

FG 20x conveyors

with control system SOMOS® control-basic

Operating Manual



Technical customer service

T +49 6251 77061- 251

F +49 6251 77061- 570

service@sp-protec.com

ProTec Polymer Processing GmbH
Stubenwald-Allee 9
64625 Bensheim
Germany

T +49 6251 77061-0

F +49 6251 77061-500

info@sp-protec.com
www.sp-protec.com

EC-Declaration of Conformity

According to the Machinery Directive 2006/42/EC

Hereby we declare,

ProTec Polymer Processing GmbH, Stubenwald-Allee 9, D-64625 Bensheim,

that the feedstation with fitted blower of the series: **FG 20x** and **FG 2K 20x**
from year of manufacture 2018,

consisting of one or several material, mixing and filter hoppers

- with integrated units for generation of vacuum
- with or without integrated units for mixing individual or several components
- with components of control system
- installed on own base frame or customer-built platform
- with process control system "SOMOS® control" of the series "-basic", "-professional" or "-excellence"

for the purpose of conveying and supplying plastic pellets (intended use) in the version supplied by us, complies with the following relevant regulations:

- 2006/42/EC Machinery Directive
- 2014/30/EU EMC Directive
- 2014/35/EU Low Voltage Directive
- 2014/68/EU Pressure Equipment Directive (if pressure vessel present)
- 2014/29/EU Directive relating to simple pressure vessels (if simple pressure vessel present)

Applied harmonized standards:

- DIN EN 349+A1 Safety of machinery, minimum gaps to avoid crushing of parts of the human body
- DIN EN ISO 12100 Safety of machinery, terminology, methodology – Amendment 1+2
- DIN EN ISO 13857 Safety distances to prevent hazard zones being reached by upper and lower limbs
- DIN EN 60204-1/A1 Safety of machinery — Electrical equipment of machines - Part1
- DIN EN 61000-6-2 Generic standards - industrial sector: Immunity
- DIN EN 61000-6-4 Generic standards - industrial sector: Emissions

With modification of the machine not agreed upon and approved by us, or with improper use, the present declaration loses its validity immediately

The authorized representative for the documentation is Roland Johe, ProTec Polymer Processing GmbH.

Bensheim

12.09.18

Datum

i.v. 

Head of Engineering

i.v. 

Head of Quality Management

ProTec Polymer Processing GmbH
Stubenwald-Allee 9 • D-64625 Bensheim
Tel +49 6251 77061 0 • Fax +49 6251 77061 500
info@sp-protec.com • www.sp-protec.com

Bank: VR Bank Starnberg
(BLZ 700932 00) Konto-Nr. 1239 660
S.W.I.F.T.-BIC: GENO DE F1 STH
IBAN DE 19700932000001239660

Geschäftsführung:
Peter Theobald, Dirk Egemann
Sitz Bensheim • Registergericht Darmstadt, HRB 91113
USt-IdNr.: DE237895152

Table of Contents

1	Introduction.....	6
1.1	The FG 20x conveyor.....	6
1.1.1	Intended use.....	6
1.1.1	Improper use.....	6
1.2	About this Manual.....	6
1.3	Model plates and serial number.....	7
1.4	Warranty.....	7
2	Safety.....	8
2.1	Safety labelling.....	8
2.1.1	Structure of the warning information.....	8
2.1.2	Safety labelling and meanings.....	9
2.2	Personnel selection and qualification.....	10
2.3	Safety-related instructions for specific operating phases.....	10
2.3.1	Normal operation.....	10
2.3.2	Special operating modes.....	11
2.4	Instructions for special types of risks.....	12
2.4.1	Electrical energy.....	12
2.5	Declaration of Conformity.....	12
3	Technical Data and Structure.....	13
3.1	Conveyor / station designation key.....	13
3.2	Dimensional drawing FG 201 to FG 204.....	14
3.2.1	Dimensions.....	15
3.2.2	Electrical data.....	15
3.2.3	Environmental requirements.....	15
3.2.4	Materials.....	15
3.2.5	Noise emissions < 80 dB (A).....	15
3.2.6	Options.....	15
3.2.7	Weight.....	15
3.2.8	Compressed air.....	15
3.3	Dimensional drawing FG 205 to FG 206.....	16
3.3.1	Dimensions.....	17
3.3.2	Electrical data.....	17
3.3.3	Environmental requirements.....	18
3.3.4	Materials.....	18
3.3.5	Noise emissions < 80 dB (A).....	18
3.3.6	Options.....	18
3.3.7	Weight of conveyor without options.....	18

3.3.8	Compressed air.....	18
3.4	Assembling	19
3.4.1	FG 201 to FG 204	19
3.4.2	2K - Conveyor FG 201 to FG 204.....	20
3.4.3	Conveyor FG 205 to FG 206.....	21
3.4.4	Function	22
3.4.5	Automatic cleaning of the conveying air filter	22
3.4.6	Feed of a 2nd component	23
3.4.7	Empty suctioning (suction valve, accessory)	23
3.5	OPTION and function: Separator OFF- and acknowledgement switch	23
4	Assembly/Disassembly	24
4.1	Mounting accessories.....	25
4.2	Connecting conveying line.....	26
4.2.1	Earthing of conveyors and conveyor lines	26
4.2.2	Earthing the conveyor line	27
4.2.3	Earthing on a base plate / frame (example).....	30
4.2.4	Mounting a suction hose	31
4.2.5	Devices with automatic cleaning of the conveying air filter / dosing attachment....	32
4.3	Disassembly.....	33
4.4	Storage and transport.....	33
4.5	Disposal	34
5	Commissioning.....	35
6	SOMOS® control/basic – device control system	36
7	Options + Accessories	37
7.1	Filling level indicator (Optional)	43
7.2	2K- turnout and suction valve	44
7.3	Other connection options.....	44
7.3.1	External fault indicator (lamp, alarm)	44
7.3.2	External START/STOP switch	44
7.4	Equipment and options.....	45
7.4.1	Volume expansion stainless steel.....	45
7.4.2	Dosing attachment (optional instead of volume expansion)	46
8	Service and maintenance.....	47
8.1	Clean conveyor	47
8.1.1	Cleaning or replacing conveying air filter	49
8.1.2	Replacing the conveying air filter	49
8.1.3	Cleaning/replacing the balance filter (no continuous service)	51
8.2	Service	52

8.3	Removing the blower attachment	52
8.3.1	Before maintenance	52
8.3.2	Replacing the carbon brushes	53
8.3.3	Replacing the blower	55
8.3.4	Removing the blower (Version FG 201 and FG 204)	55
8.3.5	Install new blower (Version FG 205 and FG 206).....	56
8.3.6	Plug in the cable	57
8.3.7	Earthing blower	58
8.3.8	Replacing the compressed air valve on the cleaning valve	59
8.4	Conveyed goods container	60
8.4.1	Replacing the proximity switch.....	60
8.4.2	Replacing the V-gasket on the discharge flap	60
8.4.3	Replacing the discharge flap assembly	61
8.4.4	Replacing the plate on the discharge flap.....	61
8.4.5	Replacing check valve	62
8.4.6	Replacing the V-gasket on the check valve	63
8.5	Dosing attachment (optional).....	64
8.5.1	Replacing compressed air cylinder 2.....	65
8.5.2	Replacing compressed air cylinder 1	66
8.5.3	Replacing the control valve.....	67
9	Appendix	69
9.1	Setting the fill level sensor.....	69
9.2	Option: Setting the type B fill level sensor	71
9.2.1	Sensor without cover flap.....	71
9.2.2	Capacitive sensors (CAS) can be installed non-flush for level control	71
9.3	Pneumatic connection diagram (2-K conveyor)	73
9.4	Chemical resistance of the material container	74

1 Introduction

1.1 The FG 20x conveyor

1.1.1 Intended use

The FG 20x is a plastic granulate conveyor designed for industrial use. Its exclusive use is for the conveying of free-flowing plastic granulate or mill stock. Any use deviating from this is not intended use and must have a written approval from ProTec Polymer Processing GmbH. For uncertainties in the use of your mill stock or in the operation of your conveyor please contact ProTec Polymer Processing GmbH customer service.

1.1.1 Improper use

- Conveying ignitable or metallic substances.
- Conveying liquid materials.
- Loads above the rating limits in terms of operating time and volume.
- Use in explosion-endangered areas or in open air.

1.2 About this Manual

This operating manual should make it easier for you to learn about the system and its proper use.

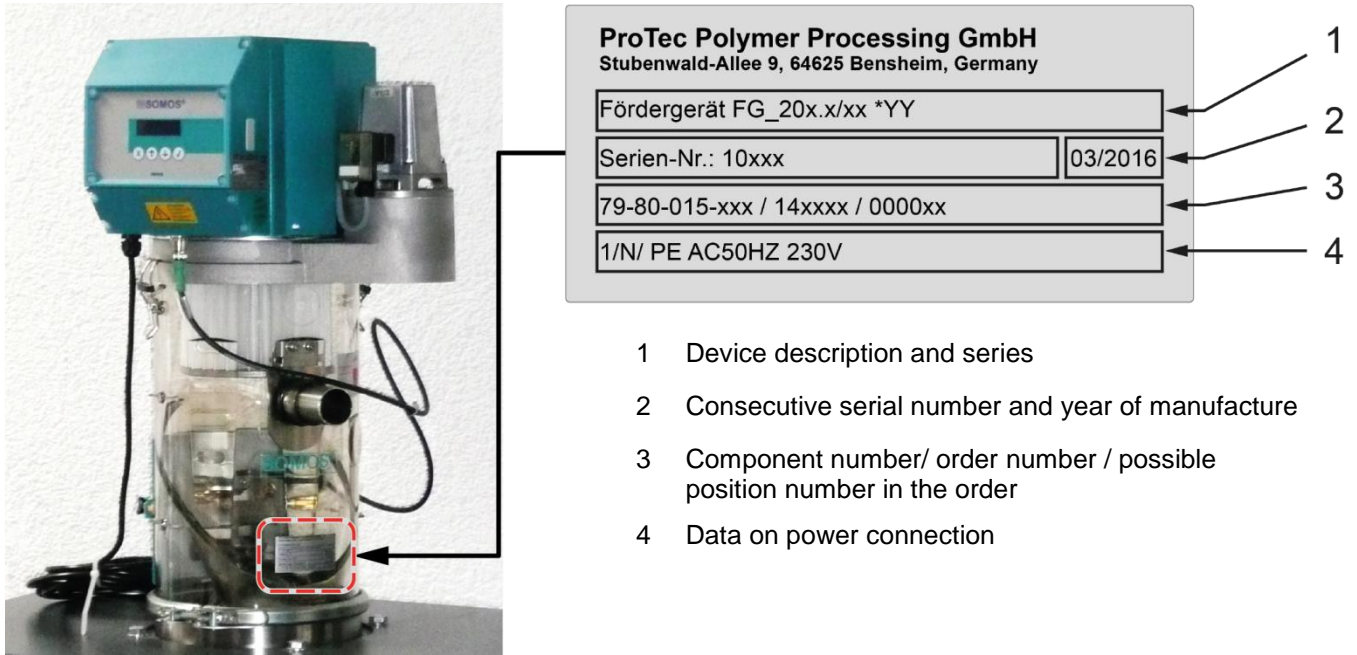
The operating manual contains important information about operating the system safely and properly. Your compliance helps:

- Hazards to avoid.
- Reducing downtimes.
- Increasing the reliability and lifetime.

The operating manual must be read and used by any person that is authorized to work with or on the system and must be available and easily accessible to these persons, especially for:

- Operation (including fitting, troubleshooting and error removal during work sequences, removing production waste, care, disposal of operating and auxiliary materials).
- Maintenance (maintenance, inspection, service).

1.3 Model plates and serial number



Model plate with information for device

1.4 Warranty

Exclusively use original replacement parts from ProTec Polymer Processing GmbH. Independent modifications or add-ons and the use of replacement parts that are not approved by ProTec Polymer Processing GmbH lead to the loss of warranty and guarantee. The illustrations in this operating manual can deviate from the actual design. This does not affect informational content and facts.

2 Safety

The system was built to the technical state of the art and the recognised safety rules and regulations. However, with its use, there can occur hazards for life and limb of the user or third parties or negative influences on the system and other property.

The system must only be used in technically perfect condition as well as to intended use, safety and hazard conscious observing this operating manual! Especially malfunctions that could negatively influence the safety must be remedied immediately.

2.1 Safety labelling

2.1.1 Structure of the warning information

The following signal words are used in connection with the safety labelling to display certain hazards in this document.



Danger!

Death or severe injuries **will occur**, if the corresponding precautionary measures are not made.



Warning!

Death or severe injuries **may occur**, if the corresponding precautionary measures are not made.



Caution!

Slight injuries can occur if the corresponding precautionary measures are not made.



Caution!

Property damage may occur if the corresponding precautionary measures are not made.






Information







Here you receive information and instructions for effective and safe execution of the following activities.

2.1.2 Safety labelling and meanings

The meaning of safety labels is indicated by their shape and colour.

Shape	Colour	Meaning
	Safety colour red Contrast colour white	Prohibited
	Safety colour yellow Contrast colour black	Warning
	Safety colour blue Contrast colour white	Order

The following symbols are used in the manual:

Symbol	Description	Symbol	Description	Symbol	Description
	Warning! Follow information!		Caution! Fine dust: Wear breathing protection!		Caution! Danger! Disconnect device from power!
	Danger! Electric current! Danger to life!		Danger of injury! Hot! Do not touch!		Caution! Damages to the equipment possible.

- Only open or remove protective and safety equipment for service work. Before commissioning, these must be remounted / repowered.
- Systems and units must be depressurised before opening.
- Comply with maintenance and service intervals!
- Keep all safety instructions and hazard warnings on the equipment complete and legible!
- Carry out daily visual inspections for outwardly recognisable damage and deficiency! Immediately report any changes that occur (including the operating behaviour) to the responsible department/ person! In the case of functional faults the equipment must be immediately shut down and secured! Malfunctions should be immediately remedied.

Never do this:

- Operating the equipment outside of given parameters.
- Any changes to the device NOT APPROVED by ProTec Polymer Processing GmbH.

2.2 Personnel selection and qualification

- Only use trained or instructed personnel. Clearly establish responsibilities of the personnel for operation, fitting, servicing and repair!
- Make sure that only authorised personnel are working on the system!
- Establish responsibilities of the system operator and empower him to reject unfavourable safety instructions from third parties!
- Personnel that are being trained, instructed or are in the scope of a general apprenticeship should only be working on the system under the continual supervision of an experienced person!
- Working on electrical equipment of the system must only be done by an electrician or trained persons under the guidance and supervision of an electrician according to the electrotechnical regulations!
- Work on hydraulic equipment may only be performed by personnel with special hydraulic knowledge and experience!

2.3 Safety-related instructions for specific operating phases

2.3.1 Normal operation

- Only operate the machine if all safety equipment and safety-related equipment, e.g. removable safety equipment, Emergency Stop equipment, soundproofing, exhaust equipment, etc. are present and functional!
- Support highly constructed equipment! Especially in connection with dynamic loads, high constructional parts on the system have to be additional support.
- At least once per shift check the system for visible damage and deficiencies! Immediately report any changes that occur (including the operating behaviour) to the responsible person / department! If necessary, immediately stop the system and secure it!
- Before switching on / engaging the system make sure that no one is endangered by the running system!
- Observe switching on and off processes, control indicators.

2.3.2 Special operating modes

- Comply with settings, service and inspection activities and intervals including information on replacing parts / subassemblies specified in the operating manual. These activities must only be performed by specialist authorised personnel.
- Inform operating personnel before starting to perform special and maintenance work! Name supervisors!
- Ensure that the maintenance area is as adequately secured as necessary! If the system is completely switched off during maintenance and repair work it must be secured against restart:
 - Lock the main command device and pull out the key
 - Attach a warning sign on the main switch
 - Always tighten any loosened screwed connections during maintenance and repair work!
 - If the removal of safety equipment is required during fitting, maintenance and repair, it should be reassembled immediately after completing the maintenance/repair work.
 - Larger single parts and assemblies must be carefully fastened and secured on hoisting gear during replacement, so that no hazards occur here. Use only suitable and technically correct hoisting devices and load attachment devices with sufficient load carrying capacity!
 - Do not stand or work under swinging loads!
 - When performing installation work above body height use ascending aids and work platforms provided for this or other safety-related ones. Do not use system parts as ascending aid! Wear fall protection when working at great heights!
 - Keep all handles, steps, railings, pedestals, platforms, ladders, etc. free of dirt!
 - Clean the systems, and especially here connections and screwed joints, before starting maintenance/repair of oil, fuel or cleaning materials! Do not use any aggressive cleaning agents! Use lint-free cleaning cloths!

2.4 Instructions for special types of risks

2.4.1 Electrical energy

- Only use original fuses with specific current rating! For faults in the electrical supply, switch off the system immediately!
- Working on electrical equipment or operating equipment must only be done by an electrician or trained persons under the guidance and supervision of an electrician according to the electrotechnical regulations.
- The power to system parts, on which inspection, service and repair work is performed, must be switched off, if so specified. First check the parts that are switched off if there is no voltage, then ground and short-circuit as well as insulate adjacent live parts!
- The electrical equipment of the system must be inspected and checked regularly. Defects such as loose connections or scorched cables must be rectified immediately.
- If work is required on live parts, a second person who can activate the emergency- off- or main switch in case of emergency needs to get involved. Block off the work area with a red and white safety chain and a warning sign. Only use voltage insulated tools.

2.5 Declaration of Conformity



The Declaration of Conformity must be presented in both German and English.

