Multipur AP

DN 65 – DN 150
Backwash filter

Changes reserved!

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For You and Planet Blue.

BWT
BEST WATER TECHNOLOGY

Thank you very much for the confidence that you have shown in us by purchasing a BWT appliance.

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Table of Contents

1 About this Documentation

1.1 Validity of this documentation

This documentation is valid for the following product:

Multipur AP backwash filter

This documentation is intended for operators, end users, installation technicians not trained by BWT, installation technicians trained by BWT (e.g. “Trinkwasserprofi” or drinking water specialists) and BWT service technicians.

This documentation contains important information about how to safely and properly install the product, how to start up, operate, use, maintain and dismantle the product as well as how to remedy simple faults on your own.

Please read this documentation in its entirety before working with the product, especially section 2, Safety Instructions, on page 21.

1.2 Depiction of safety advice

In this document safety instructions are followed by a sequence of actions, that could cause harm to persons or damage to property. All hazard prevention measures must be kept.

Safety instructions are displayed in the following way:

⚠ SIGNAL WORD!

Source of hazard (i.e. high voltage)

Type of hazard (i. e. risk of death!)

- **► Escape or prevent hazard**
- **► Rescue measure (optional)**

Signal word	Indicates the severity of hazard
Warning sign	Indicates hazard
Source / type of hazard	Indicates source / type of hazard
Consequence	Explains consequences of hazard
Measures	Indicates measures to avoid hazard

Signal word	Colour	Severity of hazard
DANGER		**High risk of hazard.** Indicates an hazardous situation which, if not avoided, **will** result in death or serious injury.
WARNING		**Medium risk of hazard.** Indicates an hazardous situation which, if not avoided, **could** result in death or serious injury.
CAUTION		**Low risk of hazard.** Indicates an hazardous situation which, if not avoided, **may** result in minor or moderate injury.

1.3 Symbols used

	This symbol indicates general hazards for people, machines or the environment.
	This symbol indicates that the product can be recycled after it is shut down.

2 Safety Instructions

The product was manufactured according to all recognised regulations and technical standards and was in compliance with the relevant legal requirements when it was put into circulation. Nevertheless, it can pose a risk of personal injury or property damage if you do not observe this chapter and the safety instructions throughout this documentation.

- Carry out only those activities that are described in this operating manual, unless you have been trained by BWT.
- Carry out all activities in accordance with all applicable standards and requirements.
- Instruct the operator of the product on the product's function and how to use it.
- Inform the operator of the product about how to maintain the product.
- Inform the operator of the product about the possible hazards that may arise when operating the product.

2.1 General safety instructions

- Read this documentation carefully and in its entirety before working with the product.
- Store this documentation so that it is accessible to all users at all times.
- Include the complete documentation if you transfer the product to a third party.
- Follow all instructions regarding proper use of the product.
- If you notice damage to the product or the mains supply line, cease operation immediately and inform the service personnel.
- Use only accessories, spare parts and consumables that have been approved by BWT.
- Adhere to the environmental and operating conditions specified in the "Technical Data" section.
- Wear personal protective equipment. This equipment is for your own safety and will protect you from injury.

2.2 Product-specific safety instructions

In the following sections, you will find product-specific safety instructions whenever you must perform certain safety-relevant actions on the device.

2.3 Personnel qualifications

The installation activities described in this manual require basic knowledge of mechanics, hydraulics and electrical systems as well as knowledge of the technical terminology associated with those fields.

To ensure safe installation, these activities may only be carried out by a specialist or by a trained person who is under the direction of a specialist.

A specialist is defined as someone who has the technical training, knowledge and experience as well as the knowledge of applicable regulations required to properly assess the work assigned to him/her, identify possible hazards and take appropriate safety measures. Specialists must comply with applicable, industry-specific regulations.

3 Transport, Installation

Transport the system as a complete unit, if possible. If you must dismantle the system before transport, check that all individual parts are present.

If there is a risk of frost, drain all components that convey water.

Lift or transport the system or system components only from the intended suspension eyes or attachment points.

