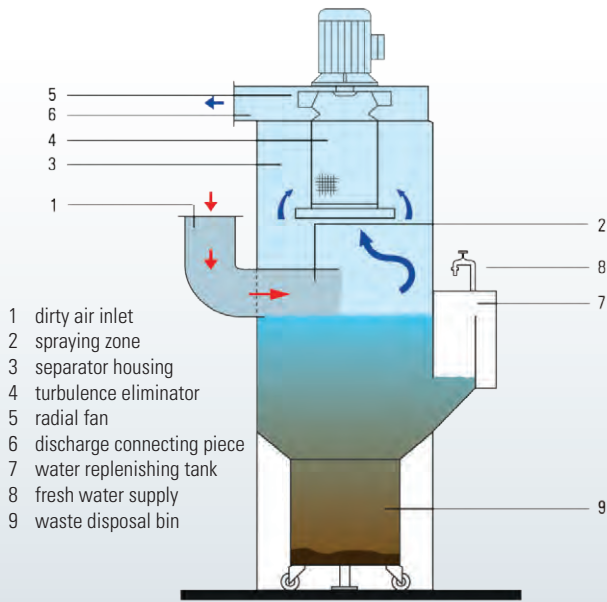


Venturi wet scrubber VDN



Compact wet scrubber VDN-E with detachable disposal bin



Series wet scrubber VDN-T

For combustible, explosive, humid and adhesive dusts

The venturi wet scrubber models are used for the separation of substances that cannot normally be separated or are difficult to separate in dry operating systems. Our high-performance

separators inject water into the airflow as the basic concept of the venturi principle. These multipurpose units can be utilized in almost all sectors of industry.

Technical description

A capturing system collects the air pollutants at the source and conveys them via a ductwork system to the dirty air inlet of the separator to the spraying zone. At the narrowest point, water is injected into the airflow. When entering the airflow, the water is atomized by high accelera-

tion, creating a homogenous water-air mix that moistens the dust particles. Intensive rotation in the subsequent separator housing separates the water droplets from the airflow, by the cyclone principle. Before flowing into the fan, the cleaned air is stabilized by a turbulence eliminator.

From there it is expelled through a discharge outlet into the recirculation piping system, or is ducted directly outdoors. The separated dust settles and is discharged via the disposal equipment.

Applications

- During grinding, polishing or other machining processes where glowing embers or hot dust particles may be created.
- Combustible and explosive dust resulting from abrasive blasting, grinding and polishing of light metals (aluminum and magnesium alloys).
- Diemaking/diecutting or other processes where dust and coolant fumes or mist are released.
- Moist and/or adhesive dust created in foundries and during the manufacture of ceramics or glass.
- Fumes containing dust from driers, coolants, and extruders in the chemical and plastics industry.
- Press fumes released in the production of particle board and engineered wood products.

Wet scrubber compact series

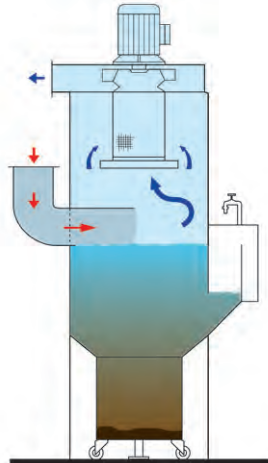
Models

The venturi wet scrubber compact series includes three models (VDN-E, VDN-T, VDN-TE, VDN-AS, VDN-TA). They are available in different

sizes with various types of waste disposal options. Airflows range from 2,500 m³/hr up to 28,000 m³/hr.

Model series VDN-E

The separated dust which is suspended in the water settles as sludge and is collected in the detachable disposal bin underneath the scrubber unit. The bin must be emptied periodically during system down-times. This disposal mode is suitable for a low volume of dust consisting of particles with good sedimentation.



Compact wet scrubber VDN-E with detachable disposal bin

Model series VDN-T

The water holding tank of the VDN-T series is funnel-shaped. The separated dust collects in the hopper top which can be emptied or drained either manually by a manual gate valve, or automatically by a separately controlled drain valve. This system is suitable for handling low volumes of dust, and water-soluble matter, or coolants.



