

Compressed air systems for the practice and the lab

DÜRR COMPRESSED AIR SYSTEMS



Dür compressors with membrane dryer



Dür Silver Airline - the comprehensive range of dental compressors for practices, laboratories and clinics



Completely dry air, continuously available - with the Dür membrane dryer



First-class dental compressed air through oil-free compressors, optimised using Dür sterile filter

SILVER AIRLINE

**DÜRR
DENTAL**

Heart of the practice for more than 50 years

INNOVATIVE DÜRR COMPRESSORS

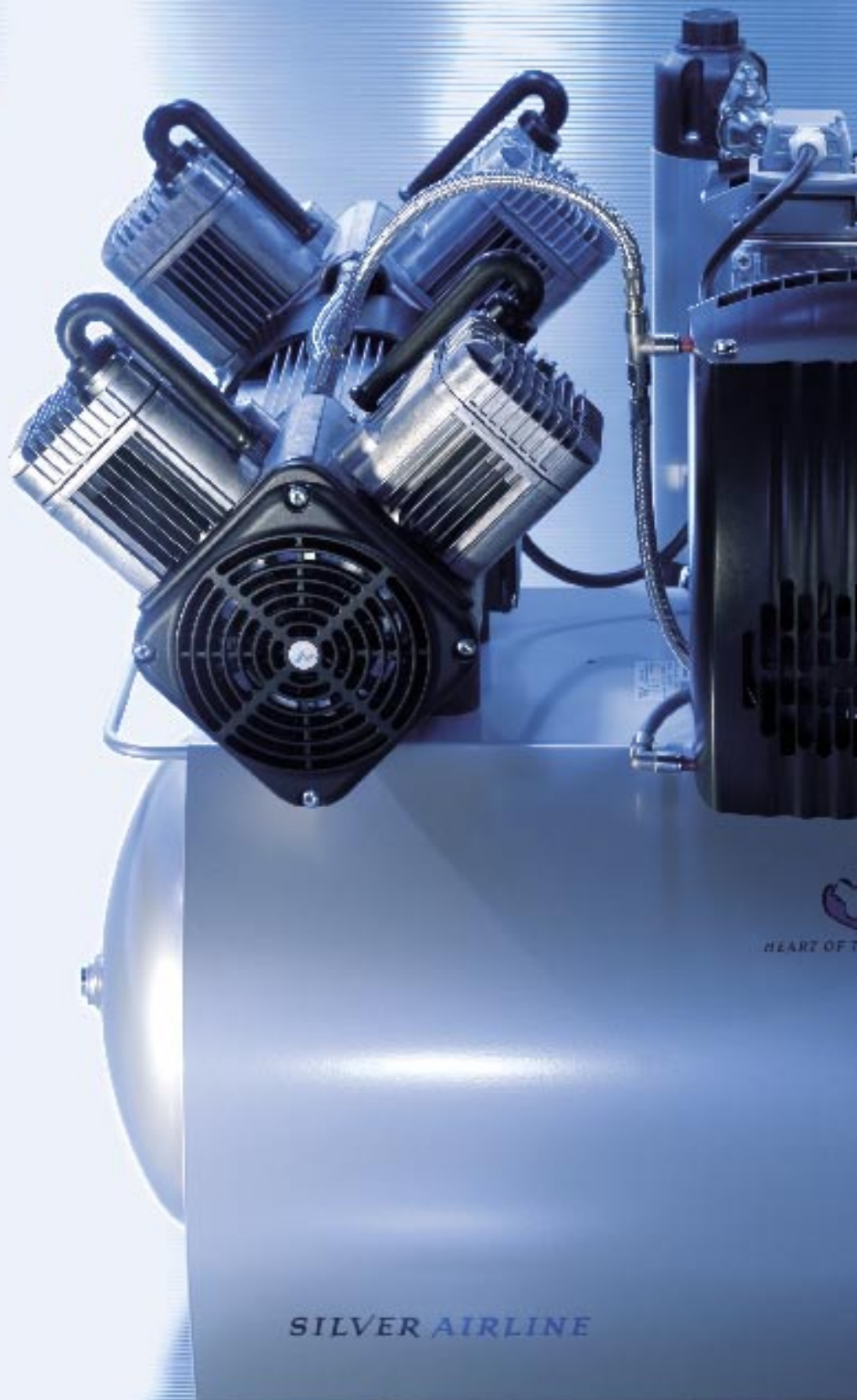
Leading the way in dental compressed air technology

For 50 years now, dental compressors by Dürr Dental have been present in practices all over the world. They have achieved a leading position through their outstanding performance and the excellent quality of the compressed air produced – oil-free, dry and hygienic. Distinguishing features were always the design and the exceptional technical workmanship. The silver compressor range really deserves a name of its own: Silver Airline by Dürr Dental.

