

Top suction machines

DÜRR VS SUCTION SYSTEMS FOR THE DENTAL PRACTICE



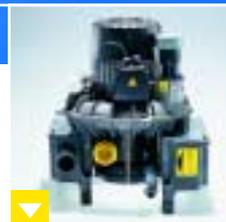
VS Combination Suction Units



VS 300 S



VSA 300 S



VS 600



VS 900

Aspiration of contaminated spray mist

HYGIENIC AND ERGONOMIC ACCESS TO PREPARATION

High quality dental treatment

In order to perform high quality dental treatment it is vital that the conditions in the area of the mouth where the dentist is to work are perfect. By using the various aspiration cannulas the dental assistant ensures that the dentist has a clear view of this area and that it is clean and dry. Powerful and trouble-free suction performance creates the conditions under which the necessary treatment measures can be carried out quickly and precisely. That is why the suction system occupies such an important role in the practice.

The suction system provides the necessary conditions under which the dentist can work ergonomically and calmly without constant interruptions caused by the patient's swallowing reflexes. And with the spray mist aspiration it makes an essential contribution to hygiene in the practice and protection against infection. It must always provide full suction power despite having to contend with a permanent load of waste water, blood, saliva, dentin and a wide variety of filling materials (e.g. plastic, ceramic, amalgam, precious metals). Clearly, great demands are placed on the suction system in dental practice.



Low-noise suction with the Dürr Universal cannula III



Without aspiration an infectious aerosol cloud produced by the cooling spray of modern high-speed instruments would spread throughout the entire treatment room.

Current studies have confirmed that the amount of aerosol breathed in by practice staff can be as much as $0.12 \mu\text{l}$ within 15 minutes. The aerosol cloud lasts for up to 30 minutes especially after scaling and this presents a high risk of infection to everybody in the practice.

DÜRR VS SUCTION SYSTEMS



In the final analysis investment in a new Dürr suction pays not only in day-to-day dental treatment but also in the long term through practice modernisation.

Dürr Dental – world leaders in dental practice suction systems

Your decision to purchase a Dürr Dental suction system means that you can be sure of reliable performance. Dürr Dental VS suction systems offer an exceptionally wide range of Combination Suction Units and accessories to meet the individual needs of every practice. The planning and technical consultants at your dental dealer will work out the perfect solution for your practice.



Dürr Comfort hose holders in a modular design shown here fitted with the low-noise Dürr Universal Cannula III and the saliva ejector.

Dürr VS systems – smarter because it's simpler

Dürr Dental has combined the complex suction system comprising the suction and the separating machine in a single combination suction unit on one shaft. This is known as a VS unit where V stands for vacuum generator (suction machine) and S stands for separator. The amalgam separator can be integrated with a VSA unit or with an additional amalgam separator.

This advanced technology not only reduces installation costs but also the amount of equipment required. Maximum suction performance is combined with economy, robustness and long service life as well as a reduction in maintenance costs. The ecological benefits are reflected in the high degree of amalgam separation and the fact that rinsing out the suction system with costly drinking water is unnecessary.

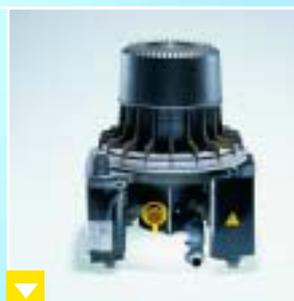
The right solution for every practice

SUCTION UNITS FOR UP TO THREE TREATMENT CHAIRS



VS 900

No. of treatment rooms in the practice	Max. no. of treatment chairs in simultaneous use	Possible solution for the practice
1 – 2	1	VS/VSA 300 S
2 – 3	2	VS 600
3 – 5	3	VS 900



Dürr single chair suction units VS 300 S and VSA 300 S

DÜRR VS SUCTION SYSTEMS

Particularly powerful under pressure

In today's competitive economic climate you need resources you can rely on. That applies equally to small as well as to large dental practices. That is why a Dürr VS suction system constantly generates the vacuum required for trouble-free and hygienically perfect treatment. A suction output of about 300 litres per minute¹ ensures a clear view of the operating area in the mouth at each treatment chair. The robust technology guarantees reliability.

The perfect choice for every practice

The range of the Dürr VS Combination Suction Units for dental practices meets the needs of up to five treatment rooms with up to three treatment chairs in simultaneous use. The performance of the individual units can be easily calculated by using the factor 300. For example, the VS 600 meets the current performance requirements of two treatment chairs in simultaneous use. However, an important additional deciding factor when choosing a suction system

is whether the installation will meet the future requirements of the practice arising from extending the practice or increased performance requirements. In this respect the choice of the next higher VS suction unit may in individual cases be the ideal solution.

