Raphael

TALIS

YOUR CHOICE IN WATERFLOW CONTROL

RAF

RAF Irrigation Catalog

Vision Statement

Raphael Valves Industries a TALIS Group, will become the Number 1 Global supplier Of delivery valves for the irrigation, supplying superior products and customer service, in a market driven by growth in irrigation worldwide.

We will provide value to our customers through superior Quality Valves, Customer service, Including, Application support, Responsiveness Delivery, Time and Reliability.

The key to our future success will be our commitment to TALIS Group values of:

Integrity, Excelence, Teamwork and Accountability

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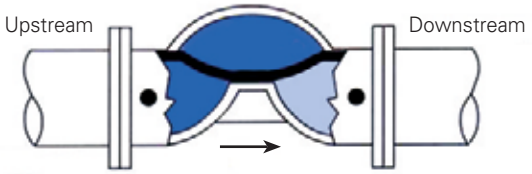
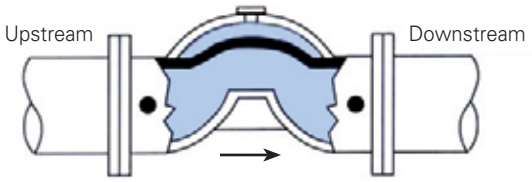
Basic RAF Valve
General Information

Valves are used for general water supply and irrigation. The valves are made of only three parts, each one is made of durable materials.
The inner flow passages are streamlined and coated with low-friction materials.
This provides quiet flow in both directions, low head-loss and minimal wear.

valves operate with a patented reinforced diaphragm, which eliminates the need for a retaining metal spring.
The special elastic design enables gradual and precise opening or closing of the valve.
By eliminating the metal spring, the RAF is virtually maintenance free.



Normally Close (N.C) valve

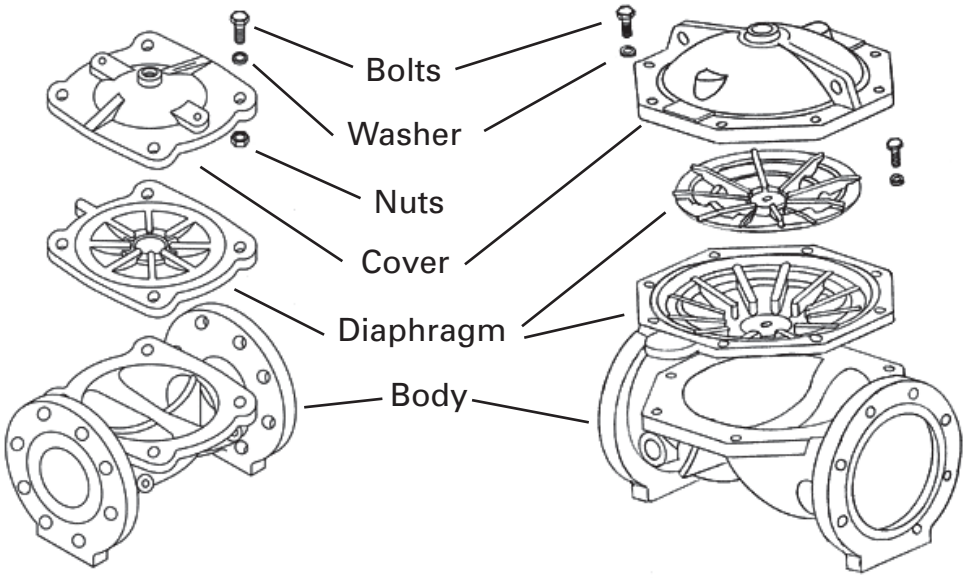


Normally Open (N.O) valve

Kv = Valve flow coefficient [m^3/h]; [bar]
Cv = Valve flow coefficient [gpm]; [psi]
Q = Flow rate,[m^3/h]; [gpm]
ΔP = Head loss across the valve [bar]; [psi]
Cv = 1.16 Kv

$$Q = Kv\sqrt{\Delta P}$$

Exploaded View



25[mm] - 150 [mm]

200[mm] - 350 [mm]

Standard Materials

- **Body** - Cast Iron
- **Cover** - Cast Iron
- **Diaphragm** - Natural Rubber
- **Nuts** - Plated Steel
- **Washer** - Plated Steel
- **Bolts** - Plated Steel
- **Coating** - Rilsan

Optional Materials

- **Body** - Ductile Iron
  - Bronze
  - Stainless Steel
- **Cover** - Ductile Iron
  - Bronze
  - Stainless Steel
- **Diaphragm zinc** - EPDM
  - Nitrile
- **Nuts** - Stainless Steel
- **Washer** - Stainless Steel
- **Bolts** - Stainless Steel
- **Coating** - Epoxy Powder

  Internal - Enamel

*Other Materials on request

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RAF Series PN-10

RAF 31

Electric Control Valve (N.C)
3-W Plastic Solenoid

Pressure rating PN-10

Nominal Diameter 1"-6D"

The **RAF 31** electric valve is a Normally Closed (N.C) line pressure hydraulically actuated.
The 3-W solenoid valve changes positions:

The **RAF 31** (N.C) valve opens when 3-W plastic solenoid valve is energized.
The **RAF 31** (N.C) shuts off when 3-W plastic solenoid valve is de-energized.

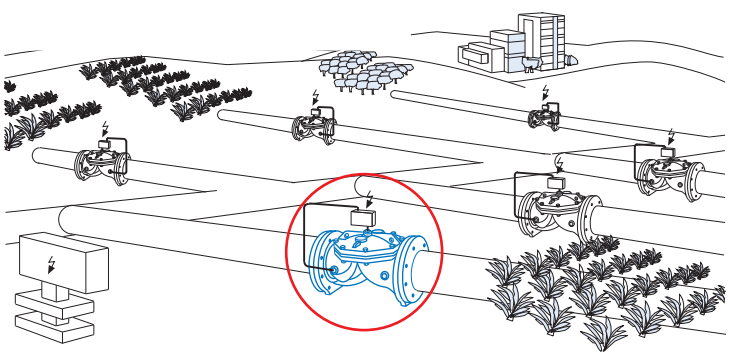
The 3-W electric solenoid valve configuration together with Raphael's patented diaphragm enables smooth opening and surge free shut off.

Typical Applications

Use **RAF 31** for water supply systems with medium pressure rating.
Use **RAF 31** for remote operation of hydraulic valve by an electric command.
Use **RAF 31** for irrigation water distribution and field control.

Standard Controls

RAF 31 electric valve controls with Raphael's 3-W solenoid, activated by any voltage, polyethylene plastic tubing and brass fittings.

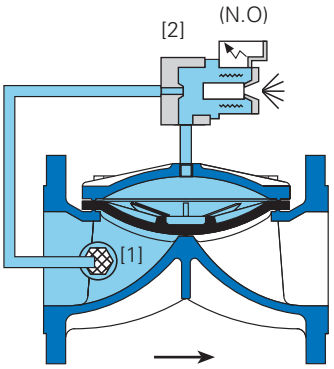


Features

- Basic RAF valve Rilsan coated
- Self-cleaning screen filter
- 3-W (N.O) plastic solenoid
- Polyethylene plastic tubing
- Power source - 24V (AC) 50/60 Hz

Optional Features

- Enamel internal coating
- Large capacity external filter
- 2-W (N.O) plastic solenoid
- Power source - 110V, 220V (AC) & 9V, 12V, 24V (DC)



RAF-31 3-W Electric Plastic Control Valve (N.C)

Part list

[1] Self-cleaning screen filter

[2] 3-W (N.O) plastic solenoid

Recommended Flow

Nominal Diameter		Flow Rate
[mm]	[Inch]	[m³/h]
25	1	20
40	1.5	25
50	2	45
65	2.5	60
80-50-80	3-2-3	50
80D	3D	70
80	3	90
100D	4D	90
100	4	150
125D	5D	150
150D	6D	150

Nominal diameter only, for full dimensions please refer to engineering bulletin.

RAF 33

Electric Control Valve (N.O)
3-W Plastic Solenoid

Pressure rating PN-10
Nominal Diameter 1"-6D"

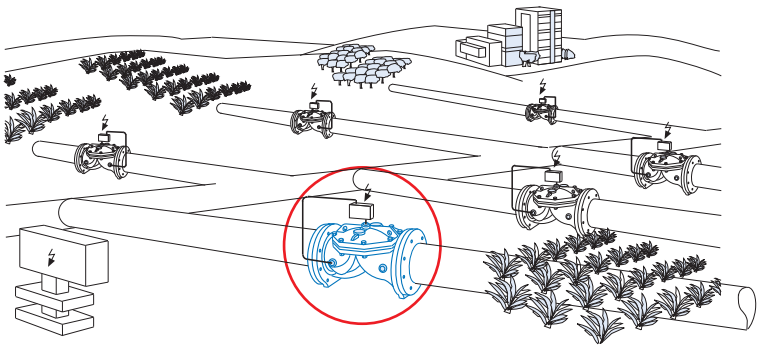
The **RAF 33** electric valve is a Normally Open (N.O) line pressure hydraulically actuated.
The 3-W solenoid valve changes positions:
The **RAF 33** (N.O) valve opens when 3-W electric solenoid valve is de-energized.
The **RAF 33** (N.O) valve shuts off when 3-W electric plastic solenoid valve is energized.
The 3-W electric solenoid valve configuration together with Raphael's patented diaphragm enables smooth opening and surge free shut off.

Typical Applications

Use **RAF 33** for water supply systems with medium pressure rating.
Use **RAF 33** for remote operation of hydraulic valve by an electric command.
Use **RAF 33** for irrigation water distribution and field control.

Standard Controls

RAF 33 electric valve controls with Raphael's 3-W solenoid activated by any voltage, polyethylene plastic tubing and brass fittings.

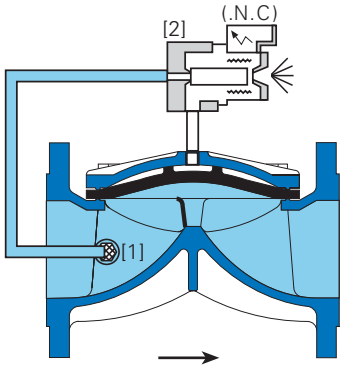


Features

- Basic RAF valve Rislan coated
- Self-cleaning screen filter
- 3-W (N.C) plastic solenoid
- Polyethylene plastic tubing
- Power source - 24V (AC) 50/60Hz

Optional Features

- Enamel internal coating
- Positioning indicator
- Large capacity external filter
- 2-W (N.C) plastic solenoid
- Power source - 110V, 220V (AC) & 9V, 12V, 24V (DC)



RAF-33 3-W Electric Plastic Control Valve (N.O)

Part list

[1] Self-cleaning screen filter

[2] 3-W (N.C) plastic solenoid

Recommended Flow

Nominal Diameter		Flow Rate
[mm]	[Inch]	[m³/h]
25	1	20
40	1.5	25
50	2	45
65	2.5	60
80-50-80	3-2-3	50
80D	3D	70
80	3	90
100D	4D	90
100	4	150
125D	5D	150
150D	6D	150

Nominal diameter only, for full dimensions please refer to engineering bulletin.

