

**Perfect, gentle and green removal
of polymer and organic contaminations
from metal parts, tools & dies**



Applications

The most common application is the cleaning of dies, filters and tools in

- Synthetic fiber and nonwovens industries
- Blown film production
- Polymer and masterbatch production
- Recycling industry
- Extrusion and filtration
- Injection Moulding
- Packaging industry
- Others

Typical Components

VACUCLEAN is especially recommended for

- Spinnerets and spin packs
- Meltblown and spunbond dies
- Blown film die heads
- Pelletizing and extrusion dies
- Filter bundles / Filter candles
- Filter stacks / Leaf disks
- Laser discs from recycling
- Extruder screws, screw elements
- Breaker plates
- Screen changers
- Polymer pumps

Advantages

- Perfect cleaning results, even inside highly complex dies or assembled parts
- Free from carbon residues
- Easy and safe to operate
- Fully automated cleaning process
- Adjustable and slow heat-up; gentle on the materials
- Precise temperature control with direct measurement at the part
- No risk of overheating or distortion
- Only electricity and water required
- Low operating and maintenance costs
- Environmentally friendly
- Off-gas cleaning by catalytic converter
- No polluted water discharge

Typical Polymers

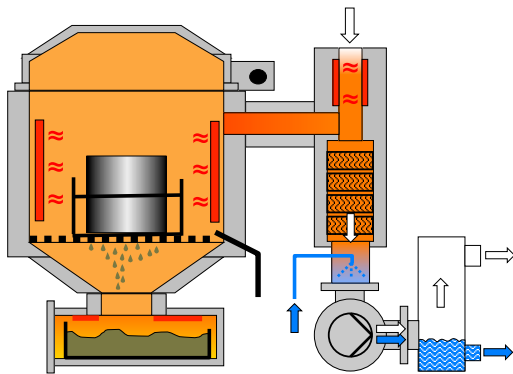
- Polyolefins: PE, HDPE, PP, PB, EVA, EVOH, ...
- Polyesters: PET, PBT, PC, PTT, PEN, ...
- Polyamides: PA6, PA6.6, PA12, PPA, ...
- Polyacrylates: PAN, PBA, PMA, PMMA
- Polystyrenes: PS, ABS, SB, SBS, SAN, ...
- Biopolymers: PLA, PEA, PVAL, PPOX, ...
- Polyetherketones: PAE, PEK, PEEK, ...
- Polyimides: PI, PBI, PEI, PBO, PMI, ...
- Polyurethanes: PUR, TPA, TPO, TPU, ...
- Special Polymers: LCP, POM, BR, NBR, ...
- Other polymers and various organic contaminations on request

Operating Principle

SYSTEM
VACUCLEAN

VACUCLEAN gently removes organic contamination from heat resistant metallic parts by melt-off and thermal decomposition under vacuum.

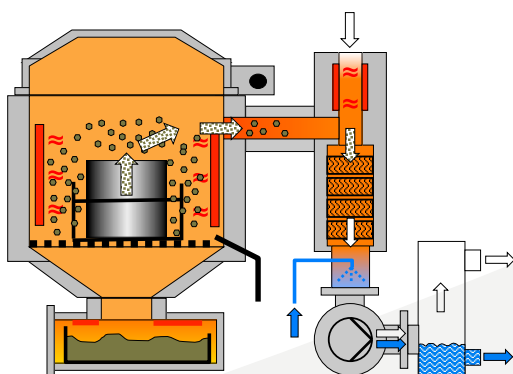
Cleaning time: 8 – 30 h



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Heat-up & Melt-off

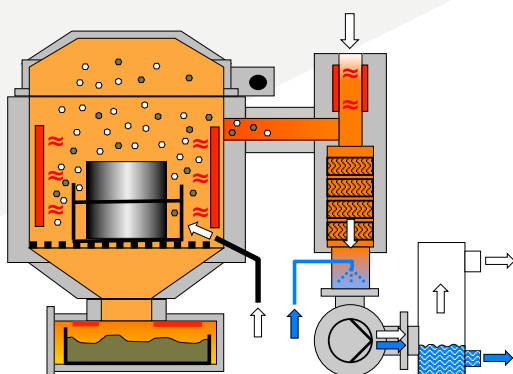
- Gentle heat-up of parts under vacuum
- Adjustable heat-up temperature ramp for uniform heat transfer
- Molten polymer drains into a colder melt collector.



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Pyrolysis

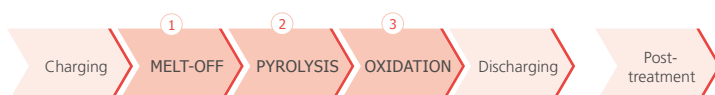
- Heat-up starts thermal decomposition process of organic contamination.
- Special control sensors protect parts and dies from temperature damage.
- Adjustable process temperatures up to 480 °C (600 °C on request for special applications)
- The entire process operates under vacuum condition to prevent exothermal reactions.



