SYSTEM MARIC

Constant Flow Valves

CATALOGUE

Constant flow – regardless of pressure

Bertfelt
Brilliant solutions for the Industry

Bertfelt Teknik AB I www.bertfelt.com

Bertfelt has implemented management quality and enviromental system according to ISO 9001 and 14001. The management system was certified by an accredited institute end of 2015. End of 2018 the systems were updated to ISO 9001:2015 and ISO 14001:2015 respectively.

Since March 2017, Bertfelt Teknik can supply Constant Flow Valves complying with EC1935/2004 and EC2023/2006.

In July 2018, Bertfelt obtained its French certificate of sanitary conformity (ACS) for our range of Constant Flow Valves. Please ask your local sales representative for more information.

Bertfelt International (European manufacturing and distribution. Customer support for the Nordics, the Baltics, Poland, Italy and the Rest of Europe, excluding UK and Ireland).

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Content

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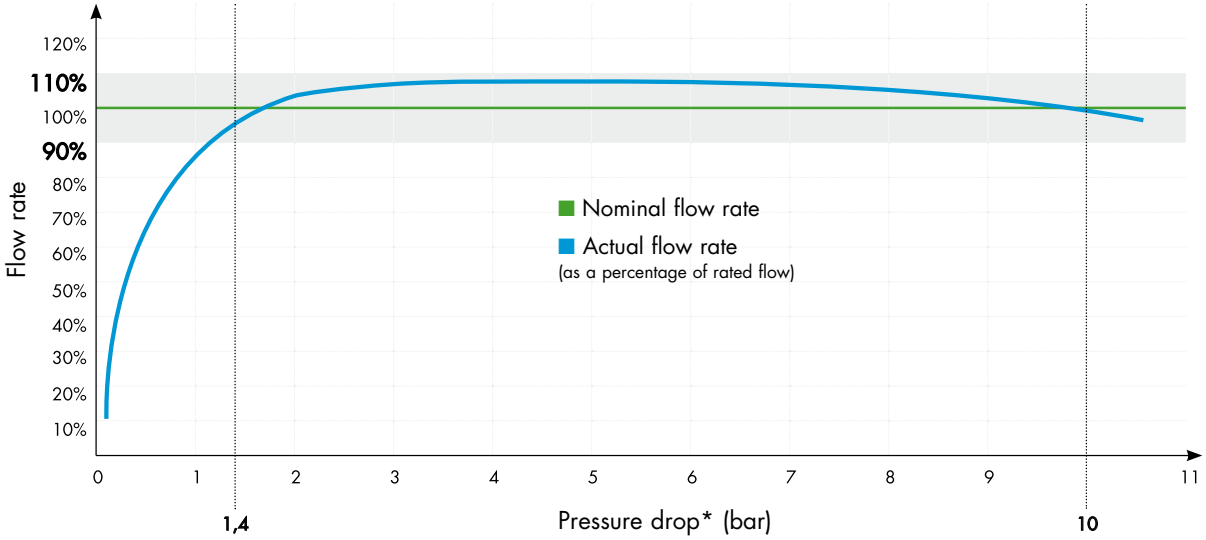
About Bertfelt Teknik

Founded 1990, Bertfelt Teknik is an European manufacturer of constant flow valves, System Maric.
From the head office In Sweden, valves are marketed and distributed to OEM-manufacturers on mainland Europe. Bertfelt has implemented a quality and environmental management system according to ISO 9001 & 14001.
Bertfelt Teknik can supply constant flow valves complying with EC1935/2004, EC2023/2006 as well as the French certificate of sanitary conformity (ACS).

Constant Flow Valves, Maric System

Maric System constant flow valves are reliable, self-regulating and self-cleaning valves that provide a preset constant flow regardless of pressure, for water and similar media. Maric System constant flow valves are used to rationalise and improve your product or process and reduce your flow-related costs. The valves are suitable for use in a large number of industrial sectors, such as waterworks, manufacturing and food industries, process and chemical industries. Applications include dosage and mixing systems, cooling systems, pumps, mechanical seals, sprinkler and watering systems and humidification equipment.

Performance graph for standard valves with control rubber type, Precision



**Pressure drop is the difference between inlet and outlet pressure across the valve*

Simple mechanical solution

In the middle of the valve body, there is a conical seat. In this conical seat, a very precisely shaped rubber gasket (o-ring) is fitted. As the pressure increases, the o-ring is pressed downwards in the conical seat in such a way that the opening of the rubber gasket is reduced, thus reducing the orifice diameter. When the pressure decreases, the rubber gasket flexes back, thus enlarging the orifice diameter to original size. This ensures a constant flow as shown in the chart above.

LOW PRESSURE
Rubber gasket is relaxed and orifice has the largest diameter.

HIGH PRESSURE
As the pressure increases the rubber gasket is pressed downwards and the orifice diameter becomes smaller, in such a way, that the flow rate remains constant.

Different designs

The control rubber can be fitted in different valve bodies to suit your application: Threaded valves, wafer (for large flow rates, to be fitted between pipe flanges) or inserts.
The valve bodies are made from standard material such as stainless steel, brass or PVC. Other non-standard materials as well as designs can be discussed with the local sales representative.

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What the Maric Valve DOES

The Maric flow control valve is designed to deliver a fixed, pre-set, constant (maximum) flow of water, irrespective of pressure differential across it, (within a given range).
This means constant flow rate, irrespective of fluctuating pressure upstream or downstream of the valve.

What the Maric Valve DOES NOT DO

The flow controller is not designed to control pressure.
The flow control valve has no external actuations and is not adjustable for flow rate.
The flow control valve does not work with air.

About Headloss

About Headloss with Maric Constant Flow Valves

Pressure Differential Characteristics

Performance Graph

Calculating Pressure Drop

About Headloss

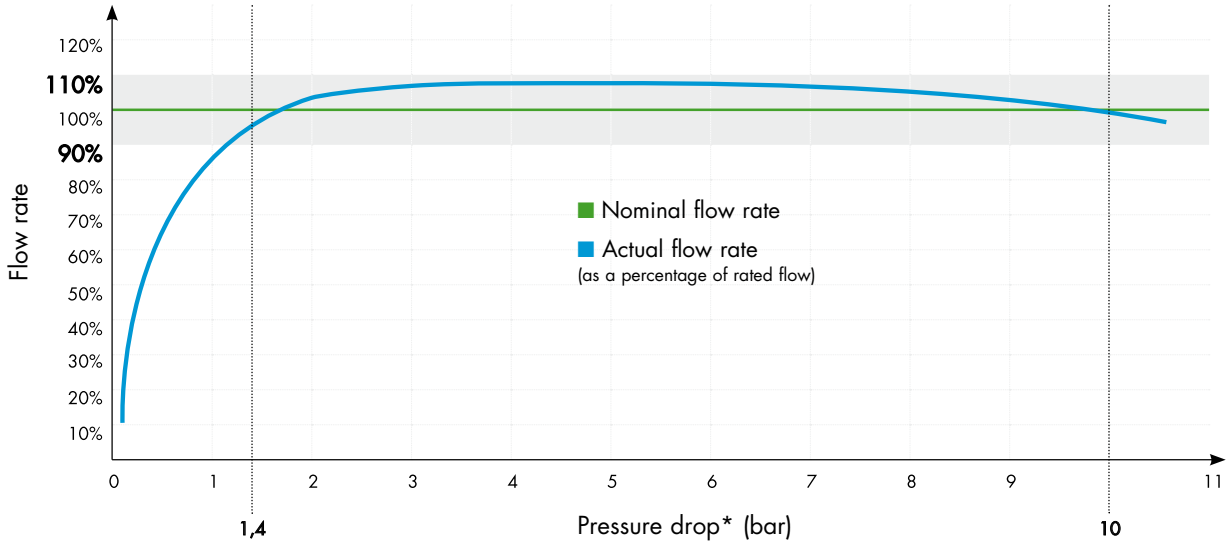
About Headloss with Maric Constant Flow Valves

The following explanation is provided to assist in determining what the headloss (pressure differential) will be across the Maric valve, before the valve is installed, for the purpose of determining the valves suitability for the application.

Firstly understand that the whole purpose, of installing a Maric valve, is to maintain constant flow rate, irrespective, of the pressure drop across it, (provided that it is within the valves designed pressure drop range). We can not advise what the pressure differential will be. But it should be possible to calculate it if you have sufficient installation data available. It will then be possible to select a valve of the appropriate pressure differential range for the application.

THE PRESSURE DROP ACROSS THE VALVE will in fact be determined by the parameters of each individual installation. If you are unsure if a Maric valve will be suitable for a particular application, it will be necessary to predict what the pressure differential will be across the valve by calculating as described below and on next page.

Performance graph, typical for all PRECISION valves – irrespective of body size or flow rate.



**Pressure drop is the difference between inlet and outlet pressure across the valve.*

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About Headloss

Calculating pressure drop

The differential across the constant flow valve, will be the difference in pressure between the inlet and outlet. Firstly, let us assume the valve is limiting flow to the desired rate. Then determine, (at that flow rate) what will be the maximum and minimum possible inlet pressures. Then determine the maximum and minimum outlet pressures likely to be encountered.

The *maximum* pressure differential – will be the maximum inlet, less the minimum outlet pressure.
The *minimum* pressure differential – will be the minimum inlet pressure, less the maximum outlet pressure.

When performing these calculations, it is vital that they are done at the desired flow rate.

INLET PRESSURE CALCULATIONS:

A Supply pressure fluctuations.
B The pumps performance curve. i.e., pressure produced at the required flow rate.
C Associated line frictional losses between the pump and the valve.
D Any vertical lift component which will reduce pressure to the valve.

OUTLET PRESSURE CALCULATIONS:

A Demand fluctuations.
B Any vertical lift required after the valve.
C Associated frictional line losses to the ultimate destination.
D Pressure losses or requirements associated with downstream valves, filters, nozzles, other pumps, sprinklers, or stuffing box resistance etc.

Valve Applications

Overview

Industrial

Water Treatment & Filtration Equipment

Water Authorities

Irrigation & Farming

Project Market – hotels, restaurants, condominium, event areas

Mining

Pump Protection (Centrifugal) Using Maric Flow Controllers

Overview

INDUSTRIAL

- Dosing equipment – controlled mixing of ingredients.
- Mechanical seals - indicating minimized but correct flow.
- Vacuum Pumps – for controlling flow of crucial sealing/service liquid to liquid ring vacuum pumps.
- Fire Fighting; proportioners – correct ratio dosing of foaming agent In high flow applications.
- Dust Suppression – sprinkler control on mobile water tankers.
- Cooling equipment – correct flow of cooling water to machinery. Often with solinoid valves.
- Safety Showers & Eyewash Equipment – controlled flow ensures consistent and safe operation.

WATER TREATMENT & FILTRATION EQUIPMENT

- Back-wash flow rate control – for preventing media loss.
- Optimized flow rate control through delicate filters.
- Control trickle flow to water quality analysing equipment.
- UV-sterilisation – controlled speed = controlled bacteria kill.

WATER AUTHORITIES

- Flow limiting – extending water meter life, enabling economical distribution to rural connections.
- Flow control instead of water meters and to force water restrictions.

