Duplex Fuel Fine Filter

M25/M32

07

POS. ITEM	BENENNUNG DESCRIPTION		STCK NUMBER	BEST.-NR PART NO.
-	KRAFTSTOFF-FEINFILTER, VOLLST. DUPLEX FUEL FINE FILTER ASSEMBLY		1	9.7667 CC
2	GEWINDESTOPFEN THREADED PLUG		2	1.7667-102
3	DOPPELNIPPEL SPACER BLOCK		2	1.7667-160
4	WINKELKUGELHAHN ANGLE BALL COCK		2	1.7667-151
6	HOCHDRUCKDICHTUNG GASKET	#	2	1.7667-215
7	DECKELSICHERUNG COVERSECURING		2	1.7667-007
9	STIFTSCHRAUBE STUD		8	1.1234-355
10	SECHSKANTMUTTER HEXAGON NUT		8	1.2007-038
11	DECKEL COVER		2	1.7667-011
17	MANTELSIEBEINSATZ candle type FILTER ELEMENT		2	1.7667-017 1.7667-650
18	ANKER STUD		1	2.7667-018
19	SECHSKANTMUTTER HEXAGON NUT		2	1.2021-116
23	KÜKEN COCK PLUG		1	1.7667-203
24	RUNDSCHNURRING O-RING	#	2	1.7667-219
25	SPANNHÜLSE SPRING DOWEL		1	1.7667-214
26	SPANNHÜLSE SPRING DOWEL		1	1.0039-881
28	SCHLÜSSEL COCK HANDLE		1	1.7667-028
55	ÖLWANNE, VOLLST. OIL PAN, COMPL.		1	1.7667-555

Jede Bestellung muß folgende Angaben enthalten: **Motor-Nr. / Ersatzteilblatt-Nr. / Bestell-Nr.**
Each order must include the following: **Engine No./Spare parts sheet No./Part No.**

Duplex Fuel Fine Filter

M25/M32

07

POS. ITEM	BENENNUNG DESCRIPTION		STCK NUMBER	BEST.-NR PART NO.
100	DIFFERENZDRUCK-ANZEIGER, VOLLST. DIFFERENTIAL PRESSURE GAUGE, COMPL.		1	1.7667-228
101	WINKELKUGELHAHN ANGLE BALL COCK		2	1.7667-024
102	VERSCHRAUBUNG SCREWED CONNECTION		4	1.7667-152
103	DICHTRING JOINT RING	#	6	1.7010-064
104	O-RING O-RING	#	4	9.7657-104
105	ZYLINDERSCHRAUBE HEXAGON SOCKET HEAD CAP SCREW		2	9.7657-105
106	SECHSKANTMUTTER HEXAGON NUT		2	1.2007-032

