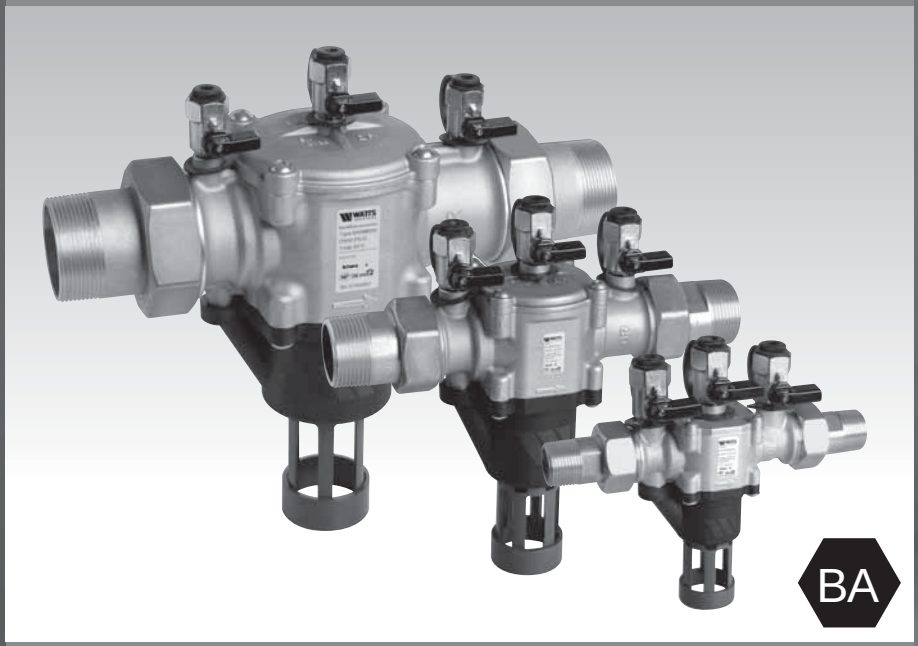
Technical manual
Backflow preventers BA BM



UK

WATTS INDUSTRIES

A Division of Watts Water Technologies Inc.



Introduction

The controllable backflow preventer BA BM with reduced pressure zones protects potable water systems against pollution caused by backpressure or by backsiphonage.

		Article number *	
Type	DN	Device	Unit
BA BM 015	15	405015310	405015311
BA BM 020	20	405020310	405020311
BA BM 025	25	405025310	405025311
BA BM 032	32	405032310	405032311
BA BM 040	40	405040310	405040311
BA BM 050	50	405050310	405050311

* Article number for UK

Technical Information

Field of application:

- Protection against fluid category 4 (EN1717), examples of applications:
  - Soap dispensing units;
  - Photoshop equipment;
  - Sealed heating systems > 45 kW;
  - Brewery and distillation plant.

  Note: applications also refer to national requirements.
- Medium: potable water.
- Maximum working temperature 65 °C.
- Maximum pressure 1 MPa (10 bar).
- Inlet flow pressure minimum 200 kPa (2 bar).

Compliance with EN1717, EN12729 and on national level

- France — NF045 / Document Technique 6.
- Germany — DVGW Arbeitsblatt W570.
- Netherlands — BRL-K646.
- United Kingdom — WRAS-criteria.

Installation and commissioning instructions

- Installation of a backflow preventer BA shall be carried out by qualified personnel.
- Before installing the protection unit BA the upstream piping shall be flushed thoroughly.
- Install the BA-unit, consisting in flow direction of a first stop valve, strainer, BA-protection device and a second stop valve. The BA-unit must be readily accessible to allow access for testing, repair and replacement. The following dimensions shall be observed (see drawing 4)
- The BA-unit shall be installed horizontally with the air-gap-to-drain downwards and without any tension and/or traction at the inlet and outlet connections.
- The location of installation shall not be liable to any flooding at all times and has to be protected against freezing.
- Discharge from the relief valve shall be by means of gravity flow to a drain port being mindful of the following flow rates in table A.

Table A

Ø DN	6	8	10	15	20	25	32	40	50
m^3/h	40	40	40	40	60	60	80	80	80

Note: When the drain port piping is also used to discharge flows from other sources this capacity shall be taken into account additionally to the flow rates of table A to define the appropriate piping size.

• Before putting the device into operation, the upstream piping and BA-device shall be de-aerated through test cock 10, 11 and 12 (see drawing 1).