Economical and ecological

Where a VS suction unit has been centrally installed in a practice with several treatment rooms, only a single amalgam separator is required which is integrated into the suction unit. The Dürr amalgam separator AZ 100, for example, boasts an impressive separation rate of over 98% whilst at the same time being extremely robust and hard-wearing, for example when handling large quantities of blood foam. The Dürr VS 900 also provides economical and ecological benefits, saving more than 1.500 Euros per year in water costs in comparison with a conventional water ring pump. This represents an environmental saving of over 400 cubic meters of fresh water.

Key features of Dürr VS suction systems

- ▶ High-quality, robust motors
- ▶ Reliability in continuous operation
- ▶ Impellers made of coated aluminium (VS 900) or extremely corrosion-resistant plastic (VS(A)300 S, VS 600)
- ▶ High suction performance reached within seconds
- ▶ Flexible installation possibilities
- ▶ Common drive unit for separation and vacuum generation ensures great economy and operational reliability whilst taking up the minimum amount of space
- ▶ High foam compatibility thanks to the innovative 2-stage separating system.

¹ This value has been proven over many years in dental practice. Dürr suction machines are classified by ISO 10637 as a "High Volume Suction System".



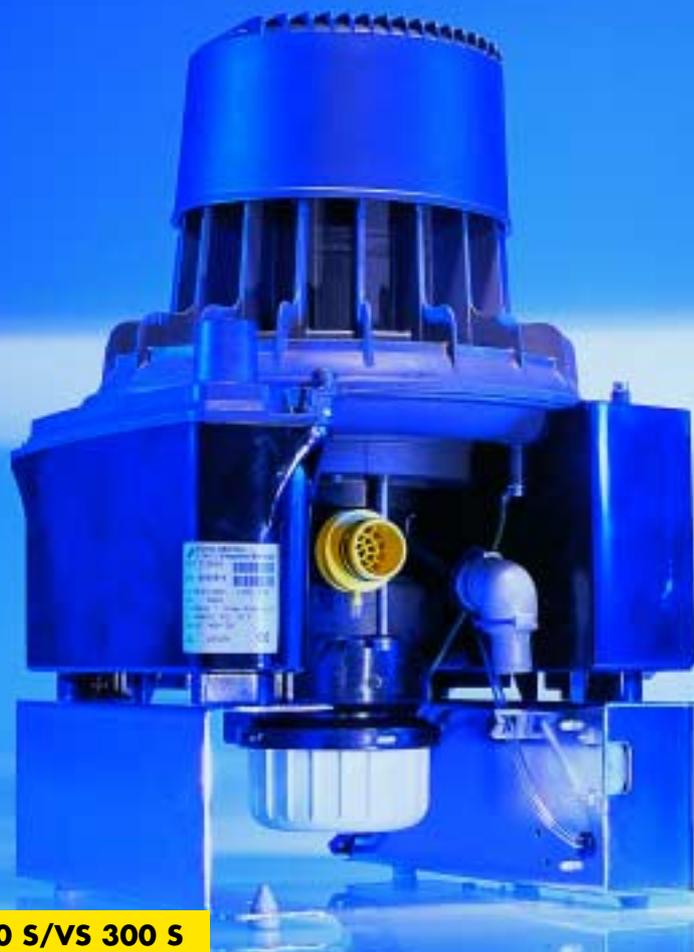
Dürr central suction units VS 600 and VS 900



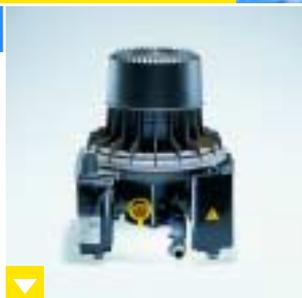
In comparison with conventional water ring pumps a Dürr VS 900 can quickly pay for itself (figures based on water prices of € 4,-/m³ and a flow rate of 4 l/min).

Small but ingenious

COMBINATION SUCTION UNITS FOR ONE WORK STATION



VSA 300 S/VS 300 S



The VS/VSA 300 S with its suction capacity of about 300 l/min has been designed as a single chair suction unit.



The VS 300 S is really easy to install in the basement, an adjoining room or right in the treatment room.



Dürre VSA 300 S – the first suction unit that also separates amalgam.