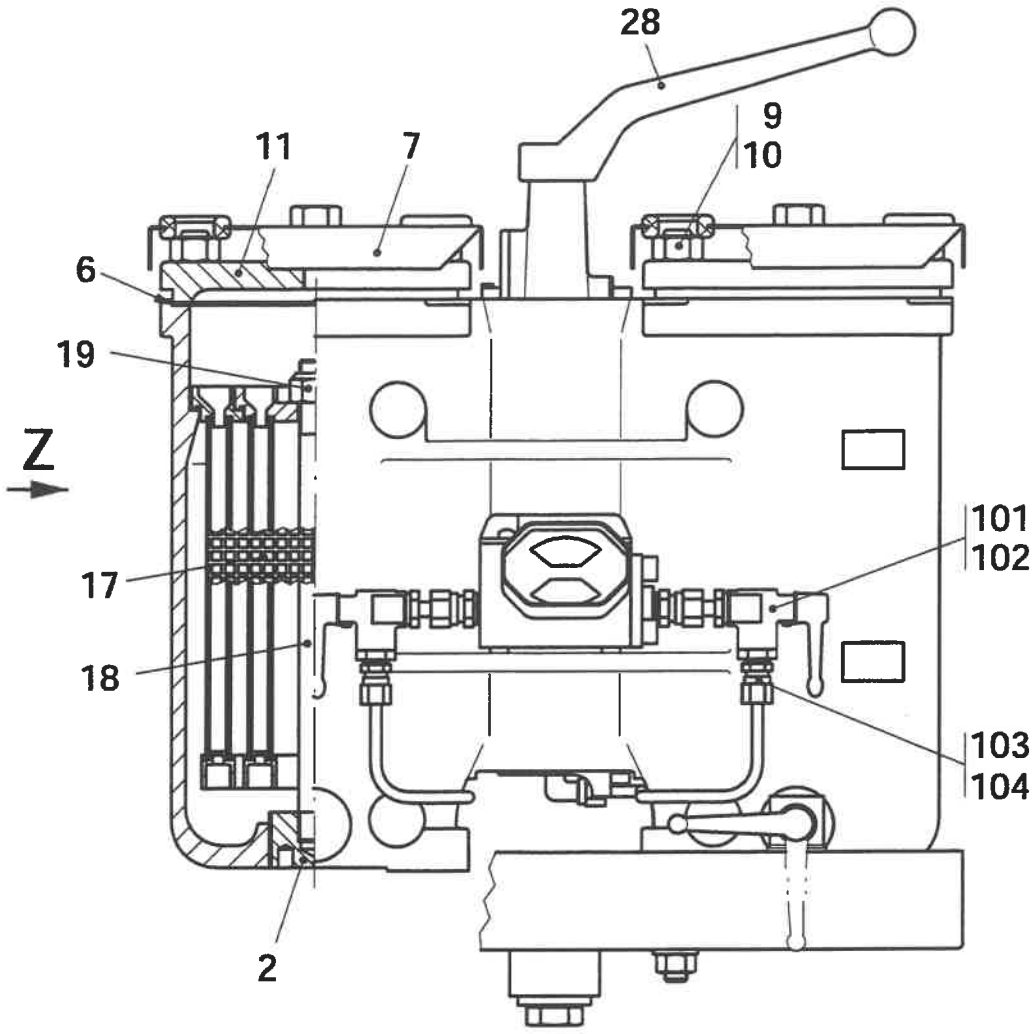
= VERBRAUCHSTEILE
CONSUMABLES

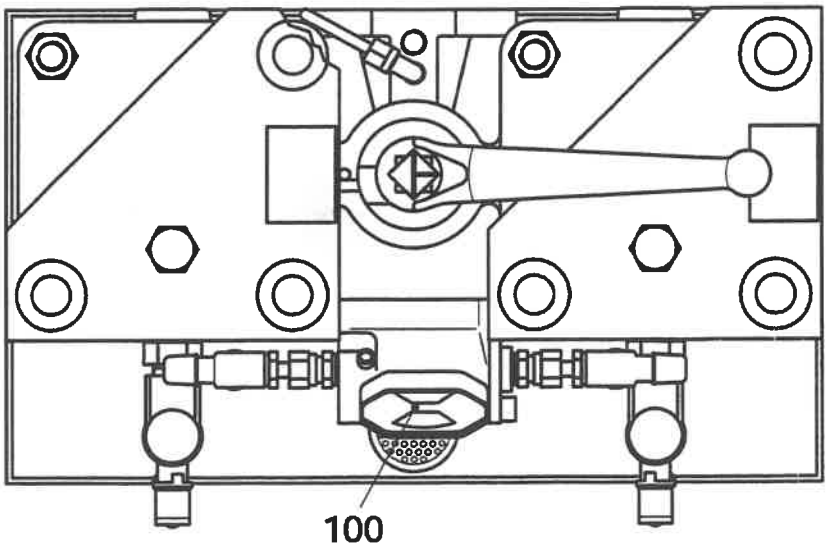
600.26.01.001 – 254
002 – 255
003 – 154
004 – 154

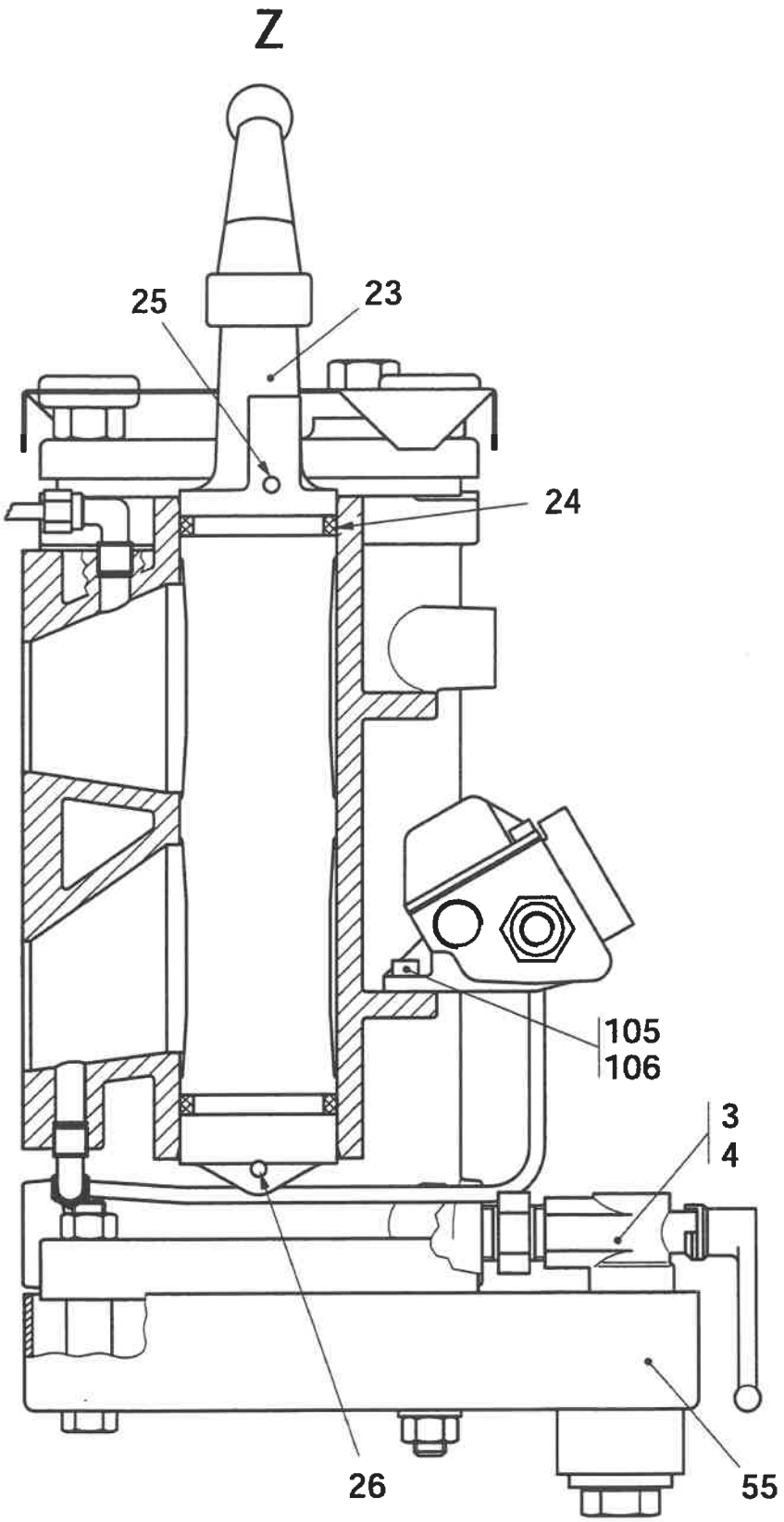
9.8517 - 154 18
9.8517 - 155 42 A3
9.8510 - 009 94 E3