3 Technical Data and Structure

3.1 Conveyor / station designation key

Conveyor / station designation key

FG = Conveyor / station
 ZF = Central filter
 FGG = Conveyors for gravimetric dosing unit (without floor flap)
 FG3- = Conveyor installed from $\varnothing 315$ to $\varnothing 200$
 FG 2K = 2-component conveyor/station

2 = 200 (\varnothing conveyed goods container 200 mm)

0 = Conveyor with blower, central filter installed
 2 = Conveyor station with filter cartridge cleaning with circulating air with microcontroller control system for separate fan station
 4 = Conveying station

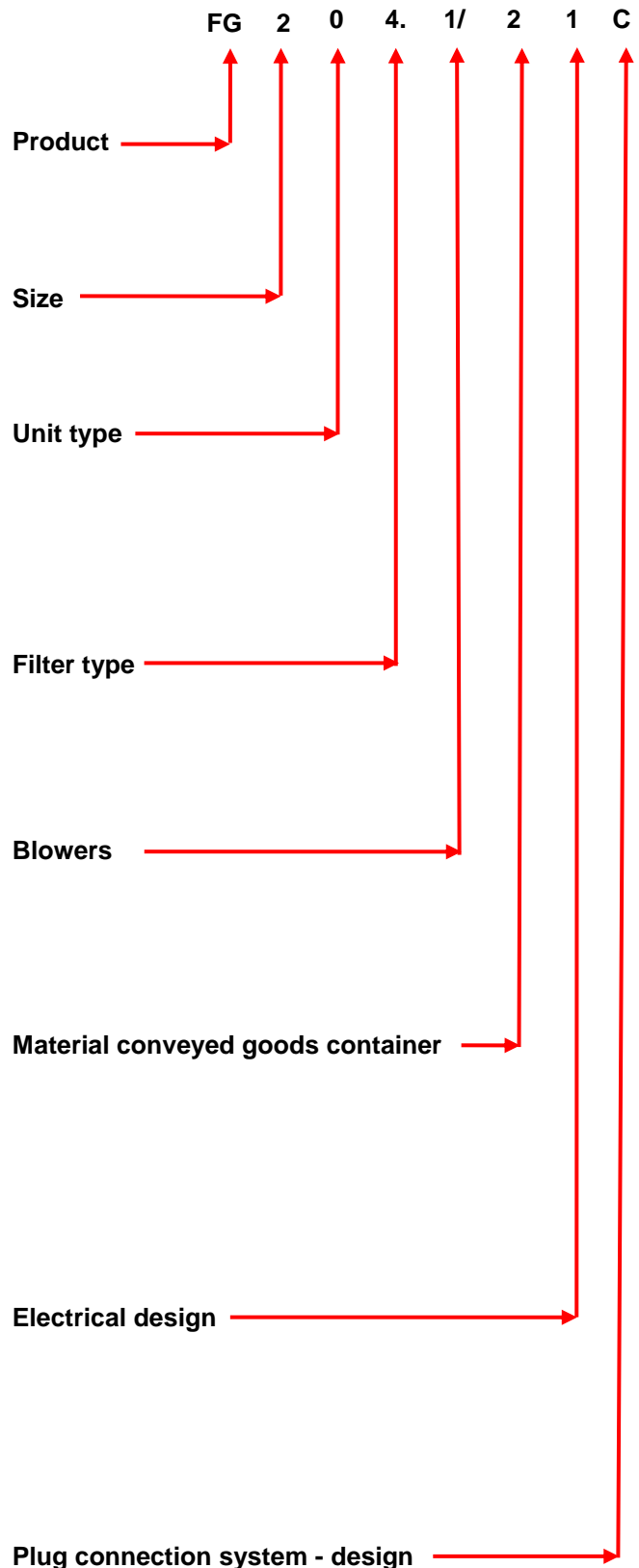
1 = Cloth filter without cleaning
 3 = Filter plate
 4 = Cloth filter with cleaning (compressed air)
 5 = Filter element 0.2 m² with cleaning (circulating or compressed air)
 6 = Filter element 1.5 m² with cleaning (circulating or compressed air)

0 = For separately installed blower station
 1 = Installed blower (50/60 Hz) 0.8 kW

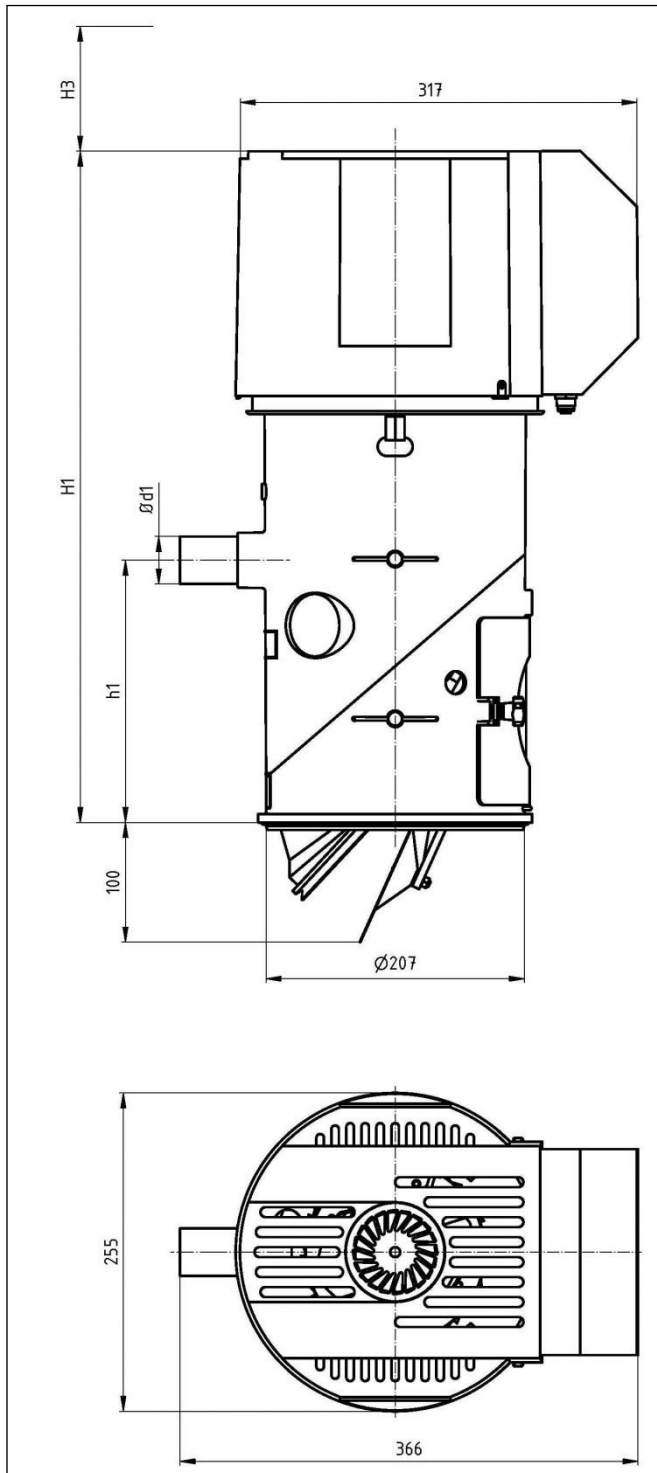
1 = PA, low / FGG
 2 = PA, high
 3 = VA, FGG
 4 = VA, high
 5 = VA, FGG HG2
 6 = VA high HG

0 = Without controls / connection box / terminal box
 1 = Microcontroller control system
 5 = Terminal box
 6 = Plug connection:
 A = Murr plug connection- (custom)
 B = M12-Y plug connection- (custom)
 C = Phönix plug connection

HM = Solenoid
 HZ = Lift cylinder
 HG2 = Hot granulate max. 150° C
 (Normal temperature max. 80°C)



3.2 Dimensional drawing FG 201 to FG 204



3.2.1 Dimensions

H1 with/without volume expansion	550 / 750 mm
H3 (for filter change)	< 200 mm
h1 with/without volume expansion	210 / 410 mm
d1	38 mm
d1 with volume expansion VA	38 or 55 mm

3.2.2 Electrical data

Mains connection	1/N PE AC 50/60Hz 230V
Blower rated output	800 W
Current consumption	4 A
Protection class	IP 20

3.2.3 Environmental requirements

Max. Temperature for conveyed material	+80 °C
Max. Ambient temperature in operation	+5°C ... +40°C
Rel. Humidity	< 80 %
Noise emissions	< 80 dB (A)

3.2.4 Materials

Conveying air filter	Cloth filter
Conveyed goods container	PA
Discharge flap	Stainless steel
Seals	EPDM/Perbunan ⁽¹⁾
Balance filter	Polyester woven fabric

3.2.5 Noise emissions < 80 dB (A)

3.2.6 Options

Volume expansion	Stainless steel / PA
Dosing attachment	Stainless steel
Filling level indicator	Capacitive

3.2.7 Weight

Conveyor without options

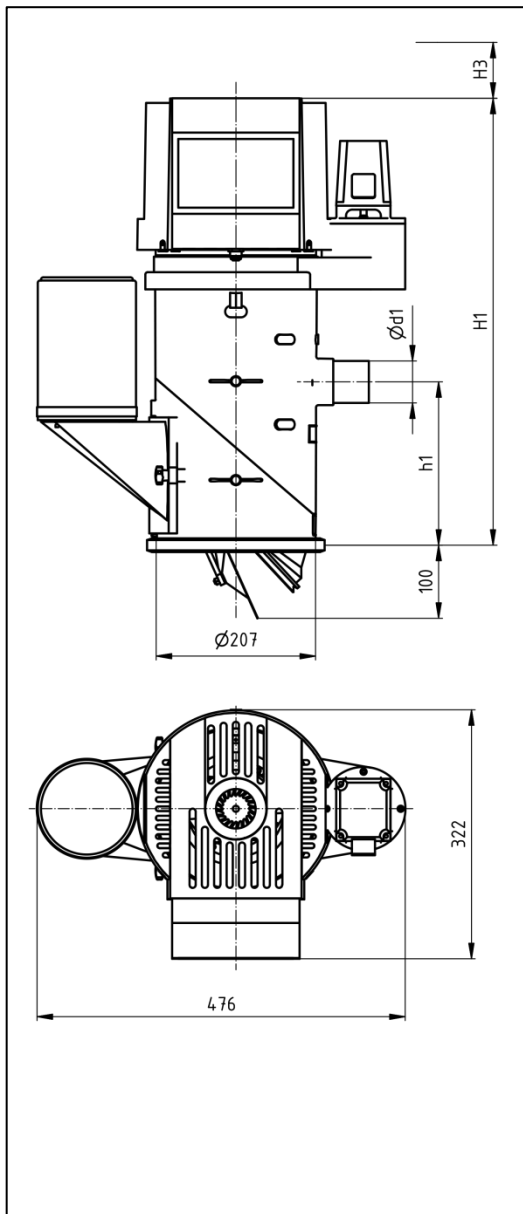
FG 201	8.4 kg
FG 204	9.7 kg
For automatic cleaning of the conveying air filter	
Compressed air supply	

3.2.8 Compressed air

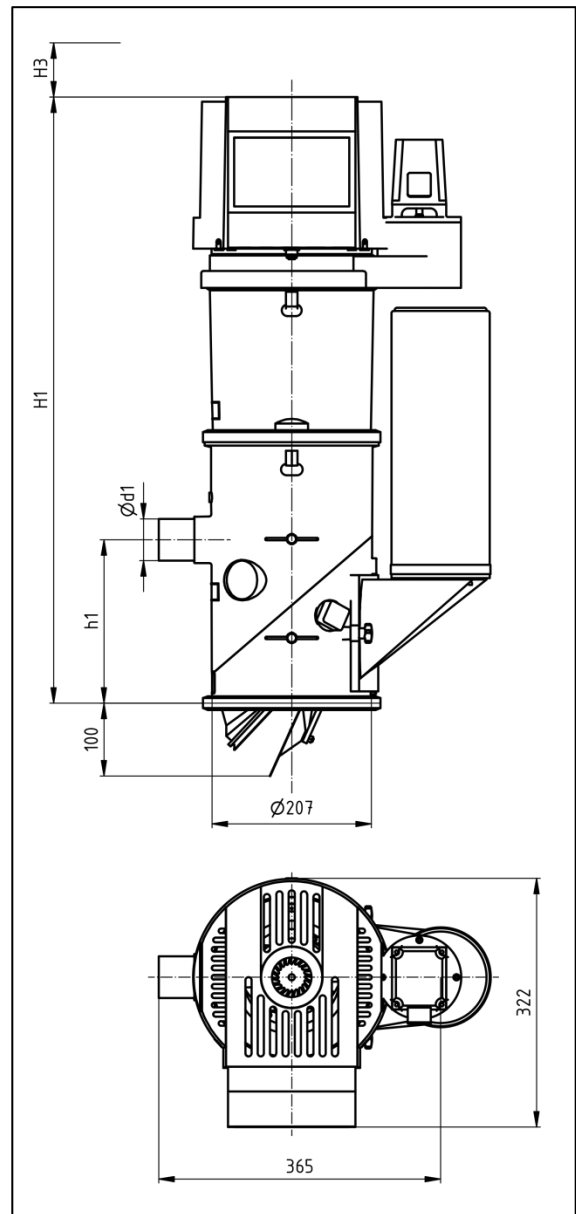
For automatic cleaning of the conveying air filter	compressed air supply
Excess pressure	4 ... 6 bar
Compressed air connection	PK 8
Compressed air consumption	3 net litres / conveying cycle

¹⁾ Standard design not suitable for use with food!

3.3 Dimensional drawing FG 205 to FG 206



FG 205 without options



FG 206 without options

3.3.1 Dimensions

FG 205

H1 with/without volume expansion: H3 (for filter change)	585 / 785 mm min. 200 mm
-------------------------------------------------------------	-------------------------------------------

FG 206

H1 with/without volume expansion H3 (for filter change)	785 / 985 mm min. 400 mm
------------------------------------------------------------	-------------------------------------------

FG 205.x/3x

H1 without volume expansion	515 mm
H1 with volume expansion	775 mm
H3 (for filter change)	min. 200 mm

FG 206.x/3x

H1 without volume expansion	715 mm
H1 with volume expansion	975 mm
H3 (for filter change)	min. 400 mm

FG 205.x/4x

H1 without volume expansion	575 mm
H1 with volume expansion	835 mm
H3 (for filter change)	min. 200 mm

FG 205 and FG 206

h1 with/without volume expansion	210 / 410 mm
d1	38 mm
d1 with volume expansion VA	38 or 55 mm

FG 206.x/4x

H1 without volume expansion	775 mm
H1 with volume expansion	1,035 mm
H3 (for filter change)	min. 400 mm

FG 205 and FG 206

h1 with/without volume expansion	180 / 380 mm
d1	38 mm
d1 with volume expansion VA	38 or 55 mm

3.3.2 Electrical data

Mains connection	1/N PE AC 50/60Hz 230V
Blower rated output	800 W
Control magnet rated output	400 VA
Current consumption	4 A
Protection class	IP 20

3.3.3 Environmental requirements

Max. Temperature for conveyed material	+80 °c
Max. Ambient temp. of operation	+5 ... +50 °c
Rel. Humidity:	< 80 %

3.3.4 Materials

Filter element	Polyester
Conveyed goods container	PA
Discharge flap	Stainless steel
Seals	EPDM/Perbunan
Balance filter	Polyester woven fabric

3.3.5 Noise emissions < 80 dB (A)

3.3.6 Options

Volume expansion	Stainless steel / PA
Dosing attachment	Stainless steel
Filling level indicator	Capacitive

3.3.7 Weight of conveyor without options

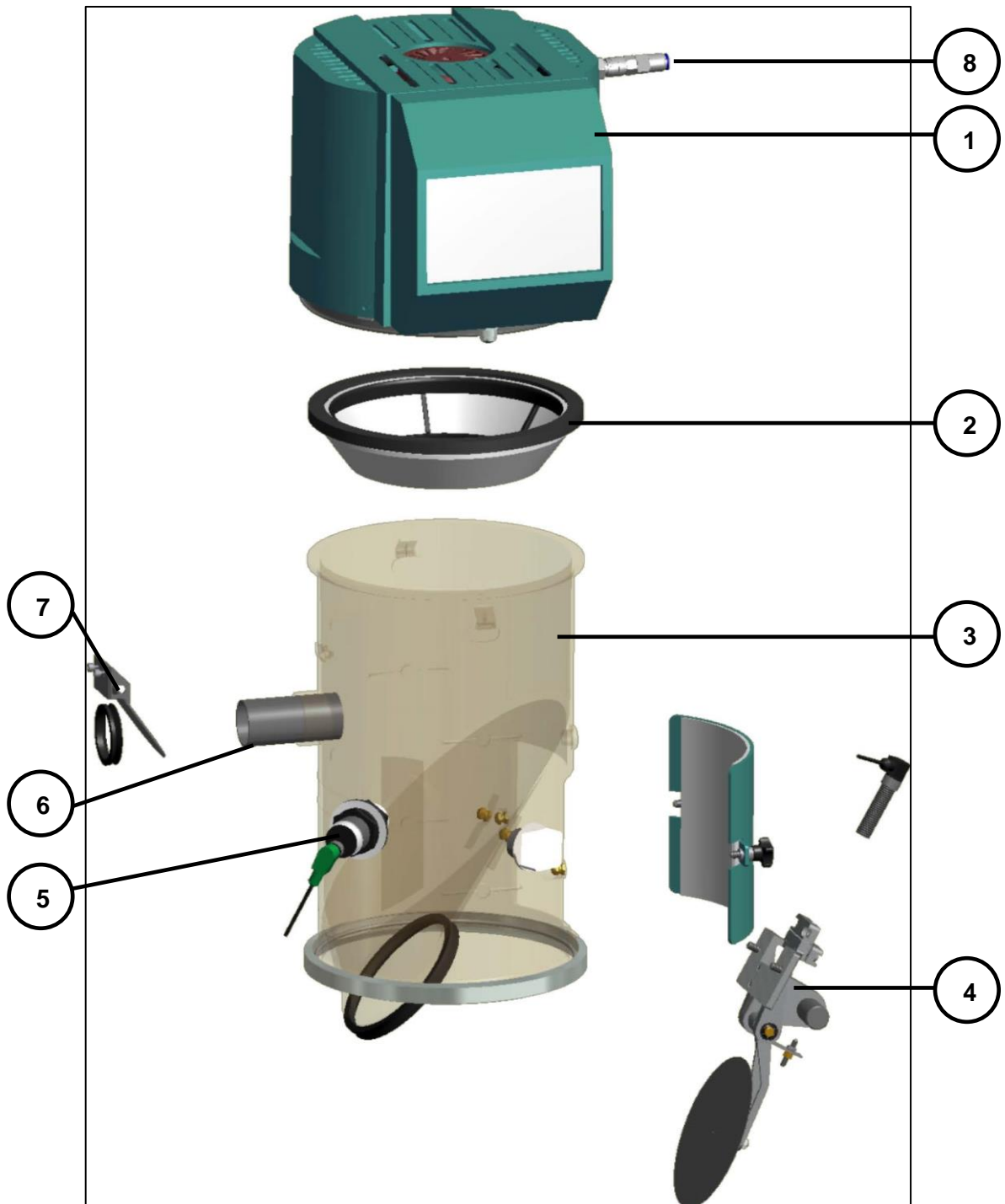
FG 205	12.3 kg
FG 206	14.2 kg

3.3.8 Compressed air

Operating pressure	4 to 6 bar, ideal 5 bar
--------------------	--------------------------------