Dürre Dental recommends using waste disposal companies that are able to accept filled amalgam collection vessels.

Reduction to the essentials

Single chair suction units like the VS/VSA 300 S are the most versatile variants in Dürr Dental's range of Combination Suction Units since they considerably reduce the preliminary planning work and the outlay involved in installation. That makes them an ideal additional investment when equipping an extra treatment room or installing facilities for a prophylactic service, surgery or orthopaedics.

The VS 300 S incorporates the latest Dürr suction technology: Vacuum generation and the simultaneous separation of the mixture of secretions and solids are both carried out on the robust drive shaft. This technology made a name for itself as "Two-in-one". And when statutory regulations about amalgam separation come into force, this technology can be later supplemented by the Dürr CA 1 amalgam separator for example. The alternative to this, where statutory regulations are already in force, is the VSA 300 S. For this offers "Three-in-one" all in one unit: The VS suction unit that also has the amalgam separator or just the amalgam separator that enables the practice to have a new VS system. It is only a question of perspective.

VS 300 S – embracing innovative technology

With the help of air vortices and a separation turbine the VS 300 S reliably separates the liquid and solid particles from the suction air. The 2-stage separating system produces a long-term improvement in foam compatibility. The integrated waste water pump draws off the fluid continuously. And the VS 300 S manages even large amounts of fluids without difficulty. The high level of economy and operational reliability are the result of the common drive unit that also takes up scarcely any room which is why the VS 300 S is so compact.

VSA 300 S – three components in one unit

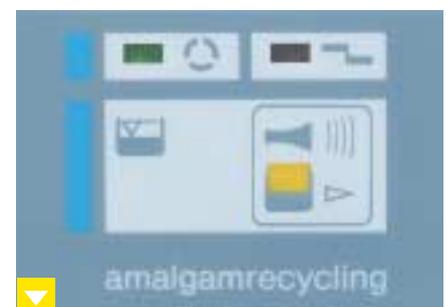
Bearing in mind all the demands placed on it, a suction machine should not only separate the mixture of air, secretion and solids but should also separate the amalgam particles and collect them in a collection vessel. And it should do all this as economically and ecologically as possible. That sounds as if a large system with correspondingly high costs is called for. Dürr Dental has proven with the VSA 300 S that all these functions can be performed in one unit which takes up the minimum amount of space: Before the waste water pump draws off the separated waste water it is conducted into a centrifuge where the amalgam particles that have been carried along are separated. More than 97% of the amalgam (German standard test) ends up in the collection vessel which is automatically monitored to check how full it is.

Shortly before the maximum filling level has been reached a visual and acoustic signal gives a warning that the collection vessel needs changing.

The VSA 300 S, certified by the test no. Z-64.1-15, satisfies the statutory requirements under the General Administrative Framework Regulation relating to waste water, appendix 50 (dental treatment).



Dürr CA 1 amalgam separator to supplement a VS 300 S.



The display module of the amalgam separator indicates in good time when a change of the collection vessel is due.

The economical power packs

CENTRAL SUCTION UNITS FOR PRACTICES WITH SEVERAL TREATMENT ROOMS



VS 900

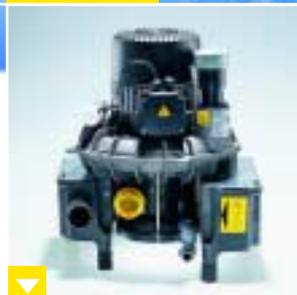
VS 600



▼
The VS 900 supplies up to 5 treatment rooms with a maximum of 3 treatment chairs in simultaneous use.



▼
With the use of suitable accessories a VS 900 and a Dürer amalgam separator may be converted into a VS(A) 900.



▼
The VS 600 supplies up to 3 treatment rooms with a maximum of 2 treatment chairs in simultaneous use.



▼
A VS 600 may be converted into a VS(A) 600 with a Dürer amalgam separator.

DÜRR VS SUCTION SYSTEMS

Key advantages for the practice

Many key questions arise when considering installing new equipment, or modernizing, or taking over a practice. Key solutions regarding the suction system are provided by the Combination Suction Units Dürr VS 600/900. Two terms that succinctly describe the performance of these units since they combine vacuum generation and separation for two or three treatment chairs with a suction capacity of around 300 litres per minute at each cannula.