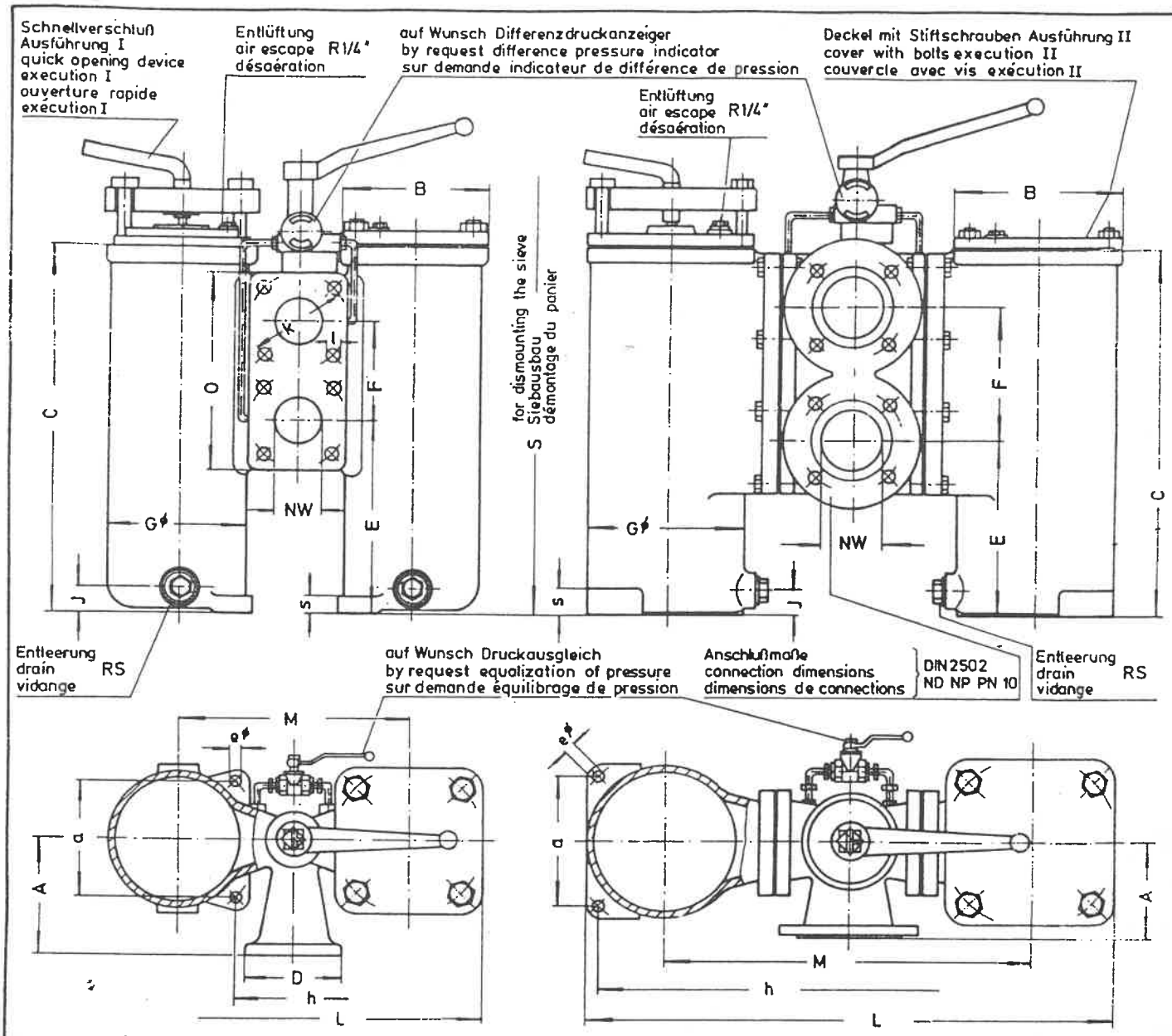
9.8517 - 254 11
9.8517 - 255 94
9.8510 - 010 80

Iblatt-Nr. / Bestell-Nr.
eet No./Part No.