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Oxidation

- Process controlled and automated to change from pyrolysis to oxidation
- Oxidation of remaining crystalline carbon residues under reduced vacuum
- At the end of the process the chamber can be opened and unloaded immediately or after adjustable cooling.



SCHWING
TECHNOLOGIES

Horizontal Systems with Top Loading



VACUCLEAN 154



Catalytic converter
for off-gas cleaning



Process chamber of
VACUCLEAN 254



VACUCLEAN 254-XH-S
(higher lid and large melt-off containers)

VACUCLEAN
454



Vertical Systems with Front Loading



VACUCLEAN 1713 with
removable loading table

VACUCLEAN COMPACT



Process chamber and loading pallet
of VACUCLEAN 1212

Model	Process Chamber Temperature up to 480 °C ¹⁾				Overall dimensions (mm)						Empty weight	Electrical supply 3 x 400/460 V			Water supply ⁵⁾	
	Width (mm)	Depth (mm)	Height (mm)	Max. component weight (kg)	Width (door open)	Width (closed)	Depth (door 90° open)	Depth (closed)	Height (lid open)	Height (lid closed) ²⁾		Rated power (kW) 50/60 Hz	Current (A) 50/60 Hz	Average consumption (%)		Flow rate (m³/h)
Horizontal Systems with Top Loading																
154	1,000	530	430 ²⁾	1,000	–	2,580	–	1,560	2,140	1,340	1,250	19/25	39/44	30	0.18	
254	2,000	530	430 ²⁾	2,000	–	3,410	–	1,590	2,140	1,340	1,970	29/37	49/56	30	0.18	
354	3,000	530	430 ²⁾	3,000	–	4,310	–	1,700	2,140	1,350	2,480	41/52	65/73	30	0.36	
454	4,000	530	430 ²⁾	4,000	–	5,360	–	1,700	2,140	1,350	3,000	50/64	81/91	30	0.36	
554	5,000	530	430 ²⁾	5,000	–	6,420	–	1,700	2,140	1,350	3,650	59/77	95/107	30	0.36	
654	6,000	530	430 ²⁾	6,000	–	7,480	–	1,700	2,140	1,350	4,110	69/90	108/122	30	0.36	
754	7,000	530	430 ²⁾	7,000	–	9,180	–	1,700	–	1,410	5,480	90/115	130/155	30	0.72	
854	8,000	530	430 ²⁾	8,000	–	10,180	–	1,700	–	1,410	6,000	98/130	140/162	30	0.72	
954	9,000	530	430 ²⁾	9,000	–	11,180	–	1,700	–	1,410	6,650	108/140	150/175	30	0.72	
1054	10,000	530	430 ²⁾	10,000	–	12,180	–	1,700	–	1,410	7,300	117/154	169/192	30	0.72	
1154	11,000	530	430 ²⁾	11,000	–	13,180	–	1,700	–	1,410	7,760	127/169	182/211	30	0.72	
1254	12,000	530	430 ²⁾	12,000	–	14,180	–	1,700	–	1,410	8,220	137/180	197/224	30	0.72	
Vertical Systems with Front Loading																
COMPACT	500	500	350	50	1,890	970	1,990	1,210	–	2,450	750	10/13	14/16	30	0.18	
0910	ø 900	–	1,000	1,500 ³⁾	4,320	2,470	3,350	1,910	–	2,800	2,950	30/38	46/52	30	0.18	
0917	ø 900	–	1,700	1,500 ³⁾	2,550	1,980	3,270	1,950	–	3,340	3,460	38/50	64/72	30	0.36	
1212	ø 1,250	–	1,250	5,000	3,540	2,580	3,830	2,430	–	2,950	3,450	49/64	81/91	30	0.36	
1713	ø 1,700	–	1,300	5,000 ⁴⁾	3,650	2,980	4,450	2,580	–	2,990	7,180	50/66	81/91	30	0.36	

¹⁾ Higher temperatures up to 600 °C for special polymers and applications on request

²⁾ Horizontal systems are available with higher lids.

³⁾ VACUCLEAN 0910-XL and 0917-XL versions: up to 3,000 kg weight

⁴⁾ VACUCLEAN 1713-XXL version: up to 12,500 kg weight

⁵⁾ Water line pressure between 3 and 6 bar

Melt-off containers are available from 18 up to 200 liters volume, depending on the model.

Exclusions: VACUCLEAN is NOT suitable for removing polymers containing sulphur, phosphor, silicone, siloxane, halogens (chlorine, fluorine, bromine, bromide, iodine, e.g. PVC, PVCA, PVDC, PTFE, PCTFE), halogenated flame retardants and for removing PVB. Cleaning in the VACUCLEAN system might be possible for very low concentrations or if purged with virgin polymer to reduce concentration. Ask SCHWING for details.

The data and illustrations in this brochure refer to the date of printing. All data are approximate. SCHWING reserves the right to make any necessary changes at any time and without special notice.



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