RAF OG3

Hydraulic Remote Control Valve
3-W Galit Solenoid

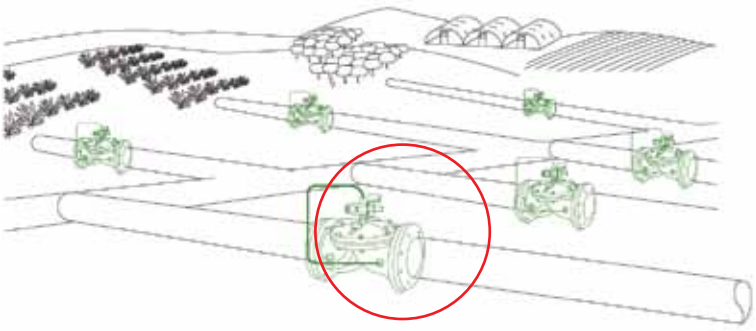
Pressure rating PN-10

Nominal Diameter 1"-6D"

The **RAF OG3** is a hydraulic valve operated by line pressure. The valve is a 3-W On/Off control valve that can be commanded from a remote location, by a hydraulic control relay - (Galit).
The **RAF OG3** can be configured to perform as a Normally Open (N.O) or as a Normally Close (N.C) valve. The valve is fully open when the control chamber is disconnected from line pressure and vented into the atmosphere. The 3-W Galit configuration with Raphael's patented diaphragm enables smooth and precise downstream pressure control.

Typical Applications

Use **RAF OG3** for water supply systems with medium pressure rating. This remote operation control is required for most irrigation devices and irrigation water distribution for field control, in situations where the opening and closing control unit is installed in a central location and connected with the field valves by control tubing.
Hydraulic remote control valves are used in locations with lightening hazard that damages electric control valves with unprotected solenoid installations.



Standard Controls

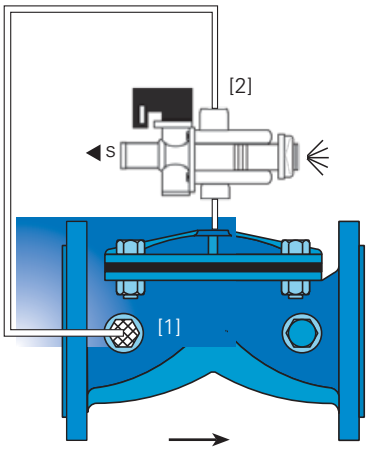
RAF OG3 controls with Raphael's 3-W Galit, polyethylene plastic tubing and brass fittings.

Features

- Basic RAF valve Rilsan coated
- Self-cleaning screen filter
- 3-W Galit solenoid
- Polyethylene plastic tubing

Optional Features

- Enamel internal coating
- Large capacity external filter



RAF-OG3 3-W Hydraulic Remote Control Valve

Part list

[1] Self-cleaning screen filter
[2] 3-W Galit solenoid

Recommended Flow

Nominal Diameter		Flow Rate
[mm]	[Inch]	[m³/h]
25	1	20
40	1.5	25
50	2	45
65	2.5	60
80-50-80	3-2-3	50
80D	3D	70
80	3	90
100D	4D	90
100	4	150
125D	5D	150
150D	6D	150

Nominal diameter only, for full dimensions please refer to engineering bulletin.

RAF 63

Pressure Reducing Control Valve 3-W Plastic Pilot

Pressure rating PN-10

Nominal Diameter 1"-6D"

The **RAF 63** pressure reducing valve is line pressure hydraulically actuated, 3-W plastic pilot. The **RAF 63** maintains a constant downstream pressure, as set on the 3-W plastic pilot, regardless of flow changes.
The 3-W plastic pilot configuration together with Raphael's patented diaphragm enables smooth and precise downstream pressure control.

Typical Applications

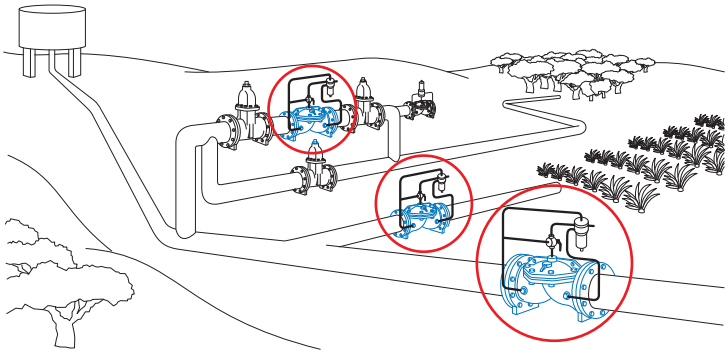
The **RAF 63** is best for irrigation, water treatment circulation and filtration network.
The 3-W plastic pilot has a simple design that provides high corrosion resistance and cost effective prices.

Standard Controls

RAF 63 pressure reducing valve controls with Raphael's 3-W plastic pilot, polyethylene plastic tubing and plastic fittings.

Adjustments

Downstream pressure adjustment up to 7 bars.
For pressure setting by pilot screw adjustment, please refer to available springs list.

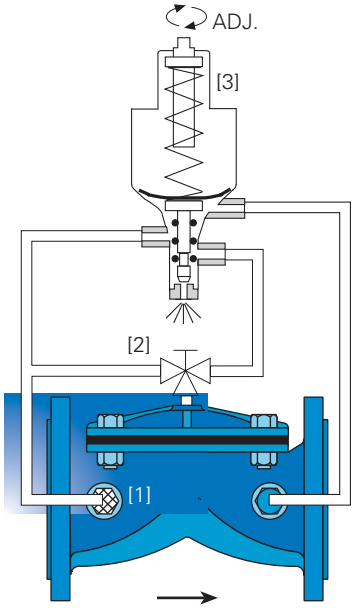


Features

- Basic RAF valve Rilsan coated
- Self-cleaning screen filter
- 3-W plastic pilot PC
- 3-W selecting cock valve
- Polyethylene plastic tubing
- Pressure check point

Optional Features

- Enamel internal coating
- Large capacity external filter
- Glycerin filled pressure gauge



RAF 63 3-W Pressure Reducing Control Valve

Part list

[1] Self-cleaning screen filter
[2] 3-W valve
[3] 3-W plastic pilot PC

Recommended Flow

Nominal Diameter		Flow Rate [m³/h]	
[mm]	[Inch]	Min	Max
25	1	3	20
40	1.5	3	25
50	2	5	45
65	2.5	7	60
80-50-80	3-2-3	7	50
80D	3D	7	70
80	3	7	90
100D	4D	15	90
100	4	15	150
125D	5D	15	150
150D	6D	15	150

Nominal diameter only, for full dimensions please refer to engineering bulletin.

Spring Selection [bar]

Plastic pilot PC

Grey Default	Green	Blue
2.5-7	1-2.5	0.5-1.5

RAF 63-31

Pressure Reducing Control Valve
3-W Electric Plastic Pilot

Pressure rating PN-10

Nominal Diameter 1"-6D"

The **RAF 63-31** is a Normally Closed (N.C) pressure reducing valve.
The **RAF 63-31** is an electric On/Off valve, controlled by a 3-W plastic solenoid valve. When the solenoid is energized the valve opens and performs as a pressure reducing valve, maintaining the preset pressure constant regardless of flow-rate or upstream pressure fluctuations.
The 3-W plastic pilot has a spring loaded membrane, a downstream sensitive and can be preset to a desirable downstream pressure.
The 3-W plastic pilot and plastic solenoid together with Raphael's patented diaphragm enables smooth and precise control.

Typical Applications

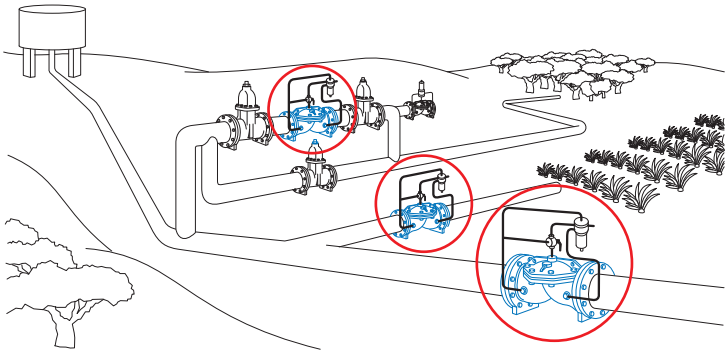
Use **RAF 63-31** for irrigation water distribution and field control. When downstream pressure should be reduced the valve is commanded to open.

Standard Controls

RAF 63-31 electric On/Off valve controls with Raphael's 3-W plastic pilot, polyethylene plastic tubing and plastic fittings.

Adjustments

Downstream pressure adjustment up to 7 bars. For pressure setting by pilot adjustment screw, please refer to available spring list.

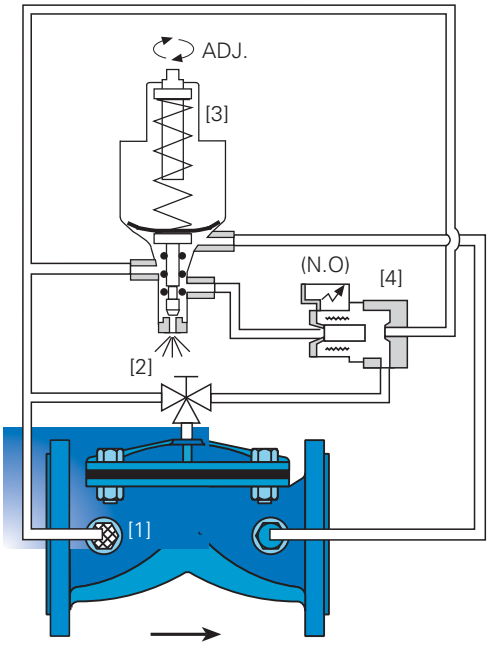


Features

- Basic RAF valve Rilsan coated
- Self-cleaning screen filter
- 3-W plastic pilot PC
- 3-W (N.O) plastic solenoid
- 3-W selecting cock valve
- Polyethylene plastic tubing
- Pressure check point
- Power source 24V (AC) 50/60Hz

Optional Features

- Enamel internal coating
- Large capacity external filter
- Glycerin filled pressure gauge
- Power source - 110V, 220V (AC) & 9V, 12V, 24V (DC)



RAF 63-31 3-W Pressure Reducing Control Valve

Part list

[1] Self-cleaning screen filter
[2] 3-W valve
[3] 3-W plastic pilot PC
[4] 3-W (N.O) plastic solenoid

Recommended Flow

Nominal Diameter		Flow Rate
[mm]	[Inch]	[m³/h]
40	1.5	25
40	1.5	25
50	2	45
65	2.5	60
80-50-80	3-2-3	50
80D	3D	70
80	3	90
100D	4D	90
100	4	150
125D	5D	150
150D	6D	150

Nominal diameter only, for full dimensions please refer to engineering bulletin.

Spring Selection [bar]

Plastic pilot PC

Grey Default	Green	Blue
2.5-7	1-2.5	0.5-1.5

RAF 683

Pressure Reducing & Sustaining 3-W Plastic Pilot Control Valve

Pressure rating PN-10

Nominal Diameter 1"-6D"

The **RAF 683** pressure reducing & sustaining valve is line pressure hydraulically actuated, 3-W plastic pilot.
The **RAF 683** maintains a minimum upstream pressure, as set on the 3-W pressure sustaining plastic pilot and a maximum downstream as set on the 3-W pressure reducing plastic pilot.
The minimum upstream and the maximum downstream pressure are maintained regardless of flow changes.
The 3-W pilot configuration together with Raphael's patented diaphragm enables smooth and precise pressure control.