28
9
10
11
7
6
19
Z
101
102
17
18
103
104
2


100


Z
25
23
24
105
106
3
4
26
55



Filtereinsatz und Durchflußrichtung siehe WN 211
filter element and flow direction look WN 211
élément filtrant et direction de passage voir WN 211

ND { Betriebsdruck in bei
working pressure in kp/cm² at 120° C
pression de service en par

Gehäuse gegossen
cast casing
corps moule

NW	Ausführung I execution I ND	Ausführung II execution II ND	A	B	C	D	E	F	G	J	L	M	O	S	a	e	h	k	l	s	RS	kp
20	2	10	55	102	190	60	92	62	96	22	262	160	122	340	80	10	80	55	M10	12	R1/4	15
25			85	120	310	80	191	84	110	30	290	170	164	600	91			80	12		R1/2"	25
32			95	140	260	85	128		126	25	360	220	170	500	110		110					34
40			90	167	310	110	113	115	154		430	260	225	590	130	13,5	130	110	14	18		53
50					410		213							790								65
65			115	200	390	130	154	135	190	26	535	320	265	750	158		160	130	18	16		95
80L	1		120		500	150	270	155		38	540	340	305	960			183	150			R1"	108
80					570		340							1050								120
80S	1	10	130	280	708	—	427	205	270	40	880	600	—	1300	210	23	810	—	—	40	R1"	240
100L			170		530	—	200	230	250	50	900	620	—	1000		18	830	—	—			210
100S				365	705	—	375		340	43	1055	690	—	1400	277	26	967	—	—	28		350
125L				280	530	—	190	260	256	50	940	650	—	1000	210	18	860	—	—	40		230
125S				365	807	—	423		340	43	1075	710	—	1500	277	26	987	—	—	28		420

tolerance DIN 7168 „sg" subject to alterations!

Freimaßtoleranzen DIN 7168 „sg" Änderungen vorbehalten!

tolérance DIN 7168 „sg" modifications réservées!

Ersatz für Typ ... compensation for type ... compensation pour type ... 107

Ersatz für Typ ... compensation for type ... compensation pour type ... 102-II 183 184

Duplex Filter — Doppel-Filter — Filtre Double

6.12.72

Boll & Kirch Filterbau GmbH - Köln

Typ 2.02.5

Benennung: **Doppelfilter**

Typ oder Gruppe: 202.5

NW oder Größe: 100 L

STÜCKLISTEN-NR.: 6314

Temp °C: 200 | 120

Druck atü: 10 | Normalausführung

Schnellverschl. | 2 | Schnellverschl.

Normalausf.

Maßblatt: 202.5

Zusammenstellungs Z Nr.: 3-15703

Berechnung Nr.: 486

Besonderes: Werkstoff in( ) Ausführung für Wasserfilter

Änderungen: Tag | Name
a
b
c
d
e
f

Blatt: 1

Fortsetzung Blatt: 2

Ersatz für: 690 v. 2.11.61
725 v.29.11.65
1318 v.29.11.65

Ersetzt durch:

Stück		BENENNUNG DIN Maße	lfd. Nr.	Werknorm Nr. / Modell Nr.	Zeichnungs Nr. / Stücklisten Nr.	Werkstoff / Werkst. Bescheln.	Fertiggewicht / Rohgewicht kg
2	2	Gehäuse	1	B 229	3-17023	GG 20 WAZ 3B	
2	2	Gewindestopfen R2 1/2" (M24)	2	WN 50-1		St 37	
2	2	Verschlußschraube 910 R1"	3			46 (Ms)	
2	2	Dichtung 33x39x2	4	WN 28		Cu	
2		Rundschnurring R 248-5	6	WN 20		n. Auftrag	
	2	Rundschnurring R 248-5		WN 20		n. Auftrag	
2	2	Verschlußschraube 910 E R1/2"	7			4.6 (Ms)	
2	2	Dichtung 21x27x1,5	8	WN 28		Cu	
	8	Stiftschraube 939 M20x50	9			5.6 mit Stempel	
	8	Sechskantmutter 934 M20	10			5	
	2	Deckel	11	B 179	4-17006	GG 20 WAZ 3B	
2		Deckel		B 134	4-17007	GG 20 WAZ 3B	
2		Bügel	12	WN 68 Nr.12 B 143		GS 45 WAZ 3B	
2		Druckbolzen	13	WN 67 Nr.6		St 37	
4		Sechskantschraube 931 M20x130	14	WN 69 Nr4		5.6 mit Stempel	
2		Haltescheibe	15	WN 66 Nr4		St 37	
6		Halbrundschraube 86 AM6x10	16			4.6	
2	2	Siebeinsatz	17		n. Auftrag		
	*	bei Mantelsieb zusätzlich					
2	2	Anker	18*		4-9107	9S20K	

Boll & Kirch Filterbau GmbH Köln-Ehrenfeld

	Tag	Name
gepr.	17.10.73	Fiedler
gepr.		

