

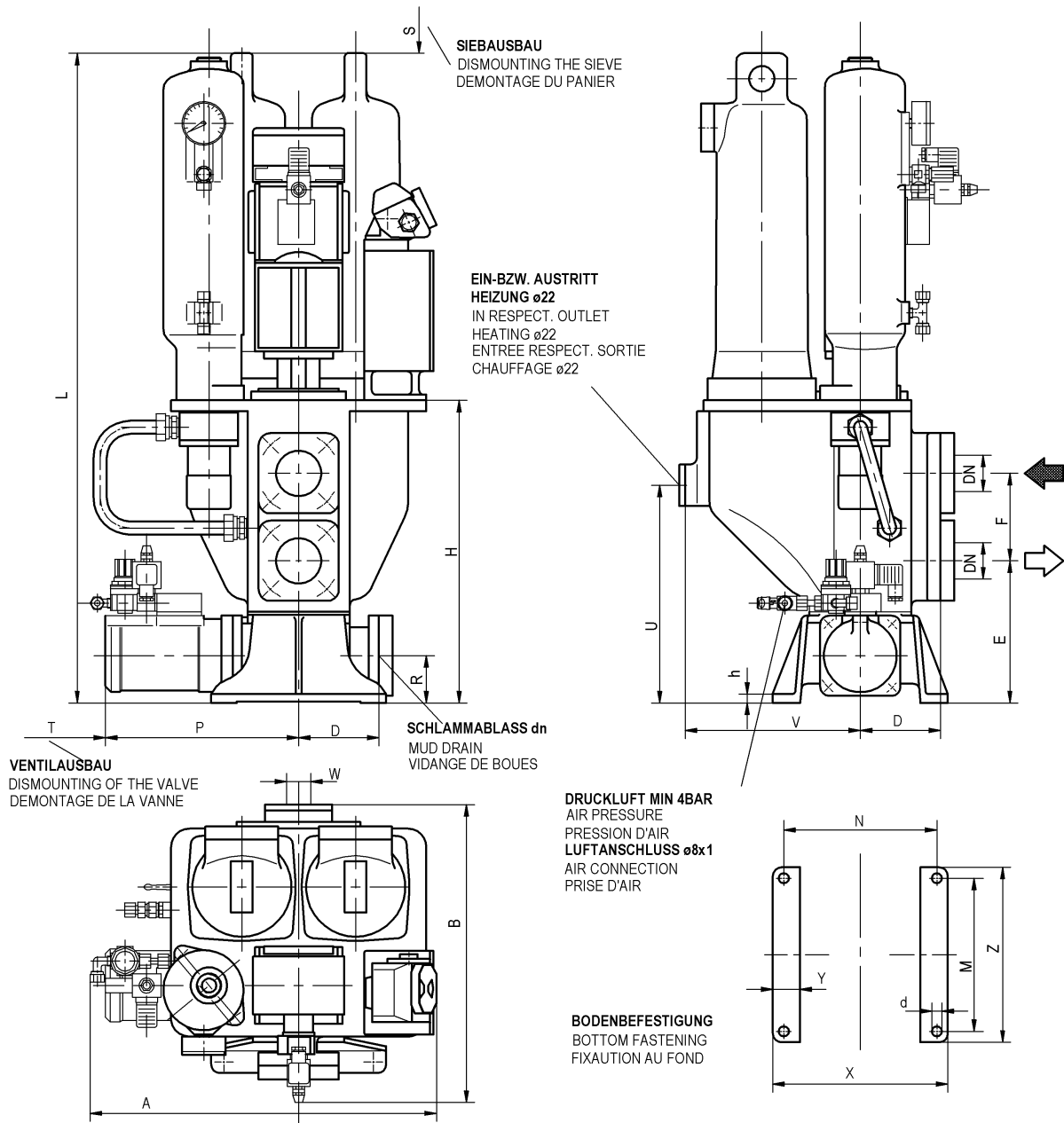
DESCRIPTION AND OPERATING INSTRUCTIONS FOR THE BACK-FLUSHING FILTER TYPE 6.60

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Commission-No.

C O N T E N T S

1. Type Sheet 6.60
2. General Information on the Automatic Filter
3. Filter Installation
4. Commissioning
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Z100813
 TYP6.60
 29.01.98

BETRIEBSDRUCK FILTERRAUM
 WORKING PRESS. FILTER CHAMBER
 PRESS. DE SERVICE CHAMBRE FILT.

AT
max. 16 BAR BEI 140°C
 PAR

GEHÄUSE GEGOSSEN
 HOUSING IN CAST IRON
 CORPS MOULE

FREI-MASSTOLERANZEN
 TOLERANCE
 TOLERANCE
DIN ISO 2768-m
HEIZRAUM
 HEATING CHAMBER
 CHAMBRE DE CHAUFFAGE

AT
14 BAR BEI 200°C
 PAR

GEGENFLANSCH IM LIEFERUMFANG
 COUNTER FLANGES INCLUDED
 CONTRES BRIDES INCLUS

GR.	DN	KAMMER- ANZAHL	A	B	D	E	F	H	L	M	N	P	R	S	T	U	V	W	X	Y	Z	h	d	dn	GEWICHT KG	INHALT LTR
05	50	2	475	410	110	195	120	415	895	205	210	265	65	300	200	300	240	33	240	37	240	12	18	50	100	15
	65																									

SUBJECT TO ALTERATIONS!

ÄNDERUNGEN VORBEHALTEN!

MODIFICATIONS RESERVES!

 FULLY AUTOMATIC BACK
 FLUSHING FILTER

VOLLAUTOMATISCHER RUECKSPUELFILTER
TYP 6.60

FILTRE AUTOMATIQUE

2. General

The fully automatic back-flushing filter is used to filter a variety of fluids, but chiefly for the filtration of fuels, lubricating oils, caustic solutions and emulsions. The filter element assemblies are cleaned automatically by compressed air assisted back-flushing without causing interruption to the filtration process. One clean chamber is always held in reserve.

This self-cleaning filter consists basically of the following parts:

The lower housing with connection flange for the removal of flushing fluid (sludge discharge).

The change-over system housing with the filter inlet and outlet flanges.

The automatically vented filter chambers containing the candle elements.
In the centre of the housing is the shut-off plug with refill bore.

The pneumatic swivel drive with attached control valve and end position switch.

The air supply with non-return valve, shut-off valve and pressure regulator.

The safety valve.

The differential pressure indicator Δp_1 .

The flushing valve with manual initiation.

The EL.-control system in its own switch box separate from the filter.

3. Installation of the Filter

Care must be taken during installation of the filter that the pipelines attached to the filter inlet and outlet are clean and not under tension.

The pipeline selected for the sludge discharge is to be no smaller than the size indicated on the type sheet. In order to prevent back-pressure arising in the pipe, it is to be laid on a gradient and vented.

The terminal board on the filter is to be connected to the terminal board in the switch cabinet by means of the control system cable (see circuit diagram).

When the filter is used in aqueous media, it is imperative to observe the following:

- 3.1 It must be ensured that the filter does not run dry even after the supply pump has been switched off (owing to hardening of dirt).
- 3.2 If this condition cannot be fulfilled, at least the EL.-control must be designed so that, even when the supply pump is switched off, back-flushing is initiated every 2 hours by a time relay.



Flushing operations into a completely empty chamber for test purposes are permitted without any restrictions. Flushing into a partially filled chamber results in increased loading of the filter candles. Back-flushing for installation (pipe) or control reasons into a filter chamber which is only partially filled is therefore inadmissible.

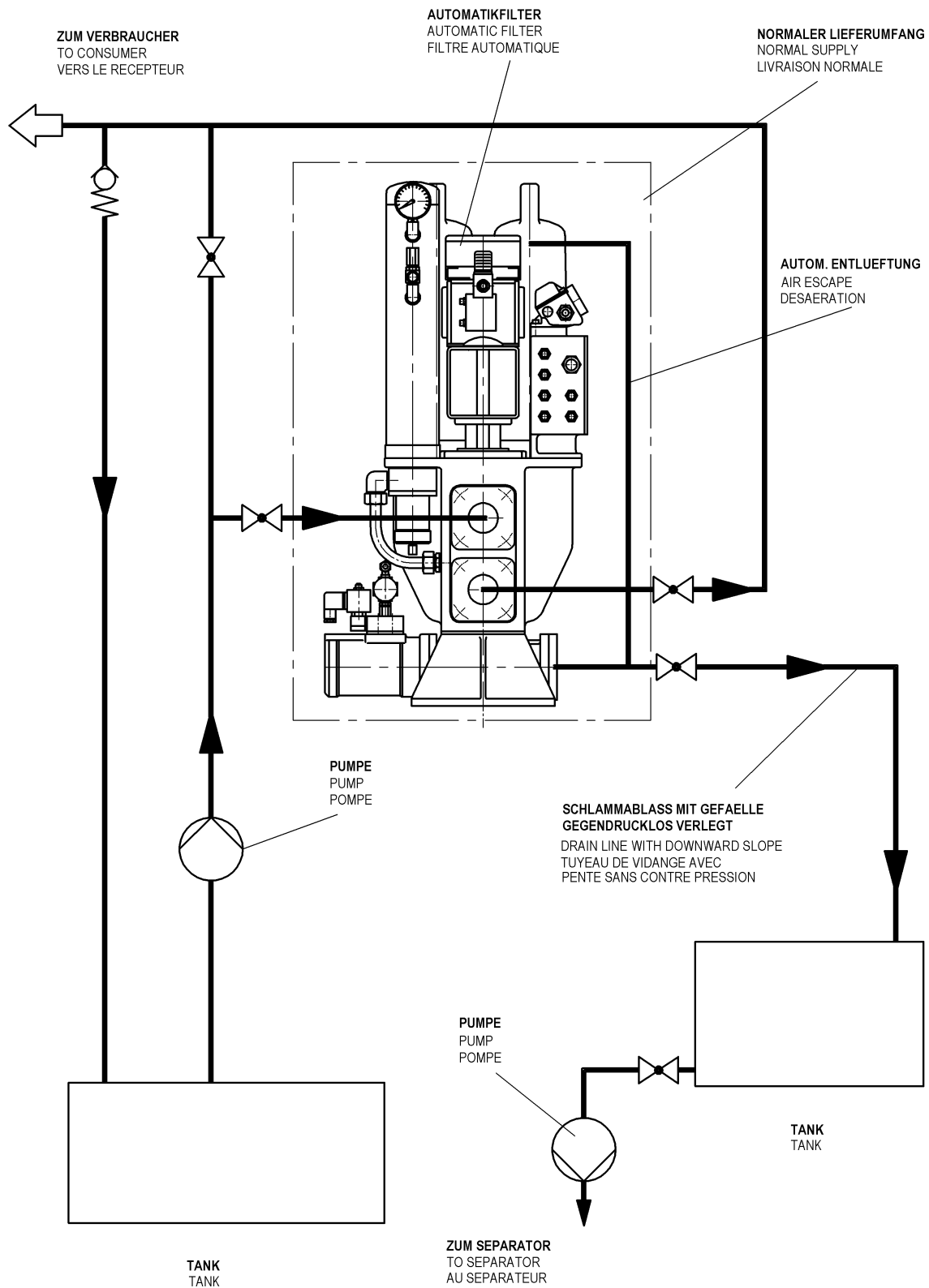


The filter housings are only designed for internal overpressure in accordance with the AD Information Sheets. Additional external forces and moments at the filter connection flanges are to be avoided (possibly by supporting the supply lines).



When installing the filters, make sure that any oil or fuel which leaks due to improper handling cannot result in a fire or injury.

