

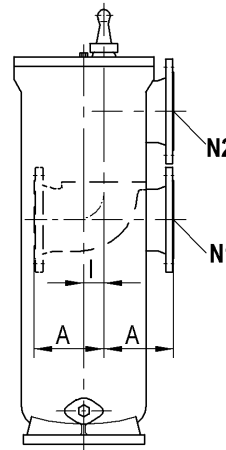
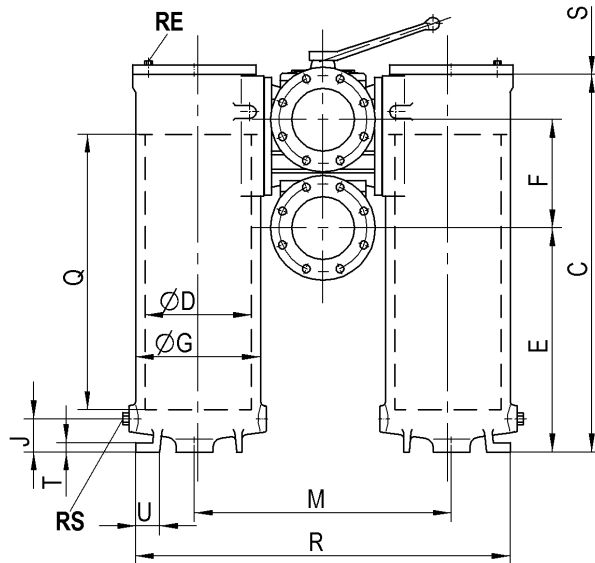
DESCRIPTION AND OPERATING INSTRUCTIONS

FOR THE DUPLEX FILTER

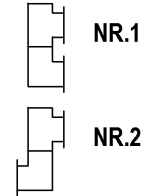
Contents:

1. Type sheet
2. Spare parts drawing and spare parts list
3. Description and Operating Instructions for the duplex filter
4. Description and Operating Instructions for the filter element cleaning
5. Data Sheet for the Differential Pressure Indicator (to order)
6. Spare parts drawing for the Differential Pressure Indicator (to order)

Z100403
TYP2.05.5
29.01.2003

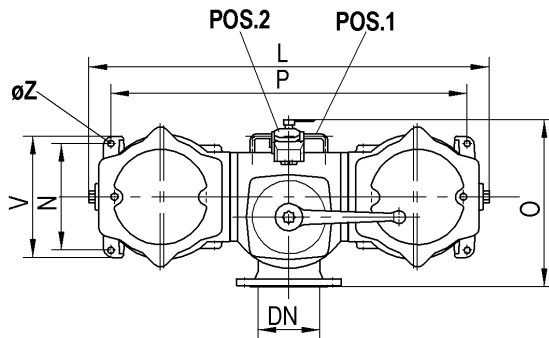


ANORDNUNG DER FLANSCH
DISPOSITION OF THE FLANGES
DISPOSITION DES BRIDES



N1 FILTEREINTRITT
FILTERINLET
ENTRÉE DE FILTRE

N2 FILTERAUSTRITT
FILTEROUTLET
SORTIE DU FILTRE



N1/N2 NACH DIN2501 ODER ASME B16.5 150 lbs sq.in.
ENTSPRECHEND DER DRUCKSTUFE GEBORHT
N1/N2 ACC. TO DIN2501 OR ASME B16.5 150 lbs sq.in.
DRILLED ACC. TO PRESSURE CLASS
N1/N2 D'APRÈS DIN2501 OU ASME B16.5 150 lbs sq.in.
PERCÉE SUIVANT ÉTAGE DE PESSION

BEI KORB- ODER RINGSIEB DURCHFLUSS ENTGEGENGESETZT
WITH BASKET-OR RING-ELEMENTS
FLOW IN OPOSITE DIRECTION
AVEC DES PANIERS A CORBEILLE OU A ANNEAUX LE
PASSAGE EST EN SENS CONTRAIRE

RE ENTLÜFTUNG G1/2
AIR ESCAPE
DÉSAÉRATION

RS ENTLERUNG G1 1/2
DRAIN
VIDANGE

S SIEBAUSBAU
DISMOUNTING THE FILTER ELEMENT
DÉMONTAGE DU PANIER

* S=Q BEI MANTELSIEB
BY MULTI MANTLE ELEMENT
POUR LE PANIERS A MANTEAUX

GEHÄUSE GEGOSSEN
CASING CASTED
CORPS MOULÉ

AUF WUNSCH, ON REQUEST, SUR DEMANDE

POS.1 DRUCKAUSGLEICH
EQUALIZATION OF PRESSURE
ÉQUILIBRAGE DE PRESSION

POS.2 DIFFERENZDRUCKANZEIGER
DIFFERENCE PRESSURE INDICATOR
INDICATEUR DE DIFFÉRENCE DE PRESSION

BESTELLBEISPIEL
ORDERING EXAMPLE
EXEMPLE DE COMMANDE

TYP	ØG	Q	DN
2.05.5	340	750	150

ALLGEMEINTOLERANZEN DIN ISO 2768-v
TOLERANCE DIN ISO 2768-v
TOLÉRANCE DIN ISO 2768-v

ØG	Q	DN N1/N2	PN/ 120°C	A	C	ØD	E	F	J	L	M	O	R	*S	I	V	N	ØZ	P	T	U	VOL. L	GEW. KG
265	500	100	10	160	745	230	400	240	75	890	570	395	830	650	40	265	220	14	770	20	65	2x35	235
	995				650		900	2x47						270									
	500	125			745	377	260	920	600	400	860	650	35	265	220	14	800	2x35	245				
	995				627	900	2x47	280															
340	500	150	10	190	778	290	360	295	90	1090	700	470	1020	680	55	330	290	18	970	25	65	2x50	350
	1020				610		920	2x65						420									
420	500	200	10	225	895	356	220	480	90	1385	920	550	1320	760	65	420	360	18	1260	25	80	2x96	585
	1110				435		1010	2x126						635									
	750	250		270	1155	387	525	1525	1055	585	1450	1010	68	520	460	23	1590	25	90	2x218	1110		
520	750	250	10	270	1215	434	432	525	95	1720	1160	585	1650	1010	68	520	460	23	1590	25	90	2x218	1110

