ROBUSTO – 400 Volt



- Crane-eyelets for easy transport
- → Large fixed castors for rough terrain
- → Comfortable lowering of the dirt container for easy disposal
- → Extra strong chassis
- TRGS 519 certified versions for activities involving Asbestos available

to 3.0 kW:



EVOTEC

ROBUSTO 1122 ROBUSTO 2130 ROBUSTO 2155 ROBUSTO 2175

1.500 to 7.500 watt 230 or 400 volt 200 to 380 mbar 220 to 510 m³/h

Standard version:





<u>from 4,0 kW:</u>



Robust industrial vacuum cleaner for sucking up all dry dust particles – from coarse dirt to fine dust (µm)

High quality standards -

well-designed, silenced and maintenance-free turbine (side channel blower) as vacuum generator. Suitable for **three-shift-operation**. Can also be used on pipe systems or with very long hoses.

Cyclone separator for better pre-separating of fine dust particle and coarse matter.

Effective, easy to use **filter cleaning** for long operating intervals without interruption. **Vacuum gauge** for filter monitoring.

1st level filter:

Durable polyester needle-felt filter with **PURmembrane**, dust class **M**, high filter effect for long durability.

Patented, tool less **filter change** with **low contamination risk**.

Fast coupling with locking mechanism and rotating device for a secure connection of the suction hose.

Length of the connection cable: 8 m

Type **ASBESTOS** including 5,0 m exhaust air hose Ø 70 mm.

Upgrade: Dust class H 2nd level filter: absolut filter cartridge dust class H (H14)

Upgrade: GS and EX (Type22) Phase direction monitor and vacuum limit valve for the faultless use of the device.

Modell		ROBUSTO 1122	ROBUSTO 2115	ROBUSTO 2122	ROBUSTO 2130	ROBUSTO 2155	ROBUSTO 2175
Voltage	Volt	230	400	400	400	400	400
Power output	watt	2.200	1.500	2.200	3.000	5.500	7.500
Max. airflow rate	m³/h	310	220	330	330	480	700
Max. negative pressure	mbar	220 / 260 max.	200 / 240 max.	240 / 340 max.	240 / 340 max.	260 / 340 max.	260 / 320 max.
Filter surface " M " Filter surface " H " (H14)	m² m²	1,75 + 1,7	1,75 + 1,7	1,75 + 1,7	1,75 + 1,7	3,2 + 4,3	3,2 + 4,3
Dirt container	ltr.	35	35	35	35	100	100
Type of protection		IP 55	IP 55				
Noise level	dB(A)	76	76	76	77	78	78
Suction connection	Ømm	80	80	80	80	80	80
Dimension	cm	94 x 60 x 120h	110 x 68 x 152h	110 x 68 x 152h			
Weight	kg	143	143	151	153	198	218
Dust class M	ArtNo.	151-3050	251-4135	251-4136	251-4140	251-4170	251-4190
Upgrade Dust class H	ArtNo.	054-20018	054-20018	054-20018	054-20018	054-20033	054-20033
Upgrade 😋	ArtNo.		054-6435	054-6435	054-6435	054-6455	054-6455
Upgrade 🔄 + 🐾	ArtNo.	a.A.	054-6433	054-6433	054-6433	054-6453	054-6453
Dust class H/Asbestos	ArtNo.	a.A.	251-4091	251-4104	251-4111	251-4121	251-4131

Up to 5.5 kW included in delivery: 3.5 m suction hose Ø 50 mm and scoring nozzle







Explanation Details

EVOTEC





Disposal options		(Options	
	Plastic disposal bag, antistatic ESD Image: Comparison of the second symplect of the second			Spark trap with metal knit insertprevents the suction of sparks into the system.Different diameters for integration in pipe systemor suction hoseØ 80 mm072-0628Ø 100 mm072-0629Ø 150 mm072-0630
	Perfect fit due to round bottom – no bypass necessary. Suitable for: 25/35-I-container = 235-1011 60-I-container = 235-1021 100-I-container = 235-1031			Hose bracket Optimal for the storage of long hoses. Suitable for all models with 60 liter dirt container (EP1136, EP2122 ECO, EP2130 ECO, EP 2122, EP 2130, EP 2140 ECO, EP 2155 ECO) Suitable for up to 10 m hose 053-3070
				Spark trap Prevents the suction of sparks into the vacuum cleaner. Due to the air redirection, the sparks bounce against the copper plates and expire. Via the detachable faceplate the trap can be cleaned. connections Ø 80 mm 053-4000 connections Ø 150 mm 053-4001