Z36528
TYP6.60
01.01.93



SCHEMA INSTALLATION

EINBAUSCHEMA
TYP 6.60

SCHEMA D INSTALLATION

4. Commissioning

The following requirements must be met for the commissioning of the filter:

- 4.1 Clean and dry compressed air for the control system at between 4 and 10 bar operating pressure, must be available at the open shut-off valve.
- 4.2 Switch on the electricity using the "Main Switch" on the switch box. The "Power" lamp respectively LED-operating display lights up. (Activation of the main switch initiates a back-flushing cycle.)
- 4.3 To check the EL.-control system a back-flushing cycle should now be performed by activating the "Manual" trip on the switch box.
- 4.4 Open the slide valve at the filter outlet. Slowly open the slide valve at the filter inlet (avoiding pipe hammer). A further back-flushing cycle is to be performed using the "Manual" trip on the switch box. Once the back-flushing operation is completed, the "Flushing" respectively the display "SP.1" lamp goes out. If these conditions are met, the filter is in the start position and is therefore ready for operation.



After completion of a back-flushing cycle, the next backflushing operation can only be initiated (manually or by means of the differential pressure indicator) after a time delay.

This time delay corresponds to the time preset on the time relay "K1A" or the preselected time "PA.5" in the electronic control. It is needed to guarantee that the cleaned filter chamber is filled.

NOTE:

Possible time interval calculation for time-dependent back-flushing

Let the filter run for 24 hours using the differential pressure and establish the number of back-flushing operations (flushing cycle counter or display).

Calculate the average flushing interval.

Set the flushing interval (shortened by 30%) on the time relay or PA.2.

5. Filtration Phase

(see Drawing Z 32330 p. 1 or Z 33703 p. 1)

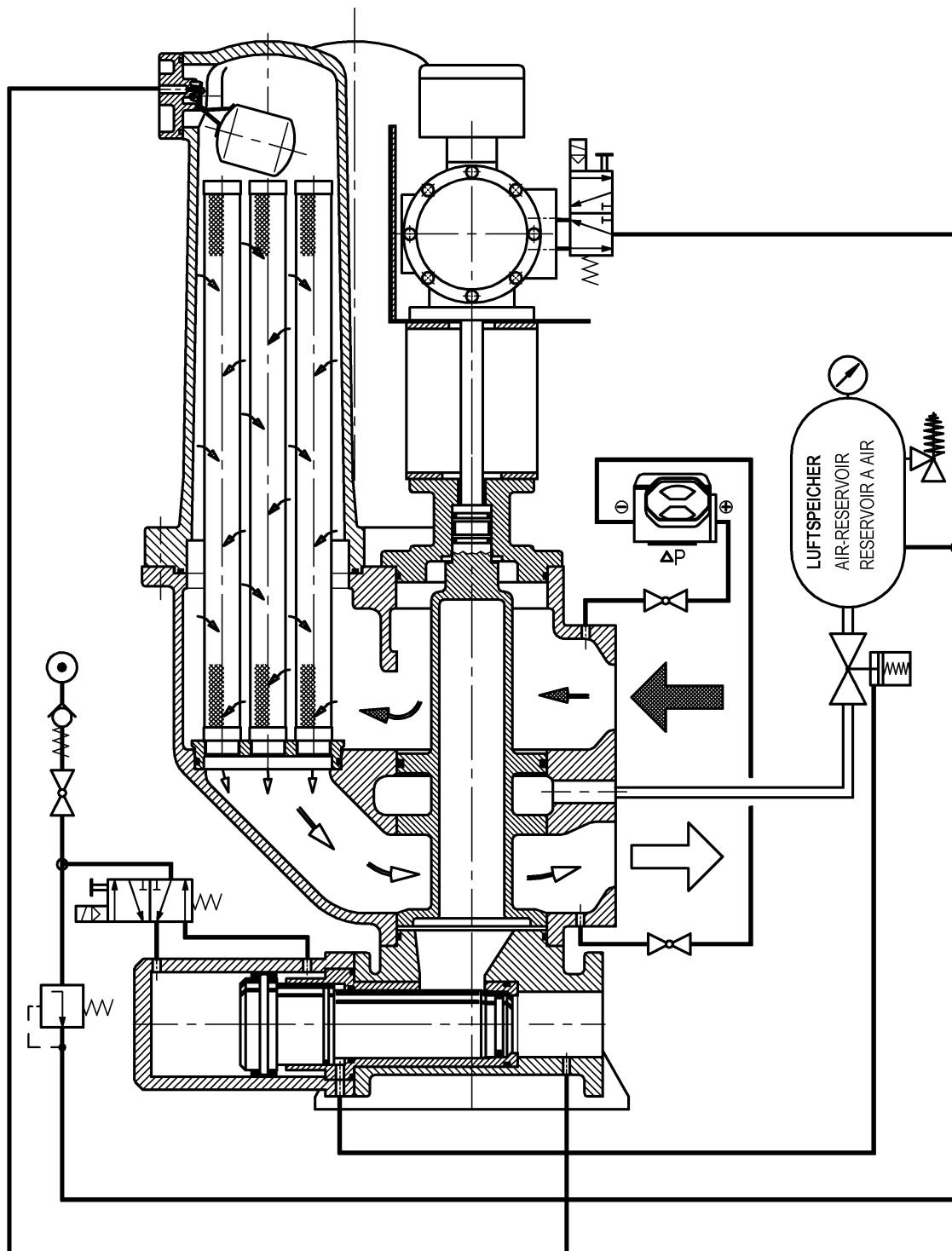
The medium to be filtered flows down into the change-over system housing and passes from there through the chamber inlet and the connected filter chambers to the candle elements. The medium flows through the filter elements from the outside to the inside and the contamination in the medium is retained on the filter mesh of the candle elements. The cleaned fluid passes to the filter outlet.

In this position the air supply (by means of the solenoid valve) keeps the sludge discharge closed and compressed air is maintained in the air receiver ready for the next backflushing cycle.

Z32330 BL.1

TYP6.60

12.02.98



TYP 6.60

FILTRATIONS PHASE
FILTRATION-PHASE
PHASE DE FILTRATION

6. Back-Flushing Operation

(See Drawing Z 32330 p. 2 or Z 33703 p. 2)

The contamination retained on the candle elements produces an increasing pressure differential between the filter inlet and outlet. This difference in pressure is indicated optically on the differential pressure indicator when a set value is reached and an electrical contact initiates the back-flushing.

When the back-flushing cycle is initiated, the pneumatic swivel drive is switched by the attached control valve and the plug rotates from the chamber held in reserve to the filter chamber to be cleaned. The connection of the reserve chamber, with its clean candle elements, causes an immediate reduction in the pressure differential. When the stop plug reaches the filter chamber to be cleaned the turning motion of the pneumatic swivel drive is stopped by means of the attached end position switch.

The solenoid valve (mounted on the sludge discharge) is then switched electrically and air from the air supply passes to the rear side of the sludge discharge valve shaft. The sludge discharge valve opens and pressure is released from the chamber now shut off. (See Note!)



This allows the compressed air in the upper region of the plug to immediately expand and thus creates additional space for the fluid displaced (by the air) in the backflushing cycle.

While the sludge discharge valve shaft is opening, the control system air reaches the attached flushing valve (once the pressure has been released on the filter chamber). The flushing valve opens and the compressed air from the air receiver dispatches the clean fluid present and pushes it in the counter current direction through the mesh of the screw-in candle elements. The pressure drop thus generated flushes off the contamination deposited on the mesh and washes it out of the filter housing via the open sludge discharge valve.

The air flow is continued for a short period (flushing period) before the solenoid valve (on the sludge discharge) is electrically switched over, causing the sludge discharge valve to close. At the same time the flow of air from the control system to the connected flushing valve is interrupted and thus also stops the flow of the stored back-flushing air.

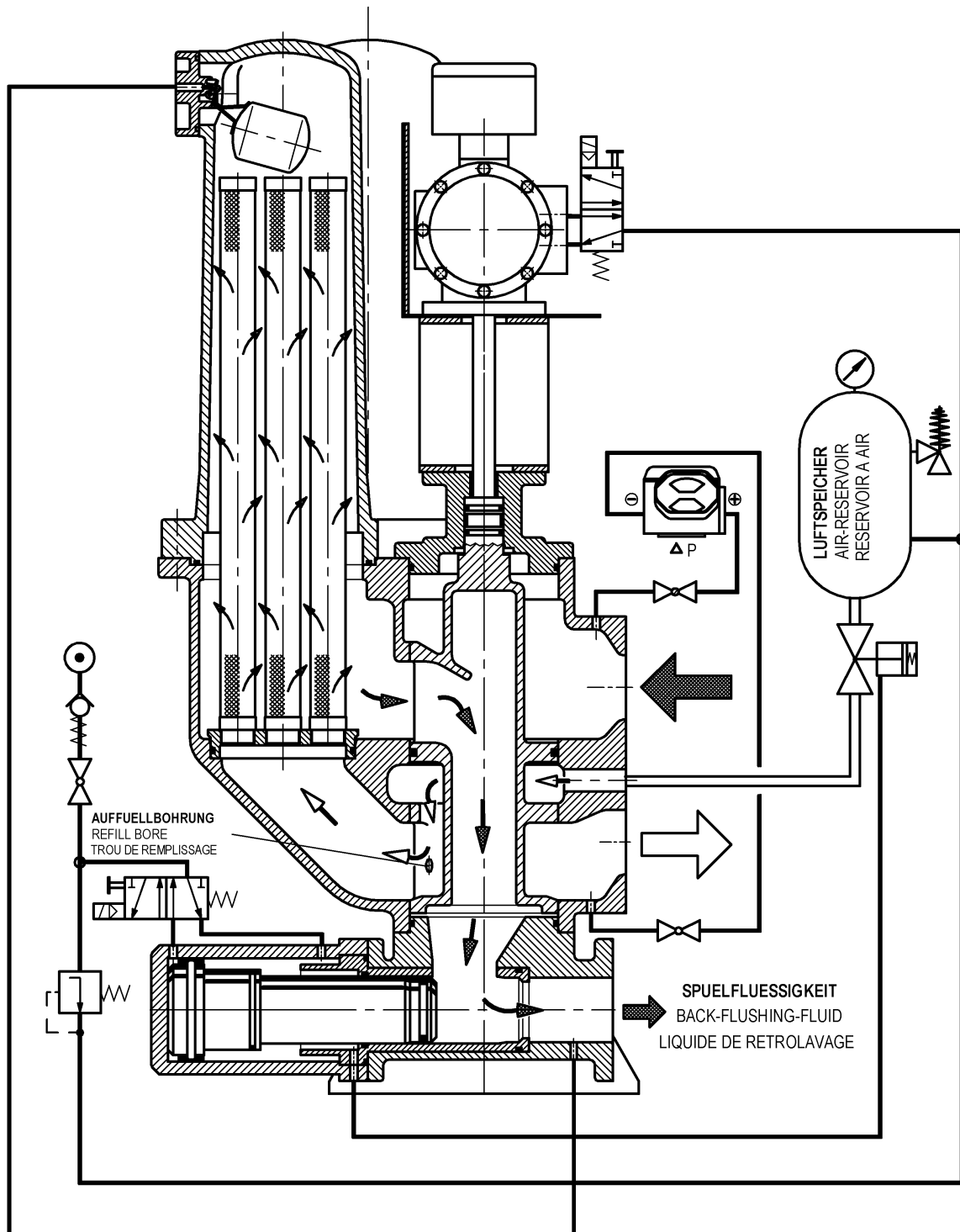
The back-flushed filter chamber is now refilled with clean medium through the refill bore until operating pressure is achieved.