The system must be placed on a horizontal surface or mounted to a vertical surface that is sufficiently flat and has a sufficient load-bearing capacity. It must be secured so that it does not fall or tip over.

4 Performance description

4.1 Intended use

The Multipur backwash filters are used for filtration of drinking and industrial water to protect the water mains and the connected fittings, equipment, machinery, tanks, boilers and production facilities from malfunction and corrosion damage caused by foreign particles.

The filters can also be used for filtration of well, process, boiler feed, cooling and air conditioning water. In these cases, advice must be obtained from a specialist.

The filters are **unsuitable** for oils, greases, solvents, soaps and other lubricating media. Water-soluble substances also cannot be separated off.

4.2 Foreseeable misuse

Operating the system with parameters other than those specified in this documentation and in section 4.1.

Not adhering to the prescribed maintenance and service intervals.

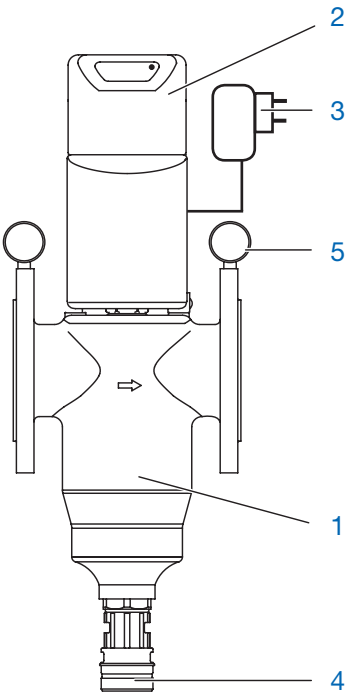
Using spare parts and consumables not approved by BWT.

4.3 Disclaimer

The manufacturer is released from any liability if the customer intentionally or forcibly removes guards or safety devices, if the customer wilfully modifies or circumvents the same, or if the customer does not follow the instructions in this operating manual or on the system.

4.4 Other applicable documentation

Observe all documents from suppliers that were included with delivery. These are considered part of this documentation and must not be changed or removed.



5 Scope of supply

Backwash filter Multipur AP, consisting of:

1	Filter housing made of red brass
2	Electronic controller and backwashing device with hydraulic drive, CIC connection
3	Power supply unit
4	Water outlet for pipe / water outlet for hose (20 mm Ø)
5	Manometer
	CIC connection cable

Accessories	
Interlock cable for parallel operation 2 m, with plug	Order no. 10908

6 Function

The untreated water flows through a stainless steel filter element in the Multipur. Foreign particles > 100 µm or > 200 µm are thus retained. Depending on their size and weight, these particles either fall directly into the lower part of the filter housing, or adhere to the filter element.

During backwashing, the seal at the rinsing water outlet opens. The suction ring segments of the backwashing element move from the bottom to the top and back again over the entire filter surface and thus clean the filter fabric by suction with clean water at an extremely high flow rate.

Backwashing is carried out automatically at the end of the set interval.

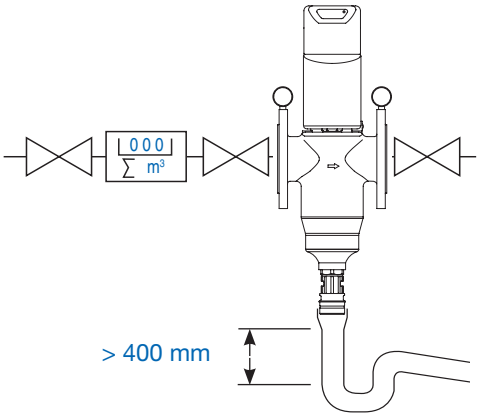
The pressure difference between the untreated water inlet and the treated water outlet of the filter is measured.

The backwashing process is triggered primarily by differential pressure.

If heavy soiling of the filter element causes the pressure difference to exceed the preset value (approx. 0.8 bar) within the preset backwash interval, the differential pressure generator causes the unit to backwash. The preset backwash interval starts again.