Pocket filter



Dust class M

Polyester-needle felt with **PUR-Membrane** (installed by default) **Non-stick properties**– for sticky or adhesive dusts Also for the suction of fine dust with abrasive nature (e.g. fiber glass)

1,75 m², Ø 400 mm=054-20085B2,20 m², Ø 500 mm(fig) =054-20086B3,20 m², Ø 500 mm=054-20087B5,20 m², Ø 500 mm=054-20088

Dust class M



Robust polyester-needle felt with **PTFE-Membrane** Non-stick properties – for sticky or adhesive dusts

Heat-resistant Temporary (30 min.) up to 200 °C Continuous up to 150 °C Video on You Tube

1,75 m², Ø 400 mm = **054-20115** 2,20 m², Ø 500 mm = **054-20116** 3,20 m², Ø 500 mm (fig) = **054-20117** 5,20 m², Ø 500 mm = **054-20118**

Dust class M

Polyester-needle felt with antistatic PUR-Membrane

Antistatic – for the suction of dust that can accumulate static charge

Food-safe – for the application in sensitive areas such as pharmaceutical or food production

1,75 m², Ø 400 mm =054-201272,20 m², Ø 500 mm (fig)= 054-201283,20 m², Ø 500 mm =054-201295,20 m², Ø 500 mm =054-20130



Options / Accessories ROBUSTO line

	Upgrade to dust class H Absolute-cartridge filter Dust class H (H14) Double-sided support grid $1,7 \text{ m}^2, \emptyset 400 \text{ mm} = 054-20018$ $2,0 \text{ m}^2, \emptyset 500 \text{ mm} = 054-20027$ $4,3 \text{ m}^2, \emptyset 500 \text{ mm} = 054-20033$		
to 3,0 kW: from 4,0 kW:	Upgrade "tested for safety"		
HA 1605056	GS-configuration - including GS-certificate Equipment according to DIN 60335-2-69 for the use of the vacuum cleaner in areas with high safety requirements.		
stablechnisch gewilt tested with read te dast technology		or and phase 6435 6455	
Zone 22	Upgrade EX-proof for zone 22 including GS-certificate EX-proof-equipment of the vacuus safety suction of fine dusts in ha zone 22.	zardous area in	
	Including phase direction monitor, phase changing plug and vacuum limit valve for 2.2 - 3.0 kW = 054-6433		
	- , -,	6453	
	ASBESTOS-Exhaust air hose Complete with Stortz-coupling for the exhaust vent, diameter Ø 70		
	.,	-3092 -3093	

Filter cleanings and replacement filters



Options Filter cleaning

Control options



Frequency converter (FU) For variable speed control and increased performance of the turbine.

Version for 230 Volt: 1,5 kW 054-6911 2.2 to 3.0 kW 054-6912 Version for 400 Volt: 1.5 kW 054-6921 2,2 to 3,0 kW 054-6922 4,0 to 5,5 kW 054-6923 5.5 to 7.5 kW 054-6924 054-6925 7,5 to 11,0 kW 11,0 to 15,0 kW 054-6926

Suitable holding console for the switch box please order as well: 054-40208

Remote ON/OFF via cable (FSK)

24 volts with power supply unit (potential free contact), output voltage 24 volts AC with interconnection point, motor protection relay, switch = 0/automatic/hand. If not in combination with FU, additional switch box is

needed for FSK.