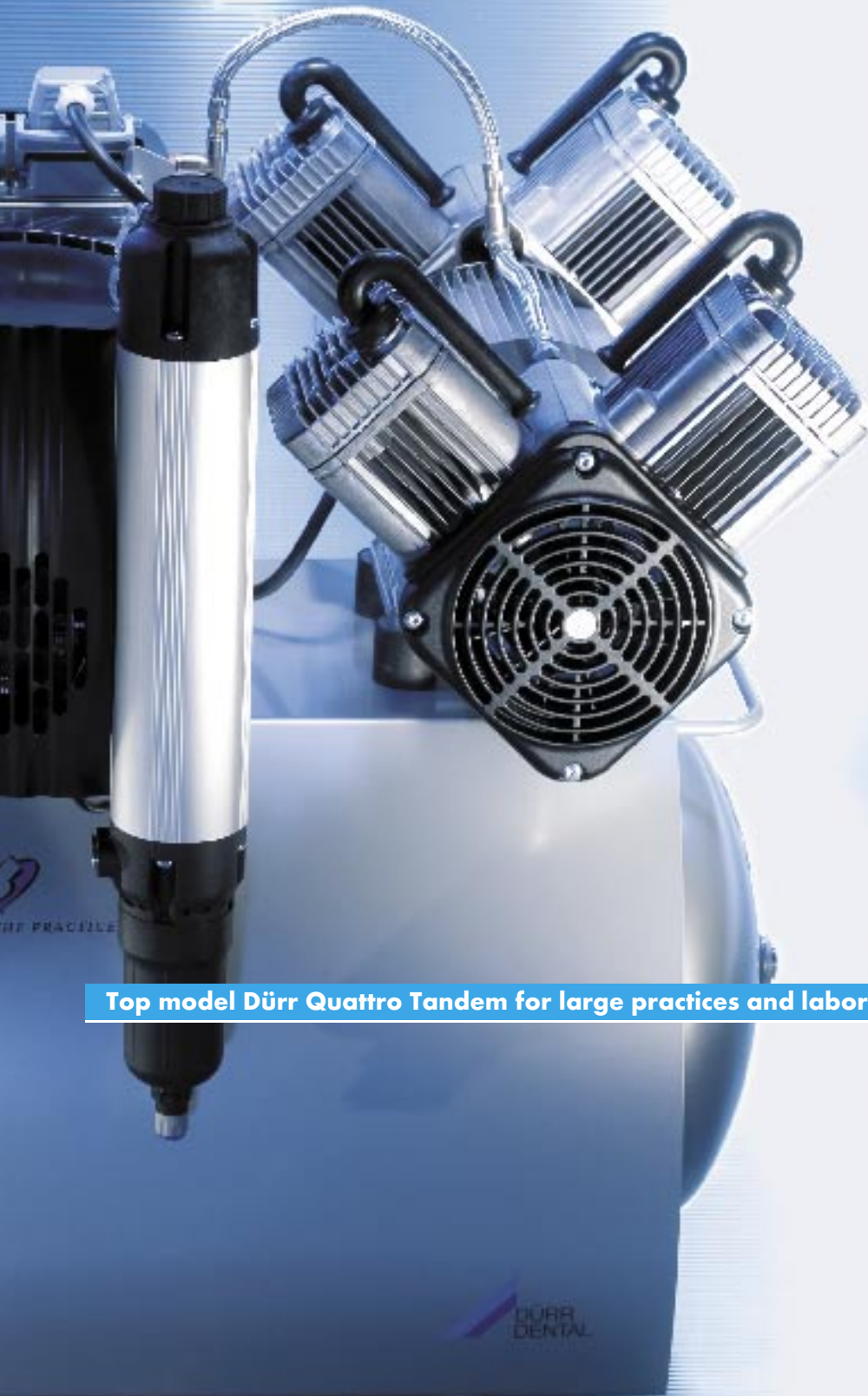
Working unobtrusively in the plant room, Dürr compressors are the source of success for the entire practice.

Air/water syringes, air turbines, air motors, air abrasion units and the air control of the dental unit all depend on the performance of the compressor. These items plus the equipment for the cleaning and maintenance of hand-pieces and sterilisation units all need compressed air and play a role in the selection of the compressor with the right performance. In dental technology these are, for instance, air blowers and air abrasion units, microbeam or vacuum units.

Of course, the highly developed air-powered instruments are of particular interest. However the compressor plays a significant role: Without it, the practice will come to a standstill. Reason enough to acquaint yourself at this point with the qualities of Dürr compressed air systems.



DÜRR COMPRESSED AIR SYSTEMS



Top model Dürr Quattro Tandem for large practices and laboratories

▶ Dürr Silver Airline

- > Dental compressors on a leading technological level
- > Compressed air in outstanding quality oil-free, dry, hygienic
- > Robust features in continuous operation, highly reliable - without regeneration periods for drying
- > Uniquely flexible programme for dental practices, labs and clinics

Dental air quality as the foundation for success

MEDICAL AND TECHNICAL REQUIREMENTS

► Criteria for dental air quality

- > Hygienic compressed air without microorganisms, taste or odours
- > Dry, oil-free compressed air to protect the bonding process in adhesive technology
- > Dry, oil-free compressed air to protect the compressed air system and the high-tech dental instruments



The cavity must be blown out completely clean and dry. Even the finest film of oil and the smallest amount of moisture can impair proper adhesion of the filling material to the tooth substance.



Finely filtered and hygienic compressed air that has a neutral taste should be used.



The Dürre sterile filter is autoclavable. It is replaced once a year.

Hygienic compressed air

Hygiene and aseptic conditions when treating open wounds are taken for granted by your patients. This requires a hygienic supply of air as a bare minimum. The normal environmental air does not meet these requirements in any way. And compressed air from a compressor may not be used without suitable treatment. An air dryer on the Dürre compressor prevents the formation of damp conditions that are a fertile breeding ground for microorganisms. In addition, it ensures that the compressed air has a neutral taste. The quality of the air can be improved still further by using the new Dürre sterile filter in the air dryer: any additional contamination from microorganisms is completely excluded.

