SALES OF MACHINES AND PARTS FOR SORTING LINE TECHNOLOGY



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PRAŽSKÉ SLUŽBY

CONTENTS

Desig.	Quantity	Description	Mfg. Year	Op. Hours (h)
1	1	Bag opener	2022	1000h
2	1	Conveyor belt 19.375 mm	2022	1000h
3	1	Conveyor belt 9.000 mm	2021-2022	1000h
4	1	Sorting cabin	2022	1000h
5	11	Discharge box	2022	1000h
6	1	Conveyor belt 16.500 mm	2021-2022	1000h
7	1	Ballistic separator	2022	1000h
8	1	NIR 2-way	2021	1000h
9	1	Conveyor belt 10.200 mm	2021-2022	1000h
10	1	NIR 6-way	2021	1000h
11	1	Conveyor belt 6.000 mm	2021-2022	1000h
12	1	Conveyor belt 16.000 mm	2021-2022	1000h

Desig.	Quantity	Description	Mfg. Year	Op. Hours (h)
13	1	Conveyor belt 8.500 mm	2021-2022	1000h
14	1	NIR 4-way	2021	1000h
15	1	Conveyor belt 13.500 mm	2021-2022	1000h
16	1	Conveyor belt 17.500 mm	2021-2022	1000h
17	1	Conveyor belt 28.950 mm	2022	1000h
18	1	Baling press	2022	1000h
19	40*	Level sensor Vegaplus 21	2021	1000h
20	1	Conveyor belt 3.900 mm	2021-2022	1000h
21	1	Conveyor belt 8.400 mm	2021-2022	1000h
22	1	Conveyor belt 19.000 mm	2021-2022	1000h
23	1	Conveyor belt 14.000 mm	2021-2022	1000h
24	1	Perforator	2022	1000h

** approximate quantity*

BAG OPENER

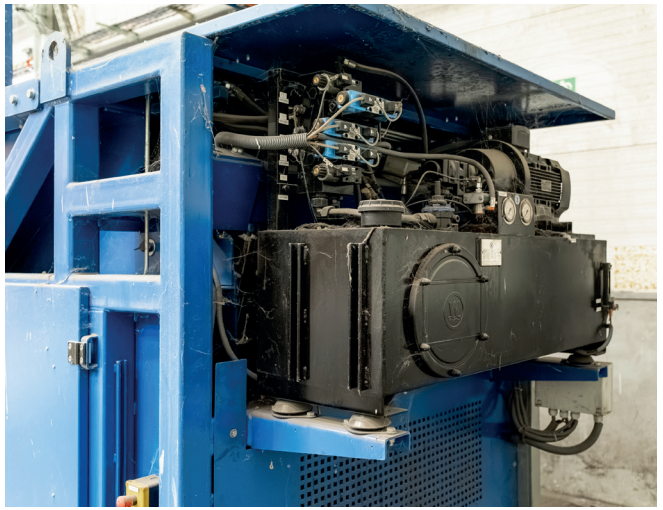
The key data of the installed bag opener are displayed in the following table:

Parameter	Technical data
Supplier:	BRT HARTNER GmbH
Location:	D-49479 Ibbenbüren
Product designation:	BO 13 bag opener (N 2-13-18)
Throughput capacity:	5 ton/h at 70–100 kg/m³ material density
Minimum volume throughput:	40 m³/h
Measurements (length x width x height):	8.710 x 2.200 x 3.200 mm
Weight:	approx. 10 ton
Working width:	1.300 mm
Feeding hopper volume:	Approx. 14 m³
Feeding height:	2.400 mm
Moving floor alignment:	Horizontal
Conveyance speed:	Max. 1,5 m/min; continuously variable
Drive power:	7,5 kW for bag opener 4 kW for moving floor 2 kW for oil heating 13,5 kW total
Electrical supply:	3 x 400 V, 50 Hz + N + PE Power supply: 20 kW



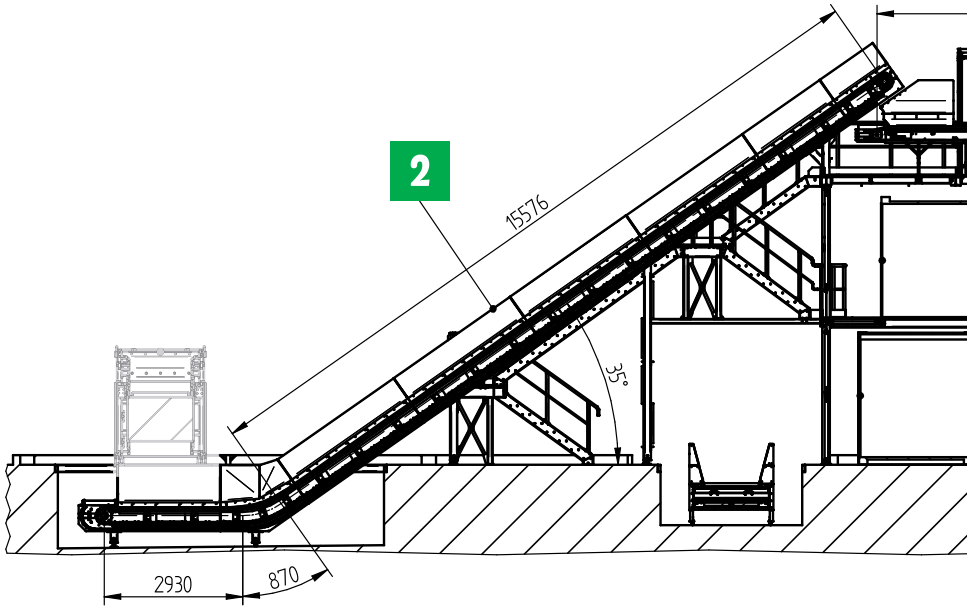






CONVEYOR BELT 19.375 mm

Parameter	Technical data	
Location in the sorting plant:	downstream bag opener (1)	
Purpose in the sorting plant:	Delivery of input waste to sorting cabin (3)	
Type of conveyor belt:	chain belt conveyor (KGF)	
Conveyed material quantity:	5.000 kg/h.	
Density of conveyed material:	40 kg/m^3	
Required conveying volume capacity:	125 m^3/h.	
Total length of the conveyor:	19,4 m	
Length of the rising part:	16,4 m	
Angle of incline:	35°	
Conveying height:	9,2 m	
Width of conveyor belt:	1.200 mm	
Working width:	1.200 mm	
Height of side wall:	400 mm	
Filling rate:	50 %	
Actual conveying volume capacity:	242 m^3/h.	
Weight of moving parts	200 kg/m	
Pitch circle diameter	326 mm	
Installed power:	7,5 kW	
Rotation speed:	16,0 rpm (at 50 Hz)	
Chain speed	0,28 m/s	
Installed torque:	4 487 Nm	
Frequency converter:	26 Hz	80 Hz
Chain speed:	0,15 m/s	0,45 m/s
Conveyance rate:	125,8 m^3/h	387 m^3/h
Rotation speed:	9 rpm	26 rpm