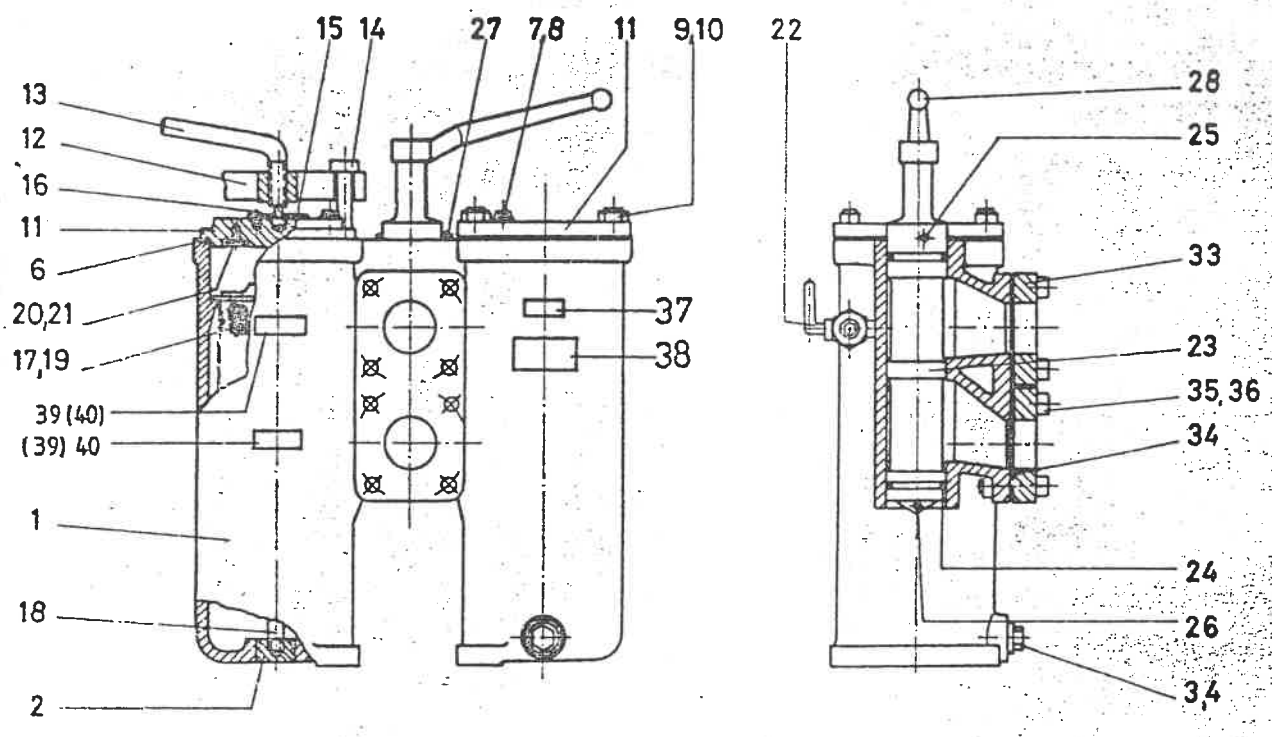
Blatt: 2(-) | Fortsetzung | Doppelfilter Typ 2,02.5 NW 100 L | Stücklisten Nr.: 6314

Schnellverschluß	Normal-ausführung	BENENNUNG DIN Maße	lfd. Nr.	Werkszeug Nr. / Modell Nr.	Zeichnungs Nr / Stücklisten Nr.	Werkstoff / Werkst. Bescheinigung	Fertigungsstelle / Kontrolle
2	2	Sechskantm. selbsts. 985 M24	19*			5	
2	2	Zinkschutz	20	WN160 Nr3 B24	n. Auftrag	Zinkguß	
6	6	Senkschraube 87 M6x20	21		n. Auftrag	4.6	
1	1	Druckausgleich A=140	22		4-12669 4543		
1	1	Küken	23	WN 39 Nr 7		GG20(GMs) WAZ 3B	
3	3	O-Ring OR 109,2-5,7	24	WN19		n.Auftrag	
		Spannhülse 1481	25			Federstahl	
2	2	Zylinderkerbstift 1473 8x32				6.8	
		Spannhülse 1481	26			Federstahl	
1	1	Zylinderkerbstift 1473 8x32				6.8	
		Spiralstift	27	WN 41		Federstahl	
1	1	Zylinderkerbstift 1473 6x16				6.8	
1	1	Hahnschlüssel SW27	28	WN 48-2		GKAlMg 5	
1	1	Hahngehäuse	29	B 280	3-355-1	GG 20 WAZ 3B	
2	2	Dichtung 1,5dick (2dick)	30		4-3351	Cobrit(Gummi)	
16	16	Stiftschraube 939 M16x35	31			5.6 mit Stempel	
16	16	Sechskantmutter 934 M16	32			5	
2	2	Gegenflansch 2633 100/114,3	33	(WN 163) (B9)	nur nach Auftrag montiert	St 37 2(GMs)	
2	2	Dichtung 2690 100 ND16	34			Cobrit(Gummi)	
16	16	Sechskantschraube 931 M16x60	35			5.6 mit Stempel	
16	16	Sechskantmutter 934 M 16	36			5	

Boll & Kirch Filterbau GmbH — Köln-Ehrenfeld

	Tag	Name
gepr.	17.10.73	Fiedler
gepr.		

