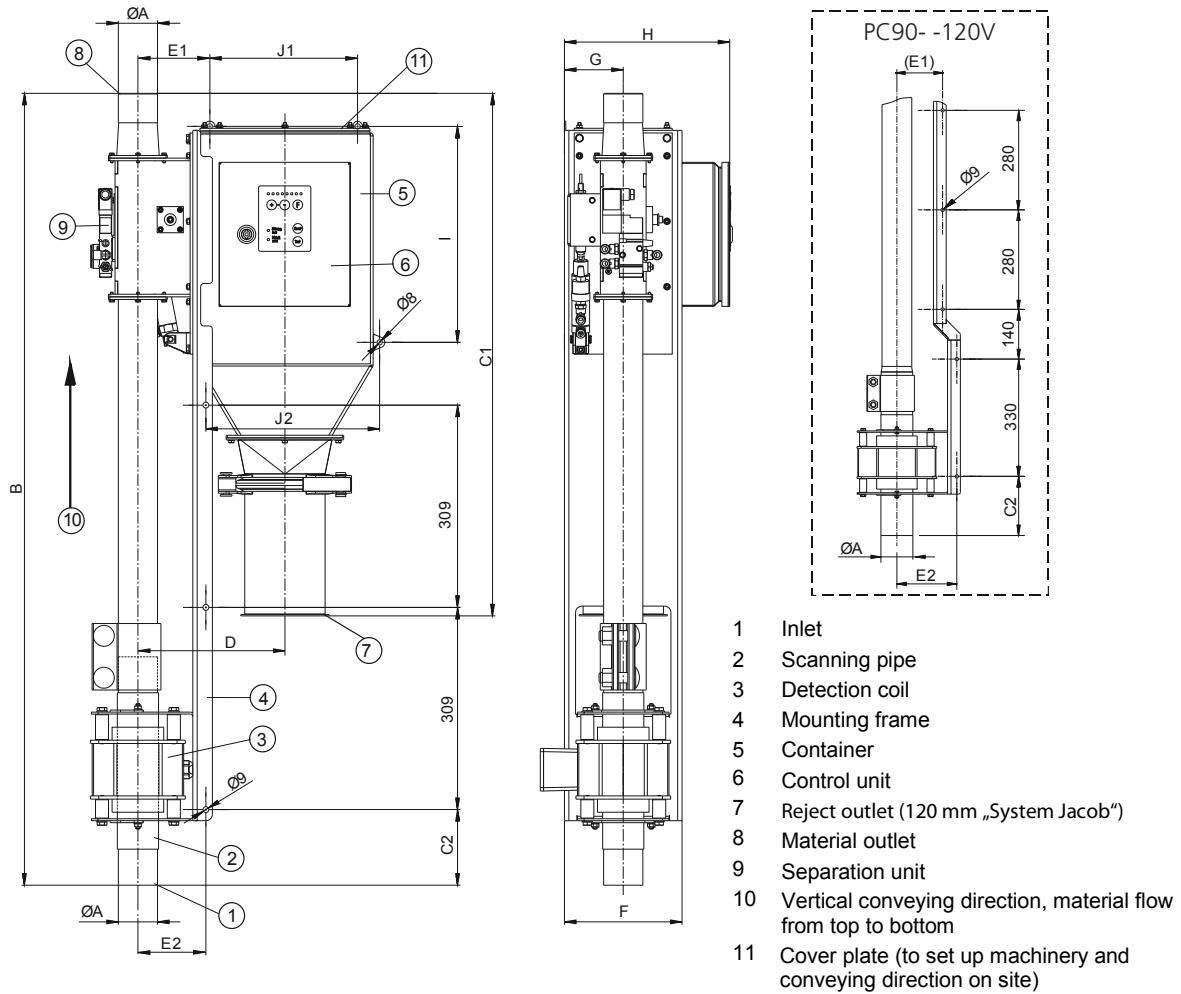
All dimensions in mm unless stated



Type	PC40/V	PC50/V	PC60/V	PC70/V	PC90/V	PC100/V	PC120/V
Inlet and outlet pipe diameter \varnothing A	40 x 3.7	50 x 4.6	60 x 2.1	70 x 1.8	90 x 5	100 x 2	120 x 2
Effective ID of inlet pipe	32.6	40.8	55.8	66.4	80.0	96	100
B	1156	1196	1210	1266	1880	2200	2084
C1 / C2	415.5 / 69.5	407.5 / 101.5	407.5 / 115.5	375.5 / 139.5	505.5 / 166.5	405 / 285	405 / 219
D1/ D2	215 / 418	220 / 418	225 / 418	228 / 418	364 / 494	396.5 / 494	396.5 / 494
E1/ E2	100 / 100	105 / 105	110 / 110	113 / 113	129 / 169	161.5 / 201.5	161.5 / 201.5
F	180	180	180	180	256	256	256
G	90	90	90	90	128	128	128
H	253	253	253	253	329	329	329
I	330	330	330	330	560	560	560
J1/ J2	300 / 290	230 / 290	230 / 290	230 / 290	470 / 530	470 / 530	470 / 530
Maximum scanning sensitivity¹⁾ \varnothing Fe-ball:							
at V = 10 m/sec	0.50	0.50	0.62	0.70	0.88	1.12	1.19
at V = 20 m/sec	0.61	0.61	0.77	0.86	1.09	1.38	1.46
Weight (kg)	26.5	26.5	26.5	27.5	34.0	36.5	43.0

¹⁾ 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.