Adding up the costs and making decisions

Investing in extending the practice requires careful consideration. Extending prophylactic and oral hygiene provision often means an additional room will be required and these are changes which the practice technology must keep pace with. Clear savings can be achieved because the VS central suction units combine suction and separation for all the practice centrally in one machine on one drive shaft. There is no need for extra separation machines involving more complex cross-connections during installation. There is also a saving on a part of the operating costs of conventional systems. In addition, an amalgam separator AZ 100 fitted to a VS 600/900 converts that into a central VS(A) 600/900.

Technology ensures reliability

The functions performed outstandingly well on a smaller scale by the VS 300 S are also executed to perfection by the central suction units VS 600/900 for up to three treatment chairs simultaneously. "Two-in-one" is the name of the principle by which even large quantities of fluids and blood foam from several treatment chairs can be aspirated without interruption. The integrated 2-stage separating system reliably prevents secretions and blood foam from being carried along into the turbine area. A side channel compressor produces the necessary vacuum with no water supply being required. The drive unit of the Combination Suction Units runs smoothly without vibrations and is very reliable. Corrosion protection of all important functional elements ensures a long service life.

Perfect cleaning of all the secretion-conducting channels

Central installation in a practice with several treatment rooms places great demands on the cleaning and hygiene of the pipe work system. To deal with that problem Dürr Dental has developed the Dürr Tidal Wave. Hidden behind the expression, "Tidal Wave" is the Dürr flow accelerator which gathers up the waste water from the spittoon in such a way that it is aspirated by the central suction unit in surges. In that way the suction sys-

tem automatically eliminates the danger of deposits, odour nuisance and hygiene problems.



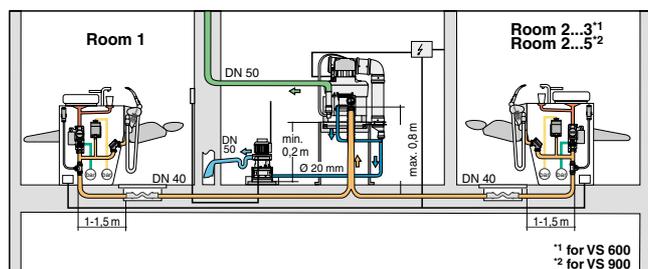
The Dürr flow accelerator in the floor is easily accessible when required through the floor box.

A customised solution for every practice

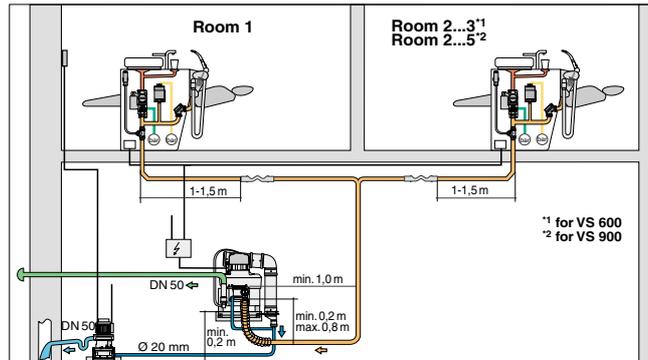
PLANNING – SYSTEM CARE – ACCESSORIES

Examples of installations with VS 600/900

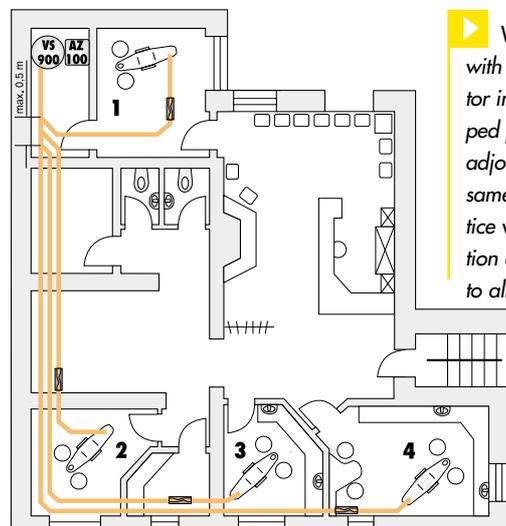
The VS 600 or 900 are straightforward to install whether in the basement or in an adjoining room on the same floor as the practice. The mixture of secretions and solids from up to 3 or 5 treatment rooms is aspirated by the VS 600 or 900 and centrally separated.



▶ VS 600/900 with central amalgam separator in an adjoining room on the same floor as the practice.



