MARIC
FLOW CONTROL
AUSTRALIA

Maric Flow Control Australia Catalogue

MARIC FLOW CONTROL AUSTRALIA

Maric Flow Control Valves

Exported worldwide to companies demanding premium quality flow control valves

The WaterMark

WaterMark Quality Assured
Spec. 037 Lic. No. W143
Standards Australia

Introduction

Maric, our products

Ever since water has been piped, there has been a need for an accurate and inexpensive method of controlling flow rate.

The Maric Flow Control Valve has been developed to provide a constant pre-set flow rate irrespective of pressure fluctuations over a wide range.

Valves are available in a range of body and elastomer materials and consist of;

- A body manufactured to rigid engineering standards,
- A precision machined recess for the control rubber, and
- A pressure sensitive control rubber meticulously compounded to pass exacting flow tests.

Maric Flow Control Valve boasts automatic, maintenance free and self cleaning operation and has proven itself in industry to be the practical solution to installations requiring a maintenance free, accurate constant flow rate.

Maric Flow Control Australia are the manufacturers & suppliers of Maric Flow Control Valves which provide a fixed constant flow rate irrespective of pressure differential across the valve over a wide range.

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Maric, our company

Thank you for perusing our flow control valve catalogue.

Maric Flow Control Australia is a South Australian owned engineering firm, which was established forty years ago. We are situated in the picturesque Adelaide hills, and our core business is the manufacture the highly regarded Maric Flow Control Valves.

We manufacture all valve components in-house, including the compounding and production of the integral "Precision" flow control rubbers to extremely exacting tolerances.

Committed to constant product improvement, we have in place the WaterMark quality assurance system which is based in ISO9002, and we utilize the most up to date CNC machinery for efficient, precise and consistent valve production.

With rapid growth in recent years, we now export approximately 40% of all production to a number of overseas distributors, and we remain committed to supplying all areas of Industry, Water and Environmental Services, Agriculture and Construction with quality valves to solve all their constant flow requirements.

We thank you again for considering our products, and look forward to a mutually rewarding relationship.

Yours Sincerely
Grant Schroeder
Managing Director

MARIC FLOW CONTROL AUSTRALIA

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Standards Australia

Screwed valves

Brass and Chrome

PVC

303 Stainless Steel

316 Stainless Steel

Flow Control/Check Valves - 15mm

Flow Control/Check Valves - 25mm

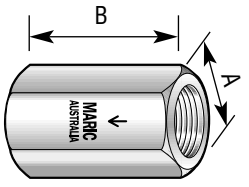
MARIC FLOW CONTROL AUSTRALIA

Maric Flow Control Valves
www.maric.com.au

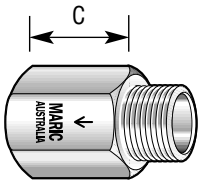
Brass & Chrome Screwed valves

PRODUCT DATA – Standard specifications

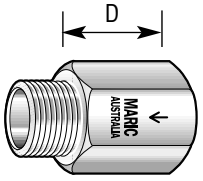
Body Sizes	Configurations *First letter specifies inlet*	Flow Rate Availability
1/4 inch	**F&F**	from 0.4 to 9 l/m
10mm	**F&F**	from 0.4 to 9 l/m
15mm	**F&F, M&F, F&M**	from 0.4 to 23 l/m
20mm	**F&F, M&F, F&M**	from 0.4 to 54 l/m
25mm	**F&F, M&F, F&M**	from 0.4 to 114 l/m
32mm	**F&F**	from 15 to 233 l/m
40mm	**F&F**	from 15 to 233 l/m
50mm	**F&F**	from 15 to 342 l/m



F&F



M&F



F&M

Available flow rates litres/minute

.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 / 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 / ... etc. up to 342 l/m

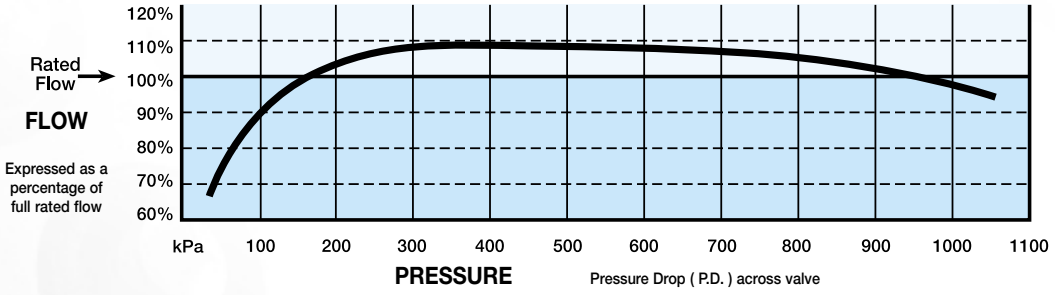
Specifying valves – *When ordering these valves, please be sure to specify;*

- Body size • Thread configuration • Body material
- Pressure differential range - if other than Precision • Flow Rate

Pressure Differential Range 140 – 1000 KPA
Flow Rate Accuracy + / - 10%
} = Standard PRECISION Performance

Temperature Range 0 – 60°C continuous

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



Materials

Body "DR" Brass to AS1562 alloy 352 (plus chrome plating if applicable)
Control rubber Nitrate butadiene, potable water approved to AS4020

Threads

BSPF parallel fastening to AS1722.2 class B
Chrome plated valves are available in most 15, 20 & 25mm body sizes

Dimensions

Nominal size	1/4"	10	15	20	25	32	40	50
A/F Dimension "A"	18.0	22.0	25.4	31.8	40.0	50.8	57.0	70.0
FF Body Length "B"	30.8	32.5	41.2	48.6	59.3	66.8	66.8	75.4
MF Body Length "C"	-	16.7	25.6	31.4	39.8	-	-	-
FM Body Length "D"	16.8	-	23.4	29.9	36.8	-	-	-

Non-Standard Specifications - NPT threads, Higher flow rates, Kwyflo (quiet) valves, EPDM or Viton control rubbers, Higher or Lower pressure ranges, or Higher temperature ranges, may be available in certain valve configurations.
Refer to Non-Standard Specification Availability data for options.

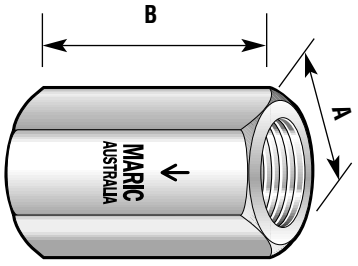
MARIC FLOW CONTROL AUSTRALIA

Maric Flow Control Valves
www.maric.com.au

PVC Screwed valves

PRODUCT DATA – Standard specifications

Body Sizes	Configurations	Flow Rate Availability
1/4 inch	F&F	from 0.4 to 9 l/m
10mm	F&F	from 0.4 to 9 l/m
15mm	F&F	from 0.4 to 23 l/m
20mm	F&F	from 0.4 to 54 l/m
25mm	F&F	from 0.4 to 114 l/m
32mm	F&F	from 15 to 233 l/m
40mm	F&F	from 15 to 233 l/m
50mm	F&F	from 15 to 342 l/m



F&F only

Available flow rates litres/minute

.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 / 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 / ... etc. up to 342 l/m

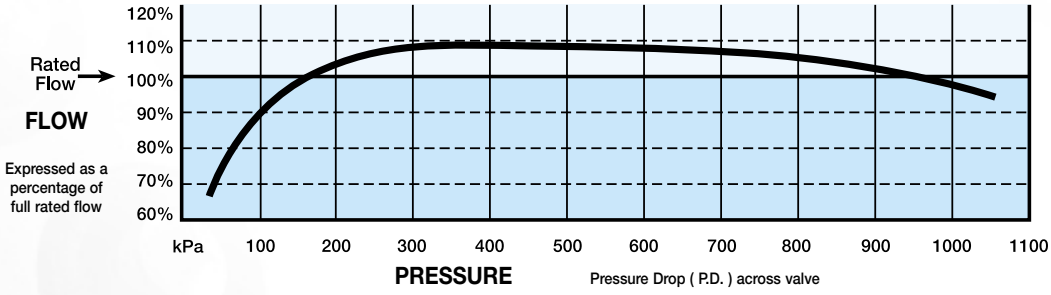
Specifying valves – *When ordering these valves, please be sure to specify;*

- Body size • Thread configuration • Body material
- Pressure differential range - if other than Precision • Flow Rate

Pressure Differential Range 140 – 1000 KPA
Flow Rate Accuracy + / - 10%
} = Standard PRECISION Performance

Temperature Range 0 – 50°C continuous

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



Materials

Body UPVC compliant with AS4020 drinking water requirements
Control rubber Nitrile - drinking water approved to AS4020

Threads

BSPF parallel fastening to AS1722.2 class B

Dimensions

Nominal size	1/4"	10	15	20	25	32	40	50
A/F Dimension "A"	24.0	25.0	32.0	40.0	46.0	56.0	71.0	86.0
FF Body Length "B"	30.8	32.5	41.2	48.6	59.3	74.8	74.8	84.0

Non-Standard Specifications - Higher flow rates, Kwyflo (quiet) valves, EPDM or Viton control rubbers, or lower pressure ranges, may be available in certain valve configurations.
Refer to Non-Standard Specification Availability data for options.

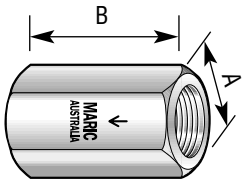
MARIC FLOW CONTROL AUSTRALIA

Maric Flow Control Valves
www.maric.com.au

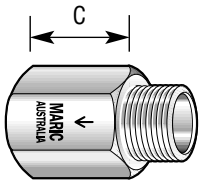
303 Stainless Steel Screwed valves

PRODUCT DATA – Standard specifications

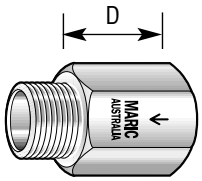
Body Sizes	Configurations *First letter specifies inlet*	Flow Rate Availability
15mm	**F&F, M&F, F&M**	from 0.4 to 23 l/m



F&F



M&F



F&M

Available flow rates litres/minute

.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 / 20 / 23 /

Specifying valves *– When ordering these valves, please be sure to specify;*

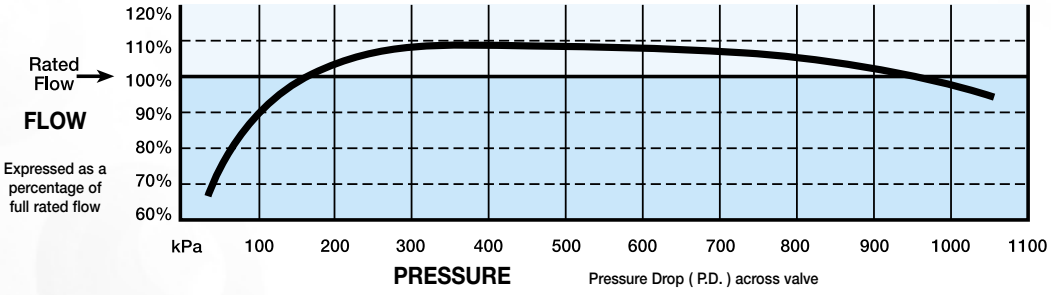
- Body size • Thread configuration • Body material
- Pressure differential range - if other than Precision • Flow Rate

Pressure Differential Range 140 – 1000 KPA
Flow Rate Accuracy + / - 10%
} = Standard PRECISION Performance

Temperature Range 0 – 60°C continuous

Performance Graph

Typical of all PRECISION valves irrespective of body size or flow rate



Materials

Body 303 Stainless Steel to ASTM A276/484
Control rubber Nitrate butadiene, potable water approved to AS4020

Threads

BSPF parallel fastening to AS1722.2 class B

Dimensions

Nominal size	15
A/F Dimension "A"	25.4
FF Body Length "B"	41.2
MF Body Length "C"	25.6
FM Body Length "D"	23.4

Non-Standard Specifications - NPT threads, Higher flow rates, EPDM or Viton control rubbers, Higher or lower pressure ranges, or higher temperature ranges, may be availble in certain valve configurations.
Refer to Non-Standard Specification Availability data for options.

