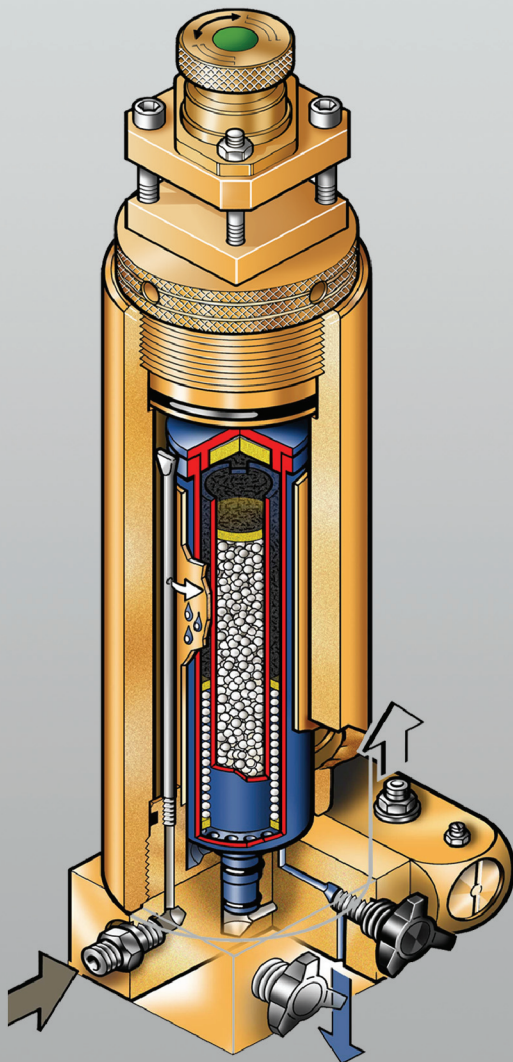


Operating Manual and Spare Parts List

► P21 Triplex

Breathing Air Purification System





EG-Konformitätserklärung

entweder im Sinne der EG-Maschinenrichtlinie 2006/42/EG
oder der Druckgeräterichtlinie 97/23/EG (Modul A1 / B+C1*)



EC-Conformity declaration

either according to EC-machine directive 2006/42/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This declaration is no longer valid if the units or assemblies are modified without our approval.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)	Relevant EC directives (if applicable)
EG-Maschinenrichtlinie (2006/42/EG) Druckgeräterichtlinie (97/23/EG) Niederspannungsrichtlinie 2006/95/EG Elektromagnetische Verträglichkeit (EMV) 2004/108/EG	EC machine directive (2006/42/EC) Pressure Equipment Directive (97/23/EC) Low Voltage Directive 2006/95/EC Electromagnetic compatibility 2004/108/EC
Angewandte harmonisierte Normen insbesondere	Applicable and adapted norms, in particular
EN 60 204-1 EN12021 (bei Verwendung des zutreffenden BAUER Filtersystems)	EN 60 204-1 EN12021 (if using the appropriate BAUER filter system)
Angewandte nationale Normen und technische Spezifikationen insbesondere	Applicable national norms and technical specifications particulary
<ul style="list-style-type: none"> - Betriebssicherheitsverordnung vom 27. September 2002 - AD 2000 - Technische Regeln Druckgase (TRG) : TRG 400, 401, 402 (ohne Betriebsstätte) und TRG 790 - Unfallverhütungsvorschrift BGR 500 	<ul style="list-style-type: none"> - 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 - Accident prevention regulation BGR 500
Benannte Stelle	Notified Body
TÜV SÜD Industrie Service	TÜV SÜD Industrie Service

München/ Munich, 2009-12-09

Qualitätssicherung/
Quality Assurance

Technischer Leiter/
Technical Director

Diese Bescheinigung ist nur in Verbindung mit dem Anhang zur Konformitätserklärung vom 09.12.2009 gültig !
This certificate is only valid with the enclosed annex to the EC-conformity declaration dated December 09, 2009 !



EG-Konformitätserklärung

entweder im Sinne der EG-Maschinenrichtlinie 2006/42/EG
oder der Druckgeräterichtlinie 97/23/EG (Modul A1 / B+C1*)



EC-Conformity declaration

either according to EC-machine directive 2006/42/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			PE100TE/TW/TB PE 200 TE PE 250 TE PE 300 TE PE 250 HE PE 300 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	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		D 53.5-2.2 D 53.5-3
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			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
MV 100-4-3 MV 120-4-3 MV 120-5.5-3			



EG-Konformitätserklärung

entweder im Sinne der EG-Maschinenrichtlinie 2006/42/EG
oder der Druckgeräterichtlinie 97/23/EG (Modul A1 / B+C1*)



EC-Conformity declaration

either according to EC-machine directive 2006/42/EC or to
the Pressure Equipment Directive 97/23/EC (Modul A1 / B+C1*)

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

KV 2.2
KV 3
KV 4
KV 5.5
KW 7.5
KW 11

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

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

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



EG-Konformitätserklärung

entweder im Sinne der EG-Maschinenrichtlinie 2006/42/EG
oder der Druckgeräte richtlinie 97/23/EG (Modul A1 / B+C1*)



EC-Conformity declaration

either according to EC-machine directive 2006/42/EC or to
the Pressure Equipment Directive 97/23/EC (Modul A1 / B+C1*)

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

GIB 12.2-5.5-5
GIB 12.3-5,5-5
GIB 12.3-7,5-5
GIB 15.3-11-5
GIB 15.4-15-5

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

BGIB 23.4-22

B-MASTER
(MINI, MIDI, MAXI)

Folgende Komponenten
können je nach Auftrag im
Lieferumfang der Bauein-
heiten / Baugruppen enthalten
sein und werden über diese
Konformitätserklärung im
Sinne einer Gesamtanlage
abgedeckt:

*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:*

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



Erklärung für den Einbau einer unvollständigen Maschine
im Sinne der EG-Maschinenrichtlinie 2006/42/EG



Manufacturer's declaration for partly completed machinery
according to EC-machine directive 2006/42/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 2006/42/EG 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 2006/42/EC.

Bezeichnung der Komponenten Description of components :	Kompressorblöcke Maschinen / Anlagen ohne Motor Fülleisten Air-Kool lose P-Systeme Aero-Guards B-Timer Umschaltleisten Zuschaltautomatik	compressor blocks machines / units without motor filling panels Air-Kool loose P-systems Aero-Guards B-Timer Change-over panels Automatic selector unit
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Einschlägige EG-Richtlinien (soweit zutreffend) EG-Maschinenrichtlinie (2006/42/EG) Druckgeräterichtlinie (97/23/EG) Niederspannungsrichtlinie 2006/95/EG Elektromagnetische Verträglichkeit (EMV) 2004/108/EG	Relevant EC directives (if applicable) EC machine directive (2006/42/EC) Pressure Device Directive (97/23/EC) Low Voltage Directive 2006/95/EC Electromagnetic compatibility 2004/108/EC
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Angewandte harmonisierte Normen insbesondere (nur zutreffend bei Komponente mit elektrischen Bauteilen) EN 60 204-1	Applicable and adapted norms particulary (only valid for components with electrical parts) EN 60 204-1
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Angewandte nationale Normen und technische Spezifikationen insbesondere - Betriebssicherheitsverordnung vom 27.Sept. 2002 - AD 2000 - Technische Regeln Druckgase (TRG) : TRG 400, 401, 402 (ohne Betriebsstätte), und TRG 790 - Unfallverhütungsvorschrift BGR 500	Applicable national norms and technical specifications particulary - 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 - Accident prevention regulation BGR 500
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München/ Munich, 2009-12-09

T. Zaher

Alexander Penner

Qualitätssicherung/Quality Assurance
Werkssachverständiger/Expert

Technischer Leiter/ Technical Director

INTRODUCTION

This manual contains operation and maintenance schedules for the high pressure breathing air purification system

P21

manufactured by Bauer Kompressoren GmbH, Munich.