Testing

In compliance with national instructions a BA-unit shall be tested periodically, in most countries on an annual basis. Watts Industries offers test kits with pressure gauge and hoses (reference: catalogue “Maintenance kits”).
The testing shall be confirmed by means of the appropriate certification.

Observations

Observation	Possible reason	Action
1. Short-time discharge of water through relief valve followed by normal operation.	Pressure fluctuation in the water supply.	None.
2. At normal operation continuous water discharge through relief valve.	Relief valve polluted or damaged.	Cleaning or replacement of relief valve module.
3. In discharge mode continuous water discharge through relief valve.	a. First check valve polluted or damaged. b. Seal relief valve piston polluted or damaged. c. Second check valve polluted or damaged.	a. Cleaning or replacement of first check valve module. b. Cleaning or replacement of relief valve module. c. Cleaning or replacement of second check valve module.

Maintenance instructions (see drawing 1)

Disassembly

• Remove cover (3) from main body (1) by unscrewing bolts (4).
• Remove retainer (5).
• Remove first check valve module (6) with the use of a screwdriver as handle.
• Remove relief valve module (8) either by a M10 bolt or by pushing the module upwards with a flat tool through the air-gap (9).
• Remove second check valve module (7) with the use of a screwdriver as handle.
Note: disassembly of relief valve body (2) from the main body (1) is not foreseen.

Assembly

• Mount second check valve module (7) into its bore in main body (1).
• Mount the relief valve module (8) into its location in the relief valve body (2).
• Mount first check valve module (6) into its bore in main body (1).
• Position the retainer (5) between first & second check valve (6 & 7) and on top of the relief valve module (8). Only one position is possible.
• Mount the cover (3) and tighten the bolts (4).

Material specifications

• Main body: DZR brass CW602N.
• Relief valve body: polymer PA (co-polyamide).
• First & second check valve module: polymer POM.

Operation (see drawing 3)

3a. Static condition, no consumption

Both check valves are closed. The pressure in the intermediary chamber remains 50 kPa lower that the inlet pressure, keeping the relief valve closed.

3b. Pressure, flow

The first and second check valves are open. The water circuit pressure upstream of the relief valve keeps it closed. The pressure in the intermediate chamber is at least 50 kPa lower than the inlet pressure.

3c. Back siphoning, discharge intermediate zone

When the water circuit pressure drops off, both check valves are closed. The relief valve is opened and the water from the intermediary chamber is drained through the water outlet. This creates an atmospheric “break” between the water circuit and the polluted or unknown quality water on the outlet site of the device.

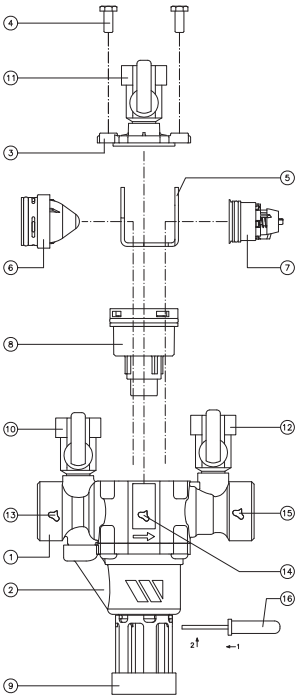
3d. Back pressure

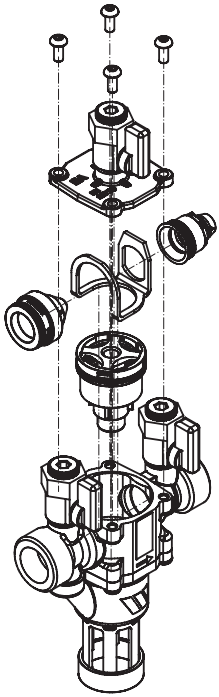
- Second check valve is leak-tight: no discharge.
- Second check valve fouled: the relief valve will open and drain a quantity of water, so that the pressure in the intermediary chamber remains lower than the water circuit pressure.

Approvals
Kiwa / WRAS / NF / DVGW
In progress: Sitac / Belgaqua / SVGW / UNI

The photos and description contained in this brochure are solely intended as an indication, Watts Industries reserves the right to make technical and design changes to its products without prior notice.

