

AES RapidKleen™ Auto-Strainer Internal & External Models 6000 & 6050

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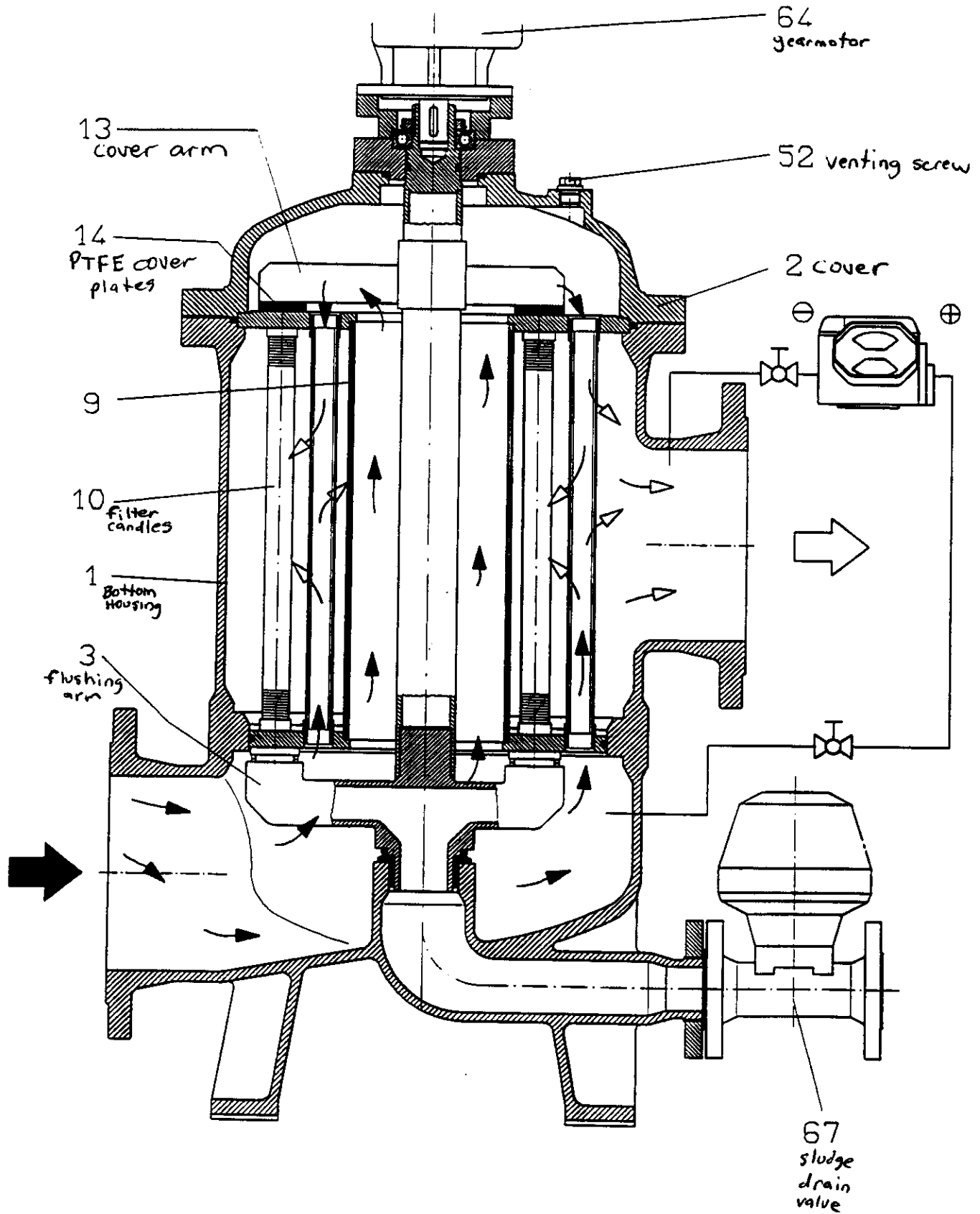
**DESCRIPTION AND OPERATING INSTRUCTIONS
FOR BACK-FLUSHING FILTER
TYPE 6.18**

Order No.:

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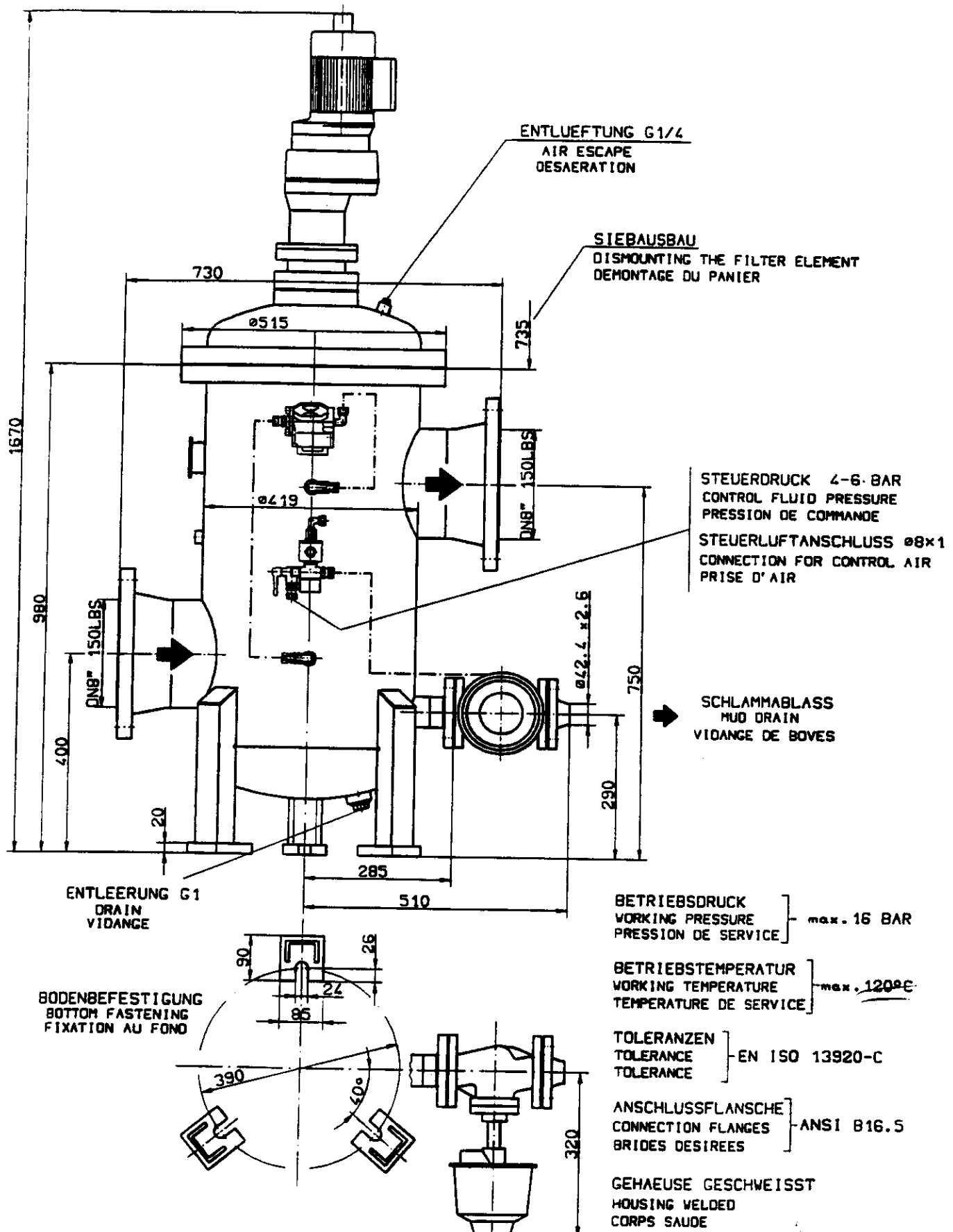
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TYP 6.18
TYP 6.44

FILTRATIONSPHASE
FILTRATION-PHASE

21.03.2001



The back-flushing filter 6.18 is primarily used in water supply systems as a full-flow and bypass filter.



Should the operating pressure be insufficient for own fluid back-flushing or in the event of stubborn dirt, we recommend the filter type 6.19.

The design of the filter type 6.19 merely differs from that of the type 6.18 in the back-flushing facility in the top section of the filter. Subsequent conversion from type 6.18 to type 6.19 is possible without any problems !

2. General

The filter consists of the bottom housing section (1) which accommodates all the pipe connections.

The pneumatically or electrically controlled sludge drain valve (67) is flanged to the sludge drain.

The sludge drain line connected here must be laid with a gradient and so that it can be run empty (refer to installation drawing type 6.18 - Z39298 and type 6.19 - Z39299).

The differential pressure indicator type 4.46.2 is mounted on the bottom housing section. The connection for the hydraulic or pneumatic control of the sludge drain valve is also here.

The gearmotor (64) and the venting screw (52/54) (on type 6.19 the flushing fluid connection [21] and the flushing valve [69]) are located on the housing cover (2) of the filter.

The filter candles (10) and the flushing arm (3) are arranged inside the filter.

The cover arm (13) with the PTFE cover plates (14) for regulating cross-flow back-flushing is installed in the cover (2) (or on type 6.19 the flushing arm [13] with the flushing bushes [60]).

The plain bearing and the flushing bushes, made of plastic, are sealed to prevent the ingress of dirt. All other internals are made of austenitic steels. Degrees of filtration of less than 50 µm are guaranteed by seals between the clean and dirty sides.

Attached pipes and fittings are made of stainless steel.

The control box containing the elec. control is supplied separately.