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

While every effort is made to ensure the accuracy of the particulars contained in this manual, the manufacturing company will not, in any circumstances, be held liable for any inaccuracies or the consequences thereof.

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2.	MAINTENANCE	4
3.	ANNEX	9

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ANNEX

Applicable parts list:	B5
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CHANGE NOTICE

Change no.	Change date
0	June 1980, basic edition
1	August 1990
2	January 1994
3	July 1998
4	August 1998

Instruction Manual Filter System P21 Triplex

1. GENERAL

FUNCTIONAL DESCRIPTION

Air leaving final stage is cooled in the after-cooler to approx. 10 - 15 °C (18 - 27 °F) above ambient temperature and then enters filter system **P21** with **TRIPLEX**® longlife cartridge (Fig. 1). The filter assembly consists of separator and cartridge chamber. In the separator surrounding the cartridge chamber liquid oil and water particles are reliably separated from the compressed medium by a pipe nozzle.

Residual oil vapours are then removed by the activated charcoal cartridge, oil and water vapours by the **TRI-PLEX**® longlife cartridge. The air leaving the filter assembly is then free of oil, taste and smell.

- 1 Filter inlet
- 2 Jet pipe
- 3 Filter head
- 4 Final pressure safety valve
- 5 Housing
- 6 Chamber separator
- 7 Cartridge
- 8 Filter outlet
- 9 Pressure maintaining valve
- 10 Condensate drain tap
- 11 Condensate outlet

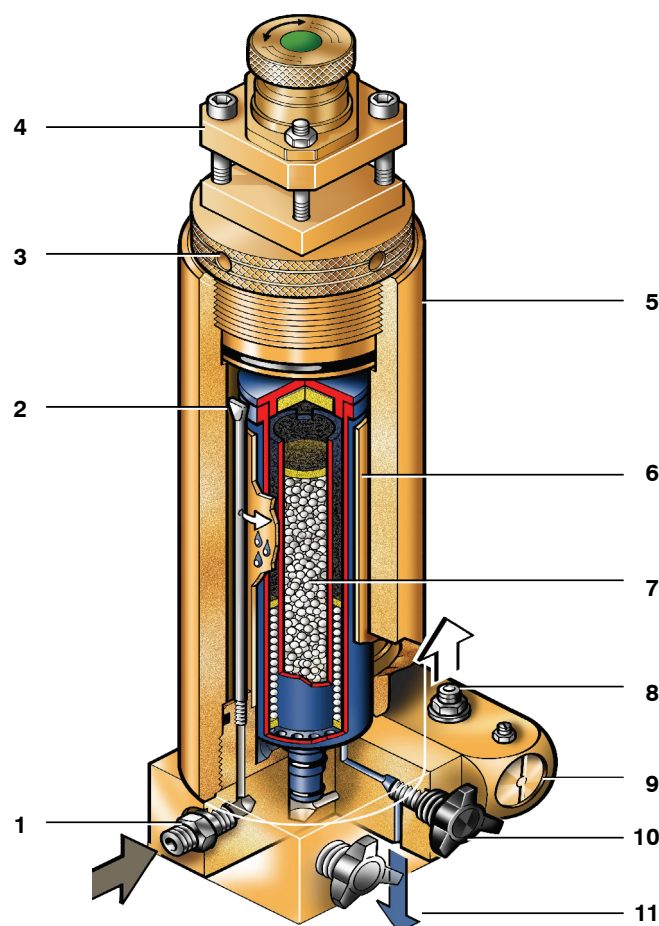


Fig. 1 Filter system P21

CARTRIDGE SAFETY BORE

The filter system P 21 is designed to prevent pressurizing in the absence of the filter cartridge. A bore provided in the filter bottom is sealed air-tight only if the cartridge is in place (Fig. 2).



No pressure build up without cartridge!

Without cartridge the venting bore is not sealed, the air escapes into the atmosphere, no pressure can be built up and thus it is ensured, that unfiltered air is not supplied to the consuming device. The venting bore is also used to check the O-rings on the cartridge pin. If air is leaking out of the venting bore even though a cartridge is installed, the O-rings are either broken or were damaged on installation. Remove and check cartridge. If necessary replace cartridge or O-rings.

LIFETIME

WARNING The oil and water separator is subject to dynamic load. It is designed to withstand a certain no. of load cycles. (1 load cycle = 1 pressurization, 1 depressurization) at the specified pressure range. The oil and water separator must be replaced when the maximum permissible no. of load cycles has been reached. Refer to the pressure vessel operating manual delivered with the unit.

The maximum recommended amount of four load cycles per hour should not be exceeded. If it is possible to regulate the operation of the unit to such a degree as to achieve four load cycles per hour, in our opinion this would be an optimum between usage and actual life.

To avoid exceeding the max. number of load cycles the operating hours should be recorded in the table in annex of this instruction manual.

CHANGE-OVER DEVICE PN 300/PN 200 (OPTION)

(Fig. 3) This device allows bottle filling to 200 bar (3,200 psig) with a 300 bar (4,700 psig) rated unit. Safety valve -B and filling device PN 200 bar are connected by opening change-over valve -A and the connected bottles can be filled with a 200 bar pressure, as described in the corresponding instruction manual.

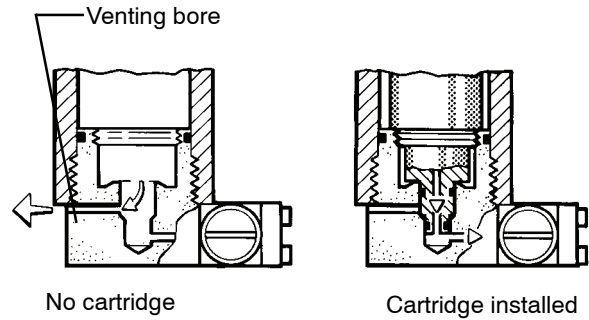


Fig. 2 Venting bore

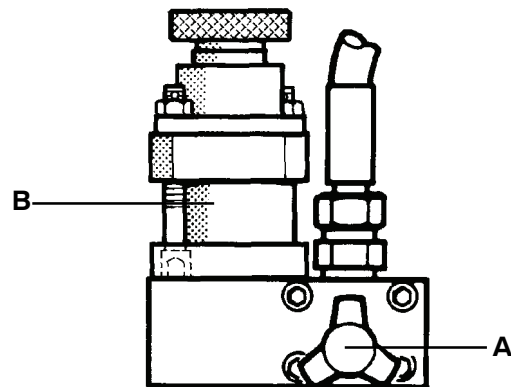


Fig. 3 Change-over device

PRESSURE MAINTAINING VALVE

DESCRIPTION

A pressure maintaining valve is mounted at the outlet of the filter. This valve ensures a constant minimum pressure within the filter assembly right from the start of the compressor unit thus achieving optimum filtering action.

The pressure maintaining valve ensures that pressure is built up in the filters even from the start of delivery, thus achieving a constant, optimum filtration. It will also guarantee proper working conditions for the final stage cylinder.

The pressure maintaining valve is adjusted to **150 ±10 bar (2,175 psi)**.

It prevents already filtered air from flowing back from the downstream filters when draining condensate from the oil and water separator.

MAINTENANCE

The pressure maintaining valve (Fig. 4) is adjusted at the factory to the required pressure and normally does not require regular maintenance or readjustment. In case of readjustment becoming necessary, loosen jam nut (2) and set screw (3). Adjust screw (1) to the required pressure using a suitable screw-driver.