Only then is the delay of the electric control cancelled for the next back-flushing operation.

Z32330 BL.2

TYP6.60

12.02.98



TYP 6.60

RUECKSPUELPHASE
BACK-FLUSHING-PHASE
POSITION DE LAVAGE A
CONTRE-COURANT

Operating and Installation Manual

Electronic Control Box

Type 2200



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1 General Information

Safety Instructions

Incorrect installation of the control box Type 2200 or interfaced equipment can result in failure of the control box, serious personal injury or even fatal injuries. Therefore please observe the following points in addition to the general safety regulations for equipment in industrial electrical installations:

- Installation of the control box Type 2200 may only be carried out by qualified electricians in accordance with the provisions of IEC 364, DIN VDE 0105 for electrical power installations.
- All the laws, regulations, ordinances and specifications for the erection of electrical power installations applicable at the installation location must be observed.
- Adjustments to equipment with protection class IP00 without covers may only be carried out by qualified electricians with the equipment switched off and in compliance with the local safety and accident prevention regulations.
- The control box Type 2200 may only be employed in the approved operating range.

2 Components of the Control Box and Cabinet

2.1 Power Section

2.1.1 Incoming Feeder Supply

Incoming feeder supply L1-L2-L3 directly to the 4-pole master switch – Q1 (T1-T2-T3).

2.1.2 Motor Controller

Motor connection U-V-W directly to the motor contactor – K1 (2-4-6).

2.1.3 Voltage Supply

Primary voltages 0 - 220 V, 380 V, 400 V, 440 V, 500 V, 550 V

Secondary voltages

0 V AC - 230 V AC	Solenoid voltage 230 V AC
0 V AC - 115 V AC	Solenoid voltage 115 V AC
0 V DC - 24 V DC	Solenoid voltage 24 V DC
0 V AC - 20 V AC	Supply voltage to control pcb

2.1.4 Fuses

Fuses in the control box

F1 to F3 each 1 A

Fuses on the control pcb

Fuse F1 0.8 A slow-blow

Fuse F2 2.0 A slow-blow

2.2 Control Box Displays and Functions

2.2.1 Display and Operating Elements

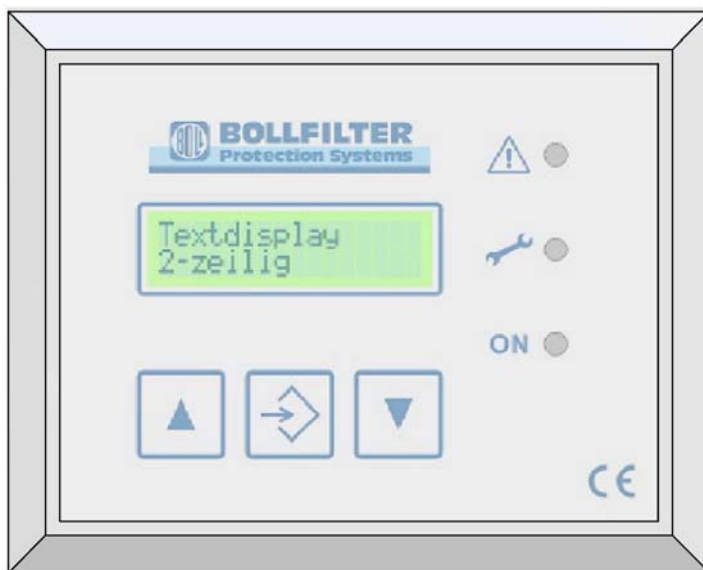
1 text display, 2 lines each with 16 characters

1 LED, green, "ON"

1 LED, yellow, "Service"

1 LED, red, "Alarm"

1 membrane keypad, 3 keys



2.3 Inputs and Outputs on Controller pcb

2.3.1 Optocoupler Inputs (E1 - E5), Terminals 31 - 40

2.3.2 Live Relay Outputs

Outputs VE1 - VN1 to VE3 - VN3

Terminals 8 - 13

The connections and designations vary, depending on the filter type, and can be found in the respective control cabinet circuit diagrams.

2.3.3 Potential free Relay Outputs

Outputs A1 - A15 Messages 1 - 5 (change-over)

Terminals 16 - 30

The connections and designations vary, depending on the filter type, and can be found in the respective control cabinet circuit diagrams.

3 Operation

3.1 Text Messages

Messages in “Operation” Mode

The green LED lights up when the mains voltage is switched on if the control box Type 2200 is in the operating mode (“Operation” mode).

Text display after switching on:

“ Boll & Kirch ”	Company designation
“ xxxxxxxxxx ”	Program number

After a few moments, the parameterised controller type is displayed in the second line:

“ 6.18/6.19/6.44 ”	Controller type 0	→ wiring diagram Z46140
“ 6.23/6.24 ”	Controller type 1	→ wiring diagram Z46141
“ 6.60 ”	Controller type 2	→ wiring diagram Z46142
“ 6.60 Alarm DP ”	Controller type 3	→ wiring diagram Z46142
“ 6.60.07 ”	Controller type 4	→ wiring diagram Z46143
“ 6.60.07 AL. DP ”	Controller type 5	→ wiring diagram Z46143
“ 6.61 ”	Controller type 6	→ wiring diagram Z46144
“ 6.61 Alarm DP ”	Controller type 7	→ wiring diagram Z46144
“ 6.61.07 ”	Controller type 8	→ wiring diagram Z46145
“ 6.61.07 AL. DP ”	Controller type 9	→ wiring diagram Z46145
“ 6.62 ”	Controller type 10	→ wiring diagram Z46146
“ 6.62 Alarm DP ”	Controller type 11	→ wiring diagram Z46146
“ 6.64 ”	Controller type 12	→ wiring diagram Z46147
“ 6.64 Alarm DP ”	Controller type 13	→ wiring diagram Z46147
“ 6.64.07 ”	Controller type 14	→ wiring diagram Z46148
“ 6.64.07 AL. DP ”	Controller type 15	→ wiring diagram Z46148

In “Operation” mode, the following text is displayed:

“ forced fl. 00:01 ”	Remaining time until automatic flushing 00 h 01 min
“ C - F - Q ”	Key instructions (see below)

Key **C**: When pressed, displays the number of flushing cycles.

Key **F**: When pressed, initiates a manual flushing cycle.

Key **Q**: When pressed, acknowledges alarm messages.

When a flushing cycle is started, the following messages appear in the first line of the display, depending on the source:

“ Mains flushing ”	When flushing is initiated by “Mains voltage ON”
“ Manual flushing ”	When flushing is initiated with key F
“ forced flushing ”	When flushing is initiated by a back-flushing timer control
“ DP flushing ”	When flushing is initiated via differential pressure back-flushing filter

When a flushing cycle is started, the following messages appear in the second line of the display, depending on the source, e.g.:

“ Flush. time 3S ”	Remaining flushing time
“ After bl. t. 3S ”	Remaining after-blowing time

Note: 3S means that the remaining flushing or after-blowing time is 3 seconds.

When key C is pressed, the following message appears on the display:

“ No.of flushes ”	
“ XXXXXX cycles ”	Number of flushing cycles

The number of flushing cycles is stored and is safe against mains power failure.

3.1.2 Alarm Messages

- The red alarm LED comes on with every alarm message.
- All alarm messages are stored and are safe against mains power failure.
- In the second line of the text display, the alarm message is displayed alternately with the operating messages every 2 seconds
- When key Q is pressed, the alarm messages are deleted, but only on condition that the cause of the alarm has been remedied. If the alarm condition is not eliminated, the alarm messages appears again.

Alarm messages on the text display:

At alarm "Motor fault"	" Motor fault "
At "Differential pressure to high Filter 100%"	" DP too high "
At "Differential pressure too high flushing oil conditioning 100%"	" Cartridge alarm "

When flushing frequency monitoring is switched on:

"DP alarm back-flushing triggered by differential pressure 75%" " DP alarm "

3.2 Setting and Operation

3.2.1 Setting Level – Parameter Selection and Viewing

In order to call up setting level "Parameter selection and viewing", press the keys ▽ and Δ simultaneously until the green LED goes out (approx. 3 seconds). The upper display line shows the parameter, the lower line the parameter value. All the parameters can now be displayed in turn by repeatedly pressing the Δ or ▽ key.

3.2.2 Setting Level – Parameter Editing and Saving

In order to call up setting level "Parameter editing and saving", press the middle key until the green LED starts to flash (approx. 3 seconds). The parameter can now be changed by repeated pressing of the Δ or ▽ key. To save the set value and return to the setting level "Parameter selection and viewing", press the middle key until the green LED goes out (approx. 3 seconds).

3.2.3 Return to the Operating Level

To return to the operating level, press the keys ▽ and Δ simultaneously until the green LED comes on (approx. 3 seconds).

3.3 List and Descriptions of Parameters

3.3.1 P0 Filter Type

Variable in increments of 1

Range 0 - 15

Works setting

Default value 0

Text display, line 1

“ P0 Filter type ”

Text display, line 2

“ 6.18/6.19/6.44 ”

3.3.2 P1 Multiple Flushing

Note: This parameter is **only** visible with filter type P0 = 6, 7, 8, 9, 10, 11, 12, 13, 14, 15.

Variable in increments of 1

Range 1 - 99

Works setting

Default value 1

Text display, line 1

“ P1 multiple fl. ”

Text display, line 2

“ XXX chambers ”

3.3.3 P2 Timer-controlled Back-flushing

Variable in 1 hour increments

Range 0 - 59 h

Works setting

Default value 2 h

Text display, line 1

“ P2 forced flush.”

Text display, line 2

“ XXX hours ”

3.3.4 P3 Timer-controlled Back-flushing

Variable in 1 minute increments

Range 0 - 59 min

Works setting

Default value 0 min

Text display line 1

“ P3 forced flush.”

Text display line 2

“ XXX minutes ”

3.3.5 P4 Back-flushing Time

Note: This parameter is **not** visible with filter type P0 = 1.

Variable in 1 second increments Range 5 - 100 s
Works setting Default value 20 s

Text display, line 1 “ **P4 flushing time** ”
Text display, line 2 “ **XXX seconds** ”

3.3.6 P5 Filling time

Note: This parameter is **not** visible with filter types P0 = 0 and P0 = 1.

Variable in 10 second increments Range 10 - 600 s
Works setting Default value 180 s

Text display, line 1 “ **P5 Filling time** ”
Text display, line 2 “ **XXX seconds** ”

3.3.7 P6 After-blowing Time

Note: This parameter is **only** visible with filter types P0 = 4, 5, 8, 9, 14, 15.

Variable in 1 second increments Range 5 - 100 s
Works setting Default value 30 s

Text display, line 1 “ **P6 After blow t.** ”
Text display, line 2 “ **XXX seconds** ”

3.3.8 P7 Delay Time – Cartridge Alarm

Note: This parameter is **only** visible with filter types P0 = 4, 5, 8, 9, 14, 15.

Variable in 10 second increments Range 10 - 600 s
Works setting Default value 30s

Text display, line 1 “ **P7 Cartridge al.** ”
Text display, line 2 “ **XXX seconds** ”

3.3.9 P8 DP Alarm (Flushing Frequency Monitoring)

Note: This parameter is **only** visible with filter types P0 = 3, 5, 7, 9, 11, 13, 15.

Variable: ON / OFF

Works setting

Default value "ON"

Text display, line 1

" **P8 DP alarm** "

Text display, line 2

" **OFF** "

or

Text display, line 2

" **ON** "

3.3.10 P9 Motor Fault

Note: This parameter is **only** visible with filter types P0 = 0, 6, 7, 8, 9, 12, 13, 14, 15.