SUBJECT TO ALTERATION

ÄNDERUNGEN VORBEHALTEN

MODIFICATIONS RÉSERVÉES

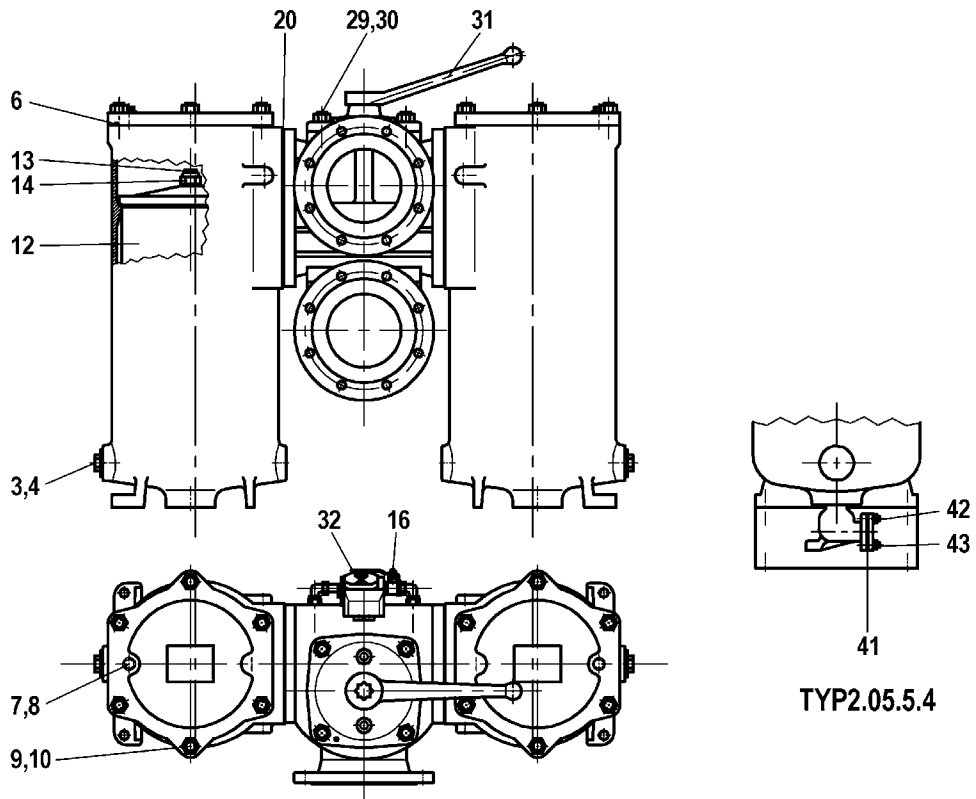
DUPLEX FILTER

DOPPELFILTER 2.05.5

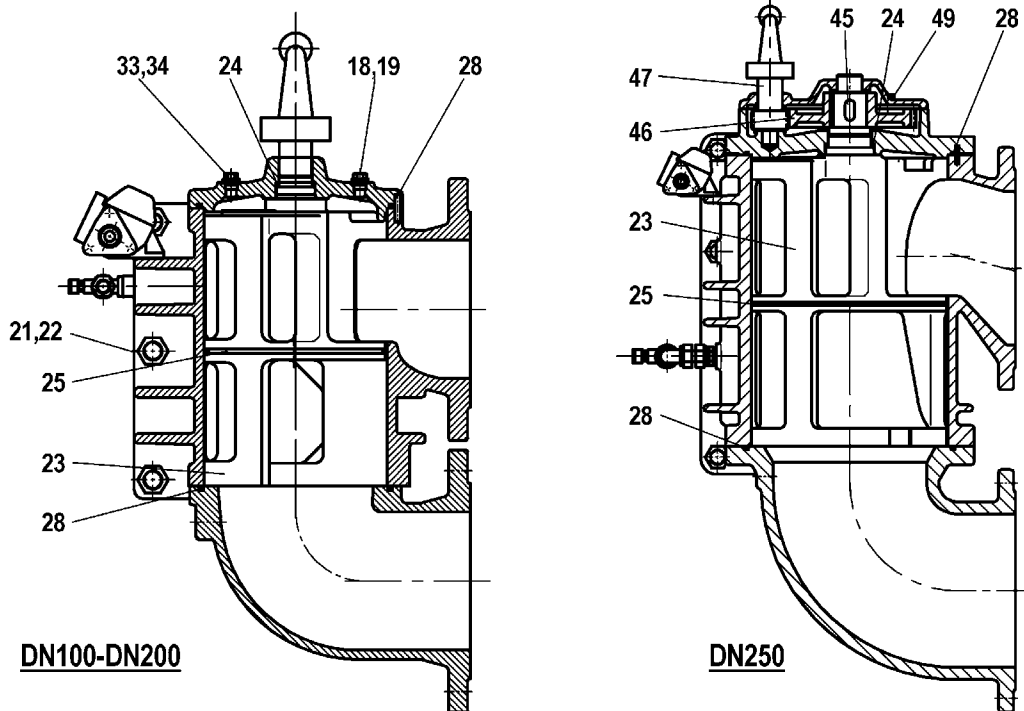
FILTRE DOUBLE

Z22135

11.04.2000



TYP2.05.5.4



DN100-DN200

DN250

SPARE PART LIST

ERSATZTEILLISTE TYP2.05.5(.4)

LIST DES PIÈCES
DE RECHANGE

ERSATZTEILLISTE TYP 2.05.5 UND 2.05.5.4
SPARE PART LIST LISTE DES PIECES DE RECHANGE

Typenschlüssel:

2.05.5	=	Doppelfilter	duplex filter	Filtre doubles
G	=	Gehäusedurchmesser	cabin diameter	diamètre du corps
Q	=	Filtereinsatzlänge	length of the filter element	longueur du panier
DN	=	Anschlußflansche	connection flanges	brides désirées

Pos. Nr.	Bezeichnung designation désignation	Gr. 265.500 NW/NS/DS 100	St.	Gr. 265.750 NW/NS/DS 100	St.	Gr. 265.500 NW/NS/DS 125	St.	Gr. 265.750 NW/NS/DS 125	St.	Gr. 340.500 NW/NS/DS 150	St.	Gr. 340.750 NW/NS/DS 150	St.
3	Verschlußschraube screw plug vis	2000193	2	2000193	2	2000193	2	2000193	2	2000193	2	2000193	2
4	Dichtung gasket joint	3274855	2	3274855	2	3274855	2	3274855	2	3274855	2	3274855	2
6	O-Ring (Viton)	3030183	2	3030183	2	3030183	2	3030183	2	3030184	2	3030184	2
	O-Ring	3040131		3040131		3040131		3040135		3040135			
	O-Ring (Perbunan)	3040131		3040131		3040131		3040135		3040135			
7	Verschlußschraube screw plug vis	2000189	2	2000189	2	2000189	2	2000189	2	2000189	2	2000189	2
8	Dichtung gasket joint	3270004	2	3270004	2	3270004	2	3270004	2	3270004	2	3270004	2
9	Stiftschraube stud bolt vis	2009088	12	2009088	12	2009088	12	2009088	12	2000009	12	2000009	12
10	Mutter nut écrou	2100007	12	2100007	12	2100007	12	2100007	12	2100008	12	2100008	12
12	Siebeinsatz filter element élément filtrant	Fabr.Nr. Filtertyp		Fabr.No. Filtertype		Fabr.No. Type de Filtre		Fabr.Nr. Filtertyp		Fabr.No. Filtertype		Fabr.No. Type de Filtre	