The filter is equipped with a central instrumentation and control (CIC) connection (contact closes in the event of malfunction or power failure).

7 Preliminary installation conditions



Multipur DN 65, Multipur DN 80 and Multipur DN 100:
Drainage connection min. DN 50

Multipur DN 125 and Multipur DN 150:
Drainage connection min. DN 50

Local plumbing codes, general guidelines and the technical data must be observed.

The system must be installed by the water supply utility or a plumbing company approved by the water supply utility in accordance with these installation and operating instructions and the applicable regulations.

The installation site must be frostproof and ensure that the filter is protected from solvent vapours, heating oil, lees, acidic cleaners, chemicals of all kinds, direct UV radiation and heat over 40°C.

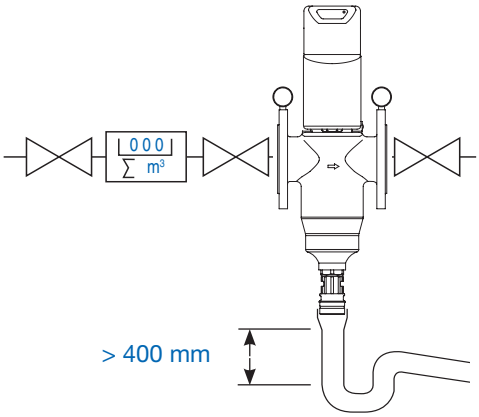
A separate power socket (230 V AC, 50 Hz) within a distance of approx. 1.2 m is required. The power supply must be permanently ensured. Voltage peaks over 1 kV must be avoided.

If the water contains dirt particles > 2 mm, a coarse dirt trap must be installed upstream from the filter.

A flushing water quantity of at least 1.4 l/s (5 m³/h) must be available for backwashing.

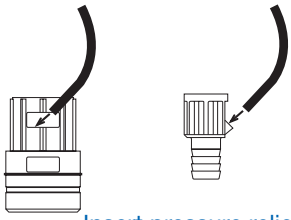
A drainage connection (min. DN 50/DN75) must be available for discharge of the rinsing water.

Avoid extreme pressure surges (caused, for example, by downstream solenoid valves or similar).

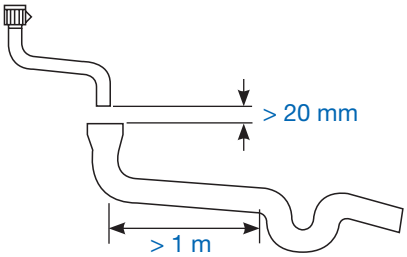


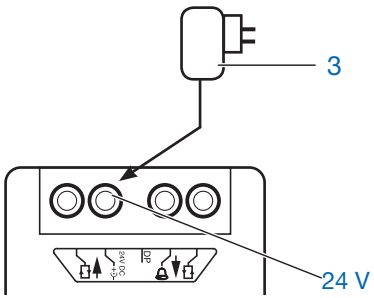
Multipur DN 65, Multipur DN 80 and Multipur DN 100:
Drainage connection min. DN 50

Multipur DN 125 and Multipur DN 150:
Drainage connection min. DN 50



Insert pressure relief hose





8 Installation

Install the backwash filter horizontally in the cold water line in the flow direction. (Observe the flow direction arrow on the filter casing.)

Screw on the waste water connection, either for pipe or for hose. Connect the drain line.

According to DIN EN 1717 the flushing water hose must be secured at a distance of at least 20 mm from the highest possible waste water level (free discharge).

If desired, an external fault signal issued by a potential-free contact can be connected to the building automation system terminals.

Put in pressure relief hose from the solenoid valve in the upper cutout of the drain connection respectively in the sloping drill hole of the hose liner.

A mains power outlet must be available in the i

mmediate vicinity (max. 1.2 m away).

9 Commissioning

Check that the filter and flushing water pipe have been properly installed.

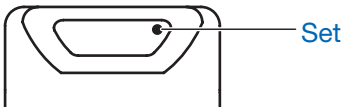
Slowly open the stop valves up- and downstream of the filter. Deaerate the pipework at the next bleed point downstream of the filter, and drain water briefly.