Clockwise = increase pressure

Counter-clockwise = decrease pressure

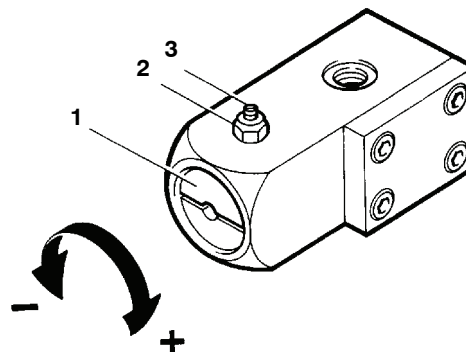


Fig. 4 Pressure maintaining valve

2. MAINTENANCE

General instructions for filter maintenance

- **Depressurize** system before starting any maintenance work.
- **Dry** inside of filter housing before installing new cartridge with a clean cloth and check for corrosion.
- **Lubricate** threads and O-rings as well as threaded part of cartridge with white petrolatum DAB 9 order no. N 19091 or WEICON WP 300 white order no. N 19752.
- **Observe** number of operating hours as indicated on hour meter to ensure exact attention to the maintenance intervals.
- **Change** cartridge before reactivating a compressor unit after out-of-service periods of more than 3 months.
- **Leave** cartridge in the filter as long as unit is out of service.
- **Keep** all condensate drain valves and shut-off valves closed. Keep a minimum pressure of approx. 50 to 80 bar (700 to 1,100 psi) within the system to prevent moisture entering the compressor piping and filter system.
- **The nozzle type oil and water separator is maintenance-free.**

Filter cartridges

New filter cartridges are vacuum-packed and can be stored for two years (refer to date on the cartridge). A defective vacuum package cannot protect the cartridge appropriately against environmental influences during storage. Should the package be damaged, do not use the cartridge.

To avoid any danger to your health or damage to your unit, change used up cartridges in good time.

Never fill used up cartridges yourself! The filter material was chosen specifically by **BAUER-KOMPRESSOREN** for each kind of application.

Pay attention to cleanliness and hygiene when changing the filter.

Filter service lifetime

The average weight (without package) of a new cartridge and the increase in weight can be checked with appropriate weighing scales. Due to inevitable production tolerances, there may be small differences compared to the given data.

The number of operating hours or the amount of possible bottle fillings per filter cartridge can be determined by the tables in Fig. 6 to Fig. 9 taking into consideration the ambient temperature and the cartridge used.

These tables contain calculated cartridge lifetime data, that refer to defined and constant operating conditions. Tolerances at bottle fillings and different operating temperatures can lead to considerable divergences

compared to data given, which therefore can only serve as reference values for the user.

Cartridge 057679 is the normal TRIPLEX-cartridge for electric units.

Filling weight: 191 g; Saturation weight 205 g.

Example: at an ambient temperature of 20°C, 36 to 45 10-ltr-bottles can be filled with a TRIPLEX-cartridge, which is equivalent to 12 to 15 compressor operating hours at a filling pressure of 200 bar.

On compressor units with petrol engines only use **cartridge, part no. 059183 to dry, de-oil and remove CO.**

Filling weight: 217 g; Saturation weight 229 g.

Example: at an ambient temperature of 20°C, 31 to 38 10-ltr-bottles can be filled with this cartridge, which is equivalent to between 10 and 13 operating hours at a filling pressure of 200 bar.



The longer service life of the cartridge at a filling pressure of 300 bar is annihilated by the larger volume of filled air per bottle, therefore the possible number of bottle fillings stays the same at different pressures.

Cartridge change



For safety reasons only CO removal cartridges part no. 059183 should be used on compressor units with petrol engine. On units with electric engine either CO removal cartridge part no. 059183 or TRIPLEX cartridge part no. 057679 can be used.



Units with petrol engine are delivered with CO removal cartridge part no. 059183 as standard, units with electric engine with TRIPLEX cartridge part no. 057679. When changing from electric engine to a petrol engine also replace cartridge part no. 057679 with cartridge part no. 059183.



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

- Depressurize filter system by opening condensate drain valves.
- Unscrew screw joint (3, Fig. 1) on top of the filter.
- Extract old cartridge and insert a new one.



The used cartridge must be disposed of according to local regulations.

Checking the final pressure safety valve

The final pressure safety valve is mounted on top of the oil and water separator. For testing of the function it is fitted with a knurled knob. To test the safety valve, turn the knob clockwise until the safety valve relieves pressure

Condensate drainage

a. Manually:

Drain condensate from separator and cartridge chamber regularly by slowly opening drain valves

- before each filling procedure
- during filling procedure every 30 minutes at high humidity every 15 minutes.

b. Automatically:

For units with automatic condensate drain refer to section 10 of the instruction manual.

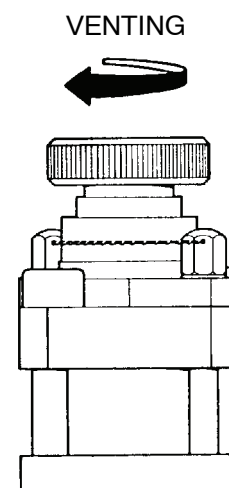


Fig. 5 Venting the final pressure safety

Air and Gas Processing Life time of filter cartridge BAUER KOMPRESSOREN GmbH

filter cartridge **057679** mass of molecular sieve mMS [gr] = 68

ambient temperature t U [°C]	temperature of final separator t Ab [°C]	moisture content of air, 100 % saturated X [gr/m³]	volume of processed air Va [m³] at pressure p [bar]			number of bottle fillings n and bottle size		
			200	300		7 ltr.	10 ltr.	12 ltr.
10	20 - 24	17,31 - 21,80	157 - 125	236 - 187		112 - 89	79 - 62	65 - 52
15	25 - 29	23,07 - 28,79	118 - 94	177 - 142		84 - 67	59 - 47	49 - 39
20	30 - 34	30,4 - 37,63	89 - 72	134 - 108		64 - 52	45 - 36	37 - 30
25	35 - 39	39,65 - 48,64	69 - 56	103 - 84		49 - 40	34 - 28	29 - 23
30	40 - 44	51,21 - 62,41	53 - 44	80 - 65		38 - 31	27 - 22	22 - 18
35	45 - 49	65,52 - 79,28	42 - 34	62 - 51		30 - 25	21 - 17	17 - 14
40	50 - 54	83,08 - 99,85	33 - 27	49 - 41		23 - 19	16 - 14	14 - 11

bottle filling volume VF [m³]		
bottle size l [ltr]	at pressure p [bar]	
	200	300
7	1,4	2,1
10	2	3
12	2,4	3,6

number of bottle fillings = processed volume of air / bottle filling volume = Va / VF

bottle filling volume:
 $VF [m^3] = p [bar] \times l [ltr] / 1000 [ltr/m^3]$

volume of air which can be processed:
 $Va [m^3] = 0,2 \times mMS [gr] / (X [gr/m^3] / p [bar]) = 0,2 \times p [bar] \times mMS [gr] / X [gr/m^3]$

life time of filter cartridge:
 $tp [h] = Va [m^3] / (Q [m^3/min] \times 60 [min/h])$

Fig. 6 Processing capacity filter cartridge 057679 according to bottle fillings

Air and Gas Processing Life time of filter cartridge BAUER KOMPRESSOREN GmbH

filter cartridge: **057679**

filling pressure p = 200 bar:

ambient temperature t U [°C]	temperature of final separator t Ab [°C]	life time of filter cartridge in hours			
		Junior Utilus	Capitano	Mariner	
				Diesel	elektric engine
flow capacity Q [ltr/min]					
		100	140	170	190
10	20 - 24	26 - 21	19 - 15	15 - 12	14 - 11
15	25 - 29	20 - 16	14 - 11	12 - 9	10 - 8
20	30 - 34	15 - 12	11 - 9	9 - 7	8 - 6
25	35 - 39	11 - 9	8 - 7	7 - 5	6 - 5
30	40 - 44	9 - 7	6 - 5	5 - 4	5 - 4
35	45 - 49	7 - 6	5 - 4	4 - 3	4 - 3
40	50 - 54	5 - 5	4 - 3	3 - 3	3 - 2

filling pressure p = 300 bar:

ambient temperature t U [°C]	temperature of final separator t Ab [°C]	life time of filter cartridge in hours			
		Junior Utilus	Capitano	Mariner	
				Diesel	elektric engine
flow capacity Q [ltr/min]					
		100	140	170	190
10	20 - 24	39 - 31	28 - 22	23 - 18	21 - 16
15	25 - 29	29 - 24	21 - 17	17 - 14	16 - 12
20	30 - 34	22 - 18	16 - 13	13 - 11	12 - 10
25	35 - 39	17 - 14	12 - 10	10 - 8	9 - 7
30	40 - 44	13 - 11	9 - 8	8 - 6	7 - 6
35	45 - 49	10 - 9	7 - 6	6 - 5	5 - 5
40	50 - 54	8 - 7	6 - 5	5 - 4	4 - 4