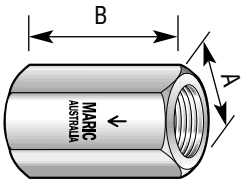
MARIC FLOW CONTROL AUSTRALIA

Maric Flow Control Valves
www.maric.com.au

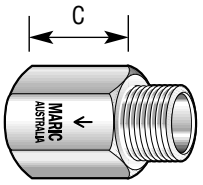
316 Stainless Steel Screwed valves

PRODUCT DATA – Standard specifications

Body Sizes	Configurations *First letter specifies inlet*	Flow Rate Availability
1/4 inch	**F&F, F&M**	from 0.4 to 9 l/m
10mm	**F&F, M&F**	from 0.4 to 9 l/m
15mm	**F&F, M&F, F&M**	from 0.4 to 23 l/m
20mm	**F&F**	from 0.4 to 54 l/m
25mm	**F&F, M&F, F&M**	from 0.4 to 114 l/m
32mm	**F&F**	from 15 to 233 l/m
40mm	**F&F**	from 15 to 233 l/m
50mm	**F&F**	from 15 to 233 l/m



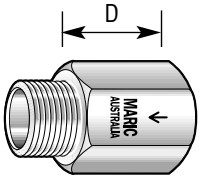
F&F



M&F

Available flow rates litres/minute

.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 / 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 /



F&M

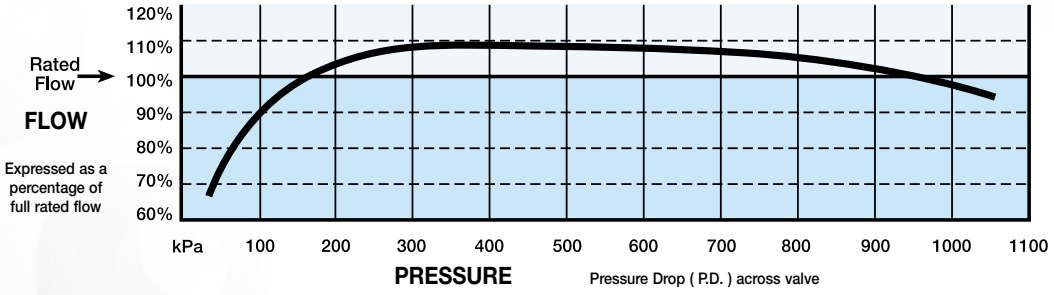
Specifying valves *– When ordering these valves, please be sure to specify;*

- Body size • Thread configuration • Body material
- Pressure differential range - if other than Precision • Flow Rate

Pressure Differential Range 140 – 1000 KPA
Flow Rate Accuracy + / - 10%
} = Standard PRECISION Performance

Temperature Range 0 – 60°C continuous

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



Materials
Body 316 Stainless Steel to ASTM A276/484
Control rubber Nitrate butadiene, potable water approved to AS4020

Threads BSPF parallel fastening to AS1722.2 class B

Dimensions

Nominal size	1/4"	10	15	20	25	32	40	50
A/F Dimension "A"	18.0	22.0	25.4	31.8	40.0	57.0	57.0	70.0
FF Body Length "B"	30.8	32.5	41.2	48.6	59.3	66.8	66.8	75.4
MF Body Length "C"	-	16.7	25.6	31.4	39.8	-	-	-
FM Body Length "D"	27.1	-	23.4	29.9	36.8	-	-	-

Non-Standard Specifications - NPT threads, Higher flow rates, EPDM or Viton control rubbers, Higher or lower pressure ranges, or higher temperature ranges, may be available in certain valve configurations.
Refer to Non-Standard Specification Availability data for options.

MARIC FLOW CONTROL AUSTRALIA

Maric Flow Control Valves
www.maric.com.au

Flow Control/Check Valves – 15mm

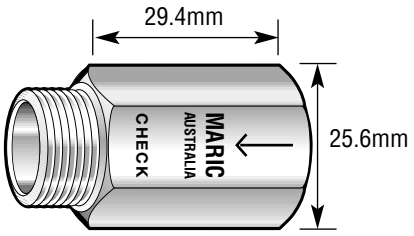
APPLICATION

Mining Industry/Gland Water. For reliable and accurate control of gland-water flow rate, with back-flow prevention. Refer to "Glandwater Flow Control" document in Additional Information section of this catalogue for correct use of Maric Valves in Glandwater Systems.

GENERAL

The Maric "Flow Control / Check Valves" provide a constant flow rate through the valve irrespective of pressure or pressure fluctuations across the valve within the specifications below. In addition to this they also offe

- **Reliable Back-Flow prevention function**
- High Temperature Handling
- High Pressure Handling and a
- Corrosion and scale resistant assembly

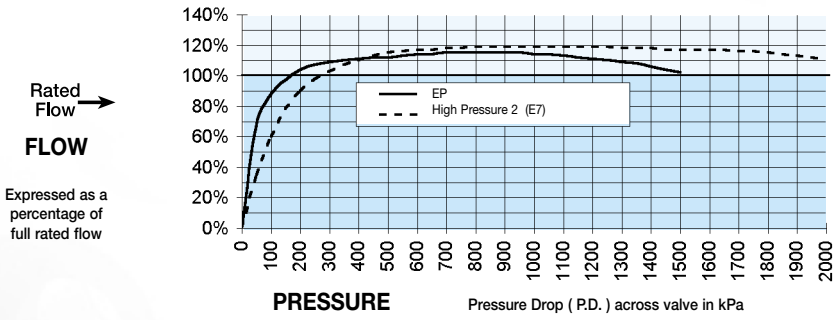


PRODUCT DATA – Standard specifications

Body size	15mm (1/2" BSPF) parallel fastening to AS1722.2 class B
Thread configuration	**F&M** – *first letter specifies inlet*
Body material	303 Stainless Steel to ASTM A276/484
Control rubber material	EPDM
Pressure differential range	EP = 140 – 1500 kPa or E7 = 170 – 2000 kPa
Flow rate accuracy	+/- 20%
Temperature range	0 – 100 degrees Celsius
Check valve operation	Closed when reverse 70 kPa exists
Flow rates available (litres per minute)	.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 /

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

EP = 140 - 1500 kPa, High Pressure 2 (E7) = 170 - 2000 kPa



Specifying valves – *When ordering these valves, please be sure to specify;*

	Body Size	Configuration	Body Material	Control Rubber	Check	Flow Rate
Options:	15mm	F&M (only)	303 s/steel	EP or E7	H	0.4 to 18 lpm
Example description:	15	FM	S	EP	H	9
Example part No.:	**15FMSEPH9**					

Non-Standard Specifications

NPT threads may also be available in these valves. High pressure 2, EPDM (E7) 170 - 2000 kPa are available, made to order.
Refer to Non-Standard Specification Availability data for options.

Inlet view

Profile view

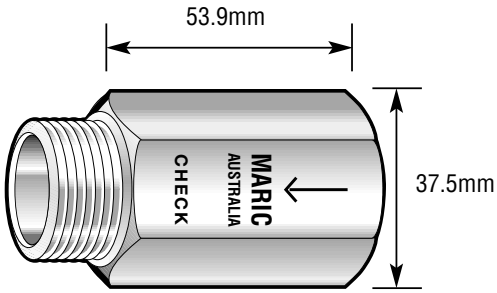
MARIC FLOW CONTROL AUSTRALIA

Maric Flow Control Valves
www.maric.com.au

Flow Control/Check Valves – 25mm

APPLICATION

Mining Industry. / Gland Water. For reliable and accurate gland-water flow limiting, with back-flow prevention. Refer to "Glandwater Flow Control" document in Additional Information section of this catalogue for correct use of Maric Valves in Glandwater Systems.



GENERAL

The Maric "Flow Control / Check Valves" provide a constant flow rate through the valve irrespective of pressure or pressure fluctuations across the valve within the specifications below.
In addition to this they also offer;

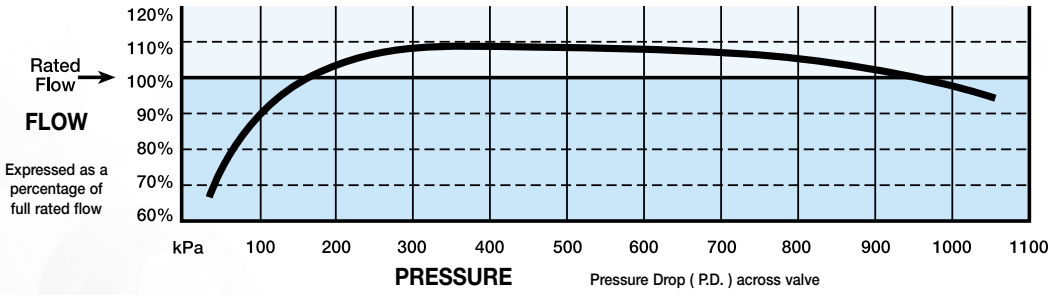
- **Reliable Back-Flow prevention function**
- High Temperature Handling
- High Pressure Handling and a
- Corrosion and scale resistant assembly

PRODUCT DATA – Standard specifications

Body size	25mm (1" BSPF) parallel fastening to AS1722.2 class B
Thread configuration	**F&M** – *first letter specifies inlet*
Body material	316 Stainless Steel to ASTM A276/484
Control rubber material	Nitrile
Pressure differential range	140 – 1000 kPa
Flow rate accuracy	+/- 10%
Temperature range	0 – 60 degrees Celsius
Check valve operation	Closed when reverse 70 kPa exists
Flow rates available	litres per minute 18 / 20 / 23 / 25 / 28 / 32 / 36 / 41 / 45 / 49 / 54 / 59 / 66 /

Performance Graph

Typical of all PRECISION valves irrespective of body size or flow rate



Specifying valves – *When ordering these valves, please be sure to specify;*

	Body Size	Configuration	Body Material	Control Rubber	Check	Flow Rate
Options:	25mm	F&M (only)	316 s/steel	P, N6, etc	H	18 to 66 lpm
Example description:	25	FM	S	P	H	28
Example part No.:	**25FMSPH28**					

Non-Standard Specifications

NPT threads, EPDM control rubbers, High Pressure 1 and High Pressure 2 types are available in these valves.
Refer to Non-Standard Specification Availability data for options.

Inlet view

Profile view

MARIC FLOW CONTROL AUSTRALIA

Maric Flow Control Valves

Exported worldwide to companies demanding premium quality flow control valves

The WaterMark

WaterMark Quality Assured
Spec. 037 Lic. No. W143
Standards Australia

Wafer type valves

Brass

Gunmetal

PVC

316 Stainless Steel

MARIC FLOW CONTROL AUSTRALIA

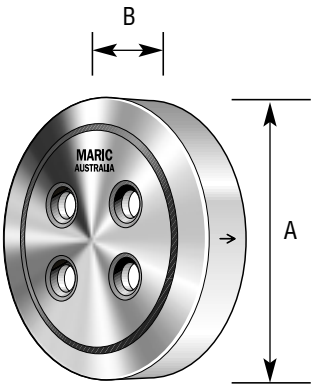
Maric Flow Control Valves
www.maric.com.au

Brass Wafer type valves

PRODUCT DATA – Standard specifications

Designed for mounting between table "D" pipe flanges.