Check the seals of the installation and filter for leaks.

Insert the cable plug connector of the power supply unit into the socket (24 V).

Plug in power supply unit with plug (**3**). The first backwashing cycle is performed automatically (during backwashing the illuminated segments on the display turn).

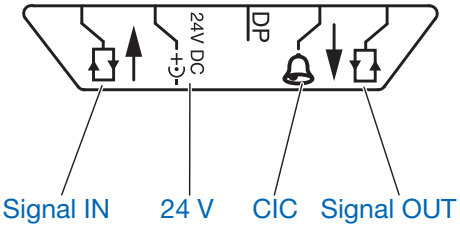
The factory setting 7d (7 days) appears.



The required backwash interval must be set on the filter.

Press Set to set the interval.

Key	Display
Press Set for 5 seconds	SL 0
Display dots flash - device is in programming mode	
Press Set	SL 1
Press Set	SL 2
Press Set	SL 3
Press Set	1 h



Pressing the Set key again steps up the number of **h** (hours) or **d** (days).

The hours h run from 1 – 24, followed by days d from 2 – 56, followed by the hours again etc.

Press the Set key until the desired value has been set. The value is saved 10 seconds after the last input. The display dots fade out. The unit backwashes.

The time until the next backwashing and the pressure difference appear alternately in the display. The pressure difference is only displayed for large volumes of water.

The filter is ready for use.

9.1 For parallel operation only

When 2, 3 or a maximum of 4 filters are operated in parallel, they must be electrically interlocked to prevent simultaneous backwashing.

Insert an interlocking cable into the output of any one filter, representing filter 1, and run the cable to the input of filter 2. Insert the next interlocking cable into the output of filter 2, and run it to the input of filter 3. The output of the last filter is returned to the input of filter 1.

The required backwash interval must be set at the filter to be backwashed first (master) (see above).

The second filter (slave) must be set as follows:

Key	Display
Press Set for 5 seconds	SL 0
Display dots flash - device is in programming mode	
Press Set	SL 1
Wait 10 seconds, dots stop flashing.	
The pressure appears in the display (0.0 P, when no water is used).	

A third filter must be set to SL 2 and a fourth to SL 3.

Disconnect and reconnect all filters to the mains. The filters will be backwashed in sequence: Master, SL 1, SL 2 and SL 3.

The time until the next backwashing and the pressure difference appear alternately in the master filter display. The pressure difference is only displayed for large volumes of water.

Only the pressure difference appears in the slave filter display.

The filters are ready for use.

10 Operation

We recommend programming the filter so that the device is backwashed at least once a month to prevent foreign particles from adhering to the filter element (more frequently for higher levels of soiling; factory setting every 7 days).

10.1 Setting the backwash interval

Should the local water quality (degree of contamination) change, the backwashing interval must be corrected; see commissioning.

10.2 Manual backwashing

Unplugging and plugging in the device can backwash it at any time.

10.3 Display

The time until the next backwashing and the pressure difference appear alternately in the display. The pressure difference is only displayed for large volumes of water.

10.4 Cleaning

Clean plastic parts with a soft, damp cloth only; do not use solvents, detergents, or acidic cleaning agents.

11 Maintenance

All technical equipment requires regular maintenance. This should always be undertaken by specialist staff who will also replace worn parts. We advise you to conclude a maintenance contract. Maintenance must be performed once each year, and twice each year for municipal systems, by a plumber or the manufacturer.

11.1 Replacement of wearing parts

Seals	every 3 years
Backwashing element	every 6 years
Filter element	every 6 years
Groove ring	every 6 years
Lock ring	every 6 years
Hose barb	every 9 years
HT-Connector	every 9 years
Hydraulic tubes	every 9 years
Difference pressure transducer	every 9 years
Pressure spring	every 12 years

11.2 Troubleshooting

Fault	**Cause**	**Action**
Water pressure dropped considerably in network	Dirty filter element	Carry out backwash
Flushing water outlet does not close	Backwash element does not reach the end position due to large particles of dirt	Repeat backwash several times
AP only: Display shows ERR	Pressure too low	Repeat backwash several times. Increase pressure

If the fault cannot be remedied by following these tips, contact our after-sales service department.