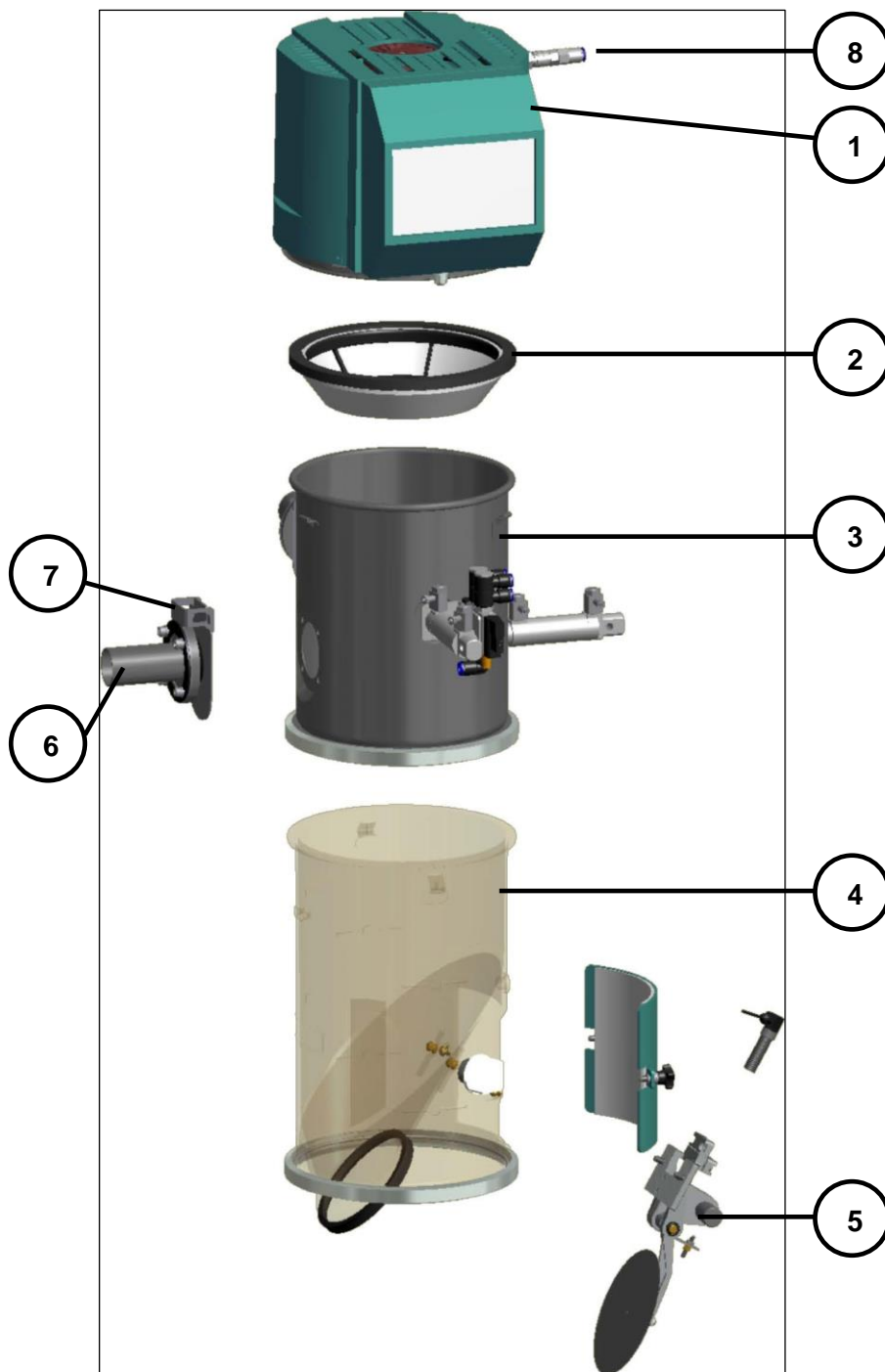
3.4 Assembling

3.4.1 FG 201 to FG 204



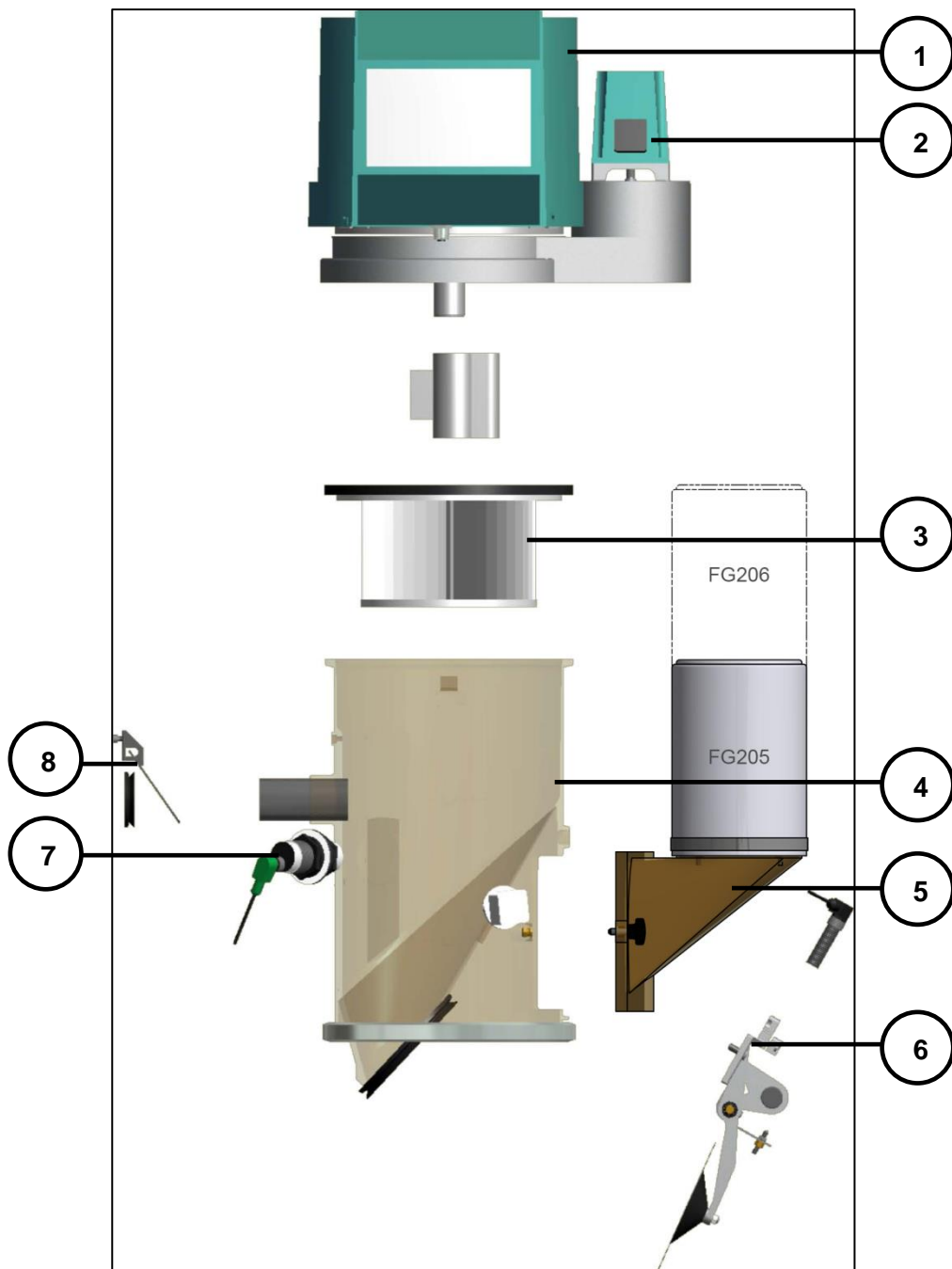
1	Blower hood with controls	2	Filter insert (cloth filter)
3	Conveyed goods container	4	Floor flap unit
5	Filling level sensor (Optional)	6	Nozzles
7	Check valve	8	Compressed air connection

3.4.2 2K - Conveyor FG 201 to FG 204



1	Blower hood with controls	2	Filter insert (cloth filter)
3	2K-attachment_A FG200 change fact.	4	Lower part FG200 PA
5	Floor flap unit	6	Nozzles
7	Check valve	8	Compressed air connection

3.4.3 Conveyor FG 205 to FG 206



1	Blower hood with controls	2	Solenoid
3	Filter insert (cartridge)	4	Conveyed goods container
5	Balance filter	6	Floor flap unit
7	Filling level sensor (Optional)	8	Check valve

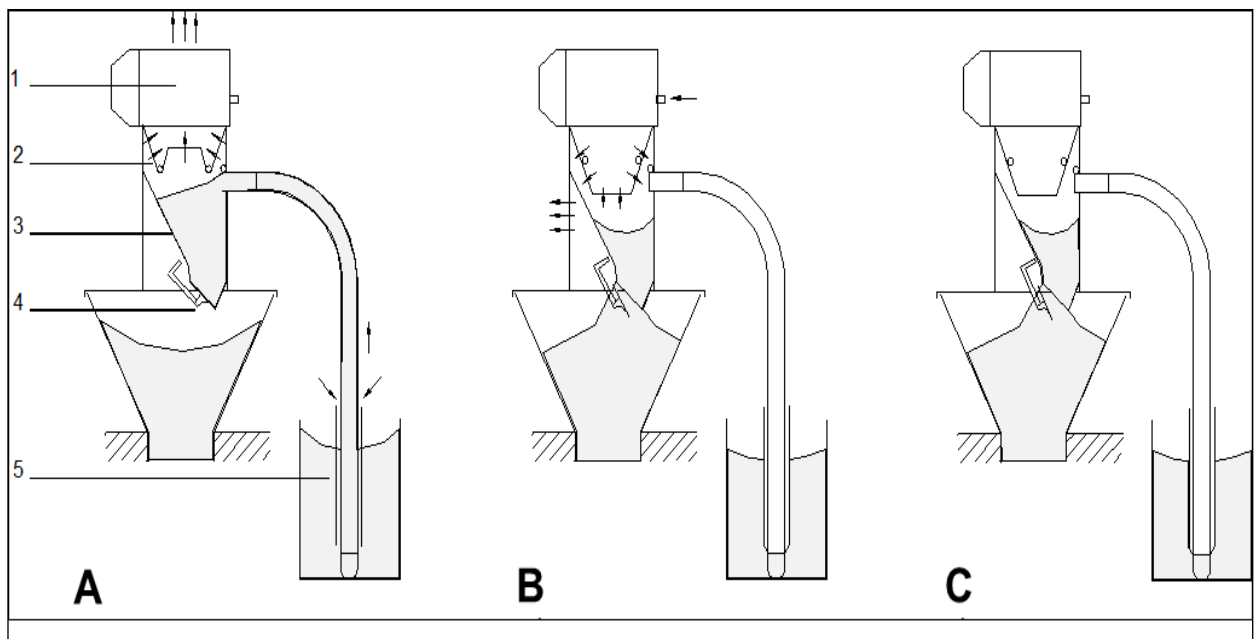
3.4.4 Function

The suction hose (5) is set in the material container and is used for suctioning the material to be conveyed. A vacuum is generated in the conveyed goods container (3) with the blower (1) which sucks up the material. The conveying air filter ensures the separation of the material from the conveying air. For a unit with automatic cleaning the conveying air filter is cleaned with a shot of compressed air.

After the conveying time elapses the blower shuts off. Through its own weight the material presses on the discharge flap, opens it and flows out. When the conveyed goods container is empty, the discharge flap closes automatically and a new conveying cycle begins. These processes repeat as often as needed until the container under the conveyor is filled and the discharge flap cannot close. Then there is a pause in conveying. If the material lowers so far that the discharge flap closes again, a new conveying cycle begins.

3.4.5 Automatic cleaning of the conveying air filter

Cleaning is done in the home position before conveying. It can also be done before conveying or before and after conveying.



- 1 Blowers
- 2 Conveying air filter
- 3 Conveyed goods container
- 4 Discharge flap
- 5 Suction hose

3.4.6 Feed of a 2nd component

An additive material (e.g. regenerate) can be mixed with the main material. For this a dosing attachment (option) or a 2K turnout (accessory) is required.

Dosing attachment (optional)

Instead of a volume expansion a dosing attachment can be installed in the conveyor. The main material is suctioned via nozzle 1 and the additive material via nozzle 2.

2K- turnout (accessory):

2K- turnouts are installed in the conveying line. Dosing is done with the 2K turnout by switching over the piston. Dosing attachment/ 2K- turnouts can not be operated simultaneously with a suction valve.

3.4.7 Empty suctioning (suction valve, accessory)


To prevent clogging of the conveyor line, a suction valve (accessory) is used. Shortly before the end of the conveying time the suction valve opened and air flows into the conveying line and this is suctioned empty. A suction valve cannot be operated simultaneously with a dosing flap/-turnout or dosing attachment.

3.5 OPTION and function: Separator OFF- and acknowledgement switch

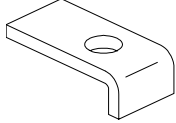
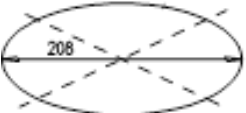
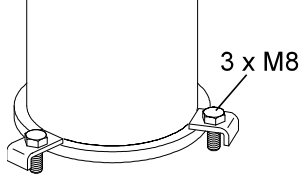
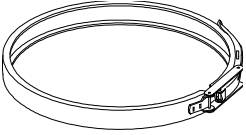
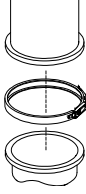

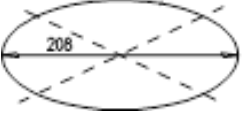
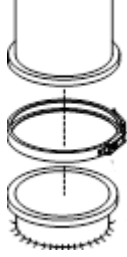
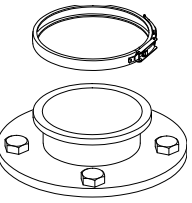
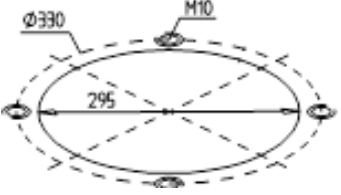
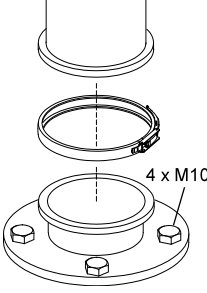
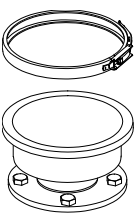
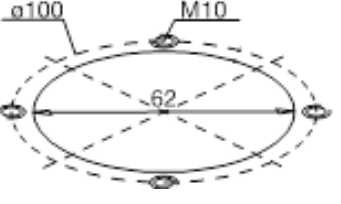
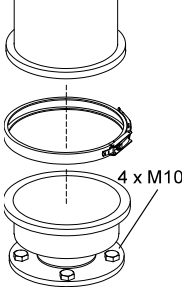


You can put the unit during operation in a pause mode. For this turn the toggle switch to the right. It remains in "Pause" status until it is reset to active. To do this, turn the switch to the left. If a fault must be acknowledged, proceed in the same way. First turn the switch to the right, then to the left; the fault is acknowledged and reset. The time period between the two switch processes is not defined; the acknowledgement is done with the left turn of the switch.

4 Assembly/Disassembly

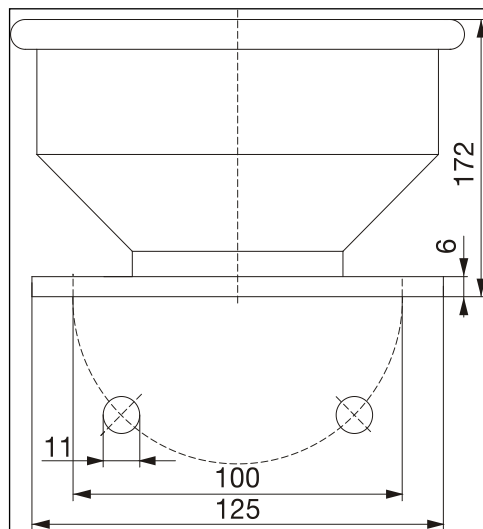
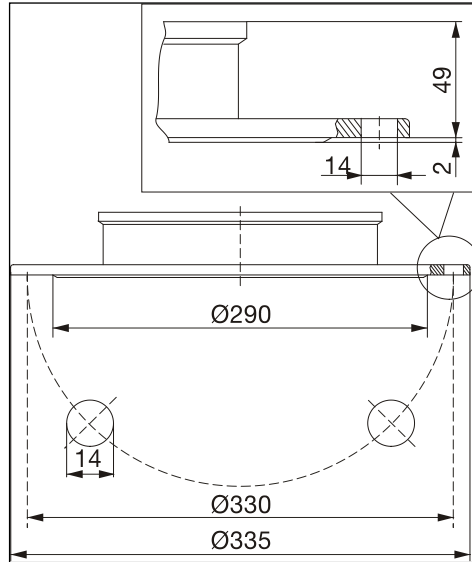
	<p>Do not set the conveyor on the discharge flap! Otherwise it could be damaged.</p>
-----------------------------------------------------------------------------------	------------------------------------------------------------------------------------------

Depending on the mounting accessories there are the following options for fastening the conveyor

Mounting accessories	Necessary counter piece	Fastening the conveyor
<p>3 clamps</p> 		
<p>Lever clamping ring</p> 	<p>See the chap. "Technical Data"</p>	
<p>Lever tensioning ring and counter flange</p> 		
<p>Lever tensioning ring and adapting flange</p> 		
<p>Lever tensioning ring and machine hopper</p> 		

4.1 Mounting accessories


Adapting flange material: stainless steel or G-Al



Machine hopper material
Net volume

Stainless steel / aluminium
4 l

4.2 Connecting conveying line


	Relieve the conveyor from the weight of the conveyor hose Therefore separately catch the weight of the conveying hose Otherwise the device can be damaged.
-----------------------------------------------------------------------------------	------------------------------------------------------------------------------------------------------------------------------------------------------------------


- Slide the conveying hose on the suction nozzles and fasten with a hose clamp.