Fig. 7 Processing capacity filter cartridge 057679 according to operating hours

Instruction Manual Filter System P21 Triplex

Air and Gas Processing

Life time of filter cartridge

BAUER KOMPRESSOREN GmbH

filter cartridge **059183** mass of molecular sieve mMS [gr] = 58

ambient temperature t U [°C]	temperature of final separator t Ab [°C]	moisture content of air, 100 % saturated X [gr/m³]	volume of processed air Va [m³] at pressure p [bar]				number of bottle fillings n and bottle size		
			200		300		7 ltr.	10 ltr.	12 ltr.
10	20 - 24	17,31 - 21,80	134 - 106	201 - 160	96 - 76	67 - 53	56 - 44		
15	25 - 29	23,07 - 28,79	101 - 81	151 - 121	72 - 58	50 - 40	42 - 34		
20	30 - 34	30,4 - 37,63	76 - 62	114 - 92	55 - 44	38 - 31	32 - 26		
25	35 - 39	39,65 - 48,64	59 - 48	88 - 72	42 - 34	29 - 24	24 - 20		
30	40 - 44	51,21 - 62,41	45 - 37	68 - 56	32 - 27	23 - 19	19 - 15		
35	45 - 49	65,52 - 79,28	35 - 29	53 - 44	25 - 21	18 - 15	15 - 12		
40	50 - 54	83,08 - 99,85	28 - 23	42 - 35	20 - 17	14 - 12	12 - 10		

bottle filling volume VF [m³]		
bottle size	at pressure p [bar]	
l [ltr]	200	300
7	1,4	2,1
10	2	3
12	2,4	3,6

number of bottle fillings = processed volume of air / bottle filling volume = Va / VF

bottle filling volume:
VF [m³] = p [bar] x l [ltr] / 1000 [ltr/m³]

volume of air which can be processed:
Va [m³] = 0,2 x mMS [gr] / (X [gr/m³] / p [bar]) = 0,2 x p [bar] x mMS [gr] / X [gr/m³]

life time of filter cartridge:
tp [h] = Va [m³] / (Q [m³/min] x 60 [min/h])

Fig. 8 Processing capacity filter cartridge 059183 according to bottle fillings

Air and Gas Processing

Life time of filter cartridge

BAUER KOMPRESSOREN GmbH

filter cartridge: **059183**

filling pressure p = 200 bar:

ambient temperature t U [°C]		temperature of final separator t Ab [°C]		life time of filter cartridge in hours			
				Junior Utilus	Capitano	Mariner	
						Diesel	elektric engine
flow capacity Q [ltr/min]							
		100	140	170	190		
10	20 - 24	22 - 18	16 - 13	13 - 10	12 - 9		
15	25 - 29	17 - 13	12 - 10	10 - 8	9 - 7		
20	30 - 34	13 - 10	9 - 7	7 - 6	7 - 5		
25	35 - 39	10 - 8	7 - 6	6 - 5	5 - 4		
30	40 - 44	8 - 6	5 - 4	4 - 4	4 - 3		
35	45 - 49	6 - 5	4 - 3	3 - 3	3 - 3		
40	50 - 54	5 - 4	3 - 3	3 - 2	2 - 2		

filling pressure p = 300 bar:

ambient temperature t U [°C]		temperature of final separator t Ab [°C]		life time of filter cartridge in hours			
				Junior Utilus	Capitano	Mariner	
						Diesel	elektric engine
flow capacity Q [ltr/min]							
		100	140	170	190		
10	20 - 24	34 - 27	24 - 19	20 - 16	18 - 14		
15	25 - 29	25 - 20	18 - 14	15 - 12	13 - 11		
20	30 - 34	19 - 15	14 - 11	11 - 9	10 - 8		
25	35 - 39	15 - 12	10 - 9	9 - 7	8 - 6		
30	40 - 44	11 - 9	8 - 7	7 - 5	6 - 5		
35	45 - 49	9 - 7	6 - 5	5 - 4	5 - 4		
40	50 - 54	7 - 6	5 - 4	4 - 3	4 - 3		

Fig. 9 Processing capacity filter cartridge 059183 according to operating hours

3. ANNEX

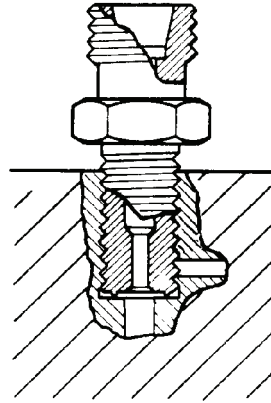
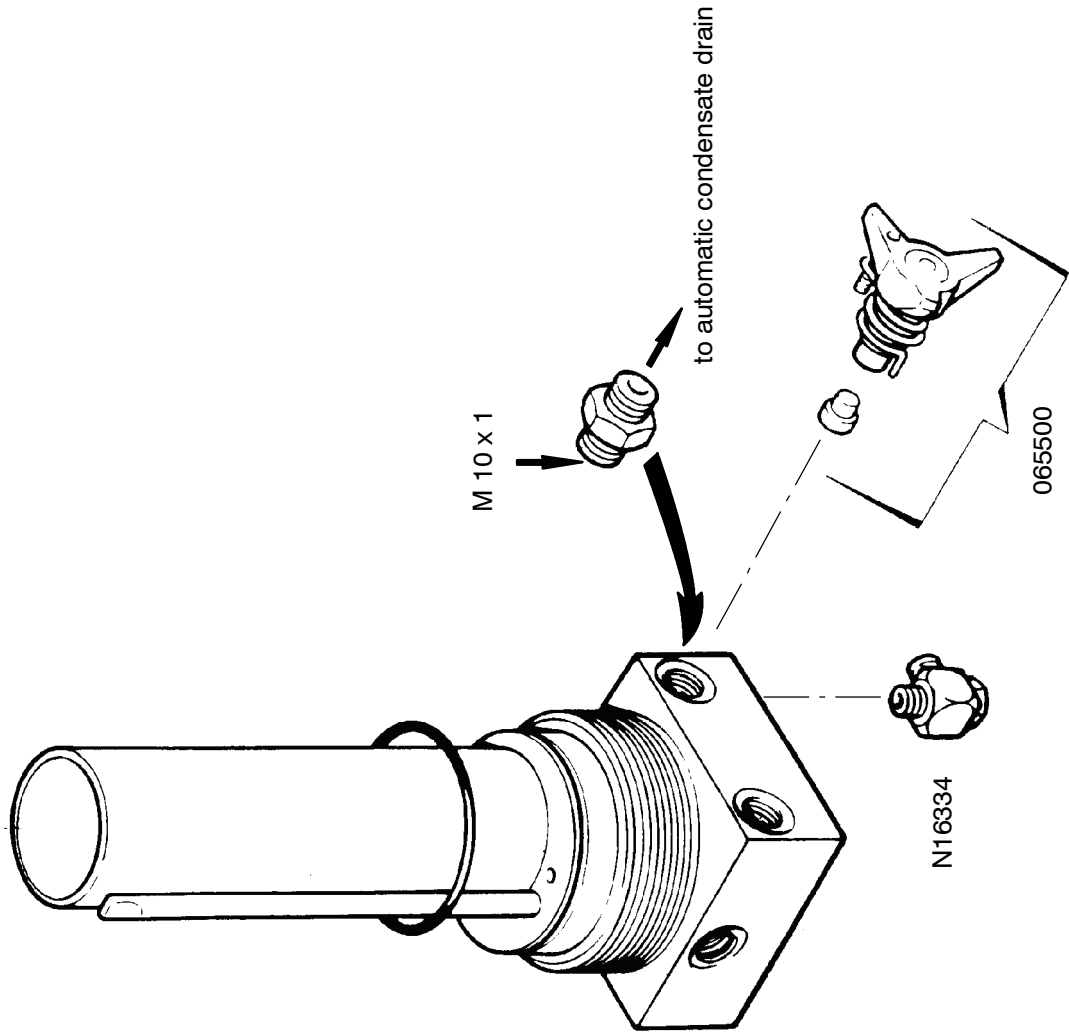
- **Operating hours record**
Technical informations
Drawings
Parts Lists