Typical Applications

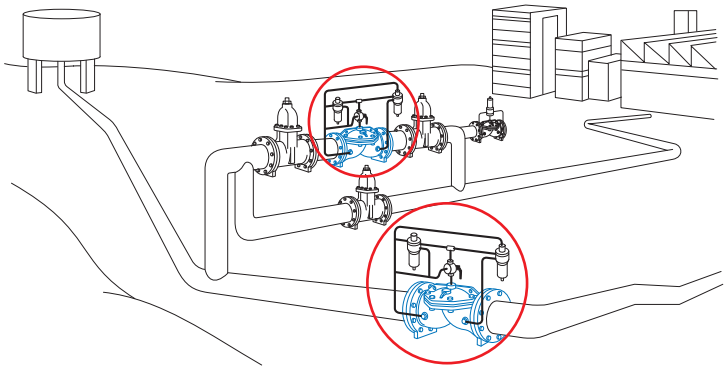
Use **RAF 683** to define two pressure zones along a supply line.
The **RAF 683** is best for irrigation water network.

Standard Controls

RAF 683 pressure reducing & sustaining valve controls with Raphael's plastic 3-W pilots, polyethylene plastic tubing and plastic fittings.

Adjustments

Minimum upstream and maximum downstream pressure adjustment up to 7 bars.
For pressure setting by pilot screw adjustment, please refer to available springs list.

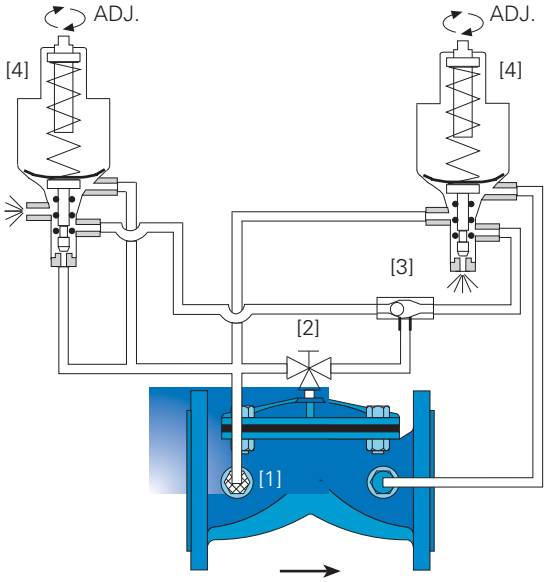


Features

- Basic RAF valve Rilsan coated
- Self-cleaning screen filter
- 3-W plastic pilot PC (configured as sustaining)
- 3-W plastic pilot PC (configured as reducing)
- 3-W selecting cock valve
- Polyethylene plastic tubing
- Pressure check point

Optional Features

- Enamel internal coating
- Large capacity external filter
- Glycerin filled pressure gauge



RAF 683 3-W Pressure Reducing & Sustaining Control Valve

Part list

[1] Self-cleaning screen filter
[2] 3-W valve
[3] Shuttle valve
[4] 3-W plastic pilot PC

Recommended Flow

Nominal Diameter		Flow Rate
[mm]	[Inch]	[m³/h]
25	1	20
40	1.5	25
50	2	45
65	2.5	60
80-50-80	3-2-3	50
80D	3D	70
80	3	90
100D	4D	90
100	4	150
125D	5D	150
150D	6D	150

Nominal diameter only, for full dimensions please refer to engineering bulletin.

Spring Selection [bar]

Plastic pilot PC

Grey Default	Green	Blue
2.5-7	1-2.5	0.5-1.5

RAF 83

Pressure Sustaining Control Valve 3-W Plastic Pilot

Pressure rating PN-10

Nominal Diameter 1"-6D"

The **RAF 83** pressure sustaining control valve is line pressure hydraulically actuated, 3-W plastic pilot.
The **RAF 83** pressure sustaining control valve maintains a minimum upstream pressure, as set on the 3-W pressure sustaining plastic pilot, regardless of flow changes.
The **RAF 83** will fully open should upstream pressure exceed 3-W pilot set pressure.
The 3-W pilot configuration together with Raphael's patented diaphragm enables smooth and precise upstream pressure control.

Typical Applications

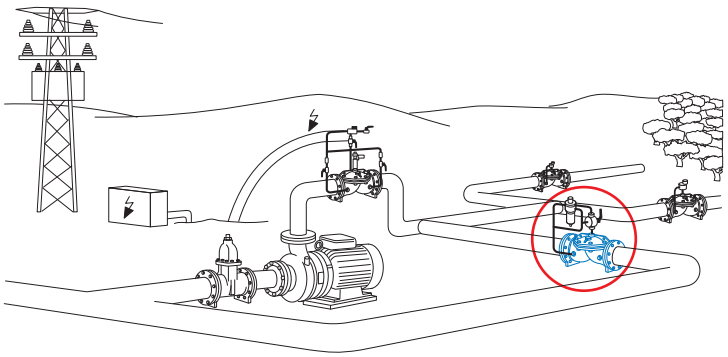
Use the valve to maintain a constante upstream pressure and to avoid an undesirable high pressure.
The **RAF 83** is best for agricultural and water supply.

Standard Controls

RAF 83 pressure sustaining valve controls with Raphael's 3-W pressure sustaining plastic pilot, polyethylene plastic tubing and plastic fittings.

Adjustments

Minimum upstream pressure adjustment up to 7 bars.
For pressure setting by pilot screw adjustment, please refer to available springs list.

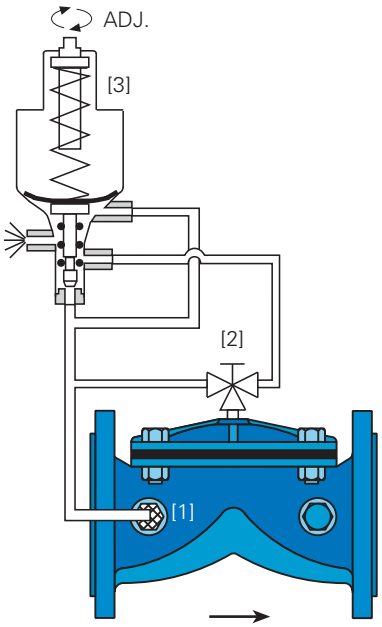


Features

- Basic RAF valve Rilsan coated
- Self-cleaning screen filter
- 3-W plastic pilot PC
- Polyethylene plastic tubing
- 3-W selecting cock valve
- Pressure check point

Optional Features

- Enamel internal coating
- Large capacity external filter
- Glycerin filled pressure gauge



RAF 83 3-W Pressure Reducing Control Valve

Part list

[1] Self-cleaning screen filter
[2] 3-W valve
[3] 3-W plastic pilot PC

Recommended Flow

Nominal Diameter		Flow Rate
[mm]	[Inch]	[m³/h]
25	1	20
40	1.5	25
50	2	45
65	2.5	70
80-50-80	3-2-3	50
80D	3D	70
80	3	90
100D	4D	90
100	4	150
125D	5D	150
150D	6D	150

Nominal diameter only, for full dimensions please refer to engineering bulletin.

Spring Selection [bar]

Plastic pilot PC

Grey Default	Green	Blue
2.5-7	1-2.5	0.5-1.5

RAF 73

Flow Rate Control Valve
3-W Plastic Pilot

Pressure rating PN-10

Nominal Diameter 1"-6D"

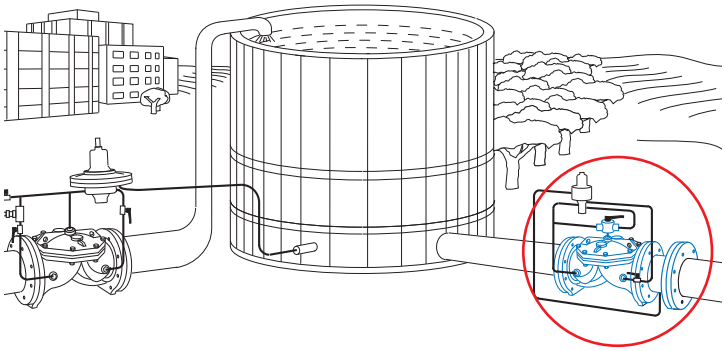
The **RAF 73** flow rate control valve is line pressure hydraulically actuated, 3-W plastic pilot. Normally the valve is partly open to allow constante flow rate. The head loss across the orifice is proportional to the flow rate.
The **RAF 73** maintains a maximum preset flow rate, as set on the 3-W flow rate pilot, and calibrated orifice regardless of pressure changes.
The 3-W pilot configuration together with Raphael's patented diaphragm enables smooth and precise flow rate control.

Typical Applications

Use **RAF 73** for irrigation water distribution and field control.
Use **RAF 73** to eliminate excessive pumping or to limit the water demand.
The **RAF 73** is a cost effective option for low pressure agricultural supply.

Standard Controls

RAF 73 flow rate valve controls with Raphael's 3-W plastic flow rate pilot, polyethylene plastic tubing and plastic fittings.

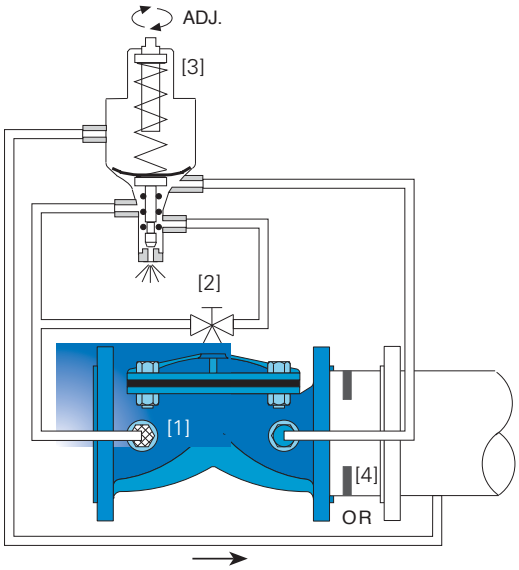


Features

- Basic RAF valve Rilsan coated
- Self-cleaning screen filter
- 3-W plastic pilot FC
- Polyethylene plastic tubing
- 3-W selecting cock valve
- Orifice plate

Optional Features

- Enamel internal coating
- Large capacity external filter
- 3-W metal pilot P-103



RAF 73 3-W Flow Rate Control Valve

part list

[1] Self-cleaning screen filter
[2] 3-W valve
[3] 3-W plastic pilot FC
[4] Orifice plate

Recommended Flow

Nominal Diameter		Flow Rate
[mm]	[Inch]	[m³/h]
25	1	20
40	1.5	25
50	2	45
65	2.5	70
80-50-80	3-2-3	50
80D	3D	70
80	3	90
100D	4D	90
100	4	150
125D	5D	150
150D	6D	150

Nominal diameter only, for full dimensions please refer to engineering bulletin.

RAF 93

Anti- Burst Control Valve
3-W Plastic Pilot

Pressure rating PN-10

Nominal Diameter 1"-6D"

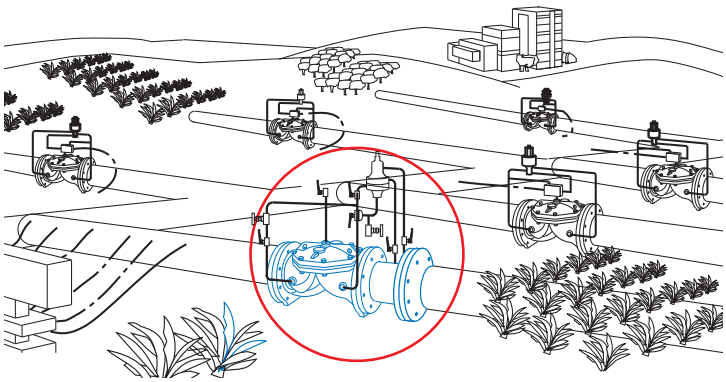
The **RAF 93** anti-burst control valve is line pressure hydraulically actuated, 3-W plastic pilot.
Normally, the valve is open. Only in case of flow rate higher than a preset maximum, due to a burst or excessive demand downstream, the **RAF 93** is automatically closed down and can reopen manually.
The **RAF 93** closes automatically whenever the upstream pressure drops below a preset point.
The **RAF 93** features a plastic pilot valve and hydraulic relay to ensure precise and reliable response in general use.