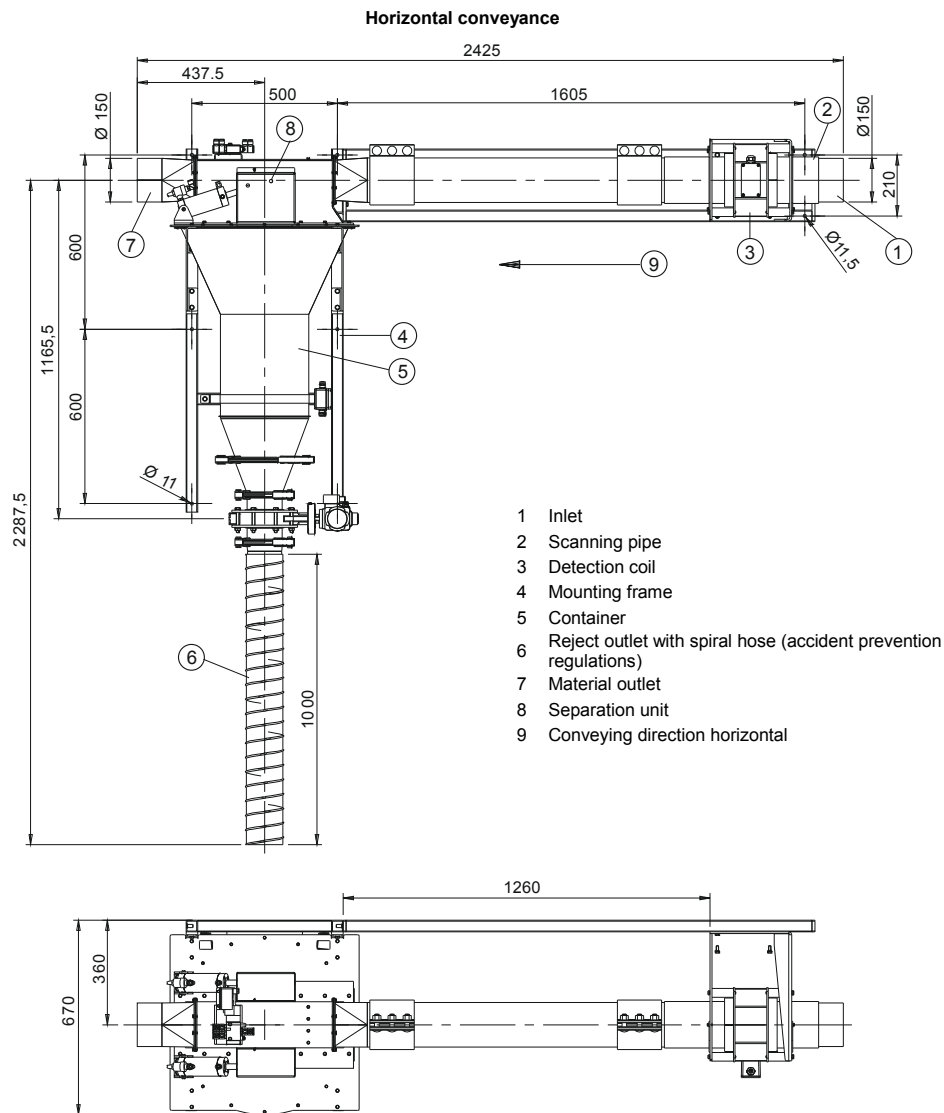
All dimensions in mm unless stated



Type	PC40/V	PC50/V	PC60/V	PC70/V	PC90/V	PC100/V	PC120/V
Inlet and outlet pipe diameter $\varnothing A$	40 x 3.7	50 x 4.6	60 x 2.1	70 x 1.8	90 x 5	100 x 2	120 x 2
Effective ID of inlet pipe	32.6	40.8	55.8	66.4	80.0	96	100
B	1156	1196	1210	1266	1880	2200	2084
C1/ C2	790.5 / 69.5	798.5 / 101.5	798.5 / 115.5	830.5 / 139.5	1070.5 / 166.5	1173 / 285	1173 / 219
D	215	220	225	228	364	396.5	396.5
E1/ E2	100 / 100	105 / 105	110 / 110	113 / 113	129 / 169	161.5 / 201.5	161.5 / 201.5
F	180	180	180	180	256	256	256
G	90	90	90	90	128	128	128
H	253	253	253	253	329	329	329
I	330	330	330	330	560	560	560
J1 / J2	230 / 260	230 / 260	230 / 260	230 / 260	470 / 500	470 / 500	470 / 500
Maximum scanning sensitivity¹⁾ \varnothing Fe-ball:							
at V = 10 m/sec	0.50	0.50	0.62	0.70	0.88	1.12	1.19
at V = 20 m/sec	0.61	0.61	0.77	0.86	1.09	1.38	1.46
Weight (kg)	26.5	26.5	26.5	27.5	34.0	36.5	43.0