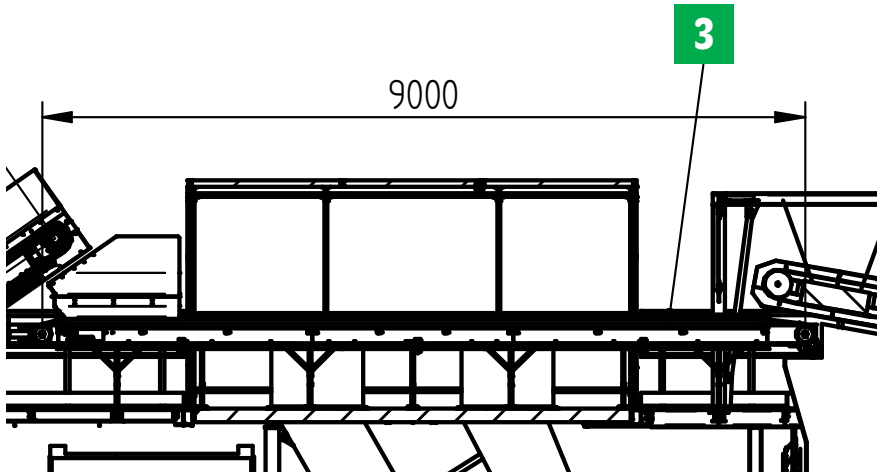






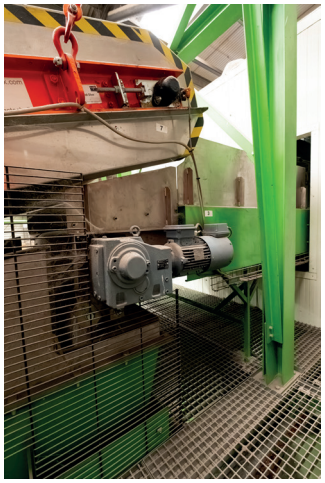
CONVEYOR BELT 9.000 mm – SORTING BELT

Parameter	Technical data	
Location in the sorting plant:	Downstream conveyor belt no. 2	
Purpose in the sorting plant:	Waste transport through sorting cabin (3)	
Type of conveyor belt:	Sliding belt conveyor (GG)	
Conveyed material quantity:	5.000 kg/h.	
Density of conveyed material:	40 kg/m^3	
Required conveying volume capacity:	125 m^3/h.	
Total length of the conveyor:	9.000 mm	
Width of conveyor belt:	1.350 mm	
Working width:	1.200 mm	
Angle of incline:	0°	
Height of side wall:	100 mm	
Installed power:	1 kW	
Rotation speed:	14 rpm	
Chain speed:	0,25 m/s (at 50 Hz)	
Filling rate:	100 %	
Actual conveying capacity:	108,0 m^3/h (at 50 Hz)	
Frequency converter:	20 Hz	80 Hz
Chain speed:	0,10	0,40
Conveying capacity:	43,2 m^3/h	172,8 m^3/h
Preparation for frequency converter:	Yes	
Drive drum diameter:	219 mm	









SORTING CABIN

The sorting cabin is equipped with air conditioning that will act as heating in winter and cooling in summertime.

The sorting cabin was planned for two sorting fractions (LDPE foils, impurity big).

- Cabin type: 2 sorting fractions
- number of sorting places: 4 places
- number of doors: 4 doors
- air conditioning incl. automatic temperature control system
- basic frame: all-steel-welded construction of several steel shapes supported on the partition walls of the storage boxes
- skid proof floor covering
- isolated walls and ceiling
- lighting system incl. emergency lighting

The key data of the installed sorting cabin are displayed in the following table.

Parameter	Technical data
Supplier:	ENVIRMINE-ENERGO, a.s.
Location:	CZ-564 01 Žamberk
Product designation:	Sorting cabin – 4 sorting places
Dimensions inside: length x width x height	5.100 x 4.800 x 2.500 mm
Inside volume:	61 m^3
Air exchange flow:	620 m^3/h (min.)
Exchange air flow velocity:	0,2 m/s (max.)
Cladding:	60 mm thick sandwich panel (walls, ceiling, floor)
Flooring is coverage:	15 mm thick OSB/4 boards, in two layers
Windows:	2 pcs double glazed windows, not to open
Doors:	4 pcs, with transparent panel, self-closing
Lightning:	6 pcs LED lights on ceiling emergency lighting at each door with exit sign
Electric supply:	4pcs 230V sockets
Degree of protection:	IP54
Passage of the conveyor belt:	fitted with PVC fringes







DISCHARGE BOXES

The inner dimensions of all 11 discharge boxes are summarised in the table below:

Pos.	Length (m)	Width (m)	Height (m)	Volume (m³)
8	6,5	1,65	2,1	20,7
8	10,0	1,5	3,0	31,7
12	5,5	1	1,75	9,15
12	5,5	1	1,75	9,15
12	5,5	1	1,75	9,15
12	5,5	1,2	1,75	9,15
12	6,0	1,2	1,75	9,15
12	6,0	1,2	1,75	9,15
12	5,5	1	1,75	9,15
12	5,5	1	1,75	9,15
12	8,4	1,2	1,6	14,9

Configuration of discharge boxes

All 11 discharge boxes are designed in the same configuration, the only differences are the geometrical dimensions, the storage volume and the width of moving floor conveyors for material discharge.

Each discharge box consists of a cuboid steel structure for storage of material, a moving floor conveyor with crossbars on the bottom for discharge of material and a mechanical scraper for dispersion of filled-in material on the top. Three-dimensional sketches of the box and the moving floor conveyor are given in the Figure 5-4 and the Figure 5-5 below.

On the narrow outlet side of the box, a rectangular grating suspended by a rope hoist is installed for the periodic opening of the box during the discharge process as depicted in Figure 5-11 and Figure 5-12 below.

The grating is fitted with a pair of position switches which give information to the control system about the opening or closing status of the discharge box.

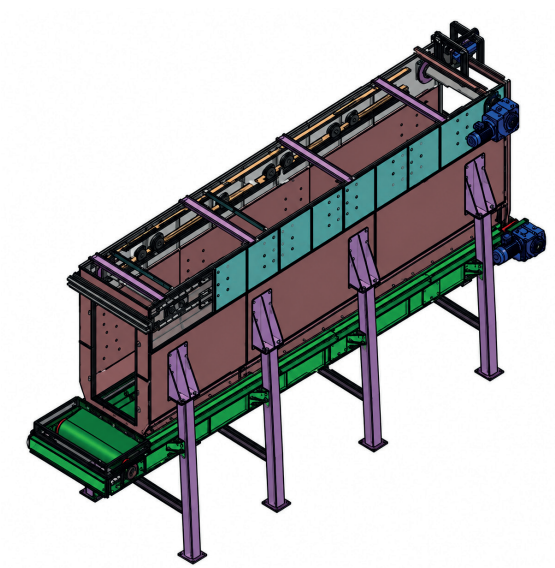


Figure 1: 3D view of discharge box

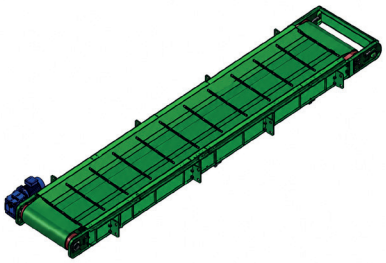


Figure 2: 3D view of moving floor conveyor

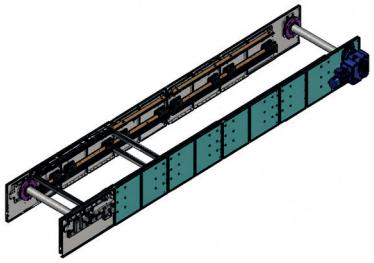


Figure 3: Dispersion scraper for material

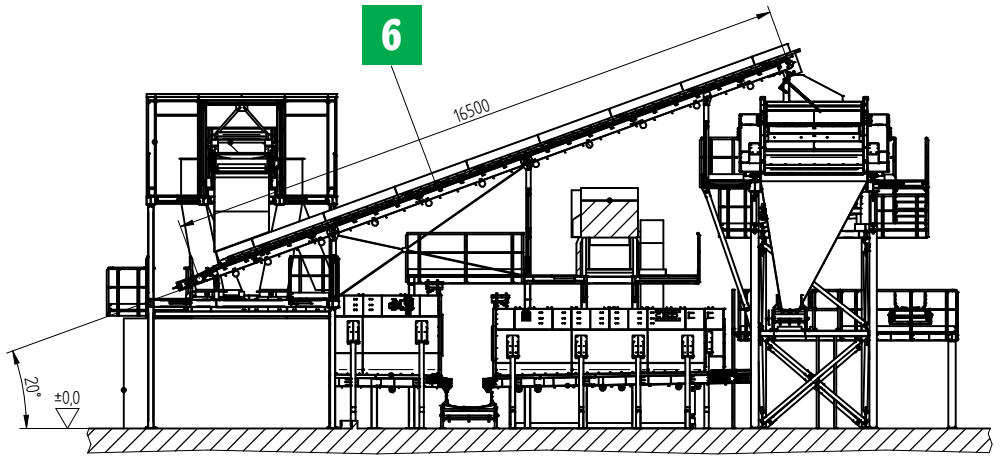






CONVEYOR BELT 16.500 mm

Parameter	Technical data
Location in the sorting plant:	Downstream FE-separator
Purpose in the sorting plant:	Waste transport to ballistic separator (8.1)
Type of conveyor belt:	sliding belt conveyor (GG)
Conveyed material quantity:	4.200 kg/h
Density of conveyed material:	40 kg/m^3
Required conveying capacity:	105 m^3/h
Total length of the conveyor:	16.500 mm
Width of conveyor belt:	1.200 mm
Working width:	1.038 mm
Angle of incline:	20°
Conveying height:	5,65 m
Height of side wall:	300 mm
Installed power:	4 kW
Rotation speed:	33 rpm
Chain speed	0,55 m/s
Preparation for frequency converter:	No
Filling rate:	25 %
Actual conveying capacity:	154 m^3/h







BALLISTIC SEPARATOR

The ballistic separator diverts fines <50mm and 2D (flat) from 3D material. This ballistic separating technique is constructed with only one screen tray. This prevents clogging of plastic material and saves maintenance cost.