Typical Applications

Use **RAF 93** with an all-plastic pilot for use in agricultural applications, features a cost effective, simple and reliable command loop.
Use **RAF 93** to eliminate water loss and damage due to piping burst.
The valve is best in networks susceptible to burst due to vandalism or pressure surge.

Standard Controls

RAF 93 anti-burst control valve controls with Raphael's 3-W plastic pilot, polyethylene plastic tubing and plastic fittings.

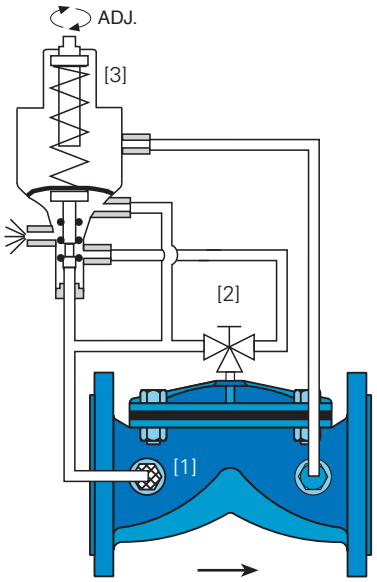


Features

- Basic RAF valve Rilsan coated
- Self-cleaning screen filter
- 3-W plastic pilot FC
- 3-W selecting cock valve
- Polyethylene plastic tubing

Optional Features

- Enamel internal coating
- Large capacity external filter
- 3-W metal pilot p-103



RAF 93 3-W Anti Burst Control Valve

part list

[1] Self-cleaning screen filter
[2] 3-W valve
[3] 3-W plastic pilot

Recommended Flow

Nominal Diameter		Flow Rate
[mm]	[Inch]	[m³/h]
25	1	20
40	1.5	25
50	2	45
65	2.5	70
80-50-80	3-2-3	50
80D	3D	70
80	3	90
100D	4D	90
100	4	150
125D	5D	150
150D	6D	150

Nominal diameter only, for full dimensions please refer to engineering bulletin.

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RAF Series PN-16

RAF 31

Electric Control Valve (N.C)
3-W Metal Solenoid

Pressure rating PN-16
Nominal Diameter 1"-14"

The **RAF 31** electric valve is a Normally Closed (N.C) line pressure hydraulically actuated.
The 3-W electric solenoid valve changes positions:

The **RAF 31** (N.C) opens when 3-W solenoid valve is energized.
The **RAF 31** (N.C) shuts off when 3-W solenoid valve is de-energized.

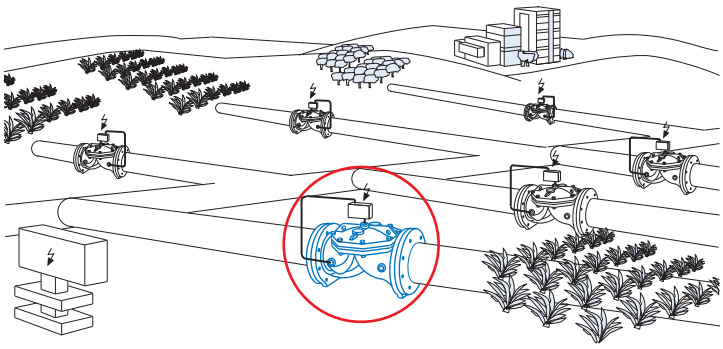
The 3-W electric solenoid valve configuration together with Raphael's patented diaphragm enables smooth opening and surge free shut-off.

Typical Applications

Use **RAF 31** for water supply systems with medium pressure rating.
Use **RAF 31** for remote operation of hydraulic valve by an electric command.
Use **RAF 31** for irrigation water distribution and field control.

Standard Controls

RAF 31 electric valve controls with Raphael's 3-W solenoid, activated by any voltage, reinforced plastic tubing and brass fittings.

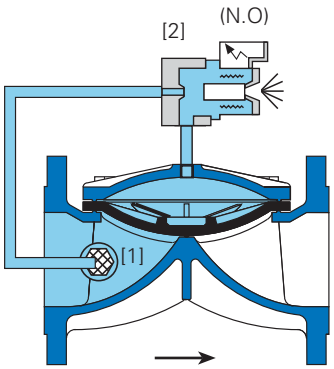


Features

- Basic RAF valve Rilsan coated
- Self-cleaning screen filter
- 3-W (N.O) metal solenoid
- Reinforced plastic tubing
- Power source - 24V (AC) 50/60Hz

Optional Features

- Enamel internal coating
- Large capacity external filter
- 2-W (N.O) metal solenoid
- Copper and stainless steel tubing
- Power source - 110V, 220V (AC) & 9V, 12V, 24V (DC)



RAF 31 3-W Electric Metal Solenoid Control Valve (N.C)

Part list

[1] Self-cleaning screen filter

[2] 3-W (N.O) metal solenoid

Recommended Flow

Nominal Diameter		Flow Rate
[mm]	[Inch]	[m^3/h]
25	1	20
40	1.5	25
50	2	45
65	2.5	60
80-50-80	3-2-3	50
80D	3D	70
80	3	90
100D	4D	90
100	4	150
125D	5D	150
150D	6D	150
150	6	320
200	8	550
250	10	950
300	12	1200
350	14	1200

Nominal diameter only, for full dimensions please refer to engineering bulletin.

RAF 33

Electric Control Valve (N.O)
3-W Metal Solenoid

Pressure rating PN-16
Nominal Diameter 1"-14"

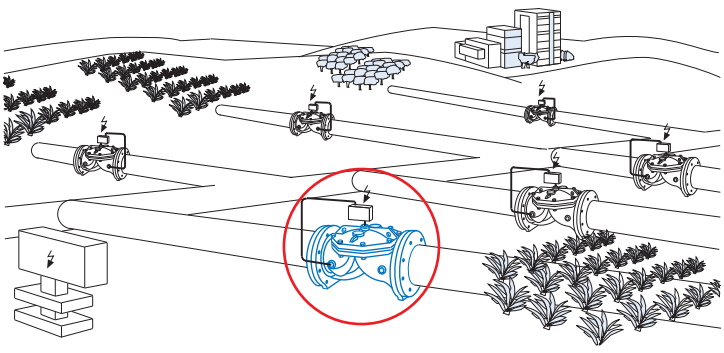
The **RAF 33** electric valve is a Normally Open (N.O) line pressure hydraulically actuated.
The 3-W electric solenoid valve changes positions:
The **RAF 33** (N.O) opens when the 3-W solenoid valve is de-energized.
The **RAF 33** (N.O) shuts-off when 3-W solenoid valve is energized.
The 3-W electric solenoid valve configuration together with Raphael's patented diaphragm enables smooth opening and surge free shut-off.

Typical Applications

Use **RAF 33** for water supply systems with medium pressure rating.
Use **RAF 33** for remote operation of hydraulic valve by an electric command.
Use **RAF 33** for irrigation water distribution and field control.

Standard Controls

RAF 33 electric valve controls with Raphael's 3-W solenoid, activated by any voltage, reinforced plastic tubing and brass fittings.

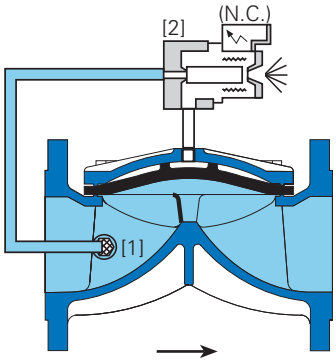


Features

- Basic RAF valve Rilsan coated
- Self-cleaning screen filter
- 3-W (N.C) metal solenoid
- Reinforced plastic tubing
- Power source - 24V (AC) 50/60Hz

Optional Features

- Enamel internal coating
- Large capacity external filter
- 2-W (N.C) metal solenoid
- Copper and stainless steel tubing
- Power source - 110V, 220V (AC) & 9V, 12V, 24V (DC)



RAF 33 3-W Electric Metal Solenoid Control Valve (N.O)

Part list

[1] Self-cleaning screen filter
[2] 3-W (N.C) metal solenoid

Recommended Flow

Nominal Diameter		Flow Rate
[mm]	[Inch]	[m^3/h]
25	1	20
40	1.5	25
50	2	45
65	2.5	60
80-50-80	3-2-3	50
80D	3D	70
80	3	90
100D	4D	90
100	4	150
125D	5D	150
150D	6D	150
150	6	320
200	8	550
250	10	950
300	12	1200
350	14	1200

Nominal diameter only, for full dimensions please refer to engineering bulletin.

RAF 10
Float Level Control Valve
2-W Float Pilot

Pressure rating PN- 16
Nominal Diameter 1"-14"

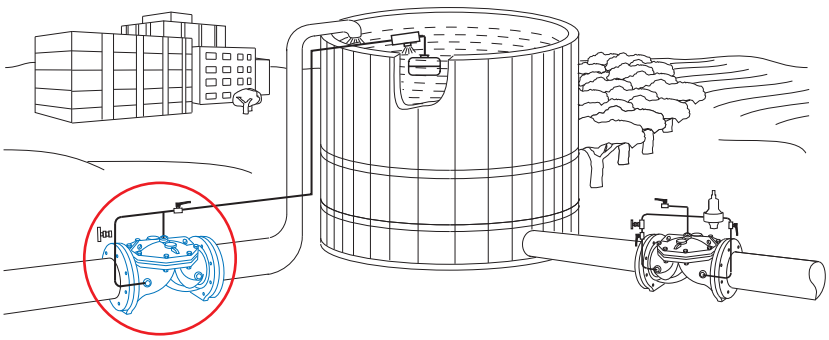
The **RAF 10** float level control valve is activated by line pressure in any situation that maximum water level should be maintained.
The **RAF 10** stays open as long as the water level in the reservoir is below the maximum preset level. As the water level rises and lifts the float, the valve gradually closes.
When the water level is low, the control chamber of the valve is drained through the vent, the valve opens and the reservoir is being filled.

Typical Applications

The **RAF 10** is best fit in remote sites.
The **RAF 10** is used to maintain a maximum preset water level in a reservoir or water tank in a simple and an economic manner.
The **RAF 10** can be located above the water level.
Due to its simple design,it is virtually maintenance free.
There is no need for energy other than line pressure.

Standard Controls

RAF 10 float level control valve controls with Raphael's 2-W float pilot.
The pilot vent is opened or closed according to the float level.