All dimensions in mm unless stated

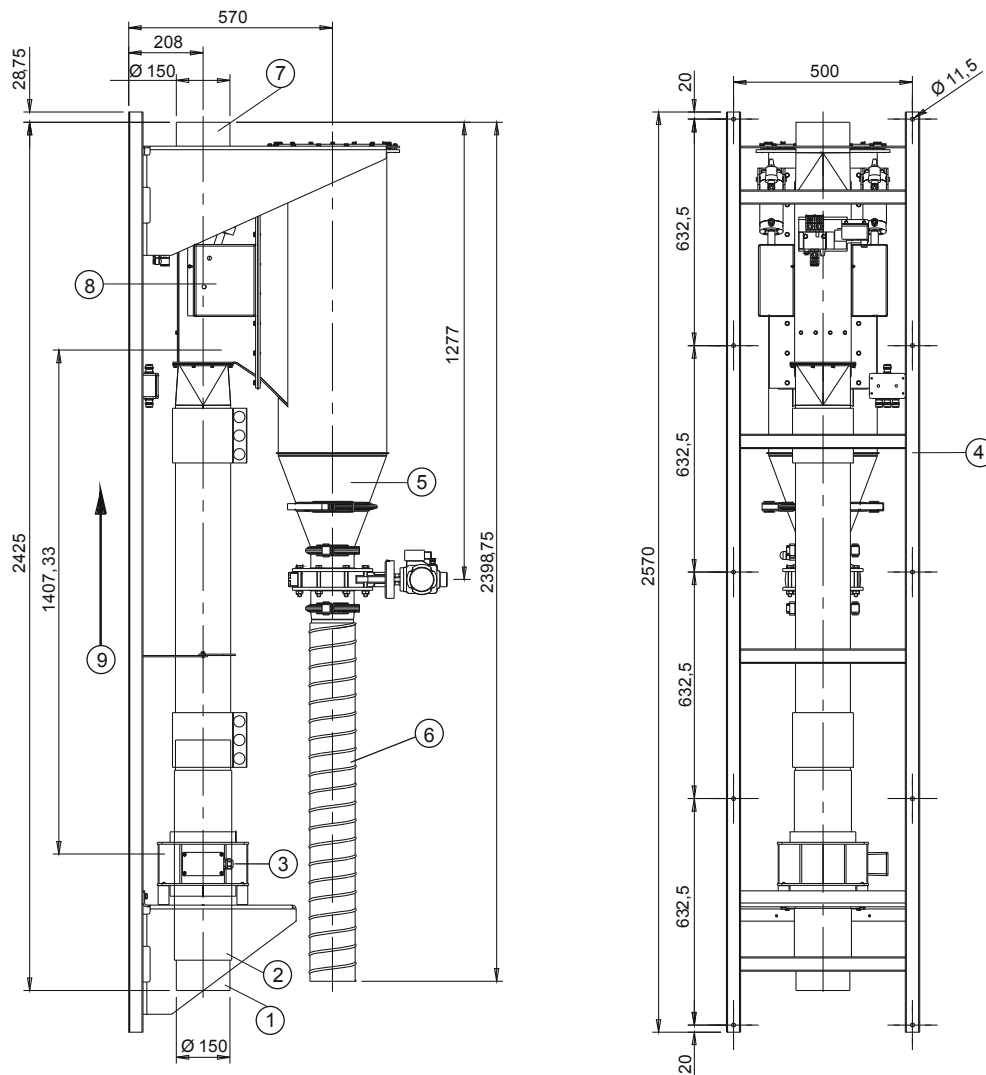
¹⁾ The stated detection sensitivity (ferrous ball \varnothing in mm) applies for non-conductive products at the standard operation frequency and refers to the centre of the detection aperture (most disadvantageous position). Products that show intrinsic conductivity due to moisture content, electrolytes 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.



Type	PC150/H
Inlet and outlet pipe diameter $\varnothing A$	150 x 2
Effective ID of inlet pipe	141.8
Maximum scanning sensitivity¹⁾ \varnothing Fe-ball:	
at V = 10 m/sec	1.81
at V = 20 m/sec	2.23
Weight (kg)	120

All dimensions in mm unless stated

¹⁾ 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.



Type	PC150
Inlet and outlet pipe diameter $\varnothing A$	150 x 2
Effective ID of inlet pipe	141.8
Maximum scanning sensitivity¹⁾ \varnothing Fe-ball:	
at V = 10 m/sec	1.81
at V = 20 m/sec	2.23
Weight (kg)	120

1. Inlet
2. Scanning pipe
3. Detection coil
4. Mounting frame
5. Container
6. Reject outlet with spiral hose (accident prevention regulations)
7. Material outlet
8. Separation unit
9. Vertical conveying direction, material flow from top to bottom

All dimensions in mm unless stated

¹⁾ 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.

Conditions of use

Use:	In the plastics industry, for the inspection of granulate, regenerated material, or ground material in a discontinuous vacuum conveyor pipe, and also in other industry sectors with similar applications and with low hygienic demands.
Bulk material classification:	
Grain shape:	Granulates, regrind, grist, flakes
Max. grain size:	Ball shape $\varnothing < 8\text{mm}$
Pourability:	Good, medium
Attributes:	Dry, damp, not abrasive, product effects (conductivity) can potentially be compensated
Material flow:	Pneumatic air conveying, discontinuous vacuum conveying max. speed of conveyed material 20 m/sec Optional equipment version for continuous vacuum conveying, and continuous or discontinuous pressure conveying.
Max. permissible under pressure in the vacuum conveyor pipe:	-0.5 bar
Max. permissible overpressure in the pressure conveyor pipe:	0.5 bar
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 / Connections