PROJECT MARKET – hotels, restaurants, condominiums, event areas.

- Drinking Fountains – controlled stream prevents frustration at the drinking fountain.
- Washing & dish washing machines In condominiums – making sure that all users get a correct but limited flow.
- Wash basins – controlled and limited flow rates.
- Water Heaters – keeping flow below a pre set maximum ensures gas & electric instantaneous heaters can heat to a sufficiently hot & advertised temperature.

IRRIGATION & FARMING

- Sprinkler flow control – over-spraying mists and/or wastes water and under-irrigating wastes time.
- Fitted to each outlet ensures uniform output at different elevations.
- Animal farms – correct and limited flow to all animal stalls.

MINING

- Gland water flow control to gland-packing/stuffing box and mechanical seals of centrifugal and slurry pumps.

CENTRIFUGAL PUMP PROTECTION

- For keeping a pump on its curve and preventing cavitation damage.
- For use on high draw-down bores for preventing up-thrust damage and for preventing over-pumping beyond bores capacity & drawing in of air or sand – leading to unstable conditions.
- Protection from overloading of electric motors, control of cooling water to liquid ring vacuum pumps.
- Gland-water & mechanical seal – seal water flow control.

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Industrial

Industry requires controlled water flow in numerous applications.

Maric Flow Control Valves are often used in the following applications:

- *Safety showers & eye washing equipment* – ensures adequate flow to all shower stations, controlled flow = safe flow to eyes.
- *Dust suppression* – ensures consistent flow from all spray nozzles.
- *Fire fighting*
  – guarantees availability of adequate flow to all hydrants in the event that they all require water at the same time,
  – controlled max flow ensures safe and correct flow from each nozzle,
  – for use in conjunction with smaller nozzle for correct dosing of foaming agent. See also pump protection section.
- *Liquid ring vacuum pump seal/service liquid.*
- *Industrial linen washing machines* – controlled flow maintains mains pressure.
- *Distilleries and cooling equipment* – minimises waste, by controlling condenser cooling water flow.
- *Power station* – demineralization water treatment equipment.
- *Plant washdown hoses.*
- *Chemical Dosing Flow Control.*

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Water Treatment & Filtration Equipment

Various processes within water and wastewater treatment require water flow to be maintained at a constant rate.

A variety of technologies are utilised to achieve this constant flow rate, and one reliable and maintenance free method is to use Maric flow control valves.

Maric flow controllers can be used to:

- *Control backwash flow rate* to prevent loss of media in media filters.
- *Control of service water flow* through delicate filters.
- *Control trickle flow of sampling water* to analysing instrumentation.
- *Control maximum flow of treated waste* into the municipal sewer system.
- *Limit peak flow rate through ultraviolet sterilisers* to ensure 100% bacteria kill.
- *Control flow of carrier water* to coupon rack in cooling tower, water treatment installations.
- *Chemical dosing flow rate control.*

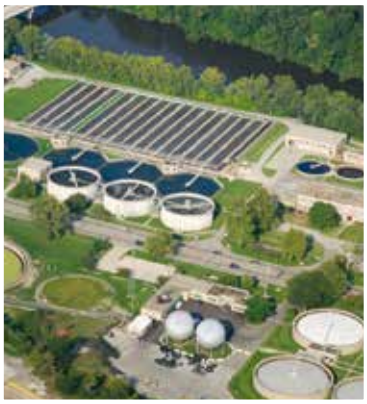
Maric flow controllers are:

- *Tamperproof.* Maric valves are non-adjustable, which prevents unwanted system changes.
- *Maintenance free, reliable and self cleaning.* As there are no wearing parts, the valves require no maintenance, adjustment or cleaning for their 20+ year life.

Osmoflo Australia use Maric valves to control flow in a reverse osmosis water treatment plant

Maric valves control backwash flow rate in a media filter

Control flow through Reverse Osmosis membranes



Municipal water treatment has many applications for Maric flow controllers

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Water Authorities

This list shows how the use of Maric flow control valves, at water meters, has benefited Water Authorities.

A. The use of 2.0 litre per minute tail inserts are an invisible and tamper resistant means of accurately restricting flow for non-payment of water bills.

B. Limiting maximum flow, helps ensure maximum consistent mains pressure will be maintained during peak demand. This can help ensure the last property on the line gets its fair share, and may also prevent the costly exercise of needing to increase the mains pipe size to cope with an increased population.

C. Significantly extended water meter life is obtained when maximum flow is kept within meters design parameters.

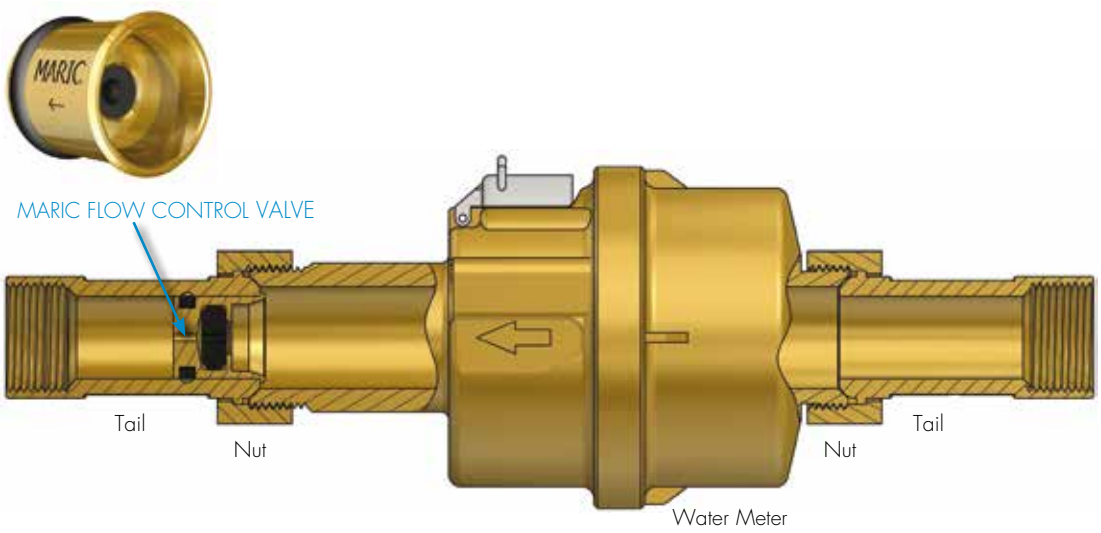
D. May facilitate an economical means of distributing water to vast areas of semi-rural, sparsely populated country. A very small and inexpensive water main, perhaps as small as 50mm, and hundreds of kilometers long may be used if flow is limited to a fraction of a litre per minute per customer. Consumers fill their own tanks for a practical supply.

E. In Queensland, (in locations as described above), some authorities provide valves at a low flow rate, instead of water meters. This is a significant cost reduction to authorities, and consumers pay according to flow rate requested or offered. As above, consumers fill tanks for a practical supply.

F. Perhaps they could be used also in times of water shortage? Could they offer an alternative to "water restrictions"?

Assembly with water meter

Selection of flow controllers for smaller water meter and tail applications.



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Irrigation & Farming

Irrigation & Farming requires controlled water flow in numerous applications.

Maric Flow Control Valves are often used in the following applications:

- *Centrifugal pump protection* – Maric flow controllers can prevent cavitation or thrust bearing damage caused from excessive flow rate. (refer to Pump Protection pages 19 & 20 for more information).

  Too high a flow rate can damage pumps when:
  - Gate valve is unwittingly opened
  - High standing water table exists at start-up
  - Pipework is empty at start-up
  - Capacity of bore deteriorates below current pumping rate
  - Pipework bursts
  - Pump is required for two different flow rate duties

- *When an authority enforces limits* to, (or reduced) pumping rates, with a non-adjustable valve.
- *Preventing electric motor overload* – limiting pump output also limits power draw and potential overload tripping.
- *Preventing nuisance low-pressure motor tripping* – often caused by too high a demand from too many irrigation blocks open at the one time. (It can be a long walk or drive to re-start pumps!).
- *Fertiliser dosing for irrigation*
- *Vitamin dosing for stock* – dosing equipment.
- *Prevent pumps from tripping on overload.*
- *Equitable distribution over vast distances (cap and pipe the bore schemes)* – provides an economical means of distributing water to numerous properties over vast distances. Limiting flow to a known maximum flow rate will ensure mains pressure is maintained and the last property will receive their allocation.
- *Irrigation Water Treatment* – Backwash flow rate control
- *Sprinkler control* – over-spraying wastes water and under-spraying wastes time (ensures consistent output irrespective of sprinkler elevation or available pressure).
- *Tank/water trough fill rate control* – Limiting flow to known maximum flow rate, will ensure adequate line pressure to the end of the water main.

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Project Market

– hotels, restaurants, condominium, event areas.

Maric flow control valves automatically maintain a fixed, maximum constant flow rate, and are often used to save water in homes, motels and commercial buildings in the following outlets:

- *Drinking Fountains* – controlled stream prevents frustration at the drinking fountain.
- *Washing & dish washing machines In condominiums* – making sure that all users get a correct but limited flow.
- *Wash basins* – controlled and limited flow rates.
- *Water Heaters* – keeping flow below a pre set maximum ensures gas & electric instantaneous heaters can heat to a sufficiently hot & advertised temperature.

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Mining

Various processes within the mining industry require water flow to be maintained at a constant rate.

APPLICATIONS INCLUDE:

- Glandwater flow control
- Mechanical seal flow control
- Water treatment
- Process water control
- Safety showers & Eye Washing equipment
- Pump protection
- Dust suppression
- Fire Fighting
- Liquid ring vacuum pump seal / cooling water
- Plant washdown hoses
- Other industrial applications

Gland-Water Flow Control

The Maric flow control valve is designed to deliver a fixed constant (maximum) flow of water, irrespective of pressure differential across it, (within a given pressure differential range).

In the case of slurry pumps, this means, the Maric flow control valve will maintain a constant flow of glandwater, irrespective of fluctuating gland-water supply pressure, gland condition, or slurry pump discharge pressure.

Photograph of Warman® pump reproduced with the permission of the copyright owner, Weir Minerals Australia Ltd.

Benefits, & Why Use a Maric Valve?

Maric Flow Control valves are used to:

- *Protect centrifugal pump glands*, through
  – ensuring adequate constant flow rate,
  – ensuring glandwater availability in the event of failure of any one or more centrifugal pump glands on a common glandwater supply. Relatively high flows through glands are not of particular concern here, as long as the glandwater pump can maintain the supply.

- *Prevent unnecessary dilution of slurry*, (or liquor in the alumina refining industry) by ensuring that glands cannot receive more than a pre-determined flow rate. A lower than set rated flow is not a particular concern here, as the condition of the gland will ultimately determine flow rate, up to the pre-set maximum permitted by the flow controller. Full rated flow of the flow controller will only result when gland is sufficiently loose enough or worn to enable it.

- *Minimise wastage of available packing water supplies.*

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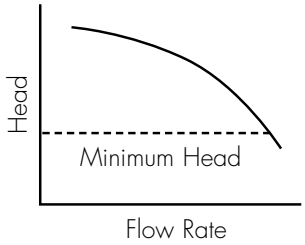
Pump Protection (Centrifugal) Using Maric Flow Controllers

A tamper-resistant method, of protecting centrifugal pumps from running off their curve, is to place a correctly sized Maric flow controller, close to the pump discharge.