12 Technical Data

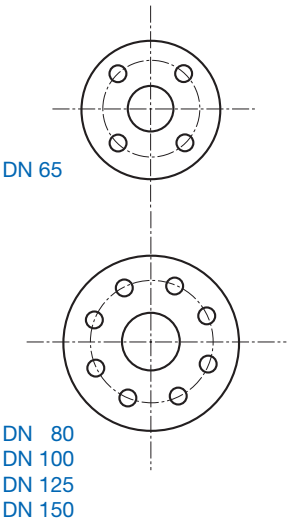
Multipur AP	**Typ**	**65**	**80**	**100**
Nominal connection width	DN	65	80	100
Connection type		Flange connection DIN 2501, Part 1		
Flange Ø	mm	145	160	180
Flangebore Ø	mm	18		
Nominal flow	m^3/h	58	58	65
Flow capacity at Δp = 0,2 bar	m^3/h	35	35	40
Flow capacity at Δp = 0,5 bar	m^3/h	58	58	65
Micron rating	µm	100 or 200		100
Nominal pressure (PN)	bar	10		
Operating pressure p_o min./max.	bar	2,5 - 10		
Water temperature , min./max.	°C	5-30		
Ambient temperature, min./max.	°C	5-40		
Pressure regulator		no		
Minimum pressure behind filter (for backwashing)	bar	–	–	2,5
Length of backwashing, approx.	s	10		
Rinsing water volume at 4 bar	l	16		24
Water flow at backwashing	l/h	5700		8600
Mains connection	V/Hz	230/50		
Operating voltage	V-	24		
Power consumption, max.	W	8		
Power consumption during backwashing, max.	W	12		
CIC - dry contact, switching capacity max.	V / A	24 V / 1 A (resistive load)		
Protection		IP 54		
Drainage connection, min.	DN	50		
Operating weight, approx.	kg	15	18	24
Shipping weight, approx.	kg	13	16	21
Product number (100 µm)	**PNR**	**6-372027**	**6-372028**	**6-372037**
Product number (200 µm)	**RNR**	**6-372029**	**6-372030**	**–**

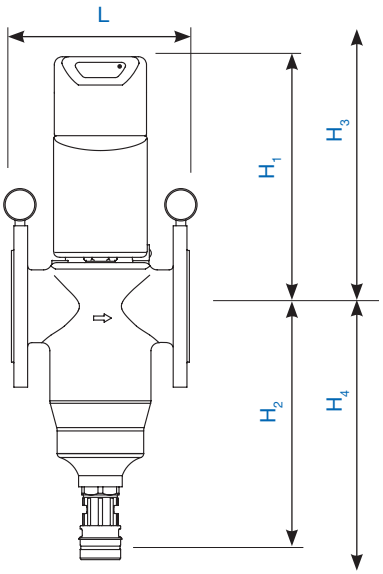
Multipur AP	**Typ**	**125**	**150**
Nominal connection width	DN	125	150
Connection type		Flange connection DIN 2501, Part 1	
Flange Ø	mm	210	240
Flangebore Ø	mm	18	
Nominal flow	m^3/h	76	87
Flow capacity at Δp = 0,2 bar	m^3/h	45	51
Flow capacity at Δp = 0,5 bar	m^3/h	76	87
Micron rating	µm	100	100 or 200
Nominal pressure (PN)	bar	10	
Operating pressure p_o min./max.	bar	2,5 - 10	
Water temperature , min./max.	°C	5-30	
Ambient temperature, min./max.	°C	5-40	
Pressure regulator		no	
Length of backwashing, approx.	s	10	
Rinsing water volume at 4 bar	l	30	
Water flow at backwashing	l/h	10000	
Mains connection	V/Hz	230/50	
Operating voltage	V-	24	
Power consumption, max.	W	8	
Power consumption during backwashing, max.	W	12	
CIC - dry contact, switching capacity max.	V / A	24 V / 1 A (resistive load)	
Protection		IP 54	
Drainage connection, min.	DN	75	
Operating weight, approx.	kg	33	38
Shipping weight, approx.	kg	28	32
Product number (100 µm)	**PNR**	**6-272038**	**6-372039**