Wet scrubber VDN-T with water holding tank

Model series VDN-TE

The VDN-TE is a combination of disposal types „T“ or „E“. The sludge removal can be controlled by a shut-off valve between the hopper and bucket without turning off the unit.



Wet scrubber VDN-TE

Model series VDN-AS

This unit is equipped with an automatic de-sludging device. A scraper continuously discharges the sedimented dust as sludge or at intervals. This disposal mode is suitable for systems with a high output of dust and continuous operation (2-3 shifts).



Wet scrubber VDN-AS with de-sludging device

Model series VDN-TA

This model is designed for larger airflows. The modular construction, i.e. venturi nozzle, mist separator, and fan of this system exist in different locations, allowing the system to be adjusted to any large airflows. External installation of one or multiple venturi nozzles always requires an external pump to ensure adequate supply of water to the nozzles.



Wet scrubber VDN-TA in stainless steel design

„Z“ design

Keller Lufttechnik offers compact separators in a „Z“ design, for handling particularly combustible and explosive dust, such as aluminum or magnesium alloys. The „Z“ model features the following additional safety equipment:

- Spark-proof fan impeller/housing combination
- Electronic flow monitoring
- Water level monitor
- Electrical control

Advantages in detail

Open and closed systems

Our VDN series is available as a closed or open system. The water level in the closed system is regulated in such a way that the water surface is located directly at the perforated edge of the Venturi nozzle.

If floating matter were to collect on the water surface, it would be atomized and continuously sprayed, thereby decreasing separation efficiency. For such instances, the water supply tank is separate from the

nozzle area and the open water area, thereby creating an „open system“. If necessary, it can be manually cleaned, flushed away through the diverter or discharged with a scraper. The Venturi nozzle is provided with circulating water by a pump. The recirculation is accomplished by return ductwork for contaminated water, with the installation height determined by the low pressure in the system. Besides the Venturi nozzle, additional nozzles adjacent to the

collection point can also be installed so that the ductwork can be flushed and any deposits are minimized. Water spraying occurs both for the open and the closed system inside the nozzle by diffused air. Reductions in the upstream water pressure are not possible for either model to prevent clogging at the narrowest point (e. g. inside a hollow shaft nozzle or full shaft nozzle).

Ductwork rinsing to prevent caking and fires

Certain processes such as hardening or plastics extrusion can create adhesive or combustible fumes and dust. To prevent caking or fires, the dirty air is rinsed with water directly

inside the ductwork behind the collection point. Fumes are partially condensed inside the ductwork by normal cooling without heat loss, which increases separation efficiency.

Adjustment of the water level

All systems are equipped with a water balancing basin including level sensor, fresh water supply attachment and discharge diverter. If the water level falls below the required level, the

solenoid valve in the fresh water fixture is opened and additional water is supplied until the appropriate level is achieved.

Waste disposal

The physical/chemical properties of the slurry or sludge that is to be discharged defines the type of waste disposal equipment. If the ingredients are harmless, the waste water can be released into the municipal sewer system. However, federal and local environmental regulations and

instructions regarding appropriate waste disposal must be observed.

Harmful or toxic substances in water require special treatment and must be processed by in-plant effluent treatment or decontamination facilities.