Pos. Nr.	Bezeichnung designation désignation	Gr. 265.500 NW/NS/DS 100	St.	Gr. 265.750 NW/NS/DS 100	St.	Gr. 265.500 NW/NS/DS 125	St.	Gr. 265.750 NW/NS/DS 125	St.	Gr. 340.500 NW/NS/DS 150	St.	Gr. 340.750 NW/NS/DS 150	St.
13	Anker bolt vis	WN 5.1.91 (1) WN 5.1.92 (2)	2	WN 5.1.94 WN 5.1.95	2	WN 5.1.91 WN 5.1.92	2	WN 5.1.94 WN 5.1.95	2	WN 5.1.91 WN 5.1.92		WN 5.1.94 WN 5.1.95	2
13 a	Stiftschraube stud bolt vis	2000104 (1) 2004950 (2)	2	2003830 (1) 2000968 (2)	2	2000104 (1) 2004950 (2)	2	2003830 (1) 2000968 (2)	2	2003830 (1) 2000968 (2)	2	2003830 (1) 2000968 (2)	2
14	Mutter nut écrou	2100035	2	2100035	2	2100035	2	2100035	2	2100035	2	2100035	2
16	Druckausgleich equalization of pressure équilibrage de pression	0202001	1	0202001	1	0203221	1	0203221	1	0203221	1	0203221	1
18	Verschlussschraube screw plug vis	2002885	1	2002885	1	2002885	1	2002885	1	2002885	1	2002885	1
19	Dichtung gasket joint	3270002	1	3270002	1	3270002	1	3270002	1	3270002	1	3270002	1
20	Dichtung gasket joint	3540022	2	3540022	2	3540022	2	3540022	2	3540017	2	3540017	2
21	Stiftschraube stud bolt vis	2009088	12	2009088	12	2009088	12	2009088	12	2000008	12	2000008	12
22	Mutter nut écrou	2100007	12	2100007	12	2100007	12	2100007	12	2100008	12	2100008	12
23	Küken cock robinet	4-17977	1	4-17977	1	4-17957	1	4-17957	1	4-17643	1	4-17643	1
24	Sotef-Dichtung sotef-gasket sotef-joint	3420011	1	3420011	1	3420011	1	3420011	1	3420011	1	3420011	1

Pos. 13 + 13a =

Bei Mantelsieb (1) und Gewebesteckkerzeneinsatz (2) zusätzlich.

These items are supplementary by multimantle element (1) and filter-candle-element (2)

En supplément avec panier à manteaux (1) et cartouches (2) filtrantes

Pos. Nr.	Bezeichnung designation désignation	Gr. 420.500 NW/NS/DS 200	St.	Gr. 420.750 NW/NS/DS 200	St.	Gr. 420.750 NW/NS/DS 250	St.	Gr. 520.750 NW/NS/DS 250	St.				
3	Verschlußschraube screw plug vis	2000193	2	2000193	2	2000193	2	2000193	2				
4	Dichtung gasket joint	3274855	2	3274855	2	3274855	2	3274855	2				
6	O-Ring (Viton)	3034406	2	3034406	2	3034406	2	3031074	2				
	O-Ring	3040151		3040151		3040155							
	O-Ring (Perbunan)	3040151		3040151		3040155							
7	Verschlußschraube screw plug vis	2000189	2	2000189	2	2000189	2	2000189	2				
8	Dichtung gasket joint	3270004	2	3270004	2	3270004	2	3270004	2				
9	Stiftschraube stud bolt vis	2000011	16	2000011	16	2000011	16	2009094	24				
10	Mutter nut écrou	2100008	16	2100008	16	2100008	16	2100009	24				
12	Siebeinsatz filter element élément filtrant	Fabr.Nr. Filtertyp		Fabr.No. Filtertype		Fabr.No. Type de Filtre		Fabr.Nr. Filtertyp					
13	Anker bolt vis	WN 5.1.92	2	WN 5.1.94	2	WN 5.1.94	2	WN 5.1.95 4-7094 (2)	2				
		WN 5.1.98		WN 5.1.95		WN 5.1.95							
13 a	Stiftschraube stud bolt vis	2004950 (1)	2	2000102 (1)	2	2000102 (1)	2	7203893 (1)	2				
		2008279 (2)		2004950 (2)		2004950 (2)							
14	Mutter nut écrou	2100035	2	2100035	2	2100035	2	2100035	2				

Pos. 13 + 13a = Bei Mantelsieb (1) und Gewebesteckkerzeneinsatz (2) zusätzlich / These items are supplementary by multimantle element (1) and filter-candle-element (2)
En supplément avec panier à manteaux (1) et cartouches (2) filtrantes

Pos. Nr.	Bezeichnung designation désignation	Gr. 420.500 NW/NS/DS 200	St.	Gr. 420.750 NW/NS/DS 200	St.	Gr. 420.750 NW/NS/DS 250	St.	Gr. 520.750 NW/NS/DS 250	St.				
16	Druckausgleich equalization of pressure équilibrage de pression	0203221	1	0203221	1	0203568	1	0203568	1				
18	Verschlußschraube screw plug vis	2002885	1	2002885	1	2002885	1	2002885	1				
19	Dichtung gasket joint	3270002	1	3270002	1	3270002	1	3270002	1				
20	Dichtung gasket joint	3540024	2	3540024	2	3540028	2	3540028	2				
21	Stiftschraube stud bolt vis	2000009	16	2000009	16	2000101	20	2000101	20				
22	Mutter nut écrou	2100008	16	2100008	16	2100009	20	2100009	20				
23	Küken cock robinet	3-19029	1	3-19029	1	3-21142	1	3-21142	1				
24	Sotef-Dichtung sotef-gasket sotef-joint	3420011	1	3420011	1	3420013	1	3420013	1				
25	O-Ring (Viton) O-Ring O-Ring (Perbunan)	3033860 3040132	1	3033860 3040132	1	3030185 3040136	1	3030185 3040136	1				
28	O-Ring (Viton) O-Ring O-Ring (Perbunan)	3031065 3040133	2	3031065 3040133	2	3031066 3050256	2	3031066 3050256	2				
29	Stiftschraube stud bolt vis	2000009	12	2000009	12	2000010	16	2000010	16				
30	Mutter nut écrou	2100008	12	2100008	12	2100008	16	2100008	16				

Pos. Nr.	Bezeichnung designation désignation	Gr. 420.500 NW/NS/DS 200	St.	Gr. 420.750 NW/NS/DS 200	St.	Gr. 420.750 NW/NS/DS 250	St.	Gr. 520.750 NW/NS/DS 250	St.				
31	Hahnschlüssel reversing handle clé	WN 48-1 8650055	1	WN 48-1 8650055	1	WN 48-1 8650481	1	WN 48-1 8650481	1				
32	Differenzdruckanzeiger diff.pressure indicator indicator de difference de pression	Typ Druck		Type Pressure		Type Pression		Typ Druck					
33	Verschlußschraube screw plug vis	2002885	2	2002885	2	2002885	2	2002885	2				
34	Dichtung gasket joint	3270002	2	3270002	2	3270002	2	3270002	2				
41	Dichtung gasket joint	3380049	2	3380045	2	3380045	2	3380045	2				
42	Stiftschraube stud bolt vis	2000001	4	2000001	4	2000001	4	2000003	4				
43	Mutter nut écrou	2100004	4	2100004	4	2100004	4	2100005	4				
45	Passfeder parallel keys ressort d'adjustage					2400004	1	2400004	1				
46	Stirnzahnrad spur wheel pignon					2700015	1	2700015	1				
47	Ritzelwelle pinion shaft arbre de pignon					5600131	1	5600131	1				
49	Schraube screw vis					2000155	4	2000155	4				