Variable in 0.01 A increments

Range 0.10 to 0.99 A

Works setting

Default value 0.4 A

Text display, line 1

" **P9 Motor fault** "

Text display, line 2

" **0000 mA** "

3.3.11 P10 Back-flushing Time

Note: This parameter is **only** visible with filter type P0 = 1, Type 6.23/6.24.

The parameter is not required with the setting P0 ≠ 1.)

Setting: For ND 32 = 1 / ND 40 = 2 / ND 50 = 3 (ND = Nominal diameter)

A certain control time from a table is assigned, depending on the nominal diameter.

Variable in increments of 1

Range 0 to 2

Works setting

Default value ND 32 = 2 s

Text display, line 1

" **P10 flush. time** "

Text display, line 2

" **ND=XX =XX sec** "

3.3.12 P11 Language

The user can choose between English, French, German and Spanish.

Works setting = 0 (German)

Text display, line 1 “ **P11 Language** ”

Text display, line 2 “ **D German** ”

3.3.13 P12 Test Code

Note: This parameter is **only** visible with filter type P0 = 0.

The test code switches the control box to a test mode that is accessible only for authorised persons.

Variable in increments of 1 Range 0 - 250

Works setting Default value 0

Text display, line 1 “ **P12 Testcode** ”

Text display, line 2 “ **XXX** ”

4 Control Procedure, System Functions

4.1 Master Switch – Operating Feedback Contact

When the master switch is in position ON, the contact is closed (made).

4.2 Control Voltage Monitoring

As soon as the master switch is actuated, the mains supply voltage has been switched ON and the control box is functioning correctly, the green ON LED lights up and the “Control voltage monitoring” relay is energised. In the event of an operating voltage failure or blown fuse on the control pcb, no LED comes on and the “Control voltage monitoring” relay is no longer energised.

4.3 Motor Fault

If the measured motor current exceeds the set nominal value for parameter P9, a message appears on the display and a potential free message is sent to the relay outputs. The motor and back-flushing are immediately switched off. After remedying the fault, the operator has to cancel the alarm message by pressing key Q.

4.4 Differential Pressure Too High – Flushing Oil Conditioning – Cartridge Alarm

The signal generator is a pressure switch contact that is connected to the optocoupler input “Differential pressure indicator DP too high Flushing oil conditioning”. If the condition exists for longer than the time set with parameter P7, an alarm message appears on the display. After remedying the fault, the operator has to cancel the alarm message by pressing key Q.

4.5 DP Too High – Back-flushing Filter (100%)

The signal generator is a pressure switch contact that is connected to the optocoupler input “Differential pressure indicator DP too high Back-flushing filter”. If the condition exists for longer than 2 seconds, an alarm message appears on the text display and the red alarm LED lights up. After remedying the fault, the operator has to cancel the alarm message by pressing key Q.

4.6 Key C (Number of Flushing Cycles)

When key C “Number of flushing cycles” is pressed, the number of flushing cycles performed appears on the display for 3 seconds.

4.7 Multiple Flushing

The parameterised number of chambers is flushed at each flushing command.

4.8 DP Alarm (Flushing Frequency Monitoring)

If a “DP flushing” is activated before expiry of the time set for “Timer-controlled back-flushing” , a message appears on the display (yellow LED – Service).

5 Description and Function of the Controllers

5.1 Controller 6.18 / 6.19 / 6.44

Inputs

Pressure switch "DP reached – Back-flushing filter" → 75%

Pressure switch "DP too high – Back-flushing filter" → 100%

Outputs

Motor

Flushing valve

Potential free contacts

- | | |
|--|----------------------|
| 1) Alarm "Control voltage monitoring" | Output A1, A2, A3 |
| 2) Group fault, consisting of:
Alarm "Maximum differential pressure reached" and
Alarm "Motor fault" | Output A4, A5, A6 |
| 3) Alarm "Motor fault" | Output A7, A8, A9 |
| 4) Message "Flushing active" | Output A10, A11, A12 |

Description of functions

The function of the filter is described in the operating manual.

A flushing cycle is triggered by :

- 1) The F key
- 2) Expiry of the automatic flushing time
- 3) Pressure switch "DP reached – Back-flushing filter"

Points of particular note

- All alarms are displayed, signalled via potential free contacts and stored.
- If the controller is in parameterisation mode, manual triggering of a flushing cycle will not be accepted.
- If the parameter "Controller type" is changed, the functions are restarted.

5.2 Controllers of Type 6.23 / 6.24

Inputs 6.23 und 6.24

Pressure switch "DP reached – Back-flushing filter" → 75%

Pressure switch "DP too high – Back-flushing filter" → 100%

Outputs 6.23 and 6.24

Flushing valve

Potential free contacts and messages 6.23 and 6.24

- | | |
|---------------------------------------|-------------------|
| 1) Alarm "Control voltage monitoring" | Output A1, A2, A3 |
| 2) Alarm "Maximum DP reached" | Output A4, A5, A6 |

Description of functions 6.23 and 6.24

The function of the filter is described in the operating manual.

A flushing cycle is triggered by :

- 1) The F key
- 2) Expiry of the automatic flushing time.
- 3) Pressure switch „DP reached – Back-flushing filter“

Points of particular note

- All alarms are displayed, signalled via potential free contacts and stored.
- If the controller is in parameterisation mode, manual triggering of a flushing cycle will not be accepted.
- If the parameter "Controller type" is changed, the functions are restarted.

5.3 Controllers of Type 6.60

Inputs 6.60 and 6.60 Alarm DP (Flushing Frequency Monitoring)

Limit switch "Position reached"

Pressure switch "DP reached – Back-flushing filter" → 75%

Pressure switch "DP too high – Back-flushing filter" → 100%

Additional inputs with 6.60.07 (Flushing oil conditioning)

Pressure switch "DP too high – Flushing oil conditioning" → 100%

Outputs 6.60 and 6.60 Alarm DP

Flushing valve

Chamber valve

Additional outputs with 6.60.07 and 6.60.07 Alarm DP

After-blowing valve

Potential free contacts and messages 6.60

- | | |
|---|-------------------|
| 1) Alarm "Control voltage monitoring" | Output A1, A2, A3 |
| 2) Group fault: Alarm "Maximum differential pressure reached" | Output A4, A5, A6 |

Potential free contacts and messages 6.60 Alarm DP

- | | |
|---|-------------------|
| 1) Alarm "Control voltage monitoring" | Output A1, A2, A3 |
| 2) Group fault: Alarm "Maximum differential pressure reached" | Output A4, A5, A6 |
| 3) Alarm "Back-flushing triggered by DP" | Output A7, A8, A9 |

Potential free contacts and messages 6.60.07

- | | |
|---|-------------------|
| 1) Alarm "Control voltage monitoring" | Output A1, A2, A3 |
| 2) Group fault, consisting of:
Alarm "Maximum differential pressure reached" and
Alarm "Cartridge" (DP alarm – Flushing oil conditioning) | Output A4, A5, A6 |

Potential free contacts and messages 6.60.07 Alarm DP

- | | |
|---|-------------------|
| 1) Alarm "Control voltage monitoring" | Output A1, A2, A3 |
| 2) Group fault, consisting of:
Alarm "Maximum differential pressure reached" and
Alarm "Cartridge" (DP alarm – Flushing oil conditioning) | Output A4, A5, A6 |
| 3) Alarm "Back-flushing triggered by DP" | Output A7, A8, A9 |

Description of functions 6.60

The function of the filter is described in the operating manual.

A flushing cycle is triggered by :

- 1) Switching on the mains voltage supply
- 2) The F key
- 3) Expiry of the automatic flushing time.
- 4) Pressure switch "DP reached – Back-flushing filter"

Additional functions with 6.60 Alarm DP (Flushing frequency monitoring)

If a flushing cycle is triggered via the pressure switch “DP reached – Back-flushing filter” before expiry of the automatic flushing time, a DP alarm will be triggered (flushing frequency alarm).

Points of particular note

- All alarms are displayed, signalled via potential free contacts and stored.
- If the controller is in parameterisation mode, manual triggering of a flushing cycle will not be accepted.
- If the parameter “Controller type” is changed, the functions are restarted.

5.4 Controllers of Type 6.61**Inputs 6.61 and 6.61 Alarm DP (Flushing frequency monitoring)**

Limit switch “Position reached”

Pressure switch “DP reached – Back-flushing filter” → 75%

Pressure switch “DP too high – Back-flushing filter” → 100%

Additional inputs with 6.61.07 and 6.61.07 Alarm DP (Flushing oil conditioning)

Pressure switch

DP too high – Flushing oil conditioning → 100%

Outputs 6.61 and 6.61 Alarm DP

Flushing valve

Motor

Additional outputs with 6.61.07 and 6.61.07 Alarm DP

After-blowing valve

Potential free contacts and messages 6.61

- | | |
|---|-------------------|
| 1) Alarm “Control voltage monitoring” | Output A1, A2, A3 |
| 2) Group fault, consisting of: | Output A4, A5, A6 |
| Alarm “Maximum differential pressure reached” and | |
| Alarm “Motor fault” | |

Potential free contacts and messages 6.61 Alarm DP

- | | |
|--|-------------------|
| 1) Alarm "Control voltage monitoring" | Output A1, A2, A3 |
| 2) Group fault, consisting of:
Alarm "Maximum differential pressure reached" and
Alarm "Motor fault" | Output A4, A5, A6 |
| 3) Alarm "Back-flushing triggered by DP" | Output A7, A8, A9 |

Potential free contacts and messages 6.61.07

- | | |
|--|-------------------|
| 1) Alarm "Control voltage monitoring" | Output A1, A2, A3 |
| 2) Group fault, consisting of:
Alarm "Maximum differential pressure reached" and
Alarm "Motor fault" and
Alarm "Cartridge" (DP alarm – Flushing oil conditioning) | Output A4, A5, A6 |

Potential free contacts and messages 6.61.07 Alarm DP

- | | |
|--|-------------------|
| 1) Alarm "Control voltage monitoring" | Output A1, A2, A3 |
| 2) Group fault, consisting of:
Alarm "Maximum differential pressure reached" and
Alarm "Motor fault" and
Alarm "Cartridge" (DP alarm – Flushing oil conditioning) | Output A4, A5, A6 |
| 3) Alarm "Back-flushing triggered by DP" | Output A7, A8, A9 |

Description of functions 6.61

The function of the filter is described in the operating manual.

A flushing cycle is triggered by :

- 1) Switching on the mains supply voltage.
- 2) The F key.
- 3) Expiry of the automatic flushing time.
- 4) Pressure switch "DP reached – Back-flushing filter".

Points of particular note

- In the case of flushing by switching on the mains supply voltage and with the limit switch open, a flushing cycle starts directly with the flushing valve.
- If the controller is in parameterisation mode, manual triggering of a flushing cycle will not be accepted.
- If the parameter "Controller type" is changed, the functions are restarted.

5.5 Controllers of Type 6.62

Inputs 6.62

Limit switch "Position reached"

Pressure switch "DP reached – Back-flushing filter" → 75%

Pressure switch "DP too high – Back-flushing filter" → 100%

Outputs 6.62

Flushing valve

Chamber valve cycled

Potential free contacts and messages 6.62

- | | |
|---|-------------------|
| 1) Alarm "Control voltage monitoring" | Output A1, A2, A3 |
| 2) Group fault: Alarm "Max differential pressure reached" | Output A4, A5, A6 |

Potential free contacts and messages 6.62 Alarm DP (Flushing frequency monitoring)

- | | |
|---|-------------------|
| 1) Alarm "Control voltage monitoring" | Output A1, A2, A3 |
| 2) Group fault: Alarm "Max differential pressure reached" | Output A4, A5, A6 |
| 3) Alarm "Back-flushing triggered by DP" | Output A7, A8, A9 |

Description of functions

The function of the filter is described in the operating manual.