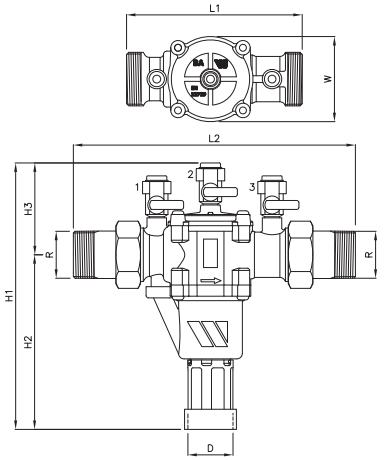
Drawing 1. Description



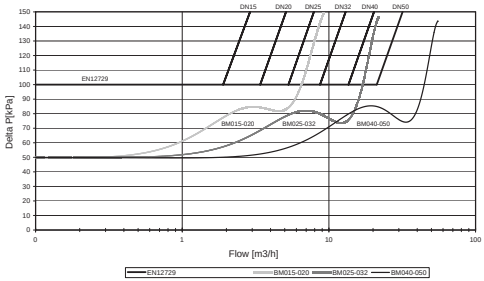


Pos.	English	Français	Deutsch	Nederlands	Italiano	Español
1	Main body	Corps principal	Gehäuse	Basis huis	Corpo principale	Cuerpo principal
2	Relief valve body	Soupape de décharge	Entlastungs-gehäuse	Huis ontlast-systeem	Corpo della valvola di sovrapressione	Cuerpo válvula de alivio
3	Cover	Couvercle	Deckel	Deksel	Coperchio	Cubierta
4	Bolts	Vis	Schrauben	Bouten	Bulloni	Tornillos
5	Retainer	Entretoise (cale intérieure)	Käfig	Kooi	Filtro	Seguro
6	First check valve module	Clapet amont	Eingangs-Rückfluß-verhinderer	Eerste keerklep	Gruppo prima valvola di ritegno	Primera válvula antirretorno
7	Second check valve module	Clapet aval	Ausgangs-Rückfluß-verhinderer	Tweede keerklep	Gruppo seconda valvola di ritegno	Segunda válvula antirretorno
8	Relief valve module	Module soupape	Entlastungs-system	Ontlastsysteem	Gruppo valvola di sovrapressione	Válvula de alivio
9	Air-gap / tundish	Entonnoir/garde d'air	Freier Auslauf	Trechterset	Intercapedine d'aria / imbuto di scarico	Desagüe
10	Test cock 1	Robinet de prise de pression 1	Prüfstutzen 1	Testkraan 1	Valvola di prova 1	Toma de control 1
11	Test cock 2	Robinet de prise de pression 2	Prüfstutzen 2	Testkraan 2	Valvola di prova 2	Toma de control 2
12	Test cock 3	Robinet de prise de pression 3	Prüfstutzen 3	Testkraan 3	Valvola di prova 3	Toma de control 3
13	Inlet zone	Zone amont	Eingangszone	Ingangszone	Ingresso	Zona de entrada
14	Intermediate zone	Zone intermédiaire	Mittelkammer	Tussenkamer	Camera intermedia	Zona intermedia
15	Outlet zone	Zone aval	Ausgangszone	Uitgangszone	Uscita	Zona de salida

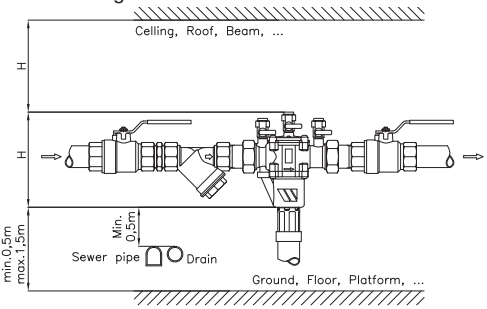
Drawing 2. Dimensions and weight



Flow curves



Drawing 4.