Chemical additives

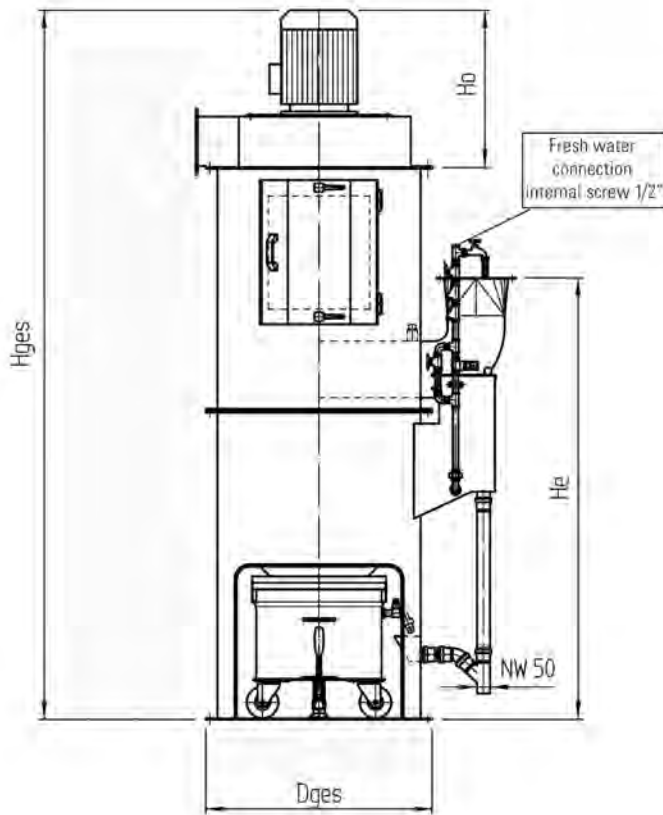
Our venturi wet scrubbers can separate the majority of known industrial dust varieties without any auxiliary treatment. In some cases (OK) however, additives are required. For instance, wetting agents provide thorough saturation of the particles, thereby speeding up the entire separation process. Because some types of dust have a strong tendency

to form foam, de-foaming agents dissolve heavy foam build-up.

Sedimentation agents utilized to treat slurries facilitate the coagulation of separated fine dust. To bolster the efficiency of the sedimentation agent, it may be necessary to add a hardening compound, such as calcium chloride. Corrosion inhibitors

are required for the separation of metal or scale dust to prevent rust build-up in the system. If the dirty air flow contains acidifiers, such as sulphur dioxide, neutralizing agents must be added. Dosing equipment for liquid or powdery additives is strongly recommended to avoid any damage caused by corrosion.

Compact wet scrubber VDN-E

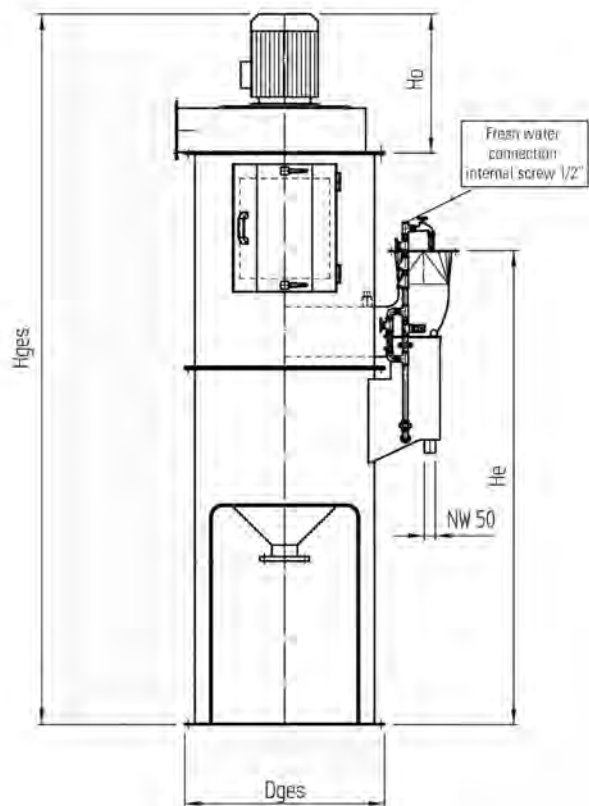


VDN-E			2,5	3,6	5,6	8	12,5	
Nominal airflow		V	2500	3600	5600	8000	12500	
Available vacuum		daPa	80	80	100	100	100	
Power		kW	3,3	5,5	7,5	15,0	22,0	
Weight without water		kg	430	465	620	880	1100	
Tank capacity, approx.		liter	410	410	600	910	1250	
Diameter	total	Dges	mm	894	894	1095	1365	1495
Height	upper section	Ho	mm	500	620	640	780	920
	inlet	He	mm	1670	1670	1780	1890	2190
	total	Hges	mm	2614	2725	3042	3555	3980

dB level							
Front		dB(A)	77	78	78	78	79
Discharge without silencer		dB(A)	98	98	100	101	103
Discharge with silencer		dB(A)	77	77	77	78	78

Dimensions and weights may change! Subject to modification.