A flushing cycle is triggered by :

- 1) Switching on the mains supply voltage.
- 2) The F key.
- 3) Expiry of the automatic flushing time.
- 4) Pressure switch "DP reached – Back-flushing filter".

Points of particular note

- In the case of flushing by switching on the mains supply voltage and with the limit switch open, a flushing cycle starts directly with the flushing valve.
- If the controller is in parameterisation mode, manual triggering of a flushing cycle will not be accepted.
- If the parameter "Controller type" is changed, the functions are restarted.

5.6 Controllers of Type 6.64

The controller type has the same function as the controller types 6.61 , 6.61 Alarm DP, 6.61.07 and 6.61.07 Alarm DP.

Points of particular note

A relief valve is connected in parallel with the flushing valve.

Additional output

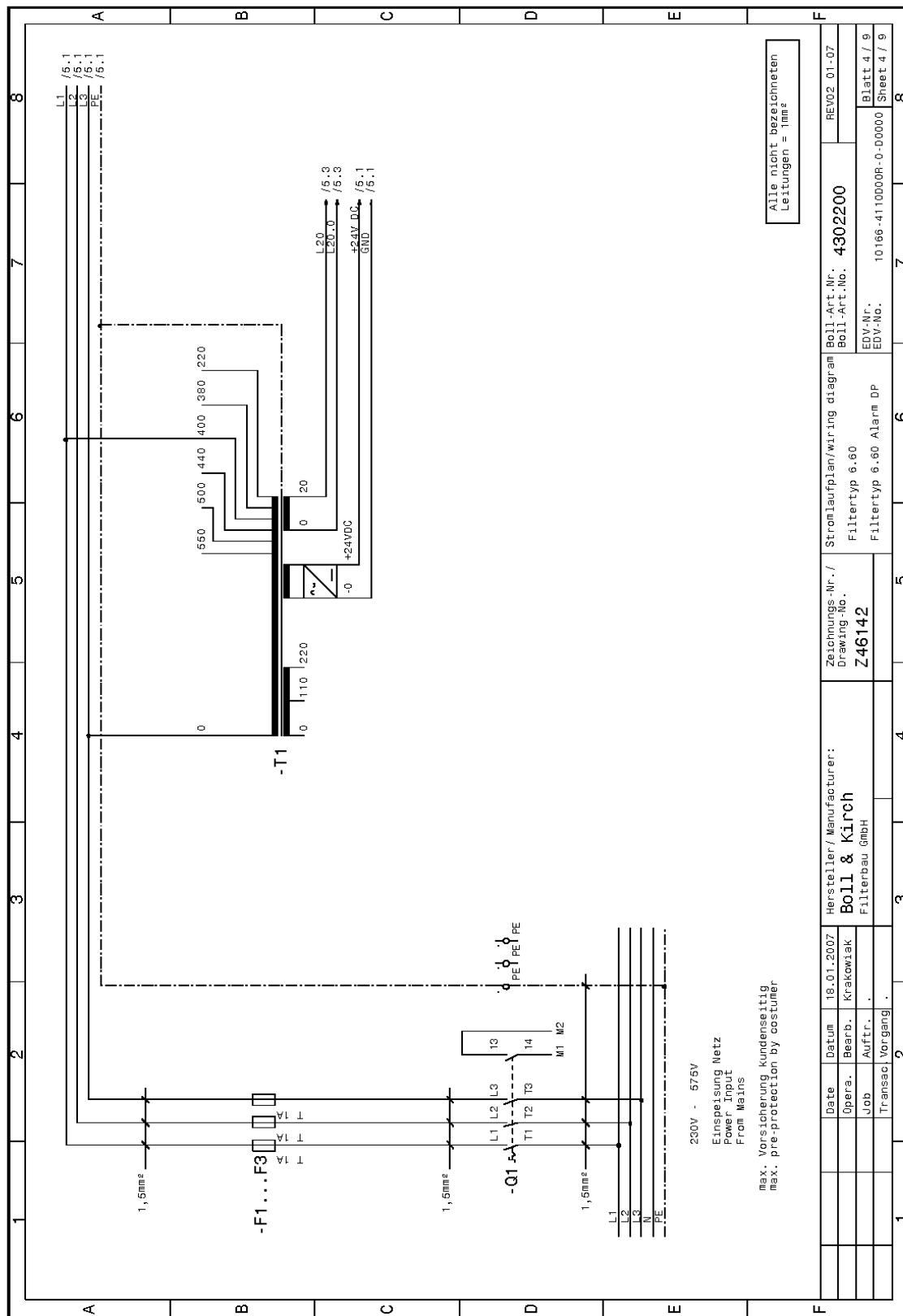
Relief valve

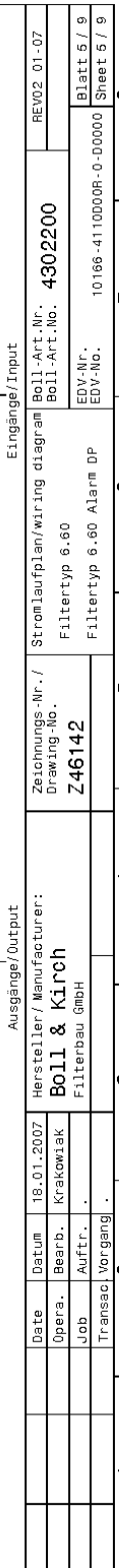
Fremdspannung/extern voltage : orange/orange
Schutzleiter/ground : grün - gelb/green - yellow

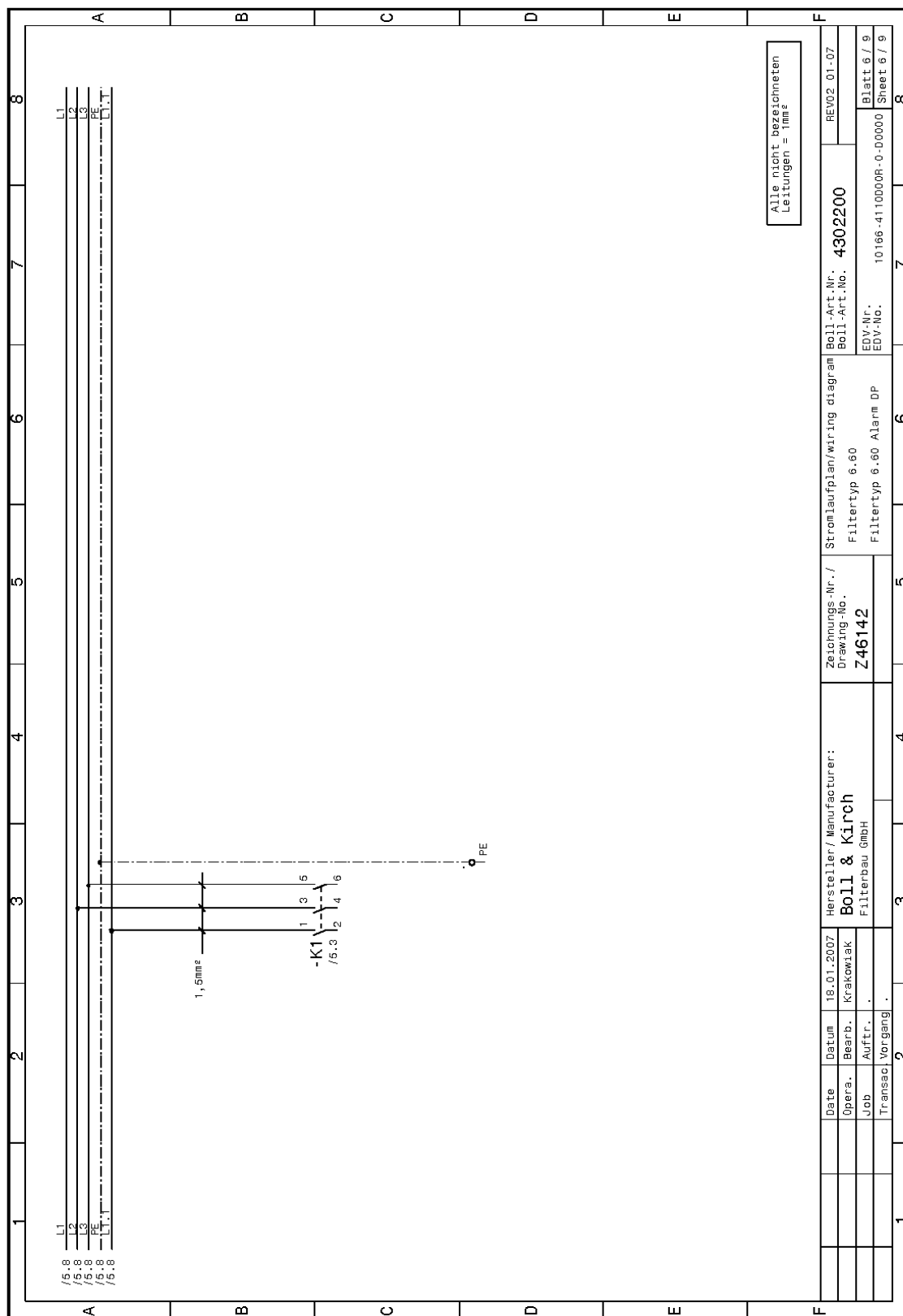
			Datum	18.01.2007	Hersteller / Manufacturer:		Zeichnungs-Nr. / Drawing-No.	Deckblatt/covers Filtertyp 6.60	Boll.-Art.Nr. Boll.-Art.No.	4302200	REV02-01-07	
			Opera.	Bearb.	Krakowiak	Boll & Kirch						
			Job	Auftr.	.	Filterbau GmbH						
			Transac	Vorgang	.							
						3	4	5	6	7	8	
									Filtertyp 6.60 Alarm DP	EDV-Nr. EDV-No.	10166-411000OR-0-D0000	Blatt 1 / 9 Sheet 1 / 9