Scope of delivery:	Metal separator with detection and separation unit, collecting container for reject material, spiral hose and separated PRIMUS control unit. All the components are pre-assembled for easy installation. Inlet and material outlet connection by way of pipe couplings, reject outlet connection with Jacob pipe connection.	
Mechanical design:	Mounting frame, junctions:	Stainless steel 1.4301 (AISI 304), glass bead blasted
	Control enclosure and collection container:	Sheet steel, varnished, aluminium grey (RAL 9007)
	Scanning pipe:	PE-EL
	Parts in touch with material:	Stainless steel 1.4301 (AISI 304), PE-EL, Teflon, EPDM
	Compressed air connection:	5-8 bar, 6/8 mm tube connection
	Compressed air consumption:	0.8 litre / switch operation
Electrical design	Control unit:	Attached
	Operating voltage:	100-240 VAC ($\pm 10\%$) 50/60 Hz
	Current consumption:	App. 160 mA / 115 V, app. 80 mA / 230 V
	Mains cable:	1.8 m with plug
	Type of protection:	IP 65
	Eject duration (metal impulse):	Adjustable from 0.05 to 29 sec
	Self monitoring:	Detection coil and outputs
	Scanning sensitivity:	Selectable with 8 adjustments
	Operation:	See technical data sheet for control unit PRIMUS

Accessories

- | | | |
|---|---|--|
| <input type="checkbox"/> Visual alarm | <input type="checkbox"/> Combination alarm (visual alarm and audible alarm) | <input type="checkbox"/> Push button for functional test in a separate housing |
| <input type="checkbox"/> Failure indication | <input type="checkbox"/> Failure indication | <input type="checkbox"/> Level indicator for reject box for waste material |
| <input type="checkbox"/> Failure and metal indication | <input type="checkbox"/> Failure and metal indication | <input type="checkbox"/> PU spiral tube DN 120 for reject outlet, length 1m with adaptor and clamping ring |
| <input type="checkbox"/> Audible alarm | <input type="checkbox"/> Filter control valve | <input type="checkbox"/> UL/CSA certificate |
| <input type="checkbox"/> Failure indication | <input type="checkbox"/> Counter (Detection counter) in a separate housing | <input type="checkbox"/> Test samples |
| <input type="checkbox"/> Failure and metal indication | <input type="checkbox"/> Push button for manual rejection in a separate housing | |

Options

- | | | |
|---|--|--|
| <input type="checkbox"/> Compressed-air monitor | <input type="checkbox"/> SENSITY control unit for higher sensitivity | <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 (in exchange) |

Special versions / Supplementary systems

- | | | |
|--|---|--|
| <input type="checkbox"/> Special varnishes | <input type="checkbox"/> Design for bulk material temperatures of up to 140° C when used for plastics | <input type="checkbox"/> Cycle sluice with two squeeze valves or pivot flap valves DN 120 for continuous vacuum conveying and for continuous or discontinuous pressure conveying |
| <input type="checkbox"/> Special supply voltages | <input type="checkbox"/> Model with improved wear protection in use range plastics | |
| <input type="checkbox"/> Adaptor pieces for material conveyor pipe on customer request | <input type="checkbox"/> Magnet systems for pre-removal of ferrous metals | |



- Detection and separation of magnetic and non-magnetic metal impurities
- For inspecting bulk materials (granulate, powder etc)
- Easy to integrate in existing pipeline systems
- Designed for high flow rates
- Available in versions up to ATEX Zone 20
- Outstanding ease of operation with product auto-learn function and latest microprocessor technology

The PC4000 metal separation systems are primarily used for quality control in the food, chemical and pharmaceutical industries. All system components have been designed to meet stringent hygiene standards in these industries.

Integrated in pipeline systems the separators remove magnetic and non-magnetic metal particles from pneumatically conveyed bulk materials such as granulate, flour, spices, tea etc...

