

Operating Manual and Spare Parts List

➤ Aero-Guard



Breathing Air CO₂ Absorber





EG-Herstellererklärung
im Sinne der EG-Maschinenrichtlinie 98/37/EG



EC-Manufacturer declaration
according to EC-machine directive 98/37/EC

Hiermit erklären wir,
We

Firma
BAUER KOMPRESSOREN GMBH
Drygalski-Allee 37
D-81477 München

daß die nachfolgend bezeichneten Komponenten zum Einbau in eine Maschine/Anlage bestimmt sind und daß ihre Inbetriebnahme in EG-Ländern solange untersagt ist, bis festgestellt wurde, daß die Maschine/Anlage samt u.g. Komponenten den Bestimmungen der EG-Richtlinie 98/37/EG i.d.F. vom 22.Juni 1998 entspricht.

herewith confirm that the components mentioned below are destined to be installed in a machine/unit and that the putting into operation in EC countries of this machine/unit is not allowed until it has been determined that the machine/unit including under mentioned components complies with the EC-directive, edition 98/37/EC version from 22.June 1998

Bezeichnung der Komponenten <i>Description of components</i> :	Kompressorblöcke Maschinen / Anlagen ohne Motor Fülleisten Air-Kool lose P-Systeme Aero-Guards B-Timer Umschaltleisten	compressor blocks machines / units without motor filling panels Air-Kool loose P-systems Aero-Guards B-Timer Change-over panels
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Einschlägige EG-Richtlinien (soweit zutreffend)
EG-Maschinenrichtlinie (98/37/EG) i.d.F. vom 22.Juni 1998 Druckgeräterichtlinie (97/23/EG) i.d.F. vom 29.Mai 1997 Niederspannungsrichtlinie 73/23/EWG Elektromagnetische Verträglichkeit (EMV) 89/336/EWG

Relevant EC directives (if applicable)
EC machine directive (98/37/EC) version from 22.June 1998 Pressure Device Directive (97/23/EC) version from 29.May 1997 Low Voltage Directive 73/23/EEC Electromagnetic compatibility 89/336/EEC

Angewandte harmonisierte Normen insbesondere (nur zutreffend bei Komponente mit elektrischen Bauteilen)
EN 60 204-1

Applicable and adapted norms particular (only valid for components with electrical parts)
EN 60 204-1

Angewandte nationale Normen und technische Spezifikationen insbesondere
<ul style="list-style-type: none"> - Betriebssicherheitsverordnung vom 27. Sept. 2002 - AD 2000 - Technische Regeln Druckgase (TRG) : TRG 400, 401, 402 (ohne Betriebsstätte), und TRG 790

Applicable national norms and technical specifications particular
<ul style="list-style-type: none"> - Operating safety regulation of 27. Sept. 2002 - AD 2000 - Technical rules for compressed gas (TRG) : TRG 400, 401, 402 (without specific operating location) and TRG 790

München/ Munich, 2007-09-19

Th. Zehner

Alexander Senmann

Qualitätssicherung/Quality Assurance
Werkssachverständiger/Expert

Technischer Leiter/ Technical Director



EG-Konformitätserklärung

entweder im Sinne der EG-Maschinenrichtlinie 98/37/EG
oder der Druckgeräterichtlinie 97/23/EG (Modul A1 / B+C1*)



EC-Conformity declaration

either according to EC-machine directive 98/37/EC or to
the Pressure Equipment Directive 97/23/EC (Modul A1 / B+C1*)

Hiermit erklären wir,
We

Firma
BAUER KOMPRESSOREN GMBH
Drygalski-Allee 37
D-81477 München

daß die nachfolgend bezeichneten Baueinheiten bzw. Baugruppen (Verdichter für Gase der Fluidgruppe 2) aufgrund ihrer Konzipierung und Bauart sowie in der von uns in Verkehr gebrachten Ausführung den einschlägigen grundlegenden Anforderungen der EG-Richtlinien entsprechen.

herewith confirm that the units or the assemblies (compressors for gas fluid group 2) mentioned below comply with the basic requirements of the EC directives concerning design, construction and putting the model into circulation.

Bei einer nicht mit uns abgestimmten Änderung der Baueinheiten bzw. Baugruppen verliert diese Erklärung ihre Gültigkeit.

This declaration is no longer valid if the units or assemblies are modified without our approval.

Kennzeichnung (siehe Anlagentypenschild) / Sign (please see name plate on the unit):

CE 0036

bzw./ or

CE

Anlagen-Nr. / unit no.: _____

Einschlägige EG-Richtlinien (soweit zutreffend)
EG-Maschinenrichtlinie (98/37/EG) i.d.F. vom 22.Juni 1998 Druckgeräterichtlinie (97/23/EG) i.d.F. vom 29.Mai 1997 Niederspannungsrichtlinie 73/23/EWG Elektromagnetische Verträglichkeit (EMV) 89/336/EWG

Relevant EC directives (if applicable)
EC machine directive (98/37/EC) version dtd. June 22, 1998 Pressure Equipment Directive (97/23/EC) version dtd. May 29, 1997 Low Voltage Directive 73/23/EEC Electromagnetic compatibility 89/336/EEC

Angewandte harmonisierte Normen insbesondere
EN 60 204-1 EN12021 (bei Verwendung von zutreffenden BAUER Filtersystem)

Applicable and adapted norms, in particular
EN 60 204-1 EN12021 (if using the appropriate BAUER filter system)

Angewandte nationale Normen und technische Spezifikationen insbesondere
- Betriebssicherheitsverordnung vom 27.September 2002 - AD 2000 - Technische Regeln Druckgase (TRG) :TRG 400, 401, 402 (ohne Betriebsstätte) und TRG 790

Applicable national norms and technical specifications particulary
- Operating safety regulation dtd. Sept. 27, 2002 - AD 2000 - Technical rules for compressed gases (TRG) : TRG 400, 401, 402 (without specific operating location) and TRG 790

Benannte Stelle
TÜV SÜD Industrie Service

Notified Body
TÜV SÜD Industrie Service

München/ Munich, 2008-07-14

Qualitätssicherung/
Quality Assurance

Technischer Leiter/
Technical Director

Diese Bescheinigung ist nur in Verbindung mit dem Anhang zur Konformitätserklärung vom 16.08.2007 gültig !
This certificate is only valid with the enclosed annex to the EC-conformity declaration dated August 16, 2007 !



EG-Konformitätserklärung

entweder im Sinne der EG-Maschinenrichtlinie 98/37/EG
oder der Druckgeräterichtlinie 97/23/EG (Modul A1 / B+C1*)



EC-Conformity declaration

either according to EC-machine directive 98/37/EC or to
the Pressure Equipment Directive 97/23/EC (Modul A1 / B+C1*)

S30			
JUNIOR II-B JUNIOR II-E JUNIOR II-W		MV-I 100-3-3 MV-I 100-4-3 MV-I 120-4-3 MV-I 120-5,5-3 MV-GI 100-3-3 MV-GI 100-4-3 MV-GI 120-4-3 MV-GI 120-5,5-3 MV-GIB 12.2-5,5-3 MV-BGIB 12.3-5,5-3	KAP 23-50D KAP 15.1-14DAH KAP 15.11-14DAH KAP 150-16DAH KAP 180-18DAH
OCEANUS-B OCEANUS-E OCEANUS-W			PE 200 TE PE 200 TB PE 250 TE PE 250 TB PE 250 HE PE 320 HE PE 320 VE PE 500 VE PE 680 VE
UTILUS II-B UTILUS II-E UTILUS II-W UTILUS II-D		V 12.14-5.5-5 V 12.14-7.5-5 V 15.1-7.5-5 V 15.1-11-5 V 150-11-5 V 180-15-5 V 15.11-11-5 V 18.1-11-5 V 18.1-15-5	
CAPITANO 140-B CAPITANO 140-E CAPITANO II-B CAPITANO II-E CAPITANO II-D			C 100-3-5 C 120-4-5 C 120-5.5-5 C 15.1-11-5 C 15.2-15-5 C 22.0-18.5 C 22.0-22 C23.1-30 C 25.0-37 C 25.0-45 C 28.0-75 C 28.0-90
MARINER 200-E-GI MARINER 200-B MARINER 200-E MARINER 250-E-GI MARINER 250-B MARINER 250-E MARINER 320-B MARINER 320-E MARINER II-B MARINER II-E MARINER II-E-GI MARINER II-D		KAP 12.14-5.5-5 KAP 12.14-7.5-5 KAP 15.1-7.5-5 KAP 15.1-11-5 KAP 150-11-5 KAP 180-15-5 KAP 15.11-11-5 KAP 18.1-11-5 KAP 18.1-15-5 KAP 15.1-11-H KAP 150-11-H KAP 180-15-H KAP 15.1-7.5-HN KAP 150-11-HN KAP 180-15-HN KAP 220-20E KAP 220-25E KAP 220-30E KAP 23-40E KAP 23-50E KAP 220-30-420 KAP 220-20D KAP 220-25D KAP 220-30D KAP 23-40D	CBK 15.4-15-5 CBK 22.10-37 CBK 22.11-30 CBK 22.12-30 CBK 22.13-30 CBK 22.14-30 CBK 24.11-50 CBK 24.11-75 CBK 24.12.50 CBK 24.12-75 CBK 24.13-50 CBK 28.21-75 CBK 28.22-90 CBK 28.23-90 CBK 28.24-90
MV 100-4-3 MV 120-4-3 MV 120-5.5-3			