For a device with 2K turnout

1. Connect the main material on nozzle 1 and the auxiliary material on nozzle 2. The numbers are adhered over the nozzles.
2. Push the conveying hose on the interior tube of the suction hose and connect with a conveyor hose insert made of copper or steel aluminium or ESTS piping through earth clamps with an earth conductor!

4.2.1 Earthing of conveyors and conveyor lines

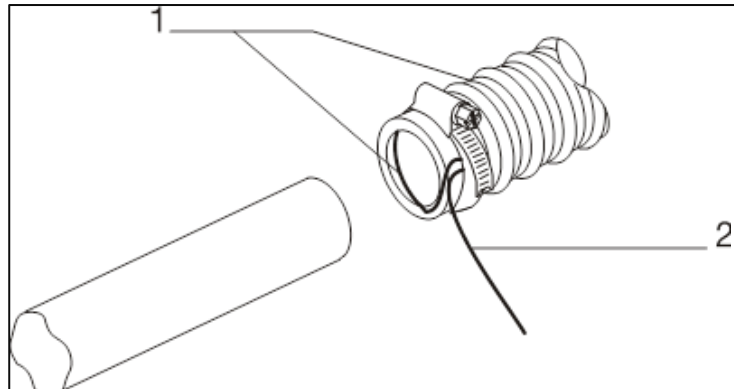
	Information The complete and correct design of the earthing measures is essential for the function of the device. Any modifications not approved in writing from ProTec lead to invalidation of the warranty.
-----------------------------------------------------------------------------------	----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

	Caution! The complete and correct design of the earthing measures is essential for the function of the device. If these earthing measures are not executed properly and / or completely or subsequently modified this can lead to malfunctioning of the system and even destruction of individual components and /or the control system.
-------------------------------------------------------------------------------------	-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

4.2.2 Earthing the conveyor line

During assembly of the conveying hoses

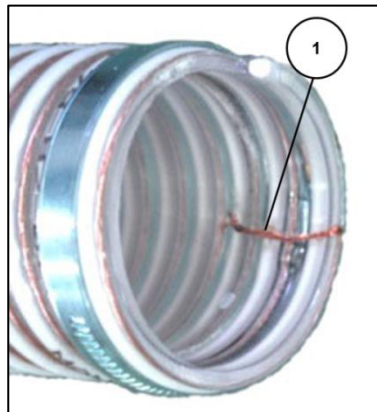
- Expose the insert on both ends of the conveying hose approx. 50 mm.



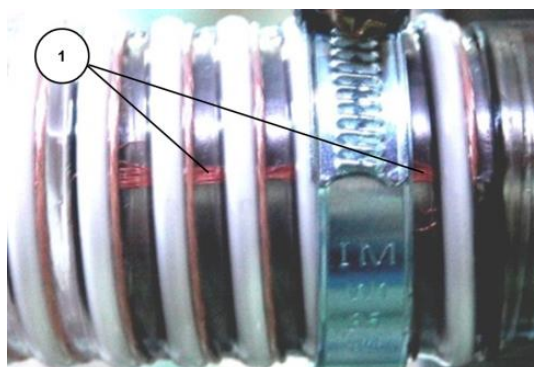
1 Conveying hose

2 Insert made of copper or steel

Using a PVC hose

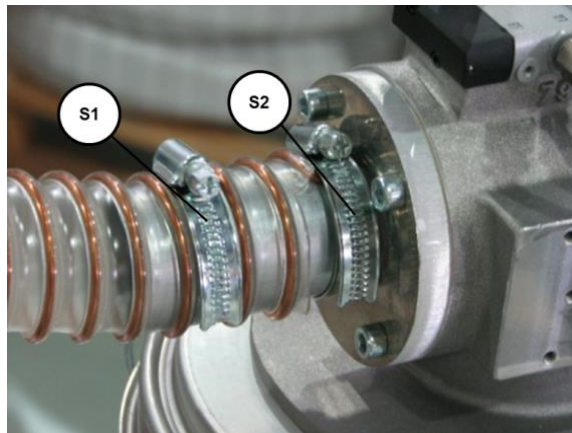


1. Clamp the wires (1) in the hose (see photo)



2. Clamp the hose with a clamp on the tube (make sure that the wire (1) is fastened with the clamp).

Using a PUR hose



1. Clamp the wire spiral with the first clamp (S2) on the front tube (see photo).
2. Attach the hose clamp (S1) for fastening.



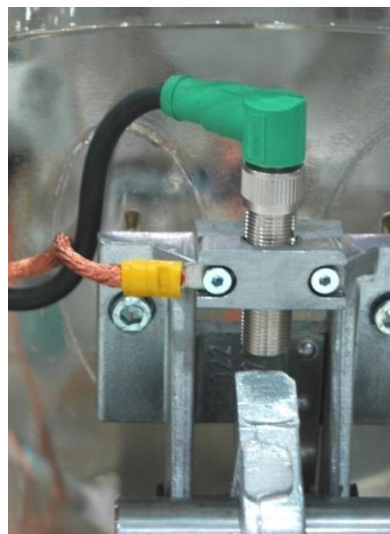
Caution!

ONLY flexible hoses may be directly fastened, no rigid tubes, due to the possible risk of fracture of the plastic nozzles in case of transverse forces!

4.2.3 Earthing on a base plate / frame (example)

- The earthing cables exiting the conveyor must be connected with a conductive surface or components. These are, for example, platforms made of iron or steel or metal frames.

Ensure that: The metal surfaces being used as a base for earthing must be free from paint at the connection point!



4.2.4 Mounting a suction hose

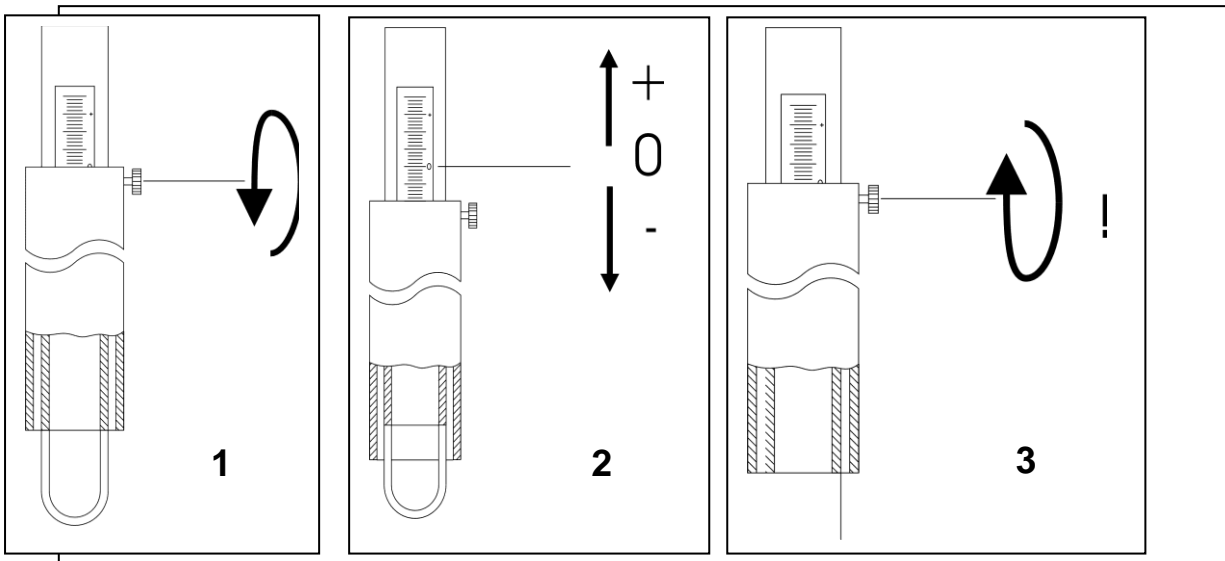


Do not forcefully push the suction hose in the product being conveyed during commissioning. This can lead to the formation of plugs in the suction hose and possibly lead to malfunctions of the conveying.

- First switch on the control system, then hold the suction hose vertically in the suction position.
- The suction hose pulls itself into the conveying goods.

Notice that the air intake opening must lie above the level of the product.

Setting the suction hose



Moving the outer pipe to "-" means:

- Convey less material,
- Higher air speed in the conveying line,
- Lower vacuum in the conveying line,
- Less risk of plugging.

Moving the outer pipe to "+" means:

- Convey more material,
- Lower air speed in the conveying line,
- Higher vacuum in the conveying line,
- More risk of plugging.

Pay attention to the conveying through the transparent hose. It should be done evenly and not in jerks. If this is not the case, then pull the inner tube further in.



Relieve the conveyor from the weight of the conveyor hose. Therefore separately catch the weight of the conveying hose. Otherwise the device can be damaged.

Slide the conveying hose on the suction nozzles and fasten with a hose clamp.

For a device with 2K turnout:

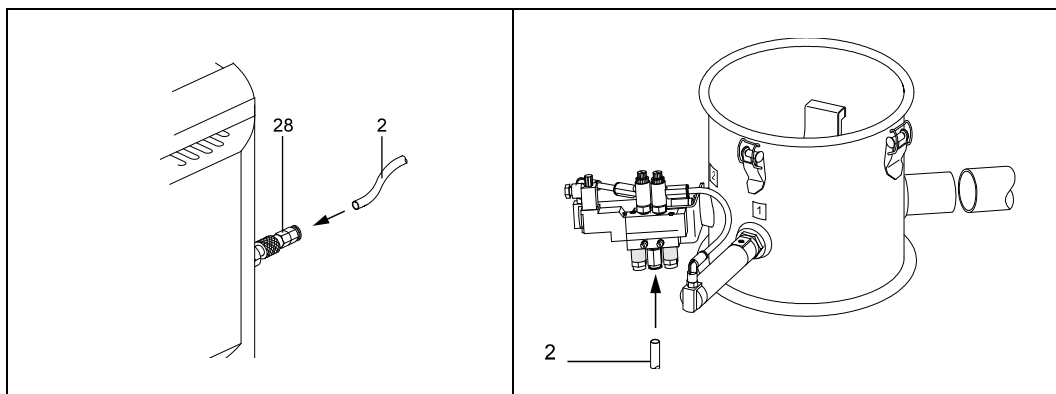
Connect the main material on nozzle 1 and the auxiliary material on nozzle 2.

The numbers are adhered over the nozzles.

Push the conveying hose on the interior tube of the suction hose and connect with a conveyor hose insert made of copper or steel aluminium or ESTS piping through earth clamps with an earth conductor!

	<p>Only convey plastic- granulate with the specified particle size! If the filter screen is used, the plastic- granulate must be dust-free! Otherwise the blower can be damaged.</p>
--	----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

4.2.5 Devices with automatic cleaning of the conveying air filter / dosing attachment



Connect blower attachment and if necessary the dosing attachment to the compressed air system:

- Connect compressed air supply line (2).
- Establish compressed air supply.


	<p>The compressed air must be free of oil and water! Otherwise the filter will be gummed up. The filter service life is then greatly shortened.</p>
--	---------------------------------------------------------------------------------------------------------------------------------------------------------

4.3 Disassembly

- Stop the conveying cycle.
- Switch off power from device.

With separate control system:


1. Remove connection cable from the terminal box. If necessary, dismantle the controls.
2. Disconnect the device from the compressed air system.
3. Depressurise the compressed air supply line and remove it.
4. Take the suction hose out of the material container.
5. Remove the conveying hose from the conveyor and suction hose.
6. Disconnect the accessories from the main power: To do this, remove the connection plug from the accessories.
7. Remove device.

	Caution! Do not set the conveyor on the discharge flap. Possible damage!
------------------------------------------------------------------------------------	------------------------------------------------------------------------------------


8. Remove tension clamp or tensioning ring.
9. Remove device.

4.4 Storage and transport

1. Place the device on its side.
2. Secure from slipping.
3. Protect from damage (by dirt, water, chemical substances and/or aggressive atmospheres)!

	Caution! Do not set the conveyor on the discharge flap. Possible damage!
-------------------------------------------------------------------------------------	------------------------------------------------------------------------------------

4.5 Disposal

	<p>Caution! Protect the environment!</p> <ul style="list-style-type: none">> Dispose of the device in an environmentally manner, by getting it to recycling.> Handling and disposal of used components are subject to legal regulations.
-----------------------------------------------------------------------------------	----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

5 Commissioning



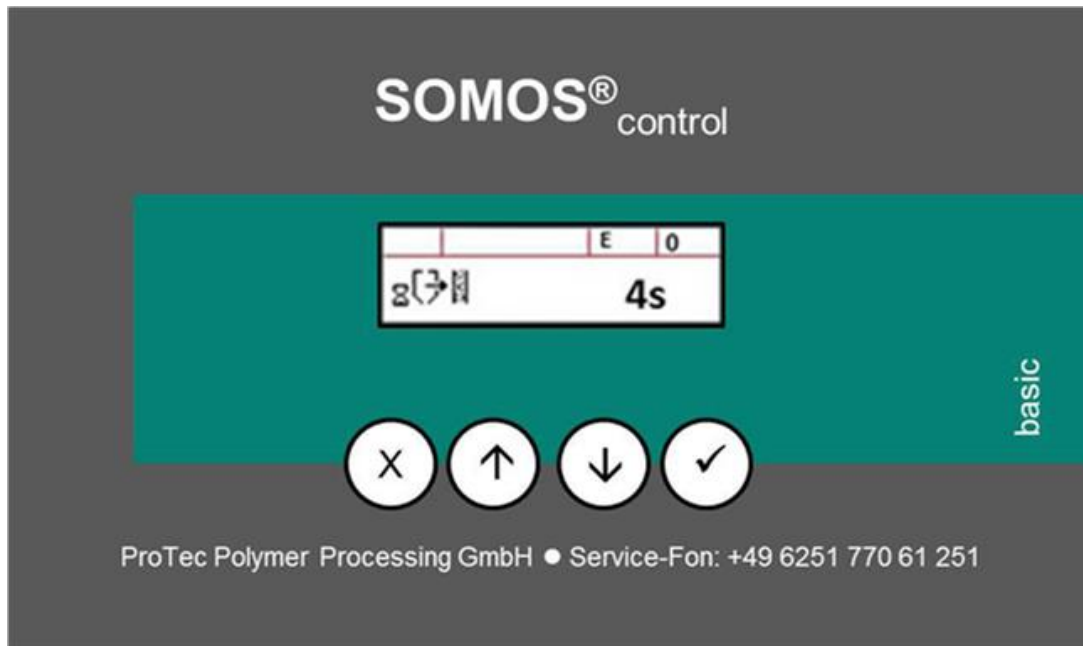
Warning!

Non-compliance with the operating manual can lead to personal injury and machine failure.

- > The operating manual, especially the safety instructions, must be read and complied with by every person that works with the system.

1. Connect the conveyor with the power plug to mains power.
Pay attention to the voltage of the mains power when doing this!
2. Insert the suction hose in the material to be conveyed.
Refer to the chapter Mounting a suction hose, on page 31.
3. Start conveyor.
4. Check function.

6 SOMOS® control/basic – device control system



Take information from the operating manual:

SOMOS® control/basic – device control system

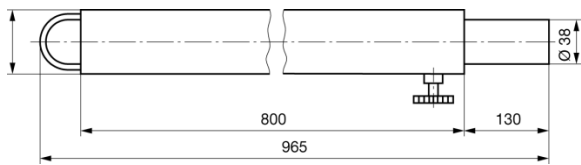
7 Options + Accessories



Information

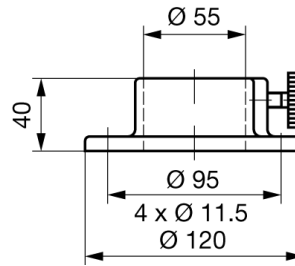
Dimensions and weight data of the following illustrations are examples; precise data can be obtained from Pro Tec Polymer Processing.