63 LW



Abmessungen siehe Typenblatt
measurements see type
dimensions setan type

Siebeinsatz und Durchflußrichtung siehe WN 211
filter element and flow direction see WN 211
élément filtrant et direction de passage voyez WN 211

Stückliste siehe NW
lists of parts see NS
liste de pieces voyez DN

Duplex Filter	Doppel-Filter Typ 2.02.5	Filtre Double
18.5.84	Boll & Kirch Filterbau GmbH - Köln	3-15703

INSTALLATION AND OPERATING INSTRUCTIONS FOR BOLL TWIN-FILTERS

I. General:

Twin-filters which can be switched over, consist of two filter casings connected in parallel through a two-stage change-over device. The filter casings are designed to meet the current regulations for a particular range of pressure, the filter elements with an appropriate safety factor for the differential pressure quoted on the filter's name plate. The maximum differential pressure for filters with filter mesh is 0.6 or 1.2 kp/cm^2, and for filters with micro-cartridges 2 kp/cm^2.

Twin-filters are used in cases where the regeneration of the dirty filter elements must be carried out, without shutting down the plant.

The change-over devices, depending on the type and size of the filter, may have cylindrical plugs, segment shifts or two-stage change-over valves and allow a change-over without pressure shock, since one filter chamber is switched in at the same rate as the other is switched out; both filters can consequently be operated together. A stop, or the design of the change-over device prevents both filters being off at the same time.

II. Installation:

When the filter is fixed to its foundation, the filter casing, and also the connecting piping, must be free from strain. Pay particular attention that the flow is in the correct direction through the filter elements; the correct direction is marked on the filter casing, usually on the flanges.

III. Attachments:

If the filter is equipped with a heating jacket or with base heating, and there is the possibility that a steam cushion may form, the following attachments are required:

1. For steam heated filters:
   A relieve valve for the filter chamber, set to operate at the maximum permissible operating pressure of the filter casing.
2. For electrically heated filters:
   A thermostat which cuts off the power to the heater plate at the maximum permissible temperature i.e., 150°C.

IV. Starting up and cleaning:

A. Pressure filters:

1. Set the change-over device at its mid-position, both filter chambers in use.
2. Open the air vents of both chambers.
3. Start the plant up slowly.
4. Close the air vents when the air has escaped and liquid has started issuing.
5. Operate the change-over device to isolate one filter chamber; while one of the filter chambers is being used for filtering, the isolated chamber is in reserve until the maximum permissible differential pressure has built up by the operating filter becoming clogged.
   When the differential pressure reaches 0.8 or 1.2 kp/cm^2 for filter mesh and 2 kp/cm^2 for micro-cartridge filters, the change-over is made as follows

to the clean filter chamber;

6. If there is a pressure equalising cock, open it, and by briefly opening the air vent, check whether the reserve chamber is full.
7. Change-over.
8. Shut the pressure equalising cock.
9. Open the air vent on the isolated filter; this releases the pressure of the liquid and it is possible to check whether the change-over device has stopped the flow to the filter chamber.
   In contrast to the change-over using valve or segment, when there is a change-over by plug-cock, complete sealing is not possible: by opening the sludge outlet, liquid leaking during the cleaning process, can be drawn off.
10. Take the cover off the casing of the isolated filter chamber.
11. Remove the filter element vertically upwards.
    In doing so it may be necessary to reduce the liquid level by opening the sludge outlet.
12. Clean the filter element, or fit new micro-cartridges. Clean the filter mesh with a suitable cleaning agent assisted by blowing through the mesh from the clean side (see operating instructions "Filter cleaning").
13. Fix the cleaned filter element.
14. Put the cover back on the casing, leaving the air vent open. Before putting back the cover, make sure that the seal is in good condition and is properly seated; if necessary renew the seal.
15. If there is a pressure equalising cock, open it until the air has been vented from the filter half. If there is no pressure equalising cock, set the change-over device to its mid-position until the air has been vented.
16. Close the air vent. One of the filter halves is then again in reserve. This procedure, from para. 6 on, is repeated as required.

B. Suction filters:

1. Fill up and vent both filter halves.
2. Isolate one of the filter halves by means of the change-over device.
3. Start-up the plant. While one filter chamber is being used for filtering, the isolated chamber is in reserve. When the pressure drop across the filter reaches the maximum allowed by the pump's suction head, a change-over to the other filter half must be made.
4. Change over.
5. Open the air vent on the isolated filter half.
6. Remove the cover from the casing of the isolated filter half.
7. Remove the filter element vertically upwards.
8. Clean the filter element, or change the cartridge (see A.12).
9. Fit the filter element.
10. Fill up the filter casing.
11. Put the cover back on the casing; before doing so, check the condition of

the seal and its correct seating; if necessary change the seal.