For connecting automatic condensate drain to TRIPLEX filter system KB 062211, use standard automatic condensate drain KB 068222.



Technical Info

To connect an automatic condensate drain unit to the TRIPLEX filter KB 062211, remove the two connections no. N 16334.
Also, remove the two drain taps KB 065500 and replace these parts with two adapters KB 63666.



Ersatzteilliste	B5.8	Filtersystem P21
Spare parts catalogue	B5.8	Filter system P21
Liste des pièces	B5.8	Système de filtration P21



Baugruppe	Assembly	Assemblage	Bild/Fig.
Filtersystem P21	Filter system P21	Système de filtration P21	B5.8- 1
Druckhalteventil und	Pressure maintaining valve,	Soupape de maintien de pression,	B5.8- 2
Fülleinrichtung	filling device	dispositif de remplissage	
Umschaltvorrichtung	Switch-over device	Dispositif sélecteur PN200/PN300	B5.8- 3
PN200/PN300	PN 200/PN300		

Änder.-Nr. Change no. No. de change	Datum Date	Änderung	Change	Changement
0	01.06.1985	Grundaussage	Basic edition	Edition de base
1	01.11.1985	Änderung Filterboden kpl.	Filter bottom assy.	Fond du filtre cpl.
2	01.10.1989	Anschluß Kondensatablaßauto- matik	Connection for automatic con- densate drain	Raccordement purge automati- que des condensats
3	01.05.1996	Änderung Druckhalteventil	Pressure maintaining valve changed	Clapet de maintien de pression changé
4	01.08.1998	Wartungssätze	Maintenance kits	Kits d'entretien
5	01.01.1999	Neuer P21-Filter	New P21 filter assy.	Neuf filtre P21
6	01.01.2001	Fülladapter	Filling adapter	Adaptateur de remplissage
7	01.05.2002	Neuer Filterbehälter	New filter housing	Nouveau filtre
8	01.12.2002	Filterhalterung, Druckhalteventil	Filter bracket, Pressure maintai- ning valve	Fixation du filtre, Clapet de maintien de pression

Wichtige Hinweise für Teilebestellung:

Bestell-Nr., die mit der Ziffer 0 beginnen, bezeichnen Baugruppen, die komplett geliefert werden. Teile ohne Bestell-Nr. sind nur zur Information für die Montage aufgeführt. Sie sind nicht als Ersatzteil erhältlich. Bei Ersatzteilbestellungen erwarten Sie unsere richtige Lieferung; deshalb benötigen wir von Ihnen folgende Angaben (siehe unten gezeigtes Typenschild):

1. Modellbezeichnung, Fabrik-Nr. sowie Fertigungsstand von Anlage/Block
2. Stückzahlen
3. Benennung und Best.-Nr. des gewünschten Teils

Bestell-Beispiel:

Für Kompressorblock ...
Fabrik-Nr. 524-0528/1/2 drei Dichtungen
8263-090

Important notes for spare parts orders:

Part nos. beginning with digit 0 indicate parts available as complete assemblies. Parts without part no. are indicated for assembly reference, only. These parts are not available as single parts. When placing an order for spare parts, please give the following items so as to ensure our correct delivery (see identification plate shown below):

1. Model, serial no. as well as design standard of unit/block
2. Quantity required
3. Name and part no.

Example for order:

For compressor block ...
serial no. 524-0528/1/2, three gaskets
8263-090

Avis important pour la commande de pièces:

Les nos. de commande commençant par le chiffre 0 indiquent les pièces livrées au complet. Les pièces sans no. de commande sont indiquées uniquement pour information de montage. Elles ne sont pas livrées individuellement. Pour que la livraison de pièces de rechange corresponde à la commande, veuillez bien nous fournir les données suivantes (voir plaque d'identité ci-dessous):

1. Modèle, no. de série et standard de construction de bloc compresseur/groupe
2. Quantité désirée
3. Dénomination et no. de commande de la pièce désirée

Exemple de commande:

Pour bloc compresseur ...
no. de série 524-0528/1/2, trois joints no. de cde. 8263-090



Wartungssätze

- a =Wartungssatz 500 h
- b =Wartungssatz 1000 h
- c =Wartungssatz 2000 h



Maintenance kit

- a = Maintenance kit 500 h
- b = Maintenance kit 1000 h
- c = Maintenance kit 2000 h



Kits de pièces d'entretien :

- a = Kit d'entretien 500 h
- b = Kit d'entretien 1000 h
- c = Kit d'entretien 2000 h

In den Spalten sind die im entsprechenden Satz enthaltenen Teile angekreuzt. Bitte beachten, daß die höheren Sätze die untergeordneten nicht beinhalten, d.h. für eine 2000-Stunden-Wartung wird 1x Satz a, 1x Satz b und 1x Satz c benötigt.

The columns contain the parts that are included in the respective parts set. Please note that the higher graded kits do not include the lower ones, i.e. for a 2000 hours maintenance, one kit a, one kit b plus one kit c are required.

Les pièces contenues dans les kits correspondants sont marquées d'une croix dans les colonnes. Veuillez observer que les kits supérieurs ne contiennent pas les kits subordonnés, c'est-à-dire pour un entretien de 2000 heures il faut avoir 1x kit a, 1x kit b et 1x kit c.

**Anmerkungen zur Identifikation:
Remarks for identification:
Remarques pour l'identification:**

Modell/Model/Modèle Fabrik-Nr./Serial no./Numéro de série

		Jahr/Year	<input type="text"/>	KB 73708
Volumenstrom m3/min	<input type="text"/>	n/min. r.p.m.	<input type="text"/>	
Free air delivery Scfm	<input type="text"/>	kW	<input type="text"/>	
Betriebsüberdruck bar	<input type="text"/>			
Max. working press. psig	<input type="text"/>			

Fertigungsstand / Modification no. / No. de modification:

Anlage/Unit/Groupe:

Kompressorblock/ Compressor block/ Bloc compresseur:



ACHTUNG

Nur Schrauben und Stiftschrauben der Qualität 8.8 verwenden!