Suction hose:



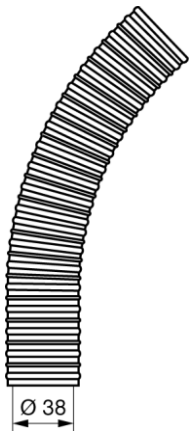
Steel, galvanised:	2.85 Kg
Stainless steel	2.45 Kg

Clamping flange for suction hose (3 sizes):



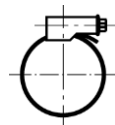
Aluminium	0.30 Kg
-----------	---------

Hose:



id = 38, s = 4;PVC	0.63 Kg/m
id = 38, s = 6;PUR	0.61 Kg/m

Hose clamp:



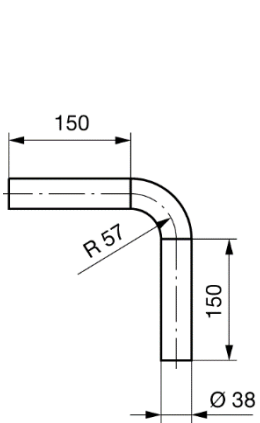
Steel, galvanised:	0.03 Kg
-----------------------	---------

Tube:



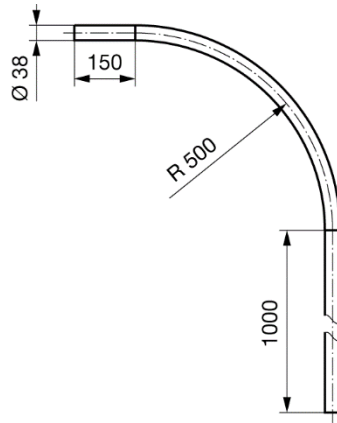
Ø 38x1.5; Aluminium	0.46 Kg/m
Ø 38x1.5; Stainless steel	1.37 Kg/m
Ø 40x2.5; Glass	0.7 Kg/m

90°elbow for air line: 90°elbow for conveying line:



Ø 38x1.5;
Aluminium

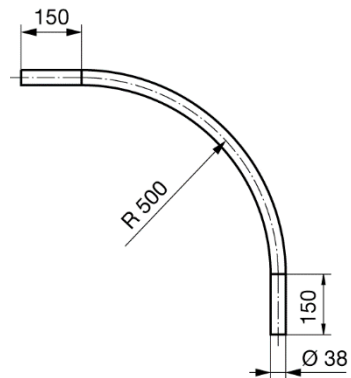
0.18 Kg



Ø 38x1.5; Stainless
steel

2.64 Kg

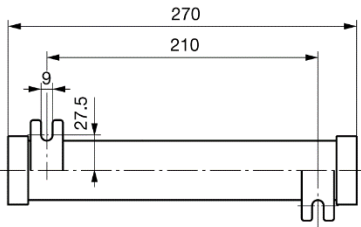
90°elbow for conveying line:



Ø 40x2.5; Glass

0.73 Kg

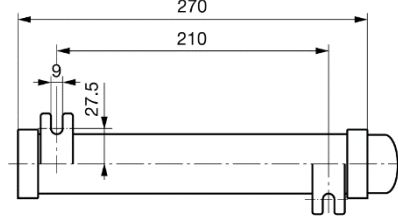
Branch for conveying line:



Aluminium

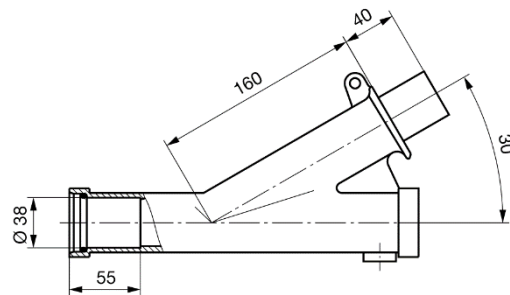
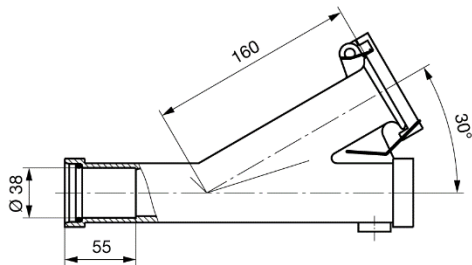
0.65Kg

Branch with nozzles:

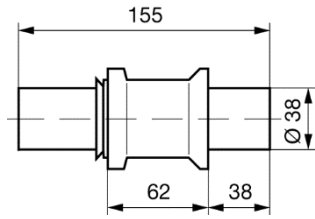


Aluminium/ stainless steel

0.80Kg

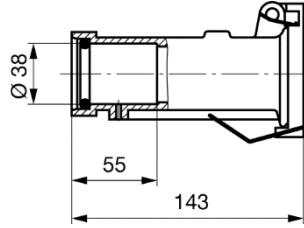


Coupling plug:



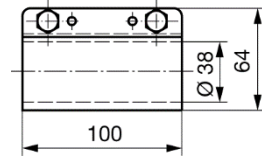
Aluminium/ stainless steel 0.25Kg

Coupling sleeve:



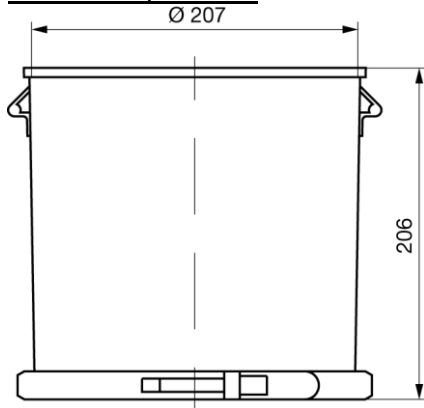
Aluminium 0.25Kg

Pipe connection:



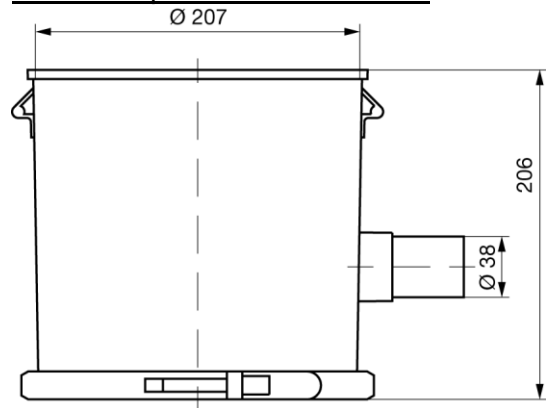
Steel, galvanised: 0.27 Kg
Aluminium 0.10 Kg

Volume expansion:



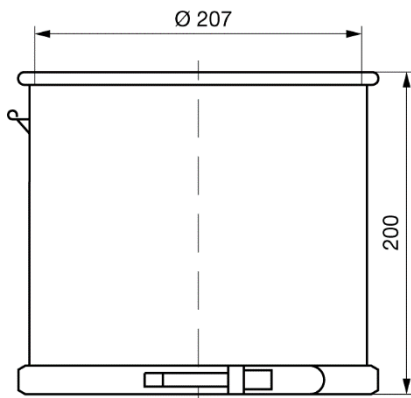
PA / St. nickel-plated 0.50 Kg

Volume expansion with nozzles:



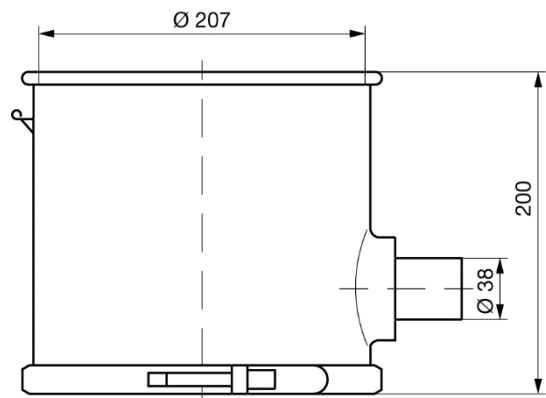
PA / Stainless steel/ St. nickel-plated 0.70 Kg

Volume expansion:



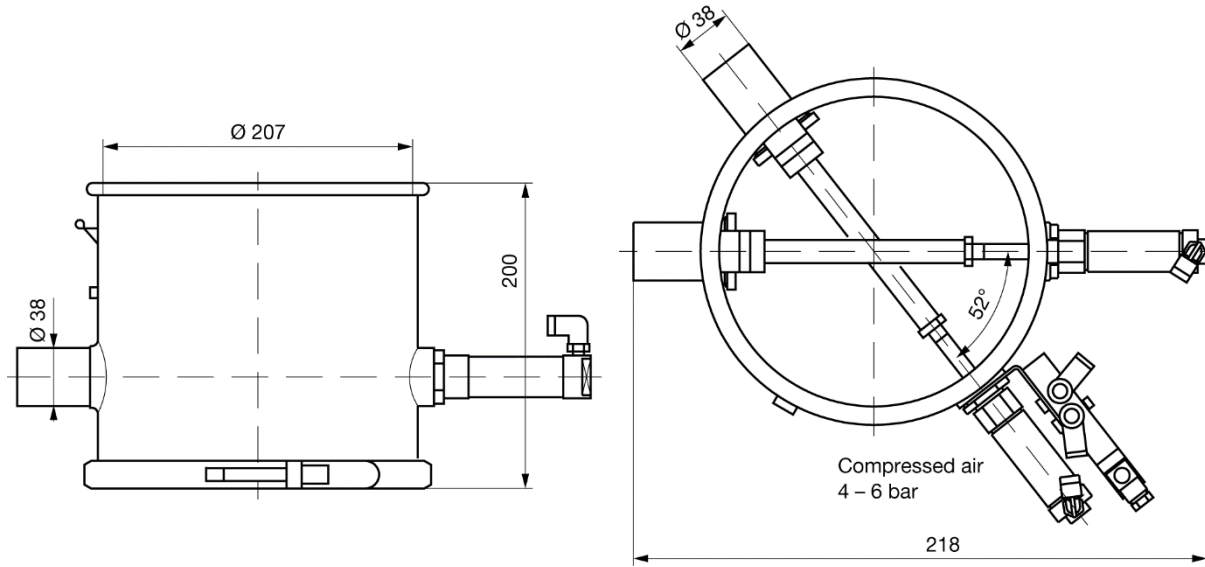
Stainless steel/ St. nickel-plated 1.70 Kg

Volume expansion with nozzles:



Stainless steel/ St. nickel-plated 2.00 Kg

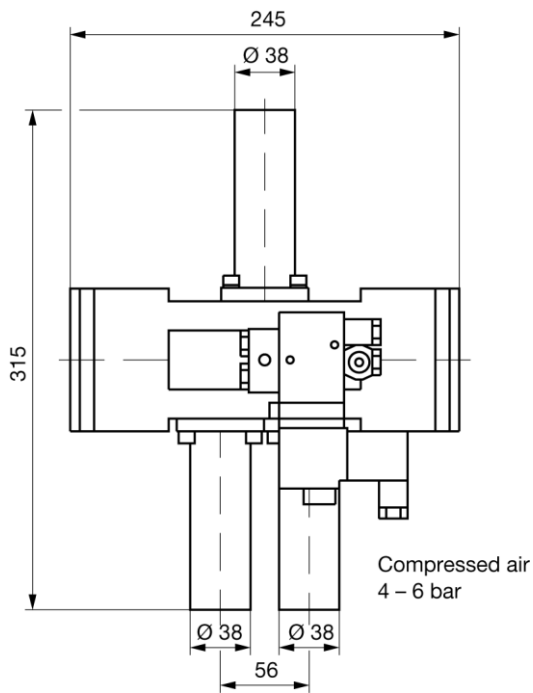
Dosing attachment:



Stainless steel/ St. nickel-plated

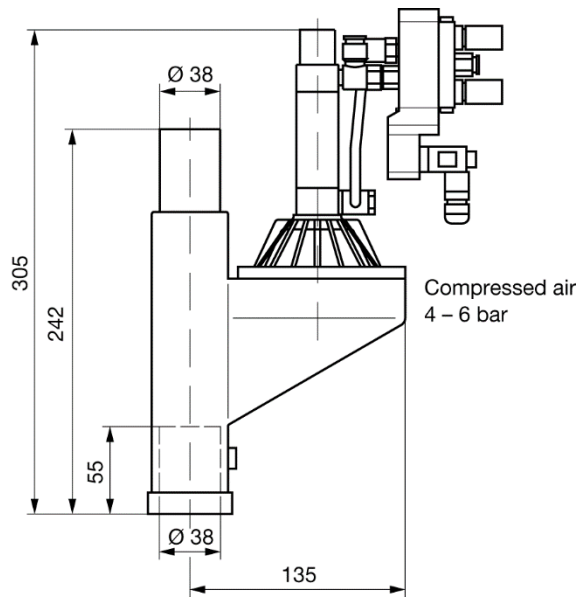
3.50 Kg

Dosing turnout:



Aluminium/ stainless steel 5.00 Kg

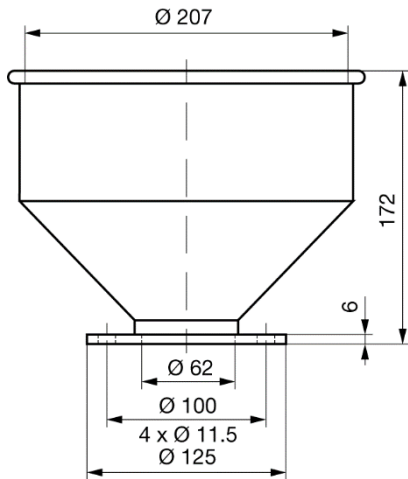
Suction / bypass valve:



Suction valve: Al, RAL 5018 / stainless steel 1.60 Kg

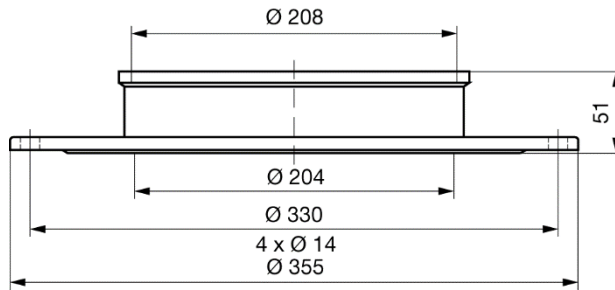
Bypass valve: Al, RAL 5018 / stainless steel 1.44 Kg

Machine hopper:



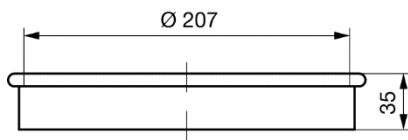
Stainless steel/ St. nickel-plated 1.40 Kg
Outlet Ø 35 und Ø 62 mm

Mounting cover:



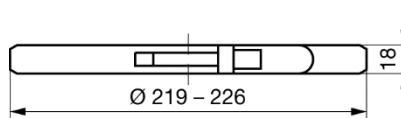
Aluminium 2.10 Kg

Counter bead:



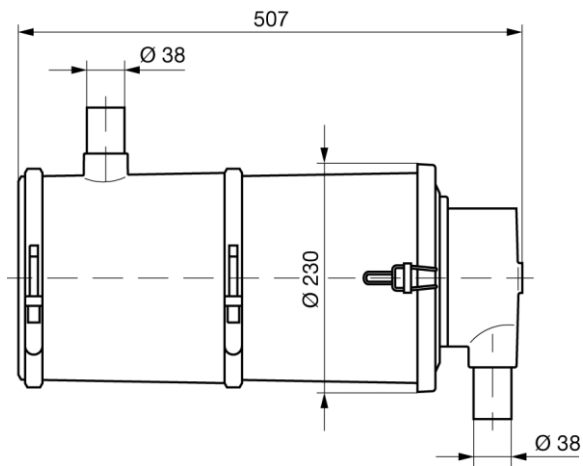
Stainless steel 0.33 Kg

Tensioning ring



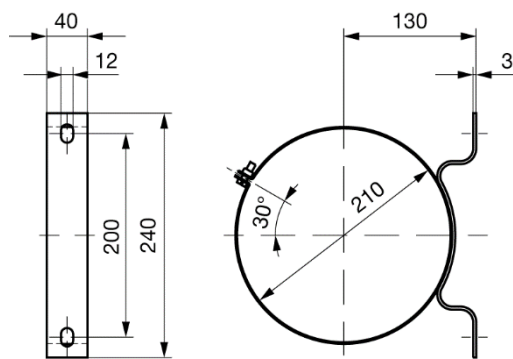
Steel, nickel-plated 0.17 Kg

After-filter:



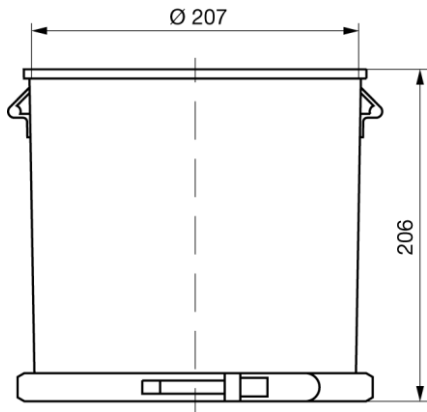
PA / Al / Stainless steel 3.50 Kg

Holder for after- and central-filter:



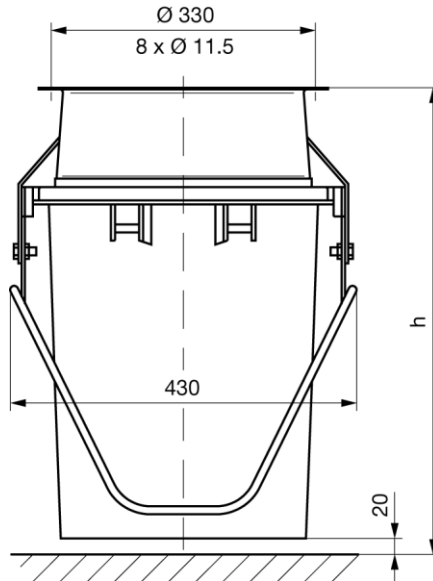
Steel, RAL 9005 0.60 Kg

Dust collection container:



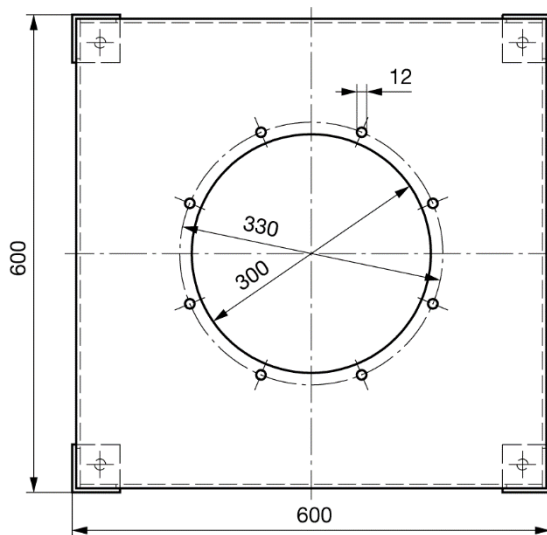
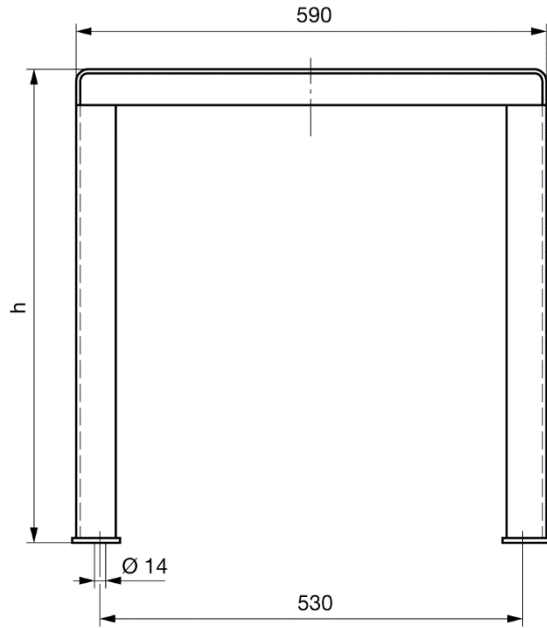
4 l; PA / St. nickel-plated 1.40 Kg

Dust collection container:



35 l; $h=590$; Steel, galvanised 7.70 Kg
50 l; $h=795$; Steel, galvanised 9.20 Kg

Stand for dust collection holder:



35 l; h=595; Steel RAL 7016

24.00 Kg

50 l; h=800; Steel RAL 7016

27.00 Kg

7.1 Filling level indicator (Optional)



Information

Installation of a fill level indicator on the conveyor only after consultation with Pro Tec Polymer Processing.