First-class dental air

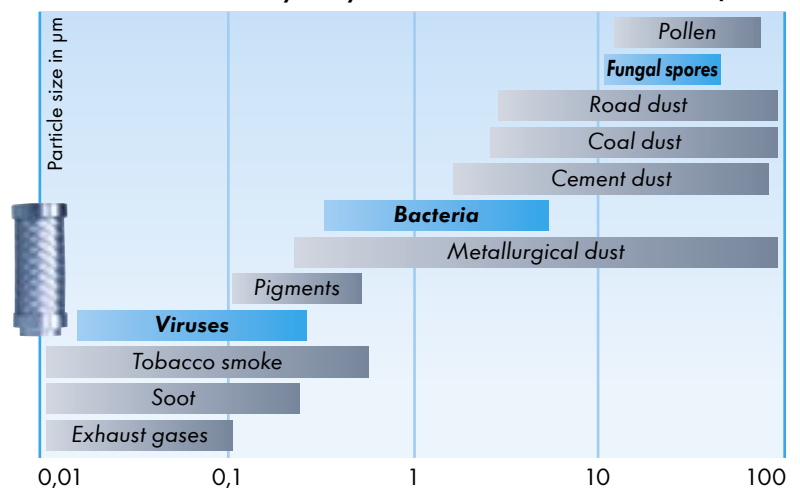
Dry, oil-free compressed air is required, for example, when using composite materials. A fine film of oil would affect the bonding and, consequently, the long-

term durability of the fillings. For that reason air as a medium for a dental practice has to be produced by a dental compressor that can deliver an air quality that is perfect for dental medicine.