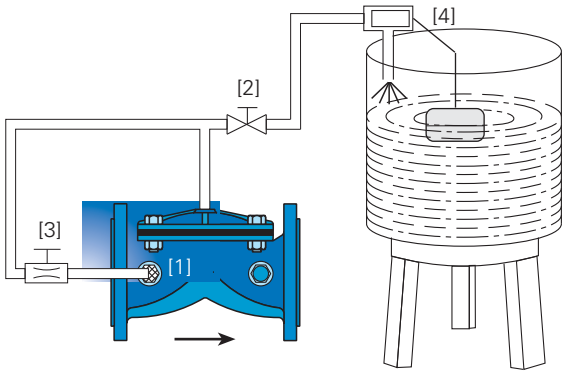


Features

- Basic RAF valve Rilsan coated
- Self cleaning screen filter
- 2-W brass pilot P-10
- Brass float arm
- Stainless steel float
- 2-W selecting cock valve
- Needle valve
- Reinforced plastic tubing

Optional Features

- Enamel internal coating
- Large capacity external filter
- Stainless steel pilot P-10
- Copper and stainless Steel tubing



RAF 10 2-W Float Level Control Valve

Part list

[1] Self-cleaning screen filter
[2] Cock valve
[3] Needle valve
[4] Float pilot assembly

Recommended Flow

Nominal Diameter		Flow Rate [m³/h]	
[mm]	[Inch]	Min	Max
25	1	3	22
40	1.5	3	25
50	2	5	45
65	2.5	5	70
80-50-80	3-2-3	5	50
80D	3D	5	70
80	3	5	90
100D	4D	5	90
100	4	10	150
125D	5D	10	150
150D	6D	10	150
150	6	15	320
200	8	40	550
250	10	80	950
300	12	100	1200
350	14	100	1200

Nominal diameter only, for full dimensions please refer to engineering bulletin.

RAF 13

Bi-Level Float Control Valve
3-W Float Pilot

Pressure rating PN- 16

Nominal Diameter 1"-14"

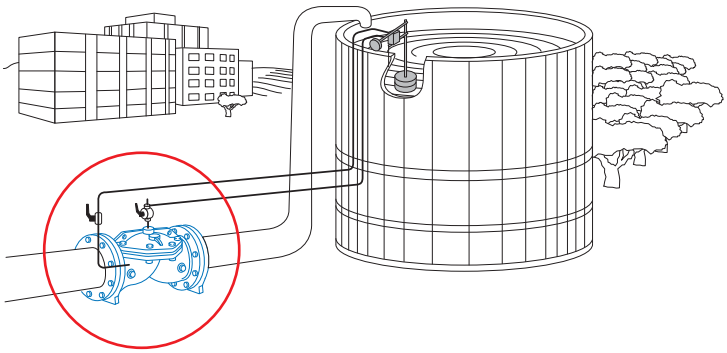
The **RAF 13** is activated by line pressure and controls by a float pilot.
The valve will open at a low preset water level and will close at a high preset water level. Therefore, there is no need for energy other than line pressure.
The **RAF 13** allows filling and draining of a reservoir or a water tank in a level range that can be easily changed.
The **RAF 13** stays in its last position (fully open or fully close) as long as the water level is in between minimum and maximum preset levels.

Typical Applications

Use **RAF 13** to control filling of reservoirs and water tanks, in any situation that water level is controlled.
The **RAF 13** is best fit where On/Off non-modulating valve operation is essential.
Due to its simple design,it is virtually maintenance free.

Standard Controls

RAF 13 float level control valve controls with Raphael's 3-W float pilot.
The vertical water level changes are conveyed to the float.

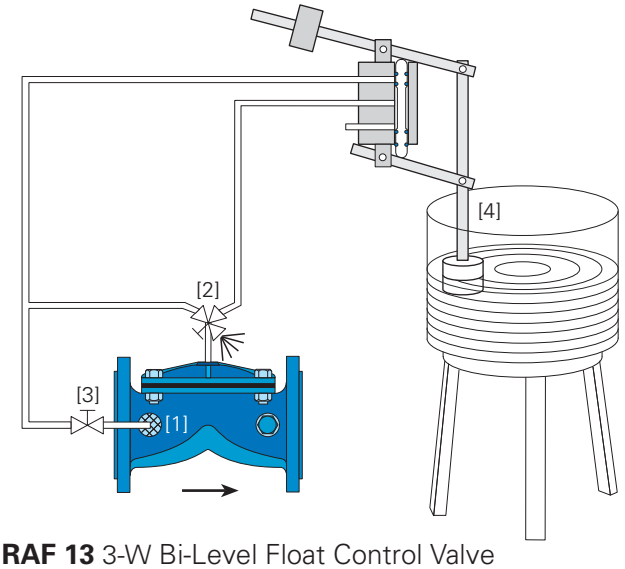


Features

- Basic RAF valve Rilsan coated
- Self cleaning screen filter
- 3-W float pilot
- Stainless steel float
- Stainless steel float rod (standard 1m)
- 3-W selecting cock valve
- Reinforced plastic tubing

Optional Features

- Enamel internal coating
- Large capacity external filter
- Stainless steel 3-W float pilot
- Stainless steel rod extension
- Copper and stainless steel tubing



RAF 13 3-W Bi-Level Float Control Valve

Part list

[1] Self-cleaning screen filter
[2] 3-W valve
[3] Cock valve
[4] 3-W float pilot assembly

Recommended Flow

Nominal Diameter		Flow Rate Max [m³/h]	
[mm]	[Inch]	Normal	Intermittent
25	1	20	28
40	1.5	25	35
50	2	45	60
65	2.5	60	80
80-50-80	3-2-3	50	60
80D	3D	70	100
80	3	90	120
100D	4D	90	120
100	4	150	180
125D	5D	150	200
150D	6D	150	200
150	6	320	400
200	8	550	750
250	10	950	1150
300	12	1200	1700
350	14	1400	1700

Nominal diameter only, for full dimensions please refer to engineering bulletin.

RAF 1031

Electric Float Control Valve (N.C)
3-W Metal Solenoid

Pressure rating PN- 16
Nominal Diameter 1"-14"

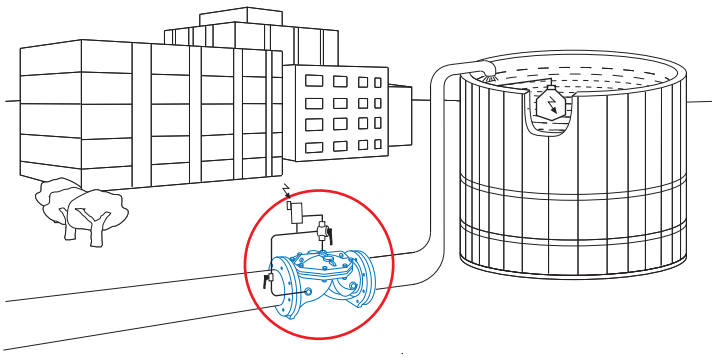
The **RAF 1031** is a Normally Closed (N.C) electric float control valve, activated by line pressure. When the water level drops below the float, the electric circuit is switched on and opens the valve through a solenoid valve. As the rising water reaches the maximum level, the solenoid is de-energized and the **RAF 1031** closes.

Typical Applications

Use **RAF 1031** for water level control.
The valve is best for remote or local control of reservoirs and water tanks level control when electricity is available.
The **RAF 1031** is a non modulating service valve, operating as an On/Off valve.
The valve can be located also above the upper water level of the tank.
Due to its simple design it is virtually maintenance free.

Standard Controls

RAF 1031 electric float control valve controls with Raphael's 3-W solenoid valve. An electric circuit is switched On/Off by a dry contact float hanging over the water surface.
In case of power failure, the **RAF 1031** remains tight-close to avoid an uncontrolled spill of water.

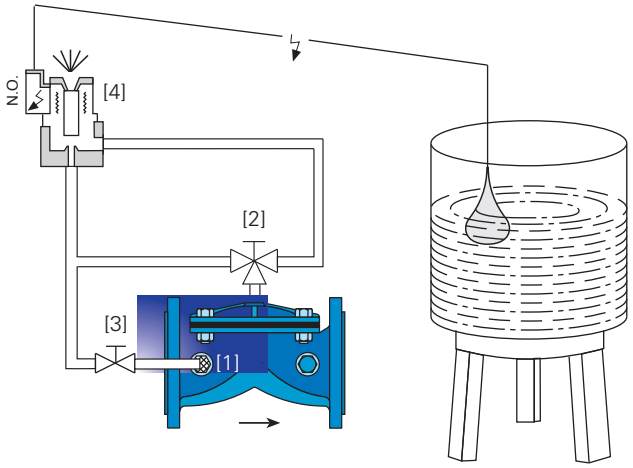


Features

- Basic RAF valve Rilsan coated
- Self cleaning screen filter
- 3-W (N.O) metal solenoid
- Electric float cable [w/10m]
- 3-W selecting cock valve
- Reinforced plastic tubing
- Power source - 24V (AC) 50/60Hz

Optional Features

- Enamel internal coating
- Large capacity external filter
- Copper and stainless steel tubing
- Power source - 110V, 220V, (AC) & 9V,12V, 24V, (DC)



RAF 1031 3-W Electric Float Control Valve

Part list

[1] Self-cleaning screen filter
[2] 3-W valve
[3] Cock valve
[4] 3-W (N.O) metal solenoid

Recommended Flow

Nominal Diameter		Flow Rate Max [m³/h]	
[mm]	[Inch]	Normal	Intermittent
25	1	20	28
40	1.5	25	35
50	2	45	60
65	2.5	60	80
80-50-80	3-2-3	50	60
80D	3D	70	100
80	3	90	120
100D	4D	90	120
100	4	150	180
125D	5D	150	200
150D	6D	150	200
150	6	320	400
200	8	550	750
250	10	950	1150
300	12	1200	1700
350	14	1400	1700

Nominal diameter only, for full dimensions please refer to engineering bulletin.

RAF 62

Pressure Reducing Control Valve 2-W Metal Pilot

Pressure rating PN-16

Nominal Diameter 1"-6D"

The **RAF 62** pressure reducing valve is line pressure hydraulically actuated, 2-W pilot.
The 2-W pressure reducing pilot valve has a spring-loaded membrane, downstream sensitive and can be preset to a desirable downstream pressure.
The **RAF 62** maintains a constant downstream pressure, as set on the
2-W pressure reducing pilot, regardless of flow changes.
The 2-W pilot configuration together with Raphael's patented diaphragm enable smooth and precise downstream pressure control.

Typical Applications

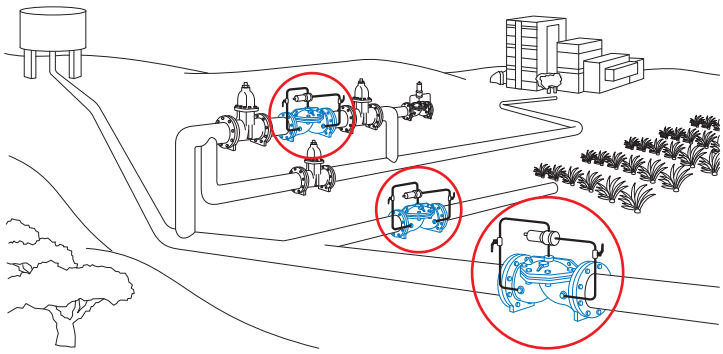
Use **RAF 62** for water supply systems with medium pressure rating.
Use **RAF 62** for irrigation water distribution and field control.

Standard Controls

RAF 62 pressure reducing valve controls with Raphael's 2-W pressure reducing brass pilot P-162 reinforced plastic tubing and brass fittings.

Adjustments

Downstream pressure adjustment up to 16 bars.
For pressure setting by pilot screw adjustment, please refer to available springs list.