Body Sizes	flow rate ranges avail.	standard no. of control rubbers
25mm	from 0.4 to 233 l/m	1
32mm	from 0.4 to 233 l/m	1
40mm	from 0.4 to 233 l/m	1
50mm	from 0.4 to 342 l/m	1 – 3



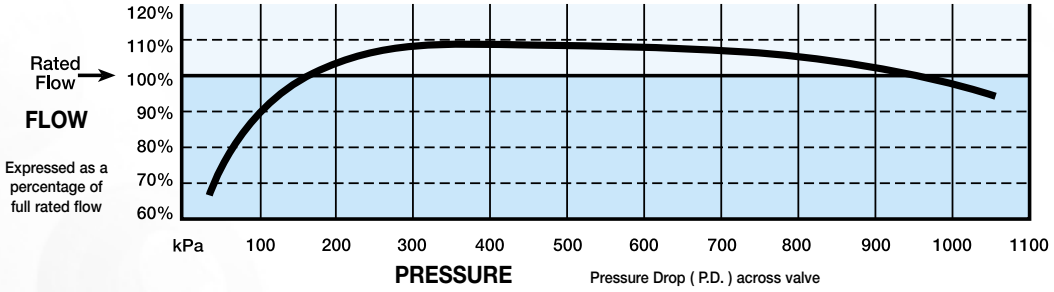
Available flow rates litres/minute

.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 / 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/m

Pressure Differential Range 140 – 1000 KPA
Flow Rate Accuracy + / - 10%
} = Standard PRECISION Performance

Temperature Range 0 – 60°C continuous

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



Materials

Body	"DR" Brass to AS1567 alloy 352
Control rubber	Nitrile butadiene, potable water approved to AS4020
O'Rings	Nitrile, potable water approved to AS4020

Flange specification Suits standard table "D" flanges to AS2129
Standard Wafers are not full flange type i.e. flange bolts locate wafer concentrically and remain visible when viewing assembly.

Wafer Dimensions

Nominal size	25	32	40	50
Diameter "A"	71.0	75.0	86.0	98.0
Thickness "B"	22.0	22.0	22.0	22.0

Non-Standard Specifications - Alternative flange specifications, Higher flow rates, Kwyflo (quiet) valves, EPDM or Viton control rubbers, Higher or lower pressure ranges, or higher temperature ranges, may be available in certain valve configurations.
Refer to Non-Standard Specification Availability data for options.

MARIC FLOW CONTROL AUSTRALIA

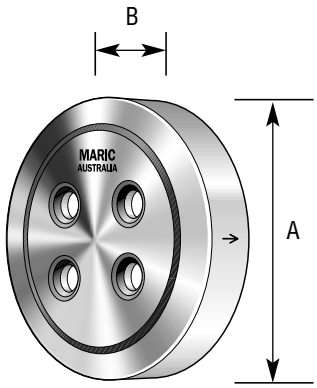
Maric Flow Control Valves
www.maric.com.au

Gunmetal Wafer type valves

PRODUCT DATA – Standard specifications

Designed for mounting between Table "D" pipe flanges.

Body Sizes	flow rate ranges avail.	standard no. of control rubbers
25mm	from 0.4 to 233 l/m	1
32mm	from 0.4 to 233 l/m	1
40mm	from 0.4 to 233 l/m	1
50mm	from 0.4 to 342 l/m	1 – 3
65mm	from 15 to 456 l/m	4
80mm	from 15 to 699 l/m	3
100mm	from 15 to 1279 l/m	6
150mm	from 25 to 1320 l/m	12
200mm	from 125 to 4427 l/m	19
250mm	from 25 to 6058 l/m	26
300mm	from 125 to 8854 l/m	38



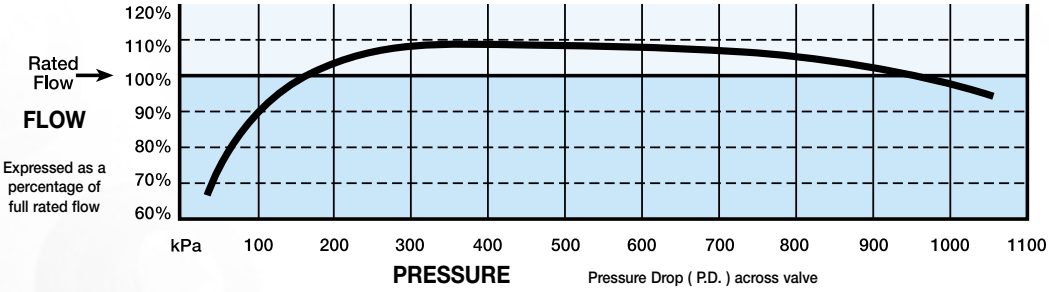
Available flow rates litres/minute

.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 / 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/m

Pressure Differential Range 140 – 1000 KPA
Flow Rate Accuracy + / - 10%
} = Standard PRECISION Performance

Temperature Range 0 – 60°C continuous

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



Materials

Body	LG2 or LG4 to BS1400
Control rubber	Nitrile butadiene, potable water approved to AS4020
O'Rings	Nitrile, potable water approved to AS4020

Flange specification Suits standard table "D" flanges to AS2129
Standard Wafers are not full flange type i.e. flange bolts locate wafer concentrically and remain visible when viewing assembly.

Wafer Dimensions

Nominal size	25	32	40	50	65	80	100	150	200	250	300
Diameter "A"	71.0	75.0	86.0	98.0	111.0	130.0	162.0	219.0	276.0	336.0	386.0
Thickness "B"Brass/Gunmetal	22.0	22.0	22.0	22.0	22.0	22.0	24.0	28.0	35.0	40.0	50.0

Non-Standard Specifications - Alternative flange specifications, Higher flow rates, Kwyflo (quiet) valves, EPDM or Viton control rubbers, Higher or lower pressure ranges, or higher temperature ranges, may be available in certain valve configurations.
Refer to Non-Standard Specification Availability data for options

MARIC FLOW CONTROL AUSTRALIA

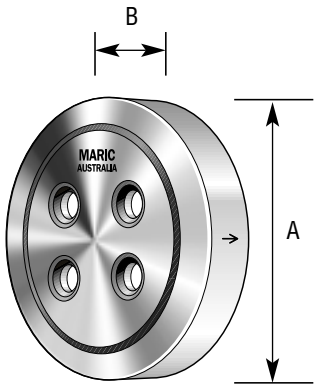
Maric Flow Control Valves
www.maric.com.au

PVC Wafer type valves

PRODUCT DATA – Standard specifications

Designed for mounting between Table "D" pipe flanges.

Sizes and	flow rate ranges avail.	standard no. of control rubbers
25mm	from 0.4 to 233 l/m	1
32mm	from 0.4 to 233 l/m	1
40mm	from 0.4 to 233 l/m	1
50mm	from 0.4 to 342 l/m	1 – 3
65mm	from 15 to 456 l/m	4
80mm	from 15 to 699 l/m	3
100mm	from 15 to 1279 l/m	6
150mm	from 25 to 1320 l/m	12
200mm	from 125 to 4427 l/m	19
250mm	from 25 to 6058 l/m	26
300mm	from 125 to 8854 l/m	38



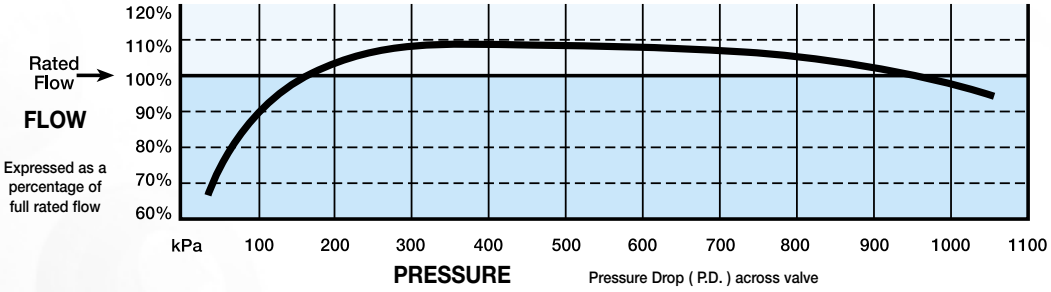
Available flow rates litres/minute

.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 / 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/m

Pressure Differential Range 140 – 1000 KPA
Flow Rate Accuracy + / - 10%
} = Standard PRECISION Performance

Temperature Range 0 – 50°C continuous

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



Materials

Body	Grey UPVC, Special grade to suit potable water requirements to AS4020
Control rubber	Nitrile butadiene, potable water approved to AS4020
O'Rings	Nitrile, potable water approved to AS4020

Flange specification Suits standard table "D" flanges to AS2129
Standard Wafers are not full flange type i.e. flange bolts locate wafer concentrically and remain visible when viewing assembly.

Wafer Dimensions

Nominal size	25	32	40	50	65	80	100	150	200	250	300
Diameter "A"	71.0	75.0	86.0	98.0	111.0	130.0	162.0	219.0	276.0	336.0	386.0
Thickness "B" PVC	24.0	24.0	24.0	24.0	24.0	24.0	39.5	39.5	49.0	80.0	100.0

Non-Standard Specifications - Alternative flange specifications, Higher flow rates, Kwyflo (quiet) valves, EPDM or Viton control rubbers, Higher or lower pressure ranges, may be available in certain valve configurations.
Refer to Non-Standard Specification Availability data for options

MARIC FLOW CONTROL AUSTRALIA

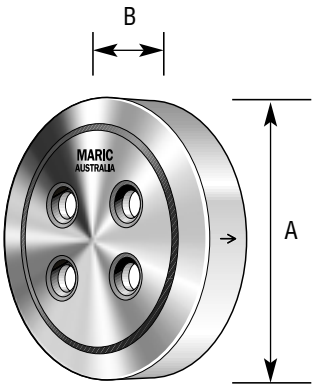
Maric Flow Control Valves
www.maric.com.au

316 Stainless Steel Wafer type valves

PRODUCT DATA – Standard specifications

Designed for mounting between Table "D" pipe flanges.

Sizes and	flow rate ranges avail.	standard no. of control rubbers
25mm	from 0.4 to 233 l/m	1
32mm	from 0.4 to 233 l/m	1
40mm	from 0.4 to 233 l/m	1
50mm	from 0.4 to 342 l/m	1 – 3
65mm	from 15 to 456 l/m	4
80mm	from 15 to 699 l/m	3
100mm	from 15 to 1279 l/m	6
150mm	from 25 to 1320 l/m	12
200mm	from 125 to 4427 l/m	19
250mm	from 25 to 6058 l/m	26
300mm	from 125 to 8854 l/m	38



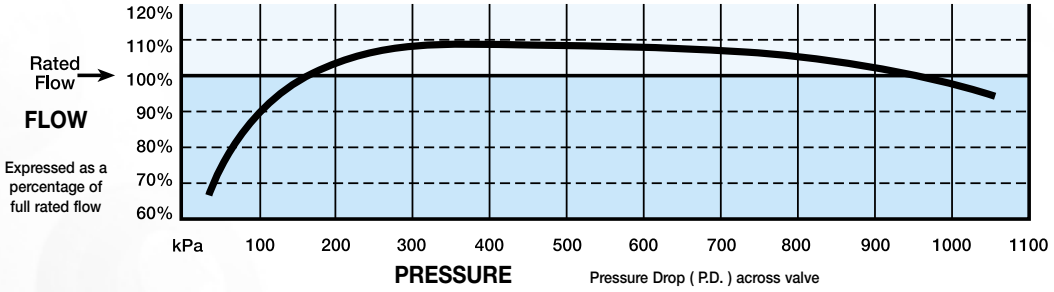
Available flow rates litres/minute

.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 / 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/m

Pressure Differential Range 140 – 1000 KPA
Flow Rate Accuracy + / - 10%
} = Standard PRECISION Performance

Temperature Range 0 – 60°C continuous

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



Materials

Body	316 stainless steel to ASTM A276/484
Control rubber	Nitrile butadiene, potable water approved to AS4020
O'Rings	Nitrile, potable water approved to AS4020

Flange specification

Suits standard table "D" flanges to AS2129
Standard Wafers are not full flange type i.e. flange bolts locate wafer concentrically and remain visible when viewing assembly.