- a) Internal fill level indicator prevents overfilling with material. Conveying is thus ended by the fill level indicator or after the set conveying time has elapsed.

- b) External fill level indicator in the container for additive material
Only in combination with a dosing flap/dosing turnout. As empty-indicator it registered the sinking of the material level and then restricts the suctioning of the additive material.
- c) External fill level indicator in series with the proximity switch in the storage tank of the processing machine. The conveying is thus first started when the discharge flap is closed and the fill level indicator shows "empty".

7.2 2K- turnout and suction valve

Refer to separate operating instructions

7.3 Other connection options

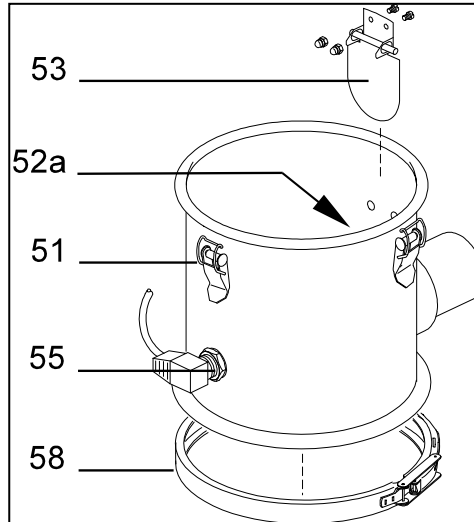
7.3.1 External fault indicator (lamp, alarm)

7.3.2 External START/STOP switch

Contact the service department of ProTec Polymer Processing GmbH for other options.

7.4 Equipment and options

7.4.1 Volume expansion stainless steel



Vol.expans.ø 38 assy. (without lock)

Vol.expans. ø 55 assy. (without locks)

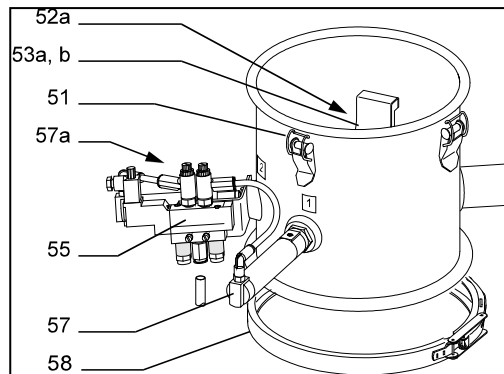
51 Lock assy.

52a V-gasket ø 38 and ø 55

53 Check valve ø 38 and ø 55, assembly

58 Lever clamping ring

7.4.2 Dosing attachment (optional instead of volume expansion)



Dosing attachment, assy. (without locks)

51 Lock assy.

52a V-gasket

53a Support plate

53b Check valve

New set with:

Check valve holder 18 mm LO

Check valve \varnothing 38-40 LO


Cylinder screw ISO 4762 M 4x 12 (2 pcs.)


55 Compressed air valve


57 Compressed air cylinder

58 Lever clamping ring

8 Service and maintenance

	<p>Warning! Risk of injury to the eyes due to stirred up dust. > Wear safety glasses.</p>
-----------------------------------------------------------------------------------	-------------------------------------------------------------------------------------------------------------

	<p>Caution! Service and maintenance must only be carried out by trained specialist personnel.</p>
-----------------------------------------------------------------------------------	--------------------------------------------------------------------------------------------------------------

	<p>Caution! Check the carbon brushes every three months and change if required. In a dusty or hot-moist environment it is recommended to shorten the inspection intervals.</p>
-----------------------------------------------------------------------------------	-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

Clean the conveyor periodically, with a material change or heavy dirt

- Blow out with compressed air.
- Wipe out with moisture (lukewarm water with detergent added or cold cleaner for plastic parts).

8.1 Clean conveyor

1. Stop the conveying cycle.
2. Switch off power from device.
3. Remove compressed air coupling.
4. Disconnect plug connections.
5. Open locks.
6. Remove blower attachment.
7. Remove filter insert.
8. Clean filter insert.
9. Wipe out conveyor with damp cloth.

Additional work for devices with volume expansion

1. Open tensioning ring.
2. Remove volume expansion.
3. Clean:
 - Volume expansion
 - Conveyed goods container
 - Check valve or pipe elbow on suction nozzles
 - Discharge flap
 - Seal on discharge
 - Balance filter
4. Fasten volume expansion with the tensioning ring.
5. Place filter insert in the conveyed goods container or the volume expansion.
6. Fasten blower attachment.
7. Connect plug connectors.
8. Put on compressed air coupling.
9. Connect device to mains power.
10. Start conveying cycle.

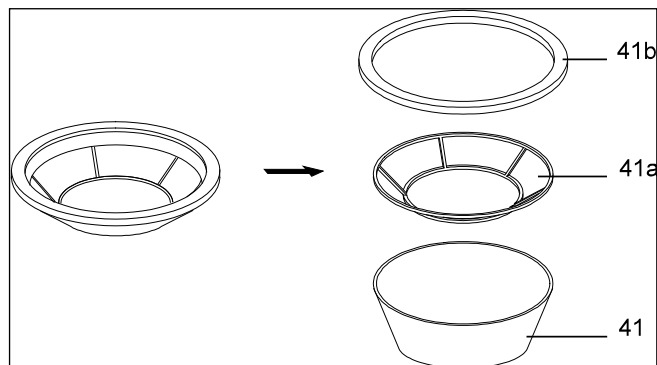
8.1.1 Cleaning or replacing conveying air filter

The conveying air filter does not require any continual service if it is cleaned. If you still want to clean the filter or change it, proceed as follows:

1. Stop the conveying cycle.
2. Switch off power from device.
3. Remove compressed air coupling.
4. Disconnect plug connections.
5. Open locks.
6. Remove blower attachment.
7. Remove filter insert.
8. Clean the filter insert by striking it or blowing out with compressed air or replace it.

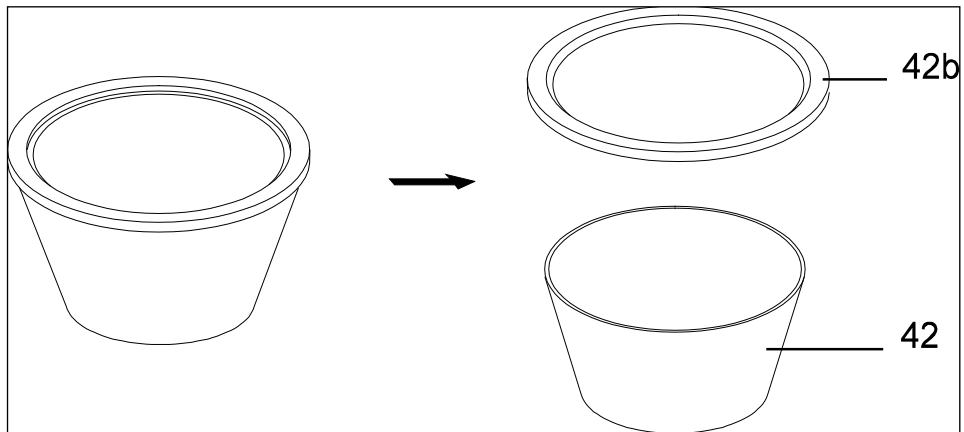
8.1.2 Replacing the conveying air filter

Conveying air filter 0.04



1. Remove sealing ring (41b) and clean it.
2. Carefully pull out from the conveying air filter (41) from the support basket.
3. Clean the support basket (41a) and force in a new conveying air filter.
4. Install the sealing ring.

Conveying air filter 0.06



1. Remove sealing ring (42b) and clean it.
2. Install the sealing ring on a new conveying air filter (42).
3. Place filter insert in the conveyed goods container or the volume expansion.
4. Set on the blower attachment.
5. Fasten locks.
6. Connect plug connectors.
7. Put on compressed air coupling.
8. Connect device to mains power.
9. Start conveying cycle.

8.1.3 Cleaning/replacing the balance filter (no continuous service)

1. If dirty, blow off from outside.
2. Stop the conveying cycle.
3. Replacing the balance filter:
4. Unscrew the balance filter.
5. Insert a new balance filter.
6. Start conveying cycle.

8.2 Service

8.3 Removing the blower attachment

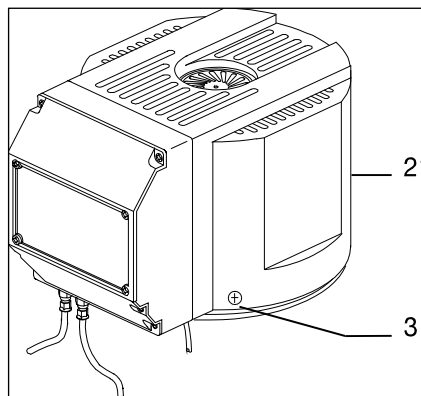
The blower is equipped with a commutation motor. The carbon brushes of this motor are subject to runtime-dependent wear. Therefore they must be replaced regularly.

	<p>CAUTION! Heat development due to worn carbon brushes. If Fault 311 occurs, the device must be shut off. The carbon brushes must be replaced, since otherwise high heat development and damage to the blower will occur.</p>
--	-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

	<p>Information If the carbon brushes are replaced once and the blower shuts off again, then it must be replaced.</p>
--	---------------------------------------------------------------------------------------------------------------------------------


8.3.1 Before maintenance


	<p>Warning! Risk of burns due to hot surfaces. > Before performing maintenance work let the device cool off.</p>
--	------------------------------------------------------------------------------------------------------------------------------------

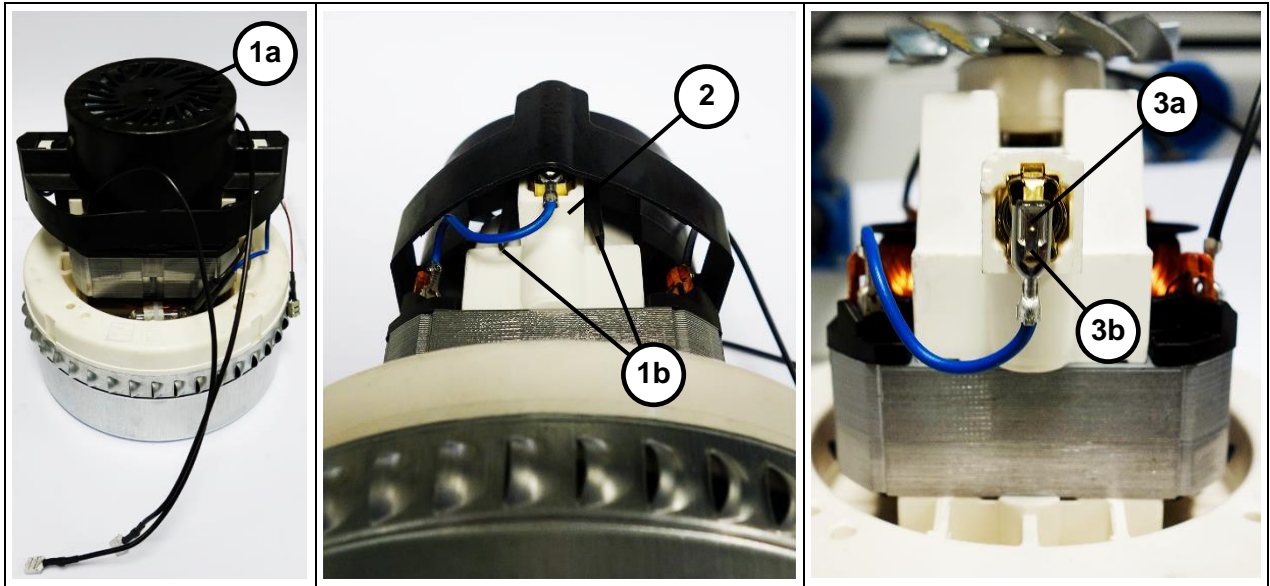


1. Stop the conveying cycle and disconnect the device from power.
2. Remove the blower attachment (21).
3. Unscrew the screws (3) on the lower edge of the hood and remove the hood.
4. Loosen the plug connections and remove the compressed air coupling.

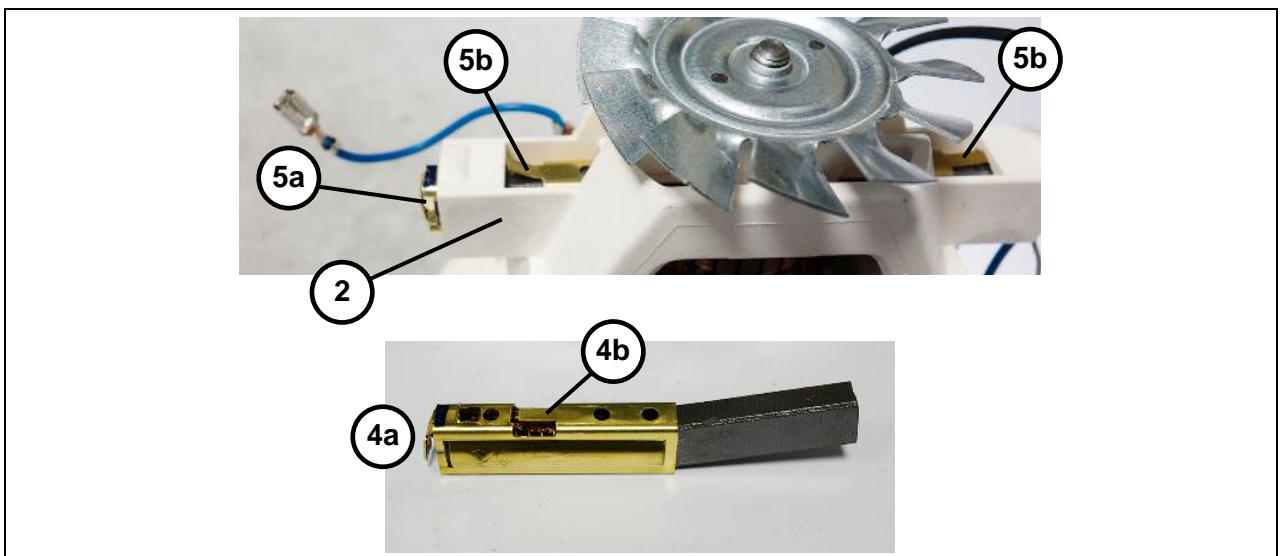
8.3.2 Replacing the carbon brushes

	Information Always replace both carbon brushes!
-----------------------------------------------------------------------------------	-----------------------------------------------------------

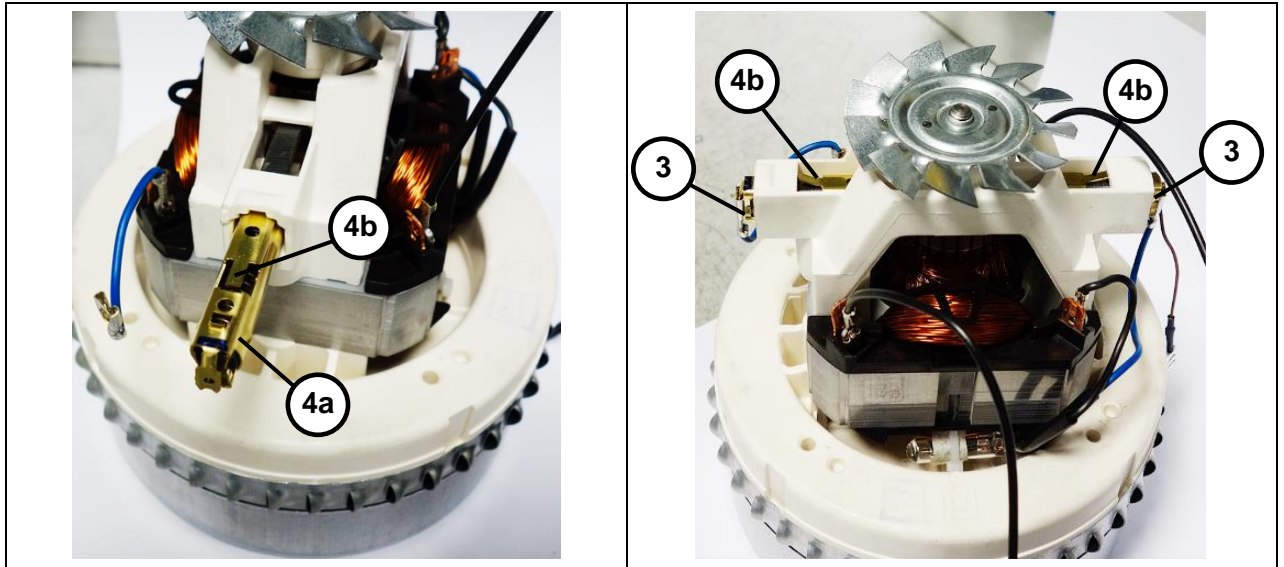
	Caution! Check the carbon brushes every three months and change if required. In a dusty or hot-moist environment it is recommended to shorten the inspection intervals.
-----------------------------------------------------------------------------------	-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------



1. Remove rotor hood (1a).
2. To do this carefully loosen the snap-in hooks (1b) on both carbon brush holders (2).
3. Pull out the plug connector (3a) on the carbon brushes. To do this slightly lift the circlip (3b).