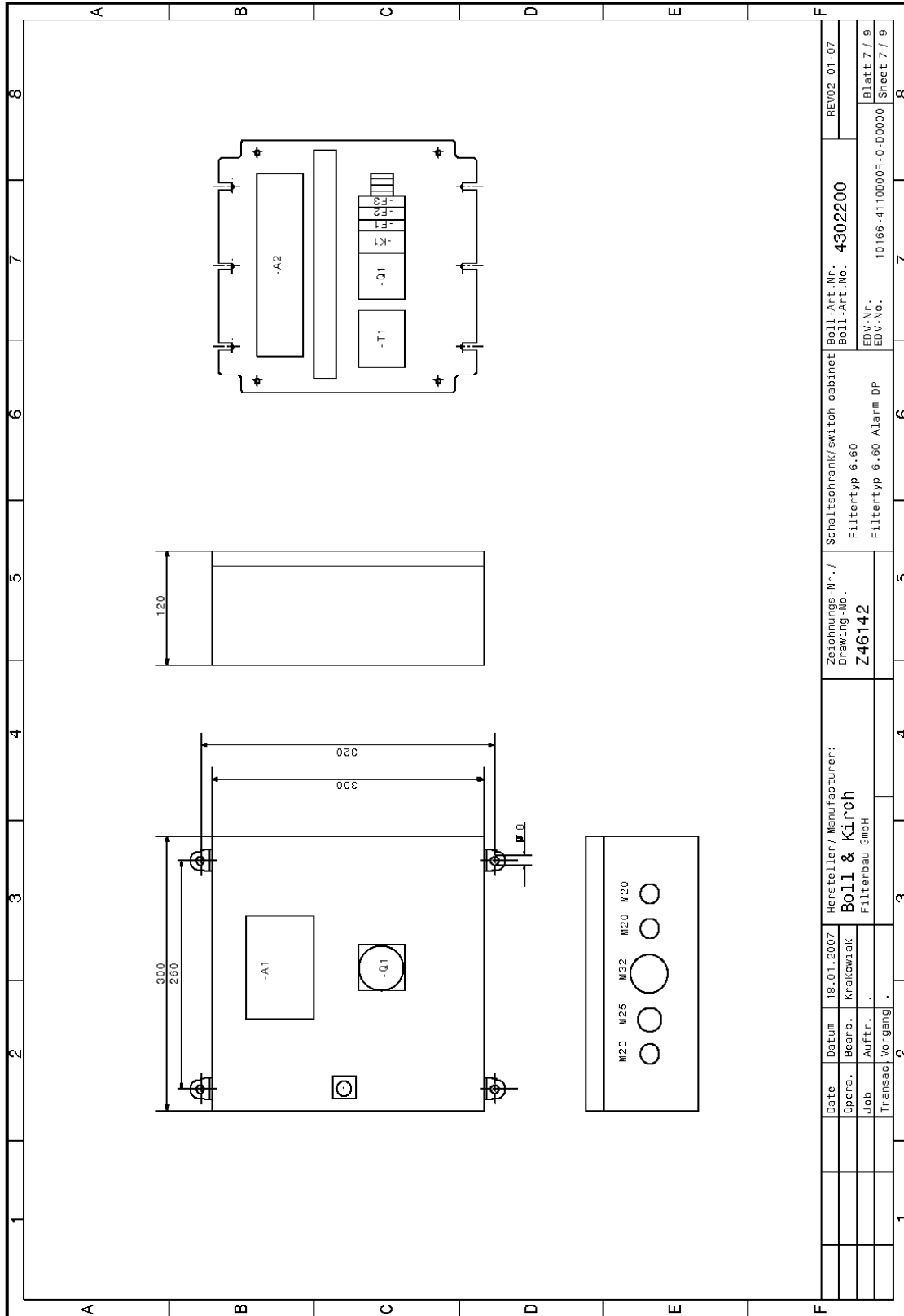
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Materialliste Materials list											Blatt : 1 Sheet : 1	
Nr. No.	Anz. Num.	Kennzeichnung Labelling	Benennung Description	Hersteller Manufacturer	Typ / Art.-Nr. Type / Art.-No.	Boll & Kirch Art.No.	Kenngröße Parameter					
1	1	-A1/-A2	Filtersteuerung (2 Platinen)	REC0	BK 2200	4300121						
1	1	-A1/-A2	Filter control (2 PCB's)	REC0	BK 2200	4300121						
	1		Verbindungskabel		Patchkabel RJ45 Cat5e	4100074	0,5m					
	1		Connection cable		Patchkabel RJ45 Cat5e	4100074	0,5m					
2	1	-F1...F3	Trennhebel-Sicherungs-Klemme	Phoenix Contact	UK 6,3-HESI 3004171	4200147	16 mm²					
2	1	-F1...F3	Lever-type fuse element	Phoenix Contact	UK 6,3-HESI 3004171	4200147	16 mm²					
	1		G-Sicherungsersatz	ESKA	632.717	4200146	T 1A, 6,3x32					
	1		Unit fuse set	ESKA	632.717	4200146	T 1A, 6,3x32					
3	1	-F1...F3	Trennhebel-Sicherungs-Klemme	Phoenix Contact	UK 6,3-HESI 3004171	4200147	16 mm²					
3	1	-F1...F3	Lever-type fuse element	Phoenix Contact	UK 6,3-HESI 3004171	4200147	16 mm²					
	1		G-Sicherungsersatz	ESKA	632.717	4200146	T 1A, 6,3x32					
	1		Unit fuse set	ESKA	632.717	4200146	T 1A, 6,3x32					
4	1	-F1...F3	Trennhebel-Sicherungs-Klemme	Phoenix Contact	UK 6,3-HESI 3004171	4200147	16 mm²					
4	1	-F1...F3	Lever-type fuse element	Phoenix Contact	UK 6,3-HESI 3004171	4200147	16 mm²					
	1		G-Sicherungsersatz	ESKA	632.717	4200146	T 1A, 6,3x32					
	1		Unit fuse set	ESKA	632.717	4200146	T 1A, 6,3x32					
5	1	-K1	Leistungsschutz	ABB	B06-30-10	4200148	4kW/690V, 24V DC					
5	1	-K1	Power contactor	ABB	B06-30-10	4200148	4kW/690V, 24V DC					
6	1	-Q1	Hauptschalter	ABB	OT16E3	4200149	25A					
6	1	-Q1	Main switch	ABB	OT16E3	4200149	25A					
	1		Hilfsschalter IS	ABB	0A1G10	4200149						
	1		Auxiliary switch block NO	ABB	0A1G10	4200149						
	1		Hauptschaltergriff	ABB	0HY2AJ	4200149						
	1		Selector handle	ABB	0HY2AJ	4200149						
	1		Verlängerungswelle	ABB	0XS5x105	4200149	105 mm					
	1		Extended shaft	ABB	0XS5x105	4200149	105 mm					
7	1	-T1	Transformator	Siemens	4AM3496-0EJ00-0FA0	4200150	220...550V/20,110,220V+24VDC					
7	1	-T1	Transformer	Siemens	4AM3496-0EJ00-0FA0	4200150	220...550V/20,110,220V+24VDC					
8	2	-X	PE-Klemme	Phoenix Contact	UT 2,5-Quattro-PE	4100073	2,5 mm²					
8	2	-X	Earth wire terminal	Phoenix Contact	UT 2,5-Quattro-PE	4100073	2,5 mm²					
9	1	-Z	Gehäuse	Rittal	EB 1555.500	4306540	300 x 300 x 120 mm					
9	1	-Z	Switching cabinet	Rittal	EB 1555.500	4306540	300 x 300 x 120 mm					
10	1	-Z	Wandbefestigungshalter	Rittal	KL1590.000	4507593	8mm					
10	1	-Z	Wall range spacer	Rittal	KL1590.000	4507593	8mm					
		Datum / Date	18.01.2007	Hersteller / Manufacturer	Boll & Kirch		Stückliste / part list		Boll-Art.Nr. Boll-Art.No. 4302200			
		Bearb. / Opera.	Krakowski				Filtertyp 6.60		EDV-Nr.			
		Auftr. / Job	.	Filterbau GmbH			Filtertyp 6.60 Alarm DP		EDV-No. 10166-4110000R-0-D0000			
		Vorgang / Transac.	.						10166-4110000R-0-D0000			
									Blatt 8 / 9 Sheet 8 / 9			

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10. Servicing

Even automatic filters require inspection and servicing at regular intervals. It is to be noted in particular that despite regular back-flushing the filter mesh can become clogged in the course of time, depending on the quality of the medium and the by-pass cleaning available. Contamination on the mesh can be removed by cleaning the candle element manually using an appropriate solvent (see Section 13). An increase in the clogging on the mesh can be inferred from the progressively shorter intervals between back-flushing cycles. The number of back-flushing cycles can be seen on the "Flushing Cycle Counter" respectively display on the switch box.

To maintain trouble-free operation the following points are to be noted:

- a) All connections are to be regularly checked for leaks.
- b) Candle elements are to be dismantled and inspected initially after 500 flushing cycles, then after 5.000 and later every 10.000 flushing cycles. If, however, a sharp reduction in the intervals between back-flushing cycles should occur, inspection and cleaning should be carried out sooner. If sudden lengthening of the intervals between back-flushing cycles should occur all candle elements must be inspected without fail for damage.



Before the cartridge elements are dismantled, the automatic filter must be completely drained by automatic back-flushing (i.e. all filter chambers). "Manual" activation on the control box. Care must be taken to ensure that the liquid level is below the cartridge element before the element is dismantled.



The candles are subjected to wear through reciprocal loading. It is therefore recommended that a complete candle filter element, the number of candle elements depending on the size of the filter, be kept in stock.



It is expedient to renew all seals when overhauling the filter.



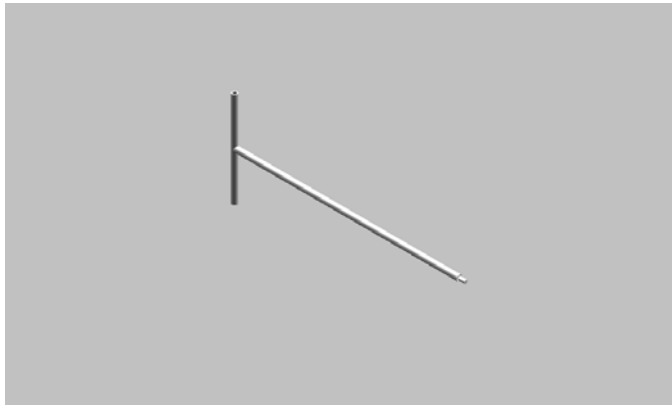
Check the sludge discharge for leaks every 10.000 flushing cycles.
No medium should run from the end of the sludge discharge line during the filtration phase (except during the flushing cycle).

- 10.1 You must close the compressed air supply valve (item 127), then starting a manual back flushing, before you are allowed to removed the manometer (item 72). This well ensure that the compressed air reservoir (item 13) is pressure released.

11. Servicing Tools

The following special tools are supplied for servicing the filter:

- 11.1 Special key with SW 10 or 14 for dismantling the filter chamber.



- 11.2 Special key for unscrewing the candle elements from the candle holder.



- 11.3 Key for opening the switch box and hand crank for operation during a power failure.



12. Candle Element Cleaning Agent "BOLL CLEAN 2000"

The choice of cleaning medium depends on the type of the contamination. With fuels precipitation of paraffin and asphalt or with lubricating oils mixing of different types of oil can form solid encrustations on the mesh. Effective cleaning of fine meshes is achieved by soaking in "BOLL CLEAN 2000" followed by blasting with compressed air using a cleaning gun.

PRODUCT DESCRIPTION:

BOLL CLEAN 2000 is a fluid cleaning and degreasing agent with a wide range of application. It can be used for practically all cleaning and degreasing purposes.

BOLL CLEAN 2000 cleans rapidly, thoroughly and extremely economically.

Use of BOLL CLEAN 2000 renders safety precautions superfluous.

BOLL CLEAN 2000 has these outstanding characteristics without exhibiting the disadvantages of solvent cleaners.

BOLL CLEAN 2000	is non-flammable
	does not require special marking
	does not have an irritating odour
	is not caustic
	is physiologically unobjectionable
	is biologically degradable
	is registered with the Federal Office
	for the Environment, Reg.-No. 04860019

BOLL CLEAN 2000 can be undercooled or overheated during storage but remains fully usable when returned to normal temperature.

MESH CONTAMINATED WITH HEAVY OIL:

Elements contaminated with heavy oil must be soaked in a standard commercial solvent. After soaking the elements are cleaned in the BOLL & KIRCH Type 5.04 Cleaning Device using BOLL CLEAN 2000 and high pressure pump.

INSTRUCTIONS FOR USE:

Use of BOLL CLEAN 2000 is not restricted to a particular method of cleaning.

Depending on the operating conditions, BOLL CLEAN 2000 can be used in a dip bath, in a spraying plant, in steam jetting or in manual application using a cloth, brush or sponge. It can be used warm or cold. BOLL CLEAN 2000 is miscible with water - even seawater.