The simple arrangement and sturdy design result in trouble-free operation of the fully automatic back-flushing filter. A selection of materials is available which allow for the demands placed on corrosion resistance.

2a. Mode of operation of the type 6.19

The additional flushing energy (pressurised water or steam) passes from outside through the back-flushing arm (13) from the top into the individual filter candles (10). The resultant turbulent flow in the longitudinal direction of the filter candles (cross-flow back-flushing) and counter-flow back-flushing through the filter candles produce a particularly good back-flushing action.

3. **Installation of the filter**

see installation drawing type 6.18 - Z39298

see installation drawing type 6.19 - Z39299

- 3.1 The flanges of the feed line are to be bolted without any stress to the filter flanges. The filter inlet and outlet are marked.



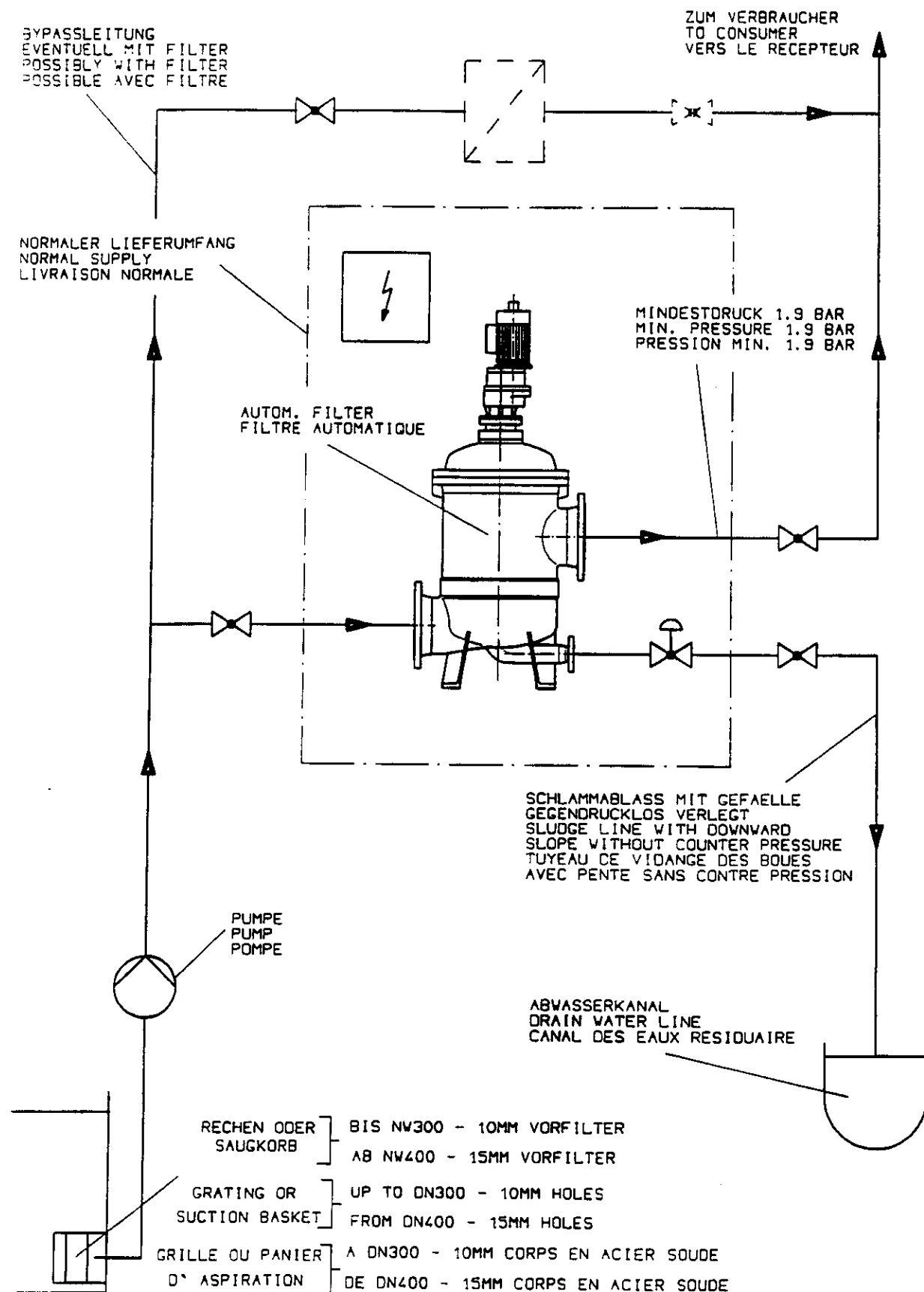
According to the AD Information Sheets, the filter housings are only rated for internal overpressure. Additional external forces and moments at the connection flanges of the filter are to be avoided (possibly support feed lines).

- 3.2 The sludge drain line is to be screwed to the sludge drain valve (67).
- 3.3 An additional control valve (ball cock or shut-off valve) can be installed in the sludge drain line for improved regulation of the back-flushing volume, especially for high pressures.
- 3.4 With type 6.19 the back-flushing line is to be connected.
- 3.5 All electric components such as gearmotor (64), differential pressure indicator (65) and solenoid valve (66) are to be connected to the terminals in the control cabinet in accordance with the wiring diagram. The power supply line is also to be connected to the terminals provided for this purpose in the control cabinet.
- 3.6 For control pressure for the sludge drain valve (67) and flushing valve (69), refer to the type sheet and dimensional drawing.
- 3.7 Pre-filtration by means of a rake or suction cage.



Pre-filtration

Filters up to DN 50 - 300	-	10 mm
Filters DN 400 and greater	-	15 mm



SCHEMA INSTALLATION

SCHEMA D'INSTALLATION

EINBAUSCHEMA ZUM TYP 6.18

4. Commissioning

- 4.1 Check to see whether all the connections have been properly made.
- 4.2 Check whether the ball cock in the control line and the ball cocks (68) on the differential pressure indicator (65) are open.
- 4.3 If installed, open the control valve in the sludge drain line.
- 4.4 Turn on the main switch on the control box.
- 4.5 Before switching on the feed pump, the following must be observed:
 - Open vent (52/54) of the filter.
 - Close shut-off device in the bypass line.
 - Open shut-off device at the filter outlet.
 - With positive-displacement pumps open the shut-off device at the filter inlet fully.
 - With centrifugal pumps only open the shut-off device at the filter inlet partially and, after switching on the pump, slowly open it fully (to avoid pressure surges).
 - Then close the vent (52/54) of the filter.
- 4.6 Activating the pushbutton for manual activation on the control box:
In accordance with the preset time, the gearmotor turns and the sludge drain valve is triggered (on type 6.19 also the flushing valve [69]).
- 4.7 If the pressure downstream of the filter is less than 1.8 bar, the shut-off device downstream of the filter is to be slowly regulated until the appropriate operating pressure has built up.
- 4.8 If the pressure downstream of the filter is more than 1.8 bar, the control valve in the sludge drain line can be regulated until the reduced back-flushing volume does not result in any major increase in the flushing frequency. If a continuously increasing initial differential pressure is detected in spite of flushing, the control valve in the sludge drain is to be opened more (greater back-flushing energy).
- 4.9 If the differential pressure between the filter inlet and outlet rises, the back-flushing operation is automatically triggered by the differential pressure indicator (65) and it ends automatically after the time set on the time relay.
- 4.10 If the differential pressure after back-flushing has not decreased substantially, either the pressure downstream of the filter is too low or the back-flushing volume too small owing to excessive regulation of the control valve in the drain line.

- 4.11 If, in spite of perfect back-flushing, a further increase in the differential pressure occurs, the alarm contact on the differential pressure indicator (65) is closed. The filter must be taken out of service (open the bypass line and close the shut-off valves on the filter). The filter candles (10) are to be taken out from the top individually and cleaned thoroughly.
- 4.12 The triggering of the back-flushing operation by the timing feature is intended to prevent the flushing facility from jamming if the back-flushing facility is seldom activated by the differential pressure indicator (65).
- 4.13 If the electric power fails, the filter can be activated by hand:
Open the sludge drain valve (67) (and the flushing valve [69]) by turning the emergency activation screw on the solenoid valve (66). Then remove the hand crank mounted on the filter housing and position it on the free shaft end of the gearmotor (64).



Make sure beforehand that the power supply does not come on again during manual mode.

If the electric motor shaft (64) is turned (about 300–400 rev.), the back-flushing operation is performed. As soon as the differential pressure has decreased again, the sludge drain valve must be closed again and the hand crank removed from the gearmotor (64). It is not permitted to turn the gearmotor by hand with the crank if the back-flushing facility of the filter is blocked. In this case the filter must be taken out of service and opened in order to eliminate the cause of the blockage.



At the end of manual back-flushing the emergency activation screw on the solenoid valve must be moved back into its original position.

- 4.14 The admissible differential pressures are



for the edge candle:	10 bar
for the fabric candle:	3 bar

It must be ensured by suitable measures (e.g. opening a bypass, switching off the delivery flow) that the admissible differential pressure values cannot be exceeded.

5. *Filtration phase*

For type 6.18, see drawing No. Z39296 sheet 1

For type 6.19, see drawing No. Z39297 sheet 1

The fluid to be filtered passes through the inlet flange into the bottom housing section (1). A partial flow of the unfiltered fluid is guided through the central riser (9) in the strainer element into the top half of the filter and it thus passes from the top into the filter candles (10). This means that the fluid flows through the filter candles (10) at both ends from the inside outwards and thus the larger dirt particles are retained inside the filter candles.

The filtered fluid then passes to the filter outlet.