EG-Konformitätserklärung

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the Pressure Equipment Directive 97/23/EC (Modul A1 / B+C1*)

D 53.5-2.2 D 53.5-3	KV 2.2 KV 3 KV 4 KV 5.5 KW 7.5 KW 11	I 100-3-5 I 100-4-5 I 120-4-5 I 120-5.5-5 I 12.14-7.5-5 I 15.1-7.5-5 I 15.1-11-5 I 150-11-5 I 180-15-5 I 15.11-7.5-5 I 15.11-11-5 I 18.1-15-5 I 22.0-15 I 22.0-18.5 I 22.0-22 I 23.0-30 I 23.0-37 IK 24.0-75 I 25.0-45 I 28.0-55 I 28.0-75 I 22.0-22-420 I 25.9-45 I 25.18-55
B 12.4-4-5 B 22.5-11 B 22.5-15 B 23.4-22 B 23.4-30 B24.4-75 B 25.4-37 B 25.4-45 B 28.2-55 B 25.5-75 B 28.3-90 B 28.3-110	KV 2.2 KV 3 KV 4 KV 5.5 KW 7.5 KW 11	
E 12.4-2.2-5 E 12.4-3-5 E 12.4-4-5 E 22.5-15 E 23.4-22 E 23.4-30 E 25.4-37 E 25.4-45 E 28.2-55 E 100-3-5 E 120-4-5 E 22.0-11 E 22.0-15 E 22.0-18.5 E 25.0-30 E 25.0-37 E 28.0-45 E 28.0-55	A 22.5-11 A 22.5-15 A 23.4-18.5 A 23.4-22 A 25.4-30 A 25.4-37 A 28.2-45 A 25.5-55 A 25.5-75 A 28.3-90	G 100-3-5 G 120-4-5 G 120-5.5-5 G 15.1-7.5-5 G 15.1-11-5 G 18.1-15-5 G 22.0-18.5 G 23.1-22 G 23.1-30 G 25.9-45
	MV-B12.4-4-3 MV-E12.4-2.2-3 MV-E12.4-3-3 MV-E-12.4-4-3 MV-E100-3-3 MV-E120-4-3	



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<p>GI 100-3-5 GI 100-4-5 GI 120-4-5 GI 120-5.5-5 GI 12.14-7.5-5 GI 15.1-7.5-5 GI 15.1-11-5 GI 15.11-7,5-5 GI 15.11-11-5 GI 18.1-15-5 GI 150-11-5 GI 180-15-5 GI 22.0-15 GI 22.0-18.5 GI 22.0-22 GI 23.0-30 GI 23.0-37 GI 25.0-45 GI 28.0-55 GI 28.0-75 GI 25.9-45 GI 25.18-55</p>	<p>GIB 22.10-37 GIB 22.11-30 GIB 22.12-30 GIB 22.13-30 GIB 22.14-30 GIB 24.11-75 GIB 24.12-75 GIB 24.13-50 GIB 24.19-90 GIB 24.20-90 GIB 28.21-75 GIB 28.22-90 GIB 28.23-90 GIB 28.24-90</p>	<p>CBKTA 15.4-15-5</p>
<p>GIB 12.2-5.5-5 GIB 12.3-5,5-5 GIB 12.3-7,5-5 GIB 15.3-11-5 GB 15.4-15-5</p>	<p>BGIB 23.4-22</p>	<p>B-MASTER (MINI, MIDI, MAXI)</p>
	<p>CTA 100-3-5 CTA 120-4-5 CTA 120-5.5-5 CTA 15.1-11-5 CTA 15.2-15-5 CTA 22.0-18.5 CTA 22.0-22 CTA 23.1-30 CTA 25.0-37 CTA 25.0-45 CTA 28.0-75 CTA 28.0-90</p>	<p>Folgende Komponenten können je nach Auftrag im Lieferumfang der Baueinheiten / Baugruppen enthalten sein und werden über diese Konformitätserklärung im Sinne einer Gesamtanlage abgedeckt:</p> <p><i>Depending on the order, the following components can be part of the units or of the assemblies and are covered by this conformity declaration as if they were a complete unit:</i></p> <p>P-SYSTEME / P-SYSTEMS FÜLLEISTEN / FILLING PANELS AIR-KOOL B-TIMER AERO-GUARD UMSCHALTLEISTEN / CHANGE-OVER PANELS HOCHDRUCKSPEICHER / HP - STORAGE CYLINDERS ZUSCHALTAUTOMATIK AUTOMATIC SELECTOR UNIT *SECCANT EG-Baumusterprüfung (Modul B) Zertifikat-Nr. EC Type-examination (modul B) Certificate no.: IS-DD1-MUC-05-03-614668-023</p>

INTRODUCTION

This manual contains operating instructions and maintenance schedules for the breathing air CO₂ absorber

Aero-Guard

All instructions should be observed and carried out in the order laid down to prevent damage and premature wear to the equipment.

The manufacturer and the supplier void all responsibility for damage or injury resulting from failure to follow these instructions.



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ANNEX

Drawing	79015
Mounting scheme	Aero-Guard

A. DESCRIPTION

1. DESIGN AND APPLICATION

1.1. General

The **Aero-Guard** System is used to reduce the CO₂ contents in compressed breathing air. It guarantees to reach a value within the required max. CO₂ concentration of 500 ppmV according to DIN / EN 12021, even on sites where this value is already exceeded in the surrounding air.

The carbon-dioxide absorber binds the CO₂ by a chemical reaction before it enters the intake of the compressor.

Aero Guard can be mounted to every compressor model, where it is placed next to the compressor and connected to the intake manifold of the compressor by means of a suitably sized hose. To connect the system to a **BAUER** compressor unit, a variety of specially designed hoses, adaptors, and feed-through bushings for sound-proof compressors (e.g. the Verticus 5), are available as optional extras.