Concentration for mesh cleaning: 1 : 2,5

Temperature: up to a maximum of 60 °C

The concentration depends on the type and thickness of the adhesive substance to be removed. When used in concentration below 1 : 30 rinsing is usually not required.

No visible film remains on the surface.

13. Manual Cleaning of the Candle Filter Elements



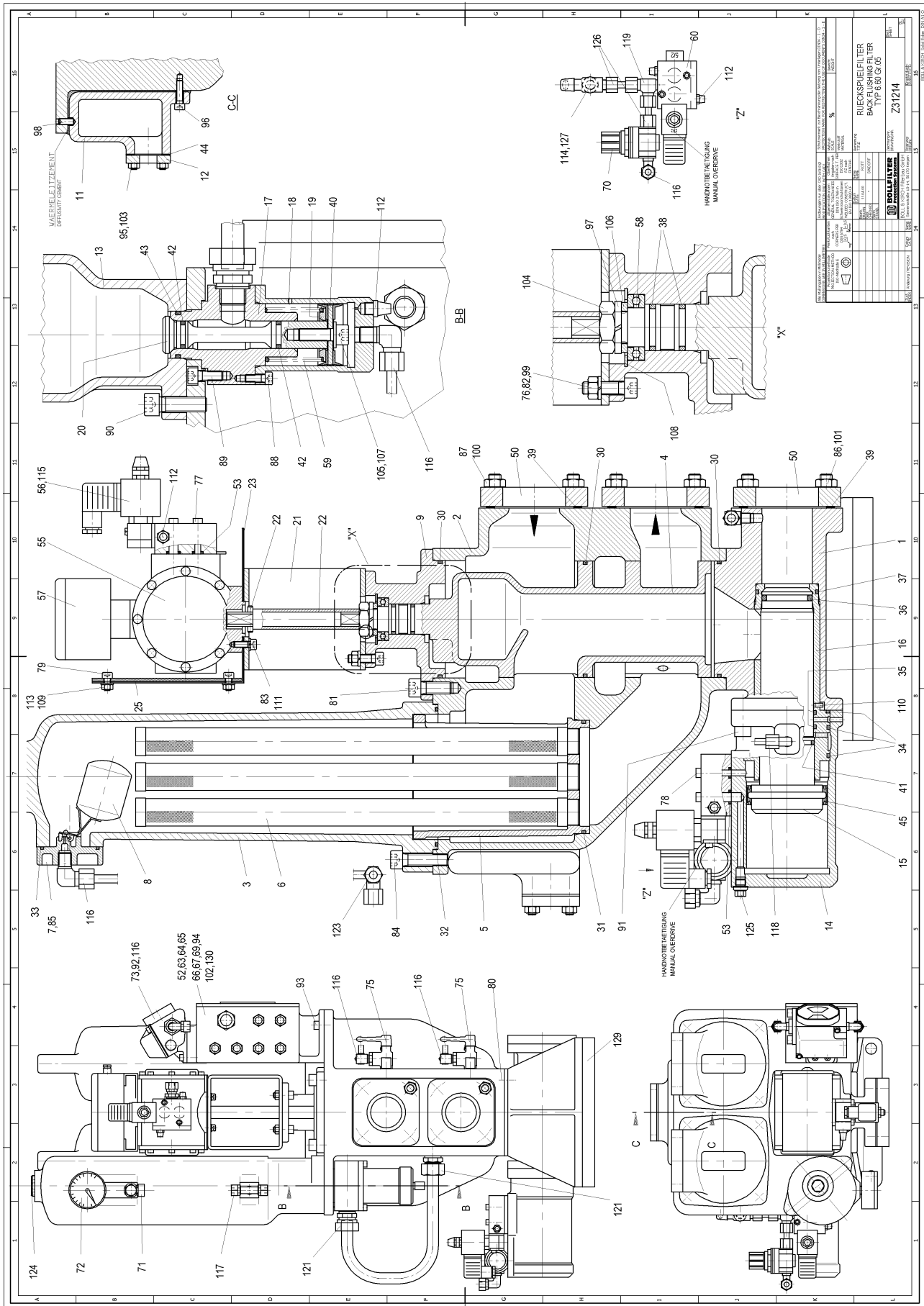
Before the cartridge elements are dismantled, the automatic filter must be completely drained by automatic back-flushing (i.e. all filter chambers). "Manual" activation on the control box. Care must be taken to ensure that the liquid level is below the cartridge element before the element is dismantled.

- 13.1 Remove the whole filter element assembly. Then soak the filter element assembly, with the opening of the candle elements facing down, in a suitable tank filled with solvent. Detached contaminants can then sink downwards out of the candle.
- 13.2 The soaking time and the relevant solvents are:
- a) In cold BOLL CLEAN 2000 cleaner the maximum soaking time is 24 hours.
 - b) In Filterclean (Vecom) the maximum soaking time is 12 hours.
 - c) In Reiniger B85 (Vecom) the maximum soaking time is 12 hours.
 - d) In gas oil the maximum soaking time is 48 hours.
- 13.3 After soaking remove the whole filter element assembly from the tank and place it on a suitable stand (e.g. perforated sheet metal) with the candle element opening pointing down and allow the solvent to drain.
- 13.4 Now with the cleaning gun supplied blow compressed air through the candles from the inside to the outside.
- 13.5 After this procedure the complete filter element assembly should be immersed in fresh cleaner, with the candle element opening downwards, and rinsed through with an up and down motion.



The washing procedure described in Section 13.5 should only be carried out in a separate tank using clean solvent. The solvent can then be used again for the next soaking procedure.

- 13.6 Allow the element assembly to drain again and dry it by blowing compressed air through it again from the outside to the inside. The manual cleaning procedure described here has produced adequate results (ca. 60 % clean) in similar applications.
- 13.7 Almost 100 % cleaning is only possible manually, in our experience, by using the Type 5.04 High Pressure Cleaning Unit with BOLL CLEAN 2000.
See the separate description "Filter Cleaning Unit Type 5.04".



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Document 0630042
 Description automatic filter
 6.60 Gr.05 DN50 Filtrator

 Material EN-JS1030
 EN-GJS-400-15
 EN 1563
 Dimension drawing Z100813

 Filter room:
 max. allowable pressure : 16 bar
 max. allowable temperature : 160°C
 Heating room:
 max. allowable pressure: 14 bar
 max. allowable temperature : 200°C
 Test pressure : 2 x Calculation pressure

Item	ID no.	Description	Qty	Unit
00001	6530355	housing lower part	1	pcs.
00002	6530354	change-over housing	1	pcs.
00003	6537759	filter chamber	2	pcs.
00003	2000004	stud bolt	4	pcs.
00004	6335469	cock plug	1	pcs.
00005	5007947	candle support	2	pcs.
00006	1104422	filter candle according to order	4	pcs.
00007	5906594	cover	2	pcs.
00007	5218298	nozzle	2	pcs.
00007	6712641	bow	2	pcs.
00007	2000266	slotted cheese head screw	4	pcs.
00008	2610023	float	2	pcs.
00008	2611123	pin	2	pcs.
00008	3530032	threaded pipe fitting	2	pcs.
00009	6530356	cover switchover housing	1	pcs.
00012	5000011	counter flange	1	pcs.
00013	6533516	air reservoir	1	pcs.
00014	5229568	valve housing	1	pcs.
00015	5000486	valve ram	1	pcs.
00016	5005528	valve face	1	pcs.
00017	5005609	housing	1	pcs.
00018	5006510	valve cover	1	pcs.
00019	5007512	disc	1	pcs.
00020	5006512	valve ram	1	pcs.
00021	5700156	distance piece	1	pcs.
00022	5701532	rectangular tube	1	pcs.
00022	2300011	Spring Type Straight Pin	1	pcs.
00022	5701533	square bar steel	1	pcs.
00023	5700158	mounting sheet	1	pcs.
00025	4101224	isolation plate	1	pcs.
00030	3030066	o-ring	3	pcs.
00031	3030661	o-ring	2	pcs.
00032	3030761	o-ring	2	pcs.
00033	3132369	o-ring	2	pcs.
00034	3038188	o-ring	3	pcs.
00035	3096894	o-ring	2	pcs.

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 0630042 automatic filter
 6.60 Gr.05 DN50 Filtrator

Item	ID no.	Description	Qty	Unit
00036	3096995	o-ring	1	pcs.
00037	3030063	o-ring	1	pcs.
00038	3094563	o-ring	2	pcs.
00039	3380001	high pressure gasket	3	pcs.
00040	2785451	seal piston	1	pcs.
00041	3038126	o-ring	1	pcs.
00042	3098361	o-ring	2	pcs.
00043	3038361	o-ring	1	pcs.
00044	3380049	high pressure gasket	1	pcs.
00045	3437135	double grooved ring	1	pcs.
00050	2800062	square counter flange	3	pcs.
00052	3380199	flat gasket	1	pcs.
00053	3040224	o-ring	4	pcs.
00055	4500016	double piston slewing gear	1	pcs.
00056	2656655	solenoid valve	1	pcs.
00056	4206553	coil	1	pcs.
00056	4105912	connector plug	1	pcs.
00056	2614072	sound absorber	1	pcs.
00057	4200143	limit switch	1	pcs.
00058	2708947	deep groove ball bearing	1	pcs.
00059	2307427	pressure spring	1	pcs.
00060	2656655	solenoid valve	1	pcs.
00060	4206553	coil	1	pcs.
00060	4105912	connector plug	1	pcs.
00060	2614072	sound absorber	1	pcs.
00063	5950196	connection box	1	pcs.
00064	8450198	cover for connection box	1	pcs.
00065	4105616	clamp	12	pcs.
00065	4105617	clamp	5	pcs.
00065	4100015	distance plate	3	pcs.
00066	2000258	slotted cheese head screw	2	pcs.
00067	4105805	mounting rail	1	pcs.
00069	4160350	cable gland	8	pcs.
00069	4160349	reducing ring	8	pcs.
00069	4100104	cable gland	1	pcs.
00069	4870017	plug	1	pcs.
00070	2650017	high pressure control device	1	pcs.
00071	2660005	safety valve	1	pcs.
00072	2602689	pressure gauge	1	pcs.
00073	9902572	differential pressure indicator acc. t	1	pcs.
00075	2560063	angle ball valve	2	pcs.
00076	2200235	spring ring	4	pcs.
00077	2002155	hexagon socket head cap screw	2	pcs.
00078	2002155	hexagon socket head cap screw	2	pcs.
00079	2000121	hexagon socket head cap screw	2	pcs.
00080	2000482	stud bolt	4	pcs.
00080	2100011	hexagon nut	4	pcs.
00081	2000155	hexagon socket head cap screw	4	pcs.
00082	2000132	hexagon socket head cap screw	4	pcs.
00083	2000122	hexagon socket head cap screw	4	pcs.
00084	2000158	hexagon socket head cap screw	8	pcs.
00085	2100006	hexagon nut	4	pcs.