6. **Back-flushing phase (cross-flow back-flushing)**

For type 6.18, see drawing No. Z39296 sheet 2

For type 6.19, see drawing No. Z39297 sheet 2

The installed differential pressure indicator (65) monitors the pressure drop caused by the clogging of the filter candles (10) between the filter inlet and outlet. If a differential pressure of about 0.4 bar (standard) or the preset time has been reached, the elec. control initiates the regeneration of the filter candles (10). To this end the gearmotor (64) turns the maintenance-free flushing arm (3) with the flushing bushes (12) on the individual filter candles (10). At the same time the sludge drain valve (67) is opened. This creates a high axial flow in the filter candle (10) and the retained dirt particles are flushed away.

At the same time the resultant pressure drop permits a smaller amount of liquid to flow in counter-current from the top through the filter candle (10). The cover arm (13), which also rotates, together with the PTFE cover plates (14) ensures at the top end of the filter candles (10) selective cross-flow back-flushing and distribution of the back-flushing energy over the entire length of the candles.



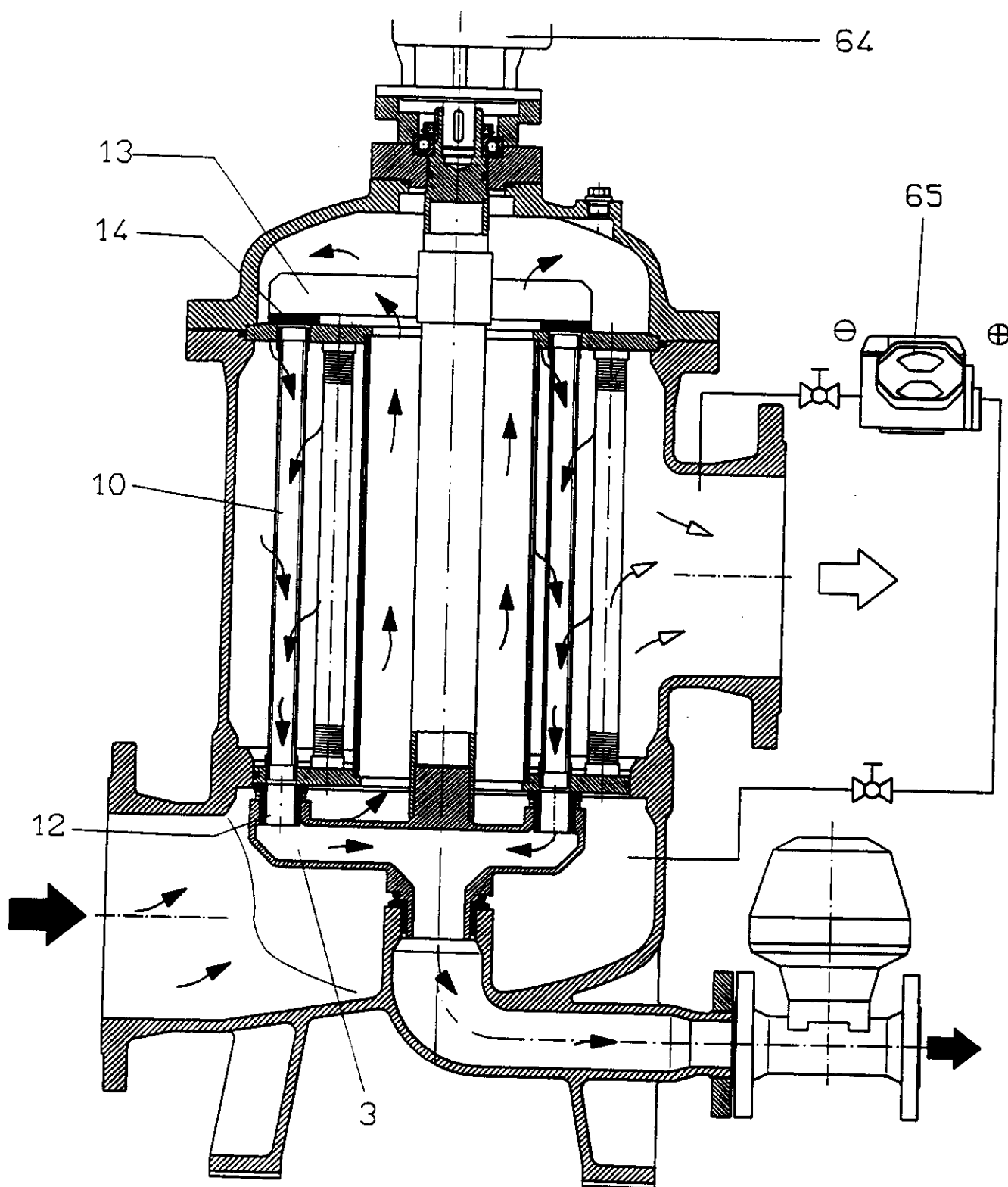
On the type 6.19 pressurised fluid is passed from the top into the filter candle (10) to support the cross-flow back-flushing with the back-flushing arm (13) !

The dimensions of the internals and the additional cross-flow back-flushing feature produce a sufficiently high back-flushing effect from about 1.8 bar upwards with the result that perfect regeneration of the filter candles (10) is ensured. After about $1 \frac{1}{4}$ revolutions of the flushing facility the elec. control switches the gearmotor off. The filter is now in a cleaned condition again.

As a result of the flushing of the individual filter candles (10) the full throughput rate is also retained during the regeneration phase.

In the case of positive-displacement pumps the throughput is reduced by the flushing quantity. This flushing quantity only occurs during the flushing phase.

With centrifugal pumps or buffered systems there is no fall in throughput at the filter outlet during the flushing phase. In view of the control valve installed by the customer in the sludge drain line the back-flushing quantity can even be optimised depending on the pressure and type of impurities.



TYP 6.18	RUECKSPUELPHASE BACK-FLUSHING-PHASE
TYP 6.44	

ELECTRONIC CONTROL FOR BACK-FLUSHING FILTERS FROM BOLL & KIRCH TYPE 2100

Terminal diagrams version 1 (ser. No. 4302597):

Fil.-1	Type 6.61.07		Z 37811
Fil.-2	Type 6.61		Z 37810
Fil.-3	Type 6.61	Alarm Δp activation	Z 37877
Fil.-5	Type 6.60	Alarm Δp activation	Z 37879
Fil.-6	Type 6.14/6.17/6.18/6.19/6.44		Z 37793
Fil.-8	Type 6.61.07	Alarm Δp activation	Z 40299
Fil.-9	Type 6.62		Z 40181
Fil.-10	Type 6.62	Alarm Δp activation	Z 40182

Terminal diagrams version 2 (ser. No. 4303608):

Fil.-4	Type 6.60	Z 37878
Fil.-7	Type 6.23/6.24/6.23.1/6.24.4	Z 37795

SPECIAL FEATURES:

- Display in housing cover with 5-place, 7-segment display
- Display of the back-flushing phase "Flushing"
- Display of the number of back-flushing cycles
- Display of faults in code
- An LED in the display indicates the mains power supply
- 3 keys for operating the control
- CPU card with non-volatile E-Eprom and Eprom as program memory
- I.O. card in control box

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We reserve the right to change this description without prior notice!

ATTENTION!

Subject: El. control type 2100

The transformer type and the terminal designation of the transformer had to be changed owing to the introduction of the European voltage of 400 V.

Old type designation: 4AM 8095-OAR70-ON

New type designation: 4AM 8095-OAXOO-ON



The primary and secondary voltages of 220 V were previously at the terminals 1 and 3; with the new transformer now at terminals 1 and 2.

Note: If the transformer is exchanged, it is imperative to assign the terminals correctly according to the transformer nameplate.

Incorrect terminal assignment results in damage to the coils of the solenoid valves.

GENERAL

BOLL & KIRCH manufactures back-flushing filters for industry and shipbuilding.

The back-flushing filters are able to determine the degree of contamination of the filter elements during operation and, if a limit value is exceeded, to automatically clean the filter elements.

The electronic control described here will replace the relay control and improve operation and servicing functions.

The electronic control type 2100 is rated for a 3-phase primary voltage of 220 V, 380 V, 440 V and 500 V with a tolerance of $\pm 10\%$.

The following must be observed before commissioning:



During mounting or installation of the control type 2100 attention must be paid to precise earthing of the control box especially in view of the EMC
Moreover, no additional live cables > 220 V should be laid within a distance of about 1 m from the power supply cables.

Note: The desired primary voltage / operating voltage must be checked and selected by re-arranging the FASTON lug on the transformer. The jumpers are as follows:

Jumper 1 - 31	=	550 V; AC; 3 ~ operating voltage
Jumper 1 - 6	=	500 V; AC; 3 ~ operating voltage
Jumper 1 - 5	=	440 V; AC; 3 ~ operating voltage
Jumper 1 - 4	=	380 V; AC; 3 ~ operating voltage
Jumper 1 - 3	=	220 V; AC; 3 ~ operating voltage

The control voltage for the solenoid valves is always **220 V**.

The frequency is 50 Hz or 60 Hz.

The power supply line is laid to terminals 1, 2 and 3 with 3-phase voltage.

The protective earth conductor "PE" of the power supply line must be laid to the 10-pin "PE" terminal strip or to the earth screw inside the control box.

Now all the electric components on the filter are to be wired according to the relevant wiring diagram.

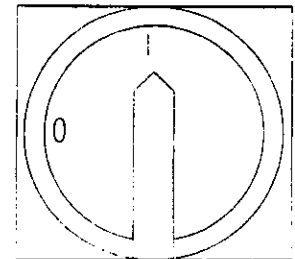
Note: The control is designed for a max. rated current of 1.0 A - and a starting current of 3.0 A . Therefore, the control is unsuitable for a 1-phase operating voltage network.