INTRODUCTION:

A common cause of submersible centrifugal pump failure, is that of allowing them to run at below their minimum operating head. This is the same as allowing them to deliver too high a flow rate.

For long trouble-free life, flow rate and head should be maintained within the manufacturers specifications.



A typical pump performance curve is shown to the left.

The system also has its own characteristic curve, which will be influenced by friction and other mechanical devices such as valves, fittings, orifices & other components.

Gate valves and pressure sustaining valves are often used to prevent this, however, their disadvantages include:

- being prone to unauthorized adjustment
- can fail due to gate vibrating loose
- impose an unnecessarily high headloss at the duty point, reducing pump output and efficiency, and
- can require maintenance.

Maric flow control valves offer protection without these disadvantages.

HEADLOSS:

The benefit of the Maric flow control valve is that it will result in less energy or head loss than the common gate valve, fixed orifice or pressure-sustaining valve. *This is because;* as the flow rate through the Maric valve reduces below its rated flow, the head loss drops off significantly. (Duty flow rate is usually well in from the right hand side of curve.)

The control rubbers' orifice in the valve actually opens up as the pressure differential across it reduces, in an attempt to maintain the same flow.

With a "fixed orifice" gate valve, head loss at lower flows remains high, and the head loss across a pressure sustaining valve will not change at all, resulting in a significant energy loss, at the duty point, increasing pumping costs, and may necessitate increasing the pump size.
The Maric valve will impose whatever resistance (head) is required in order to maintain the valves rated flow rate.

EXAMPLE: when flow rate through Maric valve is 70% of its rated flow, the headloss is around 4 metres only. Refer Maric Performance curve (overleaf) at 70% of rated flow.

QUESTION: What will be the headloss across the Maric valve in my installation?

ANSWER: It depends on the flow rate, i.e, at valves full rated flow, headloss will be between 1.4 bar and 10 bar*. At a lower flow rate, i.e., duty point, headloss will be less. e.g., 60% of flow = 0.3 bar only.

**For standard "Precision" spec 1.4 – 10 bar flow controllers.*

Maric 50mm x 3 orifice screwed brass flow controllers

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Pump Protection (Centrifugal) Using Maric Flow Controllers

Pumps can be damaged on:

• *Any bore* – where people can unwittingly open up the bores' gate valve in an attempt to increase flow.

• *High draw-down bores* – i.e. a relatively high standing water table at start-up, as compared to a much lower level for the normal operating condition. At start-up, these pumps have little head against them.

• *Empty pipe work at start–up* – i.e. lack of, or faulty check valve, or where lines on surface drain empty. It takes time to fill pipes sufficiently to obtain the required head.

• *Over-pumping beyond the refill rate* – to point of drawing in air or sand, leading to unstable conditions.

• *A burst in the pipework* – may allow uncontrolled flow and upthrust or cavitation.

• *Pumps with two separate duties:*
  – One, a tank elevated 50m up a hill, and
  – The other, to feed a dam at the same elevation as the pump. (Without a flow controller here, pump dam age may result, due to lack of head).

• *Rising water tables* – Limiting pump peak flow rate can prevent electric motors from overloading as operating head reduces.

Maric Gunmetal Valve between flanges

Other Applications:

• *An existing pump at rivers edge fills tanks with water.* The local council mandates that, for the health of the river, property owners must reduce rate of draw. It is stipulated that a non-adjustable flow control device is used.

Key features of Maric Flow Controllers:

• *Tamperproof* – Maric valves are non-adjustable, which prevents owners from trying to "get more from their bore".

• *Maintenance free, reliable and self-cleaning*
  – As there are no wearing parts, the valves require no maintenance, adjustment or cleaning during their 20+ year life span.

Submersible pump installation

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Valve Selection Guide

How to specify your Constant Flow valve
Decide which flow rate your application require
Verify type of control rubber for your application
Choose valve body material
Choose connection type and DN size
Order with article number

How to specify your Constant Flow valve

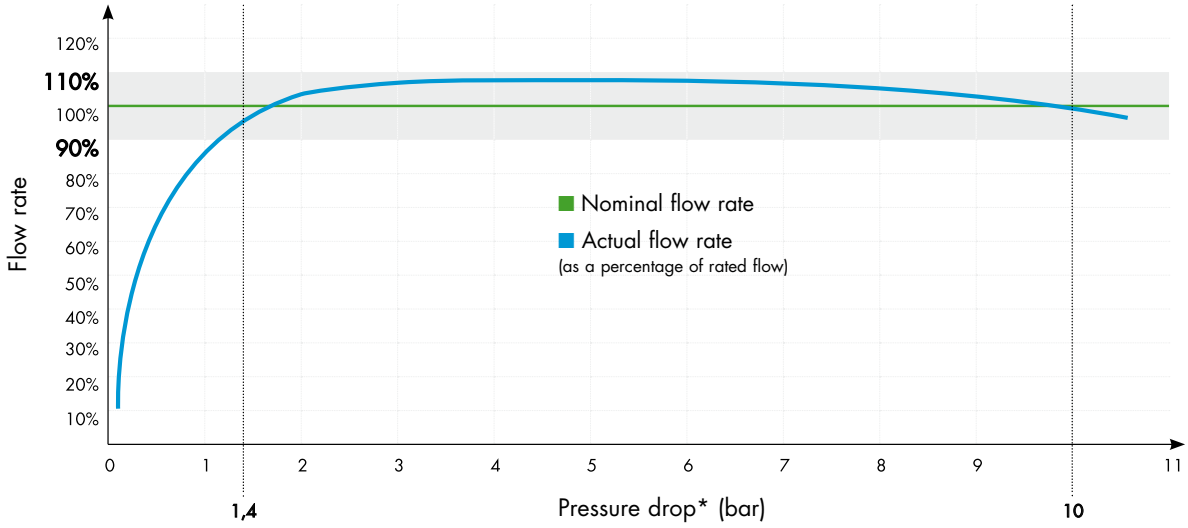
This is how a constant flow valve System Maric works

In the middle of the valve body, there is a conical seat. In this conical seat, a very precisely shaped rubber gasket (o-ring) is fitted. As the pressure increases, the o-ring is pressed downwards in the conical seat in such a way that the opening of the rubber gasket is reduced, thus reducing the orifice diameter. When the pressure decreases, the rubber gasket flexes back, thus enlarging the orifice diameter to original size. This ensures a constant flow as shown in the chart below.

LOW PRESSURE
Rubber gasket is relaxed and orifice has the largest diameter.

HIGH PRESSURE
As the pressure increases the rubber gasket is pressed downwards and the orifice diameter becomes smaller, in such a way, that the flow rate remains constant.

Performance graph for standard valves with control rubber type, Precision



**Pressure drop is the difference between inlet and outlet pressure across the valve.*

1 Decide which flow rate your application requires

Choose from the "nominal flow rates table" below. Please note larger flow rates are possible with connection type wafer, see point 4 on page 25.

Following nominal flow rates are available as standard, with type Precision control rubbers:

Available nominal flow rates L/min.

0.15	0.2	0.25	0.3	0.35	0.4	0.45	0.5	0.55	0.63	0.7	0.8
0.9	1	1.1	1.2	1.3	1.5	1.6	1.8	2	2.3	2.5	2.8
3.2	3.5	4	4.5	5	5.5	6.3	7	8	**9**		
10	11	12	13	15	16	18	20	**23**			
25	28	32	36	41	45	49	54	**59**			
66	73	82	91	102	**114**						
125	138	150	162	180	199	216	**233**				

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How to specify your Constant Flow valve, continued...

2 Verify type of control rubber for your application:

Control rubbers, together with the shape of their enclosure, controls the flow rate. Control rubber type Precision are supplied as standard unless otherwise requested.

If installations parameters render standard Precision control rubbers unsuitable, see below for the full range of control rubber types available.

Factors to consider when selecting control rubbers for the valves.

- Maximum pressure differential
- Compatibility with chemical environment
- Operating temperature
- Body material compatibility

Rubber Type	Abbreviation	Rubber Material	Pressure Differential Range	Flow Accuracy	Max Temp
Precision (standard)	P	Nitrile	1.4 – 10 bar	+/-10%	60 °C
Applications – Supplied as standard, they offer the best flow rate accuracy and tolerate a wide range of chemical environments, making them suitable for most mains pressure, pumping, industrial, and water treatment applications. This product complies with AS4020 Potable Water requirements, equivalent to BS6920.					

Other options

*Kwyflo**	K	Nitrile	1.4 – 10 bar	+/-20%	60 °C
* *Limited flow rate available. Please ask us.*					
Applications – For applications where noise must be minimised. Originally used for domestic water saving applications, they are also suited to industrial applications. Not available in Stainless Steel bodies.					
*Low Pressure**	LP	Nitrile	0.4 – 4 bar	+/-20%	60 °C
**Only available for flow rate 5 l/min upwards.*					
Applications – Used where the installation demands a low headloss flow controller.					
High Pressure (1)	HP1	Nitrile	1.4 – 15 bar	+/-20%	60 °C
Applications – Used where installation pressures exceed that which Precision valves will handle. Not compatible with PVC bodies.					
High Pressure (2)	HP2	Nitrile	1.7 – 20 bar	+/-20%	60 °C
Applications – Used where installation pressures exceed that which Precision and High Pressure 1 valves will handle. Compatible with Stainless Steel bodies only.					
EPDM	E	EPDM	1.4 – 15 bar	+/-20%	100 °C
Applications – For handling higher temperatures and pressures than standard Precision nitrile. They are also suitable in a caustic environment which makes them ideal for the alumina industry.					
EPDM High Pressure 2	E2	EPDM	1.7 – 20 bar	+/-20%	100 °C
Applications – For handling higher temperatures and pressures than standard nitrile and EPDM. They are also suitable in a caustic environment which makes them ideal for the alumina industry. Compatible with Stainless Steel bodies only.					
Viton	V	Viton	1.4 – 10 bar	+/-20%	200 °C
Applications – For where temperatures above 100 degrees Celsius, and below 200 degrees Celsius are encountered. Viton is also the preferred material in chemical environments where both Nitrile or EPDM control rubbers are unsuitable.					

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How to specify your Constant Flow valve, continue...

3 Choose valve body material

Important: Refer to the Product Data section through-out this process

STANDARD VALVE BODY MATERIAL, **Select from the following:**

- *Threaded; Brass, UPVC and Stainless Steel*
- *Wafer; Brass, Gunmetal, UPVC and Stainless Steel*
- *Insert; Brass, UPVC and Stainless Steel*

OTHER **non-standard materials are: POM, PVD-F, TITANIUM, DUPLEX, PE**

4 Choose connection type and DN size (Threaded Valves, Wafers or Inserts)

Note: Consider max flow rate per DN size.

WAFERS:

Wafers are normally used to accomodate larger flow rates, using multiple control rubbers. Wafers are designed to be mounted between pipe flanges. Please specify DN and pressure class PN when ordering. As standard wafers are manufactured according to ISO 7005 PN10. Other standards such as ANSI are optional.