12. The cleaned filter half is ready in reserve. This procedure can be repeated as required, from para. 4 onwards.

V. Servicing:

Servicing of the twin-filter comprises checking the seals and filter mesh, and replacing if necessary. If the filter is painted for protection against corrosion, touch up the paint, or repaint, as necessary.

Assembly instructions

1) Insert O-ring (2a) into the upper groove.
2) Push cock-plug (1) with O-ring (2a) into the cock bore only as far as the inferior groove will be free.
3) Insert O-ring (2b) afterwards.
4) Beat in the pin (4) beneath.
5) Draw up the cock-plug (1) and turn it into the marked position (attend to the flow system in illustration 1) afterwards beat in the pin into the lateral bore and pay attention to an equal projection of the pin (3).

Reference to illustration

This position has to be attended to absolutely; otherwise considerable damages would arise. Check whether the cock-plug can be turned easily after the assembly!

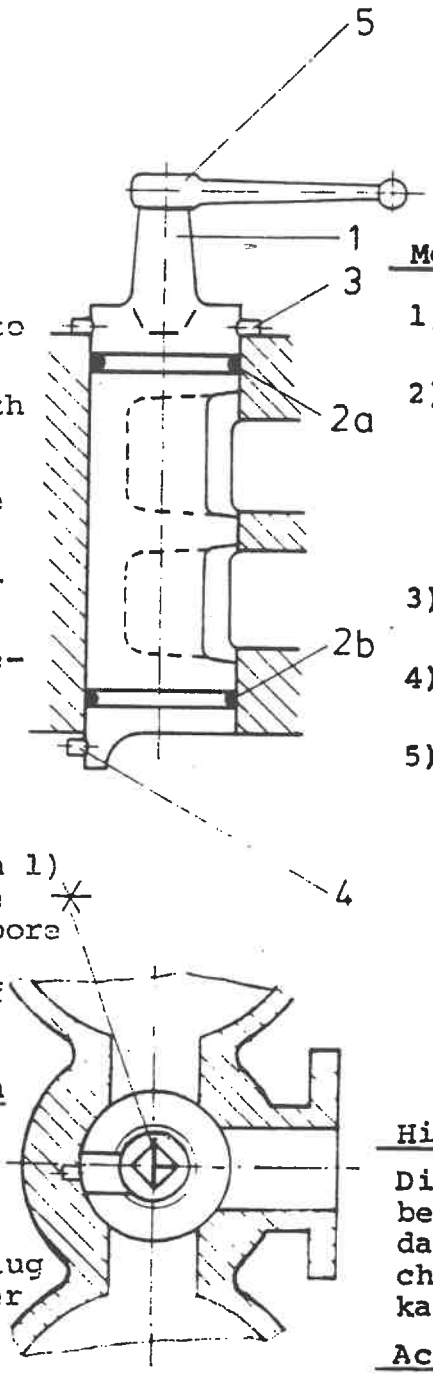


Bild 1

Montageanleitung

1) O-Ring (2a) in die obere Nut einlegen.
2) Küken (1) mit O-Ring (2a) in die Hahnbohrung nur soweit durchschieben, bis die untere Nut frei wird.
3) Dann O-Ring (2b) einlegen.
4) Stift (4) unten einschlagen.
5) Küken (1) hochziehen und in die gezeichnete Stellung drehen (Durchflußsymbol + in Bild 1 beachten) dann Stift in die seitliche Bohrung einschlagen und auf gleichmäßigen Überstand des Stiftes (3) achten.

Hinweis zu Bild 1

Diese Stellung muß unbedingt beachtet werden da es sonst zu erheblichen Schäden kommen kann.

Achtung

O-Ringe müssen beim Einbau gut gefettet sein und dürfen nicht beschädigt werden! Prüfen, ob sich das Küken nach der Montage leicht drehen läßt!

Ersc für 4 7023 vom 2.9.1969

Kükenschaltung

2.11.1976	Boll & Kirch Filterbau GmbH-Kerpen	4-7023

CONSTRUCTION AND CLEANING OF THE MULTI MANTLE FILTER ELEMENT

1.1 Construction of the filter element

Cased filter element assemblies consist of several nested cylindrical filter elements (1, 2 and 3) which are held in the filter housing with a self-locking hex. nut (4) via a central tie rod (5). The individual filter elements in turn consist of:

- O the perforated support plates (6&7) with the filter fabric (8&9)
- O the protective casings (10&11), which are intended for the protection of the filter during removal
- O the filter rings (14) and the filter bottoms (13)
- O the filter ties (12) and the lifting eyes.

To prevent flow short-circuits, the individual parts are sealed off from each other by O-rings (15&16). Where the filter element assembly rests on the filter support of the filter housing, another O-ring (17) is provided which separates the dirty area from the clean area.