Key data - ballistic separator

The key data of the ballistic separator are displayed in the following table:

Parameter	Technical data
Supplier:	Sinawehl GmbH Umwelttechnik (SUT)
Location:	A-7221 Marz
Product designation:	TS 12 / Ballistor
Type:	Separating sieve
Length:	8,0 m
Width:	4,0 m
Height:	2,7 – 3,5 m (dependent on inclination 0–12°)
Drive power:	11 kW
Supply voltage:	400 V +/- 5 %
Power frequency:	50 Hz
Weight:	7.500 kg
Inclination adjustment:	0 – 12° manual-hydraulically
Sieve perforation:	50 mm
Sieve rotation speed:	100 – 150 rpm
Input material:	Plastic waste
Density:	50 – 70 kg/m^3
Input volume capacity:	70 – 85 m^3/h
Input mass capacity:	3,5 t/h (50 kg/m^3 x 70 m^3/h) to
	6,0 t/h (70 kg/m^3 x 85 m^3/h)
Selectivity:	90 %
Electric control:	Switch cabinet including frequency converter, ventilation for ambient temperatures to 40°C
Compliance with:	machine directive 89/392/EWG

Functional principle

The separation sieve works on basis of the ballistic principle, whereby the different trajectories of the various materials separate them.

The feed material is conveyed onto an inclined, rotating plane (sieving trough). The rotation generates an impulse that conveys flat parts (2D) upwards. Voluminous parts (3D) are reflected and conveyed downwards. During these processes, the particle mixture on the sieve is separated from adhering particles, which fall into the sieve fraction.

A 3-dimensional view of the balistor and the sieve trough is given in the Figure 1 and the Figure 2 below:

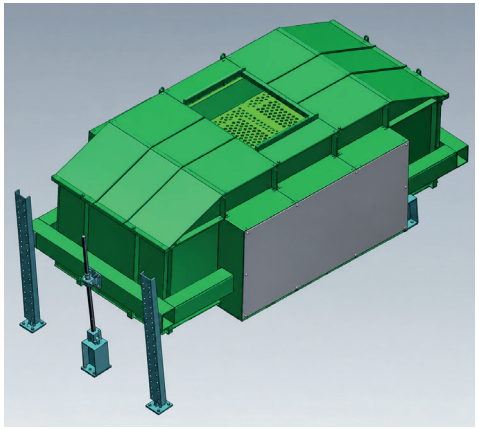


Figure 1: Separating sieve - TS 12 / Ballistor

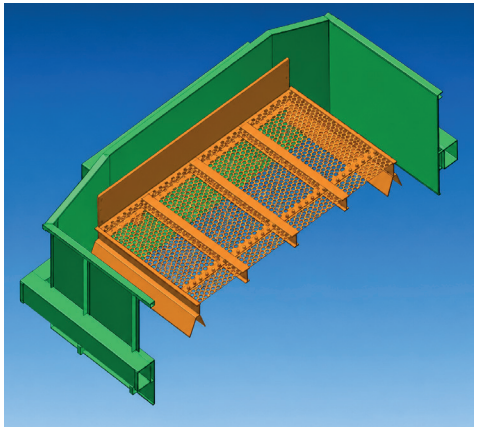
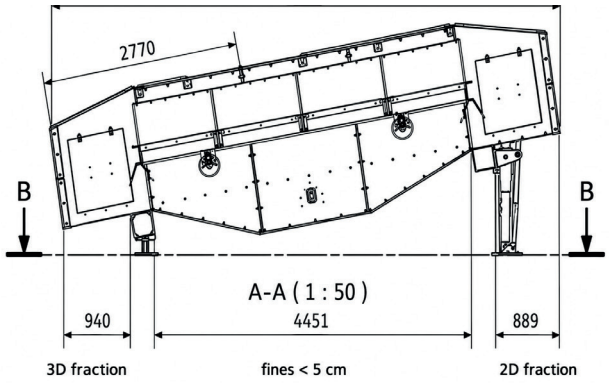


Figure 2: Sieve trough – 3D view

A longitudinal section of the balistor indication the zones where the fractions 3D, 2D and fines < 5 cm are dropped down is presented in the Figure 3 as follows:



NIR 2-WAY SORTER CONFIGURATION

Infeed vibratory feeder

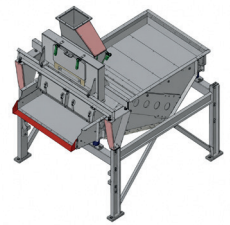
The purpose of the infeed vibratory feeder is to prepare an even and shallow layer of waste material prior to the discharge into the NIR 2-way sorter.

The key data of the infeed vibratory feeder are displayed in the table below:

Parameter	Technical data
Supplier:	BINDER & Co AG
Location:	A-8200 Gleisdorf
Product designation:	Vibratory feeder
Type:	Infeed vibratory feeder FR 2000x2500
Length:	2.500 mm
Width:	2.000 mm
Weight:	500 kg
Trough design:	rectangular profile
Inclination of conveyor trough:	approx. 5°
Input material:	mixed plastic waste acc.
Grain size / fraction:	5 – 35 cm
Input waste density:	40 – 50 kg/m^3
Volume capacity:	max. 3,3 ton/h
Mechanical equipment:	2 pcs. unbalanced vibratory drives
Power supply:	2 x 1,7 kW
Voltage:	400 V AC
Frequency:	50 Hz
Protection class:	IP 66

The device consists of a welded steel construction, material S235JRG2, with bolted drive yoke for the unbalanced vibratory drives.

An exemplary image of the infeed vibratory feeder FR 2000x2500 is displayed in the Figure 1 below.



NIR 2-way sorter

The purpose of the NIR 2-way sorter is to split the 3D fraction discharged from the balistor into two separate material streams, i.e. the specific recycling fractions HDPE, PET, PP, PS (3D plastic) and 3D non-plastic. It works according to the functional principle "positive sorting".

The key data of the NIR 2-way sorter are displayed in the following table:

Parameter	Technical data
Supplier:	BINDER & Co AG
Location:	A-8200 Gleisdorf
Product designation:	Near Infra Red plastic waste sorting machine
Type:	CLARITY belt sorter CLB20 2-way
Functional principle:	positive sorting
Length:	5.189 mm
Width:	2.710 mm
Height:	2.000 mm
Weight:	5.700 kg
Input material:	mixed plastic waste acc.
Grain size / fraction:	5 – 35 cm
Input waste density:	40 – 50 kg/m^3
Volume capacity:	max. 3,3 ton/h
Power supply:	7,5 kW
Electrical connection:	3/N/PE 400 V, 32 A
Frequency:	50 Hz
Ejection ways:	1 + 1 Eject and Pass through Ejection via air nozzles
Compressed air	
Operation pressure:	7 – 10 bar
Volume consumption:	cca 55 Nm^3/t vyhazovaného materiálu (~2,1 t/h)
Connection:	G 1"
Compressed air quality:	DIN ISO 8573-1 / Grade 3

NIR 2-WAY SORTER CONFIGURATION

NIR 2-way sorter configuration

The complete NIR 2-way sorter consists of:

- housing with maintenance cover (up front and lateral) illumination and sensor unit for material detection (NIR sensor)
- main conveyor with perforated conveying belt
- serial valve triggering and block jets meeting the ease of exchangeability (80 valves with 25 mm valve resolution)
- internal valve tester impact sound
- air accumulator incl. filter with fittings and tubes to the valves
- acceleration belt of 3 m length
- main switchboard for signalling and controlling the device
- - belt conveyor for discharge of 3D plastic (HDPE, PET, PP, PS) aligned in 90° angle to the longitudinal axis of the 2-way sorter

An exemplary image of the vibratory feeder FR 2000x2500 is displayed in the figure 1 below.