12.1 Overall dimensions

Multipur AP	Typ	65	80	100
Overall height	mm	630	630	680
Height, top edge to centre of tube (H1)	mm	310	310	310
Height, lower edge to centre of tube (H2)	mm	320	320	370
Minimum distance, centre of tube to ceiling (H3)	mm	400	400	400
Minimum distance, centre of tube to floor (H4)	mm	400	400	400
Minimum distance, centre of tube to wall	mm	100	105	115
Installation length (L)	mm	220		

Multipur AP	Typ	125	150
Overall height	mm	770	770
Height, top edge to centre of tube (H1)	mm	310	310
Height, lower edge to centre of tube (H2)	mm	460	460
Minimum distance, centre of tube to ceiling (H3)	mm	400	400
Minimum distance, centre of tube to floor (H4)	mm	640	640
Minimum distance, centre of tube to wall	mm	130	145
Installation length (L)	mm	220	

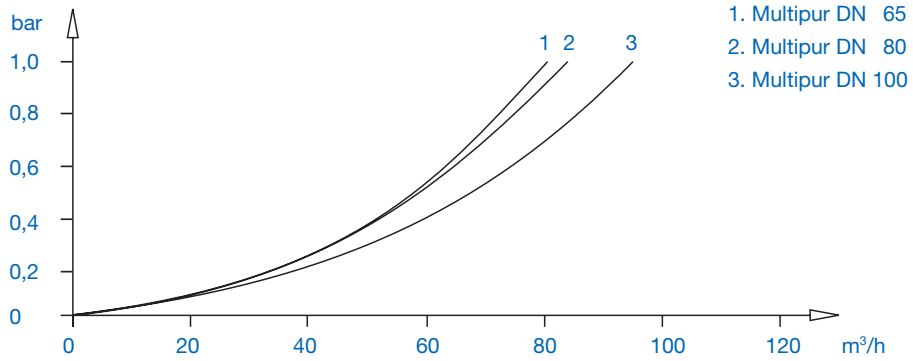


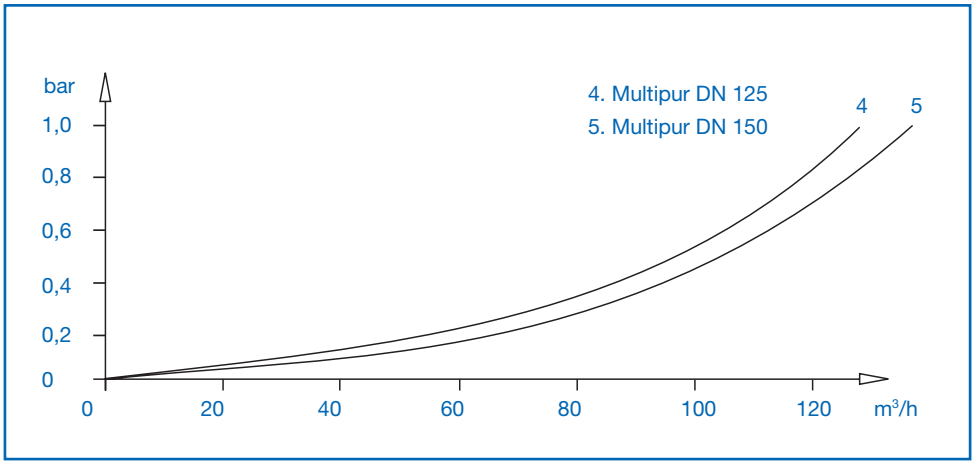


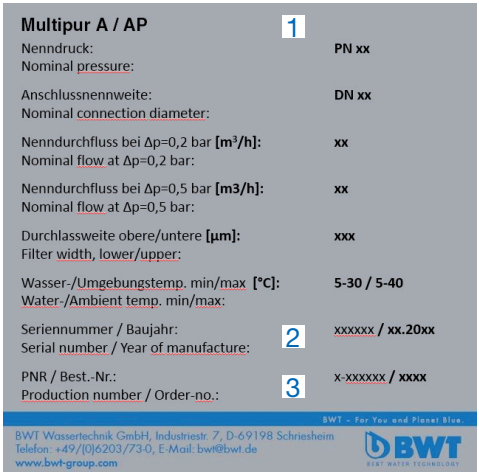
12.2 Volume flow rate and pressure loss

Multipur AP DN 65								
Volume flow rate [m³/h]	15	22	35	44	51	58	72	81
Pressure loss Δp [bar]	0,05	0,1	0,2	0,3	0,4	0,5	0,8	1,0
Multipur AP DN 80								
Volume flow rate [m³/h]	15	22	35	44	51	58	75	85
Pressure loss Δp [bar]	0,05	0,1	0,2	0,3	0,4	0,5	0,8	1,0
Multipur AP DN 100								
Volume flow rate [m³/h]	15	25	40	49	58	65	82	94
Pressure loss Δp [bar]	0,05	0,1	0,2	0,3	0,4	0,5	0,8	1,0
Multipur AP DN 125								
Volume flow rate [m³/h]	18	29	45	56	67	76	98	109
Pressure loss Δp [bar]	0,05	0,1	0,2	0,3	0,4	0,5	0,8	1,0
Multipur AP DN 150								
Volume flow rate [m³/h]	22	34	51	65	78	87	113	128
Pressure loss Δp [bar]	0,05	0,1	0,2	0,3	0,4	0,5	0,8	1,0

12.3 Pressure loss curves







12.4 Type label

The type label serves as product identifier. In case of any requests, please have the following information ready:

1. Device name
2. Serial number / Year of manufacture
3. Production number / Order-no.