Wafer Dimensions

Nominal size	25	32	40	50	65	80	100	150	200	250	300
Diameter "A"	71.0	75.0	86.0	98.0	111.0	130.0	162.0	219.0	276.0	336.0	386.0
Thickness "B" Stainless Steel	22.0	22.0	22.0	22.0	22.0	22.0	24.0	24.0	28.0	32.0	40.0

Non-Standard Specifications - Alternative flange specifications, Higher flow rates, Kwyflo (quiet) valves, EPDM or Viton control rubbers, Higher or lower pressure ranges, may be available in certain valve configurations.
Refer to Non-Standard Specification Availability data for options

MARIC FLOW CONTROL AUSTRALIA

Maric Flow Control Valves

Exported worldwide to companies demanding premium quality flow control valves

The WaterMark

WaterMark Quality Assured
Spec. 037 Lic. No. W143
Standards Australia

Insert type valves

Plain inserts - Brass and PVC

Special inserts for water meters and tails

MARIC FLOW CONTROL AUSTRALIA

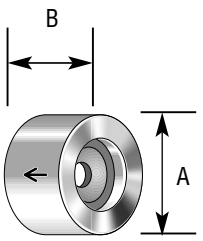
Maric Flow Control Valves
www.maric.com.au

Brass and PVC Insert type valves

PRODUCT DATA – Standard specifications

Sizes and flow rate ranges available

1/4 inch	from 0.4	to	9	l/m
15mm	from 0.4	to	23	l/m
20mm	from 8	to	54	l/m
25mm	from 15	to	114	l/m
40mm	from 125	to	233	l/m



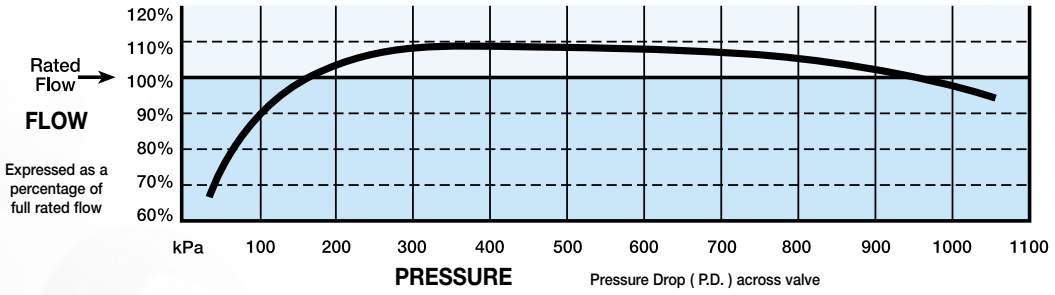
Available flow rates litres/minute

.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 / 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 140 – 1000 KPA
Flow Rate Accuracy + / - 10%
} = Standard PRECISION Performance

Temperature Range 0 – 50°C continuous

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



Materials

Body	Brass	"DR" Brass to AS1567 - 352
	PVC	Grey UPVC, Special grade to suit potable water requirements to AS4020
Control rubber		Nitrile butadiene, potable water approved to AS4020

Insert Dimensions

Nominal size	6	15	20	25	40
Diameter "A"	12.45	18.40	26.70	37.85	50.40
Length "B"	8.0	11.1	15.1	17.5	22.4

Non-Standard Specifications - Higher flow rates, Kwyflo (quiet) valves, EPDM or Viton control rubbers, Higher or lower pressure ranges, or higher temperature ranges may be available in certain valve configurations. *Refer to Non-Standard Specification Availability data for options.*

MARIC FLOW CONTROL AUSTRALIA

Maric Flow
Control Valves
www.maric.com.au

Special Inserts for water meters & tails

PRODUCT DATA – Standard specifications

Document Under Construction

Available flow rates litres/minute

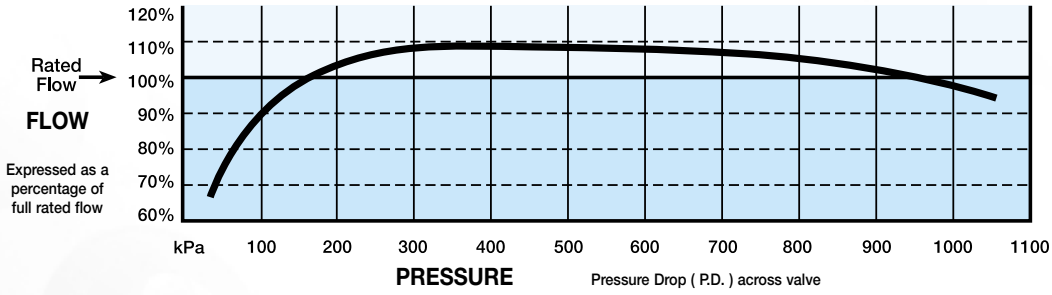
.4 / .45 / .5 / .55 / .63 / .7 / .8 / .9 / 1.0 / 1.1 / 1.2 / 1.3 / 1.5 / 1.6 / 1.8 / 2.0 / 2.3 / 2.5 / 2.8 / 3.2 / 3.5 / 4.0 / 4.5 / 5.0 / 5.5 / 6.3 / 7.0 / 8.0 / 9.0 / 10 / 11 / 12 / 13 / 15 / 16 / 18 / 20 / 23 / 25 / 28 / 32 / 36 / 41 / 45 / 49 / 54 / 59 / 66 / 73 / 82 / 91 / 102 / 114 / 125 / 138 / 150 / 162 / 180 / 199 / 216 / 233 /

Pressure Differential Range 140 – 1000 KPA
Flow Rate Accuracy + / - 10%
} = Standard PRECISION Performance

Temperature Range

Performance Graph

Typical of all PRECISION valves irrespective of body size or flow rate



Materials

Body	Brass	"DR" Brass to AS1567 - 352
	PVC	Grey UPVC, Special grade to suit potable water requirements to AS4020
Control rubber		Nitrile butadiene, potable water approved to AS4020
O'Rings		Nitrile, potable water approved to AS4020

Insert Dimensions

Non-Standard Specifications - Higher flow rates, Kwyflo (quiet) valves, EPDM or Viton control rubbers, Higher or lower pressure ranges, or higher temperature ranges may be available in certain valve configurations. *Refer to Non-Standard Specification Availability data for options.*

MARIC FLOW CONTROL AUSTRALIA

Maric Flow Control Valves

Exported worldwide to companies demanding premium quality flow control valves

The WaterMark

WaterMark Quality Assured
Spec. 037 Lic. No. W143
Standards Australia

Additional Information

MARIC FLOW CONTROL AUSTRALIA

Maric Flow
Control Valves
www.maric.com.au

Headloss

Pressure Differential Characteristics of Maric Flow Control Valves

The “Headloss” of Maric valves is commonly misunderstood. We recommend the information below be carefully examined. For determining what the pressure differential will be ***prior*** *to* installing a Maric valve, please refer to instructions over the page.

FUNCTION Maric valves maintain a constant, pre-set, flow rate, irrespective of pressure (within a range), by means of a precision moulded 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.

DEFINITION Headloss, or "Pressure Drop" across the valve, is simply the difference between inlet and outlet pressure, and is determined by the installation. Not necessarily the flow controller. The "PRECISION" range of valves is designed to provide constant flow, when pressure drop across them is anywhere within the range of 140 to 1000 kPa. (14-100 meters, 20-150 psi, or 1.4-10 Bar).

To obtain full rated flow (accurate to within +/- 10%), the system must provide for inlet pressure to be at least 140 kPa greater than outlet pressure. Pressure differential must not exceed 1000 kPa however, or valve may fail as explained below.

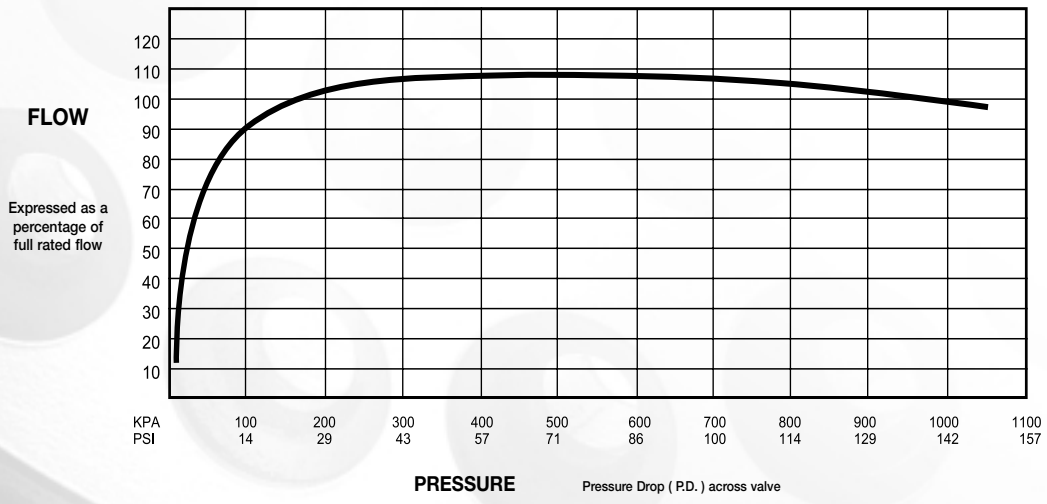
Performance Curve for “Precision” Valves, 140 – 1000 kPa

The performance curve below, shows typical performance of all Precision valves, irrespective of body size or flow rate. As can be seen from the graph, peak flow rate is obtained when differential is around 400 kPa.

Extreme ends of the pressure range result in flows usually around 5 to 8% below rated.

PERFORMANCE GRAPH

Typical of all PRECISION valves irrespective of body size or flow rate



Headloss

...continued

EXPLANATION The "Precision" range of valves is designed to handle most “mains” or similar pressure applications. It is often misunderstood when it is said that the headloss across the Maric valve is 140 kPa. This would be true if supply pressure was only 140 kPa, and outlet pressure was zero (atmospheric). If however supply pressure increases to 1000 kPa, and outlet pressure remains at zero, then headloss becomes 1000 kPa. In either case the valve will be operating within design specifications. Therefore, the pressure drop ***“range”***, of 140-1000 kPa, must always be considered, not just the 140 kPa.

If 140 kPa headloss is too high for your application, or if 1000 kPa is not high enough, then the “low pressure” or “high pressure” type Maric valves should be used. See below for more information on these. If the demand for water is less than the valves nominal rated flow, i.e. less actual flow, then pressure drop across the valve will drop to much less than 140 kPa. For example, from the performance curve above, on 50% of rated flow, pressure drop across Maric valve is only around 30 kPa (5psi), and at 30% of flow, only 12kPa.

Maric valves will handle a hydrostatic pressure of well in excess of 4000 kPa. Precision valves will function satisfactorily with inlet pressures above 1000 kPa, provided that outlet pressure is never more than 1000 kPa less than inlet pressure. This practice is not recommended however, because if the outlet pressure does ever drop to zero, then valve failure may result as below. If differential across valve is sufficiently high enough above specification, it may cause the rubber control ring to blow right through the orifice, and be lost downstream, resulting in either, the valve body having a relatively large diameter fixed orifice, and allowing a potentially very high and uncontrolled flow rate, or, the control rubber becoming lodged in a fitting downstream and blocking flow rate partially or completely.

Where pressure differentials must exceed 1000 or 1500 kPa, the use of high pressure valves is strongly recommended.

Low Pressure Valves. Have a pressure differential operating range of approximately 40-300 kPa. Flow rate accuracy is +/- 20%
High Pressure Valves. There are two models available, 140-1500 kPa, and 170-2000 kPa. Flow rate accuracy is +/- 20%

The flow rate accuracy of the Maric valves (any valves for that matter) is not exact. All "Precision" control Rubbers are performance tested immediately prior to dispatch from factory, and must not deviate above or below nominal flow by more than 10% throughout their entire pressure differential range. In most cases accuracy is better than +/-8%.