The schematic configuration of specific functional components is displayed in the subsequent figure 2 below.

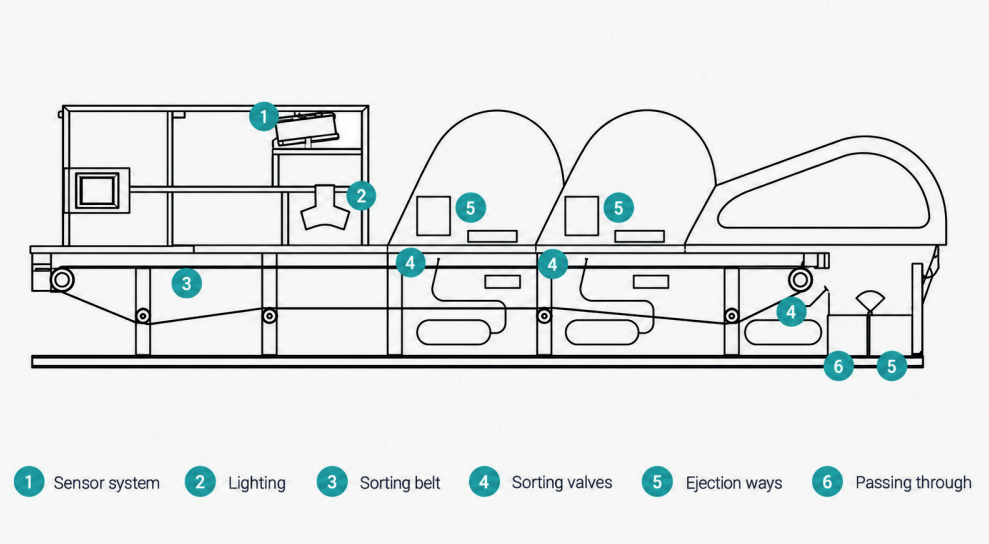


Figure 2: Schematic configuration of functional components of NIR 2-way sorter







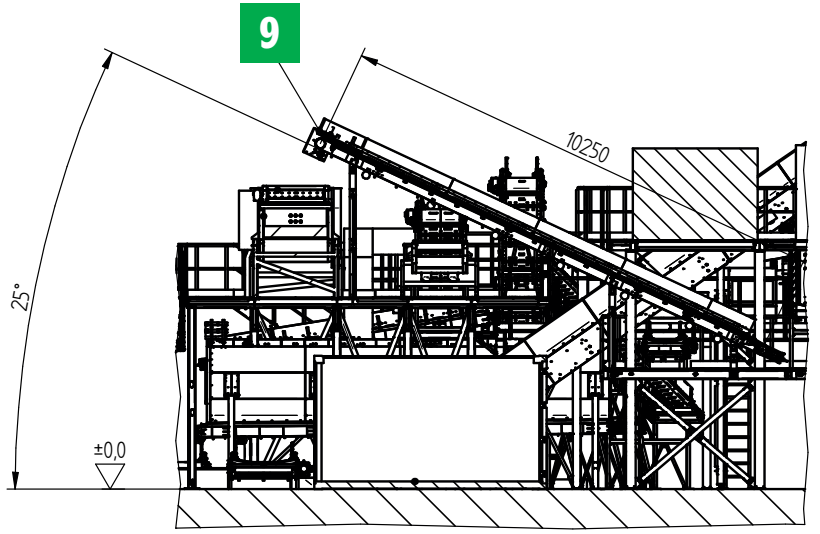






CONVEYOR BELT 10.200 mm

Parameter	Technical data
Location in the sorting plant:	Downstream NIR 2-way-sorter
Purpose in the sorting plant:	Transport of 3D plastic fraction to perforator
Type of conveyor belt:	sliding belt conveyor (GG)
Conveyed material quantity:	1.858 kg/h
Density of conveyed material:	45 kg/m^3
Required conveying capacity:	42 m^3/h
Total length of the conveyor:	10.200 mm
Width of conveyor belt:	800 mm
Working width:	690 mm
Angle of incline:	25°
Conveying height:	4,32 m
Height of side wall:	270 mm
Installed power:	3 kW
Rotation speed:	33 rpm
Chain speed	0,55 m/s
Filling rate:	25 %
Actual conveying capacity:	92 m^3/h
Preparation for frequency converter:	No
Drive drum diameter:	219 mm











NIR 6-WAY SORTER AND SCREENING VIBRATORY FEEDER

This unit is comprised of a vibrating screening feeder followed by a 6-way NIR sorter.

Screening vibratory feeder

The purpose of the vibratory feeder is to prepare an even and shallow layer of waste material discharged from the upstream perforator prior to the transfer to the subsequent NIR 6-way sorter.

The key data of the screening vibratory feeder are displayed in the following table:

Parameter	Technical data
Supplier:	BINDER & Co AG
Location:	A-8200 Gleisdorf
Product designation:	Vibratory feeder
Type:	Screening vibratory feeder SFR 1350x3000
Length:	3.000 mm
Width:	1.350 mm
Weight:	400 kg
Trough design:	rectangular profile
Input material:	mixed recyclables (HDPE, PET, PP, PS)
Grain size / fraction:	5 – 35 cm
Input waste density:	60 – 70 kg/m³
Volume capacity:	max. 2,1 ton/h
Mechanical equipment:	2 pcs. unbalanced vibratory drives (Friedrich)
Power supply:	2 x 2,7 kW
Voltage:	400 V AC
Frequency:	50 Hz
Protection class:	IP 65

The device consists of a welded steel construction, material S235JRG2, with bolted drive yoke for the unbalanced vibratory drives.

The BIVITEC screen panels consist of highly wear resistant polyurethane. They feature a separation of 50 mm, and their openings are configured as squares and/or slots.

NIR 6-way sorter

The key data of the NIR 6-way sorter are displayed in the following table:

Parameter	Technical data
Supplier:	BINDER & Co AG
Location:	A-8200 Gleisdorf
Product designation:	Near Infra-Red plastic waste sorting machine
Type:	CLARITY belt sorter CLM14 Material Sorting (6-way)
Functional principle:	positive sorting
Length:	approx. 13.600 mm
Width:	approx. 2.450 mm
Height:	approx. 2.330 mm
Weight:	approx. 9.000 kg
Input material:	3D plastic (HDPE, PET, PP, PS)
Grain size / fraction:	5 – 35 cm
Input waste density:	60 – 70 kg/m³
Volume capacity:	max. 2,1 t/h
Power supply:	9,0 kW
Electrical connection:	3/N/PE 400 V, 32 A
Frequency:	50 Hz
Ejection ways:	1st way: 90° laterally (right to conveying axis) 2nd way: 90° laterally (right to conveying axis) 3rd way: 90° laterally (right to conveying axis) 4th way: 90° laterally (right to conveying axis) 5th way: in conveying direction 6th way: in conveying direction Ejection via air nozzles
Compressed air	
Operation pressure:	7 – 10 bars
Volume consumption:	approx. 65 Nm³/t ejected material (~2,0 t/h)
Connection:	G 1"
Compressed air quality:	DIN ISO 8573-1 / Grade 3
Sensor:	NIR 1700 (2x)

NIR 6-WAY SORTER AND SCREENING VIBRATORY FEEDER

NIR 6-way sorter configuration

The complete NIR 6-way sorter consists of::