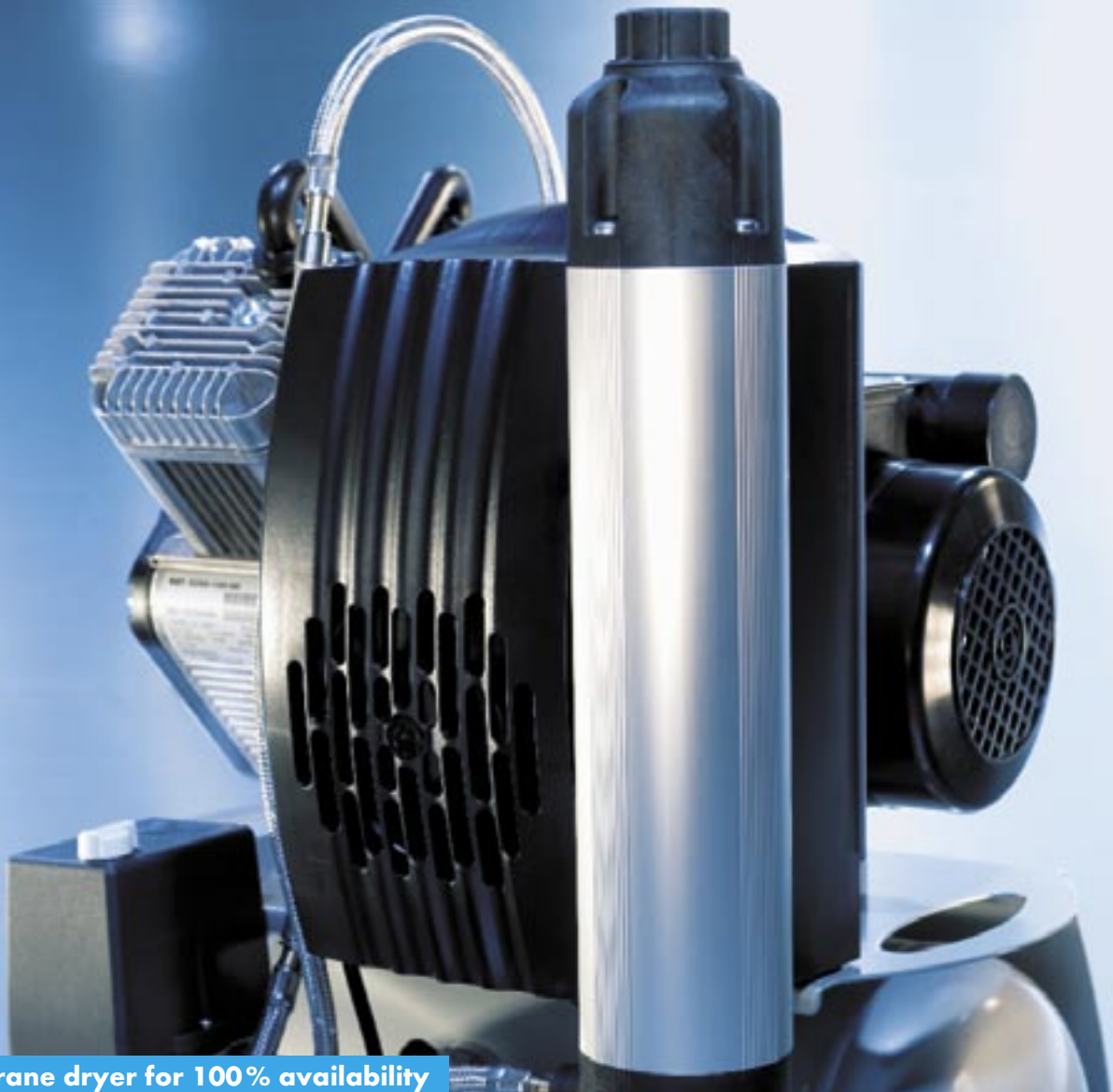
Constant threats

The problem is inherent in the system in the case of oil-lubricated compressors: The lubricating oil gets into the compressed air, oxidises, is deposited out and finally hardens into a resin. Nozzles, bearings, channels and membranes gum up. Seals swell, the crust of oil that is formed produces blockages, and finally this causes terminal failure for the equipment. The problem is even worse for your expensive air-driven instruments and equipment: Viscous compressor oil is drawn in by the compressed air and mixes with the fine oil of air-driven high-speed instruments. Premature ageing, loss of performance and ultimate failure are the result. On the other hand, an oil-free Dürre compressor protects your investment.

Dürre sterile filters for dry air systems have a filter fineness of 0.01µm:



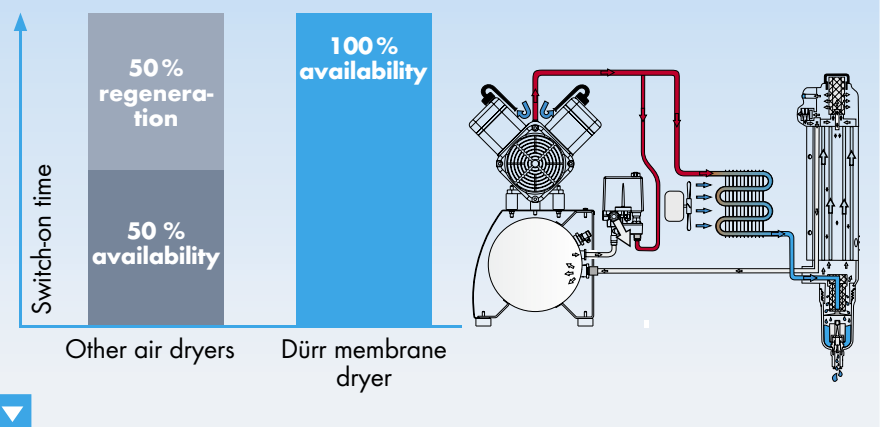
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Durr membrane dryer for 100% availability

► Durr membrane dryer

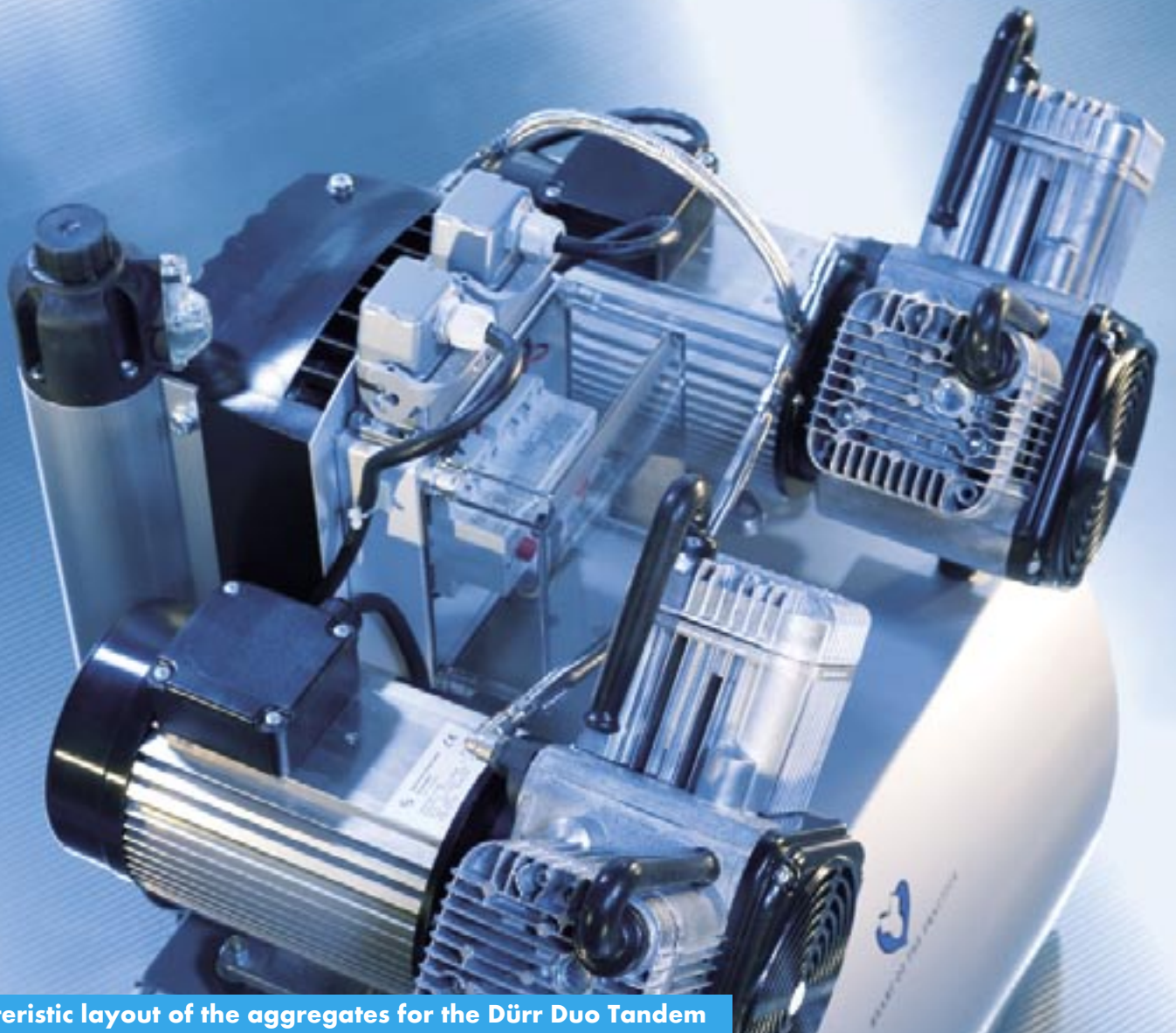
- > New innovative technology without regeneration times and with continuous availability
- > Maximum air dryness
- > Low pressure dew point at $\leq 5^\circ\text{C}$ (at 40°C ambient temperature) prevents condensation in the connections
- > Water separation level 3 x higher, i.e. better drying performance as compared to conventional adsorption dryers
- > Maintenance-free – the filter needs changing only once a year