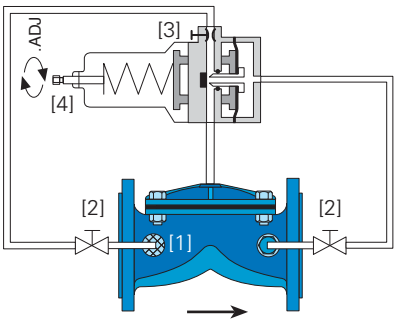


Features

- Basic RAF valve Rilsan coated
- Self-cleaning screen filter
- 2-W pilot P-162
- Built-in needle valve
- Reinforced plastic tubing
- Glycerin filled pressure gauge

Optional Features

- Enamel internal coating
- Large capacity external filter
- Stainless steel pilot with built-in needle valve
- Copper and stainless steel tubing
- Pressure check point



RAF 62 2-W Pressure Reducing Control Valve

Part list

[1] Self-cleaning screen filter
[2] Cock valve
[3] Built-in needle valve
[4] 2-W pilot P-162

Recommended Flow

Nominal Diameter		Flow Rate [m³/h]	
[mm]	[Inch]	Min	Max
25	1	1	20
40	1.5	1	25
50	2	3	45
65	2.5	1	60
80-50-80	3-2-3	3	50
80D	3D	5	70
80	3	5	90
100D	4D	5	90
100	4	15	150
125D	5D	15	150
150D	6D	15	150

Nominal diameter only, for full dimensions please refer to engineering bulletin.

Spring Selection [bar]

Pilot- P-162

Green Default	Red	Yellow
2-12	0.5-8	2-16

RAF 60

Pressure Reducing Control Valve 2-W Metal Pilot

Pressure rating PN-16

Nominal Diameter 6"-14"

The **RAF 60** pressure reducing valve is line pressure hydraulically actuated, 2-W pilot.
The **RAF 60** maintains constant downstream pressure, as set on the 2-W pressure reducing pilot, regardless of flow changes.
The 2-W pilot configuration together with Raphael's patented diaphragm enable smooth and precise downstream pressure control.

Typical Applications

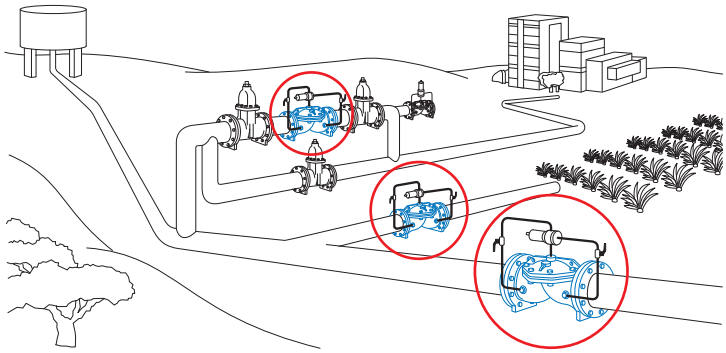
Use **RAF 60** for water supply systems with medium pressure rating.
Use **RAF 60** for irrigation water distribution and field control.

Standard Controls

RAF 60 pressure reducing valve controls with Raphael's 2-W pressure reducing brass pilot P-161, reinforced plastic tubing and brass fittings.

Adjustments

Downstream pressure adjustment up to 16 bars.
For Pressure setting by pilot screw adjustment, please refer to available springs list.

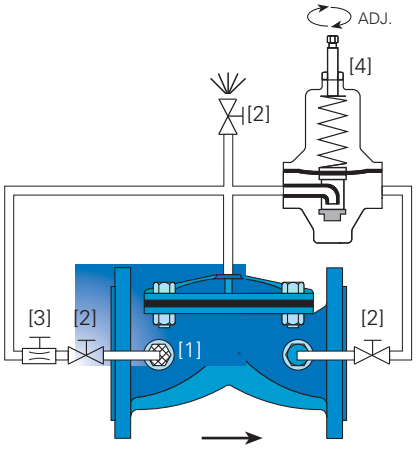


Features

- Basic RAF valve Rilsan coated
- Self-cleaning screen filter
- 2-W pilot P-161
- Needle valve
- Reinforced plastic tubing
- Glycerin filled pressure gauge

Optional Features

- Enamel internal coating
- Large capacity external filter
- Stainless steel pilot and needle valve
- Copper and stainless steel tubing
- Pressure check point



RAF 60 2-W Pressure Reducing Control Valve

Part list

[1] Self-cleaning screen filter
[2] Cock valve
[3] Needle valve
[4] 2-W pilot P-161

Recommended Flow

Nominal Diameter		Flow Rate [m³/h]	
[mm]	[Inch]	Min	Max
150	6	15	320
200	8	40	550
250	10	80	950
300	12	100	1200
350	14	100	1200

Nominal diameter only, for full dimensions please refer to engineering bulletin.

Spring Selection [bar]

Pilot P-161

Green Default	Blue	Red	Yellow
2-10	0.5-4	0.5-6	2-16

RAF 63B

Pressure Reducing Control Valve 3-W Metal Pilot

Pressure rating PN-16

Nominal Diameter 1"-14"

The **RAF 63B** 3-W pressure reducing valve is line pressure hydraulically actuated, 3-W pilot.
The **RAF 63B** maintains a constant downstream pressure, as set on the 3-W reducing pilot, regardless of flow changes. The 3-W pilot configuration together with Raphael's patented diaphragm enable smooth and precise downstream pressure control.

Typical Applications

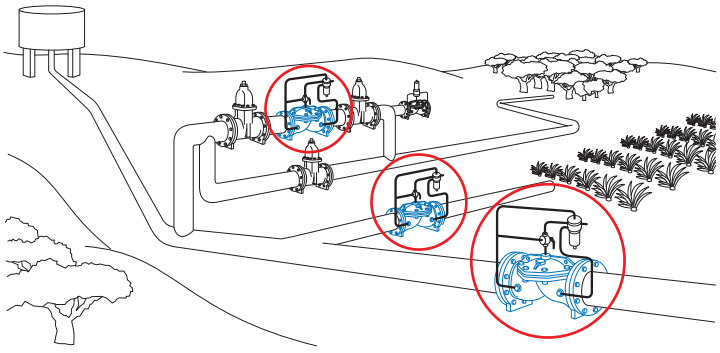
Use **RAF 63B** for water supply systems with medium pressure rating.
The **RAF 63B** is best for irrigation water distribution, water treatment circulation and filtration network.
The 3-W plastic pilot has a simple design that provides high corrosion resistance and cost effective prices.

Standard Controls

RAF 63B pressure reducing valve controls with Raphael's 3-W brass pilot reinforced plastic tubing and plastic fittings.

Adjustments

Downstream pressure adjustment up to 16 bars.
For pressure setting by pilot screw adjustment, please refer to available springs list.

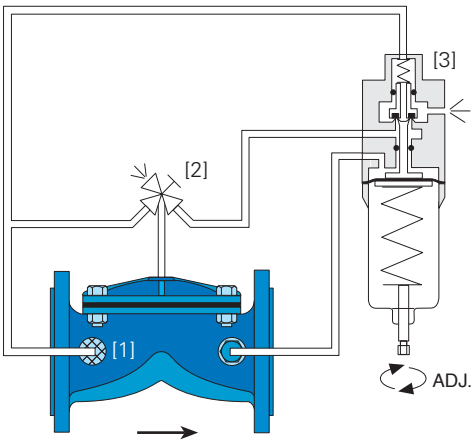


Features

- Basic RAF valve Rilsan coated
- Self-cleaning screen filter
- 3-W pilot P-683
- 3-W Selecting cock valve
- Reinforced plastic tubing
- Glycerin filled pressure gauge

Optional Features

- Enamel internal coating
- Large capacity external filter
- Stainless steel pilot
- Copper and stainless steel tubing
- Pressure check point



RAF 63B 3-W Pressure Reducing Control Valve

Part list

[1] Self-cleaning screen filter
[2] 3-W valve
[3] 3-W pilot P-683

Recommended Flow

Nominal Diameter		Flow Rate [m³/h]	
[mm]	[Inch]	Min	Max
25	1	1	20
40	1.5	1	25
50	2	3	45
65	2.5	1	60
80-50-80	3-2-3	3	50
80D	3D	5	70
80	3	5	90
100D	4D	5	90
100	4	15	150
125D	5D	15	150
150D	6D	15	150
150	6	15	320
200	8	40	550
250	10	80	950
300	12	100	1200
350	14	100	1200

Nominal diameter only, for full dimensions please refer to engineering bulletin.

Spring Selection [bar]

Pilot P-683

Green Default	Red	Yellow
2-12	0.5-8	3-16

RAF 682

Pressure Reducing & Sustaining 2-W Control Valve

Pressure rating PN-16

Nominal Diameter 1"-6D"

The **RAF 682** pressure reducing & sustaining valve is line pressure hydraulically actuated, 2-W pilot.
The **RAF 682** maintains a minimum upstream pressure, as set on the 2-W pressure sustaining pilot and a maximum downstream as set on the 2-W pressure reducing pilot, regardless of flow changes.
The 2-W pilot configuration together with Raphael's patented diaphragm enable smooth and precise pressure control.

Typical Applications

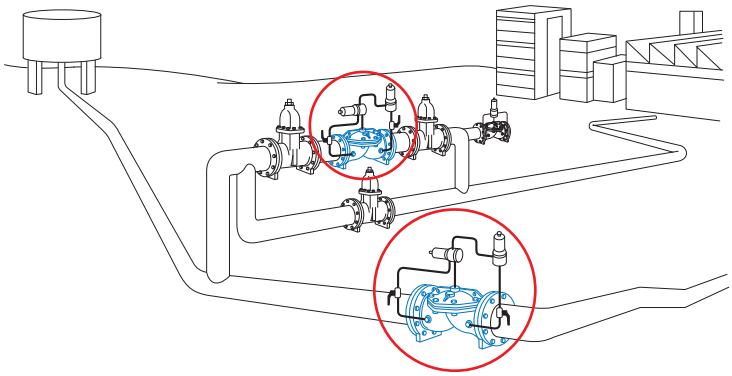
Use **RAF 682** water supply systems with medium pressure rating.
Use the valve to define two pressure zones along a supply line.
Use **RAF 682** for irrigation water distribution and field control.

Standard Controls

RAF 682 pressure reducing & sustaining valve controls with Raphael's 2-W P-182 and P-162 brass pilots, with built-in needle valve, reinforced plastic tubing and brass fittings.

Adjustments

Minimum upstream and maximum downstream pressure adjustment up to 16 bars.
For pressure setting by pilot screw adjustment, please refer to available springs list.

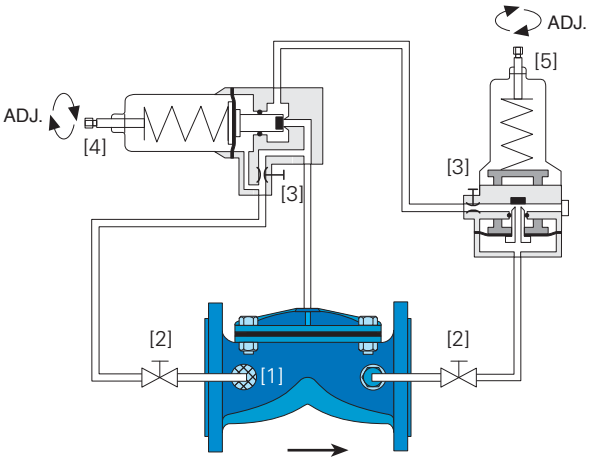


Features

- Basic RAF valve Rilsan coated
- Self-cleaning screen filter
- 2-W pilot P-182
- 2-W pilot P-162
- Reinforced plastic tubing
- Glycerin filled pressure gauge

Optional Features

- Enamel internal coating
- Large capacity external filter
- Stainless steel pilot with built-in needle valve
- Copper and stainless steel tubing
- Pressure check point



RAF 682 2-W Pressure Reducing & Sustaining Control Valve

Part list

[1] Self-cleaning screen filter
[2] Cock valve
[3] Built-in needle valve
[4] 2-W pilot P-182
[5] 2-W pilot P-162

Recommended Flow

Nominal Diameter		Flow Rate
[mm]	[Inch]	[m³/h]
25	1	20
40	1.5	25
50	2	45
65	2.5	60
80-50-80	3-2-3	50
80D	3D	70
80	3	90
100D	4D	90
100	4	150
125D	5D	150
150D	6D	150

Nominal diameter only, for full dimensions please refer to engineering bulletin.