- housing with maintenance cover (up front and lateral) illumination and sensor unit for material detection (NIR sensor)
- main conveyor with perforated conveying belt
- Serial valve triggering and block jets meeting the ease of exchangeability (80 valves with 25 mm valve resolution)
- internal valve tester impact sound
- Main switchboard for signalling and controlling the device
- discharging belt conveyors aligned at 90° angle to main conveyor for discharge of sorted factions HDPE, PET, PP, PS
- extended discharging belt conveyor for PET fraction (centre line 6-way sorter to centre line 4-way sorter = 3.025 mm)
- ejection of sorted PET fraction on the right side relating to the conveying direction
- - ejection of sorted fractions HDPE, PP, PS on the left side relating to the conveying direction













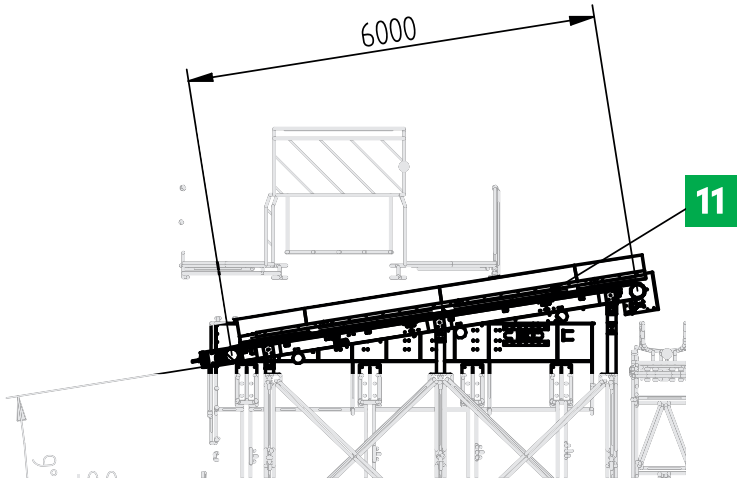






CONVEYOR BELT 6.000 mm

Parameter	Technical data
Location in the sorting plant:	downstream NIR 6-way-sorter
Purpose in the sorting plant:	recovery fraction belt 1
Type of conveyor belt:	sliding belt conveyor (GG)
Conveyed material quantity:	153 kg/h
Density of conveyed material:	40 kg/m³
Required conveying capacity:	3,8 m³/h
Total length of the conveyor:	6,0 m
Width of conveyor belt:	650 mm
Working width:	440 mm
Angle of incline:	7°
Conveying height:	0,73 m
Height of side wall:	150 mm
Installed power:	0,75 kW
Rotation speed:	22 rpm
Chain speed	0,3 m/s
Filling rate:	25 %
Actual conveying capacity:	18 m³/h
Preparation for frequency converter:	no
Drive drum diameter:	219 mm

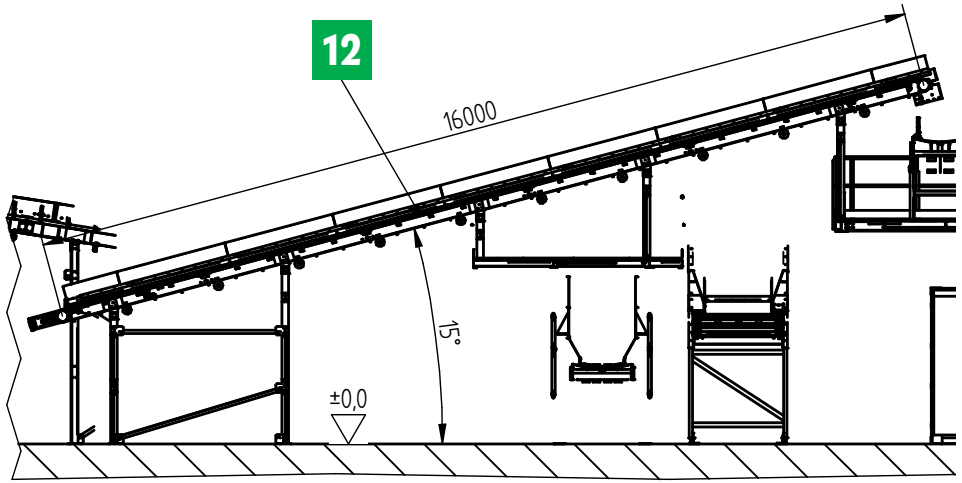






CONVEYOR BELT 16.000 mm

Parameter	Technical data
Location in the sorting plant:	Downstream conveyor belt no. 15
Purpose in the sorting plant:	recovery fraction belt 2
Type of conveyor belt:	sliding belt conveyor (GG)
Conveyed material quantity:	153 kg/h
Density of conveyed material:	40 kg/m^3
Required conveying capacity:	3,8 m^3/h
Total length of the conveyor:	16 m
Width of conveyor belt:	650 mm
Working width:	440 mm
Angle of incline:	17°
Conveying height:	4,53 m
Height of side wall:	150 mm
Installed power:	1,5 kW
Rotation speed:	22 rpm
Chain speed	0,3 m/s
Filling rate:	25 %
Actual conveying capacity:	18 m^3/h
Preparation for frequency converter:	no
Drive drum diameter:	219 mm





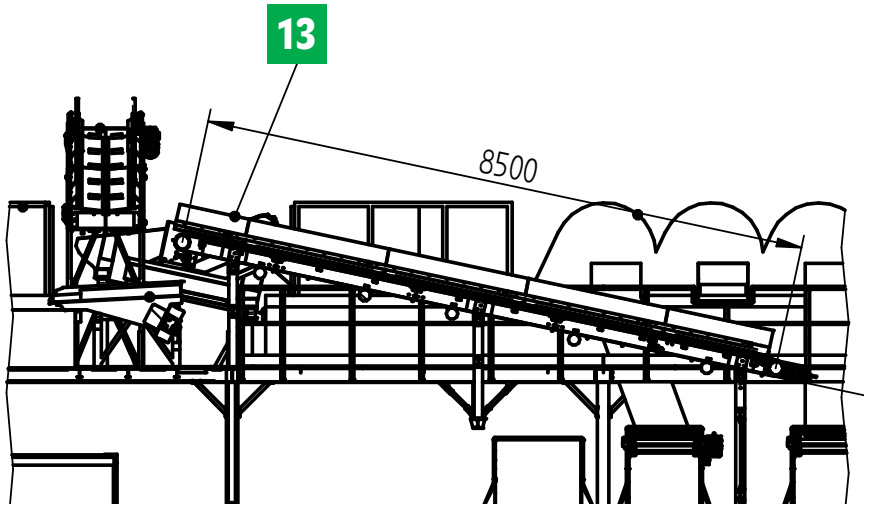






CONVEYOR BELT 8.500 mm

Parameter	Technical data
Location in the sorting plant:	Downstream discharge NIR-6 way-sorter
Purpose in the sorting plant:	Transport of PET-total to NIR-4-way-sorter
Type of conveyor belt:	sliding belt conveyor (GG)
Conveyed material quantity:	1.075 kg/h
Density of conveyed material:	30 kg/m³
Required conveying capacity:	36 m³/h
Total length of the conveyor:	8,5 m
Width of conveyor belt:	800 mm
Working width:	690 mm
Angle of incline:	12°
Conveying height:	1,77 m
Height of side wall:	270 mm
Installed power:	3 kW
Rotation speed:	31 rpm
Chain speed	0,55 m/s
Filling rate:	25 %
Actual conveying capacity:	92 m³/h
Preparation for frequency converter:	no
Drive drum diameter:	219 mm









NIR 4-WAY SORTER AND INFEED VIBRATORY FEEDER

Infeed vibratory feeder

The purpose of the infeed vibratory feeder is to prepare an even and shallow layer to the NIR 4-way sorter.

The key data of the infeed vibratory feeder are displayed in the table below:

Parameter	Technical data
Supplier:	BINDER & Co AG
Location:	A-8200 Gleisdorf
Product designation:	Vibratory feeder
Type:	Infeed vibratory feeder FR 980x1850
Length:	1.850 mm
Width:	980 mm
Weight:	700 kg
Trough design:	rectangular profile
Inclination of conveyor trough:	approx. 3°
Input material:	PET mixed
Grain size / fraction:	5 – 35 cm
Input waste density:	60 – 70 kg/m^3
Volume capacity:	max. 1,1 t/h
Mechanical equipment:	2 pcs. unbalanced vibratory drives (Friedrich)
Power supply:	2 x 0,6 kW
Voltage:	400 V AC
Frequency:	50 Hz
Protection class:	IP 66

The device consists of a welded steel construction, material S235JRG2, with bolted drive yoke for the unbalanced vibratory drives.