COMMISSIONING OF THE ELECTRONIC CONTROL

Note: The main switch is designed with an additional auxiliary contact "N".
Potential-free use to indicate "Control in operation" is possible via the routing of the contact "N".

When the control is turned on with the main switch, the relevant control version including the LED operating light appear in the display.

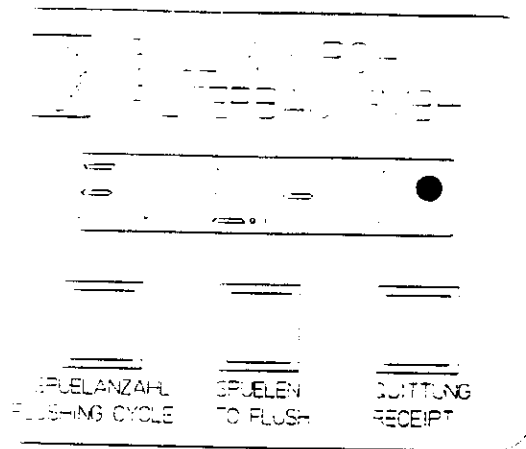
HAUPTSCHALTER ÖFFNEN IN 0-STELLUNG	MAIN SWITCH OPEN IN OFF-POSITION
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Possible control versions:

- | | |
|---------|---|
| Fil.-1 | for type 6.61.07 |
| Fil.-2 | for type 6.61/6.61.1 |
| Fil.-3 | for type 6.61 with alarm Δp activation |
| Fil.-4 | for type 6.60 |
| Fil.-5 | for type 6.60 with alarm Δp activation |
| Fil.-6 | for type 6.14/6.17/6.18/6.19/6.44 |
| Fil.-7 | for type 6.23/6.24/6.23.1/6.24.4 |
| Fil.-8 | for type 6.61.07 with alarm Δp activation |
| Fil.-9 | for type 6.62 |
| Fil.-10 | for type 6.62 with alarm Δp activation |



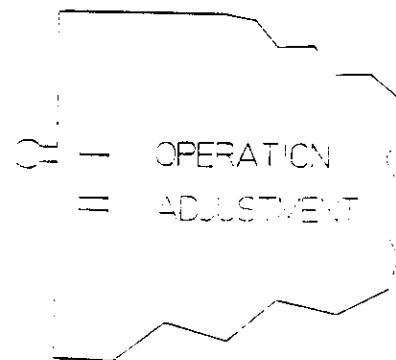
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There are 3 keys under the display to operate the electronic control.



The following description is only relevant when the lever position of the selector switch on the CPU card on the inside of the door is at "Operation".

Operation
Adjustment



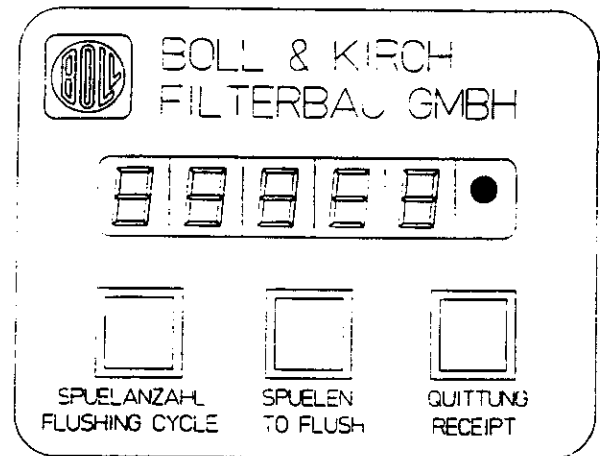
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KEYBOARD:

On activation of the key "Flushing cycle" the number of back-flushing cycles of the filter is displayed. This display is protected against power failure.

On activation of the key "Flush" a back-flushing operation is initiated by the electronic control and the message "Sp. 1" appears in the display.

On activation of the key "Acknowledge (Reiceipt)" any fault messages are deleted but only if the cause of the fault has been remedied.



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FAULT MESSAGES IN THE DISPLAY

The following faults can be shown in the display in code:

Note: In the event of any fault relating to EMC no memory contents are deleted in controls supplied after 1 January 1998.

For type 6.61.07 (Fil.-1)

Fe. 0	means	overcurrent tripping or motor not wired
Fe. 1	means	max. differential pressure reached
Fe. 2	means	flushing oil cartridge is saturated

For type 6.61/6.61.1 (Fil.-2)

Fe. 0	means	overcurrent tripping or motor not wired
Fe. 1	means	max. differential pressure reached

For type 6.60 (Fil.-4)

For type 6.23/6.24/6.23.1/6.24.4 (Fil.-7)

For type 6.62 (Fil.-9)

Fe. 1	means	max. differential pressure reached
-------	-------	------------------------------------

For type 6.14/6.17/6.18/6.19/6.44 (Fil.-6)

Fe. 0	means	overcurrent tripping or motor not wired
Fe. 1	means	max. differential pressure reached

For type 6.61 (Fil.-3) with alarm Δp activation

For type 6.61.07 (Fil.-8) with alarm Δp activation

Fe. 0	means	overcurrent tripping or motor not wired
Fe. 1	means	max. differential pressure reached
Fe. 3	means	Δp alarm "Back-flushing activation by differential pressure"

For type 6.60 (Fil.-5) with alarm Δp activation

For type 6.62 (Fil.-10) with alarm Δp activation

Fe. 1	means	max. differential pressure reached
Fe. 3	means	Δp alarm "Back-flushing activation by differential pressure"



In the case of the fault messages Fe.0 (overcurrent tripping or motor not wired) and Fe. 1 (max. differential pressure reached) the potential-free alarm contacts 11, 12 and 13 are also activated as change-over contacts at the same time.

In the case of the fault message Fe. 3 (Back-flushing activation by differential pressure) the potential-free alarm contacts 14, 15 and 16 are activated as change-over contacts.

The fault message Fe.2 (flushing oil cartridge is saturated) is only shown on the display.

No routing via potential-free contact.



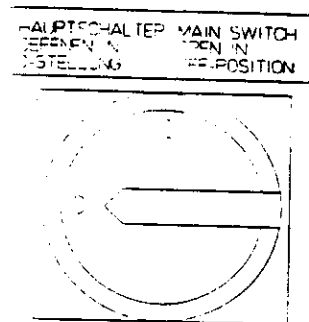
The fault message in the display cannot be deleted by activating the "Acknowledge (Receipt)" key until the fault has been remedied.

For the reliable orientation of the software after deletion of the fault message, it is recommended to turn off the control with the main switch for about 10 seconds and then turn it on again.

If the control is not switched off with the main switch (reset function), the time-dependent back-flushing activation is no longer automatically triggered although the fault has been remedied.

ADAPTION (IN MODE PA. ...) BY THE OPERATOR FOR TYPE 2100

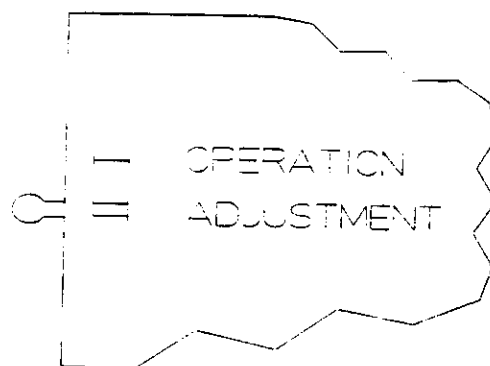
In order to adapt the operating data during filter operation,
the main switch must be turned to the "0" position.



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A selector switch is located on the CPU card on the inside of the door.

Operation
Adjustment

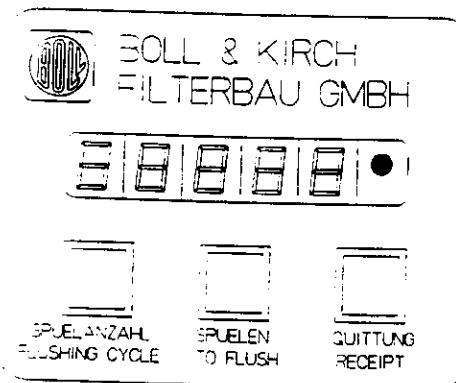


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Turn the selector switch to the bottom position "Adjustment II".

Turn the main switch on the door front ON.

"Fil.-..." now appears in the display, depending on the filter type, and the LED operating
light comes on.

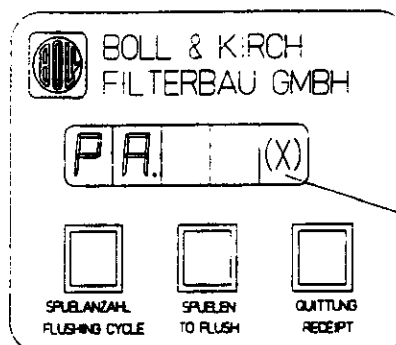


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If none of the three control keys is activated, the display is switched over after a short period to the display PA. ...

The numbers in the parameter display "PA. ..." depend on the filter type in question and can vary between "PA.1" and "PA.10".



PARAMETERANGABE

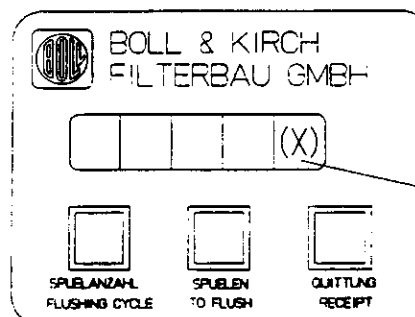
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The operator may only adapt the operating data of the parameters PA.2, PA.3, PA.4 and PA.8 to the prevailing operating conditions.

After activation of the "Acknowledge (Receipt)" key a variable number appears in the display.

