High demands reliably exceeded

DÜRR SUCTION SYSTEMS

DÜRR AMALGAM SEPARATORS
Environmental disposal of regulated throughout Europe

Amalgam separation regulations of many countries stipulate that the amalgam content of the untreated waste water from surgeries must be reduced by at least 95% – and indeed before it is mixed with other sanitary effluent. Throughout Europe the ISO standard defines the minimum demands for amalgam separators. Separator systems from Dürr Dental produce generally higher values than those required by the standard.

The treatment of defective or less than aesthetic amalgam fillings is part of the everyday work of dental practices. Almost all of the removed particles are taken away at a high rate by suction. The residues contained in the saliva reach the spitton bowl when the mouth is rinsed out. Now disposal systems incorporating the separation of amalgam from secretions and waste water are being called for.

The separation of amalgam is one of the key disposal questions for dental surgeries. With Dürr Dental’s systems the energy required for this purpose is reduced to a minimum – with good results for the environment. Every year in the dental practices of the European Community approx. 5.75 million m³ of waste water containing amalgam are produced. Legally prescribed separation can withdraw 240 tons of amalgam from this volume. The technology of the environment is the technology of the future.

AZ 100 Universal application in every dental surgery
Combi-Separator
VSA 300 Combination suction unit without compromise
VS(A) 600 The central solution
VS(A) 900

Dürr Amalgam Separators – the practical solution for every situation

Safe suction removal of preparation spray mist with fine amalgam particles.
Amalgam separation is not a one-way street. Separation is followed by safe storage in the collecting vessel. As a result of the addition of disinfectants the contents of filled containers are hygienically safe. Packaging and transport are also provided. As far as possibilities of transport are concerned, it is essential to observe the pertinent national regulations in force.
The internationally established performance standard fulfills exacting dental surgery demands.

DÜRR AZ 100
Universal decision for every dental surgery situation

The amalgam separator forms an integrated part of a modern suction system. Initial installation or subsequent equipping does not require any great expenditure. Since there are many different types of surgeries, obviously no single general solution is available. For this reason Dürr Dental has developed several alternative options - tailored to every situation. Thus the Dürr AZ 100 can stand by the side of the chair or also be located centrally in the basement.

The chair version of the AZ 100 is ideally suitable for the reequipping of units which have already been fitted with a suction separator. It is installed in a pleasantly shaped housing next to the place of treatment in the area of the floor connections. The operation of the AZ 100 is based on the centrifugal principle with hydrodynamic selfcleaning and is fully independent of the suction system. If the accumulation of liquid makes it necessary, the system switches on automatically. Display elements in the housing provide optical and acoustic information on the operational state of the system. The AZ 100 attains a rate of separation of 98 % at a maximum rate of flow of 16 litres per minute. As a result of their high performance and integrated aeration and ventilation, water-operated saliva ejectors can also be connected.

Installation without housing in a basement room under the dental surgery completes existing centralized suction installations. The high rate of flow permits the connection of up to five treatment units. Crucial for central amalgam separation in a dry suction system is the routing of the discharges of the individual units separate from the sanitary effluent. The regulations of national law in force are crucial for the layout of a centralized separation system.
Separation and amalgam separation within the unit

With a height and width no greater than this booklet, the Dürr Combi-Separator is offered as a combination of separation and amalgam separation. It is suitable for many treatment units and is already being fitted in the factory by leading manufacturers because it operates very inconspicuously.

Advantages - point by point

High-quality treatment always demands the highest concentration. So the Combi-Separator must not demand additional concentration but instead demonstrate its worth only by its power and by reliable compliance with all regulations.

• Separation rates over and above the legal standard.

Separation and amalgam separation can be so quiet in the most confined space.

The two-stage system with the cyclone separator and dynamic separation turbine produces four times the rate of separation of normal technology. Rubber-cushioned tube connections and drive units guarantee low-noise and vibration-free operation. Integrated rinsing ensures a permanent film of water and prevents the depositing of particles and the coagulation of blood. As a consequence the hygienic condition of the entire suction system is also significantly improved.

• Long replacement intervals of the collecting vessel - the amalgam sediment is almost pure.

• Even with the maximum accumulation of liquid, suction removal is not interrupted - you can work continuously.

• The spittoon bowl valve, which is insensitive to soiling, prevents any suction noises at the spittoon bowl - your patients do not experience any unnecessary stress.

The display module of the amalgam separator signals in good time that a change of collecting vessel is due.

The comprehensive system also incorporates transport and recycling.
Leading treatment units are fitted with Dürr Combi-Separators in the factory or retrofitted without any problems with special adaptation kits.
The Power Tower Silence 105 including VSA 300 provides the complete suction requirements of the practice. The problem of amalgam separation can also be solved with a suction machine. Three in one - suction machine, automatic separator and amalgam separator.