PC 4000 metal separation systems can be integrated in horizontal, vertical and inclined vacuum and pressure pipes. Retrospective installation in existing pipeline systems (with standard nominal widths up to 150 mm) is straight-forward and simple to achieve by using quick-connectors or air-tight flanges. A clear advantage of the PC 4000 series' modular design is its ability to adapt to different conveying methods.

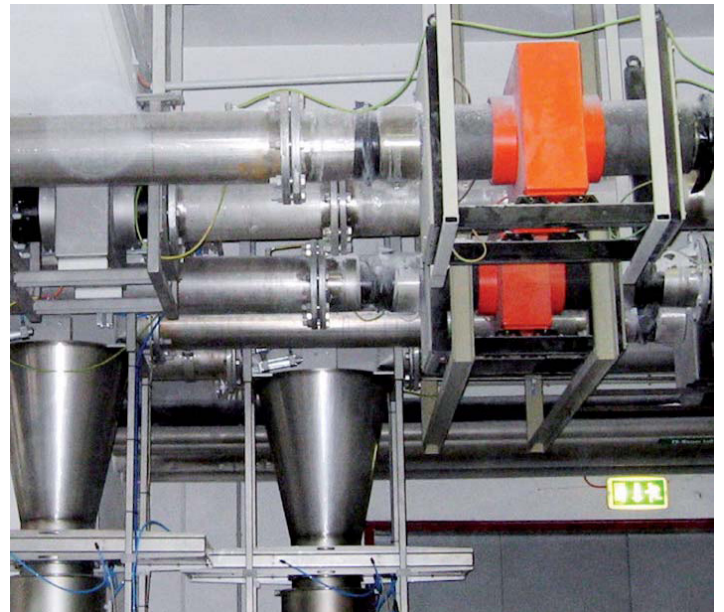
The system offers excellent metal detection, maximum resistance to interference and