Availability of compressors with dryers

Leading edge technology by Dürr – second to none

PERFORMANCE, POTENTIAL AND RELIABILITY



Characteristic layout of the aggregates for the Dürr Duo Tandem

- ▶ **Dürr compressor technology**
 - > All models with unified tank design, pressure switch, pressure gauge and attachment of the dry air system
 - > Internally coated non-corroding tanks with volumes of 20, 50 and 90 litres
 - > Compressed air supplied through a friendly quick coupling
 - > Maximum protection against thermal stress
 - > Crank mechanism and balance weight made from a zinc/steel compound for maximum precision and quiet running



Dürr Quattro Tandem – Top technology with 8 cylinders and 90-litre tank for large practices and dental labs.

DÜRR COMPRESSED AIR SYSTEMS

Fascinating technology

Dürr compressors look back on a long tradition. The location of the first Dürr production plant was only a stone's throw away from leading manufacturers of the automotive and ancillary industry. This traditional vicinity to progress and performance has been a major factor for the development of the Dürr compressors up to this day.

Power as a matter of principle

The selection of a compressed air supply for a dental practice or laboratory is a very basic decision. Here confidence in the technological principle and the technical implementation play a significant role. With a Dürr compressor, economically thinking enterprises make a decision in favour of a high-tech unit: using Teflon-coated, dry-running pistons which give the compressor its superior reserves of capacity together with superior low-noise running qualities. A technology that was first used in the space programme.

Innovations for the Silver Airline

The dry running principle has always characterised Dürr compressors. What is new in the Silver Airline is the implementation of this technology and the use of new materials. These factors together produce a big plus for performance in conjunction with increased flexibility, compactness and economy of use in operation.

Innovative membrane technology

A new drying principle is introduced to the top technology of dental compressed air systems: the Dürr membrane drying method. While standard dry air units lead the air through cooling coils and granulate which then has to be regenerated themselves, membrane drying reduces the procedure to a diffusion of the membrane fibre layers. The 1,200 gas-tight fibres of the drying cartridge are coated with a layer that only lets humidity pass through. The dried air is then lead directly to the tank. No other method can reach this drying result, which eliminates the regeneration step of standard dry air units. The membrane technology, known for example from dialysis, is a technological piece of art as far as the generation of compressed air with up to 8.5 bar is concerned.

Exemplary longevity

The manufacture of elementary systems such as crank mechanism and balance weight from a specially developed zinc/steel compound ensures a drive with the highest precision and quiet running for the compressors. This is not only reduces the noise but also improves the longevity of the compressor.



High-performance design of the Duo aggregates in 90° angle.



Innovative membrane drying system with continuous availability.