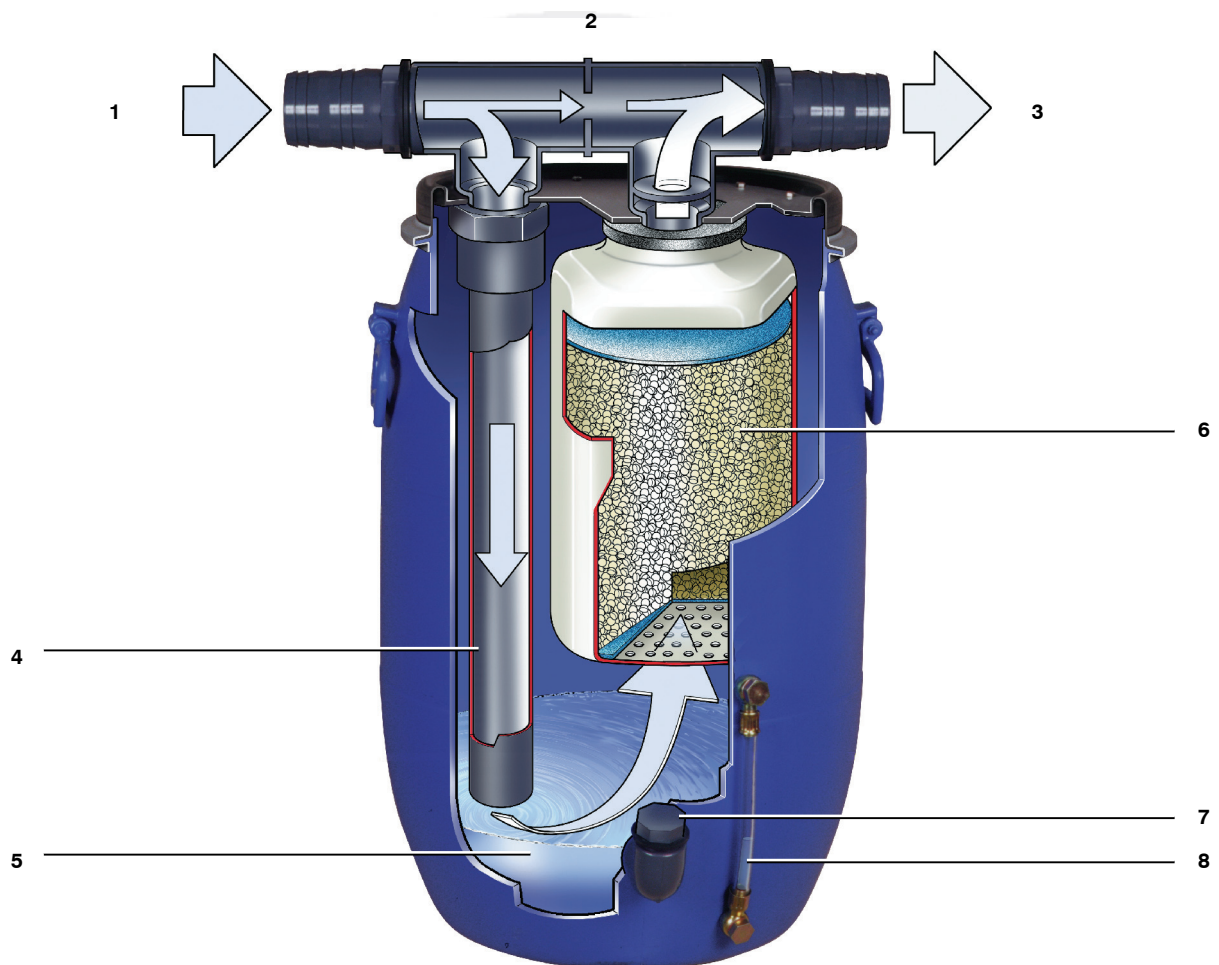


Fig. 1 Aero-Guard System

- 1 Air inlet
- 2 By-pass shutter
- 3 Air outlet to compressor intake
- 4 Down pipe
- 5 Water fillung
- 6 Filter cartridge

- 7 Filler neck
- 8 Water sight gauge

At the intake of the filter a hose can be connected as well, e.g. to make it possible to take in air from the outside of a building. The various possibilities are shown on drawing "AERO-GUARD" in the annex of this manual. Please observe that the maximum **lengths** of the hoses under **no circumstances must be exceeded**, the hose **diameter** must **not be smaller** than indicated in the drawing.

Before taking the filter into operation, the reservoir has to be filled with 10 liters of water, and one water sterilization tablet will be added. For this purpose, 10 water sterilization tablets for 10 l ea. are provided with every filter cartridge

During operation, the carbon dioxide contents of the air being taken in by the compressor will be reduced to approx. 1/3 of the original value of the air.

When the filter lifetime is expired, the filter cartridge has to be changed. The lifetime varies according to the delivery of the compressor. The water filling in the reservoir has to be changed with every filter cartridge change as well and replaced by 10 liters of fresh water.

1.2. Authorized use

The unit is built according to state of the art technology and established safety technical regulations. Nevertheless, its use can cause danger to life and limb of the operator or third parties or damage to the machine and other equipment.

Operate the unit only in technically perfect condition in accordance with regulations and safety and danger notices detailed in the instruction manual! In particular, immediately correct faults (or have them corrected) which can impair safety!

The unit is exclusively for the purpose specified in chapters 1.3. "Technical data" and the instructions given in chapter C. Any other medium or use outside that specified is not authorized. The manufacturer / supplier is not liable for damage resulting from this. The user alone is responsible for this risk. Authorization for use is also under the condition that the instruction manual is complied with and inspection and maintenance requirements are enforced.

2. FUNCTION

2.1. Intake air quality

At routine tests, CO₂ values beyond the permissible values are noted from time to time. Closer investigations often show that the compressed air is taken from rooms in which one or more persons are working. At insufficient ventilation, the CO₂ value in the surrounding air can increase quite fast because of the exhaling of CO₂. CO₂ values from 1,000 to 5,000 ppm_v in workrooms are not unusual (MAK-value (max. workroom concentration) is 5,000 ppm_v). Another additional increase is caused by cigarette smoking, producing approx. 2g CO₂ (≈ 2,000 ppm_v) per cigarette. These pollutions add up to the basic pollution of approx. 400 ppm_v. The technically caused excessive increase of CO₂ during the filling process and the CO₂ peak at taking the unit into operation (see next chapter). **Because of the reasons stated above and for your own security, the filling of breathing air bottles is not allowed in rooms used as workrooms.**

2.2. Principles of operation

The air stream into the absorber is split by two shutters in the intake tube. 2/3 of the air are guided through the down-tube to the surface of the water contained in the reservoir. Thereby the humidity is increased to an extent inhibiting dehydration of the absorbing agent in the filter cartridge. Under these favourable conditions all the CO₂ contained in the air is absorbed. Downstream of the filter cartridge the 2/3 of CO₂-free air is mixed with the 1/3 of air which has been lead through the shutters in the bypass line. The resulting carbon dioxide concentration of the air flowing to the intake of the compressor is 1/3 of the contents upstream of the filter.

Using the bypass line, the filter lifetime is extended by 50%.

Moistening the air before it passes through the filter cartridge prevents dehydration of the absorbent and therefore again prolongs the lifetime of the filter cartridge. A completely dry agent would not bind any CO₂.

At standstill the filter cartridge is isolated from the surroundings by a membrane valve at the intake to prevent saturation with CO₂ from the ambient air. If the connecting hose to the compressor should be removed, the outlet of the filter has to be plugged as well to prevent air getting in from that side.

CAUTION: The CO₂ peak at the compressor outlet resulting from desorption of CO₂ from the high pressure drying filter cartridge cannot be prevented by the Aero-Guard. Therefore, all respective safety precautions, especially scavenging of the system, have to be observed. Refer to the compressor unit instruction manual.

2.3. Effects on the compressor

- The CO₂ absorber produces a pressure loss of approx. 20 mbar in the compressor intake manifold. In some cases this may result in a slight increase in oil consumption.
- The relative humidity of the air taken in by the compressor will be increased in the absorber. This produces a slightly higher amount of condensate after the 1st and 2nd stage of the compressor.

3. DESIGN

The Aero-Guard system consists of the following assemblies:

- Intake tube and connecting hoses
- Water container
- Filter cartridge

The design of the unit is shown in the drawing in the annex of the manual.

3.1. Models

The holes in the shutters are designed to match the FAD (free air delivery) of the compressor unit in order to guarantee an optimum partition of the air streams and at the same time a minimum of pressure loss.

The available sizes are:

S:	100 ... 150 l/min F.A.D.
M:	160 ... 230 l/min F.A.D.
L:	240 ... 320 l/min F.A.D.
XL:	330 ... 450 l/min F.A.D.
XXL:	460 ... 680 l/min F.A.D.

Besides the shutters, there is no difference between the absorbers for different FAD's. Since there is one size of filter cartridge only, the lifetime of the lower FAD units will increase accordingly.

Under no circumstances a unit designed for a specific FAD must be used for smaller or greater FAD's, because in this case safe operation of the system would not be guaranteed. Furthermore, due to the higher pressure loss, damage to the compressor could result.

3.2. Accessories

Filter cartridge with 9 kg absorbent including 10 water sterilization tablets for 10 ltrs. ea.

Various connecting hoses, adaptors and wall feed-through bushings according to drawing "AERO-GUARD" in the annex.