Compact wet scrubber VDN-T (Standard)

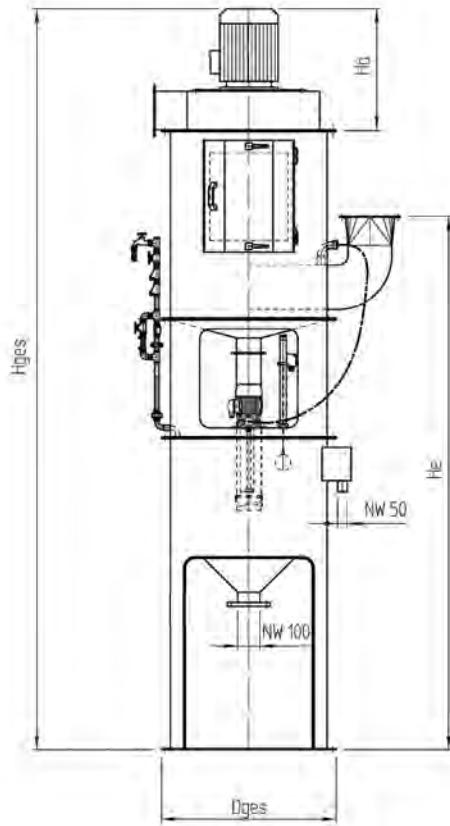


VDN-T (standard)			3,6	5,6	8	12,5	18	22,4	
Nominal airflow		V	3600	5600	8000	12500	18000	22400	
Available vacuum		daPa	80	100	100	100	100	120	
Power		kW	5,5	7,5	15	22	30	37	
Weight without water		kg	410	620	940	1250	1650	1820	
Tank capacity, approx.		liter	405	595	960	1240	1683	2190	
Diameter	total	D_{ges}	mm	894	1095	1365	1495	1705	1905
Height	upper section	H_o	mm	620	640	780	930	1020	1100
	inlet	H_e	mm	2114	2270	2435	2690	2940	3200
	total	H_{ges}	mm	3170	3530	4100	4520	4910	5340

dB level								
Front		dB(A)	78	78	78	79	79	80
Discharge without silencer		dB(A)	98	100	101	103	105	105
Discharge with silencer		dB(A)	77	77	77	78	83	80

Dimensions and weights may change! Subject to modification.

Compact wet scrubber VDN-T (open system)