4. Have ready two new carbon brushes (4a) with intact holding lugs (4b). Push each of the old carbon brushes (5a) slightly in the holder (2) while bending the holding lug (5b) downward and then pull out the carbon brush.



5. Push each of the new carbon brushes (4a) so far into the holder until the holding lug is visible in the opening. To secure the carbon brush holding lug (4b) bend it upwards.
6. Push both plug connectors (3) back on.
7. Place on the rotor hood (1a) and make sure that the snap-in hooks (1b) are cleanly latched on the carbon brush holders (2).

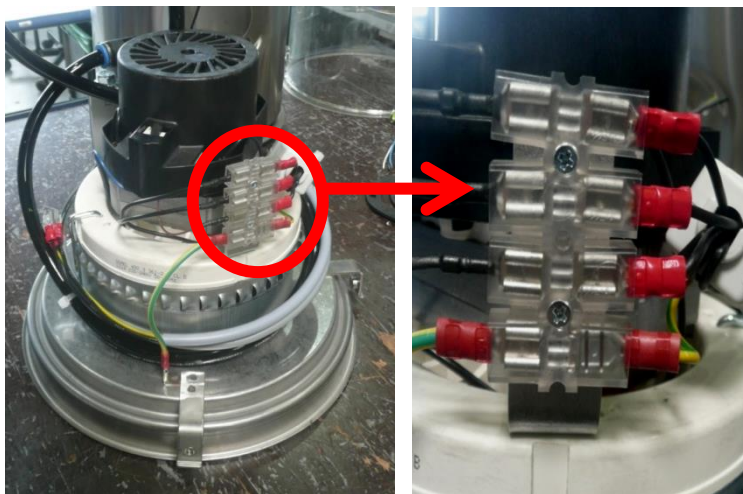
8.3.3 Replacing the blower

Preparation:

1. Switch off the conveyor.
2. Disconnect the conveyor from the mains power.
3. Let the conveyor cool off (approx. 5 minutes).

8.3.4 Removing the blower (Version FG 201 and FG 204)

1. Loosen the tensioning rings.
2. Remove hood.
3. Place the hood on its head.
4. Loosen the screwed connection of plastic hood blower (three screws on the lower edge of the plastic hood).
5. Pull the cable of the control system from the cable lug.
6. Unscrew the blower from the sheet metal protection.



8.3.5 Install new blower (Version FG 205 and FG 206)

1. Insert new blower or slide sheet metal hood over the blower:



Step one

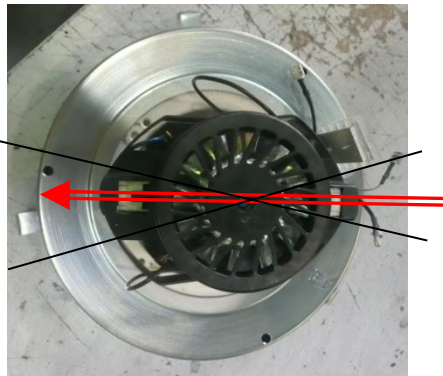


Step two



Step three

2. Notice the installation position. The pins must be in the position shown in the photo. The solenoid would be to the left of the photo (notice graphics).



3. Screw the new blower with the hood.
Note: **Do not forget the washer and gasket!**

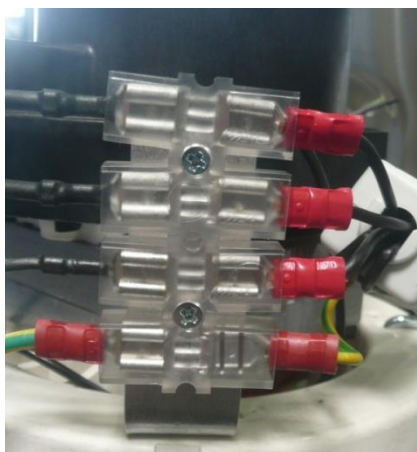


4. Check the screws for a tight seat.

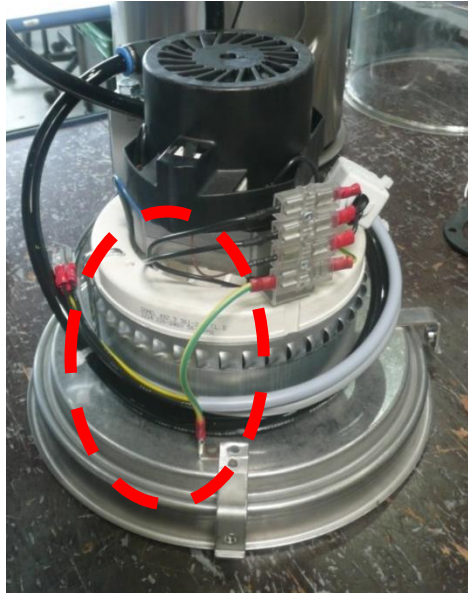
8.3.6 Plug in the cable

- Insert the cable of the control in the cable lug.

Note: The contact for the carbon brushes must **ALWAYS** be on the third position (from the top). **ALWAYS** stick the contact for the earthing on the fourth slot.



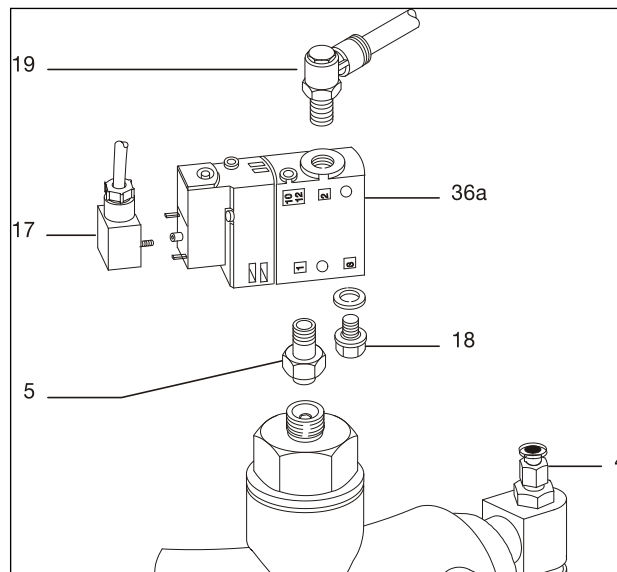
8.3.7 Earthing blower



Earthing execution for one of two types of blower attachments.
It can happen that the earthing point is separately located somewhat left on the sheet metal.

1. Connect the earthing cable with the sheet metal protection (earthing point).
2. Place the hood on.
3. Screw on using three screws.
4. Connect power supply.
5. The device is now ready for operation again.
6. Continue with production.
7. Remain at the device for 2 – 3 minutes and monitor the function. If there are vibrations or jerky movements of the attachment, shut down the conveyor, open it and check and retighten the screwed connection of the blower.

8.3.8 Replacing the compressed air valve on the cleaning valve



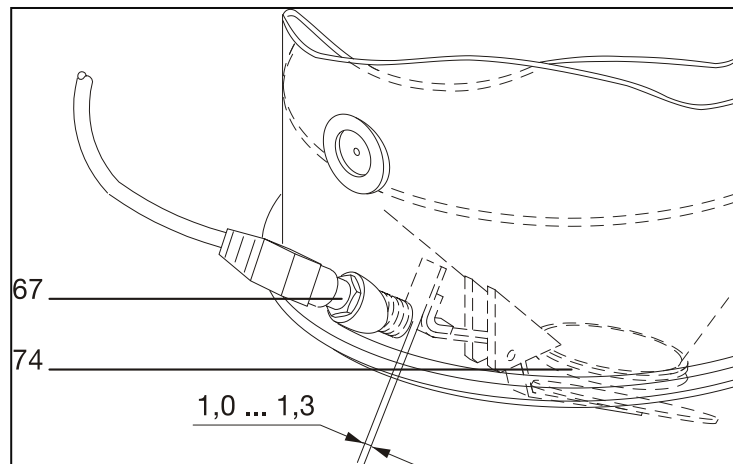
1. Remove the cable plug (17).
2. Pull off the compressed air hose (19).
3. Loosen the union nut (5) and remove the compressed air valve (36a).
4. Unscrew connection (5), nipple (19) and locking screw (18) and fasten on the new compressed air valve.
5. Tightly screw on the compressed air valve (36a) with the nut (5).
6. Stick the hose in the nipple (19).
7. Stick on the cable plug (17) and screw tightly.

After maintenance

1. Replace hood (21) and screw down tightly.
2. Set on the blower attachment.
3. Fasten locks.
4. Reconnect plug connectors.
5. Put on compressed air coupling.
6. Connect device to mains power.

8.4 Conveyed goods container

8.4.1 Replacing the proximity switch



1. Stop the conveying cycle.
2. Switch off power from device.
3. Unscrew the cable plug from the proximity switch (67).
4. Loosen the lock nut and unscrew the switch.
5. Screw in new proximity switch.
 - There must be a gap of approx. 1.0 to 1.3 mm between the switch and the lever of the discharge flap.
6. Stick on the cable plug and screw tightly.

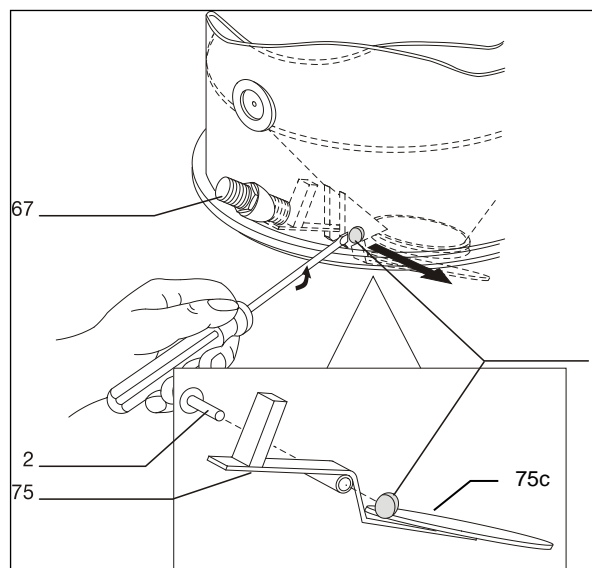
8.4.2 Replacing the V-gasket on the discharge flap

1. Remove device.
2. Carefully remove the old gasket (74).
3. Glue the new gasket with Loctite 480.
4. Refasten the device.

8.4.3 Replacing the discharge flap assembly

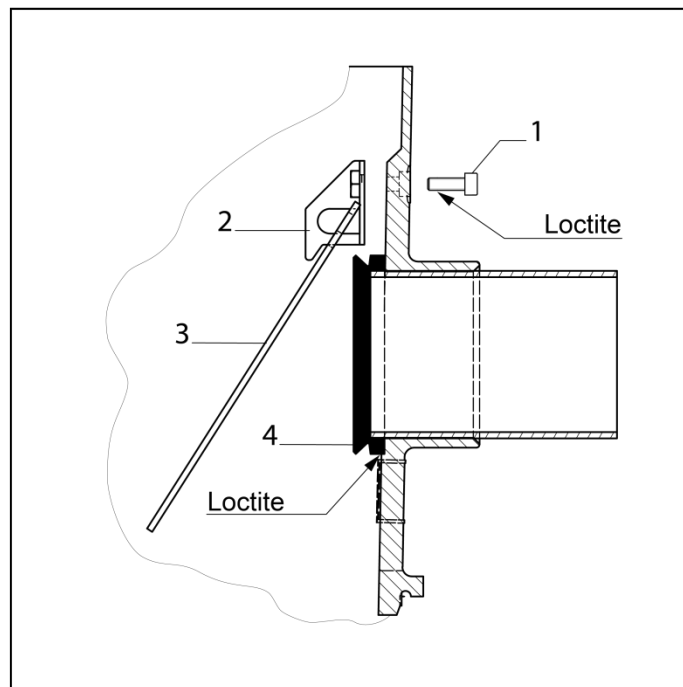
1. Remove device.
2. Do not set the conveyor on the discharge flap!
3. Otherwise it could be damaged.
4. Remove cap (1) and dispose of it.
5. Pull out pin (2) and dispose of it.
6. Pull out discharge flap (75).
7. Insert new discharge flap and fix with the new pin. Slide the new cap on the pin and push tightly.
8. Refasten the device.

8.4.4 Replacing the plate on the discharge flap



1. Remove device.
2. Unscrew plate (75c) from the discharge flap (75).
3. Apply Loctite 242 on the threads of the new plate.
4. Screw on the new plate.
5. Refasten the device.

8.4.5 Replacing check valve

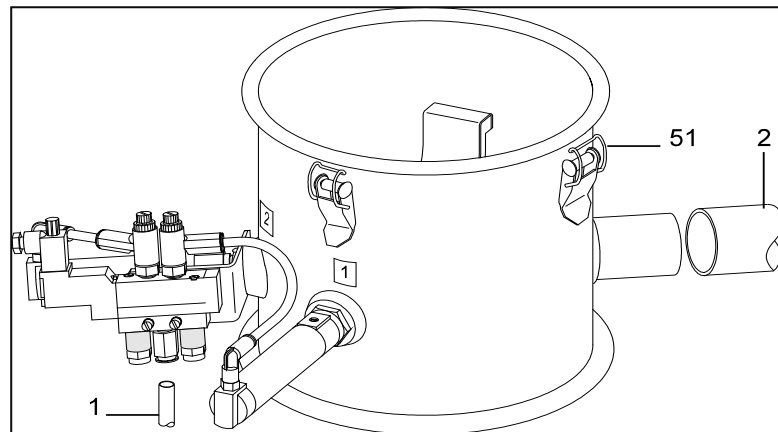


1. Open locks.
2. Disconnect plug connections.
3. Remove blower attachment.
4. Remove filter insert.
5. Loosen screws (1) on the conveying goods container.
6. Remove the check valve (3) and holder plate (2) from the inside.
7. Apply Loctite 242 on the screws threads.
8. Insert the new check valve with holder plate and screw hand-tight together.
9. Replace the filter insert.
10. Set on the blower attachment.
11. Fasten locks.
12. Connect plug connectors.

8.4.6 Replacing the V-gasket on the check valve

1. Open locks.
2. Disconnect plug connections.
3. Remove blower attachment.
4. Remove check valve (3) (refer to section Replacing check valve).
5. Pull the V-gasket (4) from the inlet nozzles and remove.
6. Clean the contact surface of the V-gasket.
7. Insert a new V-gasket and glue on with Loctite 480.
8. Replace check valve (refer to section Replacing check valve).
9. Set on the blower attachment.
10. Fasten locks.
11. Connect plug connectors if necessary.

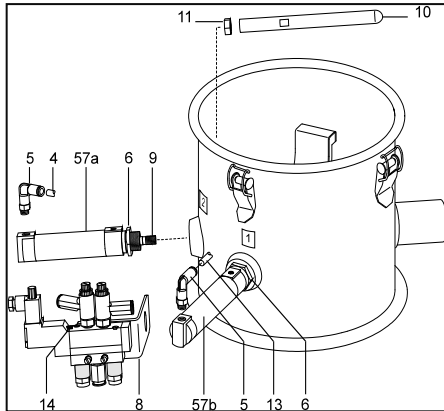
8.5 Dosing attachment (optional)



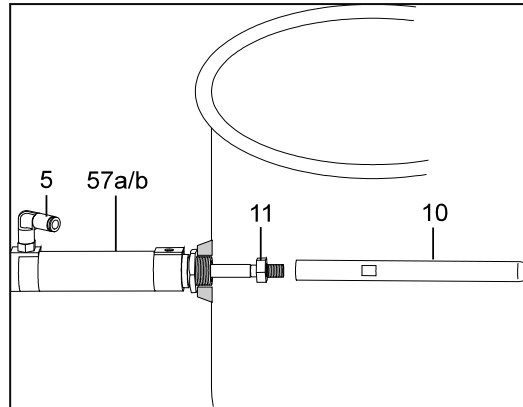
Before maintenance

1. Stop the conveying cycle.
2. Switch off power from device.
3. Disconnect the device from the compressed air system.
4. Depressurise the compressed air supply line.
5. Remove the compressed air supply line (1) from the control valve (see figure above).
6. Remove conveying hose (2).
7. Open locks (51).
8. Remove blower attachment.
9. Open tensioning ring and removed dosing attachment from conveying goods container.

8.5.1 Replacing compressed air cylinder 2



Replacing compressed air cylinder



Installing pin

1. Unscrew compressed air nipple (5).
2. Pull compressed air hose (4) from nipple (5).
3. Loosen the nuts (6).
4. Screw out the compressed air cylinder (57a).
5. Remove valve holder (8).
6. Hold the piston (9) of the compressed air cylinder tight.
7. Screw off the pin (10) and the nut (11).
8. Screw nuts (6, 11) and the pin (10) onto a new compressed air cylinder.
9. Screw on the nut (11) up to the end of the threads.
10. Apply Loctite 272 onto the threads of the pin (10) and screw on the pin up to the nut (11).
11. Slide the valve holder (8) onto the cylinder flange.
12. Screw in the compressed air cylinder (57a).
13. The flange on the inside of the container must end flush with the sleeve.
 - The nipple (5) must point upwards.
14. Align the valve holder (8) horizontal and lock with the nut (6).
15. Stick the compressed air hose (4) in the nipple (5).