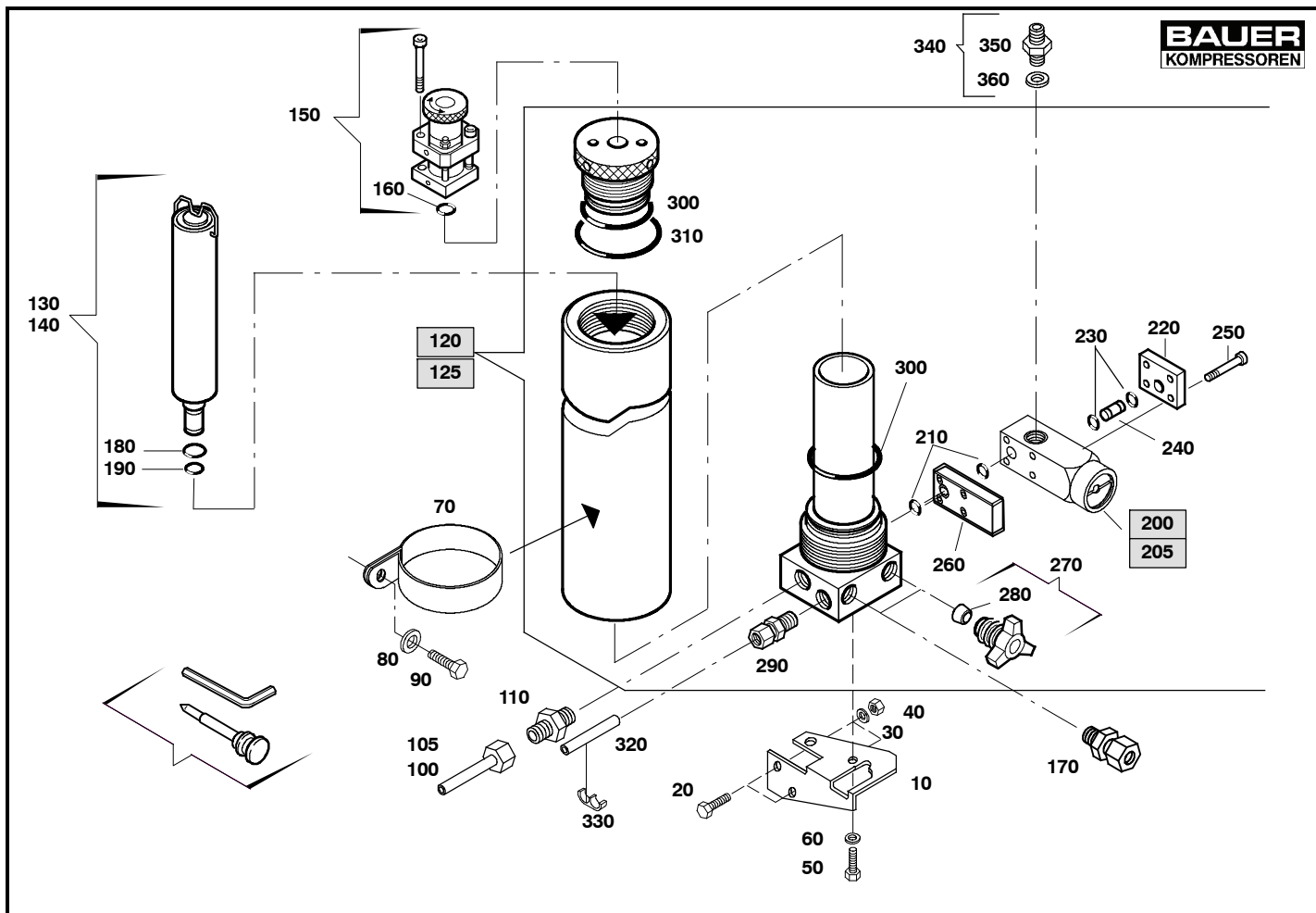
ATTENTION

Use only screws and studs in quality 8.8! This quality is equivalent to SAE J 429 d grade 5.



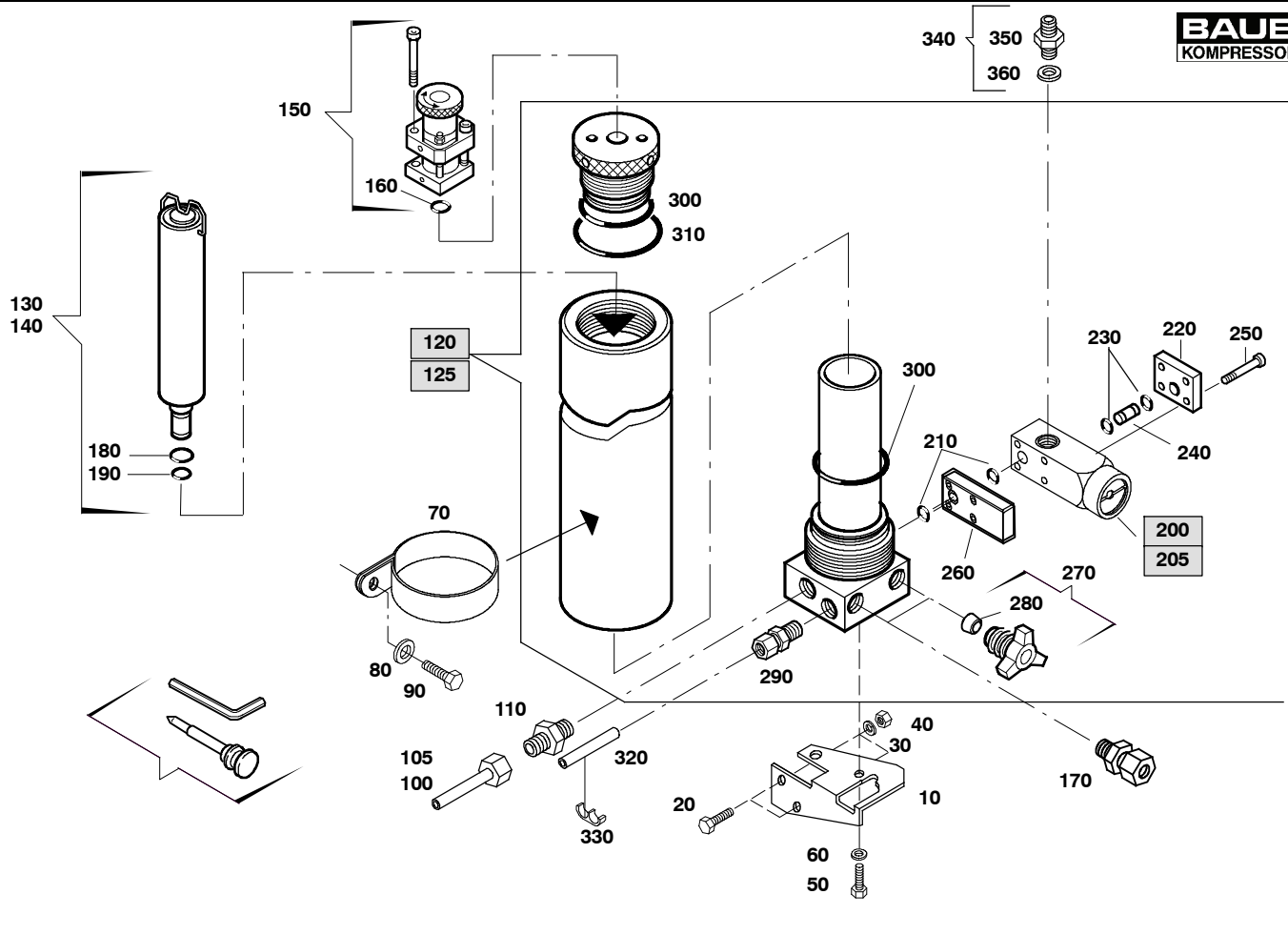
ATTENTION

N'utiliser que des vis et des goujons filetés de la qualité 8.8!