Connection (DN)	20	25	32	40	50	65	80	100	150	200	250	300	400
Max. flow L/min	114	233	233	233	342	456	699	1279	2320	4427	6058	8854	13500

INSERTS:

Inserts are the smallest product in our range. They are fitted in your application´s existing pipe work, for example between/in threaded fittings. The smallest standard diameter is 12,45 mm. The insert can be made with a small flange and be equipped with an o-ring for better sealing. Please discuss a custom made solution with your local sales office.

THREADED VALVES:

Valve body size:		Max flow:
DN6	(⅛")	9 L/min
DN8	(¼")	9 L/min
DN10	(⅜")	9 L/min
DN15	(½")	23 L/min
DN20	(¾")	59 L/min
DN25	(1/1")	114 L/min
DN32	(1¼")	233 L/min
DN40	(1½")	233 L/min
DN50	(2")	342 L/min

Connections are available in sizes from DN6 up to DN50. Standard is female/female (FF). Please verify in the "nominal flow rate table" on page 24 that your flow rate fits in the choosen valve body size. If you cannot find what you are looking for among our standard valves, please contact your local sales representative for a customized solution.

FF MF FM MM

Standard threading is ISO 228 (BSP). NPT is also available.

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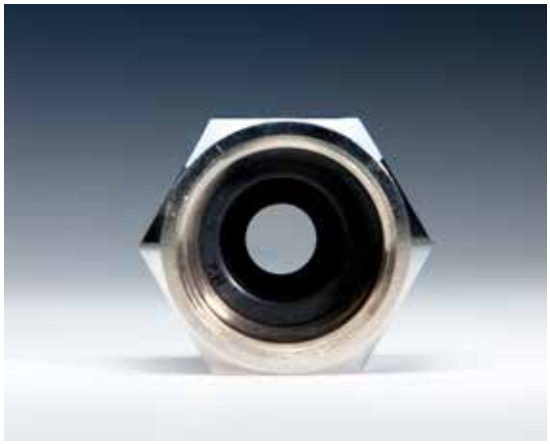
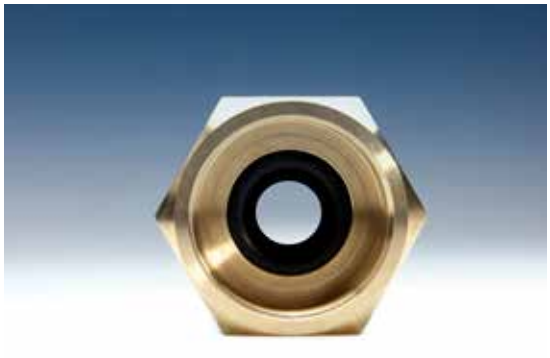
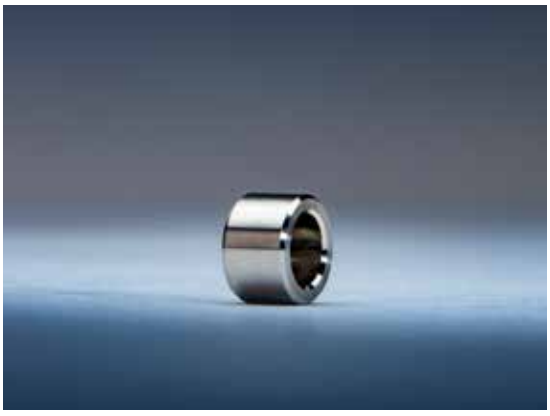
How to specify your Constant Flow valve, continue...

Consult Product data sheets to decide possible Valve Body for:

- Brass & Chrome Threaded bodies
- PVC Screwed bodies
- 316 Stainless Steel Screwed bodies
- Flow Control Check Valves – 15mm
- Flow Control Check Valves – 25mm
- Brass Wafer type valves
- Gunmetal Wafer type valves
- PVC Wafer type valves
- 316 Stainless Steel Wafer type valves
- Stainless steel, Brass and PVC Insert type valves

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How to establish an article code

Our valves are available in many connection types catering to a variety of specific applications. To facilitate ordering, as well as reordering, we use article codes. Below we explain how to establish the article code step by step.

Before you establish the article code, you need to have choosen:
Nominal flow rate, connection type and size, valve body material as well as control rubber type.
This is done in 4 steps as described in page 23 to 25.

Step by step the article code is established:

1) Product type

Constant flow valves are defined with **11**.

Constant flow valves with check valve function are defined by **15**.

In this example it is a constant flow valve = **11**

2) Body Size

In this example:
Valve Body is
DN15 = **12**

For wafer connection	Valve Body Size	For threaded valve connection
NA	DN6 (⅛")	18
NA	DN8 (¼")	14
NA	DN10 (⅜")	38
NA	DN15 (½")	12
WI20	DN20 (¾")	34
WI25	DN25 (1⁄1")	11
WI32	DN32 (1¼")	54
WI40	DN40 (1½")	64
WI50	DN50 (2")	21
..... WI300	DN300	

3) Body Material

Brass, PVC, Stainless Steel, Gunmetal etc.

P = PVC
B = Brass
S = 316/316L
G = Gunmetal
J = JM7
O = POM
T = Titanium
Z = Other

In this example:
Material Brass = **B**

Article code: **1112BMF9N**

4) Connection type

If it is a threaded valve MF, FM; MM or FF.

In this example:
Male & Female = **MF**

5) Flow Rate

To be expressed in decilitre.

In this example:
0.9 L/min = **9**

6) Control Rubber

Precision =
Low Pressure = LP
High Pressure 1 = HP1
High Pressure 2 = HP2
EPDM = E
EPDM High Pressure 2 = E2
Viton = V
Kwyflo = K

In this example:
Standard Control Rubber
Precision =

7) Non standard

If NPT threads are required instead of BSP insert N.

In this example:
NPT threads
are required = **N**

(if not needed leave without notice)

Another example is: **11WI50S2160E**

For swiftest service, you send your order directly to btorder@bertfelt.com, with a copy to your local sales rep.

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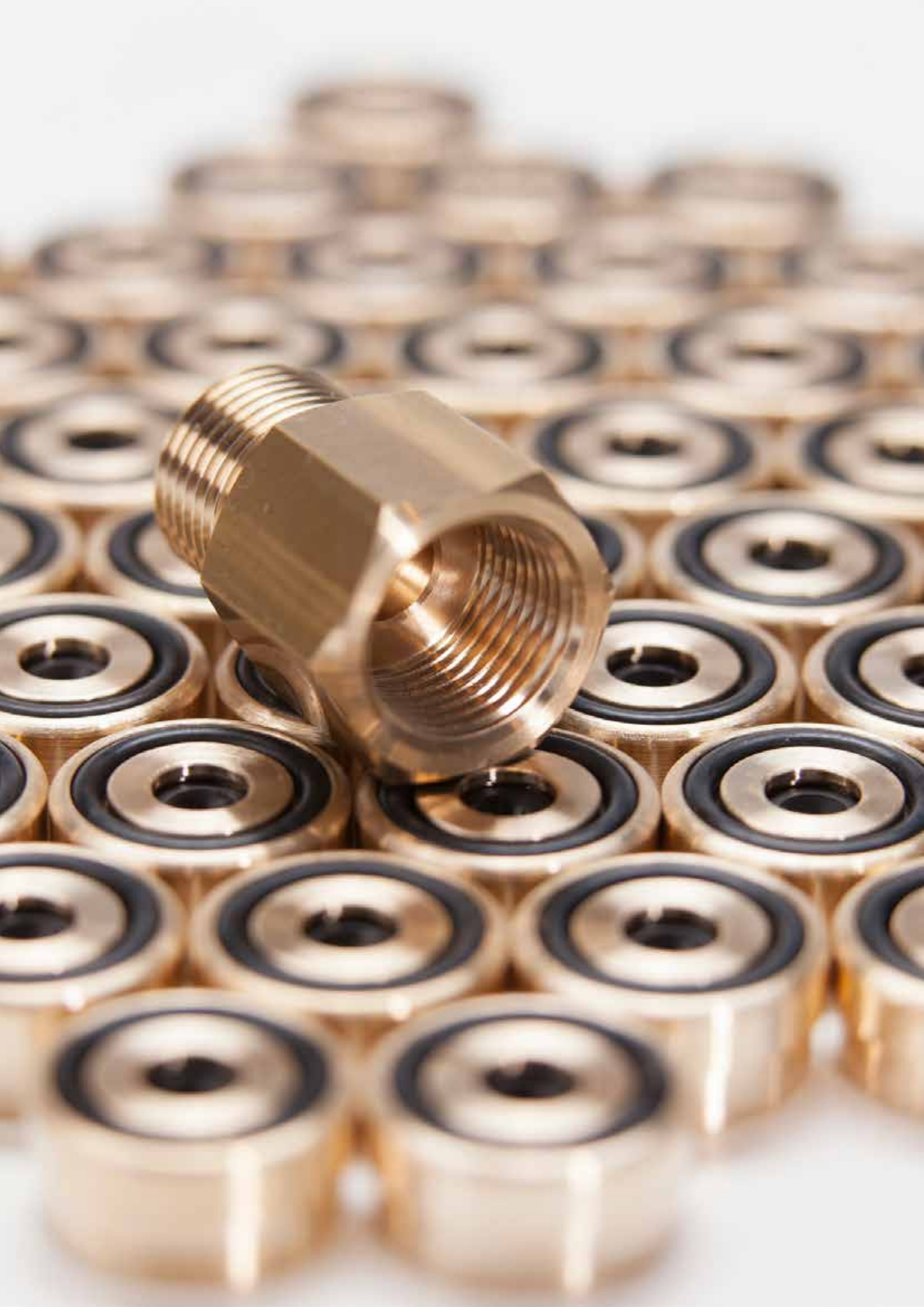


Product Data sheets

Brass Threaded valves

PVC Threaded valves

316 Stainless Steel Threaded valves

Flow Control Check Valves – 15mm

Flow Control Check Valves – 25mm

Brass Wafer type valves

Gunmetal Wafer type valves

PVC Wafer type valves

316 Stainless Steel Wafer type valves

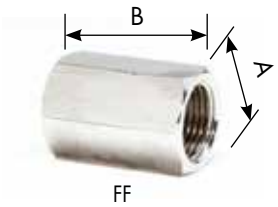
Stainless steel, Brass and PVC Insert type valves

Constant Flow – regardless of pressure

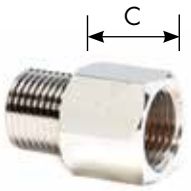
Brass Threaded valves

Specifications – standard valve bodies

Valve Body Sizes	Connection type First letter specifies inlet	Flow Rate Availability See all Available Flow Rates below
DN8 (¼")	FF	from 0.15 to 9 L/min
DN10 (⅜")	FF	from 0.15 to 9 L/min
DN15 (½")	FF FM MF MM	from 0.15 to 23 L/min
DN20 (¾")	FF FM MF MM	from 0.15 to 59 L/min
DN25 (1⁄1")	FF FM MF	from 0.15 to 114 L/min
DN32 (1¼")	FF	from 0.15 to 233 L/min
DN40 (1½")	FF	from 0.15 to 233 L/min
DN50 (2")	FF	from 0.15 to 342 L/min



FF



MF

FM

MM

Dimensions (mm) & Weights (kg)

Nominal size		DN8	DN10	DN15	DN20	DN25	DN32	DN40	DN50
Key Width	A	18	22	25	32	40	51	57	70
FF Body Length	B	30	40	40	48	58	66	70	77
MF Body Length	C	-	-	23	31	40	-	-	-
FM Body Length	D	18	-	23	29	36	-	-	-
MM Body Length	E	-	-	16	20	-	-	-	-
Weight		0.06	0.07	0.1	0.18	0.3	0.6	0.8	1.3–2.2

Other specifications

Performance Unless otherwise specified, standard Nitrile "Precision" type control rubbers are fitted giving the valve the following **standard performance**; (If the standard Precision control rubber is unsuitable for your application, refer to the full range of control rubber types on p.24).