Spring Selection [bar]

Pilot P-182

Green Default	Red	Yellow
2-12	0.5-8	3-16

Pilot P-162

Green Default	Red
2-12	0.5-8

RAF 68

Pressure Reducing & Sustaining 2-W Control Valve

Pressure rating PN-16

Nominal Diameter 6"-14"

The **RAF 68** pressure reducing & sustaining valve is line pressure hydraulically actuated, 2-W pilot.
The **RAF 68** maintains a minimum upstream pressure, as set on the 2-W pressure sustaining pilot and a maximum downstream as set on the 2-W pressure reducing pilot, regardless of flow changes.
The 2-W pilot configuration together with Raphael's patented diaphragm enable smooth and precise pressure control.

Typical Applications

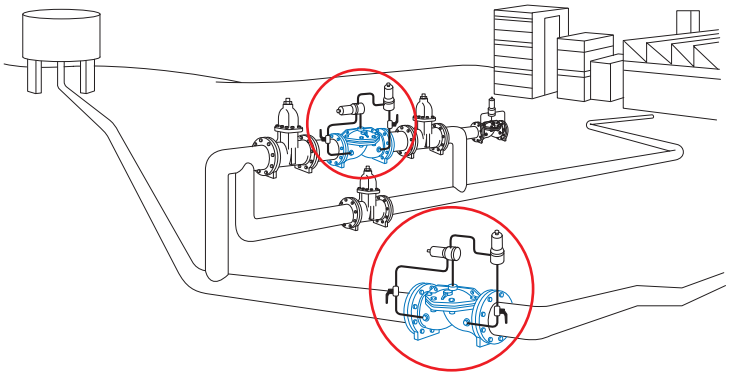
Use **RAF 68** for water supply systems with medium pressure rating.
Use the valve to define two pressure zones along a supply line.
Use **RAF 68** for irrigation water distribution and field control.

Standard Controls

RAF 68 pressure reducing & sustaining valve controls with Raphael's 2-W P-181 and P-161 brass pilots, reinforced plastic tubing and brass fittings.

Adjustments

Minimum upstream and maximum downstream pressure adjustment up to 16 bars.
For pressure setting by pilot screw adjustment, please refer to available springs list.

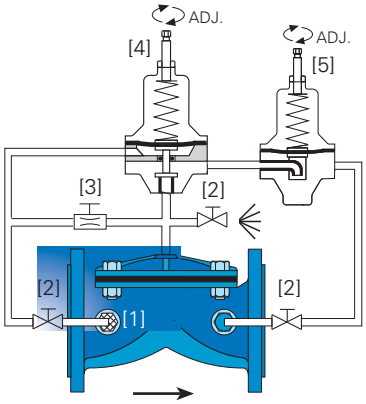


Features

- Basic RAF valve Rilsan coated
- Self-cleaning screen filter
- 2-W pilot P-161
- 2-W pilot P-181
- Needle valve
- Reinforced plastic tubing
- Glycerin filled pressure gauge

Optional Features

- Enamel internal coating
- Large capacity external filter
- Stainless steel pilot
- Stainless steel needle valve
- Copper and stainless steel tubing
- Pressure check point



RAF 68 - Pressure Reducing & Sustaining Control Valve

Part list

[1] Self-cleaning screen filter
[2] Cock valve
[3] Needle valve
[4] 2-W pilot - P-161
[5] 2-W pilot - P-181

Recommended Flow

Nominal Diameter		Flow Rate
[mm]	[Inch]	[m³/h]
150	6	320
200	8	550
250	10	950
300	12	1200
350	14	1200

Nominal diameter only, for full dimensions please refer to engineering bulletin.

Spring Selection [bar]

Pilot P-161, P-181

Green Default	Blue	Red	Yellow
2-10	0.5-4	0.5-6	2-16

RAF 683B

Pressure Reducing & Sustaining 3-W Control Valve

Pressure rating PN-16

Nominal Diameter 1"-14"

The **RAF 683B** pressure reducing & sustaining valve is line pressure hydraulically actuated, 3-W pilot.
The **RAF 683B** maintains a minimum upstream pressure, as set on the 3-W pressure sustaining pilot and a maximum downstream as set on the 3-W pressure reducing pilot, regardless of flow changes.
The 3-W pilots configuration together with Raphael's patented diaphragm enable smooth and precise pressure control.

Typical Applications

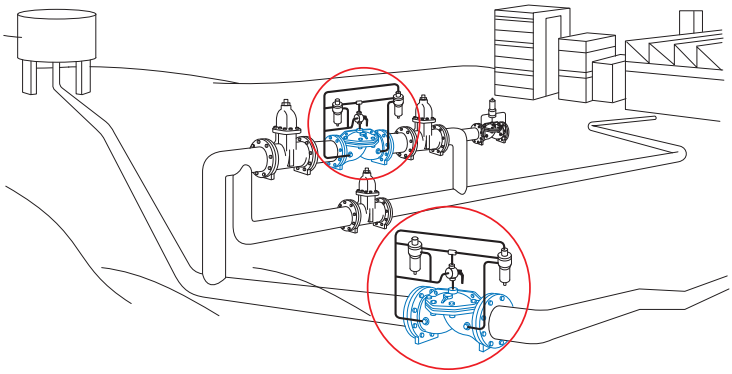
Use **RAF 683B** for water supply systems with medium pressure rating.
Use the valve to define two pressure zones along a supply line.
Use **RAF 683B** for irrigation water distribution and field control.

Standard Controls

RAF 683B pressure reducing & sustaining valve controls with Raphael's 3-W P-683 pilots, reinforced plastic tubing and brass fittings.

Adjustments

Minimum upstream and maximum downstream adjustment up to 16 bars.
For pressure setting by pilot screw adjustment, please refer to available springs list.

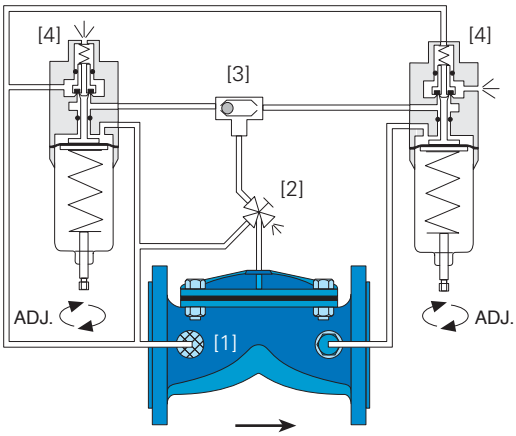


Features

- Basic RAF valve Rilsan coated
- Self-cleaning screen filter
- 3-W pilot P-683 (configured as sustaining)
- 3-W pilot P-683 (configured as reducing)
- 3-W selecting cock valve
- Reinforced plastic tubing
- Glycerin filled pressure gauge

Optional Features

- Enamel internal coating
- Large capacity external filter
- Stainless steel pilot
- Copper and stainless steel tubing
- Pressure check point



RAF 683B 3-W Pressure Reducing & Sustaining Control Valve

Part list

[1] Self-cleaning screen filter
[2] 3-W valve
[3] Shuttle valve
[4] 3-W pilot P-683

Recommended Flow

Nominal Diameter		Flow Rate
[mm]	[Inch]	[m³/h]
25	1	20
40	1.5	25
50	2	45
65	2.5	60
80-50-80	3-2-3	50
80D	3D	70
80	3	90
100D	4D	90
100	4	150
125D	5D	150
150D	6D	150
150	6	320
200	8	550
250	10	950
300	12	1200
350	14	1200

Nominal diameter only, for full dimensions please refer to engineering bulletin.

Spring Selection [bar]

Pilot P-683

Green Default	Red	Yellow
2-12	0.5-8	3-16

RAF 82

Pressure Sustaining/Relief 2-W Control Valve

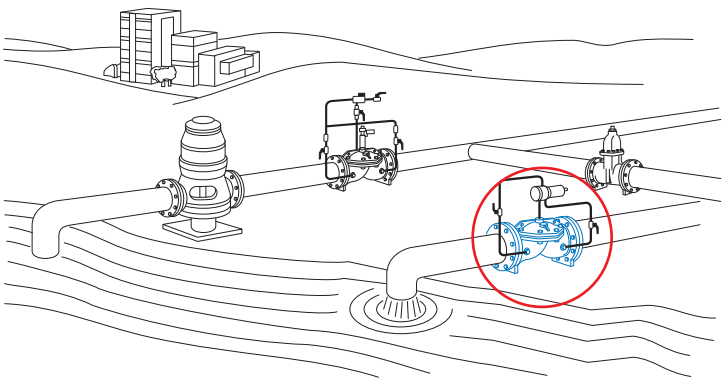
Pressure rating PN-16

Nominal Diameter 1"-6D"

The **RAF 82** pressure sustaining/relief valve is line pressure hydraulically actuated, 2-W pilot.
The **RAF 82** maintains a minimum upstream pressure, as set on the 2-W pressure sustaining pilot, regardless of flow changes.
The **RAF 82** pressure sustaining/relief valve will fully open should upstream pressure exceed 2-W pilot set pressure.
The 2-W pilot configuration together with Raphael's patented diaphragm enable smooth and precise upstream pressure control.

Typical Applications

Use **RAF 82** for water supply systems with medium pressure rating.
Use the valve to maintain a constant upstream pressure and to avoid an undesirable high pressure.
Use **RAF 82** for irrigation water distribution and field control.



Standard Controls

RAF 82 pressure reducing/relief valve controls with Raphael's 2-W P-182 pilot with built-in needle valve, reinforced plastic tubing and brass fittings.

Adjustments

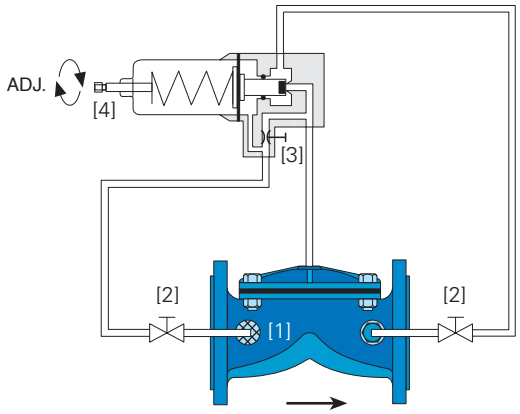
Minimum upstream pressure adjustment up to 16 bars.
For pressure setting by pilot screw adjustment, please refer to available springs list.