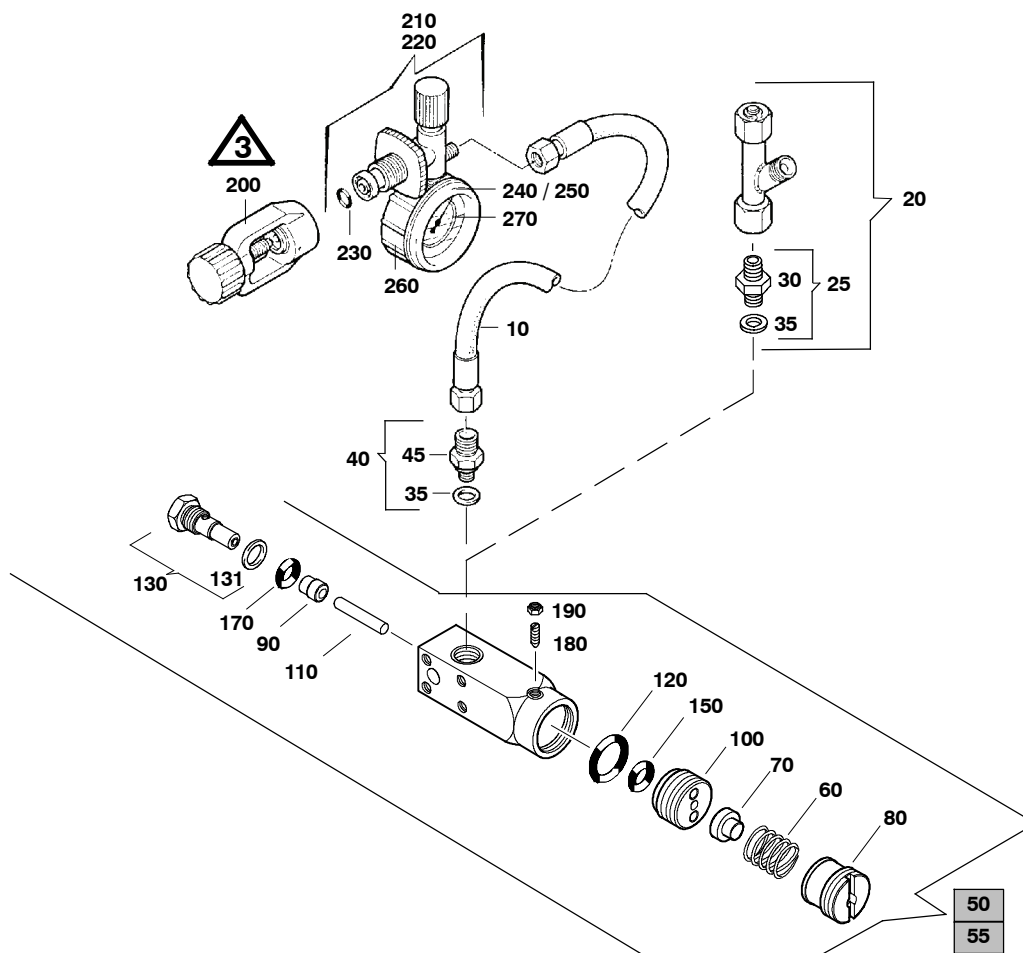


Wartungssätze Maintenance sets Kits d'entretien	Bildtafel Assembly Assemblage	B5.8- 1 B5.8- 1 B5.8- 1	Filtersystem P21 Filter system P21 Système de filtration P21
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Klasse/ Class/ Classe			Pos.	Bestell-Nr. Part No. No. de cde.	Benennung	Designation	Dénomination
a	b	c					
			10	78048	Filterhalter	Filter support	Support de séparateur
			20	N19506	Sechskantschraube	Hex. screw	Vis à six pans
			30	N108	Federring	Spring washer	Rondelle fendue
			40	N370	Sechskantmutter	Hex. nut	Ecrou six pans
			50	N19505	Sechskantschraube	Hex. screw	Ecrou six pans
			60	N58	Scheibe	Washer	Rondelle
			70	77897	Rohrschelle	Clamp	Collier
			80	N2460	Scheibe	Washer	Rondelle
			90	N19506	Sechskantschraube	Hex. screw	Ecrou six pans
			100	78248	Verbindungsleitung kpl.	Connecting tube assy.	Conduite cpl.
			105	78248-J	Verbindungsleitung kpl. (Japan)	Connecting tube assy. (Japan)	Conduite cpl. (Japon)
			110	N20287	G-Einschraubstutzen	Coupling	Raccord
			120	077159-EU**	Filter P21 (ohne Patrone)	Filter P21 (without cartr.)	Syst. P21 (sans cartouche)
			125	077911**	Filter P21 (ohne Patrone) (Japan)	Filter P21 (without cartr.) (Japan)	Syst. P21 (sans cartouche) (Japon)
			130	057679	Triplexpatrone	Triplex cartridge	Cartouche Triplex
			140	059183	Triplexpatrone mit CO-Entfernung	Triplex cart. with CO rem	Cart. Triplex avec élimination du CO
			150	059410*	Sicherheitsventil	Safety valve	Soupape de sûreté
			160	N4882	O-Ring	O ring	Joint torique
			170	63666	Anschlußstück	Coupling	Raccord
			180	N4566	O-Ring	O-ring	Joint torique
			190	N3824	O-Ring	O-ring	Joint torique
			200	78538	Druckhalteventil	Pressure maintaining valve	Clapet de maintien de pression
			205	80802	Druckhalteventil (Japan)	Pressure maintaining valve (Japan)	Clapet de maintien de pression (Japon)
X			210	N24788	O-Ring	O-ring	Joint torique
			220	57937	Abschlußdeckel	Cover	Couvercle de recouvrement
	X		230	N16591	O-Ring	O-ring	Joint torique
			240	57904	Verbindungsrohr	Connection pipe	Conduite de connexion
			250	N19541	Innensechskantschraube	Allen screw	Vis à six pans creux
			260	78637	Zwischenstück (Japan)	Intermediate piece (Japan)	Pièce intermédiaire (Japon)
			270	065500	Kondensatablaßhahn kpl	Condensate drain tap	Robinet de purge cpl.
			280	64498	Dichtung	Gasket	Joint
			290	N24910	Schnellverschraubung	Coupling	Raccord
X			300	N4586	O-Ring	O-ring	Joint torique
X			310	N25212	O-Ring	O-ring	Joint torique
			320	N25392	Schlauch	Hose	Tuyau
			330	N25285	Rohrclip	Hose clamp	collier