Calculating Headloss Prior to installation.

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). However, Maric are still often asked; "What will the headloss be across the valve?".

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.

Headloss

...continued

CALCULATING PRESSURE DROP

The differential across our valve, as explained earlier, will simply be the difference in pressure between the inlet and outlet. It sounds too simple to be worth stating, however, with potentially fluctuating inlet and outlet pressures, it is worthy of a brief explanation.

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.

This calculated minimum and maximum pressure differential, should fall within the range of one of the Maric valves types available. If not, then installation design changes will be required.

Inlet Pressure calculations, - consider the following;

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, - consider the following;

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.

MARIC FLOW CONTROL AUSTRALIA

Maric Flow Control Valves
www.maric.com.au

Specifying Maric Valves & Part Numbering System

- When purchasing a Maric valve, please specify each of the components below. The full description (specification) then condenses into an appropriate part number as illustrated below.
- For the full range and specifications of accuracy and differential (ΔP) range types, see bottom of page, or Product & Identification Data or Non-standard Valve Specifications. Unless otherwise specified, standard "Precision" specification valves are supplied.

BSP Screwed Valves

Body Size	NPT (if applic)	Configuration	Body Material	Control Rubber Type/Material	Check Valve (if applic)	Flow Rate
6, 10, 15 20, 25, 32 40, 50	**N**PT	MF, FM, or FF First letter specifies inlet.	**B**rass, **P**VC **G**unmetal **S**tainless	**P**recision, **EP**DM, **LP** **K**wyflo, Spo**T**check **V**iton **N6 N7 E7 HF**	C**H**eck if applic.	In litres per minute

Description: **No 15** **F&M** **Brass** **Precision** **9 lpm**

Applicable part number; **15FMBP9**

Other examples;

No.15 F&F PVC Precision 9 lpm	15FFPP9
No.20 F&F S/steel EPDM 36 lpm	20FFSEP36
No.15 F&M S/steel EPDM FC/Check 12 lpm	15FMSEPH12
No.25 NPT F&M S/steel Precision FC/Check 45 lpm	25NFMSPH45

Wafer Type Valves

Body Size	Wafer	Body Material	Control Rubber Type/Material	Flow Rate	ANSI 150 (if applic)
25, 32, 40, 50 65, 80, 100, 150 200, 250, 300	W	**B**rass, **P**VC **G**unmetal **S**tainless	P, EP, LP, K, V, N6, N7, E7, HF	In litres per minute	(ANSI 150)

Description: **80** **W** **P** **P** **658 lpm**

Applicable part number; **80WPP658**

Other examples;

50mm Wafer Brass Precision 342 lpm	50WBP342
100mm Wafer PVC Low Pressure 750 lpm	100WPLP750
200mm Wafer Gunmetal Kwyflo 2345 lpm	200WGK2345
40mm Wafer S/steel EPDM 59 lpm (ANSI150)	40WSEP59 (ANSI150)

Accuracy and Pressure Differential ranges Availability

Accuracy and Pressure Differential range "abbreviations" and specifications are as per the chart below

Maric Name	Abbreviation	Control Rubber	Pressure Differential Range Accuracy	Flow Rate
Precision (standard)	"P"	Nitrile	140 – 1000 kPa, 1.4 – 10 bar	+/-10%
Kwyflo (quiet operation)	"K"	Nitrile	140 – 1000 kPa, 1.4 – 10 bar	+/-20%
Spotcheck (for economy)	"T"	Nitrile	140 – 1000 kPa, 1.4 – 10 bar	+/-20%
Low Pressure	"LP"	Nitrile	40 – 300 kPa, 0.4 – 3 bar	+/-20%
High Pressure (1)	"N6"	Nitrile	140 – 1500 kPa, 1.4 – 15 bar	+/-20%
High Pressure (2)	"N7"	Nitrile	170 – 2000 kPa, 1.7 – 20 bar	+/-20%
High Flow	"HF"	Nitrile	140 – 700 kPa, 1.4 – 7 bar	t.b.a.
EPDM Control Rubbers	"EP"	EPDM	140 – 1500 kPa 1.4 – 15 bar	+/-20%
EPDM High Pressure 2	"E7"	EPDM	170 – 2000 kPa 1.7 – 20 bar	+/-20%
Viton Control Rubbers	"V"	Viton	140 – 1000 kPa, 1.4 – 10 bar	+/-20%

MARIC FLOW CONTROL AUSTRALIA

Maric Flow
Control Valves
www.maric.com.au

Product & Identification Data

Function

Maric valves maintain a constant, pre-set, flow rate, irrespective of pressure (within a range), by means of a precision moulded 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.

Identification;

- Valves are stamped with; Maric Australia, WaterMark details if applicable, direction of flow arrow, part number, flow rate & manufacture date.
- The part number includes a string of characters and numerals. These characters refer to each of the specification criteria necessary to fully describe a flow control valve. Please refer to the "Specifying Maric Valves" document for details on this.
- The Accuracy and Pressure Differential range 'abbreviation characters' and specifications are as per the chart below.

Accuracy and Pressure Differential ranges;

Maric Name	Abbreviation	Control Rubber	Pressure Differential Range	Flow Rate Accuracy
• Precision (standard)	"P"	Nitrile	140 – 1000 kPa, 1.4 – 10 bar	+/-10%
• Kwyflo (quiet operation)	"K"	Nitrile	140 – 1000 kPa, 1.4 – 10 bar	+/-20%
• Spotcheck (for economy)	"T"	Nitrile	140 – 1000 kPa, 1.4 – 10 bar	+/-20%
• Low Pressure	"LP"	Nitrile	40 – 300 kPa, 0.4 – 3 bar	+/-20%
• High Pressure (1)	"N6"	Nitrile	140 – 1500 kPa, 1.4 – 15 bar	+/-20%
• High Pressure (2)	"N7"	Nitrile	170 – 2000 kPa, 1.7 – 20 bar	+/-20%
• High Flow	"HF"	Nitrile	140 – 700 kPa, 1.4 – 7 bar	t.b.a.
• EPDM Control Rubbers	"EP"	EPDM	140 – 1500 kPa, 1.4 – 15 bar	+/-20%
• EPDM High Pressure 2	"E7"	EPDM	170 – 2000 kPa, 1.7 – 20 bar	+/-20%
• Viton Control Rubbers	"V"	Viton	140 – 1000 kPa, 1.4 – 10 bar	+/-20%

Maximum Operating Temperatures;

- Brass, Gunmetal, & S/Steel bodies, with Nitrile rubbers; 65/75°C (continuous / intermittent),
- Brass, Gunmetal, & S/Steel bodies, with EPDM rubbers; 100/120°C
- S/Steel bodies, with Viton rubbers; 200/250°C
- PVC bodies; 50/50°C.

Maintenance;

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

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.

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Installation Instructions

All Valve Types;

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.

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.

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.

BSP Screwed Valves;

Refer to direction of flow arrow. Threads are BSP, British Standard Pipe, parallel, fastening type threads. The use of thread tape or similar is recommended for a watertight seal.

Wafer Type Valves;

Wafer type valves are designed for mounting between 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 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.

Standard wafers are orifice plate style, I.e. they are not full flange type.
Flange bolts will locate the wafer concentrically, and remain visible between the flanges when viewing the assembly.

There will be some clearance (generally around 2 to 3mm, but up to 5 mm on larger wafer sizes) between wafer O.D. and the bolts. This is normal. 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 require machining (chamfering) at an angle of 45 degrees, out to the nominal diameter. 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, and up to 5mm of the outlet orifii to be covered by the flanges. This is normal, and will not affect performance.

Insert Type Valves;

Installation varies according to application. They must be installed as per the direction of flow arrow.

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Non-Standard Valve Specifications

Numerous Non-Standard specifications for Maric valves may be available as outlined below;
It is generally recommended that these requirements be discussed with a Maric rep.

Thread Types (available in Stainless Steel Screwed Valves only)

NPT & NPS are available as made-to-order options in certain valve types.

Flange Specifications (for Wafer type valves only.)

Wafer to suit Table "E" and ANSI150 spec. flanges are available as made to order options.

Higher Flow Rates

Description	Pressure Differential Range	Flow Rate Accuracy	P/No. Abbreviation	Max Rubber Temp.
High Flow	varies	Generally +/- 10%	HF	60C

Typical Applications include where ever an installation dictates the maximum body size, which is too small for a standard Maric valve.
In many valve types, a 10% higher than standard maximum flow rate can be achieved, or even more. However maximum pressure diferential may be limited to 700Kpa

Spotcheck Accuracy (available in brass and chrome screwed valves only.)

Description	Pressure Differential Range	Flow Rate Accuracy	P/No. Abbreviation	Max Rubber Temp.
Spotcheck	140 – 1000 kPa	+/- 20%	T	60C

Typical applications are an economical, lower cost option.
Often used for larger quantities orders where flow rate accuracy is not as important as price of valve.
Brass screwed bodies in 15, 20 & 25mm can be supplied in "Spotcheck" type accuracies, where only one valve in ten is flow rate tested. Many valves are likely to remain within the +/- 10% accuracy range, however, some may be outside this tolerance, up to a maximum deviation from nominal flow of 20%.

Quiet "Kwyflo" Type (not available in stainless steel valves.)

Description	Pressure Differential Range	Flow Rate Accuracy	P/No. Abbreviation	Max Rubber Temp.
Kwyflo	140 – 1000 kPa	+/- 20%	K	60C

Typical applications are domestic water saving devices, eg. shower roses.
Kwyflo type control rubbers produce less noise throughout the pressure differential range.
These control rubbers each have three orrifii, and maintain a constant flow in a different way to precision.

Kwyflo flow rates available (Litres/Minute)

1/4 inch and 10mm	2.3 / 3.5 / 4.5l/m
15mm	all above, plus 7, 9 and 11
20mm	all above, plus 13, 16, 20 and 25
25mm	all above, plus 32, 41, 49 and 59

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Non-Standard Pressure Ranges

Low Pressure Type

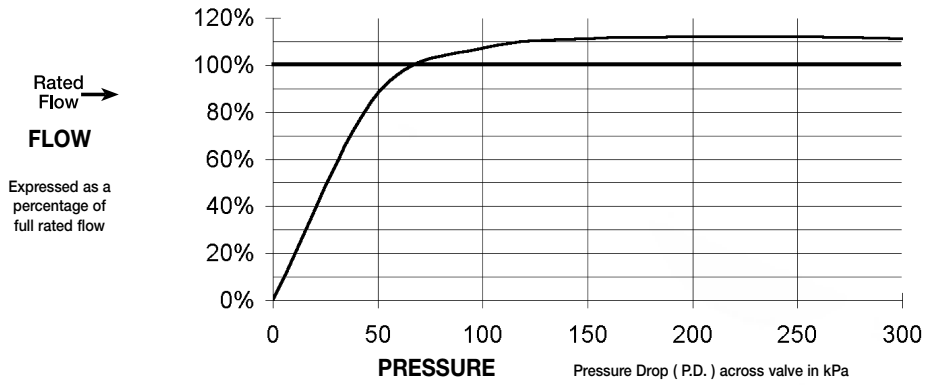
Description	Pressure Differential Range	Flow Rate Accuracy	P/No. Abbreviation	Max Rubber Temp.
Low Pressure	40 – 300 kPa	+/- 20%	LP	60C

Typical applications include installations where the normal minimum headloss of 140 kPa is too high.

The "headloss" of these low pressure type valves is 40 kPa only, and can handle pressure differentials up to 300 kPa.

Performance Curve Options – Maric Flow Control Valve - Low Pressure

Typical Performance 40 - 300 kPa



Performance;
Many flow rates actually operate up to well over 300 kPa.