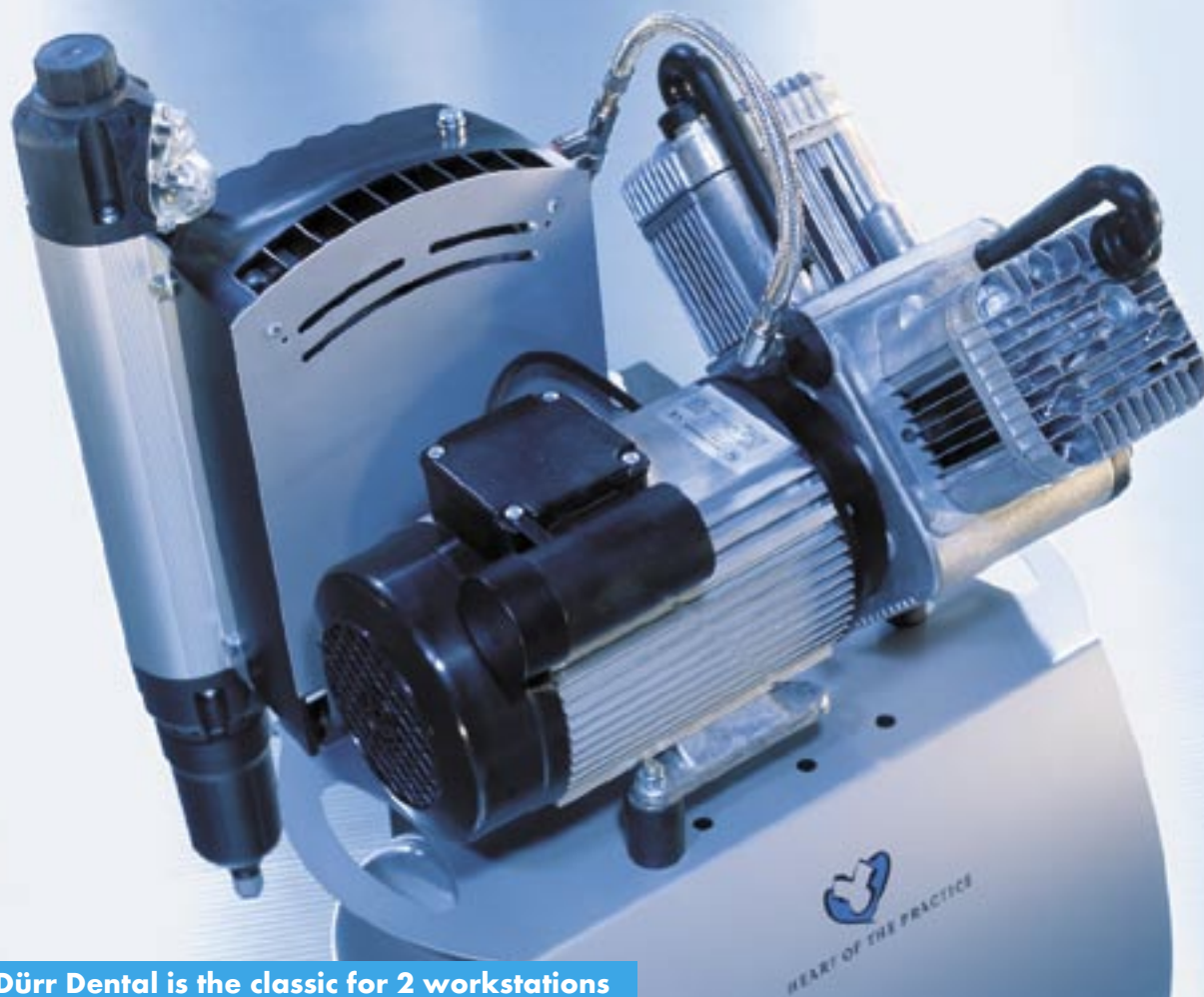
Silencers reduce the operating noise by 3.7 dB(A).



Perfect access to all unit components for the exchange of filters or for servicing.

The efficient model for every practice

SELECTION, MODULARITY AND FLEXIBILITY



The Duo by Dürr Dental is the classic for 2 workstations

► Compressor performance parameters

- > One workstation requires approx. 50 l/min of compressed air on average, additional appliances in the practice or lab have to be added to this
- > The discharge flow at 5 bar pressure indicates the capacity, e.g. Duo with 120 l/min



The Dürr Tandem concept - future- and fail-proof:
The Dürr Duo Tandem with one aggregate - the wise solution for two workstations, with the option for more. Modular upgrade with two aggregates for 3-4 workstations.

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Performance is what counts

The installation of a practice requires forward thinking. What are the capacity reserves you need now, and tomorrow?

Are there solutions that can meet both requirements with equal efficiency?

Such solutions exist - in the comprehensive range of the Dürr Silver Airline

compressors. It includes compact entry level aggregates, upgradable models for a growing demand as well as high-performance compressors for large practices, clinics and dental laboratories.




The expert advisers of the specialised dental trade advise practices and labs

on the important questions: how many workstations are operated at the same time, which systems are driven in which rooms, how large is the potential for growth, which innovative practice system may be relevant in the future? And the answer is always: Dürr Silver Airline.



For two workstations – air demand approx. 100 l/min*


The Dürr Silver Airline compressor generation is very flexible. It starts with compact aggregates which constantly supply two workstations with the required energy reserves at any time, such as Duo and Tornado 130. The Duo Tandem with one aggregate is the growth-oriented solution. An additional aggregate can be used to double the capacity.

Models	 Tornado 130	 Duo	 Duo Tandem
Delivery	115 l/min	105 - 120 l/min	105 - 120 l/min
Upgradable	-	-	4 workstations
Maintenance-free	-	+	+
Emergency mode	-	-	+



For three workstations – air demand approx. 150 l/min*




The workstations simultaneously need approx. 150 litres of compressed air per minute. The Silver Airline solutions with 50-litre tank, such as Trio and upwards, exactly meet the requirements of this practice concept.