This number must now be adapted to suit the operating conditions.



VARIABLE ZAHL

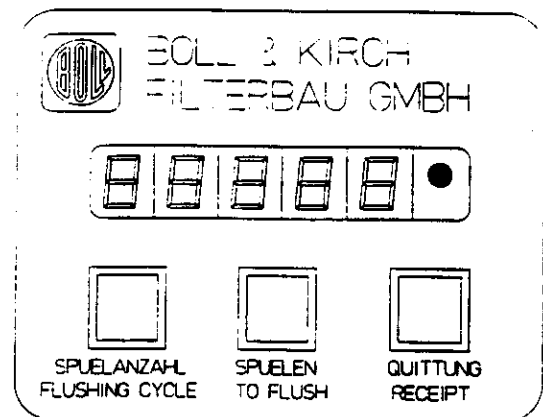
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- PA.2** Time-dependent back-flushing activation in hours from 0-59 h.
Adjustable in 1 h increments.
In all control versions
- PA.3** Time-dependent back-flushing activation in minutes from 0-59 min.
Adjustable in 1 min. increments.
In all control versions
- PA.4** Back-flushing time from 5 sec. to 100 sec.
Adjustable in 1 sec. increments
In all filter types apart from 6.23/6.24/6.23.1/6.24.4
- PA.8** Flushing frequency monitoring
0 = Off; 1 = On
With filter type 6.60 alarm Δp activation
With filter type 6.61 alarm Δp activation
With filter type 6.61.07 alarm Δp activation
With filter type 6.62 alarm Δp activation

The number is increased with the key
"Flushing cycle".

The number is reduced with the key "Flush".

When the right number has been reached, it
must be acknowledged with the
"Acknowledge (Receipt)" key.

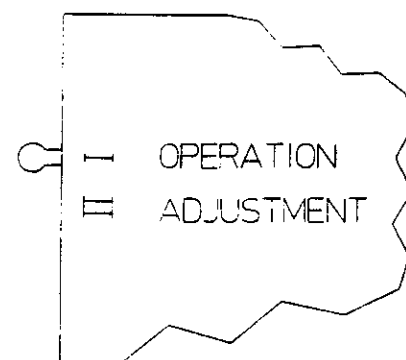


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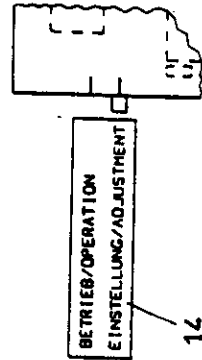
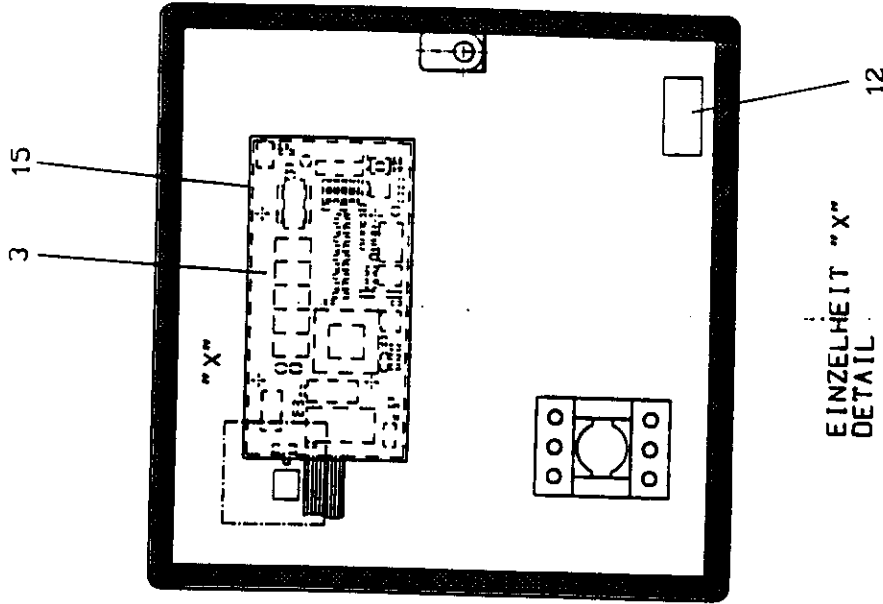
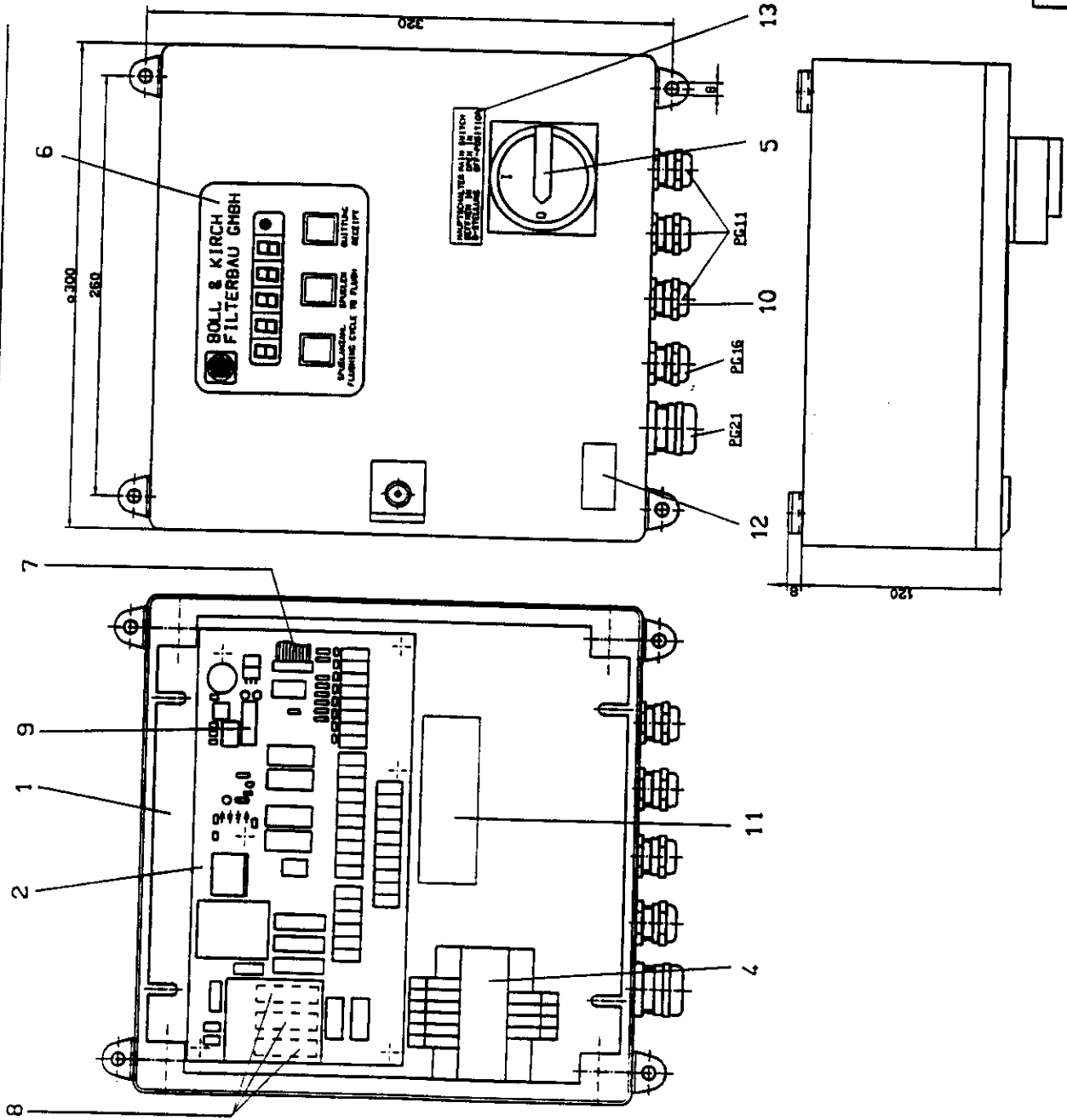
On completion of the entries it is imperative for the "Acknowledge (Receipt)" key to be activated at least twice for software reasons (The display also changes to the next parameter display).
Now turn the selector switch back into the top position "Operation".