INSTALLATION AND OPERATING INSTRUCTIONS FOR BOLL DUPLEX FILTERS

1. Description

Duplex filters which can be changed over consist of two filter housings operated in parallel by a two-stage change-over device. The filter housings are designed to meet the current regulations for a particular pressure range, the filter elements are provided with an appropriate safety factor for the differential pressures indicated on the filter nameplates. The maximum differential pressure for filter meshes is 0.8 bar, for micro-cartridges 2 bar.

Duplex filters are used in cases where the contaminated filter elements have to be regenerated without interrupting the filtration process.

The change-over devices, i.e. cylindrical plugs, ball valves or double-stage change-over valves, permit change-over without pressure shocks. Owing to the design of the change-over device it is not possible for both filter chambers to be switched off at the same time.



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).

2. Installation

When the filter is attached to its foundation, the filter housing must be free from strain. The same applies to the connected piping. The connections for the inlet and outlet depend on the strainer element used (see works standard WN 211). Pay attention to the arrow marked on the housing.

Heated filters with shut-off devices:

- Special equipment needed for heatable filters -



- a) Steam-heated filters:
Safety valves for the filter chamber set to operate at the relief pressure which is 10 % above the max. admissible operating pressure of the filter housing.
- b) Electrically heated filters:
Thermostats which cut off the power supply to the heating element at a max. admissible temperature of 150 °C in the filter chamber and one safety valve per filter pot.

Heating of the filter serves to offset the heating loss at the filter during the filtration process or before start-up of the plant to heat the liquid in the filter.



It is imperative for the pressure equalising cock to only remain closed in the cleaning phase so that there is no inadmissible pressure build-up through the thermal expansion of the medium in the isolated chamber.



In smaller duplex filters without pressure compensation the heat expansion of the medium is so low that there is no risk to the components.

3. Start-up

3.1 Pressure filters (> 0.1 bar pressure in the filter)

Set the change-over device to the mid-position, both chambers in service, pressure equalising cock open.

Open air vents of both chambers (with venting screws only about 1 turn).

Start plant up slowly.

Close air vents when the air has escaped and the liquid has started to emerge.

Isolate one filter chamber by operating the change-over device, leave the pressure equalising cock open; while one of the filter chambers is being used for filtering, the isolated chamber is on stand-by until the admissible differential pressure has built up as a result of clogging.

At a differential pressure of 0.8 bar in filter meshes or 2 bar in micro-cartridge filters change over to the clean filter chamber as follows:

Cleaning

- Check that the pressure equalising cock is open and whether the stand-by chamber is full by briefly opening the air vents.
- Change over.
- Close pressure equalising cock.
- Open the air vent on the isolated filter; this releases the liquid pressure and it is then possible to check whether the change-over device has cut off the flow to the filter chamber.

In contrast to the change-over and ball valve devices, complete sealing is not possible with the plug-type system; by opening the sludge outlet, liquid leaking during the cleaning process can be drained off.

- Remove the housing cover from the isolated filter chamber.
- Drain liquid down to the strainer base in the case of basket strainers; drain filter housing completely in the case of mantle strainers, cartridge strainers and micro-cartridges.
- Remove the filter element vertically upwards.
- Clean filter element (see operating instructions "Strainer cleaning"); renew disposable elements and install them in the filter.
- Before mounting the cover, check that the seal is in perfect condition and seated properly.

It is imperative to renew seals which have become hardened and deformed.

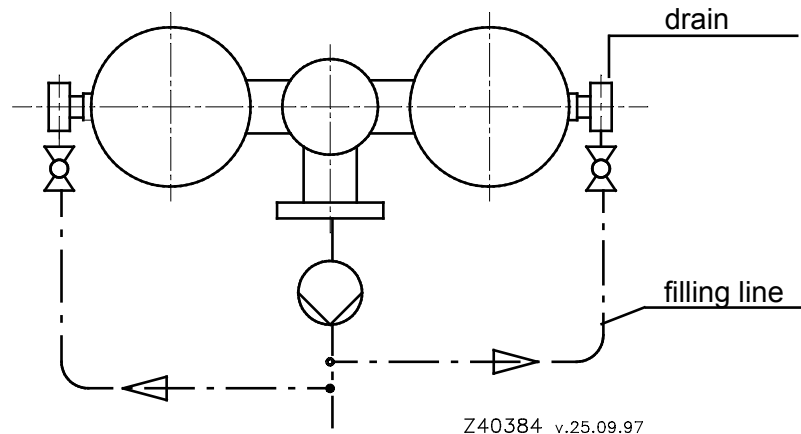
Screw cover on, the air vent remains open.

Open pressure equalising cock or, if not installed, set change-over device to mid position until the air has been vented.

- Close air vent. This filter is now on stand-by.

3.2 Suction filters (< 0.1 bar pressure in filter)

Recommended container filling for suction filters



- Fill and vent both filter halves.
- Isolate one of the filters with the change-over device, close pressure equalising cock.
- Start up the plant. While one filter chamber is being used for filtration, the isolated chamber is on stand-by. When the differential pressure across the filter reaches the maximum allowed by the pump suction head, a change-over to the other filter half must be made.
- Open pressure equalising cock.
- Change over.
- Close pressure equalising cock.
- Open air vent on the isolated filter half.



Air may be drawn in if the level drops.

- Dismantle the housing cover from the isolated filter half.
- Drain liquid down to the strainer base.
- Remove filter element vertically upwards.
- Clean filter element (see operating instructions "Strainer cleaning"). Renew disposable elements and install in the filter.
- Fill filter housing (see Fig.).
- Before mounting the cover, check that the seal is in perfect condition and seated properly.
It is imperative to renew seals which have become hardened and deformed.
Close air vent.
- The cleaned filter half is ready on stand-by. This procedure is to be repeated from section as and when required.



It is not permitted to fill the filter against the indicated flow direction of the filter elements.

4. **Servicing:**

Servicing of the duplex filter comprises checking and, if necessary, renew the seals and filter elements. If the filter is provided with rust-inhibiting paint, touch up or repaint as and when required.

When filtering cooling water or media which may cause sedimentation on the change-over device, it is advisable to activate the change-over device as often as possible and at regular intervals in order to prevent clogging.