Note: The type label is an official document and must not be altered or stripped off. Damaged or unreadable type labels have to be replaced.

13 Warranty

In the event of a malfunction during the warranty period, please contact our after-sales service department, stating the type of unit and the product number (PNR) (see the technical data or the type plate on the unit).

14 Decommissioning and disposal

14.1 Decommissioning

The product may only be shut down and dismantled by qualified specialists.

Observe all applicable safety regulations when dismantling the system.

14.2 Disposal

NOTICE

- **At the end of the product's life cycle, ensure that it is properly disposed of or recycled.**
- **Observe the legal disposal guidelines for the country in which the product is used.**
- **The following materials are used in the product: metal, plastic**

Konformitäts-Erklärung
Declaration of Conformity
Certificat de conformité

im Sinne der EG-Richtlinien	Niederspannung 2014/35/EU EMV 2014/30/EU
according to EC instructions	Low voltage 2014/35/EU EMC 2014/30/EU
en accord avec les instructions de la Communauté Européenne	Basse tension 2014/35/UE CEM 2014/30/UE
Produkt/Product/Produit:	Filter Filter Filtre
Typ/Type/Type:	Multipur 65 AP, Multipur 80 AP, Multipur 100 AP, Multipur 125 AP, Multipur 150 AP

ist entwickelt, konstruiert und gefertigt in Übereinstimmung mit den oben genannten Richtlinien, in alleiniger Verantwortung von:

is developed, designed and produced according to the above mentioned guide-lines at the entire responsibility of:

est développé, conçu et fabriqué en accord avec les instructions mentionnées ci-dessus sous l'entière responsabilité de:

BWT Wassertechnik GmbH, Industriestr. 7, 69198 Schriesheim

Schriesheim, April 2016	Lutz Hübner
Ort, Datum / Place, date / Lieu et date	Unterschrift (Geschäftsleitung) Signature (Management) Signature (Direction)

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BEST WATER TECHNOLOGY