Pressure Differential Range 1.4 – 10 bar
Flow Rate Accuracy +/- 10%
Available Flow Rates L/min:

0.15	0.2	0.25	0.3	0.35	0.4	0.45	0.5	0.55	0.63	0.7	0.8
0.9	1	1.1	1.2	1.3	1.5	1.6	1.8	2	2.3	2.5	2.8
3.2	3.5	4	4.5	5	5.5	6.3	7	8	**9**		
10	11	12	13	15	16	18	20	**23**			
25	28	32	36	41	45	49	54	**59**			
66	73	82	91	102	**114**						
125	138	150	162	180	199	216	**233**		➤ up to 342 L/min		

Materials	Valve *Body*	"DR" Brass to AS1562 alloy 352 or CW614N, compliant with drinking water requirements. Can be chrome or nickel plated.
Construction	*Threads*	BSP (ISO228/1) or NPT
Max Pressure Differential		15 bar or limited by Control Rubber type
Max Hydrostatic Pressure		60 bar
Max Temperature		60 °C for Nitrile control rubbers, 100 °C for EPDM
Compatible Control Rubbers		P, LP, HP1, E,V, K (consult page 24)

To order threaded brass valve *Choose body size, connection type, flow rate and control rubber. How to specify article code is described on page 27.*

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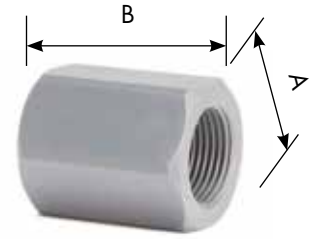
PVC Threaded valves

Specifications – standard valve bodies

Valve Body Sizes	Connection type First letter specifies inlet	Flow Rate Availability See all Available Flow Rates below
DN8 (¼")	FF	from 0.15 to 9 L/min
DN15 (½")	FF FM MF	from 0.15 to 23 L/min
DN20 (¾")	FF	from 0.15 to 59 L/min
DN25 (1")	FF	from 0.15 to 114 L/min
DN32 (1¼")	FF	from 0.15 to 233 L/min
DN40 (1½")	FF	from 0.15 to 233 L/min
DN50 (2")	FF	from 0.15 to 342 L/min



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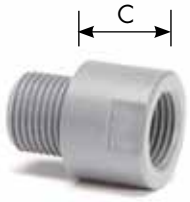


MF

FM

Dimensions (mm) & Weights (kg)

Nominal size		DN8	DN15	DN20	DN25	DN32	DN40	DN50
Key Width	A	23	32	40	46	56	71	86
FF Body Length	B	32	42	48	58	75	75	81
MF Body Length	C	-	25	-	-	-	-	-
FM Body Length	D	-	25	-	-	-	-	-
Weight		0.02	0.04	0.06	0.09	0.15	0.28	0.46

Other specifications

Performance Unless otherwise specified, standard Nitrile "Precision" type control rubbers are fitted giving the valve the following **standard performance**; (If the standard Precision control rubber is unsuitable for your application, refer to the full range of control rubber types on p.24).

Pressure Differential Range 1.4 – 10 bar
Flow Rate Accuracy +/- 10%
Available Flow Rates L/min:

0.15	0.2	0.25	0.3	0.35	0.4	0.45	0.5	0.55	0.63	0.7	0.8
0.9	1	1.1	1.2	1.3	1.5	1.6	1.8	2	2.3	2.5	2.8
3.2	3.5	4	4.5	5	5.5	6.3	7	8	**9**		
10	11	12	13	15	16	18	20	**23**			
25	28	32	36	41	45	49	54	**59**			
66	73	82	91	102	**114**						
125	138	150	162	180	199	216	**233**		➤ up to 342 L/min		

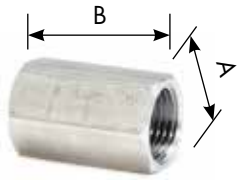
Materials	*Valve Body*	UPVC compliant with drinking water requirements
Construction	*Threads*	BSP (ISO228/1) or NPT
Max Pressure Differential		10 bar or limited by Control Rubber type
Max Hydrostatic Pressure		30 bar
Max Temperature		50 °C
Compatible Control Rubbers		P, LP, E, V, K (consult page 24)

To order a PVC threaded valve *Choose body size, connection type, flow rate and control rubber.*

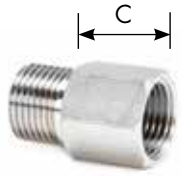
316 Stainless Steel Threaded valves

Specifications – standard valve bodies

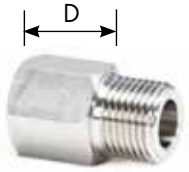
Valve Body Sizes	BSP Connection type First letter specifies inlet	NPT Connection type	Flow Rate Availability See all Available Flow Rates below
DN6 (⅛")	FM	-	from 0.15 to 9 L/min
DN8 (¼")	FF FM	FF	from 0.15 to 9 L/min
DN10 (⅜")	FM	FF	from 0.15 to 9 L/min
DN15 (½")	FF FM MF MM*	FF	from 0.15 to 23 L/min
DN20 (¾")	FF	FF	from 0.15 to 59 L/min
DN25 (1")	FF FM MF	FF	from 0.15 to 114 L/min
DN32 (1¼")	FF	FF	from 0.15 to 233 L/min
DN40 (1½")	FF	FF	from 0.15 to 233 L/min
DN50 (2")	FF	FF	from 0.15 to 233 L/min



FF



MF



FM

MM*

** 0.15 – 9 L/min*

Dimensions (mm) & Weights (kg)

Nominal size		DN6	DN8	DN10	DN15	DN20	DN25	DN32	DN40	DN50
Key Width	A	18	18	22	25	32	40	57	57	70
FF Body Length	B	-	32	-	42	48	58	66	66	75
MF Body Length	C	-	-		23	-	36	-	-	-
FM Body Length	D	19	19	15	23	-	36	-	-	-
MM Body Length	E	-	-	-	15	-	-	-	-	-
NPT Body Length	B	-	32.8	33	42	43	57	62	62	62
Weight		0.03	0.04	0.05	0.1	0.18	0.22	0.83	0.7	1.0

Other specifications

Performance Unless otherwise specified, standard Nitrile "Precision" type control rubbers are fitted giving the valve the following **standard performance**; (If the standard Precision control rubber is unsuitable for your application, refer to the full range of control rubber types on p.24).

Pressure Differential Range 1.4 – 10 bar
Flow Rate Accuracy +/- 10%

Available Flow Rates L/min:

0.15	0.2	0.25	0.3	0.35	0.4	0.45	0.5	0.55	0.63	0.7	0.8
0.9	1	1.1	1.2	1.3	1.5	1.6	1.8	2	2.3	2.5	2.8
3.2	3.5	4	4.5	5	5.5	6.3	7	8	**9**		
10	11	12	13	15	16	18	20	**23**			
25	28	32	36	41	45	49	54	**59**			
66	73	82	91	102	**114**						
125	138	150	162	180	199	216	**233**				

Materials	*Valve Body*	316 Stainless Steel to ASTM484/A276
Construction	*Threads*	BSP (ISO228/1) or NPT
Max Pressure Differential		20 bar or limited by Control Rubber type
Max Hydrostatic Pressure		60 bar
Max Temperature		60 °C for Nitrile control rubbers, 100 °C for EPDM, 200 °C for Viton
Compatible Control Rubbers		P, LP, HP1, HP2, E, E2, V (Consult page 24)

To order stainless steel threaded valves *Choose body size, connection type, flow rate and control rubber. How to specify article code is described on page 27.*

Bertfelt
Brilliant solutions for the Industry

Flow Control Check Valve – 15mm BSP & NPT

APPLICATION

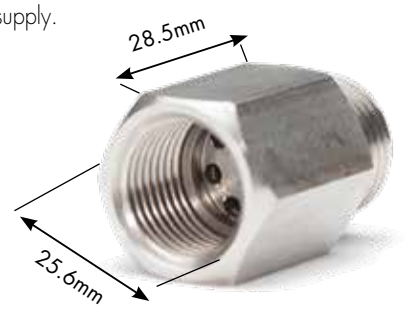
For providing the centrifugal pumping industry with a constant glandwater flow rate to pump glands – with backflow prevention. A constant pre-set maximum flow rate to centrifugal pump glands can be achieved irrespective of fluctuating gland-water supply pressure, gland condition, or centrifugal pump discharge pressure.

BENEFITS

- A constant supply of glandwater to the gland, ensures the life of expensive pump seals are maximised.
- Can ensure that the slurry will not be unnecessarily diluted.
- Prevents one centrifugal pump from robbing all the available gland water in the event of its failure, which could result in the simultaneous failure of all other glands supplied from the same water supply.
- Minimise wastage of available water supplies.

FEATURES

- Constant glandwater flow rate.
- Back-flow prevention.
- High pressure and high temperature handling.
- Corrosion and scale resistant assembly.



Non-Return Feature

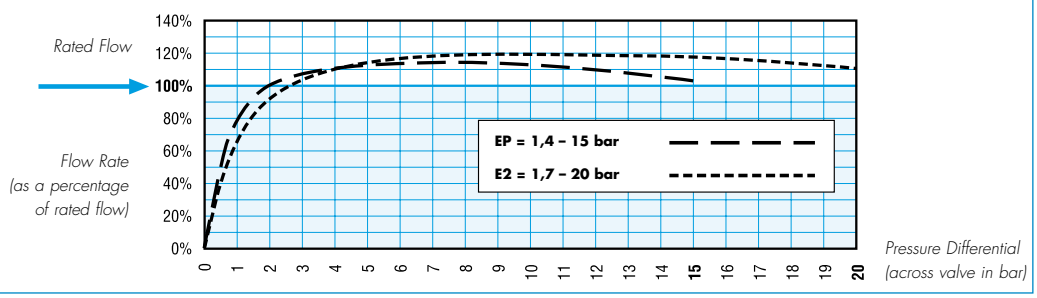
The maintenance free design of the Maric valve uses the flow control rubber as the flexible sealing component in the non-return mechanism. The flexing of the control rubber under normal operating conditions prevents scale build-up on the rubbers surface, which ensures a reliable seal, even after extended periods of no reverse pressure.