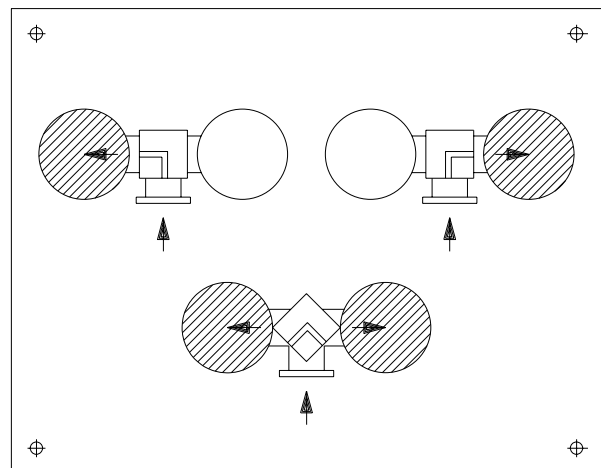
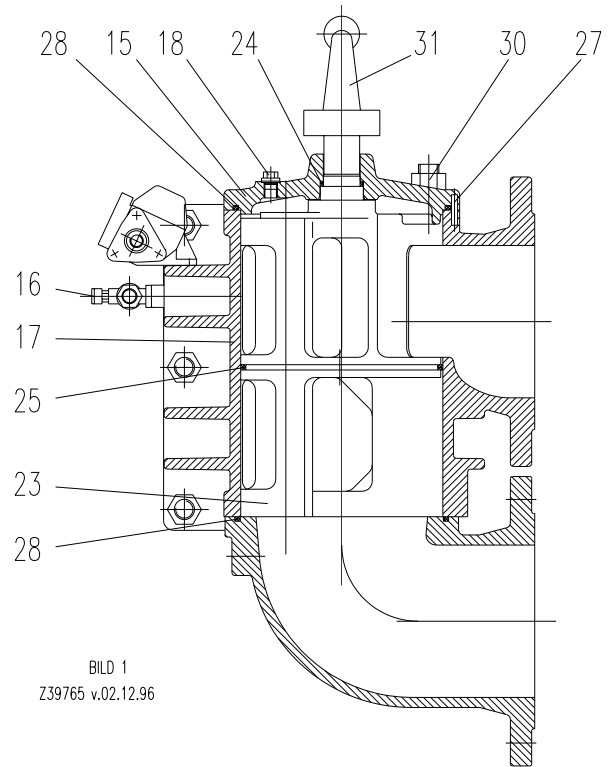
DESCRIPTION AND OPERATING INSTRUCTIONS FOR SEGMENTAL COCK CHANGE-OVER VALVE TYPE 2.05.5

General

The segmental cock change-over valve is intended for installation in duplex filters or double-stage 3-way cocks. The special design of the segmental cock (23) prevents the occurrence of flow interruptions and pressure surges during change-over and at the same time guarantees ease of movement owing to low frictional forces. The segmental cock only requires an O-ring at two locations: on the dividing plate (25) and at the cock neck (24). The O-ring at the cock neck is additionally embedded in a wear-resistant Teflon ring.

Operation of the valve

The marking engraved in the cock neck indicates the direction of flow and thus shows which filter chamber is in operation (see Fig. 2). Before changing over from one filter chamber to the other, a check is to be made to see whether the pressure equalisation cock (16) is open. Then turn the segmental cock completely to the right or left using the lever (31). In the central position both filter chambers are in operation (see Fig. 2).



After change-over and before the filter chambers are opened, the pressure equalisation cock must be closed again. After the filter chambers have been filled, the cock housing (17) is to be vented using the venting screw (18).



It is imperative to read the operating instructions "BA Duplex Filters" for this work.

1. Dismantling and installation of the segmental cock (for DN 100 - DN 200)

- 1.1 Drain medium as described in the operating instructions for duplex filters.
- 1.2 Undo venting screw (18).
- 1.3 Undo the cock housing cover (15) with the hexagon nut (30) and lift off.
- 1.4 Remove segmental cock and check seals (24, 25 + 28) as well as cocks and cock housing bore for damage.
Grind down any scoring on the cock and bore. Replace O-rings.
- 1.5 After cleaning the cock housing and segmental cock, introduce the latter back into the housing together with the oiled and mounted seals (24, 25 + 28).
- 1.6 Move segmental cock (23) into the central position.
- 1.7 The dowel pin (27) must be firmly seated in the cock housing. Close the cock housing cover with seal (28) again. The dowel pin governs the position of the cover and thus the stop of the segmental cock (23). Mount hexagon nut (30).

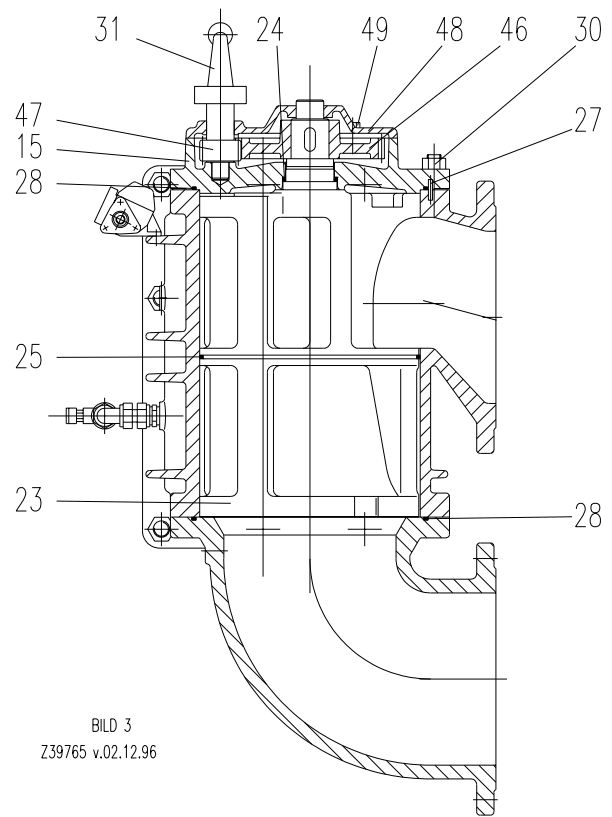


This position guarantees the perfect stop of the segmental cock.

- 1.8 Fill up filters as described in the operating instructions for duplex filters. Close vent (18) when the medium emerges free of bubbles.