Operation
Adjustment



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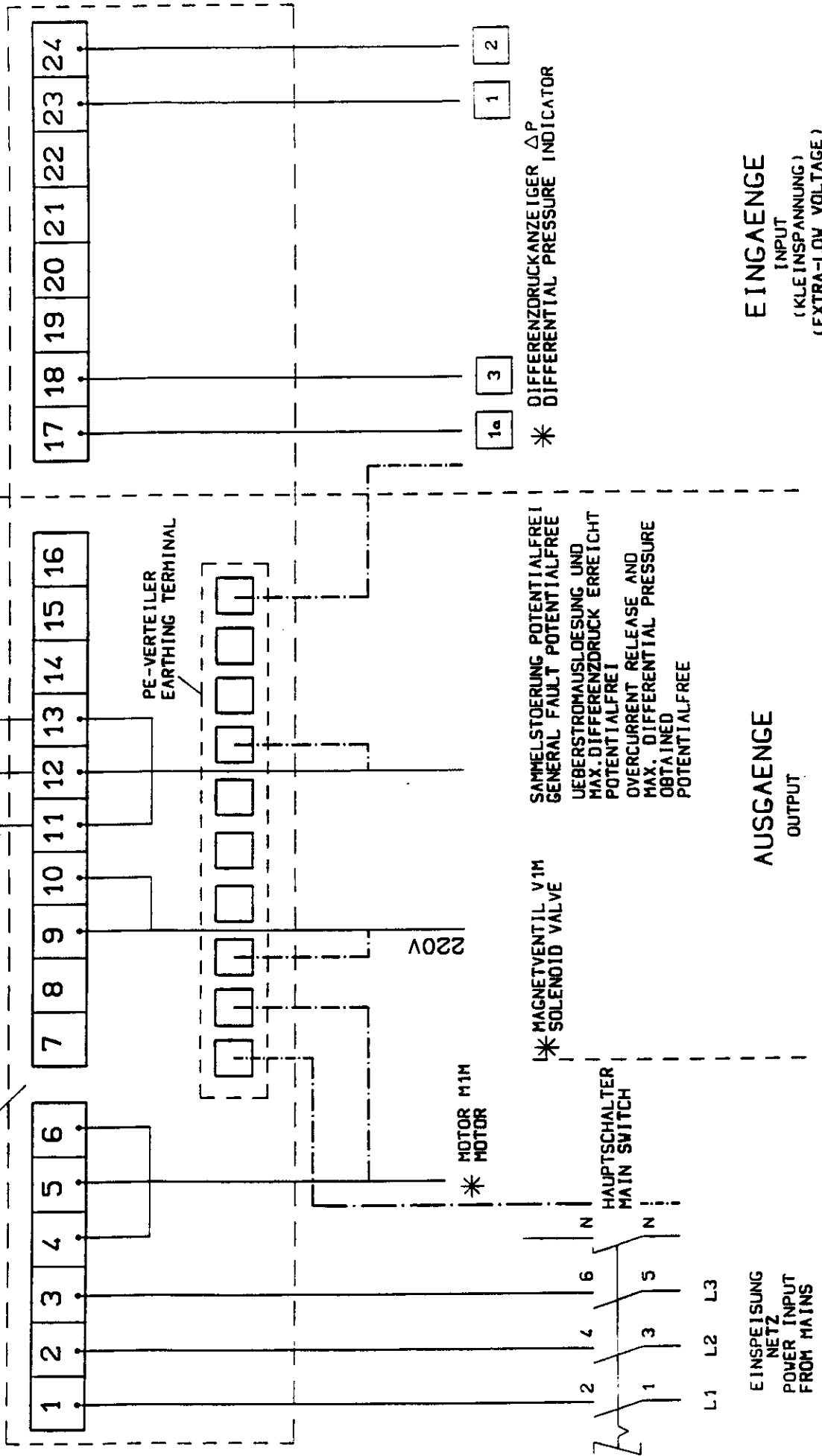
The abbreviation of the filter control selected, Fil.- ..., now appears in the display.



BOLL & KIRCH FILTERBAU GMBH SIEGENSTRASSE 30 5170 KEMPEN-RIEDEN		MASSTAB 1	
ELECTRONIC CONTROL		TYP 2100	
ELECTRONISCHE STEUERUNG		Z37779	

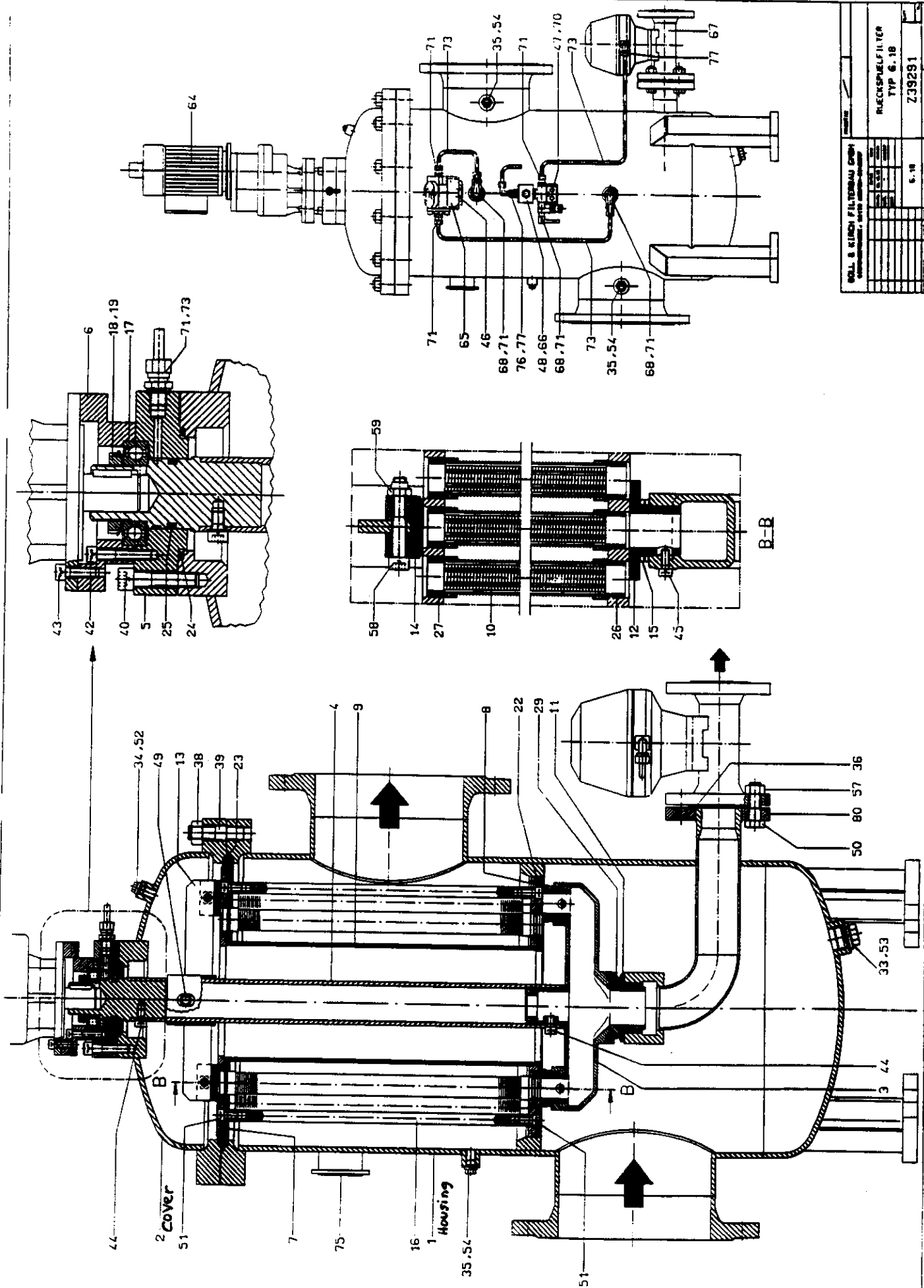
KONTAKTE
CONTACT
MAX. 250V; 3A

KLEMMLEISTE SCHALTSTRANK
TERMINAL STRIP CONTROL BOX



KLEMMPLAN "FIL.-6"				TERMINAL DIAGRAM	
TYP 6.17/6.18/6.19/6.44				BOLL & KIRCH FILTERBAU GMBH	
STIEGENSTRASSE, 50170 KEMPEN-SINDORF				Z37793	
DATE	NAME	DATE	NAME		
01.01.01	01.01.01	01.01.01	01.01.01		
01.01.01	01.01.01	01.01.01	01.01.01		

* BEFINDET SICH AM FILTER
MOUNTED ON FILTER



ROLL & KIRCH FILTERBAU GMBH KREISWEILFILTREN TYP 6.18	
5.18	239291

UNTERLAGE LIST-NO	VERS	STUECKLISTE PARTS-LIST	DATUM DATE	BLATT PAGE
18113	00		17.07.00	1
ZPOS IDENTNR IDENTITY	BENENNUNG-NENNMASS-NORM DESIGNATION-DIMENSIONS-STANDARD		MENGE ME QUANTITY ME	
0000 0618113	6.18	DN200 RUECKSPUEL. 18113 BACK FLUSHING FILTER	1.000	ST
.....				
		ZUSAMMENSTELLUNG : Z39291		
		ASSEMBLY DRAWING		
		MASSBLATT : Z39492		
		DIMENSION PAGE		
		AUSLEGUNGSART : AD - MERKBLAETTER		
		DESIGN CODE		
		AUSLEGUNGSUEBERDRUCK: 16 BAR / 120 GRD C		
		DESIGN PRESSURE		
		PRUEFUEBERDRUCK :1.3X AUSLEG. UEBERDRUCK		
		TEST PRESSURE :1.3X CALCULATION PRESS.		
.....				

0001 6514189		GEHAEUSE HOUSING	1.000	ST
0002 6414190		DECKEL COVER	1.000	ST
0003 5741820		SPUELARM FLUSHING CANAL	1.000	ST
0004 5011629		KUPPLUNG COUPLING	1.000	ST
0004 6811632		VERBINDUNGSWELLE CONNECTION SHAFT	1.000	ST
0005 5612618		FLANSCH FLANGE	1.000	ST
0006 5015346		MOTORFLANSCH MOTOR FLANGE	1.000	ST
0007 5014062		SIEBPLATTE OBEN SIEVE PLATE	1.000	ST
0008 5014072		SIEBPLATTE UNTEN SIEVE PLATE	1.000	ST
0009 5014443		DISTANZROHR DISTANCE TUBE	1.000	ST
0010		SPALTKERZE 29X400	40.000	ST
0011 5376182		LAGERBUCHSE BEARING BUSH	1.000	ST
.....				