These days every investment is subject to a hard selection process. What will it bring in terms of rationalization effects, additional safety and concrete potential savings?

If the situation of the dentist’s surgery necessitates investment in a suction system or an amalgam separator, there is the opportunity to increase its efficiency. For the VSA 300 offers you all this at the same time: a suction unit also incorporating the amalgam separator - or the other way around. The VSA 300 offers state-of-the-art technology for a place of treatment in a single unit. It makes the normal expenditure on the installation of a suction machine, separation unit and amalgam separator superfluous.

The problem of amalgam separation can also be solved with a suction machine.

DÜRR VSA 300

The first suction machine of a new generation

Dürr Dental proves with its VSA technology that the formerly so complex suction system can now be brought together in a single combination suction unit - on one driving shaft: as a VSA unit with a vacuum generator, automatic separator and amalgam separator. This unique technology combines peak power in suction removal with economy, robustness and a long service life as well as with a reduction in expenditure on maintenance. VSA technology takes heed of the environment by producing a vacuum without consuming precious drinking water.

Investments in a Dürr VS Combination Suction Unit are safe, since the development and change of a VS 300 into a VSA 300 with an amalgam separator has been technically prepared in advance.
Extension solutions behind existing suction machines

Wet suction systems such as the Dürr VS 300 and other combination suction systems or water ring pumps can be ideally retrofitted with the Dürr AZ 50 Amalgam Separator. The AZ 50 operates with a self-cleaning centrifuge and has a rate of separation of more than 97%. The rate of flow is up to 8 l/min. An integrated control unit permits the electrical supply of spittoon bowl valves, place selection valves and rinsing units.

Two versions with different accessories create perfect connection conditions. With its pressure equalization tube the AZ 50 is suitable for connection behind a VS 300/600 or similar systems. Behind the water ring pumps an additional waste water pump is fitted at the intake.
Many questions arise whenever a large dental practice is modernised or upgraded. With suction systems, the question is normally can I fit a central system as an option? With the Dürr VS 600 and VS 900, the answer is yes. The name VS stands for Vacuum plus Separation. These systems consist of a combination of suction motor and automatic separator designed to supply between 2 to 5 surgeries depending on the workload and design of the system.
In view of the fact that the entire suction removal and separation of the dental practice are brought together in a single machine by the VS 600/900, considerable savings are possible. Therefore no extra automatic separators are required, and more complex interlinking during installation as well as part of the operating costs are eliminated. To form a complete central solution, the VS 600/900 is combined with the independent AZ 100 amalgam separator directly integrated in the discharge. This combination thus turns the VS 600/900 into a VS(A) 600/900.

The Dürr “two-in-one principle” operating before the amalgam separator enables even high quantities of liquid to be removed by suction without interruption – with simultaneous separation of the secretion/solids mixture. A side channel compressor produces the necessary vacuum without requiring a water connection, so that sufficient power is always available to even large dental practices.

**A really central solution must provide a central answer to all questions.**

**DÜRR VS 600/900 WITH AZ 100**

Perfect cleaning for the secretion-conveying pipes – the Dürr Tidal Wave system

In the case of centralized installation in a dental practice with many rooms, the piping system makes great demands on cleaning and hygiene. For this purpose Dürr Dental has developed the Dürr Tidal Wave – a pipe cleaning system based on a flow accelerator. It automatically and regularly cleans the pipes with the collected waste water from bowl rinsing and thus eliminates the danger of deposits, odours and hygiene problems.

The flow accelerator collects the waste water from the spittoon bowl before it is drawn in by suction by the VS 600/900 in waves. The mounting frame provides good access in the floor if required.

View of the Power Tower Silence 105 – the perfect panelling for the VS(A) 900 with visual display.
From the Dürr O roCup the daily disinfectant is simply removed by suction – however, foaming materials, such as, for example, instrument disinfection or mouth rinsing water, should not be removed by suction or be emptied into the spittoon bowl since they can damage the suction system in the long term.

Orotol® - the Original

Saliva, blood or filling materials provide the suction system with constant invisible contamination with bacteria, fungi and viruses. Additionally, deposits of lime or also plaque colouring tablets necessitate considerable amounts of cleaning. As a consequence, disinfection, cleaning and care of the suction system are to be taken very seriously. Separation, amalgam separator and suction machines must be protected from the effects of foaming solutions. Orotol® products therefore develop their full power without producing foam.

Orotol® has been the leading preparation for the disinfection and cleaning of suction equipment for many years: as liquid concentrate Orotol® Plus and as powder Orotol® Ultra. No wonder since Orotol® products fully meet system demands. Thanks to their effectiveness in a wide application spectrum, extraordinary cleaning power, environmentally compatible composition and a pleasant aroma their use becomes part of daily routine. The Orotol® brand range, which also comprises a dental care system, spittoon bowl and special cleaners, provides the perfect solution for any dental surgery.