Without switch box	054-6931
With switch box	054-6930
holding console for switch box	054-40208

Remote ON/OFF via radio (FSF)

With hand-held transmitter and receiver, operates up to

054-6933 054-6932

350 m distance. <u>If not in combination with FU, additional switch box is</u> needed for FSK.

Without switch box With switch box

holding console for switch box 054-40208 Additional hand-held transmitter 054-60322

Device options



Activated carbon filter module

To absorb odors and fumes.

25-I-container filled with activated carbon, individual matching, suitable for all models with turbine chassis

053-2060





Electronic liquid level control

Can be ordered directly with the vacuum cleaner. The control allows the suction of liquids with a dry vacuum cleaner due to the flex probe.

The probe plunges into the dirt container and prevents the spilling over of liquids.

Only for dust classes M and H

(not Type22).

Consisting of a flex probe, holder and electronics

053-3040



Pre-separator



Pre-separator 100 liter		
completely made of sta	inless steel with 4 swive	I
Different connector ben	ds	
\emptyset 60 + \emptyset 50 mm =	053-1090	
Ø 60 + Ø 40 mm =	053-1091	
Ø 50 + Ø 50 mm =	053-1092	
Ø 40 + Ø 40 mm =	053-1093	
Ø 40 + Ø 50 mm =	053-1094	
Attention: The suction h	ose needs two suction s	io
fittings!		
Floating system for pr	•	
for suction of liquids	053-1051	
Draining hose for pre-	separator	
universally suitable		
Connection hose for the	ne connection to the	
vacuum cleaner,		
complete with fittings. le	enath 2.0 m. Ø 60 mm	

60 mm PUR 053-3081 = Superflex = 053-3080



Tandem connection set

For 100 liter or 150 liter pre-separators.

With this set the pre-separator can be combined with the industrial vacuum cleaner to form a mobile unit.

Incl. connection hose from pre-separator to vacuum cleaner (angled hose coupling)

Suitable for models EP 1136, EP 2122 ECO und EP 2130 ECO 053-2070

Cartridge filter system with jet cleaning



Filter surface 7,5 m², PTFE antistatic, with FDA certificate

Perfect for automatic and continuous cleaning of filter cartridge while sucking up very fine and dry dust particles.

Cleaning cycles are induced by the automatic control and can be defined as required.

The system cleans the filter elements in the cartridge with blasts of compressed air. It is not necessary to shut down the engine.

Filter cartridge class M, antistatic (standard). Combination with filter dust class H (H14) is possible.

Attention: external compressed air necessary!

Included in delivery:

Reservoir for compressed air, volume expansion, control unit, cartridge filter, cleaning unit

For models:

EP 2122, EP 2130, EP 2140 ECO, EP 2150 ECO 053-3022

EP 2140 and EP 2155 053-3021

EP 2175 and EP 21130 053-3020

To buy for replacement conical, Filter surface 7,5 m², PTFE antistatic 054-20092



Pre-separator		Suction arms 😣	
	 Container with hinged floor 1000 liters With Ø 80-connections To pre-separate solids (e.g. turf, sand, etc.) Pull springs buffer the bottom flap during the discharging process. Automatic closure of the bottom flap when container is deposed. Unlocking per cable operation without leaving the lifter. Chain protection against sliding of the tines 053-2020 4.741,60 € 		The suction arm allows the punctual suction directly at the point of origin. Due to the self- supporting construction simple to handle and easy to position. Antistatic design and therefore usable for the use in ESD-areas (grounded with a resistance of $1M\Omega$). Size Ø 50 mm – ideal up to 3 kW Optimal for small coverage areas, e.g. in electronic industries, laboratories, dentistry, laser technologies, nail spa, gold smith etc. Size Ø 75 mm – ideal from 3 kW Usable in many different sectors, e.g. laboratories, laser technology, chemical and pharmaceutic industry, food industry, schools, universities or machine industry.
	 Tilting container pre-separator 500 liters With Ø 80-connections To pre-separate solids and liquids. Tilting in every height per cable control without leaving the lifter. Stable basic frame with fork pockets, favorable load center Protected against unintentional sliding and spilling 053-2010 2.969,50€ 		Suction arm ESD, for table mountingInclusive holder for table duct. \emptyset 50 mmReach1.300 mm072-0400Reach1.500 mm072-0401 \emptyset 75 mmReach1.300 mm072-0402Reach1.500 mm072-0403Suction arm ESD, for ceilings and wallmountingIncluding wall / ceiling bracket \emptyset 50 mm072-0404Reach1.300 mm072-0404Reach1.300 mm072-0405 \emptyset 75 mmReach1.300 mmReach1.300 mm072-0406Reach1.300 mm072-0407