Other specifications

Performance	Unless otherwise specified, EPDM control rubbers are fitted giving the valve the following **standard performance**:
Pressure Differential Range	1.4 – 15 bar
Headloss	1.4 bar at rated flow. (At lower than rated flows headloss reduces significantly.)
Flow Rate Accuracy	+/- 20%
Available Flow Rates (L/min)	.4 / .45 / .5 / .55 / .63 / .7 / .8 / .9 / 1.0 / 1.1 / 1.2 / 1.3 / 1.5 / 1.6 / 1.8 / 2.0 / 2.3 / 2.5 / 2.8 / 3.2 / 3.5 / 4.0 / 4.5 / 5.0 / 5.5 / 6.3 / 7.0 / 8.0 / 9.0 / 10 / 11 / 12 / 13 / 15 / 16 / 18 L/min
Check Valve Operation	Closed when reverse pressure of 0.7 bar exists
Materials	
Body	303 Stainless Steel to ASTM484/A582
Thread Configuration	FM, Female inlet (parallel), Male outlet,(tapered)
Threads, BSPT	15mm (1/2") BSPT to AS1722.1 Male Series R, Female Series RP
Threads, NPT (non-standard)	15mm (1/2") NPT to ANSI/ASME B1.20.1, Male NPT, Female NPSC
Max Hydrostatic Pressure	60 bar
Temperature Range	0 –100 degrees C
Non-Standard Specifications	High pressure 2, "E2", 1.7 – 20 bar is also available

Performance Curve Options – Maric, No 15 Flow Control Check Valve

EP = 1.4 – 15 bar, High Pressure 2 (E2) = 1.7 – 20 bar



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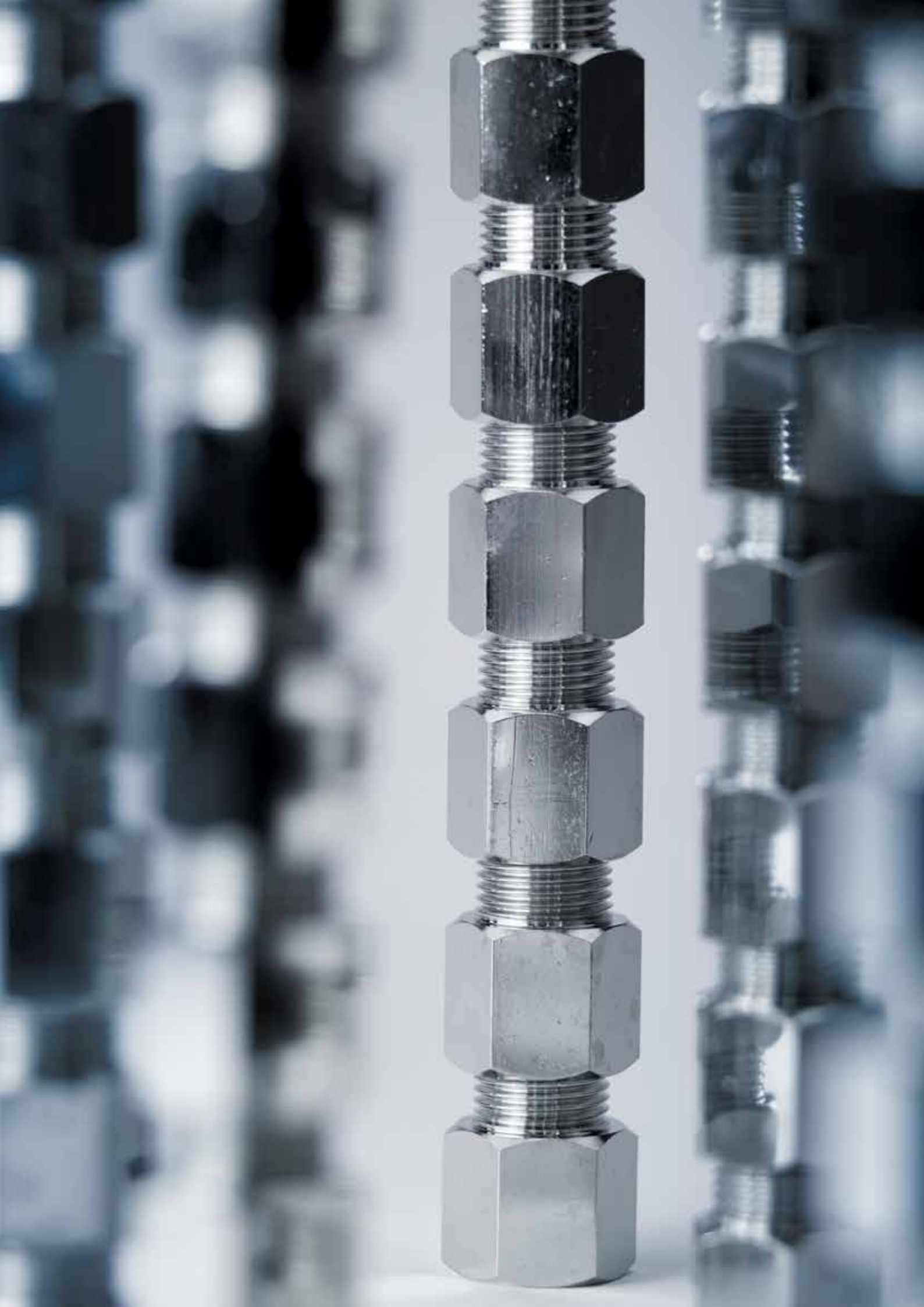


Flow Control Check Valve – 25mm BSP & NPT

APPLICATION

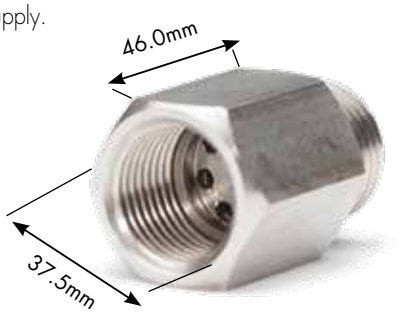
For providing the centrifugal pumping industry with a constant glandwater flow rate to pump glands, with backflow prevention. A constant pre-set maximum flow rate to centrifugal pump glands can be achieved irrespective of fluctuating gland-water supply pressure, gland condition, or centrifugal pump discharge pressure.

BENEFITS

- A constant supply of glandwater to the gland, ensures the life of expensive pump seals are maximised.
- Can ensure that the slurry will not be unnecessarily diluted.
- Prevents one centrifugal pump from robbing all the available gland water in the event of its failure, which could result in the simultaneous failure of all other glands supplied from the same water supply.
- Minimise wastage of available water supplies

FEATURES

- Constant glandwater flow rate.
- Back-flow prevention.
- High pressure and high temperature handling.
- Corrosion and scale resistant assembly.



Non-Return Feature

The maintenance free design of the Maric valve uses the flow control rubber as the flexible sealing component in the non-return mechanism. The flexing of the control rubber under normal operating conditions prevents scale build-up on the rubbers surface, which ensures a reliable seal, even after extended periods of no reverse pressure.

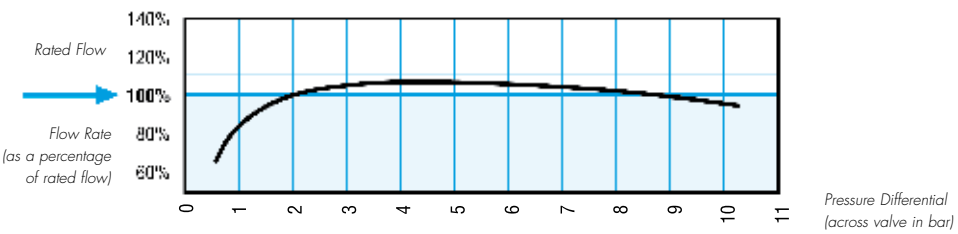
Dimensions & Indications

Standard Performance	Unless otherwise specified, standard Nitrile "Precision" type control rubbers are fitted giving the valve the following standard performance:
Pressure Differential Range	1.4 – 10 bar
Headloss	1.4 bar at rated flow. (At lower than rated flows headloss reduces significantly.)
Flow Rate Accuracy	+/- 10%
Available Flow Rates (L/min)	15 / 16 / 18 / 20 / 23 / 25 / 28 / 32 / 36 / 41 / 45 / 49 / 54 / 59 / 66 L/min
Check Valve Operation	Closed when reverse pressure of 0.7 bar exists

Materials	
Body	316 Stainless Steel to ASTM484/A276
Thread Configuration	FM, Female inlet (parallel), Male outlet,(tapered)
Threads, BSPT	25mm (1") BSPT to AS1722.1 Male Series R, Female Series RP
Threads, NPT (non-standard)	25mm (1") NPT to ANSI/ASME B1.20.1 Male NPT, Female NPSC
Max Hydrostatic Pressure	60 bar
Temperature Range	0 – 60 degrees C. (100 °C for non-standard EPDM control rubbers)

Non-Standard Specifications	
Control rubber material	EPDM for higher temp and / or caustic handling
Pressure differential ranges	1.4 – 15 bar & 1.7 – 20 bar. In EPDM or Nitrile – Refer to "How to Specify Maric Valves".

Performance Graph – Typical of all PRECISION valves irrespective of body size or flow rate



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Brass Wafer type valves

Specifications – standard valve bodies

Designed for mounting between ISO 7005 PN10 pipe flanges.

Valve Body Sizes	Flow Rate ranges Availability
DN20	from 0.15 to 114 L/min
DN25	from 0.15 to 233 L/min
DN32	from 0.15 to 233 L/min
DN40	from 0.15 to 233 L/min
DN50	from 0.15 to 342 L/min
DN65	from 0.15 to 456 L/min
DN80	from 0.15 to 699 L/min

Ask for other sizes.

Dimensions (mm) & Weights (kg) (standard is according to ISO 7005 PN10)

Nominal size	DN20	DN25	DN32	DN40	DN50	DN65	DN80
Diameter	63	73	84	94	109	129	144
Thickness	22.0	22.0	22.0	22.0	22.0	22	22
Weight	0.45	0.6	0.8	0.9	1.2	1.3	1.9

Other specifications

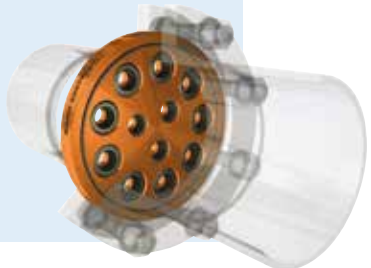
Performance Unless otherwise specified, standard Nitrile "Precision" type control rubbers are fitted giving the valve the following **standard performance**; (If the standard Precision control rubber is unsuitable for your application, refer to the full range of control rubber types on p.24).

Pressure Differential Range 1.4 – 10 bar
Flow Rate Accuracy +/- 10%
Available Flow Rates L/min:

0.15	0.2	0.25	0.3	0.35	0.4	0.45	0.5	0.55	0.63	0.7	0.8
0.9	1	1.1	1.2	1.3	1.5	1.6	1.8	2	2.3	2.5	2.8
3.2	3.5	4	4.5	5	5.5	6.3	7	8	**9**		
10	11	12	13	15	16	18	20	**23**			
25	28	32	36	41	45	49	54	**59**			
66	73	82	91	102	**114**						
125	138	150	162	180	199	216	**233**		➤ up to 699 L/min		

Materials
Valve *Body* "DR" Brass to AS1562 alloy 352 or CW614N, compliant with drinking water requirements.
Sealing O'Rings Nitrile, potable water approved or EPDM or Viton if applicable.