UNTERLAGE LIST-NO	VERS	STUECKLISTE PARTS-LIST	DATUM DATE	BLATT PAGE
18113	00		17.07.00	2
ZPOS IDENTNR IDENTITY	BENENNUNG-NENNMASS-NORM DESIGNATION-DIMENSIONS-STANDARD	MENGE ME QUANTITY ME		
0012 5376181	SPUELBUCHSE BUSHING	2.000 ST		
0013 5016005	ABDECKARM COVER	1.000 ST		
0014 2550104	ABDECKPLATTE 6.17 COVER PLATE	2.000 ST		
0015 2310110	WELLENFEDER SPRING	2.000 ST		
0016 5012375	ANKER ANCHOR BOLT	5.000 ST		
0017 2708036	RILLENKUGELLAGER DEEP GROOVE BALL THR	1.000 ST		
0018 2705076	WELLENMUTTER SHAFT NUT	1.000 ST		
0019 2700475	SICHERUNGSBLECH TAB WASHER	1.000 ST		
0022 3040710	O-RING GASKET	1.000 ST		
0023 3040153	O-RING GASKET	1.000 ST		
0024 3041122	O-RING GASKET	1.000 ST		
0025 3044203	O-RING GASKET	1.000 ST		
0026 3040023	O-RING GASKET	40.000 ST		
0027 3140003	RUNDSCHNURRING ROUND CORD RING	40.000 ST		
0029 3542192	V-RING V-SEAL	1.000 ST		
0033 3270006	DICHTRING GASKET	1.000 ST		
0034 3270002	DICHTRING GASKET	1.000 ST		
				/ 3

UNTERLAGE LIST-NO	VERS	STUECKLISTE PARTS-LIST	DATUM DATE	BLATT PAGE
18113	00		17.07.00	3
ZPOS IDENTNR IDENTITY		BENENNUNG-NENNMASS-NORM DESIGNATION-DIMENSIONS-STANDARD		MENGE ME QUANTITY ME
0035 3270002		DICHTRING GASKET		3.000 ST
0036 3380065		HOCHDRUCKDICH. GASKET		1.000 ST
0038 2110020		SECHSKANTMUTTER HEXAGON NUT		16.000 ST
0039 2016608		STIFTSCHRAUBE STUD BOLT		16.000 ST
0040 2013300		ZYL.-SCHRAUBE HEXAGON SOCKET HEAD		4.000 ST
0042 2010897		ZYL.-SCHRAUBE HEXAGON SOCKET HEAD		6.000 ST
0043 2010310		ZYL.-SCHRAUBE HEXAGON SOCKET HEAD		4.000 ST
0044 2010318		ZYL.-SCHRAUBE SLOTTED CHESSE HEAD		2.000 ST
0045 2010307		ZYL.-SCHRAUBE HEXAGON SOCKET HEAD		2.000 ST
0046 2010307		ZYL.-SCHRAUBE HEXAGON SOCKET HEAD		2.000 ST
0047 2014994		ZYL.-SCHRAUBE HEXAGON SOCKET HEAD		2.000 ST
0048 2015432		ZYL.-SCHRAUBE HEXAGON SOCKET HEAD		2.000 ST
0049 2010318		ZYL.-SCHRAUBE SLOTTED CHESSE HEAD		1.000 ST
0050 2018145		SECHSKANTSCHRAUBE HEXAGON HEAD PIPE PL		4.000 ST
0051 2010319		ZYL.-SCHRAUBE SLOTTED CHESSE HEAD		10.000 ST
0052 2013048		VERSCHLUSSCHRAUBE HEXAGON HEAD SCREW P		1.000 ST
0053 2010213		VERSCHLUSSCHRAUBE HEXAGON HEAD SCREW P		1.000 ST

UNTERLAGE LIST-NO	VERS	STUECKLISTE PARTS-LIST	DATUM DATE	BLATT PAGE
18113	00		17.07.00	4
ZPOS IDENTNR IDENTITY		BENENNUNG-NENNMASS-NORM DESIGNATION-DIMENSIONS-STANDARD		MENGE ME QUANTITY ME
0054 2013048		VERSCHLUSSCHRAUBE HEXAGON HEAD SCREW P		3.000 ST
0057 2110019		SECHSKANTMUTTER HEXAGON NUT		4.000 ST
0058 2010589		ZYL.-SCHRAUBE HEXAGON SOCKET HEAD		2.000 ST
0059 2115515		SICHERUNGSMUTTER NUT		2.000 ST
0064 4500100		G.MOTOR 5.5/6.6UPM GEAR MOTOR		1.000 ST
0065 0551248		4.46.2 P = 0.5 DDA 0551248 DIFFERENTIAL PRESSURE CONTACT INDIC.		1.000 ST
0066 2660011		MAGN.VENTIL ELECTRO VALVE		1.000 ST
0066 4206552		SPULE COIL		1.000 ST
0067 2601015		VENTIL VALVE		1.000 ST
0068 2500068		KUGELHAHN I. BALL COCK		3.000 ST
0070 6711643		BEFESTIGUNGSBLECH FASTENING PLATE		1.000 ST
0071 2510035		VERSCHRAUB. SCREWING		7.000 ST
0073 7319792		ROHR NAHTLOS (PRÄZ. PIPE		3.000 M
0075 9401690		TYPENSCHILD NAME PLATE		1.000 ST
0076 2563883		KOPFMUFFE SOCKET		1.000 ST
0077 2510036		VERSCHRAUB. SCREWING		2.000 ST
0080 5002476		GEW.FL. FLANGE		1.000 ST
				/ 5

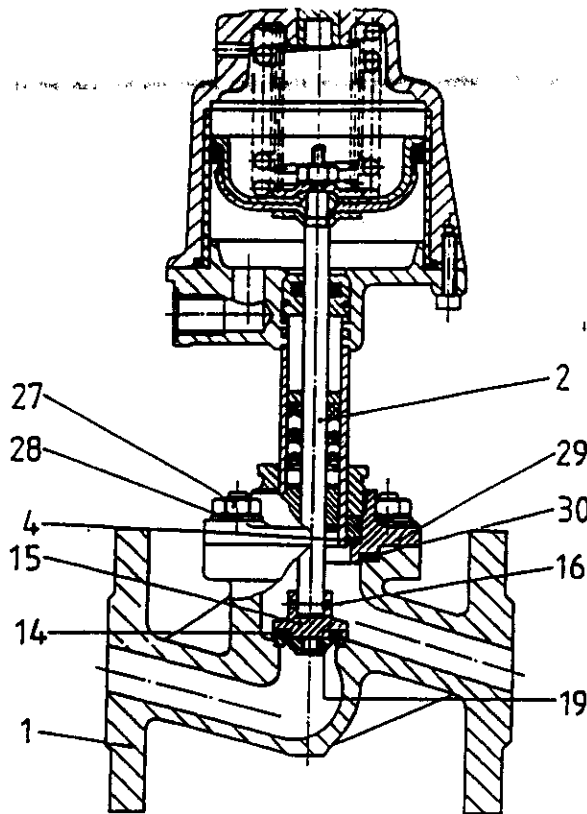
UNTERLAGE LIST-NO	VERS	STUECKLISTE PARTS-LIST	DATUM DATE	BLATT PAGE
18113	00		17.07.00	5
ZPOS IDENTNR IDENTITY		BENENNUNG-NENNMASS-NORM DESIGNATION-DIMENSIONS-STANDARD		MENGE ME QUANTITY ME
0100		STEUERUNG NACH AUFTR		1.000 ST
.....				

10. Maintenance

Maintenance includes checking the seals, the rust inhibitor (paintwork, coating, rubber coating) and thorough cleaning using pressure cleaners and deliming of the filter candles when the flushing intervals become shorter.

The bearings of the back-flushing facility (3) and the gearmotor (64) do not have regreasing facilities. The gearmotor should merely be filled with new grease after 5000 hours of operation. 5000 hours of operation of the gearmotor correspond to a filter operating period of roughly 6 years.

For safety reasons it is imperative to assign the relevant alarm contact of the differential pressure indicator (65) (Δp 0.5 bar).



1 Ventilkörper	1 Valve body
4 Dichtring	4 Gasket
12 Verschlusskappe	12 Cap
14 Dichtring	14 Seat seal PTFE
15 Ventilteller	15 Valve plug
16 Nietstift	16 Pin
19 Tellerscheibe	19 Retaining nut
27 Sechskantmutter	27 Nut
28 Federring	28 Lock washer
29 Flansch	29 Flange plate
30 Dichtring	30 Gasket
35 Steuerkopf komplett	35 Actuator complete

Wartung : Das gesamte Ventil ist wartungsfrei

Maintenance : the valve is maintenance free.

I Montage Ventilteller (15)

1. Spindel (2) komplettieren

Dichtring (14) in Ventilteller (15) einlegen und mittels Tellerscheibe (19) festspannen. Ventilteller komplett mit Nietstift (16) mit Spindel (2) verstiften. Achtung: Ventilteller darf nicht fest auf Spindel sitzen.

2. Ventil komplettieren

Dichtring (30) in Ventilkörper (1) einlegen. Dann Flansch (29) aufsetzen und mit 4 Sicherungsringen (28) und Muttern (27) am Ventilkörper (1) verschrauben. Dichtring (4) in Flansch (29) einlegen. Steuerkopf (35) in Ventilkörper (1) einsetzen. Steuerkopf (35) mit Steuermedium kurz ansteuern, damit Dichtring vom Sitz abgehoben wird. Oberteil so ausrichten, daß Steueranschluß die gewünschte Richtung einnimmt. Steuerkopf (35) mittels Mutter mit Ventilkörper (1) verschrauben. Die Demontage wird in umgekehrter Reihenfolge vorgenommen.