Suction arms and c	options 😥	Hoods and nozzles	
	Universal consoleBracket / console for the extraction arm of EVOTEC industrial vacuum cleaners.Ø 50 mm053-3051Ø 75 mm053-3061		Flat hood ESD, 300 x 200 mmSpecially provided for gases and steams. High suction efficiency when positioned vertically to table surface, including socketØ 50 mm072-0414Ø 75 mm072-0415
	Flexible table console ESDHolder/Console for mounting the arm on a (table-)plate, universal forØ 50 mm / Ø 75 mm072-0428		Aspiration tip, length 300 mmFor smaller, concentrated contaminant sources.High efficiency, because it can be brought very close without disturbing the work flow.Cantilever of the tip for increasing the efficiency.Ø 50 mm072-0410Ø 75 mm072-0411
	Ceiling console ESDUniversal holder/console for armØ 50 mm and Ø 75 mm, diverse lengths:Length 250 mm072-0418Length 500 mm072-0419Length 750 mm072-0420Length 1000 mm072-0421Further lengths on request		Flexible aspiration tip, length 600 mm, ESDHigh efficiency paired with high flexibility.Ø 50 mm072-0412Ø 75 mm072-0413
O S	Straight hood tube ESDSpare part for hood, also usable as straight inlet nozzle.Ø 50 mm072-0429Ø 75 mm072-0430		

(All Ø specifications refer to the inner hose diameter)

PP- hose and 😣 - components Made of polypropylene (PP), antistatic, with suitable fittings. Well suitable for the industrial usage. **PP-suction hose** antistatic, complete with fittings Length 3,5 m Ø 40 mm = 052-0151 Length 3,5 m Ø 50 mm = 052-0248 Length 5 m Ø 40 mm = **052-0152** Length 5 m Ø 50 mm = 052-0249 Linear meters (for extension or self-manufacturing) Ø 40 mm = 052-0130 052-0230 Ø 50 mm = Fitting (suction side) for PP-hose antistatic Ø 40 mm = 052-0140 Ø 50 mm = 052-0240 Fitting (vessel side) for PP-hose antistatic incl. retaining ring Ø 80 - 40 mm = 052-0159 Ø 80 - 50 mm = 052-0256 only ECODust/Compact Ø 60 - 40 mm 052-0145 052-0244 Ø 60 - 50 mm

Superflex-hose and (components

Made of polypropylene (PP), thread-strengthened and spiral-protected. Extra light and flexible also for longer distances. Well-suitable for industrial usage.

Discharging = when spiral is grounded

Superflex-suction hose, electrically conductive, complete with fittings Length 3,5 m Ø 40 mm = 052-0153 Length 3,5 m Ø 50 mm = 052-0250 Length 5 m Ø 40 mm = 052-0154 Length 5 m Ø 50 mm = 052-0251
Linear meters (for extension or self-manufacturing) Ø 40 mm = 052-0133 Ø 50 mm = 052-0136 Ø 60 mm = 054-90037
Fitting (suction side) for Superflex-hose antistatic Ø 40 mm = 052-0139 Ø 50 mm = 052-0239
Fitting (vessel side) for Superflex-hose antistatic, incl. retaining ring Ø 80 - 40 mm = 052-0158 Ø 80 - 50 mm = 052-0255 only ECODust/Compact Ø Ø 60 - 40 mm 052-0144 Ø 60 - 50 mm 052-0243

(All Ø specifications refer to the inner hose diameter)

PUR-hose and (- components

Made of polyurethane (PUR). Enhanced bay integrated steel spiral. Oil-resistant, sturdy and suitable for abrasive dusts. Heat proof up to 125°C. Well-suitable for extreme industrial usage.