2. Dismantling and installation of the segmental cock (for DN 250) (Fig. 3)

- 2.1 Drain medium (see operating instructions for duplex filters).
- 2.2 Remove hexagon socket screw (49) from transmission cover (48).
- 2.3 Remove transmission cover (48).
- 2.4 Pull gear (46) off cock shaft.
Remove pinion (47).
- 2.5 Remove cover hexagon nuts (30).
- 2.6 Lift off cock housing cover (15).
- 2.7 Insert an eye-bolt M12 to DIN 580 into the cock shaft.
- 2.8 Lift out cock (23) with lifting tackle.
- 2.9 Examine cock (23) and cock housing bore for damage in the form of scoring and, if necessary, grind surface.
- 2.10 Replace any damaged O-rings (24,25+28).
- 2.11 Introduce segmental cock (23) with oiled O-rings (24 + 28) into the cock housing bore.
- 2.12 Move segmental cock (23) into the central position.
- 2.13 Mount cock housing cover (15) with inserted O-ring (28).
The dowel pin (27) must engage the cock housing cover (15).
- 2.14 Screw on the cock housing cover (15).
- 2.15 Install gear (46) and pinion (47) and screw on transmission cover (48).
- 2.16 The segmental cock must be easy to move using the lever (31).
- 2.17 Should the segmental cock be sluggish, undo the hexagon nuts (30), move the segmental cock and retighten the hexagon nuts (30) so that the segmental cock is sitting optimally.



3. Commissioning

- 3.1 Fill up filters and commission as described in the operating instructions for duplex filters.
- 3.2 Carefully vent all three pressure vessels.

Cleaning / Maintenance of Filter-Candles in Insert Assembly

1. Description

The insert as an assembly consists essentially of the candle-holding "cage" in which are installed spring-loaded filtercandles (3) all in service in parallel, of the same size, interchangeable and reusable: "O"-ring seals: top and bottom plates and tierods. The insert and its candles are only for Boll manual filters (simplex and duplex).

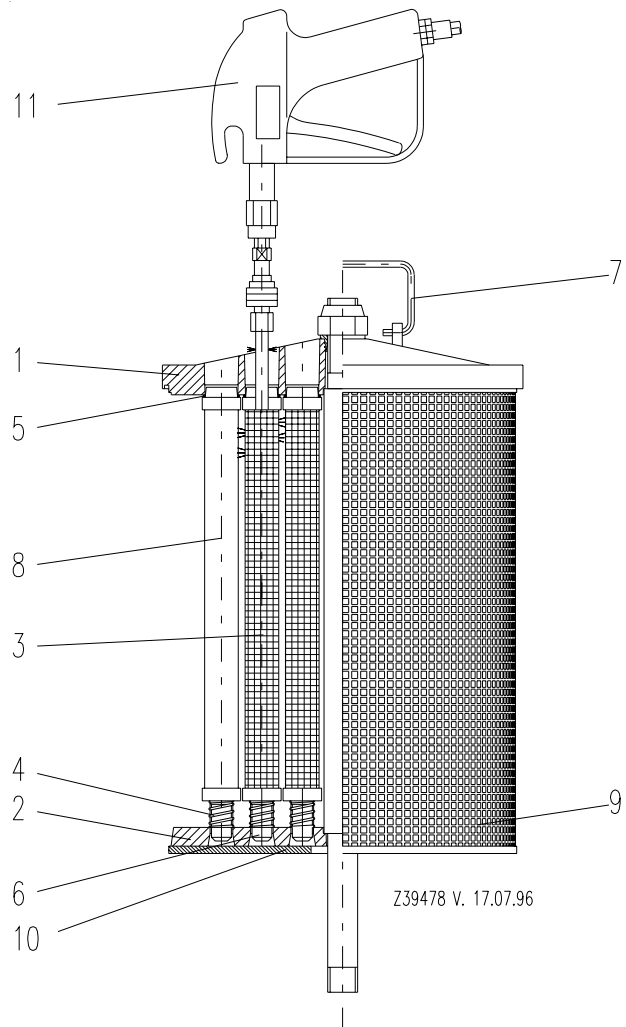
Each candle is individually secured; at bottom-plate (2) where it is held against top-plate (1) by means of spring (4). Each candle's clean-side is sealed from the dirty by O-ring (5) between candle and top-plate of the insert. The insert's top and bottom-plates and candle-array are secured with tie-bars (6).

Lifting-bail(s) (7) facilitate removal/insertion of the insert complete.

Outer mantle (9) protects the candles from damage during the insert's removal/ replacement.

Optionally, a spring-loaded magnet-candle (8) can be fitted in the insert peripherally between filter candles.

Where the requisite flow-rate has been met with a complement of candles less than the maximum that can be accommodated, the unused sockets are factory-sealed with plugs.



2. **Cleaning of the insert and its candles**

- 2.1 Submerge the candle-insert complete in a tank of suitable cleaning fluid, with the openings of the candles facing upwards. Loose particles will be removed and settle-out during the soaking period, which should not exceed 4 hours. Remove insert from the tank and insert BOLL Cleaning-gun Type 5.01 (11) with active air supply, carefully and sequentially into each candle, moving the Gun throughout each candle's length to blowthrough the candles from inside to out.
- 2.2 Put the assembly once more in fresh cleaning-fluid and then allow to drain. Blow through again with the Cleaning-gun. (With some cleaning-fluids the cleaning effect is improved by rinsing with hot or cold water before blowing-through for the second time).
Stand the candle-assembly upside-down to allow cleaning-fluid and/or water to drain. (If the candles are only lightly-contaminated an alternative cleaning procedure is to rinse the insert-assembly complete with its candles by gently rotating/moving it up-and-down in the cleaning-bath).
- 2.3 From time-to-time, inspect each candle for damage, replacing with new one(s) where necessary (see also Para. 3.4 and 3.5).
- 2.4 Dirt-laden fluid remaining in the filter-housing(s) should be voided via the drain-plug(s).
- 2.5 Close and secure drain(s): put back the insert (make sure candle-seals (5) are in place): secure filter chamber-cover(s): re-fill and air-vent housing(s) (see the Filter's Operating manual).
- 2.6 For heavy contamination the same cleaning-sequence can be followed but using highpressure cleaning at 60 bars. The cleaning-fluid can be water; or water in solution with a cleaning-agent (e.g. BOLL CLEAN 2000 concentrate) but with either cleaning-liquid the temperature should not exceed 60 °C.

3. Cleaning Obstinate Contamination from the Filter-candles

- 3.1 If the candles are heavily contaminated (e.g. by gum-deposition, incrustation, tar-residues, fibres, ferritic fragments) the candles should be removed from the insert and cleaned individually.

The BOLL High-pressure Cleaning-trolley 5.04 is strongly recommended (see 4.3). Its Rotary Spray-nozzle is highly effective in candle-cleaning; and its Flat-nozzle will handle other parts of the insert-assembly.

If you do not have a Cleaning-trolley then follow the procedure in 3.2 etc.

- 3.2 Remove base-plate (10); carefully lift off the protective outer mantle (9). Remove candles by pressing downwards and lifting out at an angle. Remove the candle-seals (5). (See Fig. 3)
- 3.3 Put the obstinately-contaminated candles to soak in a cleaning-fluid tank, say for maximum 4 hours.



Do not lay the candles across one another - this can damage the meshes.

- 3.4 Place each candle with its open end on a suitable "spike"; or put it individually in the candleholding cage, which should be secured to prevent it toppling. Wash-down each candle allround and thoroughly from the outside using an highpressure Cleaning-gun with Flatjet nozzle. Pressure must not exceed 60 bars.