4. TECHNICAL DATA

CO ₂ output concentration:	1/3 of the intake concentration, i.e. 330 ppm-vol for an intake concentration of max. 1000 ppm-vol
Lifetime:	50h (at 630 l/min FAD and an intake concentration of max. 1000 ppm-vol). The cartridge has to be changed after one year at the latest, even if the lifetime has not been expired.
Pressure loss:	approx. 20 mbar
Maximum daily operating time:	5 h
Cartridge filling:	approx. 9 kg special carbon-dioxide absorbent
Air connections:	Inlet and outlet connection for hose with 60 mm I.D.
Dimensions:	50 x 46 x 72 cm (length x width x height)
Weights:	
Dry weight w/o cartridge:	6,5 kg
Cartridge weight:	9,5 kg
Weight of water vol. (10 liters)	10 kg
Operating weight incl. cartridge and water:	26 kg
Colouring:	
Container:	blue
Lid:	black + silver (untreated stainless sheet metal)
PVC tubes:	grey RAL 7011

5. OPERATING LIMITS

Delivery (FAD)	100 to 680 l/min.
Ambient temperature	+5 °C to +45°C
Air inlet temperature	+15 °C to +60°C
Rel. humidity of inlet air:	15 to 100%
CO inlet concentration:	max. 1000 ppm-vol
Max. allowable inclination	15°
Max. allowable operating height	0 to 2000 m above sea level

B. SAFETY MEASURES

1. IDENTIFYING THE SAFETY NOTICES

Important instructions concerning the endangerment of personnel, technical safety and operating safety will be specially emphasised by placing the following signs before the instructions.



This notice is used with maintenance work and operating procedures and must be adhered to exactly in order to avoid endangering personnel.



This notice must be complied with in order to avoid damage to or destruction of the machine or its equipment..



This notice advises of technical requirements which the operator must take particular note of.

2. FUNDAMENTAL SAFETY NOTICES

2.1. Authorised use

- The unit is built according to state of the art technology and established safety technical regulations. Nevertheless, its use can cause danger to life and limb of the operator or third parties or damage to the machine and other equipment.
- Operate the unit only in technically perfect condition in accordance with regulations and safety and danger notices detailed in the instruction manual! In particular, immediately correct faults (or have them corrected) which can impair safety!

2.2. Organisational measures

- Keep the instruction manual at hand near the unit at all times in the relevant holder.
- In addition to the instruction manual, observe and comply with universally valid legal and other obligatory regulations regarding accident prevention and environment protection. This can involve, for example, contact with hazardous substances or the provision / wearing of personal protective equipment.
- In addition to the instruction manual, provide supplementary instructions for supervision and monitoring duties taking into consideration exceptional factors e.g. with regard to organisation of work, production, personnel employed.

- Personnel engaged to operate the machine must have read the instruction manual before beginning work, especially the safety notices chapter. When work is already underway it is too late. This is particularly relevant for temporary personnel, e.g. maintenance personnel.
- At the very least, supervise temporary personnel's work in accordance with the instruction manual, taking into account safety and danger factors.
- Observe all safety and danger notices on the unit.
- Keep all safety and danger notices on the unit complete and in readable condition.
- If there are any modifications to the unit or operating conditions which may affect safety, stop the unit immediately and inform the department/person responsible of the fault.
- No modifications may be made to the unit which could impair safety without obtaining permission from the suppliers first. This is also the case with regard to installation and adjustment of safety devices and valves as well as welding of piping and reservoirs.
- Spare parts must always comply with the technical requirements specified by the manufacturer. This is always guaranteed with original spare parts.
- Intervals stipulated or given in the instruction manual for recurring checks/inspections must be adhered to.
- It is absolutely essential that the workplace is appropriately equipped for maintenance measures.
- Make sure location and operation of fire extinguishers is known. Pay attention to fire warning and fire fighting procedures.

2.3. Qualification, fundamental duties

- Work on/with the unit may only be carried out by reliable personnel. Observe the legal minimum age permissible.
- Only employ trained personnel, clearly establish responsibility of personnel for operation, maintenance and repair work.
- Ensure that only trained personnel work with the machine.
- Establish the responsibilities of the machine operator and establish a procedure for him to inform a third person of unfavourable safety conditions.
- People who are being trained or introduced to the job should only be allowed to work with the unit under constant supervision of an experienced person.
- Work on the electrical equipment of the unit may only be carried out by a qualified electrician or by an instructed person under the direction and supervision of a qualified electrician according to electrotechnical regulations.

2.4. Safety notices for operation

- Do not carry out any work if safety is questionable.
- Meet all requirements demanding that the unit is only operated in safe and good working order. Only operate the machine if all protective and safety equipment, e.g. all detachable protective equipment, emergency shut-down devices, soundproofing is provided and in good working order.
- At least once every day, check the unit externally for damage and faults. Inform the department/person responsible immediately if anything is not as it should be (including operation). If necessary, shut the machine down immediately and make it safe.
- If there any malfunctions, shut the unit down immediately and make it safe. Correct faults immediately (or have them corrected).
- Observe switching on and off processes and monitoring indications according to the instruction manual.
- Carry out the setting, maintenance and inspection processes at the intervals specified in the instruction manual, including replacement of parts/equipment. This work may only be carried out by qualified personnel.
- Before carrying out any exceptional work or repair work, operating personnel should be informed. Call the supervisor.
- For all work concerning operation, change in production, conversion or regulating of the unit and its safety measures such as inspection, maintenance and repair work, observe the switching on and off processes in the instruction manual and the notices for maintenance work.
- Always retighten any screw connections loosened for maintenance or repair work.
- If it is necessary to remove safety devices for maintenance and repair work, these must be replaced and checked immediately after completion of the maintenance or repair work.
- Ensure safe and environmentally friendly disposal of consumables and old parts.

son who is qualified to maintain these kinds of units.



The instruction manual must be always available for the employees to consult

2.5. Particular areas of danger

- The electrical equipment of a unit must be regularly checked. Defects, such as loose screw connections or burnt wires, must be rectified immediately.
- Only carry out welding, burning and grinding work on the unit when specifically approved. There can, for example, be a risk of fire or explosion.
- Depressurise system and pressure lines before commencing repair work.

3. GENERAL SAFETY NOTICES



Maintenance should only be carried out by the manufacturer or a competent per-

C. INSTALLATION, OPERATION

1. GENERAL

Retrofitting of the Aero-Guard has to be performed by qualified personnel, only.

1.1. OPERATING ROOM

- The compressor room must be clean, dust-free, dry and as cool as possible.
- Avoid direct exposure to sunlight; if possible, choose north side of building.
- Additional heat producing units or line systems should not be installed in the same room or should be well isolated.
- The floor must be capable of taking the load of the system weight.
- Locate the unit level; refer to technical data for max. allowable inclination.
- Ensure adequate ventilation. Remember: room temperature = cooling air temperature !
Min. = +5 °C, max. = +45 °C.

2. INSTALLATION, CONNECTION

Installation and connecting the Aero-Guard is performed according to the drawings in the annex of the instruction manual.

Correct installation: on a level, vibration-free area without inclination, not in passages, hoses to be fixed properly.



Since the Aero-Guard-System does not remove gases except carbon-dioxide, especially not carbon-monoxide, observe the installation instructions for compressor units driven by petrol engines.

Take in air from a suitable location. The CO₂ concentration of the intake air must not exceed 1000 ppmV. Therefore take care not to use:

- closed rooms where permanently many people are present, especially if there will be smoked.
- places where highly increased CO₂ concentration may be present caused by incineration or fermentation processes or combustion engines. If in doubt, the CO₂ concentration of the intake air should be monitored with a suitable test unit.

Hoses are mounted to the absorber and the adaptors with regular hose clamps. The wall feed-through bushings are compatible to the **BAUER-Verticus 5** bushings. On all Verticus 5 units they can therefore be mounted to the openings on top of the unit using three mounting screws. On older **BAUER** Verticus units and other closed compressor units an opening has to be cut out at a convenient location.

3. OPERATION

3.1. General

Observe the arrows for direction of air flow at the Aero-Guard.

The hose connection between Aero-Guard and compressor unit has to be air-tight.

Take special care when changing the filter cartridge, since an improper fitting of the cartridge could lead to decreased effectiveness. It is recommended to check the effectiveness of the new cartridge by measuring the CO₂ contents of the air (e.g. with DRÄGER tubes). It is also recommended to check the CO₂ contents of the air at regular intervals.