Discharging = when spiral is grounded

PUR-suction hose, electrically of complete with fittings Length 3,5 m Ø 40 mm = 052-01 Length 3,5 m Ø 50 mm = 052-02 Length 5 m Ø 40 mm = 052-01 Length 5 m Ø 50 mm = 052-02	55 52 56
Linear meters (for extension or self-manufacturin Discharging when spiral is g Ø 40 mm = 052-01 Ø 50 mm = 052-02 Ø 70 mm = 052-03 Reinforced version: Ø 40 mm = Ø 40 mm = 052-01 Ø 70 mm = 052-03 Reinforced version: Ø 40 mm = Ø 50 mm = 052-02 Ø 70 mm = 052-03	57 254
Fitting (suction side) for PUR-hose antistatic Ø 40 mm = 052-01 Ø 50 mm = 052-02 Ø 70 mm = 052-03	241
Fitting (boiler side) for PUR-hose antistatic incl. Re Ø 80 - 40 mm = 052-01 Ø 80 - 50 mm = 052-02 only ECODust/Compact Ø Ø 60 - 40 mm 052-01 Ø 60 - 50 mm 052-02	60 57 146

ESD-hose and 🔄 - components

Hose material: polyurethane (PUR) or polypropylene (Superflex). Both spiral-supported, Superflex additionally reinforced with thread. Ideally suited material for industrial use in potentially explosive atmospheres.

Completely electrically conductive 10^3 to $10^4 \Omega$

	ESD-Superflex-suction h Completely electrically cor Ø 40 mm = Ø 50 mm =	
	ESD-PUR-suction hose Completely electrically cor Ø 40 mm = Ø 50 mm =	nductive 10 ^s Ω 052-0196 052-0281
	Fitting (suction side)	
	for <mark>ESD-Superflex-suctio</mark> Ø 40 mm = Ø 50 mm =	on antistatic 052-0139 052-0239
4.1	for <mark>ESD-PUR-suction</mark> ant Ø 40 mm = Ø 50 mm =	istatic 052-0141 052-0241
	Fitting (boiler side) for ESD-Superflex-suction Retaining ring	
	Ø 80 - 40 mm = Ø 80 - 50 mm =	052-0158 052-0255
	for ESD-PUR-suction hose Ø 80 - 40 mm	se antistatic 052-0160
	Ø 80 - 50 mm	052-0160



ial flexible, torsionally rigid, heat itable for dry dusts only.	t proof up to 400° C.	
	Metal-suction hose fiberglass-compresse Length 3,5 m Ø 40 mm	ed, complete with fittings
	Length 3,5 m Ø 50 mm Length 5 m Ø 40 mm Length 5 m Ø 50 mm	n = 052-0271 n = 052-0187
	Linear meters (for extension or self-m	
	Ø 40 mm = Ø 50 mm =	052-0185 052-0270
- lui	Universal fitting (boil types	er side), usable for all hose
	Ø 80 - 40 mm = Ø 80 - 50 mm = Ø 80 - 60 mm = Ø 80 - 70 mm = Ø 80 - 80 mm =	052-0175 052-0266 054-90013 052-0312 052-0322
	Fitting (suction side) for Metal hose	
	Ø 40 mm = Ø 50 mm =	052-0112 052-0208

🐼 - Accessories	1	
	Crevice nozzle, metal Ø 40 x 300 mm = Ø 40 x 500 mm = Ø 40 x 800 mm = Ø 50 x 300 mm = Ø 50 x 600 mm =	052-0109 052-0108 052-0107 052-0218 052-0219
	Inclined tube nozzle, m Ø 40 x 300 mm = Ø 50 x 300 mm =	netal 052-0110 052-0217
	Crevice nozzle metal, c Ø 50 mm =	curved 052-0220
	Rubber crevice nozzle, with connecting tube antistatic Ø 40 x 400 mm = Ø 50 x 430 mm =	052-0150 052-0203