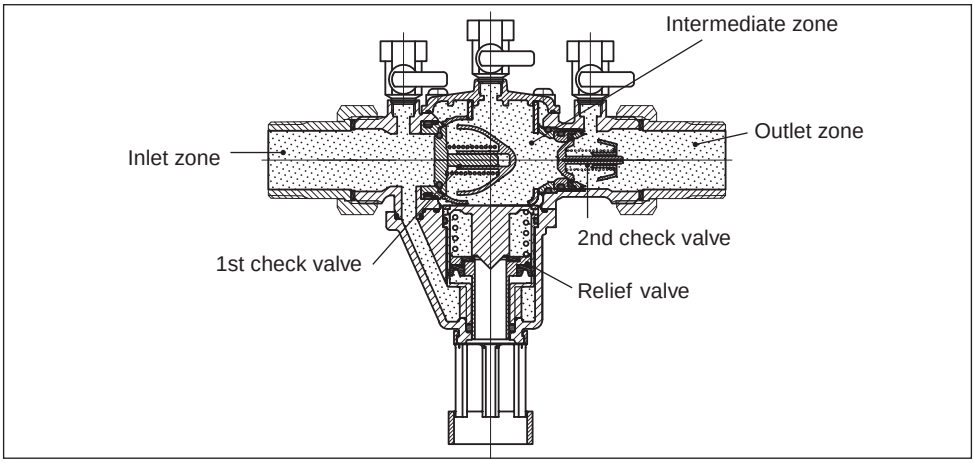


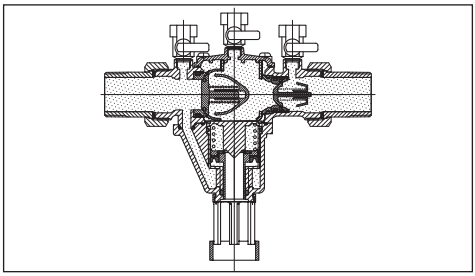
Backflow Preventer BA BM		units	015	020	025	032	040	050
Connections tailpieces (male)	R	inch	½"	¾"	1"	1 ¼"	1 ½"	2"
Connection tundish (inside)	D	mm	32	32	40	40	50	50
Built-in length excl. tailpieces	L1	mm	122	122	157	157	220	220
Built-in length incl. tailpieces	L2	mm	201	201	252	252	336	336
Height	H1	mm	168.5	168.5	238	238	303.5	303.5
Height	H2	mm	103	103	156	156	202.5	202.5
Height	H3	mm	65.5	65.5	82	82	101	101
Width	W	mm	53	53	76	76	115	115
Weight, incl. tailpieces and tundish	L	kg (approx.)	1,2	1,2	2,7	2,7	6,5	6,5

Spare parts kits / Kit pièces de rechange / Ersatzteile / Reservedelensets / Parti di ricambio / Kits de recambios (see drawing 1)

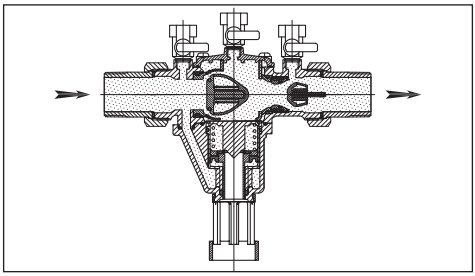
		United Kingdom	France	Deutschland	Nederland	Italia	España
Module	BM015/020						
6 +	O-ring/bolt cover	416020377	voir documentation spécifique auprès de Watts Industries France	1511301	416020377	416020377	416020377
7 +	O-ring/bolt cover	416020393		1511302	416020393	416020393	416020393
8 +	O-ring/bolt cover + bolt M10	416020359		1511303	416020359	416020359	416020359
	BM025/032						
6 +	O-ring/bolt cover	416032377		1511306	416032377	416032377	416032377
7 +	O-ring/bolt cover	416032393		1511307	416032393	416032393	416032393
8 +	O-ring/bolt cover + bolt M10	416032359		1511308	416032359	416032359	416032359
	BM040/050						
6 +	O-ring/bolt cover	416050377		1511311	416050377	416050377	416050377
7 +	O-ring/bolt cover	416050393		1511312	416050393	416050393	416050393
8 +	O-ring/bolt cover + bolt M10	416050359		1511313	416050359	416050359	416050359

Drawing 3. Operation

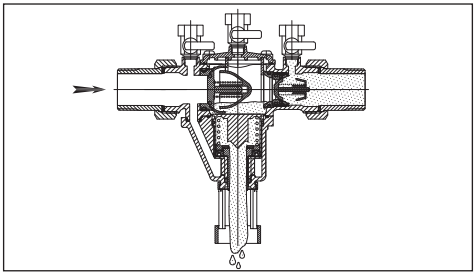




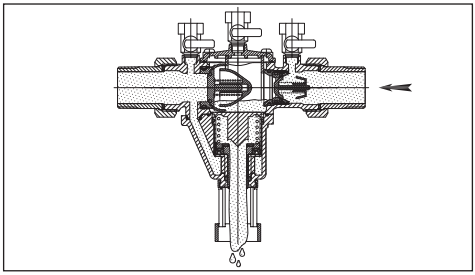
3a. Static condition / no consumption



3b. Pressure, flow



3c. Back siphonage, discharge intermediate zone



3d. Backpressure

WATTS INDUSTRIES
A Division of Watts Water Technologies Inc.

Watts Industries UK Limited
Grosvenor Park, Evesham, Worcestershire WR11 1GA
Phone 01386 446997 Fax 01386 41923
E-mail sales@wattsindustries.co.uk - Site www.wattsindustries.com