Should this be a requirement for a particular application, please discuss this with a Maric representative.

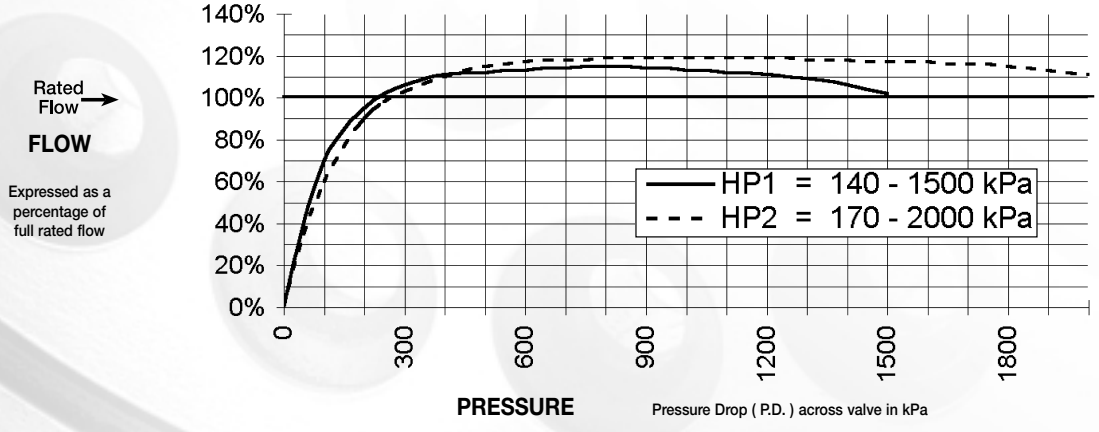
High Pressure Type (available in stainless steel only.)

Description	Pressure Differential Range	Flow Rate Accuracy	P/No. Abbreviation	Max Rubber Temp.
High Pressure 1	140 – 1500 kPa	+/- 20%	N60	60C
High Pressure 2	170 – 2000 kPa	+/- 20%	N70	60C

Typical applications include installations where system pressures exceed 1000 kPa, i.e., high pressure glandwater supplies for slurry pumps.

Performance Curve Options – Maric Flow Control Valve - High Pressure

High Pressure 1 (HP1) High Pressure 2 (HP2)



Non-Standard Control Rubber Materials

EPDM

Description	Pressure Differential Range	Flow Rate Accuracy	P/No. Abbreviation	Max Rubber Temp.
EPDM	140 – 1500 kPa	+/- 20%	EP	100°C
EPDM, High Pressure 2	170 – 2000 kPa	+/- 20%	E7	100°C

Typical Applications usually incorporate stainless steel or PVC bodies for controlling flow of corrosive liquids, in particular caustic, in the alumina industries, or for higher temperature applications.

VITON

Description	Pressure Differential Range	Flow Rate Accuracy	P/No. Abbreviation	Max Rubber Temp.
Viton	140 – 1000 kPa	+/- 20%	V	250°C

Typical Applications for Viton rubbers are those where particularly aggressive, and / or high temperature liquids are flow controlled.

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Valve Application Data

WATER AUTHORITIES

Flow rate limiters fitted to water meters can provide the following benefits ;

a, Non-payment of water bills. Two litre per minute tail inserts are not visible to the customer, and offer an alternative to the "lock Box". The tamper-resistant design ensures 2 litres per minute irrespective of supply pressure.
b, Boosting mains pressure. In areas where pressure suffers at peak periods, limiting flow to around 20 litres per minute can improve mains pressure along its full length. This may also prevent the costly exercise of increasing mains pipe size to cope with an increased population, and promotes water conservation.
c, Extended water meter life is obtained when maximum flow is kept within meters design parameters.
d, Rural, semi-rural distribution. Flow control valves at each boundary may facilitate the use of a small and inexpensive water main. Limiting flow rate to a fraction of a litre per minute to hundreds of properties, spread over hundreds of kilometers, may require a water main of as small and economical as 50mm. Consumers fill their own tanks for a practical supply.
e, Flow control, Instead of water meters. In Queensland, (in areas as described above), some authorities provide valves at a low flow rate as an alternative to 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, They may be able to offer an alternative to "water restrictions" in times of water shortage.

Valves are available to suit meter sizes from 15mm up to 150mm. Valves are WaterMark certified (based on ISO9002) and approved for use in contact with drinking water.

MINING

Predominantly for gland water flow control to mechanical seals of slurry pumps.
Also for control of flow of liquids within the processing operations. In particular water treatment.

WATER TREATMENT / FILTRATION EQUIPMENT

There are many and various applications within this field, including;
Prevention of medium loss during backflushing.
Controlling flow through delicate filters etc.

IRRIGATION

Sprinkler control. Overspraying wastes water and underspraying wastes time. Maric Flow Valves fitted to sprinklers will give a constant volume coverage, saving water and time.
Also, with several sprinklers at varying elevations (uneven pressures), Maric Flow valves will ensure the same output from all sprinklers.

PUMP & BORE PROTECTION

Protection from the overloading of electric motors.
Protection from the over-pumping of and damage to bores.

The fitting of Maric flow valves to bore pumps can prevent damage to pumps, motors or bores in the event of over-pumping. Over-pumping of bores can occur on initial start-up due to either;

- No initial downstream resistance due to empty water lines, or
- A high initial static water table height, or both of the above.

This can lead to the electrical overloading of the motor and / or the mechanical overloading of the pump. It can also cause the water table to drop to the point where water level is low enough to provide insufficient motor cooling and overheating the motor, or the drawing in of air resulting in water hammer damage. Overpumping can also lead to the drawing in of sand.

Valve Application Data

...continued

SHOWERS (from home to multistory motels)
For conserving water, SA Gas Co. recommends 7 lpm. Our Water authority recommends 9 lpm.
Always use 'Kwyflo" type valves for domestic applications for quiet operation.

BATHROOM & HAND BASINS
We suggest 4.5 lpm is adequate for washing hands without wasting water.

DRINKING FOUNTAINS
Inserts at 2.3 lpm are widely used to control flow to a stream of consisitent height ideal for public drinking.

WATER SOFTENERS
For preventing loss of crystals during backflushing.

ULTRAVIOLET WATER STERILIZATION
Too high a flow results in less than 100% bacterial kill. Too low a flow increases treatment costs.

VACUUM PUMPS
Control of water supply to liquid ring vacuum pumps.

DUST SUPPRESSION
Heavy truck traffic on dusty dirt roads. Sprinkler control on mobile water tankers / carriers.
Also, dust & erosion control of tailings mounds (via sprinklers)

WATER HEATERS
Keeping flow below a pre set maximum ensures gas & electric instantaneous heaters can heat to a sufficiently hot &
advertised temperature.

SAFETY WASHING EQUIPMENT, DELUGE SHOWERS, EYE WASH EQUIP.
Controlled flow ensures correct consistent and safe operation (critical for eye washing).

INDUSTRIAL LINEN WASHING MACHINES
Prevents too great a drop in mains pressure whilst filling.
Can also be used in conjunction with a much smaller flow valve for metering correct ratio of detergent added.

DISHWASHERS, COMMERCIAL & INDUSTRIAL
As above.

HOTEL & BAR, GLASS WASHING & RINSING MACHINES
Controlled flow ensures efficient washing & rinsing without glass breakage.

FIRE FIGHTING
Pump protection. Controlled maximum flow ensures correct operation for type of nozzle used.
Also for use in conjunction with smaller flow valve for correct dosing of foaming agent.

FERTILIZER / IRRIGATION / STOCK VITAMIN DOSING EQUIPMENT
Protects dosing equipment from too high a flow rate resulting in damaged equipment.

DISTILLERIES & COOLING EQUIPMENT
Provides correct flow of cooling water to condenser of stills.

EVAPORATIVE AIR CONDITIONERS
Ensures correct flow of recirculated water. Ensures correct flow of incoming fresh water.

CISTERNS & FLUSHING TANKS
Prevents the potential "continuous flush " operation if fill rate is too fast.

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Water Authorities Applications

Water authorities throughout Australia are benefiting from the use of Maric flow controllers with consumers' water meters, in one or more of the following applications.

a, The use of 2 litre per minute tail inserts are an invisible and vandal and tamper resistant means of restricting flow for non-payment of water bills.

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

c, Limiting maximum flow at peak periods, enables consistent mains pressure to be maintained.
This may also prevent the costly exercise of increasing mains pipe size to cope with an increased population.

d, May facilitate an economical means of distributing water to vast areas of, 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. Consumers fill their own tanks for a practical supply.

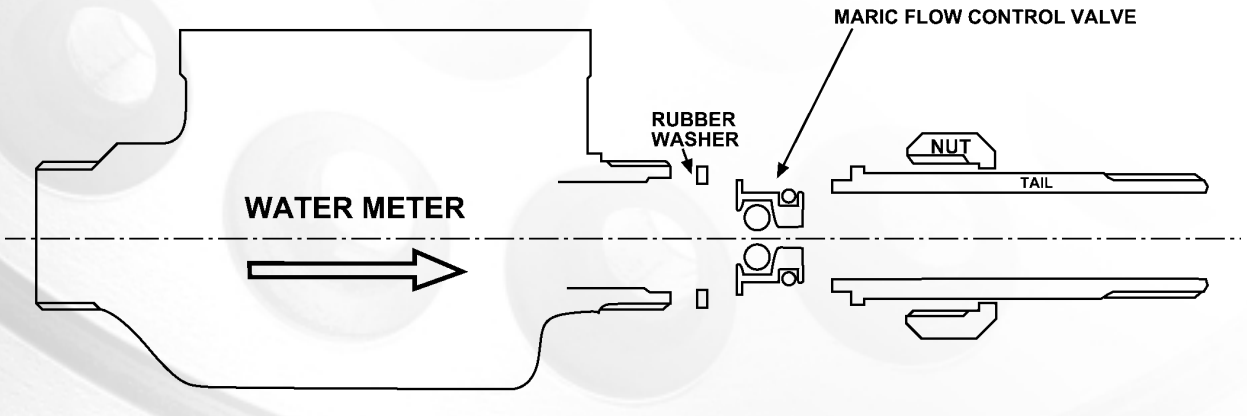
e, In Queensland, (in locations as described above), some authorities provide valves at a low flow rate instead of water meters.
This is a significant cost reduction to authorities, and consumers pay according to flow rate requested or offered.
As above, consumers fill tanks for a practical supply.

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

Valves are available to suit meter sizes from 15mm up to 150mm.
Valves are WaterMark certified (based on ISO9002) and approved for use in contact with drinking water.