is highly reliable both mechanically and operationally. The rapid-reacting "Quick Flap System" removes metal contaminants without any interruption to the production process, even at high flow rates.



Contaminated material is rejected into a container without any interruption to the production process. The reject container is emptied automatically.

Typical applications

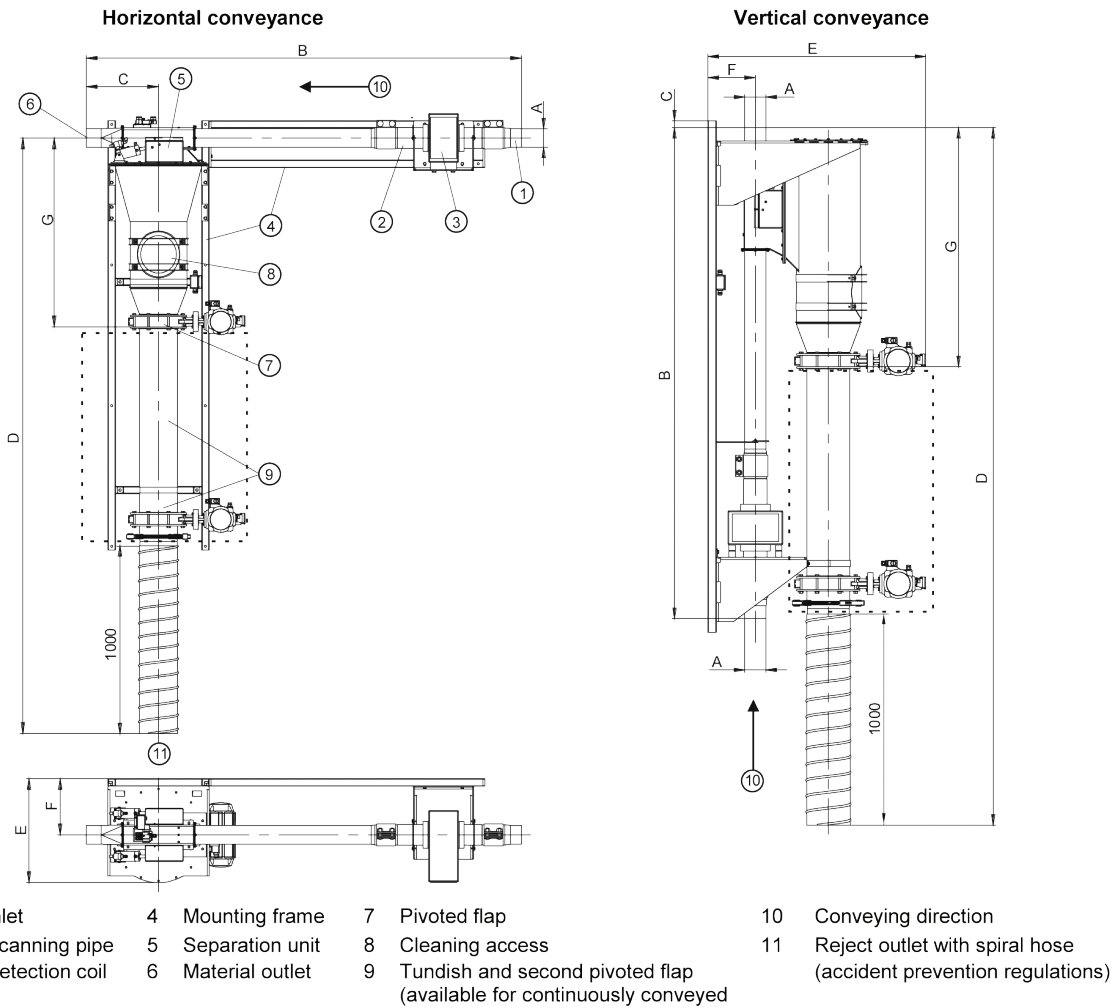
- Inline inspection between silo and filling system (eg in mill plants)
- Incoming goods inspection prior to filling silos