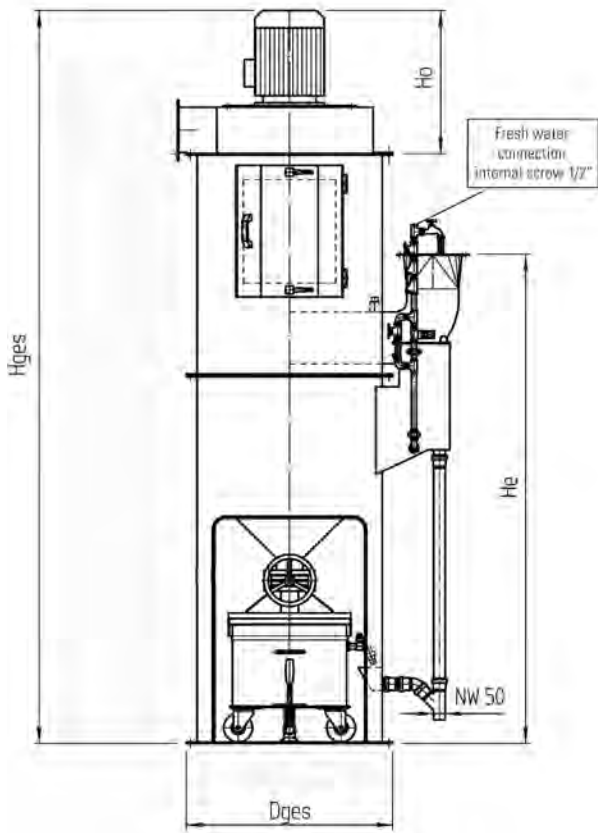


VDN-T (open system)			3,6	5,6	8	12,5	18	22,4	
Nominal airflow		V	3600	5600	8000	12500	18000	22400	
Available vacuum		daPa	80	100	100	100	100	120	
Power		kW	5,5	7,5	15	22	30	37	
Weight without water		kg	410	620	940	1250	1650	1820	
Tank capacity, approx.		liter	405	595	960	1240	1683	2190	
Diameter	total	Dges	mm	894	1095	1365	1495	1705	1905
Height	upper section	Ho	mm	620	640	780	930	1020	1100
	inlet	He	mm	2714	2870	3035	3440	3740	4000
	total	Hges	mm	3770	4130	4700	5320	5710	6140

dB level								
Front		dB(A)	78	78	78	79	79	80
Discharge without silencer		dB(A)	98	100	101	103	105	105
Discharge with silencer		dB(A)	77	77	77	78	83	80

Dimensions and weights may change! Subject to modification.

Compact wet scrubber VDN-TE (standard)

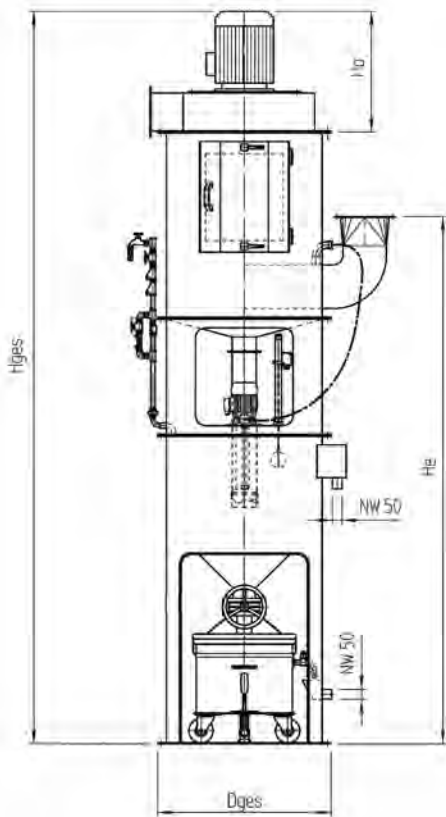


VDN-TE (standard)			3,6	5,6	8	12,5	18	22,4	
Nominal airflow		V	3600	5600	8000	12500	18000	22400	
Available vacuum		daPa	80	100	100	100	100	120	
Power		kW	5,5	7,5	15	22	30	37	
Weight without water		kg	410	620	940	1250	1650	1820	
Tank capacity, approx.		liter	405	595	960	1240	1683	2190	
Diameter	total	D_{ges}	mm	894	1095	1365	1495	1705	1905
Height	upper section	H_o	mm	620	640	780	930	1020	1100
	inlet	H_e	mm	2114	2270	2435	2640	2940	3200
	total	H_{ges}	mm	3170	3530	4100	4520	4910	5340

dB level									
Front		dB(A)		78	78	78	79	79	80
Discharge without silencer		dB(A)		98	100	101	103	105	105
Discharge with silencer		dB(A)		77	77	77	78	83	80

Dimensions and weights may change! Subject to modification.