Water Corporation of W.A. Perth, Tony Borromei, Meter Co-ordinator. Ph. 08 9420 7108
SA Water. Laurie McGing, Adelaide, metering coordinator. Ph 08 8226 2000, Brian Murray 8339 2230 / 0407795482
Beaudesert Shire Council.(QLD) Shane Moran / Warren Laurent, Purchasing Officer. Ph. 07 5540 5111
Western Water Services. (WA) Allan McCarthy, Manager. Ph. 08 9424 8422
City West Water, Melbourne, Senior Development Consultant, 03 9313 8285
Serco Water, (WA) Dave Henley, Purchasing Officer. Ph. 08 9423 7755
Sunrasia Rural Water Authority. (VIC) Peter Rowe, Water Services Manager. Ph. 03 5028 2283
Mintabie Miners Program Assoc. (SA) Ray Whitehead., Water Co-ordinator. Ph. 08 8670 5009
District Council of Yorke Peninsula. (SA) Michael McCaulay, Purchasing Officer. Ph. 08 8832 2701
District Council of Ceduna. (SA) Craig Stokes., Metering Manager. Ph. 08 5625 3435
Calliope Shire Council. (QLD) Lex Slater, Purchasing Officer . Ph. 07 4975 8100
Barwon Region Water Authority. Geelong, Henry Freise, Meter Manager. Ph. 03 5226 9369
Central Highlands Water. Ian Oldham, (VIC) Metering Manager. Ph. 03 5320 3100
Bega Valley Water. (NSW) Darryl Parker, Purchasing Officer. Ph. 02 6499 2222
Busselton Water Board. (WA) Ken Usher, Manager. Ph. 07 9754 1811
Emerald Shire Council. Sam Perera, (QLD) Purchasing Manager. Ph. 07 4982 8333
Grampians Water. Philip Childs, (VIC) Stores Manager. Ph. 03 5381 2801
Narrabrai Shire Council. (NSW) Richard Hillhouse, Metering Co-ordinator. Ph. 02 6799 6700
North East Water. (NSW) Terry Wisener, Purchasing Co-ordinator. Ph. 02 6022 0555
South East Water. (VIC) Mike Busetti., Metering Analyst. Ph. 03 9552 3000

Typical installation of inserts in 20 & 25mm meter & tail assembly



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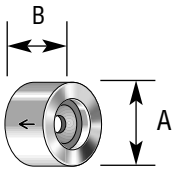
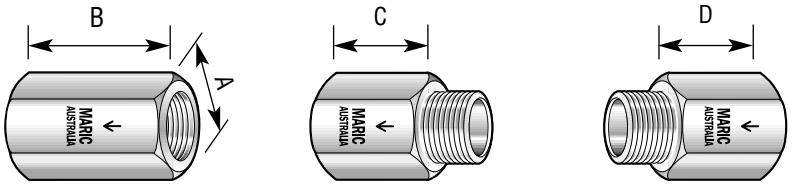
Dimensions

Plain Insert dimensions



Nominal size	6	15	20	25	40
Diameter "A"	12.45	18.40	26.70	37.85	50.40
Length "B"	8.0	11.1	15.1	17.5	22.4

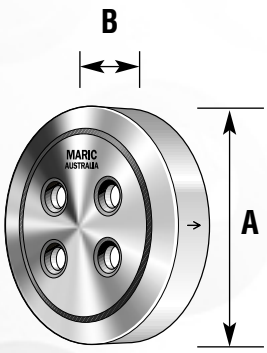
BSP Screwed dimensions



Nominal size	1/4"	3/8"	15	20	25	32	40	50
A/F Dimension "A"	18.0	22.0	25.4	31.8	40.0	50.8	57.0	70.0
FF Body Length "B"	30.8	32.5	41.2	48.6	59.3	66.8	66.8	75.4
MF Body Length "C"	-	16.7	25.6	31.4	39.8	-	-	-
FM Body Length "D"	16.8	-	23.4	29.9	36.8	-	-	-

Note: Dimensions shown are for standard brass bodies.Dimensions of PVC and stainless steel bodies may vary slightly. Larger bodies with relatively low flow rates may be shorter than shown.

Wafer dimensions



Nominal size	25	32	40	50	65	80	100	150	200	250	300
Diameter "A"	71.0	75.0	86.0	98.0	111.0	130.0	162.0	219.0	276.0	336.0	386.0
Thickness "B" PVC/ABS	24.0	24.0	24.0	24.0	24.0	24.0	39.5	39.5	49.0	80.0	100.0
Thickness "B"Brass/Gunmetal	22.0	22.0	22.0	22.0	22.0	22.0	24.0	28.0	35.0	40.0	50.0
Thickness "B"Stainless Steel	22.0	22.0	22.0	22.0	22.0	22.0	24.0	24.0	28.0	32.0	40.0

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Gland-Water Flow Control

Correct use of Maric Valves in Glandwater systems

INTRODUCTION

This document provides information relating to the correct use of maric flow control valves when used for the purpose of limiting maximum flow of sealing water to slurry pump glands, with conventional gland packing type sealing arrangements.

WHAT THE MARIC VALVE DOES

The Maric flow control valves is designed to deliver a fixed, pre-set, constant (maximum) flow of water, irrespective of pressure differential across it, (within a given range). In the case of slurry pumps, this means, irrespective of fluctuating glandwater supply pressure, gland condition, or slurry pump discharge pressures. See pressure ranges next page.

The flow controller is in no way designed to control pressure. It limits flow rate only, which may, or may not affect pressures within a system.

Also it must be understood that the flow controller will never allow a greater flow than the gland will permit.
i.e. if the gland is too restrictive (resulting in an excessively high pressure differential across it) then the flow controller may have insufficient pressure differential across it, and will result in a proportionally lower than rated flow.
Therefore, Maric valves can not always guarantee that a certain flow rate will be achieved.
However, they can guarantee that when used correctly, a certain pre-set maximum flow will not be exceeded.

WHY USE A MARIC VALVE ?

As stated above, a recommendation to install a maric flow controller may not always be to guarantee you will achieve a certain preset flow rate. It may be recommended to provide one of the benefits below;

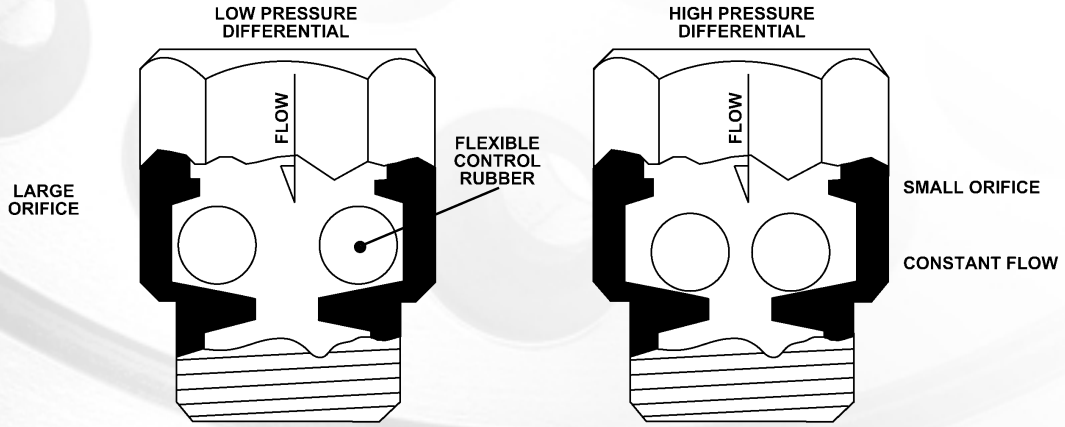
A, To ensure that a gland will not allow more than a pre-determined maximum flow rate, and unnecessarily dilute the slurry.
A lower than rated flow is not a particular concern here, as the condition of the gland will ultimately dictate flow rate, up to the pre-set maximum permitted by the flow controller.
Full rated flow of the flow controller will only result when gland is sufficiently worn to enable it.
Typical applications include production of alumina, where dilution of liquor/slurry must be minimized.

or

B, To ensure that all glands on a common glandwater supply will receive some water in the event of failure of any one gland. Relatively high flows through glands is not of particular concern here, as long as the failure of one gland only does not rob others of available sealing water.

HOW THE VALVE OPERATES

The flow control valves utilize a flexible rubber control ring, whose orifice diameter responds instantly to fluctuations in water pressure. As pressure differential increases, the orifice diameter reduces to maintain the same flow. Likewise, as pressure reduces, the orifice opens up to maintain the same flow rate. These valves are particularly suitable for use on poor water quality, because the flow controlling component is a rubber material, and flexes under normal operation, which minimizes the risk of blockage, and eliminates scale build-up.



Gland-Water Flow Control

…continued

VALVE TYPES

Several pressure differential ranges are available. The type, pressure range, and flow rate accuracy are shown below;

Type Description	Abbrev.	Pressure Range (Differential)	Flow Rate Accuracy	Comments
Precision;	(P)	140 – 1000 kPa	+/- 10%	(most accurate flow control)
High Pressure 1	(N6)	140 – 1500 kPa	+/- 20%	(handles up to 1500 kPa)
High Pressure 2	(N7)	170 – 2000 kPa	+/- 20%	(handles up to 2000 kPa)
EPDM	(EP)	140 – 1500 kPa	+/- 20%	(handles up to 1500 kPa)
EPDM High Pressure 2	(E7)	170 – 2000 kPa	+/- 20%	(handles up to 2000 kPa)

See brochure for additional information on available; body sizes, thread configurations, materials and flow rates etc.

DETERMINING CORRECT GLANDWATER PRESSURE AND VALVE TYPE.

For reliable glandwater control, selecting the flow controller of the correct pressure differential range is vital, and should be determined in conjunction with calculating the correct glandwater pressure.

The pressure rating of the valve selected, must be sufficiently high to handle the gland water supply pressure, and the glandwater pressure must be high enough to provide for the minimum pressure differential (headloss) required across the flow controller. Occasionally, the existing glandwater pressure may need to be slightly increased to allow for the flow controller.

Firstly calculate what apparent minimum glandwater pressure will be required, by adding up the slurry pump discharge pressure, plus the recommended differential required across the gland. Then check that the flow controller will handle that glandwater pressure. If not, then it will be necessary to use a higher pressure rated valve. This may in turn, then require a small increase in glandwater pressure.

MINIMUM GLANDWATER PRESSURE REQUIRED,

This will be, the sum of the following three requirements;

- A, The maximum discharge pressure of the slurry pump, plus,
- B, An allowance of between 35 and 70 kPa., (say 50 kPa), to overcome restriction of the actual gland itself. This may vary from one gland to another. Always check this with the gland or pump manufacturer, plus,
- C, The minimum pressure differential required for the flow control valve, as per the chart above. See also “note C” below.

If pressure is set too low, the flow controller will have insufficient differential across it, and flow rate will be proportionally low. See brochure for how this affects a Precision type valve.

Note C,

(This pressure will be either; 140 kPa for a 1000 kPa rated “Precision” type valve, or 100 kPa for a 1500 kPa rated “Flow Control / Check Valve”, or 170 kPa for a 2000 kPa rated “Very High Pressure valve”, (High Pressure 2). The valve selected must ultimately handle the glandwater pressure, and if this necessitates going up one pressure differential range, then so be it. The minimum glandwater pressure may then need to be increased by 40 kPa to allow for the increased headloss across this valve. Occasionally problems arise when the normal operating pressure differential across the flow controller valve, is all that is considered when selecting a valve type, and the actual glandwater supply pressure is not considered. It is important to be aware that during the pumping installation start-up, and shut-down, the glandwater pump will most likely be running without the slurry pump operating, where inlet pressure to the flow controller will exist, without any "back pressure" from the slurry pump. Therefore, depending on the static pressure within the slurry pump, and the condition of its gland packing, the flow control valve may see virtually the full glandwater pressure, as the differential across it. It is therefore vital to ensure that the flow controller will handle the full glandwater pressure, as the differential across it.)

MAXIMUM GLANDWATER PRESSURE PERMISSIBLE,

As far as the flow controller is concerned, this may be as high as the maximum pressure quoted for the particular flow control valve selected.

(If the pressure is set too high, then the pressure differential across the Maric valve will be higher than its specification, and flow rate will reduce below rated. If differential is sufficiently high enough, it may cause the rubber control ring to blow right through the orifice, and be lost downstream, resulting in either, the valve body, having a relatively large diameter fixed orifice, and allowing a potentially very high and uncontrolled flow rate, or, the control rubber becoming lodged in a fitting downstream and blocking flow rate partially or completely.)

Gland-Water Flow Control

...continued

IDEAL GLANDWATER PRESSURE

Ideal glandwater pressure is generally best set to just above the required minimum glandwater pressure calculated earlier. This is because excessive pressure may result in damamge to certain gland packing types. Around 50 to 100 kPa higher may be considered appropriate to allow for system irregularities. This also ensures that the flow controller is not operating right on the extreme bottom limit of it's range.

EXAMPLES

The following examples show installation pressures typically encountered on site, in increasingly higher pressure scenarios, for the purpose of showing both;

A, How to calculate the pressure at which the glandwater supply must be set, and therefore;
B, Determining which type of flow control valve is required. (What pressure differential range).