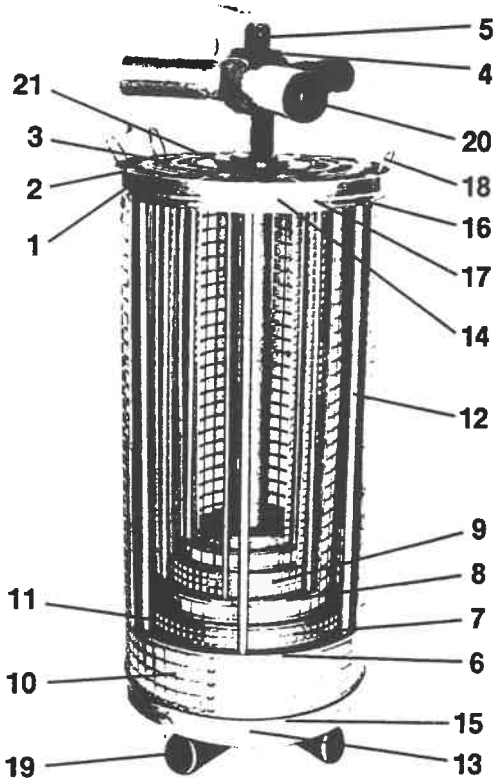


Fig. 1

1.2 Accessories of the filter element

The following items can be supplied as accessories:

- O magnetic primary filter (19)
- O magnetic secondary filter (20)
- O pressure release unit (21), which opens under excessive pressure differential and allows the liquid to flow through unfiltered. This prevents destruction of the filter or interruption in the flow of liquid.

2.1 Maintenance

Clean and check cased filter elements at regular intervals. The length of these intervals depends on the amount of dirt which has accumulated.

2.2 Carry out the first cleaning immediately after the installation has been flushed through. Rising pressure loss is a sign of increasing dirt accumulation. The pressure differential should not exceed 0.8 or 1.2 bar respectively. (Suitable monitoring appliances are available from BOLL & KIRCH.)

2.3 Permissible pressure differentials for cased filter assemblies (Δp):

Filter dia. (mm)	Δp_{max} perm. (bar)	Δp_{max} oper. (bar)
86 - 230	8	1.2
290	5	0.8
356 - 434	3.5	0.8

3.1 **Cleaning**

Shut off single filter or change over double filter. (See operating instructions for single or double filter.)

Release pressure from filter housing through venting screw and take off housing cover. Now open the drain screw on the filter base and drain liquid contents either completely or at least to below the filter base. Slacken the self-locking nut (4) on the central tie rod (5) and lift out the inner filter with the lifting eyes (18). Lift the remaining filter elements by gripping the inside of the filter ring.

3.2 Place individual filter elements into containers with cleaning agent and brush off with a fairly soft brush (e.g. nylon brush).

3.3 Blow compressed air at about 4 bars through the filter element cleaned in this way from the clean side. To do this, insert the cleaning gun Type 5.02 (22) into the openings present in the upper filter ring and blow through the filter surface from the inside with up- and down motions. (Never blow through the filter from the outside!) (Fig. 2)

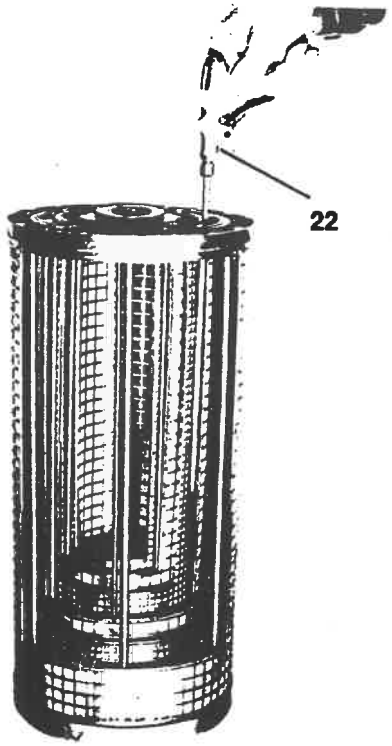


Fig. 2

3.4 In the case of persistent dirt or paint encrustation place the filter into a container (e.g. as shown in drwg. no. 3-23700) with cleaning agent (to sheet KV 349) and allow to soak for up to four hours. Make sure that the filter is not completely submerged but that the upper ring remains free. This prevents dirt from reaching the clean side (Fig. 3).

3.5 Remove filter and continue to treat as described under Points 3.2 and 3.3.

3.6 If necessary, repeat Points 3.4 & 3.5.

3.7 For final cleaning, rinse the filter in a clean cleaning fluid (e.g. cleaning petrol, paraffin, hot water or similar) and blow through again. After this, check fabric (8&9) for cleanness and damage. Assess cleaning effect by holding the filter elements against the light. For fine fabrics, use a torch. If the light penetrates evenly, the fabric is clean.

Fig. 3

3.8 Check all seals including cover seals and replace if necessary.

4.1 **Cleaning appliances**

4.1.1 Two cleaning containers to drwg. 3-23700
4.1.2 Cleaning gun Type 5.02
4.1.3 10 mm spanner
4.2 Compressed air connection 6 bar max.

For particularly convenient and thorough filter cleaning we recommend our cleaning installation Type 5.03 with superfine filter, pump and cleaning gun.