Compact wet scrubber VDN-TE (open system)

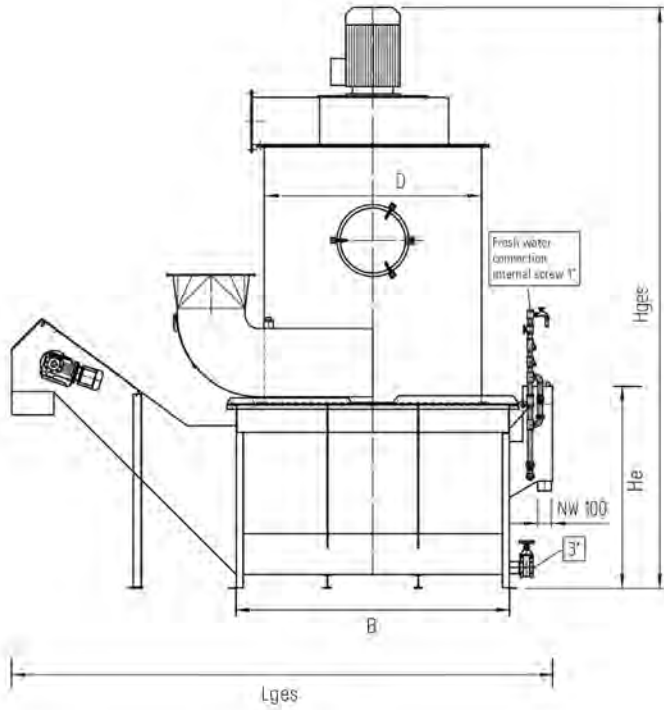


VDN-TE (open system)			3,6	5,6	8	12,5	18	22,4	
Nominal airflow		V	3600	5600	8000	12500	18000	22400	
Available vacuum		daPa	80	100	100	100	100	120	
Power		kW	5,5	7,5	15	22	30	37	
Weight without water		kg	410	620	940	1250	1650	1820	
Tank capacity, approx.		liter	405	595	960	1240	1683	2190	
Diameter	total	Dges	mm	894	1095	1365	1495	1705	1905
Height	upper section	Ho	mm	620	640	780	930	1020	1100
	inlet	He	mm	2714	2870	3035	3440	3740	4000
	total	Hges	mm	3770	4130	4700	5320	5710	6140

dB level								
Front		dB(A)	78	78	78	79	79	80
Discharge without silencer		dB(A)	98	100	101	103	105	105
Discharge with silencer		dB(A)	77	77	77	78	83	80

Dimensions and weights may change! Subject to modification.

Compact wet scrubber VDN-AS (standard)

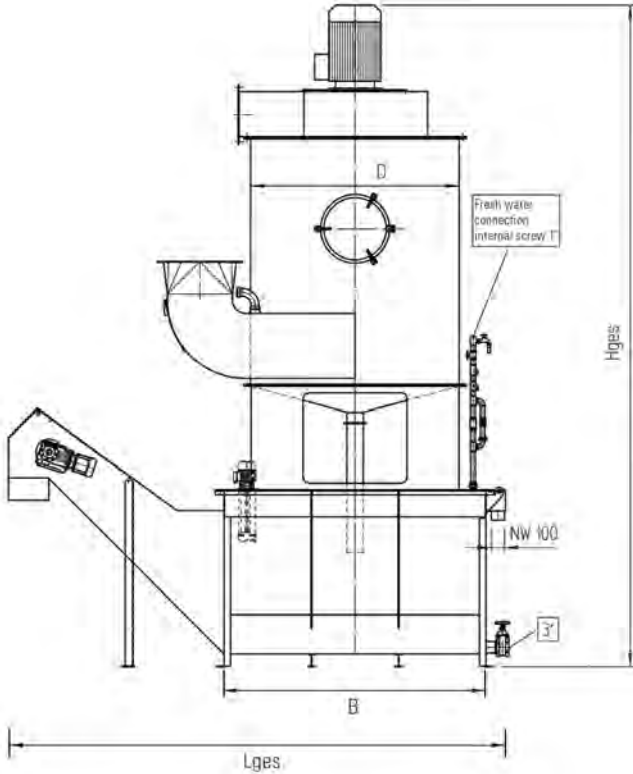


VDN-AS (standard)				3,6	5,6	8	12,5	18	22,4	28
Nominal airflow		V		3600	5600	8000	12500	18000	22400	28000
Available vacuum		daPa		80	100	100	100	100	120	120
Power		kW		5,5	7,5	15	22	30	37	45
Weight without water		kg		1463	1490	1664	2140	2450	2750	3050
Tank capacity, approx.		liter		1265	1270	2900	2940	4600	4670	4800
Diameter	total	D	mm	800	1000	1250	1400	1600	1800	2000
	inlet	He	mm	1580	1636	1971	2206	2306	2458	2536
Height	total	Hges	mm	2630	2890	3630	3980	4270	4600	4930