Example 1 **Slurry pump pressure (maximum); 600 kPa.** **Gland requirement; 50 kPa.**

Due to relatively low pressures, lets first assume a "precision" valve may be suitable.
Minimum g/w pressure will be; 600 kPa for the slurry pump, +50 for the gland, + 140 for the Maric valve, totaling 790 kPa.
Maximum g/w pressure will be; the maximum pressure a Precision type valve will handle, which is 1000 kPa.
Ideal g/w pressure would be a little over 790 kPa. ***Conclusion; The Precision type valve is suitable.***
In this application, a Flow Control/CHECK VALVE, or a High Pressure 2 (HP2) valve, would also be suitable, provided glandwater pressure was set to the correct level.
For the FC/CHECK valve; between 750 & 1500 kPa (750 = 600 + 50 + 100) (1500 = max for FC/CHECK) Around 800 kPa would be ideal.
For the HP2 valve; between 820 & 2000 kPa. (820 = 600 + 50 + 170) (2000 = max for HP2) Around 870 kPa would be ideal.
Note however the latter two valves will offer inferior flow rate accuracy,(+/- 20%), and are slightly more expensive.

Example 2 **Slurry pump pressure (maximum); 1200 kPa** **Gland requirement; 50 kPa**

In this case a Precision valve will not be suitable, as 1200 exceeds the max DP for them.
An *FC/CHECK* valve will be suitable. Glandwater pressure must be set between 1350 & 1500 kPa.
1350 = 1200 + 50 + (100 for *FC/CHECK* valve). 1500 = maximum for *FC/CHECK* valve. Around 1400 would be ideal.
(Glandwater will need to be set fairly carefully) 1350 – 1500 doesn't leave much margin for error.
A HP2 valve would also be suitable provided glandwater was set to between 1420 – 2000 kPa (1420 = 1200 + 50 + 170) (2000 = max for VHP2)

Example 3 **Slurry pump pressure (maximum); 1400 kPa** **Gland requirement; 50 kPa**

In this case neither a Precision nor a FC/CHECK valve will be suitable, as the glandwater pressure will exceed 1500 kPa.
A HP2 valve is required here. Glandwater pressure must be set between 1620 & 2000 kPa. Around 1670 would be ideal.
1620 = 1400 + 50 + (170 for HP2 valve). 2000 = maximum for HP2 valve.

Example 4 **Slurry pump pressure (maximum); 1900 kPa** **Gland requirement; 50 kPa**

In this installation, flow control valves will not be suitable, as glandwater pressure would need to be at least 2120 kPa.
(1900 + 50 + 170) which is higher than the valve is designed to operate on.

MULTIPLE SLURRY PUMPS, PLUMBED IN SERIES

It is common for Maric valves to be used in installations where one glandwater pump supplies two or three slurry pumps connected in series for the purpose of boosting slurry pressure. There are two configuration options possible.

1, Use Precision valves on the lower pressure stages, with pressure reducing valves before the flow controller to protect it, and use appropriate higher pressure rated valves on the final stage or stages without pressure reducing valves.
Advantages; The use of Precision valves provides greater flow rate accuracy.
Disadvantages; Requires the purchase of additional pressure control valves.

2, Using valves of all the same pressure differential range.
Advantages; Simplicity. One valve type and specification used only.
Disadvantages; Inferior flow accuracy on the first stages, where Precision valves may have been able to be used.

DISCLAIMER. Whilst Maric Flow Control quote the conditions that the valves will accurately operate within, it is possible that individual on-site conditions may result in the valves not performing as expected. No responsibility shall be taken by Maric Flow Control for the subsequent failure of an installation as a result of relying solely on the information contained herein. It is therefore recommended that prior to commissioning, the pump or gland-packing manufacturer examine the installation and specifications of the flow control valve selected, for its suitability.

MARIC FLOW CONTROL AUSTRALIA

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Flow Control/Check Valves – Additional Information

Application

These valves were designed for automatically protecting glandwater installations, by limiting maximum flow rate (with backflow protection) to gland packings and mechanical seals, on slurry pumps etc. Refer to "Glandwater Flow Control" for correct set-up.

Features

The Maric "Flow Control / Check Valves" deliver a constant pre-set maximum flow rate through the valve irrespective of pressure or pressure fluctuations, upstream or downstream of the valve, over a wide range. In addition to this they also offer;

- Reliable Back-Flow prevention function
- High Temperature Handling
- High Pressure Handling and a
- Corrosion and Scale resistant assembly

1, Constant Flow Rate Function

Constant flow rate is achieved by means of a flexible control rubber ring whose orifice diameter responds instantaneously to fluctuations in pressure differential across it. Low pressure = large orifice, High pressure = smaller orifice, = constant flow.

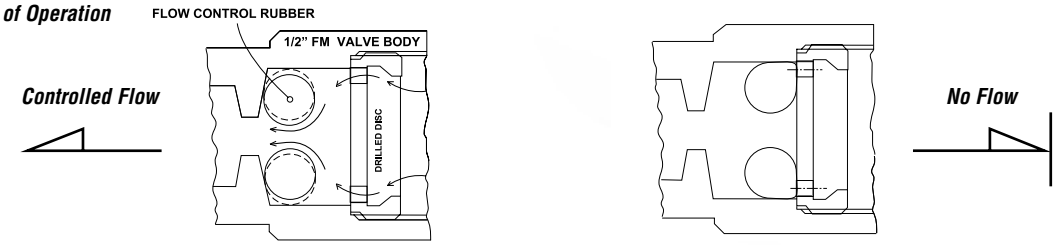
2, Non-Return Function

The non-return component is the new feature built into the conventional Maric flow control valves, and is designed to provide long-term reliable backflow prevention under adverse conditions.

Design

Obtaining reliable non-return valves for water prone to scale build-up can be difficult. The combination of scale build-up on sealing surfaces, and infrequent operation, can result in failure of the valve to operate when most needed.
The maintenance free design of the Maric valve uses the actual 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 is achieved whenever required, even after extended periods of no reverse pressure.

Principal of Operation



Normal operation

Passage of water to flow control rubber is enabled through drilled disc in front of control rubber. The orifice diameter of the control rubber responds Instantaneously to varying pressure differentials across the valve and ensures the same constant flow rate is maintained.

Reverse pressure

Control rubber is pushed up against perforated disc, and blocks the orifii, preventing backflow.

Model Availability

Models include 1/2" and 1" bsp screwed, and in flow rates from 0.4 up to 66 litres per minute.
Please refer to applicable specification data for more detail.

Inlet End View

Profile

Benefits

- A constant supply of gland or " packing " water to the gland, ensures that the life of expensive slurry pump bearings and seals are maximized.
- Ensures that the slurry will not be unnecessarily diluted.
- Prevents one slurry 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 connected to the same water supply.

The automatic flow control feature of the Maric valves is beneficial in this application, because the pressure within the glands of slurry pumps may fluctuate as a result of;

- Fluctuating slurry pump discharge pressures
- Fluctuating glandwater supply pressures
- Deteriorating / wearing condition of the gland

The variable orifice of the Maric valve responds automatically to these varying pressures and continues to provide the much needed constant flow of lubricating water so necessary for long life of the slurry pumps glands.

The new non-return feature of the valves ensures that in the event of failure of the gland-water supply, the potentially abrasive, corrosive or dangerous pumped liquids, will not feed back through the associated packing water lines, strainers and other valves and pumps which would cause extensive damage to much of the installation.

MARIC FLOW CONTROL AUSTRALIA

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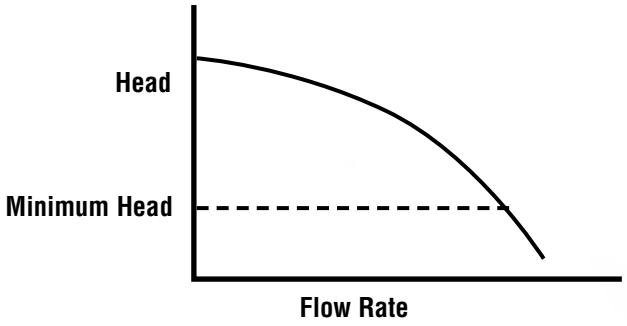
www.maric.com.au

Centrifugal Pump Protection using Maric Flow Controllers

Centrifugal pumps can suffer “upthrust” damage when allowed to operate below their minimum operating head, and deliver more than their designed maximum flow rate.

One tamper-resistant method of protecting the pump against this, is to place a correctly sized Maric flow controller at the bores’ headworks.

For a given pump, most vendor manuals show its characteristic curve. Flow rate and pump head should be maintained within manufacturers specifications for longevity of the pump.



Upthrust damage can occur on:

- ***Any bore,*** where people can unwittingly open up the bores’ gate valve in an attempt to increase flow rate.
- ***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 pipework at startup,*** I.e. lack of, or faulty check valve, or where lines on the surface may drain empty. It takes time to fill pipes sufficiently to obtain the required head.
- ***A burst in the pipework***.

Further protection provided by Maric flow controllers:

- Protection from over-pumping to the point of drawing in air or sand, leading to cavitation, unstable conditions and pump damage.

Maric Flow Controllers are:

- 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.

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Water Saving Calculations Sample
Using Maric Flow Controllers

(Dubai U.A.E. 2006)

Water Waste Occurs:

- When users are not concerned about waste or the high cost of water –e.g. "House Help", "Hotel Guests", "Children", etc.
- When two or more taps are simultaneously in use and one is closed down, flow rate in the one's that are open might increase, creating waste.
- When the water pressure in pipes is very high and the water tap would need to be adjusted to reach the desirable flow rate. In this adjustment period considerable amount of water could be wasted.

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

- **Bath Showers • Toilet Showers • Kitchens Sinks • Basins • Garden Irrigation**

The following calculations demonstrate how an average home can save Dhs. 1140.00 per year after installing Maric flow controllers to just the shower alone. The fitting of flow controllers to kitchen and bathroom basins, etc., will further increase savings.

Assumptions:

• Family size	4 people
• 4 x 10 minute showers per day	40 minutes
• Average water consumption in shower	15 litres per minute, x 40 = 600 litres, or 159 gallons of warm water
• Average ambient water temperature	25° C
• Average shower water temperature	40° C
• Cost of water & sewerage combined	1.0 U.S. gallon (3.785 litres) = Dhs. 0.0305
• Cost of electricity	Dhs. 0.2 per KiloWatt Hour
• 1 KiloWatt Hour (KWH) heats Avg. 100 litres	8.5° C
• Shower water heating required	For approximately half the year only.

Water Saving Calculations:

With a 7 lpm shower flow controller installed, 8 lpm will be saved, x 40 minutes = 320 litres per day. (84 gallons)
84 gallons x 365 days = 30,660 gallons per year saved. (117 Kilolitres)

30,660 gallons @ Dhs. 0.0305 per gallon = Dhs. 935.00 per year saved.

Electricity Saving Calculations:

Lift in temperature required =15°C

If Avg.	100 litres	heated	8.5°C	= Electric consumption of	1.0 KWH
>	57 litres	heated	15.0°C	= Electric consumption of	1.0 KWH
therefore	117000 litres	heated	15.0°C	= Electric consumption of	2050.0 KWH

Assuming water heaters are used for only half the year due to ambient temperature conditions in Dubai
= 2050.0 KWH ÷ 2 = 1025 KWH

1025 KWH x Dhs. 0.2 per KWH = Dhs. 205.00 per year saved.

Total Annual Savings:

Savings per year Water	Dhs. 935.00
Savings per year Electricity	Dhs. 205.00
	Dhs.1140.00 (total annual savings per hotel room or family home in the shower only).

Installing Maric Valves in the kitchen, bathroom basins, and toilet showers will demonstrate considerable savings in payment of utility bills and contribute to saving our environment.