The operating hours for the filter cartridges listed in Section D. must not be exceeded, because of a serious decrease of the effectiveness after this period. It is recommended to note date and no. of operating hours on the cartridge label before installation to avoid confusion.

Do not forget to fill the container with 10 ltrs. of water, otherwise a serious lack of effectiveness of the unit would result.

3.2. Scavenging the compressor unit

CO₂ is present in the atmosphere with a natural amount of 350 - 400 ppm_v. The molecular sieve used in the purifiers of the compressor unit for drying the breathing air is, as well as other capabilities, able to adsorb CO₂ which is accumulated in the cartridge. After shutdown of the compressor, adsorbed CO₂ may be desorbed again due to the partial pressure decrease. The now free CO₂ gets washed out of the cartridge when the compressor is started again.

To avoid increased CO₂ contents in the compressed breathing air, we recommend scavenging the compressor unit **before connecting** and filling the air bottles, i.e. let the compressed air escape into the open air by opening the filling valves for about 1 to 2 minutes.

D. MAINTENANCE

1. CARTRIDGE LIFETIME

Delivery of the compressor	Cartridge lifetime
[Liters/min]	[operating hours]
100	300
120	250
140	214
160	188
180	167
200	150
220	136
240	125
260	115
280	107
300	100
320	94
340	88
360	83
380	79
400	75
420	71
440	68
460	65
480	63
500	60
520	58
540	56
560	54
580	52
600	50
620	48
630	48

Note: The operating hours given above are valid only for a CO₂ inlet concentration of max. 1000 ppm-vol.

2. CARTRIDGE CHANGE

WARNING Use original BAUER spare cartridges, only. Never use other cartridges or self refilled ones. Risk of severe damaging to health or damage to the compressor unit.

WARNING The absorbent contained in the filter cartridges is irritant to skin and eyes.



Caution when changing the filter cartridge: avoid crushing fingers while closing the locking ring.



Never remove replacement cartridge from packaging prior to actual use otherwise the highly sensitive absorbent will absorb water vapour from surrounding air and cartridge saturated and thus be ruined.

3. WATER CHANGE

Change the water filling in the reservoir at least every 2 months.

Add a new sterilization tablet. Only use the tablets delivered with the filter cartridge.



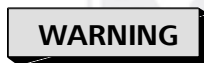
WARNING Do not use different tablets because they could contain chlorine. Risk of severe damaging to health or damage to the compressor unit.



During operation the water in the reservoir can turn slightly basic. Protect eyes from splashes when changing the water. Remove splashes by flushing with plenty of fresh tap water.

4. CLEANING THE SYSTEM

Clean the complete system, especially the inside of the reservoir at least once a year.



WARNING Do not use cleaning agents which are harmful to respiration. Flush with plenty of fresh tap water after cleaning.

5. CHECKING THE TIGHTNESS

Check tightness of all connections regularly. Check hoses and tubes for cracks. Replace leaking parts.



Only use hoses and tubes with same length and diameter for replacement.

E. TROUBLESHOOTING

Trouble	Cause	Remedy
Pressure loss of Aero-Guard too high	Delivery of the compressor too high for the selected Aero-Guard size	Check that the selected Aero-Guard size is suitable for the compressor delivery
	Aero-Guard not connected properly, air flow in wrong direction	Check setup according to arrows on unit
	Filter cartridge not fitted correctly	Mount filter cartridge in correct way
	Water level in tank too high	Check water level and drain if necessary
	Diameter of intake hose too small or intake hose too long	Fit hose with larger diameter or shorten hose
	Foreign particles in Aero-Guard or in intake hose	Remove any particles
CO ₂ concentration after the filter still too high	Cartridge lifetime exceeded	Change cartridge
	Aero-Guard has been operated without water filling, cartridge dried out	Change cartridge
	Cartridge stored unpacked outside of Aero-Guard, saturated with CO ₂ from the ambient air	Change cartridge
	Hose between Aero-Guard and compressor leaking	Check air-tightness of hose
	CO ₂ concentration of air at inlet of Aero-Guard is higher than 1000 ppm-vol	Check CO ₂ concentration of air taken in, change location if necessary.

Do you have any problems with maintenance or repair work?



Techn. customer service

Tel: (089) 78049-175 or -176

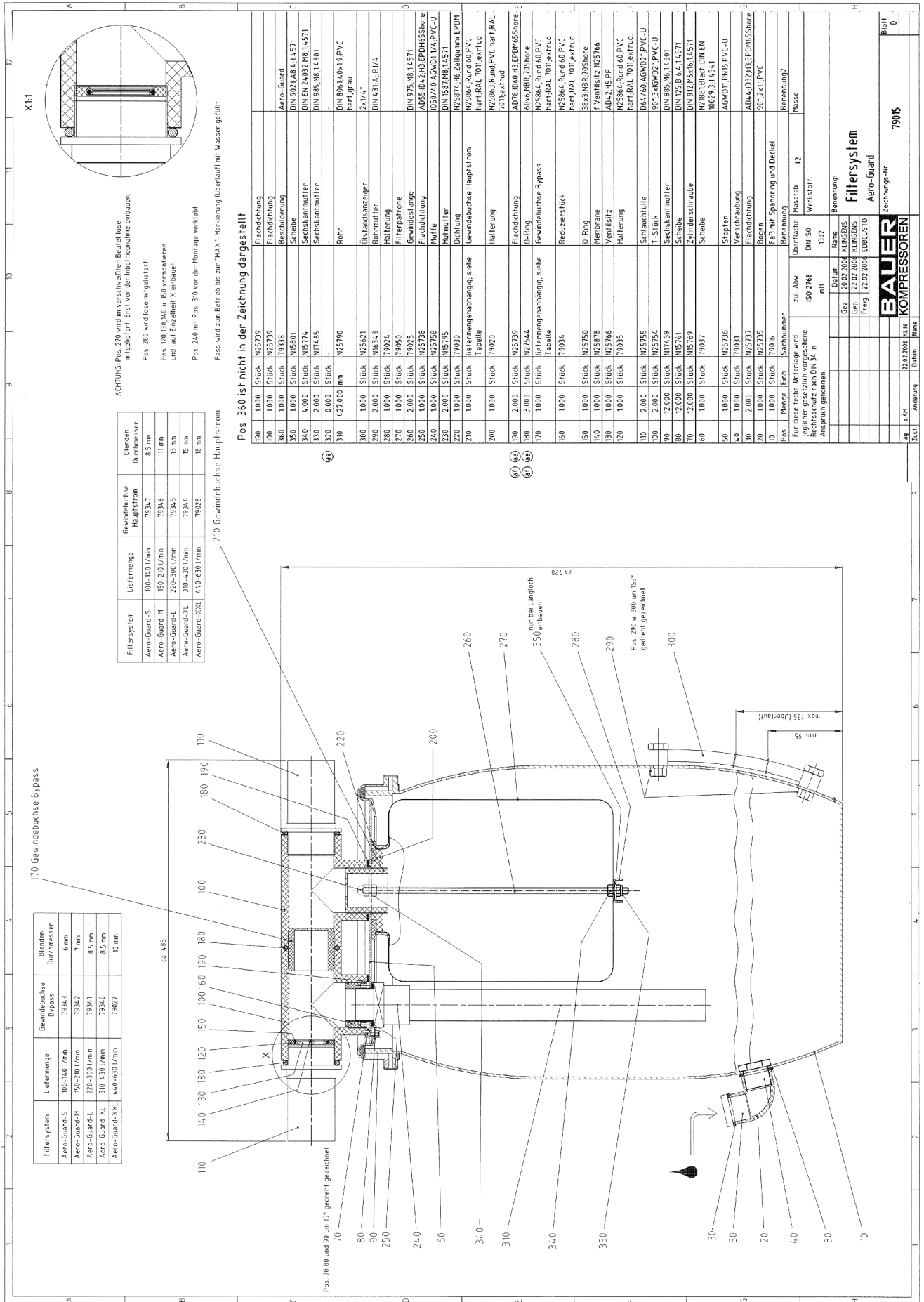
Fax: (089) 78049-103

F. ANNEX

- Unit drawing
- Installation drawing







ACHTUNG Pos. 270 wird im verschweiften Bereich lose mitgeliefert. Erst vor der Montage einbauen.
 Pos. 280 wird lose mitgeliefert!
 Pos. 120, 130, 140 u. 150 vorinstallieren und laut Einzelteil X einbauen.
 Pos. 240 mit Pos. 310 vor der Montage verkleben.
 Fassung zum Betrieb bis zur "MAX"-Markierung (Überlauf) mit Wasser gefüllt!