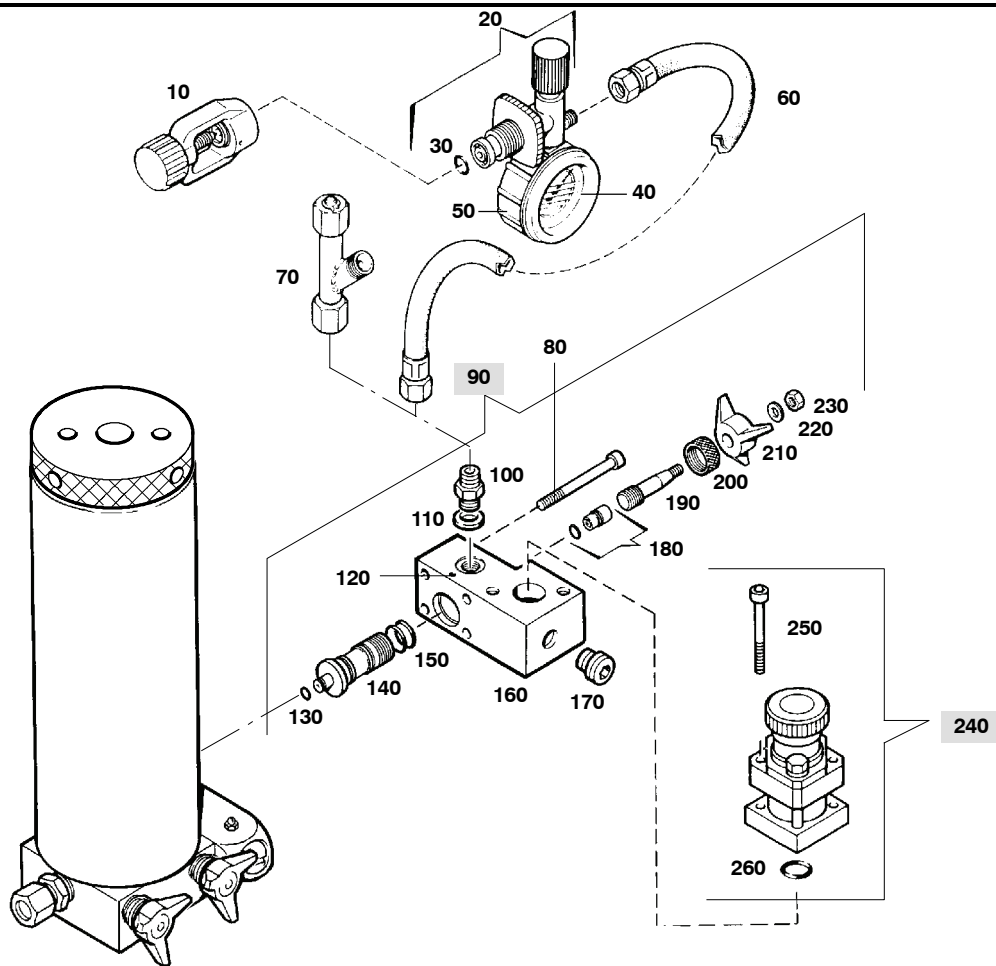
Klasse/ Class/ Classe			Pos.	Bestell-Nr. Part No. No. de cde.	Benennung	Designation	Dénomination
a	b	c					
			340	65363	Unimam Verschraubung kpl.	Unimam coupling assy.	Raccord Unimam cpl.
			350	78803	Verschraubung	Coupling	Raccord
			360	N25108	Dichtung	Gasket	Joint
				*	Druck bei Bestellung angeben	Indicate pressure on order	Indiquer la pression à la commande
				**	bei Bestellung angeben:/please specify on order:/à spécifier lors de la commande s.v.p.:		
				077159-EU-V001	Europa; ohne Umschalteinrichtung Europe; without switch-over device Europe; sans dispositif sélecteur		
				077159-EU-V002	Europa; mit Umschalteinrichtung (siehe B5.8-3, Pos. 90) Europe; with switch-over device (see B5.8-3, pos. 90) Europe; avec dispositif sélecteur (voir B5.8-3, pos. 90)		
				077911-V001	Japan without switch-over device		
				077911-V002	Japan with switch-over device (see B5.8-3, pos. 90)		



Wartungssätze
Maintenance sets
Kits d'entretien

Bildtafel B5.8- 2 **Druckhalteventil, Füllleinrichtung**
Assembly B5.8- 2 **Pressure maintaining valve, filling device**
Assemblage B5.8- 2 **Soupape de maintien de pression, dispositif de remplissage**

Klasse/ Class/ Classe			Pos.	Bestell-Nr. Part No. No. de cde.	Benennung	Designation	Dénomination
a	b	c					
			10	N2817	Füllschlauch	Filling hose	Tuyau de remplissage
			20	073080	Verteiler	Distributor	Distributeur
			25	58036	Schlauchnippel kpl.	Hose nipple assy.	Raccord pour tuyau cpl.
			30	78801	Schlauchnippel	Hose nipple	Raccord pour tuyau
			35	N25108	Dichtung	Gasket	Joint
			40	65363	Schlauchnippel kpl.	Hose nipple assy.	Raccord pour tuyau cpl.
			45	78803	Schlauchnippel	Hose nipple	Raccord pour tuyau
			50	78538*	Druckhalteventil	Pressure maintaining valve	Clapet de maintien de pression
			55	80802*	Druckhalteventil (Japan)	Pressure maintaining valve (Japan)	Clapet de maintien de pression (Japon)
			60	2623	Druckfeder	Spring	Ressort
			70	79199	Federaufnahme	Spring seat	Siège de ressort
			80	57935	Einstellschraube	Adjustment screw	Vis de réglage
	X		90	78688	Ventilkolben	Valve piston	Piston de clapet
			100	78536	Aufnahme	Seat	Siège
			110	77502	Zylinderstift	Pressure pin	Cheville cylindrique
			120	N24927	O-Ring	O-ring	Joint torique
			130	85584	Druckhalteventilsitz	Valve seat	Siège du clapet maintien de pression
	X		131	N25108	Dichtung	gasket	Joint
	X		150	N25503	O-Ring	O-ring	Joint torique
	X		160	N4602	USIT-Ring	USIT-Ring	Joint
	X		170	N23166	O-Ring	O-ring	Joint torique
			180	N4465	Gewindestift	Stud	Vis sans tête
	X		190	N3837	Sechskantmutter	Hex. nut	Ecrou hexagonal
			200	79375	Internat. Füllanschluß 200 bar	International filling connect. 200 bar	Raccord international 200 bar
			210	071343	Füllventil 200 bar	Filling valve 200 bar	Robinet de remplissage 200 bar
			220	071344	Füllventil 300 bar	Filling valve 300 bar	Robinet de remplissage 300 bar
			230	N638	O-Ring	O-ring	Joint torique
			240	N1315*	Manometer 0-315 bar	Pressure gauge 0-315 bar	Manomètre 0-315 bar
			250	N4101*	Manometer 0-400 bar	Pressure gauge 0-400 bar	Manomètre 0-400 bar
			260	N15985	Schutzkappe	Protection cap	Chapeau de protection
			270	N19954	Ersatzglas	Replacement glass	Verre de réchange
	X		280	072349	Reparatursatz für Füllv.	Repair kit for filling valve	Kit de rép. p. robinet de remplissage
			*		Druck bei Bestellung angeben	Indicate pressure on order	Indiquer la pression à la commande



Wartungssätze Maintenance sets Kits d'entretien	Bildtafel	B5.8- 3	Umschaltvorrichtung PN200/PN300
	Assembly	B5.8- 3	Switch over device PN200/PN300
	Assemblage	B5.8- 3	Dispositif sélecteur PN200/PN300

Klasse/ Class/ Classe			Pos.	Bestell-Nr. Part No. No. de cde.	Benennung	Designation	Dénomination
a	b	c					
			10	79375	Internat. Füllanschluß	International connection	Raccord international
			20	071343	Füllventil	Filling valve	Robinet de remplissage
			30	N638	O-Ring	O-ring	Joint torique
			40	N1315	Manometer	Pressure gauge	Manomètre
			50	N2876	Schutzkappe	Protection cap	Capot de protection
			60	N2817	Füllschlauch	Filling hose	Tuyau de remplissage
			70	014532	Verteiler	Distributor	Distributeur
			80	N19543	Innensechskantschraube	Allen screw	Vis à six pans creux
			90	073796	Umschaltvorrichtung kpl.	Switch over device assy.	Dispositif sélecteur cpl.
			100	65363	UNIMAM-Verschraubung	Connection	Raccord
			110	N4602	USIT-Ring	USIT-ring	Joint USIT
			120	N4639	Zylinderkerbstift	Straight grooved pin	Goupille cylindrique cannelée
	X		130	N16591	O-Ring	O-ring	Joint torique
			140	58030	Spindelaufnahme	Spindle carrier	Porte broche
			150	N3405	O-Ring	O-ring	Joint torique
			160	73797	Umschaltleiste	Switch-over block	Bloc sélecteur
			170	N16504	Verschlußschraube	Cover screw	Vis de fermeture
	X		180	058229	Spindelkolben kpl.	Spindle piston assy.	Piston de broche cpl.
			190	58223	Spindel	Spindle	Broche
			200	58032	Sicherungsmutter	Lock nut	Contre-écrou
			210	58228	Knebelgriff	Tap	Manette
			220	N2949	Scheibe	Washer	Rondelle
			230	N2488	Sechskantmutter, selbsts.	Hex. nut, self locking	Ecrou hex., auto-freinant
			240	059410	Sicherheitsventil	Safety valve	Soupape de sûreté
			250	N150	Innensechskantschraube	Allen screw	Vis à six pans creux
			260	N4882	O-Ring	O ring	Joint torique

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