dB level										
Front		dB(A)		78	78	78	79	79	80	80
Discharge without silencer		dB(A)		98	100	101	103	105	105	105
Discharge with silencer		dB(A)		77	77	77	78	83	80	82

Dimensions and weights may change! Subject to modification.

Compact wet scrubber VDN-AS (open system)

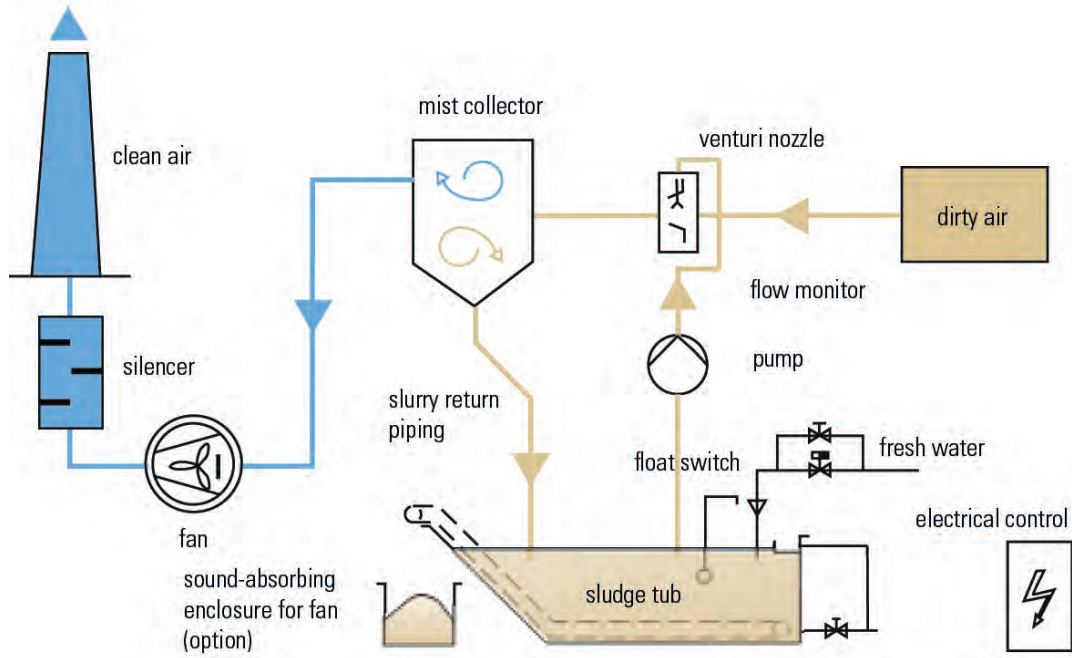


VDN-AS (open system)				3.6	5.6	8	12.5	18	22.4	28
Nominal airflow		V		3600	5600	8000	12500	18000	22400	28000
Available vacuum		daPa		80	100	100	100	100	120	120
Power		kW		5,5	7,5	15	22	30	37	45
Weight without water		kg		1513	1550	1734	2240	2570	2890	3210
Tank capacity, approx.		liter		1265	1270	2900	2940	4600	4670	4800
Diameter	total	D	mm	800	1000	1250	1400	1600	1800	2000
	inlet	He	mm	2180	2236	2571	3006	3106	3258	3336
Height	total	Hges	mm	3230	3490	4230	4780	5070	5400	5730

dB level										
Front		dB(A)		78	78	78	79	79	80	80
Discharge without silencer		dB(A)		98	100	101	103	105	105	105
Discharge with silencer		dB(A)		77	77	77	78	83	80	82

Dimensions and weights may change! Subject to modification.

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