Protection against infection and infection secure a successful future for your Dürr disinfection and care
estment protection
dental practice.

Functional accessories for perfect installation

Dürr Dental has compiled a comprehensive range of accessory components around the Dürr Suction Systems. These accessories facilitate easier installation and promote the high-performance and problem-free operation of your suction installation and amalgam separator.

Individual demands of a dental practice can be clarified in detail. In addition to the functionality provided by the system, ease of maintenance and maximum efficiency are also of paramount importance.

1 Bacterial filter for exhaust air of VSA 300
2 24 V AC control unit for VSA 300 and VS(A) 600
3 Wall-mounting bracket for VSA 300
4 Control electronics for subsequent installation for VSA 300
5 VSA 300 with housing
6 VSA 300 with accessories
7 VS(A) 900 with noise insulation hood, console for floor installation and pressure equalization pipe
8 Wall plate VS 900
9 Console for floor installation VS 900
10 Console for upright position of suction machine, e.g. VS 300 or PAL 14, L 45 x W 30 x H 19.5 cm
11 Console for upright position of suction machine, e.g. Turbojet or PAL 50, L 55 x W 44 x H 19.5 cm
12 Flow accelerator
13 Connection box for the assembly of flow accelerator in flooring
14 Side air jet for VS suction systems
15 Spittoon bowl valve (already installed in various new units)
16 Housing for spittoon bowl valve
17 Remote display element for AZ 50
18 Remote display element for AZ 100
19 Position selection valve 24 V DC / AC
20 Rinsing unit II and with switched overflow
21 Amalgam recycling box for AZ 100
22 Amalgam recycling box for Combi-Separator, VSA 300 and AZ 50
The variability of Dürr Suction Systems and Amalgam Separators for dental surgeries is unique throughout the world. The example shows a central solution installed in a star-shaped arrangement.

Installation versions for VS 600/900 with AZ 100 Amalgam Separator in room next door on the floor of the dental surgery.

Installation versions for the VS 600/900 with AZ 100 Amalgam Separator up to a maximum of 3 floors lower, e.g. in the cellar.

Various installations for the VSA 300 combination suction unit.
Every dental practice is different - the superior Dürr system concept proves its value with its flexibility.
## Technology at a glance

<table>
<thead>
<tr>
<th>Model</th>
<th>AZ 100</th>
<th>AZ 50</th>
<th>Combi-Separator</th>
<th>VSA 300</th>
<th>VS 900</th>
</tr>
</thead>
<tbody>
<tr>
<td>Voltage (V)</td>
<td>230 1~</td>
<td>230 1~</td>
<td>24~</td>
<td>230 1~</td>
<td>230 1~</td>
</tr>
<tr>
<td></td>
<td>400 3~</td>
<td></td>
<td>24~ EC</td>
<td>230 1~</td>
<td>400 3~</td>
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<tr>
<td>Nominal current (A)</td>
<td>1</td>
<td>1.7</td>
<td>6</td>
<td>1</td>
<td>4</td>
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<td>Starting current (A)</td>
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<td>2.1</td>
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<td>Electrical power (W)</td>
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<td>90</td>
<td>72</td>
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<tr>
<td></td>
<td>325</td>
<td>1,150</td>
<td>1,100/1,350</td>
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<tr>
<td>Frequency (Hz)</td>
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<td>50</td>
<td>50</td>
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<td>50/60</td>
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<td>Rotational speed (rpm)</td>
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<tr>
<td>Max. flow rate (l/ min)</td>
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<td>8</td>
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<td>Usable volume - collecting vessel (cm³)</td>
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<td>150</td>
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<td>Replacement interval (month)</td>
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<td>6-9</td>
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<td>Dimensions (HxW xD, cm)</td>
<td>40.5 x 24 x 28</td>
<td>36 x 38 x 14</td>
<td>36 x 33 x 14/</td>
<td>29.5 x 21.5 x 11</td>
<td>45 x 26 x 26</td>
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<tr>
<td>W ithout housing</td>
<td>42 x 29 x 33.5</td>
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<td>-</td>
<td>47 x 29 x 34</td>
<td>106 x 64 x 61</td>
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<td>7.5</td>
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<td>14</td>
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<td>-</td>
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<td>W ith housing</td>
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<td>approx. 62</td>
<td>approx. 63</td>
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<tr>
<td>N oise level (dB[A])</td>
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<td>-</td>
<td>approx. 53</td>
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<td>Duty cycle (%)</td>
<td>95 (S5)</td>
<td>100 (S1)</td>
<td>95 (S5)</td>
<td>100 (S1)</td>
<td>100 (S1)</td>
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<tr>
<td>Separation rate (%)*</td>
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<td>Z-64.1-15</td>
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*Separation rates, measured by TÜV Essen in accordance with German standard sample at max. rate of liquid flow