NIR 4-way sorter

The key data of the NIR 4-way sorter are displayed in the following table:

Parameter	Technical data
Supplier:	BINDER & Co AG
Location:	A-8200 Gleisdorf
Product designation:	Near Infra-Red plastic waste sorting machine
Type:	CLARITY Multiway CLM10 PET colour sorting (4-way)
Functional principle:	positive sorting
Length:	approx. 9.000 mm
Width:	approx. 2.050 mm
Height:	approx. 2.330 mm
Weight:	approx. 5.400 kg
Input material:	PET mixed
Grain size / fraction:	5 – 35 cm
Input waste density:	60 – 70 kg/m^3
Volume capacity:	max. 1,1 t/h
Power supply:	7,5 kW
Electrical connection:	3/N/PE 400 V, 32 A
Frequency:	50 Hz
Ejection ways:	1st way: 90° laterally (right to conveying axis)
(Ejection via air nozzles)	2nd way: 90° laterally (right to conveying axis)
	3rd way: in conveying direction
Pass through	4th way: in conveying direction
	Ejection via air nozzles
Compressed air	
Operation pressure:	7 – 10 bars
Volume consumption:	approx. 65 Nm^3/t ejected material (~1,0 t/h)
Connection:	G 1"
Compressed air quality:	DIN ISO 8573-1 / Grade 3
Sensor:	NIR 1700 / VIS

NIR 4-WAY SORTER AND INFEED VIBRATORY FEEDER

NIR 4-way sorter configuration

The complete NIR 4-way sorter consists of:

- housing with maintenance cover (up front and lateral) illumination and sensor unit for material detection (NIR sensor)
- conveying unit with perforated conveying belt
- Serial valve triggering and block jets meeting the ease of exchangeability (80 valves with 25 mm valve resolution)
- Filter with fittings and tubes to the valves
- Main switchboard for signalling and controlling the device





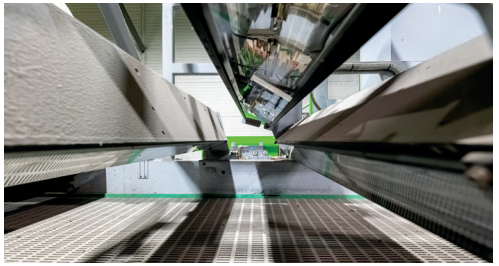










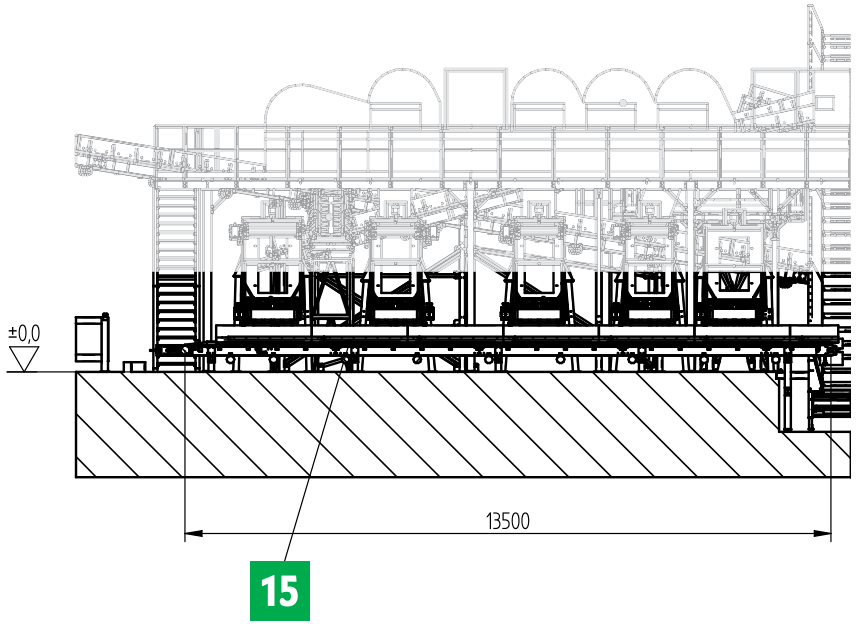






CONVEYOR BELT 13.500 mm

Parameter	Technical data
Location in the sorting plant:	Downstream discharge NIR-6 way-sorter
Purpose in the sorting plant:	Transport of HDPE, PP and PS to belt (21)
Type of conveyor belt:	sliding belt conveyor (GG)
Conveyed material quantity:	1.330 kg/h
Density of conveyed material:	30 kg/m^3
Required conveying capacity:	44 m^3/h
Total length of the conveyor:	13.500mm
Width of conveyor belt:	1.200 mm
Working width:	1.040 mm
Angle of incline:	0°
Conveying height:	0 m
Height of side wall:	300 mm
Installed power:	3 kW
Rotation speed:	31 rpm
Chain speed	0,87 m/s (at 50 Hz)
Filling rate:	25 %
Actual conveying capacity:	154 m^3/h
Preparation for frequency converter:	Yes
Drive drum diameter:	219 mm

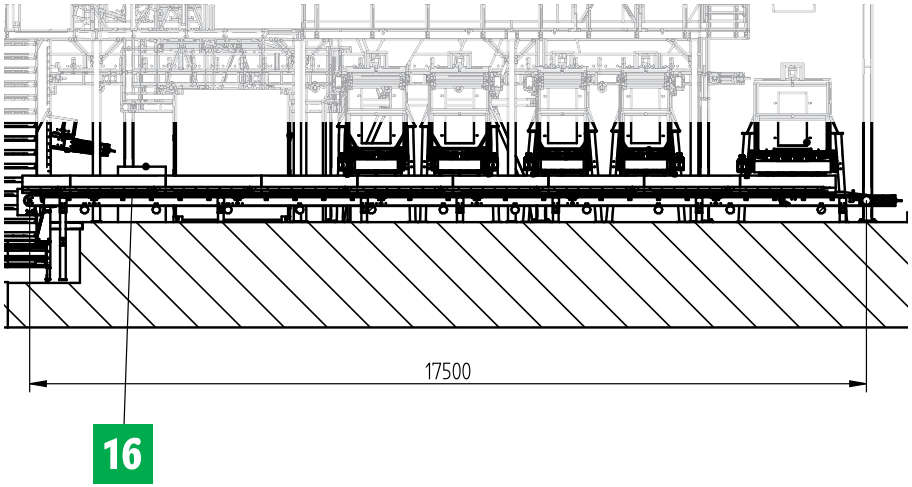






CONVEYOR BELT 17.500 mm

Parameter	Technical data
Location in the sorting plant:	Downstream discharge NIR-4 way-sorter
Purpose in the sorting plant:	Transfer of PET clear, PET blue, PET mix, PET green, LDPE and 2D rest to belt (21)
Type of conveyor belt:	sliding belt conveyor (GG)
Conveyed material quantity:	2.480 kg/h
Density of conveyed material:	30 kg/m^3
Required conveying capacity:	83 m^3/h
Total length of the conveyor:	17.500mm
Width of conveyor belt:	1.200 mm
Working width:	1.038 mm
Angle of incline:	0°
Conveying height:	0 m
Height of side wall:	300 mm
Installed power:	4 kW
Rotation speed:	31 rpm
Chain speed	0,56 m/s
Filling rate:	50 %
Actual conveying capacity:	308 m^3/h
Preparation for frequency converter:	yes
Drive drum diameter:	219 mm