When using high-pressure cleaning, ensure the nozzle is at all times held clear of the mesh in order to avoid damage/displacement of the mesh-filaments.

By this means most of the contaminant will be washed-off. Dirt-particles equivalent to the pore-size of the mesh which sometimes can be found entrapped in the mesh are pushed through and safely rinsed away.



As cleaning fluid, either water alone; or water in solution with a cleaning-agent (e.g. BOLL CLEAN 2000 concentrate) may be used: but always at a temperature not exceeding 60 °.

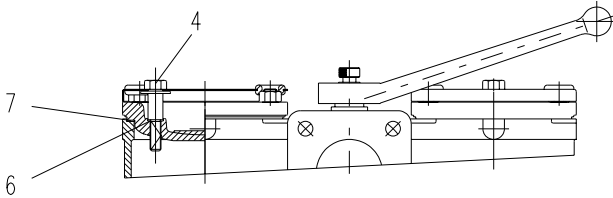
- 3.5 Now, rinse the candles individually in the cleaning-fluid: blow them through with compressed-air and leave to drain/dry with open end(s) downwards. The simplest way to test their cleanliness is by a torch-beam directed inside each candle - optimum cleaning will have been achieved when the light shines with uniform brightness through the entire area of the mesh.
- 3.6 Ensure that inner, facing sides of top and bottom plates are themselves clean.
- 3.7 Re-assemble insert, its candles etc. in reverse order to the procedure described in 3.2 (see also 2.5).
- 3.8 For other recommended Cleaning-agents.

4. Cleaning Equipment

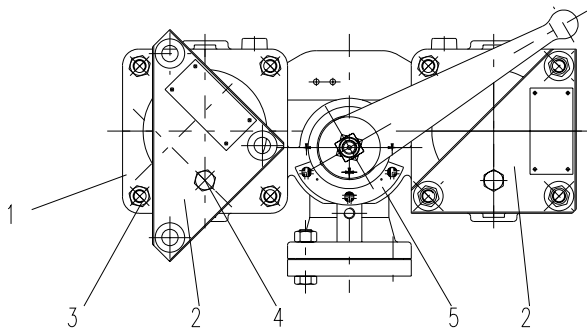
For the most effective cleaning of candles, in-situ in insert, or individually, the BOLL Cleaning-trolley 5.04 is to be highly-recommended and best used in conjunction with BOLL CLEAN 2000 concentrate. The Cleaning-trolley will handle all types of BOLL filterelements and affords additionally a safe and simple means of cleaning other small assemblies.

COVER SECURING DEVICE FOR DOUBLE FILTERS

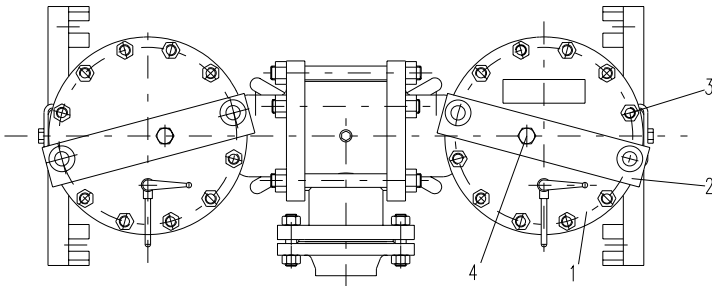
Z37134



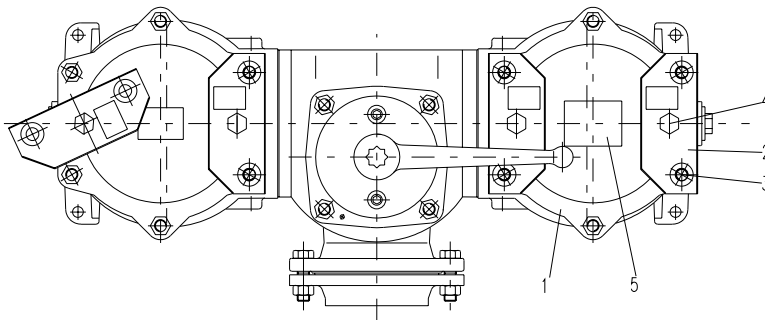
TYP 2.02.5 / 2.06.5



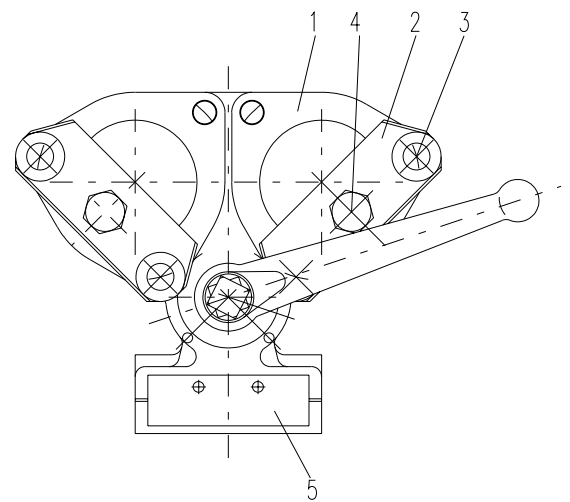
TYP 2.78.2 / 2.68.2 / 2.62.9



TYP 2.05.5



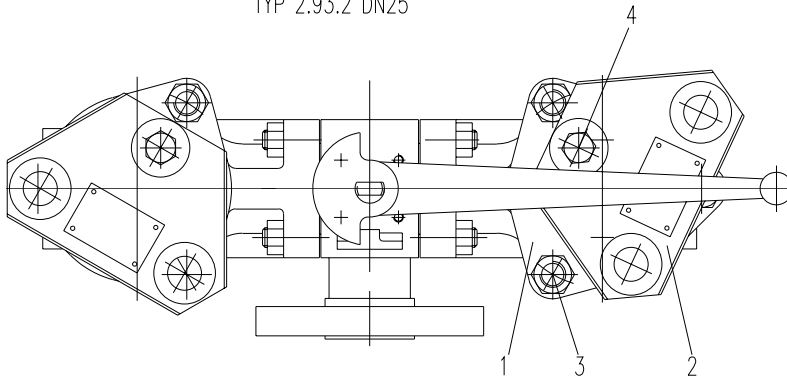
TYP 2.04.5



The function of the cover securing device is to prevent the uncontrolled escape of lubricantes and fuels in the case of operating errors. The cover plate (2) covers a minimum number of cover screws (3), so that the cover (1) cannot be removed with out actuating the venting facility (4).

The filter chamber is relieved through the venting screw (4). With the correct switching position, the service pressure of the filter chamber falls immediately and hardly any fuel escapes. Otherwise, the venting screw is immediately closed and the fuel discharge is limited.