II Einbauhinweise

1. Einbaulage : Das Ventil kann in jeder Lage eingebaut werden.
2. Durchfluß : Die Durchflußrichtung ist mit einem Pfeil gekennzeichnet. Sie muß eingehalten werden.
3. Betriebsdruck : Der max. zul. Betriebsdruck darf nicht überschritten werden. Er ist auf dem Typenschild angegeben.
4. Fremdsteuerdruck : Der min. u. max. Fremdsteuerdruck ist auf dem Typenschild angegeben. Er muß eingehalten werden.
5. Reinigung : Das Ventil läßt sich leicht reinigen, indem man die Überwurfmutter löst und das gesamte Oberteil aus dem Ventilkörper (1) herausnimmt.

I Assembly valve plug (15)

1. To assemble spindle (2)

Position the seat (14) into the valve plug (15) and secure with retaining lock nut (19). Insert the spindle (2) into the valve plug (15) and secure with pin (16). Caution: Ensure the valve head is flexible on the spindle.

2. Valve assembly

Insert the gasket (30) into the valve body (1). Position the flange (29) and secure to the valve body with nuts (27) and spring washers (28). Insert the gasket (4) into the flange (29). Place actuator assembly (35) over the valve body (1) and pressurise the actuator to lift the valve head off the valve seat. Position the actuator with the control connection in the required direction and secure the actuator assembly (35) to the valve body (1) assemble with the retaining nut. Dismantling is undertaken in the reverse sequence.

II Fitting Instructions

1. Position : the valve can be mounted in any position.
2. Flow : a direction arrow indicates the flow direction.
3. Working pressure : is specified on the valve type label and must not be exceeded.
4. Control pressure : minimum and maximum control pressures are specified on the valve type label and must be adhered to.
5. Cleaning : the valve is easy to clean and is achieved by loosening the retaining nut and removing the actuator assembly from the valve body (1).

Bei Ersatzbestellung genaue Daten nach Typenschild angeben !

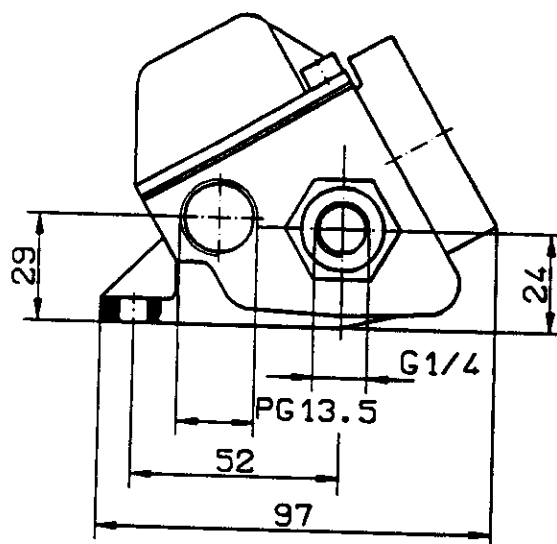
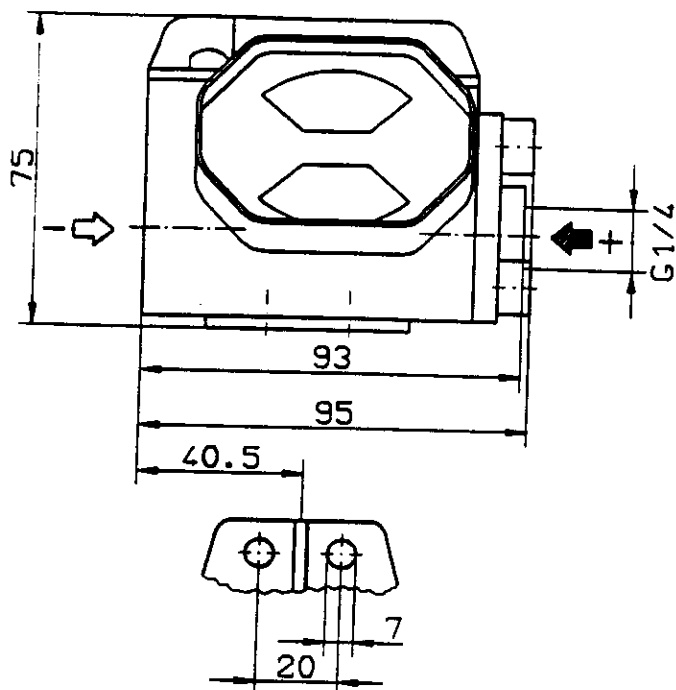
When ordering please state full details from valve type label !

Ersatzteilzeichnung zum Ventil Typ 512 DN 15-50
spare part drawing to valve typ 512 DN 15-50

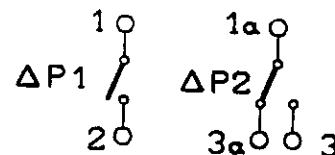
01.12.87

BOLL & KIRCH FILTERBAU GmbH
D 5014 Kerpen

3-26809



CIRCUIT DIAGRAM



SPECIFICATION:
PROTECTION CLASS: IP 65

ELECTR. DATA:	SWITCHING VOLTAGE V _≠	MAX. = 250	220
	FREQUENCY HZ	MAX. = 0-60	0-60
	SWITCHING CURRENT A	MAX. = 1	0.8
	MAKING AND/OR BREAKING CAPACITY W/VA MAX. =	60/60	40/60
MATERIAL :	HOUSING MADE OF GD-ALUMINIUM ALL PARTS IN CONTACT WITH MEDIUM UNDER PRESSURE OF VA-STEEL		
RATING :	MAX. PRESSURE 160 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:

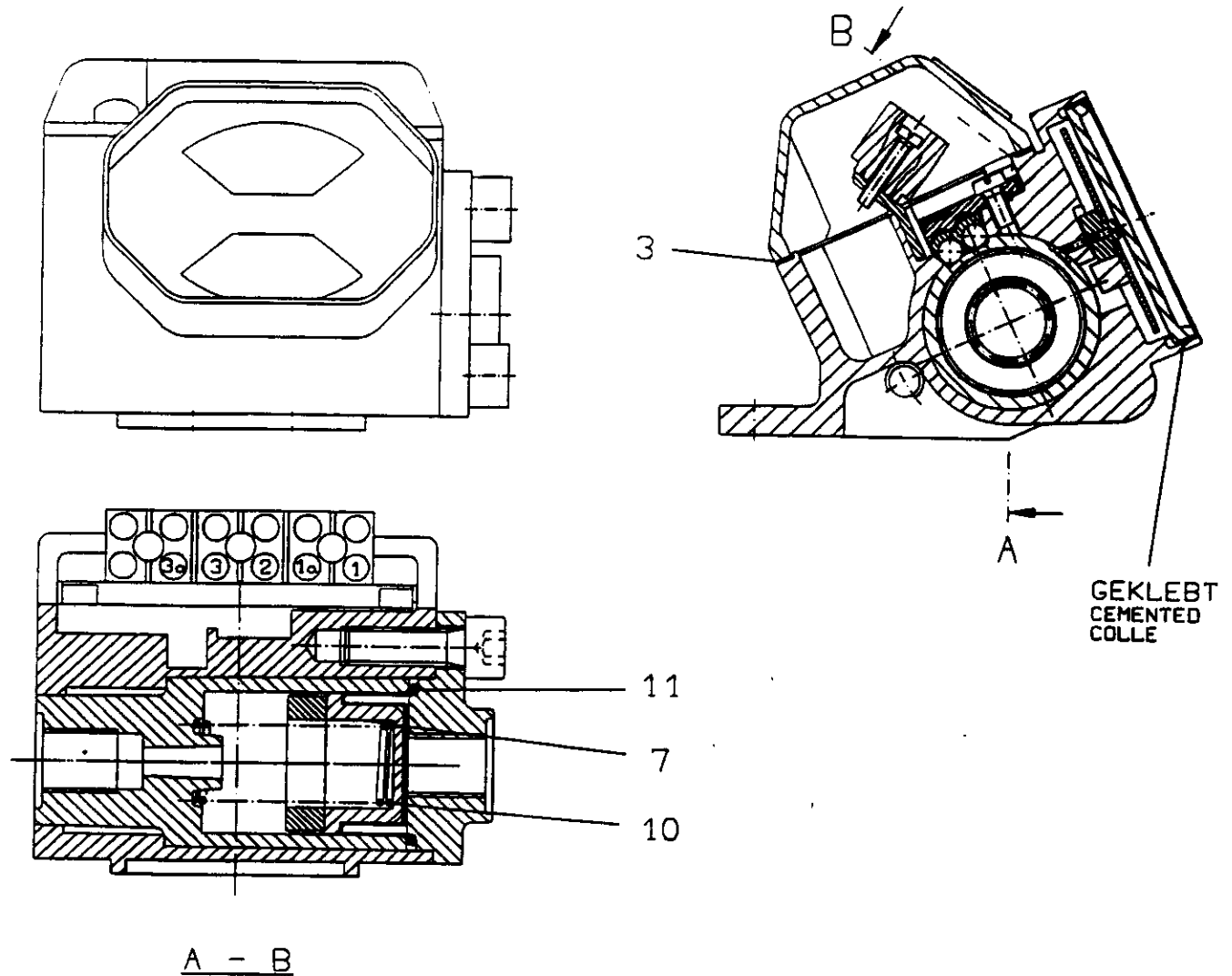
THE PURPOSE OF THIS DEVICE IS THE MEASUREMENT, AND VISUAL INDICATION OF THE DIFFERENCE IN PRESSURE BETWEEN TWO POINTS, AND THE ESTABLISHMENT OF AN ELECTRICAL CONTACT WHEN THE PRESSURE DIFFERENTIAL ATTAINS A SPECIFIED FIGURE.

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



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	DÉSIGNATION	
SPARE PARTS DRAWING				
ERSATZTEILZEICHNUNG				
ZUM TYP 4.36.2 UND 4.46.2				
PLAN DES PIÈCES DE RECHANGE				