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 DOCUMENTATION PARTS LIST

 Date 20.01.05
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 0630042 automatic filter
 6.60 Gr.05 DN50 Filtrator

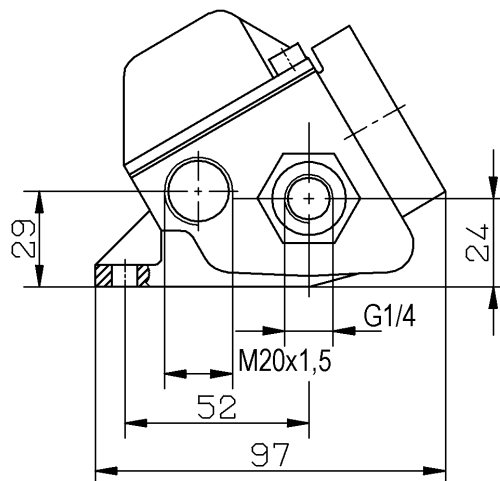
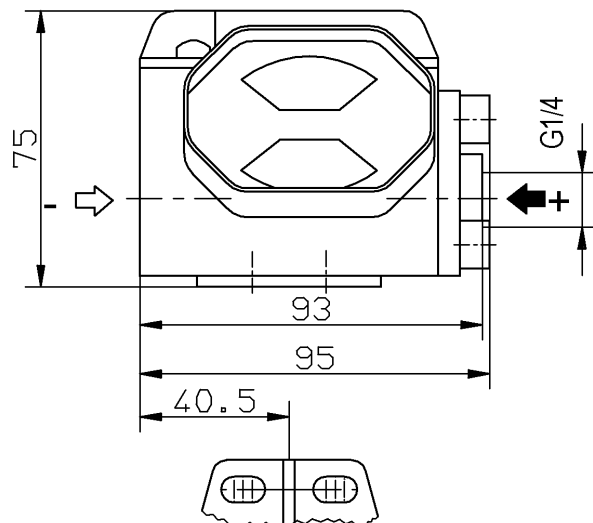
Item	ID no.	Description	Qty	Unit
00086	2009095	stud bolt	4	pcs.
00087	2009095	stud bolt	8	pcs.
00088	2000122	hexagon socket head cap screw	4	pcs.
00089	2000131	hexagon socket head cap screw	3	pcs.
00090	2000157	hexagon socket head cap screw	2	pcs.
00091	2000144	hexagon socket head cap screw	4	pcs.
00092	2000122	hexagon socket head cap screw	2	pcs.
00093	2000131	hexagon socket head cap screw	2	pcs.
00094	2000261	slotted cheese head screw	2	pcs.
00095	2000001	stud bolt	4	pcs.
00096	2000132	hexagon socket head cap screw	1	pcs.
00097	2209969	spring ring	1	pcs.
00098	2004354	stud bolt	1	pcs.
00099	2100047	hexagon nut	4	pcs.
00100	2100006	hexagon nut	8	pcs.
00101	2100006	hexagon nut	4	pcs.
00102	2003587	threaded flange screw	4	pcs.
00103	2100004	hexagon nut	4	pcs.
00104	2110593	hexagon nut	1	pcs.
00105	2004715	hexagon screw	1	pcs.
00106	5006107	disc	1	pcs.
00107	2200007	disc	1	pcs.
00108	5000243	ring	1	pcs.
00109	2200005	disc	2	pcs.
00110	2001578	headless screw	1	pcs.
00111	2209799	spring ring	4	pcs.
00112	2614171	sound absorber	5	pcs.
00113	2100003	hexagon nut	2	pcs.
00114	2608775	non return valve	1	pcs.
00115	2500024	screwing	1	pcs.
00116	2500025	screwing	2	pcs.
00116	2500025	screwing	6	pcs.
00117	2505496	screwing	1	pcs.
00118	2500029	screwing	2	pcs.
00119	2507461	screwing	1	pcs.
00121	2508115	screwing	2	pcs.
00123	2507808	screwing	1	pcs.
00124	2001772	screwed sealing plug	1	pcs.
00124	3275525	gasket	1	pcs.
00125	2000186	screwed sealing plug	1	pcs.
00125	3270001	gasket	1	pcs.
00126	2500083	screwed socket	2	pcs.
00127	2560356	angle ball valve	1	pcs.
00128	0602645	tubing set	1	pcs.
00130	9401690	type plate	1	pcs.
00131	9407569	label: "in / out"	1	pcs.
00131	9400997	label: "on / off"	1	pcs.
00131	9407396	label: "mud drain"	1	pcs.
00131	9402898	label	1	pcs.
00131	9405704	label: " ... 2 lugs ... "	1	pcs.
00131	9403614	label: "compressed air connection"	1	pcs.
00131	9404642	label: "Delta P differential pressure"	1	pcs.

.....
DOCUMENTATION PARTS LIST Date 20.01.05
Page 4

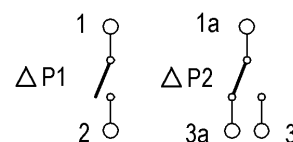
0630042 automatic filter
6.60 Gr.05 DN50 Filtrator

Item	ID no.	Description	Qty	Unit
00140	4300000	control box according to order	1	pcs.
00150	6705030	key	1	pcs.
00150	6705032	key for unscrewing the filter element	1	pcs.
00150	5700721	guiding bolt	2	pcs.

Überarbeitet am : 22.06.04
Überarbeitet von : Bogda

Z45550
 TYP4.36.2
 09.01.06


CIRCUIT DIAGRAM


 SPECIFICATION:
 PROTECTION CLASS: IP 65

ELECTR. DATA:	SWITCHING VOLTAGE	$V \approx \text{MAX.} =$	250	220
	FREQUENCY	HZ MAX. =	0-60	0-60
	SWITCHING CURRENT	A MAX. =	1	0.8
	MAKING AND/OR BREAKING CAPACITY	WVA MAX. =	60/60	40/60
MATERIAL :	GD - ALUMINIUM			
RATING :	MAX. PRESSURE	100 BAR		
	MAX. TEMPERATURE	150°C		

RANGES OF PRESSURE DIFFERENTIAL: DELTA P =	0 - 0.5 BAR	} TO BE SPECIFIED WHEN ORDERING
	0 - 0.8 BAR	
	0 - 1.2 BAR	
	0 - 2.0 BAR	
	0 - 3.0 BAR	

DESCRIPTION:

THE PURPOSE OF THIS DEVICE IS THE MEASUREMENT, AND VISUAL INDICATION OF THE DIFFERENCE IN PRESSURE BETWEEN TWO POINTS, AND THE ESTABLISHMENT OF AN ELECTRICAL CONTACT WHEN THE PRESSURE DIFFERENTIAL ATTAINS A SPECIFIED FIGURE.

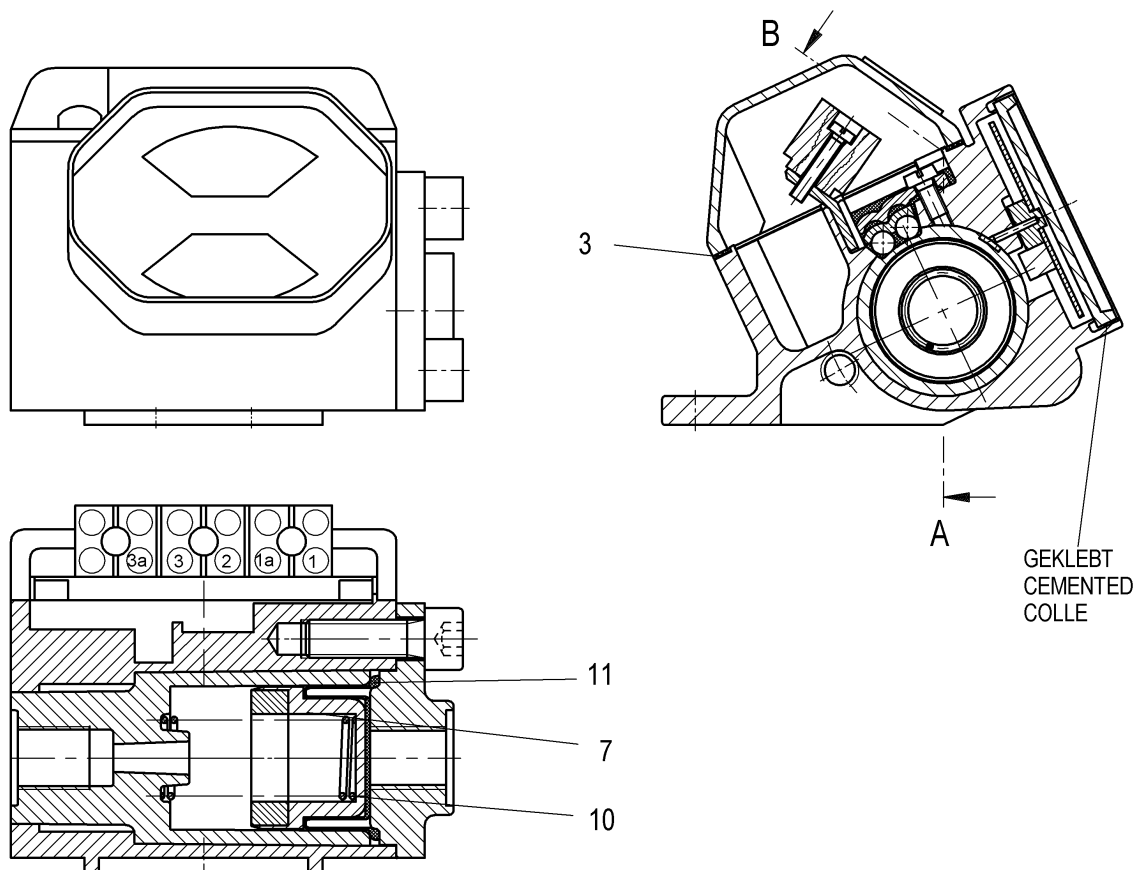
METHOD OF OPERATION:

A PLUNGER SEALED BY A DIAPHRAGM SEPARATES THE SPACE UNDER PRESSURE INTO TWO CHAMBERS. A PRE-LOADED SPRING CAUSES THE PLUNGER TO TAKE UP ITS ZERO POSITION WHEN THE PRESSURE DIFFERENCE DELTA P IS ZERO. AS THE PRESSURE DIFFERENCE INCREASES ($\Delta P > 0$), THE PLUNGER IS FORCED TO MOVE AGAINST THE SPRING. AT THE SAME TIME, AN INDICATOR DISC IS MOVED MAGNETICALLY, AND THEREFORE VIRTUALLY WITHOUT FRICTION, AND THE TWO REED CONTACTS ARE ACTUATED.

THE RED SEGMENT OF THE INDICATOR DISC IS VISIBLE OVER A PRESSURE RANGE EQUAL TO APROX.50-100% DELTA P. THE FIRST REED CONTACT IS ACTUATED AT 75% DELTA P1, AND THE SECOND AT 100% DELTA P2.

DIFFERENTIAL PRESSURE CONTACT INDICATOR TYPE 4.36.2

Z21434
TYP4.36.2+4.46.2
11.02.94



A - B

BEI BESTELLUNG ANGEBEN
TO BE MENTIONED IN CASE OF ORDER
A MENTIONNER LORS DE LA COMMANDE

AUFTR.NR.:
ORDER NO.
NO DE COMMANDE

TYP 4.36.2

11	ROLLMEMBRAN	DIAPHRAGM	DIAPHRAGME	
10	FEDER	SPRING	RESSORT	
7	KOLBEN	PISTON	PISTON	
3	DICHTUNG	GASKET	JOINT	
POS.NR.	BEZEICHNUNG	DESIGNATION	DESIGNATION	

SPARE PARTS
DRAWING

ERSATZTEILZEICHNUNG
ZUM TYP 4.36.2 UND 4.46.2

PLAN DES PIECES
DE RECHANGE

Bei Service- und Ersatzteilbedarf wenden Sie sich bitte an das Stammhaus oder an unsere Niederlassungen, Vertretungen oder Service-Stellen.
If you need service or spares for our products please contact our head office or our branch-offices, agencies or service-stations.

**Europa / Europe****Deutschland/Germany****Zentrale / Headquarters**

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