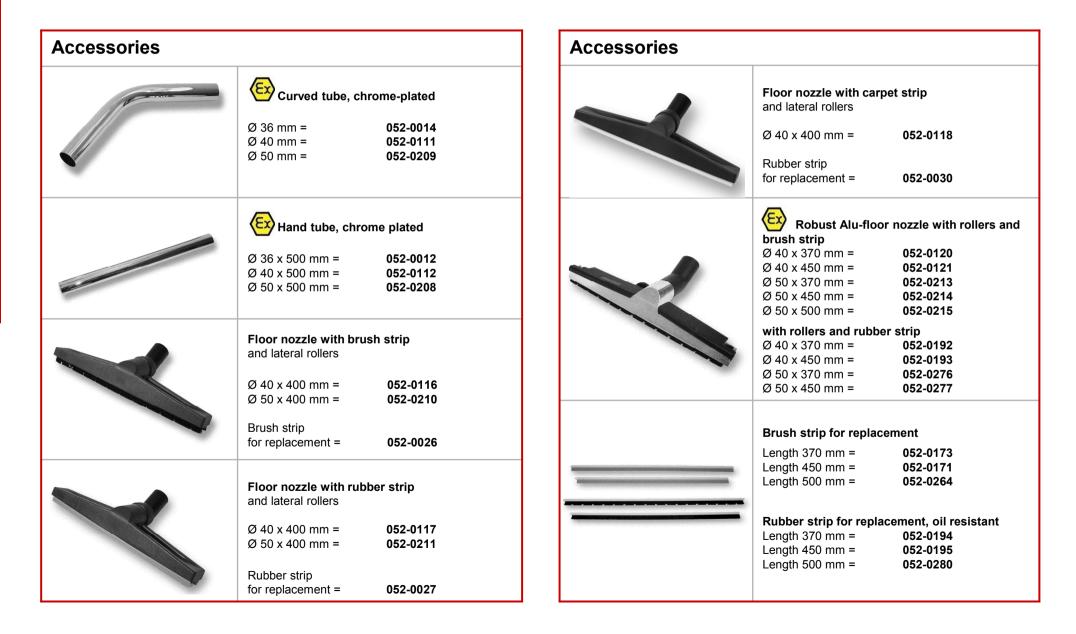
Practical accessory sets

EVOTEC



Accessories cleaning sets





Ενοτες

🔄 - Accessories					
	Flat rubber nozzle with connecting tubeantistatic(Without extension tube can also be attachedhand pipe)Ø 40 mm =052-0126Ø 50 mm =052-0223Ø 70 mm =052-0304				
	Pointed rubber nozzle v connecting tube antistatic (Without extension tube of hand pipe) Ø 40 mm = Ø 50 mm =				
	Inclined tube rubber no antistatic (Without extension tube of hand pipe) Ø 40 mm = Ø 50 mm = Ø 70 mm =				
	Solid PP round brush Rubber with connection t with brass components, a Ø 40 mm = Ø 50 mm =				

Accessories	1	
	Hand tube set for cleaning at a Ø 40 x 2000 mm = 052-01 Ø 50 x 2000 mm = 052-02	13
	Curved tubular nozzleAlso usable for cleaning at altitudØ 40 mmCurve width 100 mm =052-01Curve width 200 mm =052-01	22
	Wall-and floor nozzlewith brush stripsØ 40 x 300 mm =052-01	14
	Wall-and floor nozzle with rubber stripsØ 40 x 300 mm =052-01	15