Models	 Trio
Delivery	155 l/min
Upgradable	-
Maintenance-free	+
Emergency mode	-



For four to ten workstations – air demand more than 200 l/min*

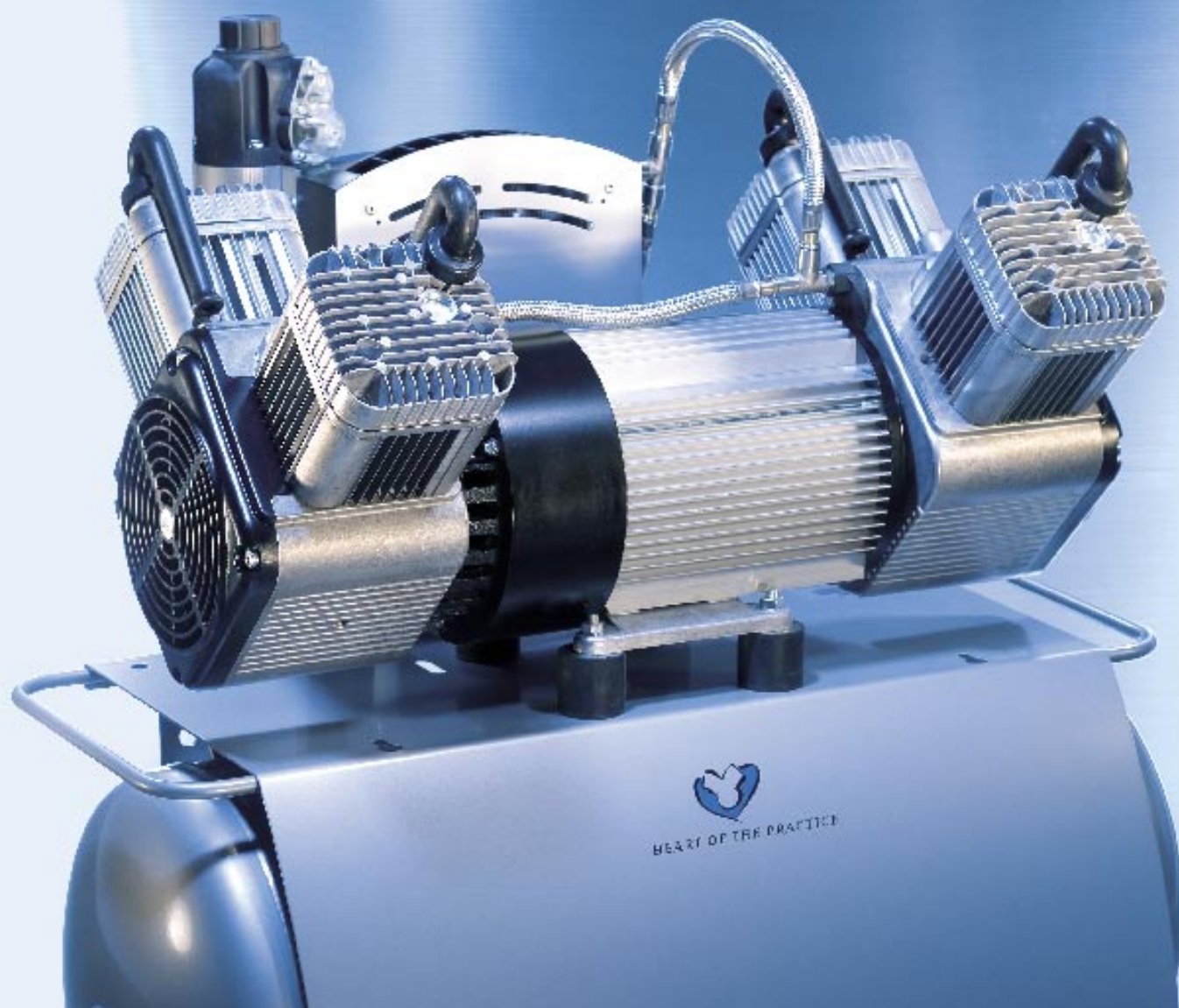
Multi-room practices, practices with practice laboratory as well as dental laboratories need real power. Pure performance with reserves is offered by the large solutions of the Silver Airline compressors with a delivery of 210 - 235 l/min or even 400 - 470 l/min with 5 bar and a 50- or 90-litre tank. The solutions are called Duo Tandem, Quattro and Quattro Tandem.

Models	 Duo Tandem	 Quattro	 Quattro Tandem
Delivery	210 - 240 l/min	200 - 235 l/min	400 - 470 l/min
Upgradable	-	-	10 workstations
Maintenance-free	+	+	+
Emergency mode	+	-	+

*Appliances for cleaning and servicing handpieces and elbows, other sterilisation and laboratory appliances require compressed air (e.g. KaVo Quattro Care 50 l/min). These need to be added to the number of workstations. The same applies to additional prophylactic stations (50 l/min).

The right amount of compressed air

DÜRR COMPRESSORS - PRODUCT RANGE OVERVIEW



Dürr Quattro with four cylinders and 50-litre tank

No. of treatment rooms in the practice*	Max. no. of treatment chairs in simultaneous use	Possible solution for the practice
3	2	Tornado 130 Duo Duo Tandem (1 aggr.)
5	3	Trio
6	4	Duo Tandem (2 aggr.) Quattro Quattro Tandem (1 aggr.)
16	10	Quattro Tandem (2 aggr.)

* No. of treatment rooms at 60% simultaneous use

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The Dürr Tornado 130 with dry air is the economic entry-level model of the Silver Airline range.



Dürr Duo with its 2 cylinders is the classic among the compact compressors with a 20-litre tank.



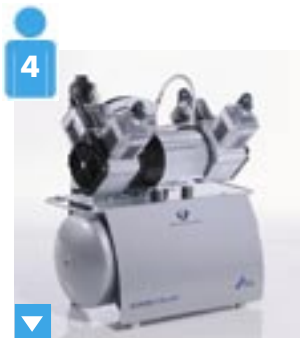
Dürr Duo Tandem is the flexible solution for growing capacity requirements. Equipped with one aggregate.



Dürr Trio, the economic high-performance compressor with three cylinders and 50-litre tank.