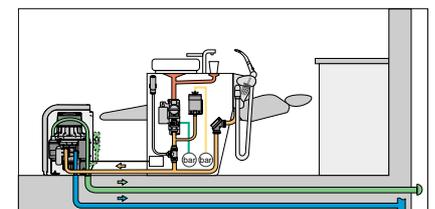
▶ VS 600/900 up to a max. of 3 floors lower, e.g. in the basement.



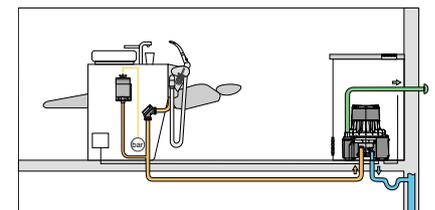
▶ VS 600 or 900 with amalgam separator installed in star-shaped pattern in the adjoining room on the same floor as the practice with the same suction capacity delivered to all treatment units.

Examples of installations with VS/VSA 300 S

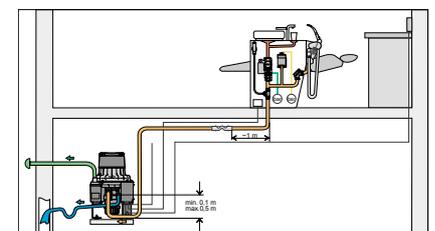
Regarding installation possibilities the VS/VSA 300 S can be easily adapted to suit the conditions of the practice. Installation can be carried out easily in the basement, an adjoining room or right in the treatment room.



▶ VSA 300 S in the housing near the treatment unit.



▶ VS 300 S in a ventilated cabinet or an adjoining room on the same floor as the practice.



▶ VSA 300 S one floor lower, e.g. in the basement.

- Suction line
- Exhaust air line
- Drain line

DÜRR VS SUCTION SYSTEMS



Planning and consultation

You analyse your requirements in consultation with your dealer installation specialist and develop the optimum solution for your practice.



Dürr Comfort hose holder



Dürr spittoon bowl valve

VS solutions for practices from Dürr

The advanced design of Dürr's Combination Suction Units enables installation to be carried out more simply and flexibly than is the case with conventional systems. Nevertheless, each practice requires a customised solution. That is why in each case the requirements need to be analyzed, planned and executed with precision. The determining factors are not just the level of perfor-

mance required and the number of rooms and treatment chairs, but also the need to adapt the installation to the architectural, structural, and technical installation conditions.

The installation advisers and service technicians at your local dealer have received comprehensive training from Dürr Dental. You can draw on their know-how and many years of installa-

tion experience at the planning stage to resolve any questions you may have, for example, about connections to your treatment units, the accessories required or relevant statutory regulations. In this brochure you will find a selection of typical solutions. At the same time the range is so wide that very specific variants can be realised even with unusual installation conditions.

Hygiene and maintenance of the suction system

DISINFECTION AND CLEANING OF SUCTION SYSTEMS WITH OROTOL®

Infection protection and investment protection

A comprehensive system range should also be designed with the future in mind, an approach fully reflected in the specially developed Dürr care products for dental technical equipment.

The suction system has a whole host of tasks to tackle. Large amounts of saliva, blood or filling materials are a constant source of contamination from bacteria, fungi and viruses. This is a problem that cannot simply be wiped away. Moreover, lime deposits or perhaps discolorations caused by plaque-revealing mediums mean that the spittoon and the suction system require considerable cleaning. Consequently, the disinfection, cleaning and care of this equipment is a matter that must be taken very seriously.

For many years the name Orotol® has been synonymous with the disinfection and cleaning of suction systems.

Orotol®, both in its powder concentrate (Orotol® Ultra) and liquid form (Orotol® Plus), has established itself globally as one of the leading brands. And with good reason since Orotol® products fully meet the system demands and with their comprehensive spectrum of activity have been DGHM* listed! The use of these products with their exceptional cleaning power, foam-free solution, environmentally compatible composition and pleasant smell quickly becomes part of daily routine.

*German Association of Hygiene and Microbiology



Orotol® Yellow Power

The wide range of products which also includes care systems, spittoon cleaners and special cleaners offers the ideal solution for all practice situations. So you can always enjoy the security of hygienic conditions and long-term investment protection.



The daily disinfection needs can be easily aspirated from the Orotol® care system. However, foaming agents such as instrument disinfectants or mouth-rinsing water should not be aspirated or emptied into the spittoon since they can cause damage to the suction system over the long-term.

- ▶ Full suction power
- ▶ Maximum protection against infection
- ▶ Avoiding odours
- ▶ Long-term protection of investment



Foaming disinfectants or inadequate disinfection?