Performance description 2018 EVOTEC Industrial vacuum cleaner 400 V	EP 2115 EP 2122-35	EP 2122 ECO EP 2130 ECO	EP 2122 EP 2130	EP 2140 ECO EP 2155 ECO	EP 2140 EP 2155	EP 2175 EP 21130	ROBUSTO 2130	ROBUSTO 2155	ROBUSTO 2175
					EP 2175 ECO		2130-LP	2155-LP	2175-LP
■ = included in delivery □ = optional									
Drive engineering									
Maintenance-free side channel blower Turbine for long-term runs without interruption									
Phase monitoring monitors the rotation of the turbine									
Smooth start control Star-delta-switch for limited starting current									
Vacuum relief valve protects the turbine from overheating - for long term runs									
Exhaust air sound reduction for a minimum of noise emission at work places									
Remote ON/OFF by cable or radio control									
Stepless performance regulation performance of the turbine can be regulated stepless and economical by a frequency converter									
Filter technology									
1st level filter = dust class M sturdy pocket filter with high quality PUR-coating for long-term runs									
Filter surface 1,75 m ²									
Filter surface 2,2 m ²									
Filter surface 3,2 m ²									
Filter surface 5,2 m ²									
2nd level filter = dust class H high performance absolute cartridge filter made from fiberglass material class H14, for highest exhaust air monitoring									
- Filter surface 1,7 m²	∎/□								
- Filter surface 2,0 m ²		∎/□	∎/□						
- Filter surface 4,3 m ²				∎/□	∎/□	∎/□			
EX-proof zone 22 (Type22) permanent discharge capability for the secure suction of explosive	∎/□	■/□	∎/□	■/□	■/□	_ /□			
dusts									
Filter change free of contamination patented solution for an easy filter change without hazards for the user	•	•	•			•	-	-	■
Filter control display vacuum pressure gauge indicates the need of filter cleaning									
Cyclone separator Centrifugal separator behind the vessel entry for pre-separation of suction material and liquids									

Several filter cleaning methods									
- by hand (Standard)									
- atmospheric pulse cleaning									
- electric filter shaker									
Activated carbon filter					_	_			
eliminates smell and toxic steam									ļ
									ļ
<u>Chassis</u>									
Mobile chassis/trolley	-	-		-	-	-		_	
sturdy, CNC-formed steel, powder coated									-
Eyelets for the transport by crane									
High quality castors/wheels							_		_
with roller bearing and fixing brake for the optimal mobility									
Ergonomic pushing handle	-	-			_				
with soft-coating as insulation protection									
Tension ring system	-	-			-				
for a constant tight connection between container and cover									-
Filter chamber from stainless steel									
connection nozzle with fast coupling Ø 80mm for easy and secure		•						•	
connection of the suction hose									ļ
Closing plug	-				-	-	-	-	-
avoids the escape of harmful dusts when no hose is connected	-	-	-			-		-	
Accessory basket	-			-				-	-
for the secure storage of accessory	-	-	-	-	-	-	-	-	
Hand tube holder	-			-					
to store the hand tube	-	-	_	_	_	_			
Long connection cable									
8m for a large radius	—	—	_	_	_	_	_	_	
Storage for the connection cable									
hook for the secure storage of the connection cable	—	-	_	_	_	_			
									<u> </u>

Disposal						
Dirt container from stainless steel High quality stainless steel 1.4301 for sturdy usage and suitable for hygienic sensitive areas with comfortable lowering for easy disposal of the absorbed matter						
dirt container 35 liter						
dirt container 60 liter						
dirt container 100 liter						
Longopac- disposal system "Endless"-plastic disposal bag for contamination free and easy disposal of the absorbed matter				∎/□	∎/□	∎/□
Automatic fill level control rotating paddle sensor monitors the filling level of the dry dust in the dirt container						
Accessory included in delivery						
Suction hose sturdy and flexilbe quality for mobile working						
- 3,5 m, Ø 50 mm						
- 5 m, Ø 50 mm			∎/□			
Crevice nozzle for various suction tasks						
- Ø 50 mm			∎/□			





Your advantages:

- Top quality professional manufacturing
- Heavy duty and long-living materials
- Convincing functionality and ergonomics
- Unexpected new solutions
- Flexible and economical in use
- Reliability from more than 30 years
- High aspiration in design and operator convenience