Dürr Duo Tandem with two aggregates on a 50-litre tank.



Dürr Quattro, the powerful four-cylinder compressor. Maximum power with a 50-litre tank.

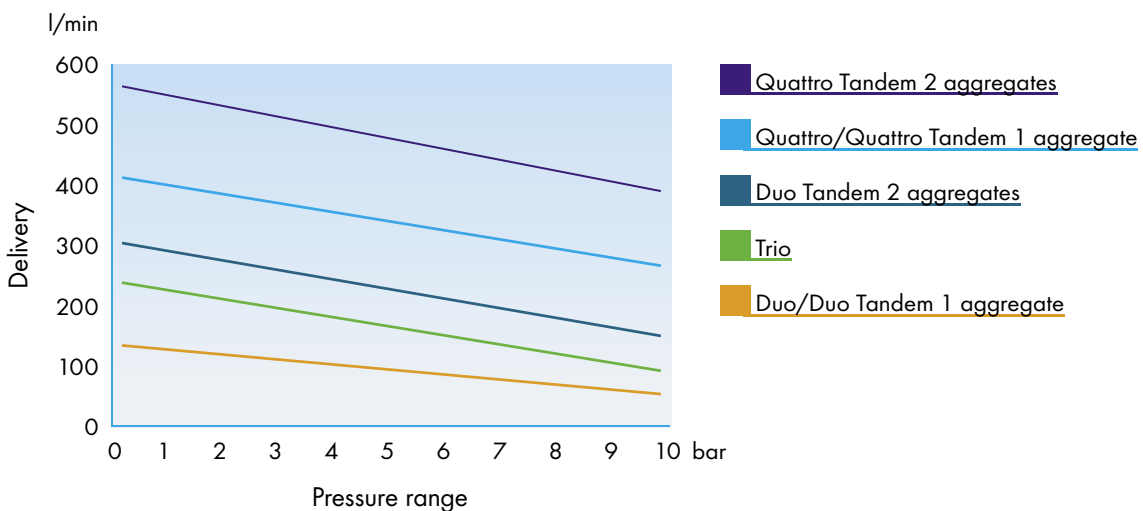


Dürr Quattro Tandem with 1 aggregate as flexible solution for dental laboratories and large practices with a 90-litre tank.



Dürr Quattro Tandem - the ultimate in capacity for dental laboratories and large practices.

Dürr compressor performance curves



All characteristics in detail

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Models	Tornado 130	Duo	Duo Tandem
Displacement (per aggr.)	200 l/min	140/150 l/min ²⁾	140/150 l/min ²⁾
Delivery (per aggr.) at 5 bar ¹⁾	125 l/min	105/120 l/min ²⁾	105/120 l/min ²⁾
Tank capacity	20 l	20 l	50 l
Pressure range ³⁾	6 - 7.8 bar	6 - 7.8 bar	6 - 7.8 bar
Cylinders	2	2	2/4
Noise level with 1 aggr. ⁴⁾	approx. 70 dB(A)	approx. 66/69 dB(A)	approx. 68/70 dB(A)
Noise level with 2 aggr. ⁴⁾	-	-	approx. 69/74 dB(A)
Noise level in the cabinet ⁴⁾	approx. 57 dB(A)	approx. 55/61 dB(A)	approx. 54 dB(A)
Voltage	230 V 1~; 50 Hz	230 V 1~/400 V 3~; 50/60 Hz	400 V 3~; 50/60 Hz
Dimensions (H x W x D)	70 x 49 x 46 cm	70 x 49 x 46 cm	76 x 79 x 52 cm
Weight with 1 aggr.	52 kg	47 kg	64 kg
Weight with 2 aggr.	-	-	90 kg

Models	Trio	Quattro	Quattro Tandem
Displacement (per aggr.)	250 l/min	320/365 l/min ²⁾	320/365 l/min ²⁾
Delivery (per aggr.) at 5 bar ¹⁾	160 l/min	215/240 l/min ²⁾	215/240 l/min ²⁾
Tank capacity	50 l	50 l	90 l
Pressure range ³⁾	6 - 7.8 bar	6 - 7.8 bar	6,5 - 8.5 bar
Cylinders	3	4	4/8
Noise level with 1 aggr. ⁴⁾	approx. 69 dB(A)	approx. 70/75 dB(A)	approx. 70/73 dB(A)
Noise level with 2 aggr. ⁴⁾	-	-	approx. 74/77 dB(A)
Noise level in the cabinet ⁴⁾	approx. 54 dB(A)	approx. 54 dB(A)	-
Voltage	230 V 1~; 50 Hz	400 V 3~; 50/60 Hz	400 V 3~; 50/60 Hz
Dimensions (H x W x D)	76 x 74 x 52 cm	76 x 74 x 52 cm	76 x 102 x 62 cm
Weight with 1 aggr.	70 kg	82 kg	98 kg
Weight with 2 aggr.	-	-	143 kg

¹⁾ Delivery per aggregate with dry air ²⁾ Power ranges result from the supply frequency 50/60 Hz ³⁾ A pressure reducer is available as an option

⁴⁾ Mean values at 5 bar

Accessories for perfect solutions

Most of the time, the heart of the practice is hidden in the cellar or the plant room. If close to the practice, the compressors can be placed in a Dürr noise-reducing cabinet.



Dürr noise-reducing wooden cabinet, ventilated with an electronically controlled fan.

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