Pos. 360 ist nicht in der Zeichnung dargestellt!

Pos.	Menge	Teil	Material	Blenden Durchmesser	Liefermenge	Gewindebuchse Hauptstrom	Blenden Durchmesser
190	1.000	Stück	NZ5739	85 mm	100-140 l/min	79347	85 mm
190	1.000	Stück	NZ5739	85 mm	150-210 l/min	79346	85 mm
360	1.000	Stück	79938	11 mm	220-300 l/min	79345	19 mm
350	1.000	Stück	NZ5801	19 mm	Aero-Guard-XL	79344	19 mm
340	4.000	Stück	NZ5774	15 mm	Aero-Guard-XXL	79028	18 mm
330	2.000	Stück	NZ7445				
320	0.000	Stück	-				
310	427.000	mm	NZ5790				
300	1.000	Stück	NZ5621				
290	2.000	Stück	NZ5621				
280	1.000	Stück	NZ5621				
270	1.000	Stück	79024				
260	1.000	Stück	79025				
250	1.000	Stück	NZ5738				
240	1.000	Stück	NZ5758				
230	2.000	Stück	NZ5795				
220	1.000	Stück	79030				
210	1.000	Stück	siehe Anhangstabelle				
200	1.000	Stück	79020				
190	2.000	Stück	NZ5739				
180	3.000	Stück	NZ7544				
170	1.000	Stück	siehe Anhangstabelle				
160	1.000	Stück	79034				
150	1.000	Stück	NZ5750				
140	1.000	Stück	NZ5878				
130	1.000	Stück	NZ5766				
120	1.000	Stück	79035				
110	2.000	Stück	NZ5755				
100	2.000	Stück	NZ5754				
90	12.000	Stück	NZ7459				
80	12.000	Stück	NZ5761				
70	12.000	Stück	NZ5769				
60	1.000	Stück	79037				
50	1.000	Stück	NZ5736				
40	1.000	Stück	79039				
30	2.000	Stück	NZ5731				
20	1.000	Stück	NZ5735				
10	1.000	Stück	79016				

Filter-System
 Aero-Guard
 Zeichnungs-Nr. 79015

Gez.	Datum	Name
20.07.2004		KLINGENS
22.02.2004		KLINGENS
22.02.2004		EBGUSTO

Pos.	Menge	Einheit	Sachnummer
150	150	mm	1302

Für diese Technikunterlage wird jeglicher gesetzlich vorgeschriebene Anspruch genommen.

▶ ARGENTINA

Dabian S.A.
 Chile 486 - (1603) V. Martelli
 Provincia de Buenos Aires
 Republica Argentina
 Phone: +54(11)4709 6872/74
 Fax: +54(11)4709 4844
 Email: dabian@interprov.com
 www.dabian.com.ar

Pino Sub S.A. "La Casa del Buceador"

Avenida Córdoba 1859
 RA-1120 Buenos Aires
 Phone: +54(11)4811 22 76
 Fax: +54(11)4811 32 90
 Email: buceador@pinosub.com
 www.pinosub.com

▶ AUSTRALIA
Australian Safety Engineers

45 Catalano Circuit
 AUS-Canning Vale, WA 6155
 Phone: +6189456 2066
 Fax: +6189456 2077
 Email: ase@ase.net.au
 www.ase.net.au

Dräger Australia Pty. Ltd.

3 Ferntree Place
 AUS-Notting Hill (VIC) 3168
 Phone: +61(3)9265 50 00
 Fax: +61(3)9265 50 95
 Email: richard.ciba@draeger.com
 www.draeger.com

▶ AUSTRIA
BAUER POSEIDON KOMPRESSOREN GMBH

I.Z. NÖ.Süd
 Straße 3 OBJ.26
 A-2355 Wr. Neudorf
 Phone: +43(2236)63 625
 Fax: +43(2236)62 952
 Email: info@bauer-poseidon.at
 www.baugroup.de

▶ BELGIUM LUXEMBURG
Dräger Belgium N.V.

Heide 10
 B-1780 Wommel
 Phone: +32(2)4626369
 Fax: +32(2)4626255
 Email: arlette.dewaele@draeger.be
 www.draeger.com

▶ BRAZIL
DCAR

Al. Conde De Porto Alegre, 1298
 CEP 09561-000
 BR-Sao Caetano Do Sul - SP
 Phone: +55(11)4220-5212
 Fax: +55(11)4220-6007
 Email: domingos@dc-ar.com.br
 www.dc-ar.com.br

▶ CANADA
Jordair Compressors Inc.

101-7950 houston Rd.
 Nordel Business Park
 Delta BC V4G 1C2
 Phone: +1(604)940-8101
 Fax: +1(604)940-8131
 Email: jrowand@uniserve.com
 www.jordair.ca

▶ CHILE

Cressi Sub Ltd./ Poseidon Trading
 Agustinas 611; Of. 22
 RCH-Santiago de Chile
 Phone: +56(2)638 04 73
 Fax: +56(2)633 63 67
 Email: cabosub@entelchile.net

▶ CHINA
BAUER KOMPRESSOREN

China Ltd.
 707 Block A
 M.P. Industrial Centre
 18 Ka Yip Street,
 Chai Wan
 Hongkong S.A.R.
 Phone: +852 2595 1898
 Fax: +852 2595 0878
 bkc@bauerchina.com
 www.baugroup.de

BAUER KOMPRESSOREN

Shanghai Ltd.
 #878, Jian-Chuan Road
 Minhang, Shanghai 200240
 P.R. China
 Phone: +86 21 5471 3598
 Fax: +86 21 5471 3818
 sales@bauer-china.com.cn
 www.baugroup.de

▶ CYPRUS
Mercury Divers Co. Ltd.

P.O. Box 50469
 29, Ave Franklin Roosevelt
 CY-3012 Limassol
 Phone: +357(25)877933
 Fax: +357(25)564301
 Email: mercury@mercury.com.cy
 www.mercury.com.cy

▶ DENMARK
BAY Kompressor Teknik ApS

Fuglebaekvej 4C, 1
 DK-2770 Kastrup
 Phone: +45 32 51 18 66
 Fax: +45 32 51 18 56
 Email: stig@bauer.dk

▶ EGYPT
BAUER KOMPRESSOREN EGYPT Ltd.

Nasser Street / in front of Bank of Alexandria
 Hurghada - Red Sea
 Phone: +20(0)65-3 55 2747
 Fax: +20(0)65-3 55 2747
 Email: pressuretec@tedata.net.eg

Pressure Tech. Air & Gas Compressors

3, Dr. Hassan Aflatone St.
 (From 121 Thawra St)
 Almaza Heliopolis, Cairo 11341
 Phone: +20(2)419 62 89
 Fax: +20(2)419 62 89
 Email: pressuretec@tedata.net.eg

Scubatec Egypt

3, Dr. Hassan Aflatone St.
 (From 121 Thawra St)
 Almaza Heliopolis, Cairo 11341
 Phone: +20(2)41 80 118
 Fax: +20(2)41 80 118
 Email: scubatec@tedata.net.eg

▶ FINLAND

SARLIN-HYDOR OY
 PL 750
 Kaivokselantie 3-5
 SF-01610 Vantaa
 Phone: +358(9)504 445 11
 Fax: +358(9)504 445 22
 Email: hydor@sarlin.com
 www.sarlin.com

▶ FRANCE
BAUER COMPRESSEURS S.A.R.L.

60 Ave. Franklin D. Roosevelt
 F-73100 Aix-Les-Bains
 Phone: +33(4)7988 21 00
 Fax: +33(4)7988 21 14
 Email: info@bauer-compresseurs.com
 www.baugroup.de

Atmos S.A.R.L.