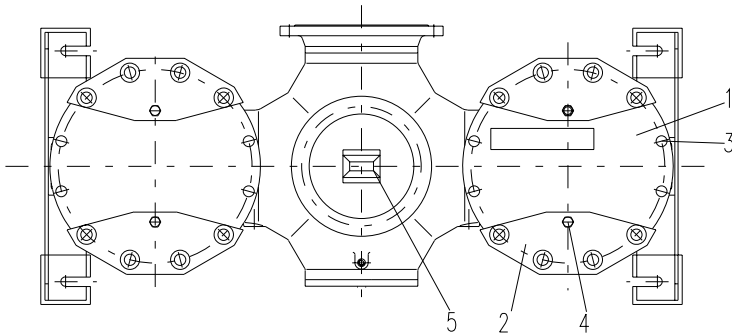
TYP 2.93.2 DN25



Operation:

1. Establish on the circuit diagram (5) with chamber is switched off.
2. Unscrew the venting screw of this chamber (4) to the point where the cover plate (2) can swivel over the cover screws (3)
3. Loosen cover screws (3) and remove cover (1).
4. Assemble in reverse order

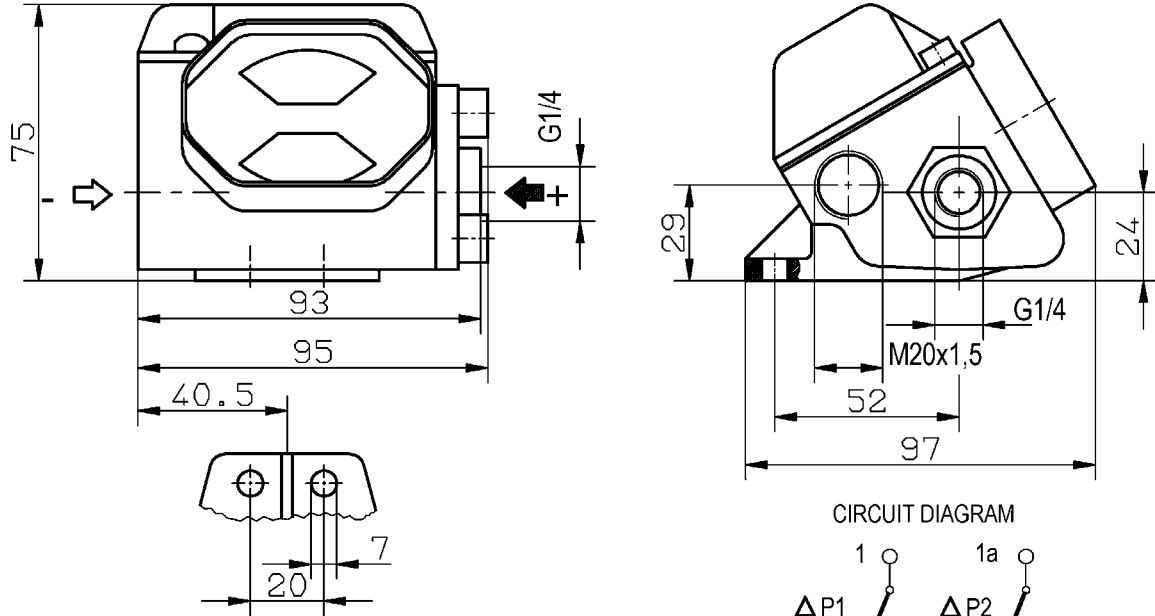
TYP 2.93.2 / 2.62.9 DN50-80



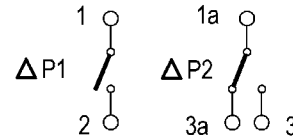
Check seals items 6 and 7 for damage.

For sieve cleaning and commissioning, see Sieve Cleaning Operating Instructions and Double Filter Operating Instructions.

Z45550
TYP4.36.2
17.03.03



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	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.

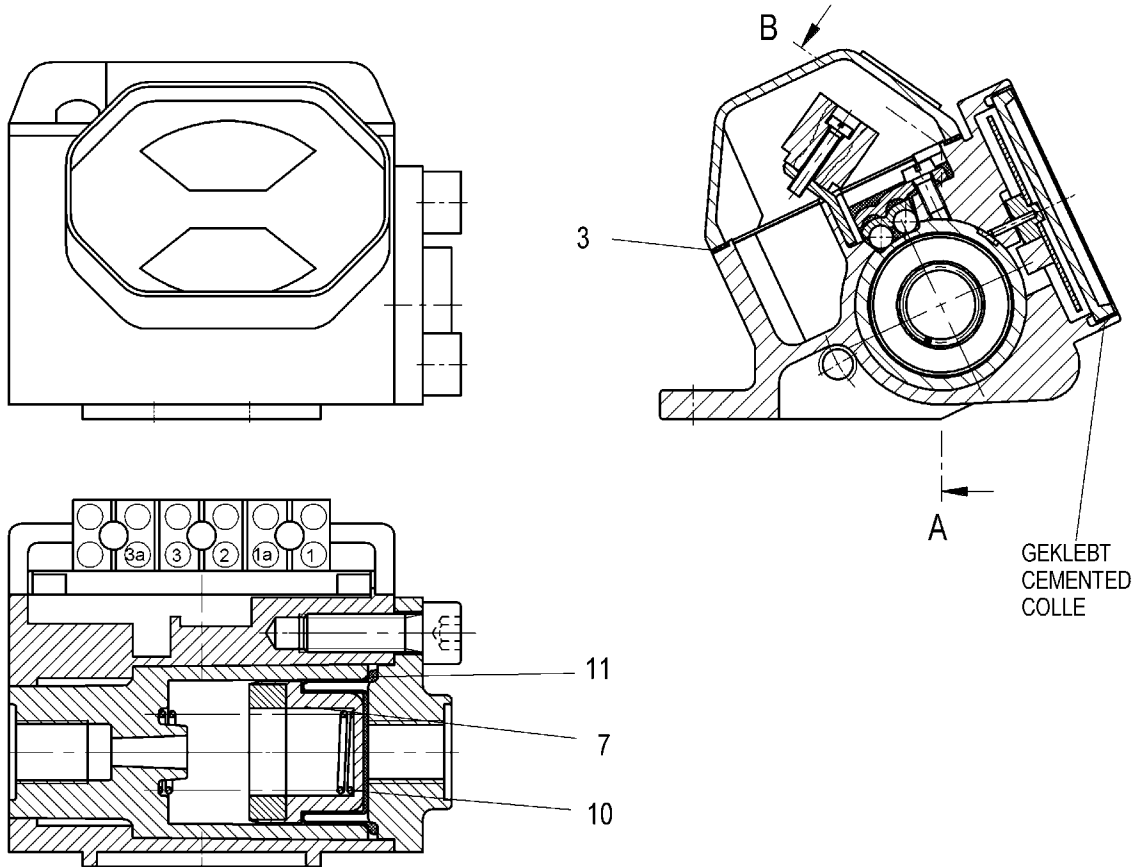
METHOD OF OPERATION:

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



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If you need service or spares for our products please contact our head office or our branch-offices, agencies or service-stations.



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