Flange Specification
Wafers are normally used to accomodate larger flow rates. Wafers are designed to be mounted between pipe flanges. Please specify DN and pressure class PN when ordering. As standard wafers are manufactured according to ISO 7005 PN10.
Other standards such as ANSI are optional.



Max Pressure Differential 15 bar or limited by Control Rubber type
Max Hydrostatic Pressure 60 bar
Max Temperature 60 °C for Nitrile control rubbers, 100 °C for EPDM
Compatible Control Rubbers P, LP, HP1, E, V (consult page 24)

To order brass wafer valves *Choose body size, flow rate and control rubber.*

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Gunmetal Wafer type valves

Specifications – standard valve bodies

Designed for mounting between pipe flanges.

Valve Body Sizes	Flow Rate ranges Availability
DN50	from 0.15 to 342 L/min
DN65	from 0.15 to 456 L/min
DN80	from 0.15 to 699 L/min
DN100	from 0.15 to 1279 L/min
DN150	from 0.15 to 2320 L/min
DN200	from 125 to 4427 L/min
DN250	from 25 to 6058 L/min
DN300	from 125 to 8854 L/min

Dimensions (mm) & Weights (kg) (standard is according to ISO 7005 PN10)

Nominal size	DN50	DN65	DN80	DN100	DN150	DN200	DN250	DN300
Diameter	109	129	144	164	220	275	330	380
Thickness	22	22	22	24	28	35	40	50
Weight	1.2	1.3	1.9	3.1	7	13	25	45

Other specifications

Performance Unless otherwise specified, standard Nitrile "Precision" type control rubbers are fitted giving the valve the following **standard performance**; (If the standard Precision control rubber is unsuitable for your application, refer to the full range of control rubber types on p.24).

Pressure Differential Range 1.4 – 10 bar
Flow Rate Accuracy +/- 10%
Available Flow Rates L/min:

0.15	0.2	0.25	0.3	0.35	0.4	0.45	0.5	0.55	0.63	0.7	0.8
0.9	1	1.1	1.2	1.3	1.5	1.6	1.8	2	2.3	2.5	2.8
3.2	3.5	4	4.5	5	5.5	6.3	7	8	**9**		
10	11	12	13	15	16	18	20	**23**			
25	28	32	36	41	45	49	54	**59**			
66	73	82	91	102	**114**						
125	138	150	162	180	199	216	**233**		➤ up to 8854 L/min		

Materials
Valve Body LG2 or LG4 to BS1400
Sealing O'Rings Nitrile, potable water approved or EPDM or Viton if applicable

Flange Specification Wafers are normally used to accomodate larger flow rates. Wafers are designed to be mounted between pipe flanges. Please specify DN and pressure class PN when ordering. As standard wafers are manufactured according to ISO 7005 PN10. Other standards such as ANSI are optional.

Max Pressure Differential 15 bar or limited by Control Rubber type
Max Hydrostatic Pressure 60 bar
Max Temperature 60 °C for Nitrile control rubbers, 100 °C for EPDM
Compatible Control Rubbers P, LP, HP1, E, V (consult page 24)

To order Gunmetal wafer valves *Choose body size, flow rate and control rubber.*

PVC Wafer type valves

Specifications – standard valve bodies

Designed for mounting between pipe flanges.

Valve Body Sizes	Flow Rate ranges Availability
DN20	from 0.15 to 114 L/min
DN25	from 0.15 to 233 L/min
DN32	from 0.15 to 233 L/min
DN40	from 0.15 to 233 L/min
DN50	from 0.15 to 342 L/min
DN65	from 0.15 to 456 L/min
DN80	from 0.15 to 699 L/min

Sizes continued...	Flow Rate ranges Availability
DN100	from 0.15 to 1279 L/min
DN150	from 0.15 to 2320 L/min
DN200	from 125 to 4427 L/min
DN250	from 25 to 6058 L/min
DN300	from 125 to 8854 L/min
DN400	from 125 to 13500 L/min

Dimensions (mm) & Weights (kg) (standard is according to ISO 7005 PN10)

Nominal size	DN20	DN25	DN32	DN40	DN50	DN65	DN80	DN100	DN150	DN200	DN250	DN300	DN400
Diameter	63	73	84	94	109	129	144	164	220	275	330	380	498
Thickness	24	24	24	24	24	24	24	39	39	49	80	100	180
Approx kg	0.10	0.12	0.13	0.15	0.23	0.24	0.37	0.93	1.0	2.7	9.0	13.0	40

Other specifications

Performance Unless otherwise specified, standard Nitrile "Precision" type control rubbers are fitted giving the valve the following **standard performance**; (If the standard Precision control rubber is unsuitable for your application, refer to the full range of control rubber types on p.24).

Pressure Differential Range 1.4 – 10 bar
Flow Rate Accuracy +/- 10%

Available Flow Rates L/min:

0.15	0.2	0.25	0.3	0.35	0.4	0.45	0.5	0.55	0.63	0.7	0.8
0.9	1	1.1	1.2	1.3	1.5	1.6	1.8	2	2.3	2.5	2.8
3.2	3.5	4	4.5	5	5.5	6.3	7	8	**9**		
10	11	12	13	15	16	18	20	**23**			
25	28	32	36	41	45	49	54	**59**			
66	73	82	91	102	**114**						
125	138	150	162	180	199	216	**233**		➤ up to 8854 L/min		

Materials
Valve Body UPVC, compliant with drinking water requirements.
Sealing O'Rings Nitrile, potable water approved or EPDM or Viton if applicable.

Flange Specification Wafers are normally used to accomodate larger flow rates. Wafers are designed to be mounted between pipe flanges. Please specify DN and pressure class PN when ordering. As standard wafers are manufactured according to ISO 7005 PN10. Other standards such as ANSI are optional.

Max Pressure Differential 10 bar or limited by Control Rubber type
Max Hydrostatic Pressure 30 bar
Max Temperature 50 °C
Compatible Control Rubbers P, LP, E, V (consult page 24)

To order PVC wafer type valves *Choose body size, flow rate and control rubber.*

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316 Stainless Steel Wafer type valves

Specifications – standard valve bodies

Designed for mounting between pipe flanges.

Valve Body Sizes	Flow Rate ranges Availability
DN20	from 0.15 to 114 L/min
DN25	from 0.15 to 233 L/min
DN32	from 0.15 to 233 L/min
DN40	from 0.15 to 233 L/min
DN50	from 0.15 to 342 L/min
DN65	from 0.15 to 456 L/min

Sizes continued...	Flow Rate ranges Availability
DN80	from 0.15 to 699 L/min
DN100	from 0.15 to 1279 L/min
DN150	from 0.15 to 2320 L/min
DN200	from 125 to 4427 L/min
DN250	from 25 to 6058 L/min
DN300	from 125 to 8854 L/min

Dimensions (mm) & Weights (kg) (standard is according to ISO 7005 PN10)

Nominal size	DN20	DN25	DN32	DN40	DN50	DN65	DN80	DN100	DN150	DN200	DN250	DN300
Diameter	63	73	84	94	109	129	144	164	220	275	330	380
Thickness	22	22	22	22	22	22	22	24	24	28	32	40
Approx kg	0.45	0.6	0.7	0.9	1.2	1.2	1.6	2.7	5	11	19	31

Other specifications

Performance Unless otherwise specified, standard Nitrile "Precision" type control rubbers are fitted giving the valve the following **standard performance**; (If the standard Precision control rubber is unsuitable for your application, refer to the full range of control rubber types on p.24).

Pressure Differential Range 1.4 – 20 bar
Flow Rate Accuracy +/- 10%

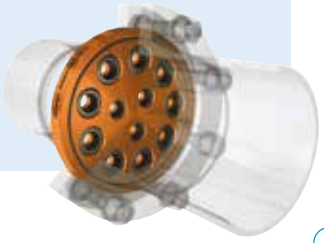
Available Flow Rates L/min:

0.15	0.2	0.25	0.3	0.35	0.4	0.45	0.5	0.55	0.63	0.7	0.8
0.9	1	1.1	1.2	1.3	1.5	1.6	1.8	2	2.3	2.5	2.8
3.2	3.5	4	4.5	5	5.5	6.3	7	8	9		
10	11	12	13	15	16	18	20	23			
25	28	32	36	41	45	49	54	59			
66	73	82	91	102	114						
125	138	150	162	180	199	216	233		➤ up to 8854 L/min		

Materials *Valve Body* 316 Stainless Steel
Sealing O'Rings Nitrile, potable water approved to AS4020 or EPDM or Viton if applicable.

Flange Specification Wafers are normally used to accomodate larger flow rates. Wafers are designed to be mounted between pipe flanges. Please specify DN and pressure class PN when ordering. As standard wafers are manufactured according to ISO 7005 PN10. Other standards such as ANSI are optional.

Max Pressure Differential 20 bar or limited by Control Rubber type
Max Hydrostatic Pressure 60 bar
Max Temperature 60 °C, 100 °C or 200 °C Viton
Compatible Control Rubbers P, LP, E, E2, V, HP1, HP2 (consult page 24)



To order PVC wafer type valves *Choose body size, flow rate and control rubber.*

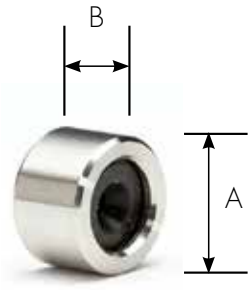
Stainless steel, Brass and PVC Insert type valves

Specifications – standard valve bodies

Valve Body Sizes	Flow Rate ranges Availability
DN8	from 0.15 to 9 L/min
DN15	from 0.4 to 23 L/min
DN20	from 0.8 to 54 L/min
DN25	from 15 to 114 L/min
DN40	from 125 to 233 L/min

Ask for other designs.

Dimensions (mm) & Weights (kg)					
Nominal size	DN8	DN15	DN20	DN25	DN40
Diameter A	12.45	18.40	26.70	37.85	50.40
Length B	8.0	11.1	15.1	17.5	22.4
Brass (weight)	0.005	0.013	0.027	0.065	-
PVC	0.001	0.003	0.008	-	0.043
Stainless steel	0.005	-	-	-	-



Other specifications

Available Flow Rates L/min:

0.15	0.2	0.25	0.3	0.35	0.4	0.45	0.5	0.55	0.63	0.7	0.8
0.9	1	1.1	1.2	1.3	1.5	1.6	1.8	2	2.3	2.5	2.8
3.2	3.5	4	4.5	5	5.5	6.3	7	8	**9**		
10	11	12	13	15	16	18	20	**23**			
25	28	32	36	41	45	49	54	**59**			
66	73	82	91	102	**114**						
125	138	150	162	180	199	216	**233**				

Pressure Differential Range	1.4 – 10 bar or according to control rubber
Flow Rate Accuracy	+ / - 10%
Temperature Range	According to control rubber or valve body material

Materials

Valve Body	Brass: "DR" Brass or CW614N PVC: UPVC, Special grade to suit potable water requirements Stainless steel: 316
Control rubber	Nitrile (potable water approved) or EPDM or VITON.