Defective suction system



Practice ground to a halt? Dürr care products will help you to avoid this.



Accessories for optimum solutions for practices

DÜRR ACCESSORIES FOR VS SUCTION UNITS

Functional accessories for the perfect installation

Dürr Dental has put together a comprehensive range of accessories for the VS combination suction units.

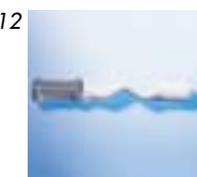
These accessories facilitate installation and enable you to operate your Dürr suction system efficiently and without problems.

High-Tech in very tight spaces

Combining suction and compressed air in a single energy centre is a fascinating concept. The unit containing the technology to provide the full range of treatment provision has been constructed vertically rather than horizontally, thus saving expensive floor space in the practice. The Dürr Power Tower Silence proves that this level of performance can be accommodated in about half a square meter of floor space. You can find out more about the fascinating subject of optimizing the utilization of space in a special brochure.



Dürr Power Tower Silence – the unique modular cabinet system with noise dampening for the practice's power units.



1 Wall console

2 Floor console

3 Control unit 24V~ for VS 600, VS 900

4 Germ filter for exhaust air from VS 300 S and the VSA 300 S

5 Dürr Comfort hose holder

6 Dürr Universal cannula III in 6 Freshlook colours

7 Filter on the secretion inlet for VS 300 S

8 Amalgam remote display

9 Spittoon bowl valve (already fitted in many new units)

10 Place selector valve 24 V =/~

11 Rinsing unit II, with connected overflow

12 Flow accelerator

13 Bypass nozzle for VS(A) 300 S, VS 600, VS 900

14 Carrying case for DürrConnect and DürrConnect Special

The technology at a glance

DÜRR COMBINATION SUCTION UNITS

	VS 300 S 7122-01	VSA 300 S 7125-01	VS 600 7128-01	VS 600 7128-02	VS 900 7133-01	VS 900 7133-02
Voltage (V)	230 (1~)	230 (1~)	230 (1~)	400 (3~)	230 (1~)	400 (3~)
Frequency (Hz)	50 - 60	50	50	50 - 60	50	50
Electrical power (kW)	0.58 - 0.8 ¹	0.58	1.1	1 - 1.42 ¹	1.48	1.52
Current consumption (A)	2.9 - 3.7 ¹	2.9	5.0	1.8 - 2.3 ¹	6.5	2.5
Vacuum mbar (hPa)	180	180	170 (AAV) ²	170 (AAV) ²	170 (AAV) ²	170 (AAV) ²
No. of treatment chairs	1	1	2	2	3	3
No. of treatment rooms at 60 % simultaneous use	1 - 2	1 - 2	3	3	5	5
Max. fluid throughflow rate (l/min)	4	5	10	10	16	16
Effective volume collection vessel (cm ³)	-	approx 150	-	-	-	-
Exchange interval (months)	-	6 to 9	-	-	-	-
Dimensions without housing (HxWxD,cm)	37 x 31 x 31	48 x 31 x 31	50 x 42 x 41	50 x 42 x 41	55 x 42 x 41	55 x 42 x 41
Dimensions with housing (HxWxD,cm)	51 x 36 x 36	51 x 36 x 36	65 x 49 x 53	65 x 49 x 53	70 x 49 x 53	70 x 49 x 53
Weight without housing (kg)	12.5	14	25	25	35	35
Weight with housing (kg)	20	21.5	45	45	55	55
Noise level ³ without housing (db[A])	approx 63 - 65 ¹	approx 63	approx 63	approx 63 - 67 ¹	approx 64	approx 64
Noise level ³ with housing (db[A])	approx 54 - 56 ¹	approx 54	approx 55	approx 55 - 59 ¹	approx 58	approx 58
Separation rate (%) ⁴	with CA 1: 97.9	97.5	with AZ 100: 98	with AZ 100: 98	with AZ 100: 98	with AZ 100: 98
Test mark	Z 64.1-20	Z 64.1-15	Z 64.1-1	Z 64.1-1	Z 64.1-1	Z 64.1-1

1 Performance range is directly related to operating frequency of 50 – 60 Hz.

2 AAV= auxiliary air valve

3 The noise level depends on the room where the suction unit is installed. In a reverberant room (e.g. tiled walls) the noise level may be higher.

4 Separation rates measured by the TÜV [technical monitoring authority] Essen in accordance with the German standard test at maximum rate of fluid flow.

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