Port de la Pointe Rouge
 Avenue D'Odessa
 F-13008 Marseille
 Phone: +33(491)73 66 84
 Fax: +33(491)73 83 54
 Email: atmos-contact@wanadoo.fr
 www.atmos.fr.st

BAUER COMPRESSEURS SAS

Agence Grans Sud
 Parc du Midi, Av. Serpolet,
 Zone Athéna II
 F-13600 La Ciotat
 Phone: +33(442)98 10 90
 Fax: +33(442)08 25 68

▶ GERMANY
Brandschutztechnisches Zentrum Kramer

Buchholzer Str. 2
 D-13156 Berlin-Niederschönhausen
 Phone: +49(30)4765734
 Fax: +49(30)74611926

Domeyer GmbH&Co. KG

Plantage 9
 D-28215 Bremen
 Phone: +49(421)37788-0
 Fax: +49(421)377 88-88
 Email: safety@domeyer.eu
 www.domeyer.eu

Dräger Safety AG & Co. KGaA

Produkteinheit
 Breathing Gas Systems
 Revalstraße 1
 D-23560 Lübeck
 Phone: +49(451)882-0
 Fax: +49(451)882-4693
 Email: manfred.kasten@draeger.com
 www.draeger.com

Druckluft Dannöhl GmbH

Graf-Zeppelin-Straße 3
 D46149 Oberhausen-Buschhausen
 Phone: +49(208)650090
 Fax: +49(208)650069
 Email: druckluft@dannoehl.de
 www.dannoehl.net

Druckluft Fennert GmbH

Hansestr. 21
 D-18182 Bentwisch
 Phone: +49(381)63 02 28-0
 Fax: +49(381)63 02 28-9
 Email: info@fennert.com
 www.fennert.com

Druckluft-Service

Gert Mayer
 Im Aule 2/1
 D-72622 Nürtingen
 Phone: +49(7022)5 41 91
 Fax: +49(7022)5 53 58
 Email: mayer@druckluft-service.de
 www.druckluft-service.de

Ehlgötz Kompressoren & Motoren GmbH

Printzstraße 11
 D-76139 Karlsruhe
 Phone: +49(721)623540
 Fax: +49(721)6235420
 Email: info@ehlgotz.de
 www.ehlgotz.de

Hubsis's Tauchservice

Stefansfelder Str. 9
 D-88682 Salem
 Phone: +49(7553)13 99
 Fax: +49(7553)82 84 70
 Email: info@hubsis-tauchservice.de
 www.hubsis-tauchservice.de

Poseidon Tauchprodukte GmbH

Preetzer Chaussee 171
 D-24147 Klausdorf
 Phone: +49(431)79 950
 Fax: +49(431)79 95 25
 Email: poseidon@poseidon-kiel.com
 www.poseidon-kiel.de

SITEC GmbH

Philipp-Krämer-Ring Str. 14
 D-67098 Bad Dürkheim
 Phone: +49(6322)989548
 Fax: +49(6322)989188
 Email: info@sitecatenschutz.de
 www.sitecatenschutz.de

Tauchschnitzschule Dresden

Kesselsdorfer Str. 55
 D-01159 Dresden
 Phone: +049(351)4162304
 Fax: +049(351)41622332
 Email: info@tauchschnitzschule-dresden.de
 www.tauchschnitzschule-dresden.de

Tauchsport

Helmut Schieck
 Stadtweg 63
 D-49086 Osnabrück
 Phone: +49(541)38 52 64
 Fax: +49(541)38 76 97
 Email: info@ivans-dive-team.de
 www.ivans-dive-team.de

Tauchttechnik

Führmann
 Lilienweg 7
 D-94447 Plattling
 Phone: +49(9931)929342
 Email: info@techserv.org

Unimatic GmbH

Hans-Böckler-Ring 13
 D-22851 Norderstedt
 Phone: +49(40)52 98 60-0
 Fax: +49(40)52 98 60-60
 Email: info@unimatic.de
 www.unimatic.de

▶ GREAT BRITAIN
BAUER KOMPRESSOREN UK Ltd.

North Florida Road
 Haydock Industrial Estate
 GB-St. Helens - Merseyside WA11 9TN
 Phone: +44 (0)1942 72 42 48
 Fax: +44 (0) 1942 27 07 71
 Email: general@bauer.uk.com
 www.baugroup.de

DIVEX

Pressure Products House
 Westhill Ind. Estate
 GB-Westhill Aberdeen
 AB32 6TQ
 Phone: +44(1224)740 145
 Fax: +44(1224)746 550
 Email: sales@divex.co.uk
 www.divex.co.uk

▶ GREECE
Diving Pro - Iliadis Bros & Co.

5 Krimeas Str.
 GR-115 26 Athens
 Phone: +30(210)6993193
 Fax: +30(210)69 29 549
 Email: info@air-compressor.gr
 www.air-compressor.gr

▶ ICELAND
Klif Ltd.

P.O. Box 249
 Grandagardi 13
 IS-1210 Reykjavik
 Phone: +354(55)23 300
 Fax: +354(55)26 061
 Email: klif@klif.is

▶ INDIA
Mount Everest Engineering Company

A-103 Gokul Arcade Sahar Road
 Vile Parle (East)
 IND-Mumbai 400 057
 Phone: +91(22) 820 25 58
 Fax: +91(22) 820 57 92
 Email: pramodg@bom3.vsnl.net.in

▶ INDONESIA
Marine & Industrial Compressors

304 Thomson Road
 SGO Singapore 307654
 Phone: +65 250 6018
 Fax: +65 253 8443

▶ ISRAEL
Snapir Diving Equipment Ltd.

P.O. Box 463
 IL-Ramat Hasharon 47104
 Phone: +972(3)5406890
 Fax: +972(3)5407326
 Email: issh@zahav.net.il

▶ ITALY
BAUER COMPRESSORI S.R.L.

Via Galileo Galilei 9
 I-36057 Arcugnano
 Phone: +39 0444 653 653
 Fax: +39 0444 653 600
 Email: info@bauer-compressori.com
 www.baugroup.de

▶ JAPAN
BAUER COMPRESSORS CO.LTD.

10-36 Ryutsu-Center
 Kitakami-Shi
 J-Iwate-ken
 Phone: +81(197)68 22 51
 Fax: +81(197)68 22 25
 Email: t-otome@bauer.co.jp

▶ **JORDAN**

Huzaima Nasser & Partners Trad. Co.
P.O. BOX 9510
32 Farazdaq Street
Jebel Al-Weibdeh
JOR-11191 Amman
Phone: +962(6)4624505
Fax: +962(6)4624416
Email: hntc@go.com.jo

▶ **KENYA**

Marine & Motors Engineering Ltd.
P.O. Box 5034
Diani Beach (EAK)
Kenya
Phone: +254 403203388
Fax: +254 403203411
Email: schlatter@wananchi.com

▶ **LEBANON**

Antony E. Ajram
P.O. Box 17-5494
Broumana Main Str.
RL-Beirut
Phone: +961(4)960 805
Fax: +961(4)964 226

▶ **MALAYSIA**

SK Cryogenics Sdn. Bhd.
No.5 Jalan TP 7/6
Sime U.E.P. Industrial Park
Section 26
40400 Shah Alam
Selangor
Phone: +60(3)5192 4269/70
Fax: +60(3)5192 4235

▶ **MALEDIVES**

MA Services Pvt. Ltd.
G. Veyoge
Husnuheena Magu
MALED-Male
Phone: +960 3310935
Fax: +960 310936
Email: mas@barabaru.u-net.com

▶ **MALTA**

M and A Ltd.
Casfen Court, Triq Sir Luigi Preziosi
Bugibba SPB 12
M-Malta
Phone: +365 585065
Fax: +356 585064
Email: m+a@waldonet.net.mt

▶ **MAURITIUS**

Air Pro Services Ltd.
La croisée Diolle - La Marie Road
Vacoas
Mauritius
Phone: +230 684 0262
Fax: +230 696 2074
Email: christiangalliot@hotmail.com

▶ **THE NETHERLANDS**

Compressor Service Techniek
Bedrijvenstraat 9
7641 AM Wierden, Nederlande / The Netherlands
Phone: +31 (0)546 57 82 52
Fax: +31 (0)546 57 93 35
Email: info@cst-schiphorst.nl

Dräger Safety Nederland B.V.