PC 4000 metal separators are supplied with the Interact+ control unit as standard (for electronic evaluation and control).

State-of-the-art microprocessor technology provides reliable digital signal processing with maximum resistance to interference (in accordance with strict EU guidelines).

The Interact+ control unit is especially designed for automated processes and to meet the requirements of quality control systems.



Type	PC4000/50/H	PC4000/50/V	PC4000/80/H	PC4000/80/V	PC4000/100/H	PC4000/100/V	PC4000/120/H	PC4000/120/V	PC4000/150/H	PC4000/150/V
Pipe diameter (inlet/ material outlet) A	50x2	50x2	80x2	80x2	100x2	100x2	120x2	120x2	150x2	150x2
Effective inner diameter	44	44	76	76	96	96	116	116	146	146
Reject outlet pipe diameter	200	200	200	200	200	200	200	200	200	200
B	2052	2052	2256	2256	2322	2322	2342	2342	2620	2620
C	271	141	300	96	386	32.5	386	32.5	438	29
D	3133	3341	3143	3247	3176	3300	3176	3300	3182	3455
E	555	1031	555	1031	555	1031	555	1031	670	1031
F	300	264	300	260	300	225	00	225	360	209
G	964	1031	974	1178	1007	1131	1007	1131	1023	1305
Maximum scanning sensitivity ¹⁾ Ø Fe-ball:										
at V = 10 m/sec	0.28mm		0.50mm		0.63mm		0.75mm		0.81mm	
at V = 20 m/sec	0.38mm		0.68mm		0.86mm		1.02mm		1.09mm	
Weight (kg)	150		160		185		210		245	

All dimensions mm unless stated.

Machines with different throughputs are available on request.

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.