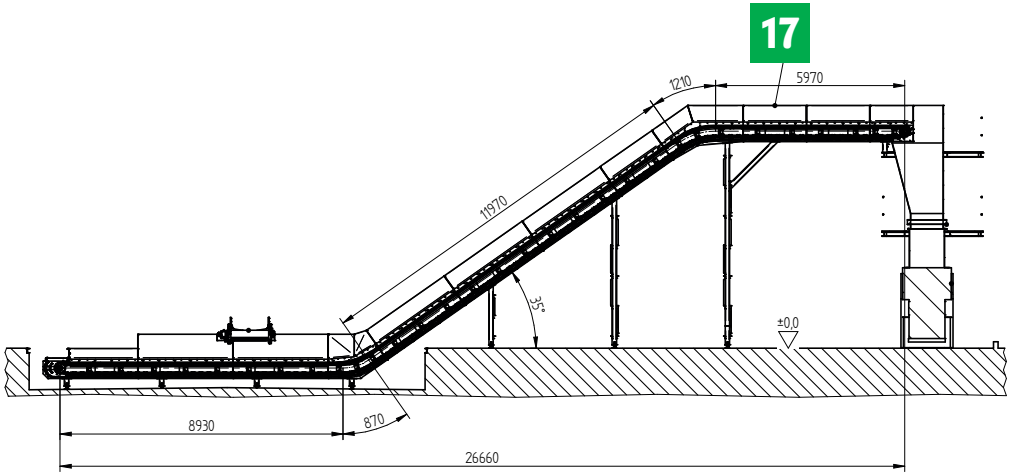





CONVEYOR BELT 28.950 mm

17

Parameter	Technical data	
Location in the sorting plant:	downstream conveyor belts (19) and (20)	
Type of conveyor belt:	chain belt conveyor (KGF)	
Conveyed material quantity:	3.800 kg/h	
Density of conveyed material:	34 kg/m^3	
Required conveying volume capacity:	112 m^3/h	
Total length of the conveyor:	28.950mm	
Length of the rising part:	11.970mm	
Angle of incline:	35°	
Conveying height:	7,5 m	
Width of conveyor belt:	1.200 mm	
Working width:	1.200 mm	
Height of side wall:	400 mm	
Filling rate:	50 %	
Actual conveying volume capacity:	242 m^3/h	
Weight of moving parts	200 kg/m	
Pitch circle diameter	326 mm	
Required power at the drive shaft:	4,6 kW	
Installed power:	7,5 kW	
Rotation speed:	16,0 rpm (at 50 Hz)	
Chain speed	0,28 m/s	
Installed torque:	4487 Nm	
Required torque:	2744 Nm	
Frequency converter:	24 Hz	80 Hz
Chain speed:	0,13 m/s	0,45 m/s
Conveyance rate:	116 m^3/h	387 m^3/h
Rotation speed:	8 rpm	26 rpm











BALING PRESS

The baling press consists of the following main components:

- Infeed hopper (intermediate storage of delivered loose input material)
- Horizontal press chamber
- Hydraulic press with horizontal press piston, electrically driven
- Press tunnel, conically constricted towards discharge outlet
- Photocell sensors (3 pcs) for monitoring of input material volume
- PLC control system with 7" touch screen
    - setting of baling parameters
    - indication of production data for 15 baling programmes
- complete control unit for one conveyor

Key data - baling press

The key data of the baling press are displayed in the following table:

Parameter	Technical data
Supplier:	PRESONA AB
Location:	SE-273 22 Tomelilla
Product designation:	Automatic baler
Type:	LP 50 EH2
Theoretical volume capacity:	650 m^3/h
Max. volume capacity under load:	340 m^3/h
Mass capacity at a specific fraction density in press chamber:	
Density 30 kg/m^3	8 – 10 t/h
Density 50 kg/m^3	11 – 13 t/h
Density 100 kg/m^3	14 – 20 t/h
Feeding hopper opening length:	1.250 mm
Feeding hopper opening width:	1.100 mm

Parameter	Technical data
Feeding hopper height:	2.200 mm
Feeding hopper volume:	3,0 m^3
Press chamber volume:	2,2 m^3
Bale size width:	1.100 mm
Bale size height:	720 mm
Bale size length (variable):	min. 900 mm (for proper handling)
Bale density:	280 – 550 kg/m^3
Number of vertical strapping wires:	5 pcs
Press force, pre-press + main press:	25 + 50 t
Specific pressing force:	0,32 – 0,63 N/mm2
Max. oil pressure:	250 bar
Oil tank volume (recommended oil quality DIN 51524-HVLP 46, Part 3):	600 l
Electric motor 400 V, 50 Hz:	37 kW
Oil cooler:	1,5 kW
Net weight:	approx. 15 t
Wire holders:	for 10 large wire coils
One pressing cycle consists of:	
Pre-pressing:	6 s
Main pressing:	10 – 26 s
Time to tie one bale with wire:	22 s/bale
Number of pressing cycles per bale:	3 – 4 (depending on material)
Wire diameter:	2,8 – 3,8 mm

BALING PRESS

Functional description

The feeding hopper is filled by the upstream aligned conveyor belt. Three photocell sensors are installed in the hopper at different levels in order to measure the filling level:

Sensor position	Height in hopper (m)	Filling rate (%)	Filling volume (m^3)
Lowest sensor	1,3	55 %	1,6
Middle sensor	1,8	80 %	2,4
Highest sensor	2,2	100 %	3,0

The compression of material is carried out intermediately in press cycles as described in the following.

Pressing cycle:

When the middle sensor indicates the presence of material being equivalent to a filling volume of 2,4 m^3 (more than the press chamber volume of 2,2 m^3), the pressing cycle can start up. The signal for start-up is given by the superordinate control system of the sorting plant.

One pressing cycle takes place in two steps, specifically:

- pre-pressing
- main pressing

One pressing cycle consists of 6 stages which are listed as follows and are depicted graphically in the figures below.

1. The input shaft of the press chamber is open and loose material dropps from the hopper into the press chamber thereby filling it.
2. The quarter circle shaped closure flap swivels forward closing the press chamber.
3. Press chamber of 2,2 m^3 volume is completely closed.
4. The press piston of the baling press moves forward thereby compressing the material in the press chamber and forming a part of one bale.
5. The press piston of the baling press moves back thereby clearing the press chamber.
6. 1. The quarter circle shaped closure flap moves back opening the input shaft.

- **Pre-pressing:** Includes the stages 1, 2, 3 and 6
- **Main-pressing**: Includes the stages 4 and 5

One press cycle includes the lose material volume of 2,2 m^3. The production of one bale comprises 3 to 4 pressing cycles depending on the required minimum volume of loose input material for one bale.

Pre-pressing:	closure flap OPENS / CLOSES	6 s	1,6
Main-pressing:	press piston FORWARDS / BACKWARDS	10 s to 26 s	2,4
Total pressing cycle:	(depending on material type)	16 s to 32 s	3,0















LEVEL SENSOR

VEGAPULS 21 is the radar sensor for non-contact level measurement in standard applications in all industrial plants. It is particularly suitable for level measurement in water treatment, storage tanks with acids and lyes, additives in all industrial areas, or for measuring levels through a plastic tank or IBC container. The sensor is suitable both for measuring liquids and for use on small bulk solids silos or bulk solids containers.

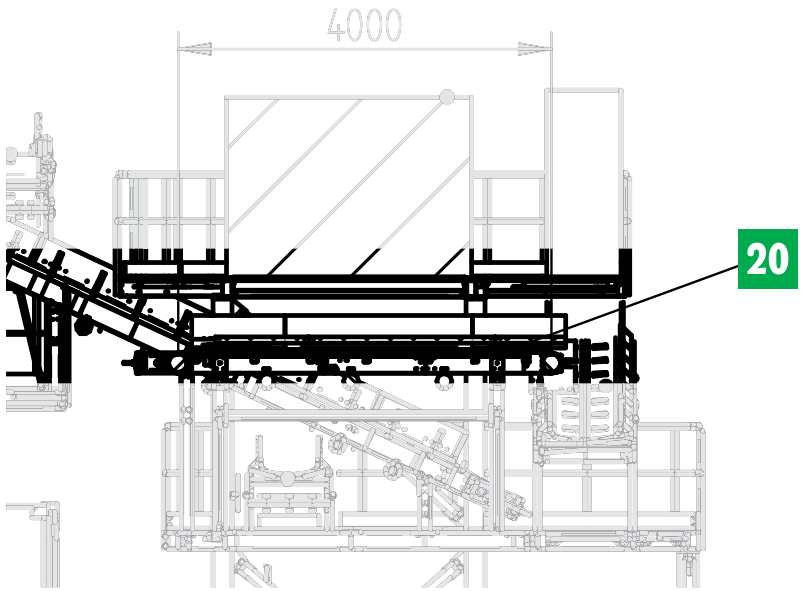
The key data of the level sensor are displayed in the following table:

Parameter	Technical data
Supplier	Vega
Type	VEGAPULS 21
Product designation	Radar
Process fitting thread	G1½, 1½ NPT, R1½
Output signal	4–20mA / HART
Body material	PVDF
Measuring range	15m
Process temperature	-40°C ... +80°C
Operating voltage	35V
Maximum current	20 mA
Process pressure	-1 ... +3bars
Usage	Liquids / solids
Bluetooth standard	Bluetooth 5.0 (downward compatible to Bluetooth 4.0 LE)
Approximate quantity	40pcs



CONVEYOR BELT 3.900 mm

Parameter	Technical data
Location in the sorting plant:	Downstream NIR-2 way-sorter
Purpose in the sorting plant:	Transfer of 3D non-plastic to conveyor belt (012)
Type of conveyor belt:	sliding belt conveyor (GG)
Conveyed material quantity:	1.320 kg/h
Density of conveyed material:	30 kg/m^3
Required conveying capacity:	44 m^3/h
Total length of the conveyor:	3,9 m
Width of conveyor belt:	800 mm
Working width:	690 mm
Angle of incline:	0°
Conveying height:	0 m
Height of side wall:	270 mm
Required power at the drive shaft:	0,86 kW
Installed power:	1,1 kW
Rotation speed:	31 rpm
Chain speed	0,55 m/s
Filling rate:	25 %
Actual conveying capacity:	92 m^3/h
Preparation for frequency converter:	no
Drive drum diameter:	219 mm





CONVEYOR BELT 8.400 mm

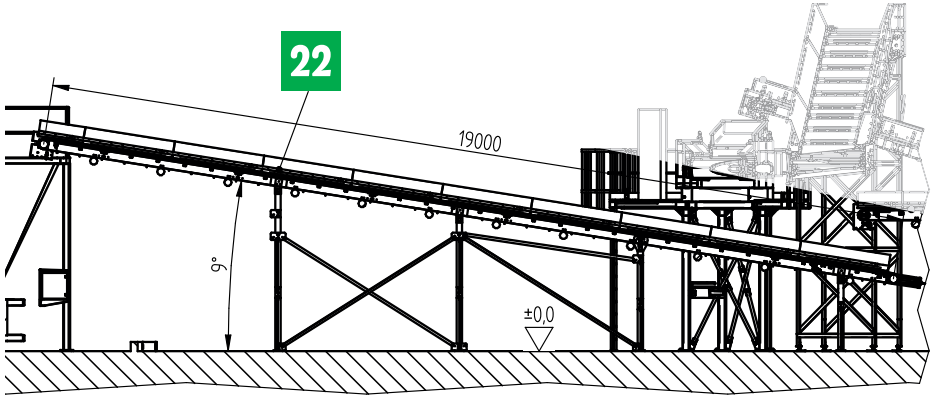
Parameter	Technical data
Location in the sorting plant:	Downstream conveyor belt (011)
Purpose in the sorting plant:	Transfer of 3D non-plastic to Eddy current (013)
Type of conveyor belt:	sliding belt conveyor (GG)
Conveyed material quantity:	1.320 kg/h
Density of conveyed material:	30 kg/m^3
Required conveying capacity:	44 m^3/h
Total length of the conveyor:	8.400mm
Width of conveyor belt:	800 mm
Working width:	690 mm
Angle of incline:	16°
Conveying height:	2,18 m
Height of side wall:	270 mm
Required power at the drive shaft:	0,86 kW
Installed power:	3 kW
Rotation speed:	31 rpm
Chain speed	0,55 m/s
Filling rate:	50 %
Actual conveying capacity:	184 m^3/h
Preparation for frequency converter:	no
Drive drum diameter:	219 mm





CONVEYOR BELT 19.000 mm

Parameter	Technical data
Location in the sorting plant:	Downstream Eddy current (013)
Purpose in the sorting plant:	Transfer of 3D rest to container press (015)
Type of conveyor belt:	sliding belt conveyor (GG)
Conveyed material quantity:	620 kg/h
Density of conveyed material:	35 kg/m^3
Required conveying capacity:	18 m^3/h
Total length of the conveyor:	19.000mm
Width of conveyor belt:	800 mm
Working width:	690 mm
Angle of incline:	10°
Conveying height:	2,87 m
Height of side wall:	270 mm
Required power at the drive shaft:	0,86 kW
Installed power:	3 kW
Rotation speed:	31 rpm
Chain speed	0,55 m/s
Filling rate:	50 %
Actual conveying capacity:	184 m^3/h
Preparation for frequency converter:	no
Drive drum diameter:	219 mm





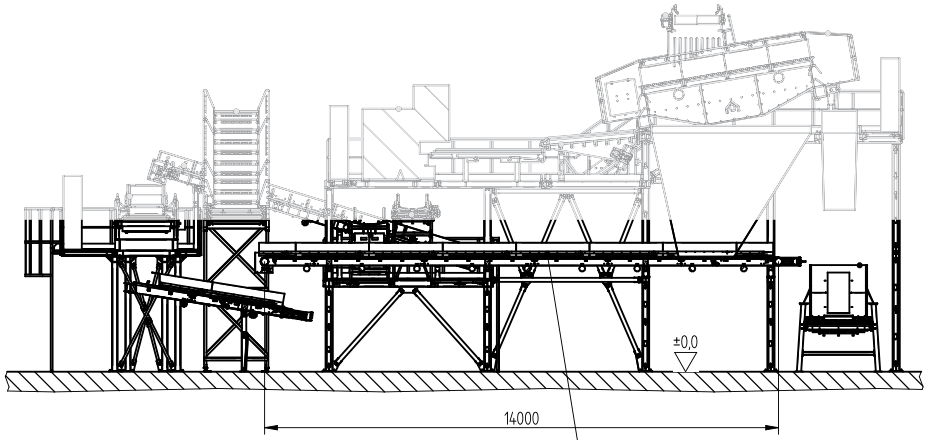






CONVEYOR BELT 14.000 mm

Parameter	Technical data
Location in the sorting plant:	Downstream ballistic separator (8.1)
Purpose in the sorting plant:	Transfer of fine material < 5 cm to conveyor belt (014)
Type of conveyor belt:	sliding belt conveyor (GG)
Conveyed material quantity:	275 kg/h
Density of conveyed material:	50 kg/m^3
Required conveying capacity:	6 m^3/h
Total length of the conveyor:	14.000mm
Width of conveyor belt:	650 mm
Working width:	440 mm
Angle of incline:	0°
Conveying height:	0 m
Height of side wall:	150 mm
Installed power:	3 kW
Rotation speed:	17 rpm
Chain speed	0,30 m/s
Filling rate:	25 %
Conveying capacity:	18 m^3/h
Preparation for frequency converter:	no
Drive drum diameter:	219 mm



23









PERFORATOR

The key data of the ballistic separator are displayed in the following table:

Parameter	Technical data
Supplier:	BRT HARTNER GmbH
Location:	D-49479 Ibbenbüren
Product designation:	Perforator PS 12
Type:	Single perforator, with Counter blade on pressure flap
Working width:	1.200 mm
Drive power:	4 kW
Supply voltage:	3 x 400 V
Power frequency:	50 Hz
Weight:	600 kg
Drive:	electric geared motor
Characteristic input material:	PET bottles, hard plastic hollow objects, Alu boxes
Input material density:	40 kg/m^3
Output material density:	60 – 70 kg/m^3
Volume capacity:	70 m^3/h

The perforator is designed as a stable construction with a frame, a pressure flap and a drum. The drum has circumferential drive bars. These are each equipped with a row of triangular ripping blades made of Hardox. The drive bars are fixed with two screws each so that they can be replaced if necessary.
A pressure flap is attached to one side of the frame construction. The distance between a pressure flap and the drum decreases towards the bottom. The drum is driven by a geared motor. The speed and direction of rotation are pre-set and cannot be changed during operation.