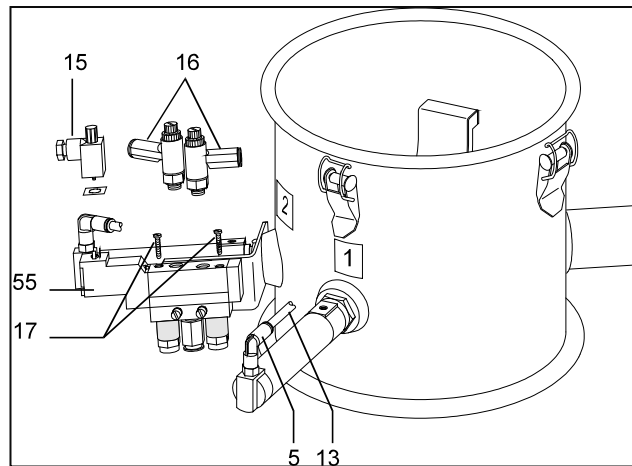
16. Adjust the pin (10).
 - The extended piston must close the flap.
17. Supply the control valve with compressed air.
18. Press the manual override (14) on the control valve.
19. The piston extends.
20. Hold the piston (9) and screw out the pin (10).
21. Until it presses the flap tightly on the metal edge of the nozzle.
22. Lock the pin (10) with the nut (11).
23. Interrupt the compressed air supply.

8.5.2 Replacing compressed air cylinder 1

1. Pull off the compressed air hose (13) from the compressed air nipple (5) and loosen the nut (6).
2. Screw out the compressed air cylinder (57b).
3. Hold the piston (9) of the compressed air cylinder tight.
4. Screw off the pin (10) and the nut (11).
5. Tightly screw nuts (6, 11) and the pin (10) onto a new compressed air cylinder:
 - Screw on the nut (11) up to the end of the threads.
 - Apply Loctite 272 on the pin threads (10).
6. Screw on the pin up to the nut (11): Screw in the compressed air cylinder (57): The flange on the inside of the container must end flush with the sleeve.
7. The nipple (5) must point upwards.
8. Tighten the nut (6).
9. Stick the compressed air hose (13) in the nipple (5).
10. Adjust the pin (10).
 - The extended piston must close the flap.
11. Supply the control valve with compressed air.

12. Press the manual override (14) on the control valve.
 - The piston extends.
13. Hold the piston (9) tight and screw out the pin (10) until it presses the flap tightly on the metal edge of the nozzle.
14. Lock the pin (10) with the nut (11).
15. Interrupt the compressed air supply.

8.5.3 Replacing the control valve



Replacing the control valve


1. Unscrew the cable plug (15) and pull it off.
2. Pull the compressed air hose (13) from the throttle- check valve (16).
3. Unscrew the throttle check valve (16).
 - Factory setting of the throttle screws must not be changed.
 - (Extend cylinder approx. 2 s).
4. Unscrew the screws (17).
5. Remove control valve (55) and replace it.
6. Tighten the new control valve with the screws (17).
7. Screw on the throttle check valve (16) with seal onto the control valve:
8. Valve for the compressed air cylinder 2 on connection hole 4
9. Valve for the compressed air cylinder 1 on connection hole 2.
10. Stick the compressed air hose (13) in the nipple (5).
11. Stick on the cable plug (15) and screw tightly.

After maintenance

1. Set the dosing attachment on the conveying goods container.
2. Fasten the lever tensioning ring.
3. Place the filter insert on the dosing attachment.
4. Place the blower insert on the dosing attachment.
5. Fasten locks (51).
6. Mount the conveying hoses.
7. Connect the device to the compressed air supply.
8. Connect the compressed air supply line (1) on the control valve.
9. Establish compressed air supply.
10. Connect the device to mains power.

9 Appendix

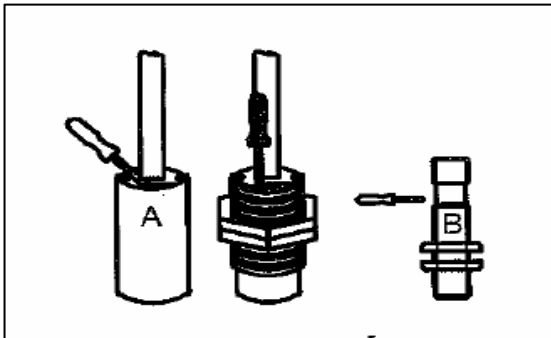
9.1 Setting the fill level sensor

	<p>Caution! Overturning the potentiometer leads to damage and /or destruction o the sensor. Adjust the sensor in small increments until the ideal setting is reached.</p>
-----------------------------------------------------------------------------------	--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

Depending on the design of the sensor the potentiometer could be located at another location.

We differentiate adjustable sensors with the position of the potentiometer under a cover (A) ($d \geq 30$ mm) or a sealing screw or a plug design (B) with a partially side potentiometer without cover.

Adjustment with a small screwdriver is done for both designs in the same manner:



Turn right: Increases sensitivity

Turn left: Decreases sensitivity

Setting a type (A) fill level indicator:



Figure 1: View of the safety flap



Figure 2: Safety flap open

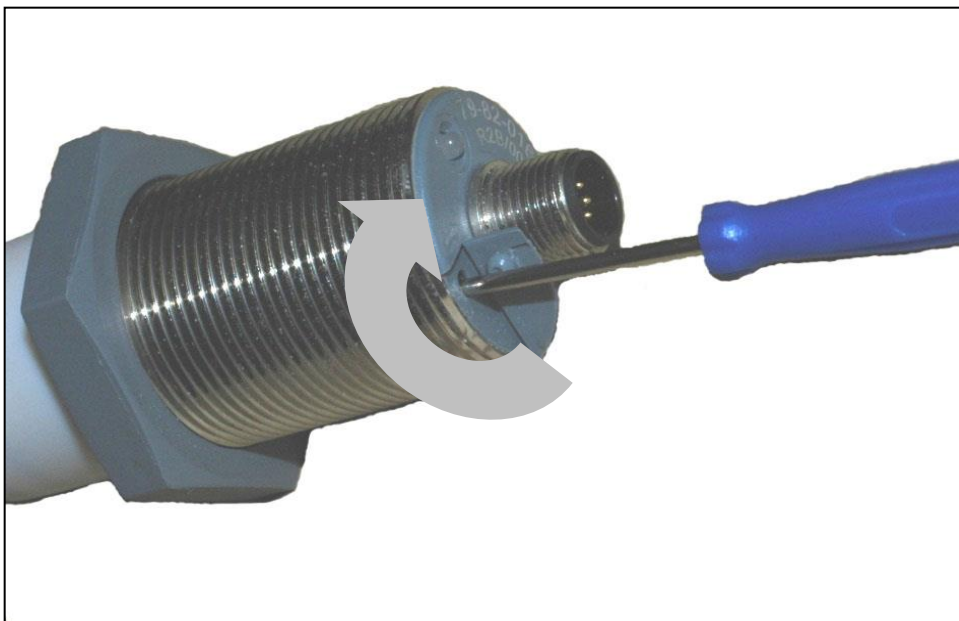


Figure 3: Turning the screwdriver

Half-turn to the right (clockwise)

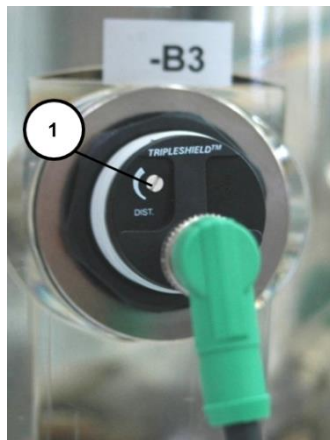
- Sensitivity of the fill level indicator is increased:

Half-turn to the left (counter-clockwise):

- Sensitivity of the fill level indicator is reduced:

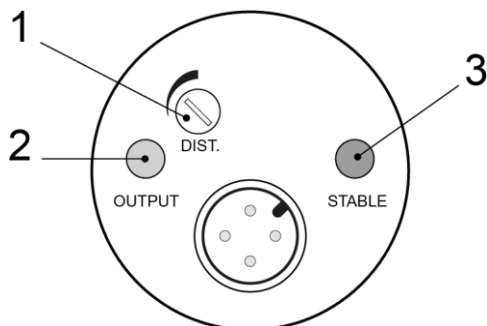
9.2 Option: Setting the type B fill level sensor

9.2.1 Sensor without cover flap



Set fill level sensor as with type A sensor: using the set screw (1).

9.2.2 Capacitive sensors (CAS) can be installed non-flush for level control



- 1 Potentiometer
- 2 Yellow LED
- 3 Green LED

Green LED	Yellow LED	
ON	OFF	The power is on and the sensor is in a stable OFF state.
OFF	OFF	The output is OFF, and the target is not detected.
OFF	ON	The output ON, and the target is detected
ON	ON	The output is ON and the sensor is in a stable ON state.

Setting for stable ON state:

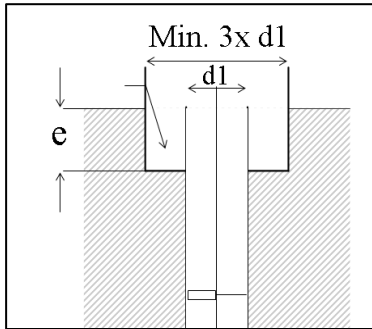
1. Immerse active surface (=thread-free zone or 25 mm) completely in the medium.
2. Increase the sensitivity of the potentiometer by turning to the right, until both the yellow and the green LED light steadily.
3. You have now reached a stable ON level.

Elimination of the background for an empty container:

4. Place the sensor in the application with no target in front of the sensor.

5. Turn the potentiometer clockwise until the yellow LED lights, and then counter clockwise until the yellow LED is off and the green LED lights steadily.
6. You have now reached a Stable OFF level

Installation of the sensor:



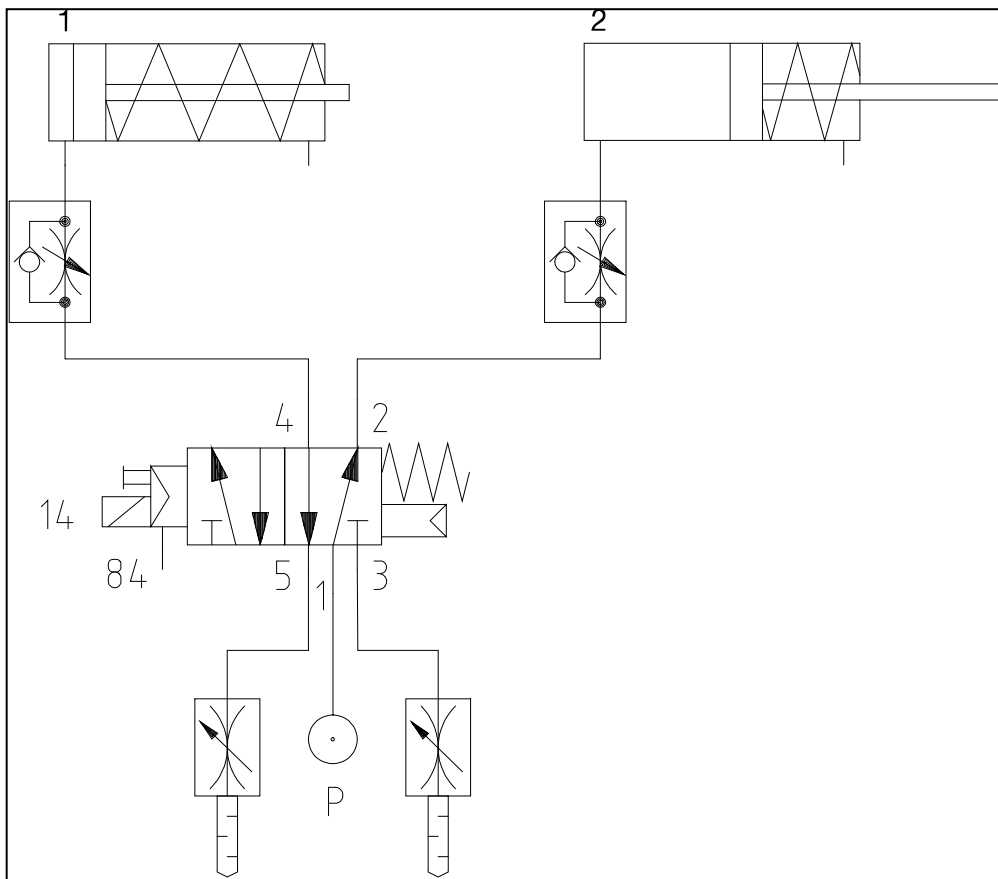
The variant used is the non-flush installable type: Dimension "e" corresponds to the thread-free zone or ≥ 25 mm. The dimension "min. 3x d1" corresponds to the specified minimum free surface, whereby d1 is the diameter of the sensor.

The threaded sensors are supplied with two nuts. The following maximum tightening torques (table) must be observed:

	PVC	PA 6.6	PTFE	V2A
M 30 x 1.5	-	13 Nm	3.0 Nm	230 Nm

When screwing in the threaded blocks the maximum insertion lengths must be observed (DIN 13).

9.3 Pneumatic connection diagram (2-K conveyor)



9.4 Chemical resistance of the material container

Medium (23 °C):	Evaluation	Medium (23 °C):	Evaluation
A		n-butyl alcohol	□ (2)
Acetone	●	t-butyl alcohol	□ (1)
Acrylonitrile	□ (1)	Butylene glycol	□
Adipinic acid, sat.	■	t-butyl methyl ether	■
Allyl alcohol	□ (2)	C	
Aluminum sulfate, sat.	■	Carbon disulfide	■
Ammonium acetate, sat.	■	Carbon tetrachloride	■
Ammonium carbonate, sat.	■	Chloroform	□ (1)
Ammonium iron(II) sulfate, sat.	■	Chlorosulfuric acid	□ (2)
Ammonium iron(III) sulfate, sat.	■	Crotonaldehyde	□ (2)
Ammonium nitrate, sat.	■	Cyclohexane	●
Ammonium phosphate, sat.	■	D	
Ammonium sulfide, 40%	● (3)	Dibutylphthalate	■
Amyl acetate	■	1,2-dichlorobenzene	■
Amyl alcohol	□ (2)	1,2-dichloroethane	●
Aniline	□ (2)	1,2-dichloroethylene	□ (1)
Anisole	■	Difluorodichloromethane	■
B		Difluoromonochloromethane	●
Barium hydroxide, 10%	■	Diisobutylketone	■
Benzaldehyde	□ (1)	Diisopropyl ether	■
Benzene	■	Dimethylformamide	□ (2)
Benzoic acid, sat.	● (3)	1,4-dioxane	● (3)
Bromine, liquid	□ (2)	E	
1,3-butanediol	□ (1)	Ethyl acetate	■
1,4-butanediol	□ (1)	Ethyl alcohol	□ (1)
2,3-butanediol	□ (1)	Ethylamine, 33%	● (3)
Butyl acetate	■	Ethylbenzene	■
■ = resistant	Supplementary abbreviations for the chemicals listed: sat. = saturated solution in water at 23 °C conc. = concentrated	Supplementary numbers for "conditionally resistant" and "not resistant": (1) = stress-crack formation, (2) = dissolving (3) = discoloration, impairment of transparency	
● = conditionally resistant			
□ = not resistant			

© Evonik Industries AG

Medium (23 °C):	Evaluation	Medium (23 °C):	Evaluation
Ethylene diamine	□ (2)	N	
Ethylene glycol	□ (3)	Nitric acid, 2%	●
Ethyl ether	■	Nitric acid, 10%	●
F		Nitric acid, 30%	□
Fluorodichloromethane	□	Nitrobenzene	■
Formaldehyde solution	■	P	
Formic acid, conc.	□ (2)	Paraffin oil	■
Furfuralcohol	□ (2)	Potassium chlorate, sat.	●
G		Potassium chloride, sat.	■
Gasoline (5% methanol)	□ (2)	Potassium dichromate, sat.	■
Gasoline	■	Potassium hydroxide solution, 50%	■
Glacial acetic acid	□ (2)	Potassium iodide, sat.	■
H		Potassium nitrate, sat.	■
n-heptane	■	Potassium perchlorate, 10%	■
n-hexane	■	n-propanol	□ (2)
Hexanetriol	■	Propylene glycol	□ (1)
Hydrazine hydrate, 80%	● (3)	S	
Hydrochloric acid, 2%	■	Sodium hydroxide solution, 5%	■
Hydrochloric acid, 10%	■	Sodium hydroxide solution, 10%	■
Hydrochloric acid, conc.	□ (1)	Sodium hydroxide solution, 50%	■
Hydroxylamine, 30%	■	Sulfuric acid, 10%	■
I		Sulfuric acid, 40%	■
Iron (II) sulfate, sat.	■	Sulfuric acid, conc.	□ (1)
Iron (III) sulfate, sat.	■	T	
Isoamyl alcohol	□ (2)	Tartaric acid, sat.	● (1)
Isooctane	■	1,1,2,2-tetrafluorodichloroethane	■
Isopropanol	□ (1)	Toluene	■
K		Trichloroethylene	■
Kerosene	■	1,2,2-trifluorotrchloroethane	■
M		Triocetyl phosphate	■
Methylene chloride	□	X	
Methyl ethyl ketone	□ (1)	Xylene	■
Monofluorotrichloromethane	■		

■ = resistant
 ● = conditionally resistant
 □ = not resistant

Supplementary abbreviations for the chemicals listed:
 sat. = saturated solution in water at 23 °C
 conc. = concentrated

Supplementary numbers for "conditionally resistant" and "not resistant":
 (1) = stress-crack formation, (2) = dissolving
 (3) = discoloration, impairment of transparency

© Evonik Industries AG