Postbus 310
Edisonstraat 53
NL-2700 AH Zoetermeer
Phone: +31(79)3444 766
Fax: +31(79)3444 790
Email: draeger@draeger.com
www.draeger.com

▶ **NEW CALEDONIA**

S.T.I.M.
120 Rue E. Unger
98895 Nouméa/Cedex
Nouvelle-Calédonie
Phone/Fax: +687 25 30 50
GSM: +687 77 76 13
Email: stim-nc@canl.nc

▶ **NEW ZEALAND**

High Pressure Equipment (NZ) Ltd
P.O. Box 101-130
North Shore Mail Centre
NZ-Auckland
Phone: +64(9)444 0804
Fax: +64(9)443 11 21
Email: highpres@clear.net.nz

▶ **NORWAY**

AL Maskin AS
P.O. Box 54
Industriveien 8
N-2020 Skedsmokorset
Phone: +47(64)836900
Fax: +47(64)836999
Email: firmapost@almaskin.no
www.almaskin.no

▶ **PHILIPPINES**

Cebu Ern bri Import, Inc. Aquaventure Whitetip Dive Supply
Ermita Office:
Unit 101 Joncor II Bldg.
#1362 A. Mabini Str.
Ermita Manila Philippines 1000
Phone: +632 521 0433
Fax: +632 522 1165
www.aquaventurewhitetip.com

MATEC

Maschinen & Technik, Inc.
Tech Center Buencamino Str.
Alabang
Muntinlupa City Manila,
Philippines
Phone: +632 850 6450
Fax: +632 850 3631

▶ **PORTUGAL**

INDUMA
Maquinas Industriais Ltda.
Rua da Cova da Moura 2-1
P-1300 Lisboa
Phone: +351(21)392 8680
Fax: +351(21)395 02 99
Email: induma@mail.telepac.pt

▶ **SINGAPORE**

BAUER COMPRESSORS ASIA Pte.Ltd
2 Alexandra Road
#01-03 Delta House
SGP-Singapore 159919
Phone: +65 62716271
Fax: +65 62723345
Email: info@bauer-compressors.com.sg
www.bauerasia.com

Marine & Industrial Compressors

304 Thompson Road
SGP-Singapore 307654
Phone: +65 250 6018
Fax: +65 253 8443

▶ **SOUTH AFRICA**

High Pressure Systems C.C.
P.O.Box 30059
Jet Park
Witfield 14697
ZA-Rep. of South Africa
Phone: +27(11)5717300
Fax: +27(11)397 48 08
Email: info@hpssystem.com.za

▶ **SPAIN**

Dräger Safety Hispania S.A.
Xaudaró 5
E-28034 Madrid
Phone: +34(1)358 02 44
Fax: +34(1)729 48 99
Email: atencionalcliente.safety@draeger.com
www.draeger.com

Marine Vision

Pol.Ind. La Vega
C./Archidona, nave no.19
E-29650 Mijas-Costa
Phone: +34(95)2473230
Fax: +34(95)2585545
Email: management@marinevision.com
www.marinevision.com

Sistemas de Alta Presion S.L.

C/ Turuella i Urpina, nave 15
E-08980 Sant Feliu de Llobregat
Phone: +34(93)660 28 75
Fax: +34(93)660 19 17
Email: mathias@sistemasap.com

▶ **SPAIN - ISLAS CANARIAS**

P. A. Herzog S.L.
Calle Fernando Arozana
Quintero 4
Nave 1
E-38009 Santa Cruz de Tenerife
Phone: +34(922)22 35 35
Fax: +34(922)20 37 29

▶ **SPAIN - MALLORCA -BALEARES**

Rambaud Family SL "Neptuno"
Deportes Nauticos
Avda. Argentina 45
E-Palma de Mallorca
Phone: +34(971)28 02 67
Fax: +34(971)73 75 54
Email: neptunodiving@atlas-iap.es

▶ **SRI LANKA**

Underwater Safaris Ltd.
Leslie's House
25 Barnes Place
CL-Colombo 7
Phone: +941 699 757
Fax: +941 69 40 29
Email: scuba@stl.lk

▶ **SWEDEN**

P. Granzow AB
Malmagatan 3
S-74537 Enköping
Phone: +46(171)47 80 00
Fax: +46(171)392 70
Email: mikael.jansson@granzow.se
www.granzow.se

▶ **SWITZERLAND**

Dräger AG
Aegertweg 7
CH-8305 Dietlikon
Phone: +41(1)80582-0
Fax: +41(1)8058280
Email: urs.weder@draeger.com
www.draeger.ch

Vektor AG

Chriesbaumstr. 4
CH-8604 Volketswil
Phone: +41(1)946 06 60
Fax: +41(1)945 55 10
Email: info@vektor.ch
www.vektor.ch

▶ **TAHITI - FRENCH POLYNESIA**

Tahiti Sport / Nautisport
Boîte Postale 62
98713 Papeete - Tahiti
Tahiti
Phone: +689 42 09 94
Fax: +689 42 17 75

▶ **TAIWAN**

Ming Shen Enterprise Co. Ltd.
5, paShih 1 street
DanShui Town
Taipei Taiwan 25170
Phone: +886(2)28095789
Fax: +886(2)28096189
www.3arrow.com.tw

▶ **THAILAND**

Dive Supply Co. Ltd.
88/5 Patak Rd
Chalong Bay
83100 Phuket
Thailand
Phone: +66 76 383 414-6
Fax: +66 76 281 525
Email info@divesupply.com
INTERSOL ENGINEERING & TECHNOLOGY PTE LTD.
7/288 Moo 6 Chaengwattana Rd
Bhanmai, Pakkred
Nonthaburi 11120
Thailand
Phone: +662 980 8754
Fax: +662 980 8756
Email info@divesupply.com
Intersol Engineering & Technology Co. Ltd.
160 Rinklongprapa Road
Bangsue
10800 Bangkok
Thailand
Phone: +66 29 106 445
Fax: +66 29 106 446

▶ **TURKEY**

Marintek Doga Sporlari Malzemeleri Tic. A.S.
Bagdat Cad. 39
Sibnem. sok. 10/5 Kozyatagi
TR-34724 - Istanbul
Phone: +90(216)44 53 580
Fax: +90(216)44 53 560
Email: gulten@marintek.com.tr

▶ **UNITED ARAB EMIRATES**

Abu Dhabi Marine Equipment Est.
P.O. Box 4164
Near Fishing Harbour Mina
Zayed Are
UAE-Abu Dhabi
Phone: +971(2)732300
Fax: +971(2)732301
Email: boatadme@emirates.net.ae

BAUER Kompressoren Middle East

Industrial Unit FZ S1 AF 07
Jebel Ali Free Zone South Side
Dubai
Phone: +971 4 8860259
Fax: +971 4 8860260
Email: info@bauer-kompresso-ren.ae

▶ **USA**

BAUER COMPRESSORS INC.

1328 Azalea Garden Road
Norfolk
USA-VA 23502
Phone: +1(757)855 60 06
Fax: +1(757)855 62 24
Email: sls@bauercomp.com
www.bauercomp.com

BAUER COMPRESSORS Miami

Nob Hill Business Plaza
10052 NW 53rd Street
Sunrise,
USA-Florida 33351-8002
Phone: +1(954)746 2504
Fax: +1(954)746 2510
Email: bflgenmgr@bauercomp.com
www.bauercomp.com

BAUER COMPRESSORS San Francisco

267 East Airway Blvd.
Livermore, California 94551
Phone: +1(925)449 7210
Fax: +1(925) 449 7201
Email: bauerstf@bauercomp.com
www.bauerstf.com

BAUER COMPRESSORS Los Angeles

CV International, Inc. and CvB
2730 Monterey Str., Suite 108
Torrance, California 90503
Phone: +1(310)328 8550
Fax: +1(310)328 5525
Email: info@cvintl.com
www.cvintl.com

▶ **VENEZUELA**

Inte C.A.
P.O.Box 1481
YV-Maracaibo 4001-A
Phone: +58(261)793 82 22
Fax: +58(261)793 83 05
Email: inteca@telcel.net.ve

▶ **VIETNAM**

Franco-Pacific Vietnam Co. Ltd.
55 H0 Hao Hon Street
District 1
Ho Chi Minh City Vietnam
Phone: +84-8 836 0257
Fax: +84-8 836 1387
Email: fppvt@hcm.vnn.vn