Conditions of use

Use:	For the inspection of bulk materials (as an option also with specially sealed separation unit for the inspection of powder materials) in vacuum and pressure conveying pipes in the food, chemical, and pharmaceutical industry, and also in other industry sectors with similar applications and corresponding hygienic requirements.
Bulk material classification:	
Grain shape:	Fine-grained bulks or granules (as an option also for powder)
Max. grain size:	Ball shape $\varnothing < 8\text{mm}$
Pourability:	Good
Attributes:	Dry, not abrasive, product effects (material conductivity) can be compensated
Material flow:	Vacuum or pressure conveying (plug feeding is not permissible)
Bulk material temperature:	Maximum +60 °C
Ambient conditions:	-10 °C to +45 °C, 25% to 85% rH, no condensation
Storage and shipping conditions:	-10 °C to +50 °C, 25% to 85% rH, no condensation
Permissible overpressure in the conveying pipe:	Max. 1 bar
Permissible underpressure in the conveying pipe for vacuum conveying:	Max. 0.5 bar
Material conveying speed:	Max. 20 m/sec

Scope of delivery / Design / Connections

Scope of delivery:	Compact unit with integrated metal detector, separator unit with reject container, one pivoted flap for stop and go conveying systems, spiral hose and separated control unit Interact+; inlet and material outlet with smooth pipe connection pieces	
Mechanical design:	Frame, detection coil and electronics housing	Stainless steel 1.4301 (AISI 304), bead blasted
	Separation unit:	Stainless steel 1.4301 (AISI 304)
	Scanning pipe:	PE-EL
	Parts in contact with product:	Stainless steel 1.4301 (AISI 304), PE-EL, PTFE, NBR
	Connecting cable (pneumatic / control unit):	Standard length 3 m, pluggable
	Connecting cable (coil / control unit):	Standard length 3 m
	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)
Electrical design	Operating voltage:	100-240 VAC ($\pm 10\%$), 50/60 Hz
	Mains cable:	1.8 m with safety plug
	Current consumption:	Max. 800 mA
	Ingress protection:	IP 65
	Eject duration (metal impulse):	Adjustable from 0.05 to 30 sec
	Self-monitoring system:	Detection coil and outputs

Accessories

- | | | |
|---|---|--|
| <input type="checkbox"/> Visual alarm | <input type="checkbox"/> Combination alarm (visual alarm and audible alarm) | <input type="checkbox"/> Push button for functional test in a separate housing |
| <input type="checkbox"/> Failure indication | <input type="checkbox"/> Failure indication | <input type="checkbox"/> Test samples |
| <input type="checkbox"/> Failure and metal indication | <input type="checkbox"/> Failure and metal indication | <input type="checkbox"/> UL/CSA certificate |
| <input type="checkbox"/> Audible alarm | <input type="checkbox"/> Filter control valve | |
| <input type="checkbox"/> Failure indication | <input type="checkbox"/> Push button for manual rejection in a separate housing | |
| <input type="checkbox"/> Failure and metal indication | | |

Options

- | | | |
|---|--|---|
| <input type="checkbox"/> 5.7" colour touch-screen incl. USB interface | <input type="checkbox"/> Compressed-air monitor | <input type="checkbox"/> Monitor system for separation unit |
| <input type="checkbox"/> Multi-frequency technology Duo | <input type="checkbox"/> Automatic emptying via two pivoted flaps and an additional reject container for continuous vacuum or pressure conveying | <input type="checkbox"/> Cable set for remote control unit |
| <input type="checkbox"/> Serial interface RS232 with plug (IP65, 4-pole) | <input type="checkbox"/> Separation unit for powder materials (dust-proof) | <input type="checkbox"/> Length 6m |
| <input type="checkbox"/> Serial interface RS485 with plug (IP65, 4-pole) | <input type="checkbox"/> Level indicator | <input type="checkbox"/> US-power cable |
| <input type="checkbox"/> Ethernet interface (TCP/IP 100 Mbit/s, IP65, RJ45) | | |
| <input type="checkbox"/> WLAN interface (802.11 b/g) with integrated aerial | | |

Special versions / Supplementary systems

- | | | |
|---|---|---|
| <input type="checkbox"/> Design for bulk material temperatures up to 140° C | <input type="checkbox"/> Model with improved wear out protection | <input type="checkbox"/> Pharma design on request |
| <input type="checkbox"/> Explosion-proof version ATEX | <input type="checkbox"/> Pipe transition pieces, customized flanges | <input type="checkbox"/> Magnet systems for pre-removal of ferrous metals |