To order

Choose valve body material and valve body size, flow rate and control rubber.
(See also page 23 and onwards.)
Please ask your local sales representative for custom made inserts, shape and dimensions etc.

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General information

Installation

Operating temperatures

Use of sieves

Screwed valves

Wafer type valves

Operating instructions

Troubleshooting guide

Maintenance

Spare parts

Storage

Noise

Life expectancy

After sales service

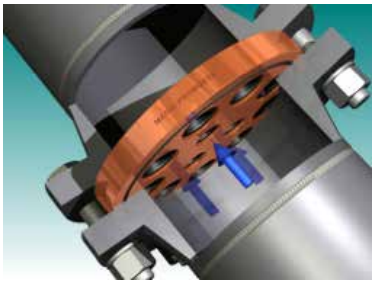
Certificate and declarations

Installation Instructions

Valves must be installed the right way around or immediate valve failure may result. A direction of flow arrow is stamped on the valve body.

Threaded valve M/F

Wafer installed between flanges



It is recommended to orientate the valves stamped data toward the top, or in such a position to facilitate identification. Bends or elbows immediately in front of valve will not affect the valves performance, however due to the relative high velocity of the water jets exiting the valve, and possible erosion issues, it is recommended that a straight pipe, the length of approximately the nominal diameter of the fitting, be fitted on valves outlet.

OPERATING TEMPERATURES

Maximum operating temperaturs depends on rubber used in valve, but please note that maximum temperature for PVC is 50 °C.
Viton (V), max 200 C. EPDM (E), max 100 °C. Precision (NBR) max 60 °C.
Each valve is marked with flow direction, flow and control rubber type. Unless the reference marked on valve contains the letter V or E the maximum operating temperature is 60 °C, or 50 ° for PVC valves.

USE OF SIEVES

The installation of a sieve upstream of the Maric valve is recommended where solid particles larger than one third of the valves orifice diameter is likely to be encountered. The mesh aperture should be around one quarter to one third of the valves orifice diameter.

SCREWED VALVES

Refer to direction of flow arrow. The use of thread tape or similar can be used to get a tighter seal.

WAFER TYPE VALVES

Wafer type valves are designed for mounting between smooth flat faced pipe flanges.
Wafers are fitted with an o-ring in each face for sealing purposes. Gaskets are therefore not required. If flange faces are rough, or grooved on a diameter close to that on the o-ring of the wafer, then either the flange grooves should be removed by machining, or the wafer o-rings removed, and flange gaskets fitted. Remove the tape holding the o-rings in place prior to assembly. The application of a light smear of grease in the o-ring groove will prevent the o-ring falling out during assembly. Standard wafers are orifice plate style, i.e. they are not full flange type, see diagram Flange bolts will locate the wafer concentrically, and remain visible between the flanges when viewing the assembly. The wafer should be located as close as possible to concentric prior to final clamping. Flanges must have aperture dimensions of no less than the nominal size of the flange. i.e. a 100NB flange, must have an internal diameter, (where it butts up against the wafer valve), of no less than 100.0 mm. If it is less than this, then the flanges will either require machining (chamfering) at an angle of 45 degrees, out to the nominal diameter, or spacers fitted. Otherwise the valves inlet and outlet orifii will be covered more than is permitted and will restrict flow rate to less than the specification of the valve. It is common for a large portion of the outer aperture of the inlet orifii to be covered by the flanges.

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Operating Instructions

Maric valves automatically maintain a constant, pre-set, flow rate, irrespective of pressure (within a range), by means of a rubber control ring, whose orifice diameter varies, as the pressure differential across it varies. The greater the pressure, the smaller the orifice, and vice versa.Therefore constant flow rate.The valve has no external actuations and requires no adjustments. Provided the valve is supplied with a pressure sufficient to produce a pressure differential across it within its specified range, then the valve will deliver its rated flow within rated flow rate accuracy.

Troubleshooting Guide

Problem	Cause	Remedy
No flow	Valve is blocked There is no pressure differential across valve	Remove valve and clear the blockage – Install sieve Turn on the supply to the valve
Flow rate is below spec	Pressure differential across valve is below the minimum requirement	Increase pressure to within the pressure differential range of the valve
	Pressure differential across valve is above its maximum limit	Reduce pressure to within the pressure differential range of the valve
	Valve is partly blocked	Clear blockage
	Incompatible environment has attacked control rubber affecting control rubber performance	Replace valve with one fitted with control rubber suitable for the environment
Flow rate is above spec	Control rubber has blown through valve orifice resulting from excessive pressure differential or a high pressure spike	Replace control valve and asses installation for cause of excessive pressure
	Control rubber has blown through orifice due to valve being installed backwards	Replace valve and re-install in accordance with direction of flow arrow stamped on body
	Incompatible environment has caused control rubber to harden	Replace valve with one fitted with control rubber suitable for the environment
Valve is noisy	Valves can be noisy. Noise is often proportional to valve size, and pressure differential across it. If none of the techniques to the right are a practical solution to your issue, please contact a Maric Rep for other possible alternative remedies	• Use Kwyflo valves designed for quiet operation • Reduce or increase pressure differential • Relocate valve or bury it underground • Lag the valve and outlet pipe in an acoustic enclosure or material • Alter the valves outlet pipework construction, to alter its resonant characteristics

MAINTENANCE

No specific maintenance requirements are pertinent to Maric Flow Control Valves.

SPARE PARTS

Due to the valves unique design and lack of wearing components, spare parts are not available for Maric flow control valves. Valves must be installed the right way around or immediate valve failure may result. A direction of flow arrow is stamped on the outside diameter of the valve body.

STORAGE

Since the valves contains rubber parts, it is preferable to store the valves in a (dark) room with temperature between 5-20C.

NOISE

Both flow rate and external factors affect the noise emitted from a maric valve. in most situations the noise level will be between 75 and 85 dB. However in some cicumstances may attain 95 dB.

LIFE EXPECTANCY

Approximately 20 years, depending on accuracy required. Flow rate increases generally one half to one percent per year. Therefore in 20 years time, flow rate may be 10% to 20 % higher than when valve was originally supplied.

AFTER SALES SERVICE

Your representative as listed on our website: www.bertfelt.com

Certificates and declarations

Bertfelt has implemented management quality and enviromental system according to ISO 9001 and 14001. The management system was certified by an accredited institute end of 2015. End of 2018 the systems were updated to ISO 9001:2015 and ISO 14001:2015 respectively.

Since March 2017, Bertfelt Teknik can supply Constant Flow Valves complying with EC1935/2004 and EC2023/2006.

In July 2018, Bertfelt obtained its French certificate of sanitary conformity (ACS) for our range of Constant Flow Valves. Please ask your local sales representative for more information.

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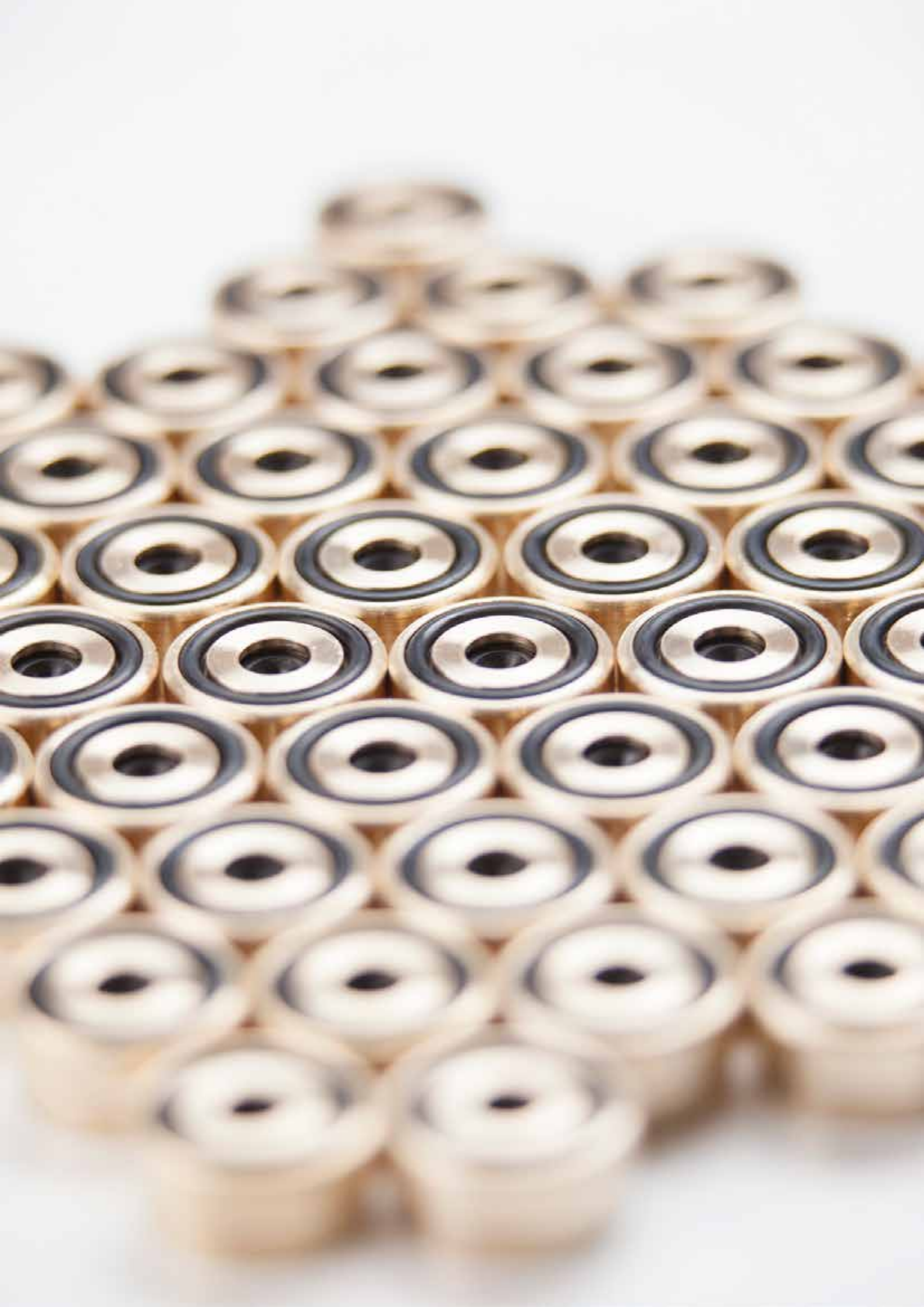

About Bertfelt Teknik

Founded 1990, Bertfelt Teknik is an European manufacturer of constant flow valves, system Maric.

From the head office In Sweden, valves are marketed and distributed to OEM-manufacturers on mainland Europe. Bertfelt has implemented a quality and environmental management system according to ISO 9001 & 14001.

Bertfelt Teknik can supply constant flow valves complying with EC1935/2004, EC2023/2006 as well as the French certificate of sanitary conformity (ACS).

Please ask your local sales representative for more information.

Bertfelt
Brilliant solutions for the Industry

Bertfelt International (European manufacturing and distribution. Customer support for the Nordics, the Baltics, Poland, Italy and the Rest of Europe, excluding UK and Ireland).

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