Features

- Basic RAF valve Rilsan coated
- Self-cleaning screen filter
- 2-W pilot P-182
- Reinforced plastic tubing
- Glycerin filled pressure gauge

Optional Features

- Enamel internal coating
- Large capacity external filter
- Stainless steel pilot with built-in needle valve
- Copper and stainless steel tubing
- Pressure check point



RAF 82 2-W Pressure Sustaining/Relief Control Valve

Part list

[1] Self-cleaning screen filter
[2] Cock valve
[3] Built-in needle valve
[4] 2-W pilot P-182

Recommended Flow

Nominal Diameter		Flow Rate
[mm]	[Inch]	[m³/h]
25	1	20
40	1.5	25
50	2	45
65	2.5	70
80-50-80	3-2-3	50
80D	3D	70
80	3	90
100D	4D	90
100	4	150
125D	5D	150
150D	6D	150

Nominal diameter only, for full dimensions please refer to engineering bulletin.

Spring Selection [bar]

Pilot P-182

Green Default	Red	Yellow
2-12	0.5-8	3-16

RAF 80

Pressure Sustaining/Relief 2- W Control Valve

Pressure rating PN-16

Nominal Diameter 6"-14"

The **RAF 80** pressure sustaining/relief valve is line pressure hydraulically actuated, 2-W pilot.
The **RAF 80** maintains a minimum upstream pressure, as set on the 2-W pressure sustaining pilot, regardless of flow changes.
The **RAF 80** pressure sustaining/relief valve will fully open should upstream pressure exceed 2-W pilot set pressure.
The 2-W pilot configuration together with Raphael's patented diaphragm enable smooth and precise upstream pressure control.

Typical Applications

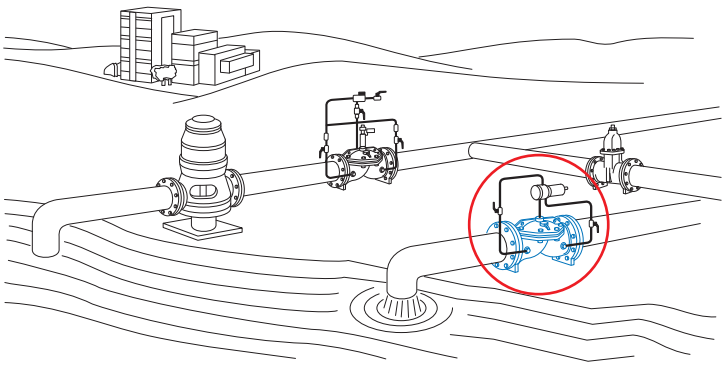
Use **RAF 80** for water supply systems with medium pressure rating.
Use the valve to maintain a constant upstream pressure and to avoid an undesirable high pressure.
Use **RAF 80** for irrigation water distribution and field control.

Standard Controls

RAF 80 pressure reducing/relief valve controls with Raphael's 2-W P-181 pilot, reinforced plastic tubing and brass fittings.

Adjustments

Minimum upstream pressure adjustment up to 16 bars.
For pressure setting by pilot screw adjustment, please refer to available springs list.

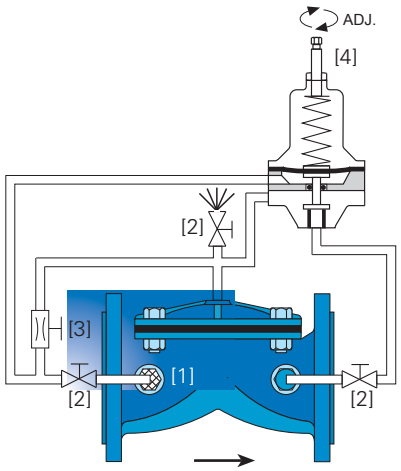


Features

- Basic RAF valve Rilsan coated
- Self-cleaning screen filter
- 2-W pilot P-181
- Needle valve
- Reinforced plastic tubing
- Glycerin filled pressure gauge

Optional Features

- Enamel internal coating
- Large capacity external filter
- Stainless steel pilot
- Stainless steel needle valve
- Copper and stainless steel tubing
- Pressure check point



RAF 80 2-W Pressure Sustaining/Relief Control Valve

Part list

[1] Self-cleaning screen filter
[2] Cock valve
[3] Needle valve
[4] 2-W pilot P-181

Recommended Flow

Nominal Diameter		Flow Rate
[mm]	[Inch]	[m³/h]
150	6	320
200	8	550
250	10	950
300	12	1200
350	14	1200

Nominal diameter only, for full dimensions please refer to engineering bulletin.

Spring Selection [bar]

Pilot P-181

Green Default	Blue	Red	Yellow
2-10	0.5-4	0.5-6	2-16

RAF 83B

Pressure Sustaining 3-W Control Valve

Pressure rating PN-16

Nominal Diameter 1"-14"

RAF 83B pressure sustaining valve is line pressure hydraulically actuated, 3-W pilot.
The **RAF 83B** maintains a minimum upstream pressure, as set on the 3-W pilot, regardless of flow changes.
The **RAF 83B** pressure sustaining valve will fully open should upstream pressure exceed 3-W pilot set pressure.
The 3-W pilot configuration together with Raphael's patented diaphragm enable smooth and precise upstream pressure control.

Typical Applications

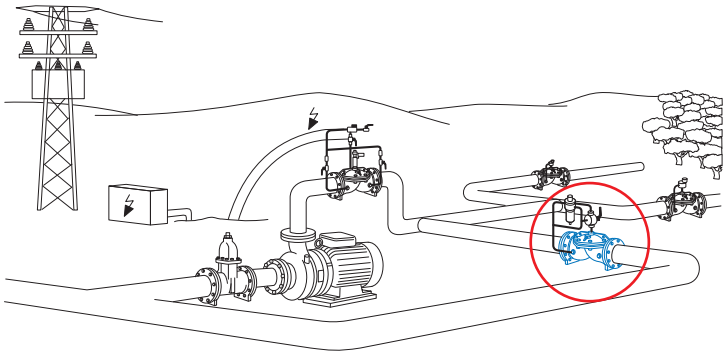
Use **RAF 83B** for water supply systems with medium pressure rating.
Use the valve to maintain a constant upstream pressure and to avoid an undesirable high pressure.
Use **RAF 83B** for irrigation water distribution and field control.

Standard Controls

RAF 83B pressure sustaining valve controls with Raphael's 3-W P-683 pilot, reinforced plastic tubing and brass fittings.

Adjustments

Minimum upstream pressure adjustment up to 16 bars.
For pressure setting by pilot screw adjustment, please refer to available springs list.

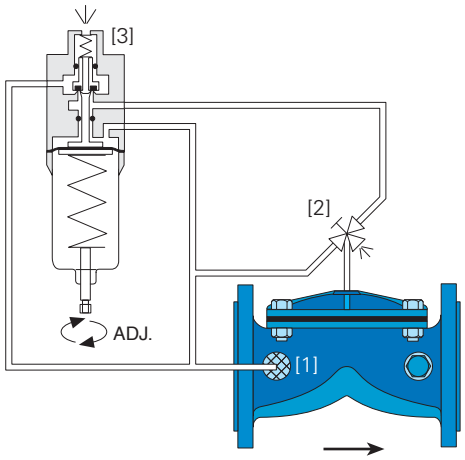


Features

- Basic RAF valve Rilsan coated
- Self-cleaning screen filter
- 3-W pilot P-683
- 3-W selecting cock valve
- Reinforced plastic tubing
- Glycerin filled pressure gauge

Optional Features

- Enamel internal coating
- Large capacity external filter
- Stainless steel pilot
- Copper and stainless steel tubing
- Pressure check point



RAF 83B 3-W Pressure Sustaining Control Valve

Part list

[1] Self-cleaning screen filter
[2] 3-W valve
[3] 3-W pilot P-683

Recommended Flow

Nominal Diameter		Flow Rate
[mm]	[Inch]	[m³/h]
25	1	20
40	1.5	25
50	2	45
65	2.5	70
80-50-80	3-2-3	50
80D	3D	70
80	3	90
100D	4D	90
100	4	150
125D	5D	150
150D	6D	150
150	6	320
200	8	550
250	10	950
300	12	1200
350	14	1200

Nominal diameter only, for full dimensions please refer to engineering bulletin.

Spring Selection [bar]

Pilot P-683

Green Default	Red	Yellow
2-12	0.5-8	3-16

RAF 80Q

Quick Pressure Relief Control 2-W Control Valve

Pressure rating PN-16

Nominal Diameter 1"-14"

The **RAF 80Q** Quick pressure relief valve is line pressure hydraulically actuated by 2-W quick pressure relief pilot.
The 2-W relief pilot has an upstream sensitive spring-loaded membrane, that can be preset to maintain a desirable upstream pressure.
The **RAF 80Q** is quickly fully open when upstream pressure exceed the
2-W pilot set pressure. The 2-W pilot configuration together with Raphael's patented diaphragm enable quick and high flow relief valve opening.

Typical Applications

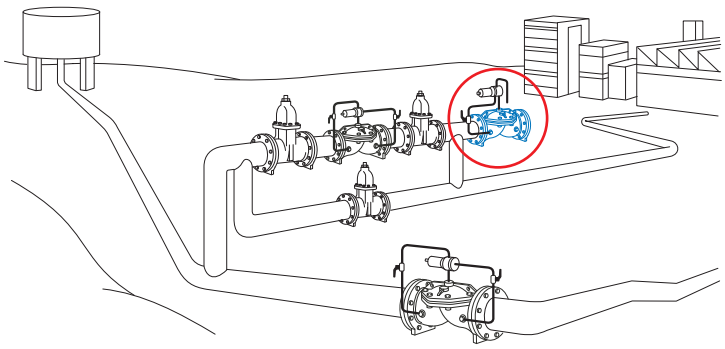
Use **RAF 80Q** for water supply systems with medium pressure rating.
Use the valve protects water systems from quikly rising excessive pressure.
Use **RAF 80Q** for irrigation water distribution and field control.

Standard Controls

RAF 80Q Quick relief valve controls with Raphael's 2-W relief pilot, reinforced plastic tubing and brass fittings.

Adjustments

Relief pressure adjustment up to 16 bars.
For pressure setting by pilot screw adjustment, please refer to available springs list.

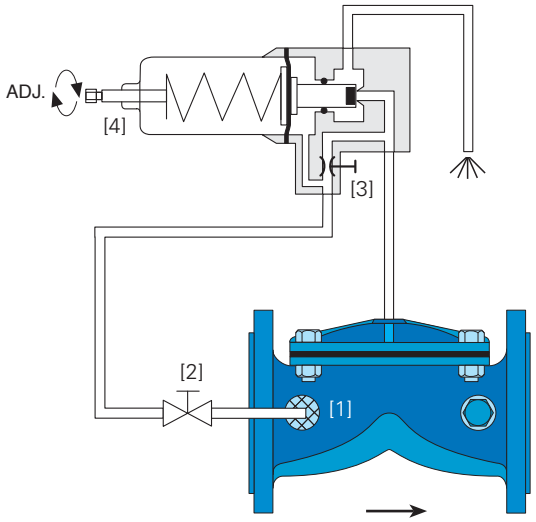


Features

- Basic RAF valve Rilsan coated
- Self-cleaning screen filter
- 2-W relief pilot
- Reinforced plastic tubing

Optional Features

- Enamel internal coating
- Large capacity external filter
- Stainless steel pilot
- Stainless steel needle valve
- Copper and stainless steel tubing



RAF 80Q Quick Pressure Relief Control Valve

Part list

[1] Self-cleaning screen filter
[2] Cock valve
[3] Built-in needle valve
[4] 2-W relief pilot

Recommended Flow

Nominal Diameter		Flow Rate
[mm]	[Inch]	[m³/h]
25	1	28
40	1.5	35
50	2	60
65	2.5	80
80-50-80	3-2-3	60
80D	3D	100
80	3	120
100D	4D	120
100	4	180
125D	5D	200
150D	6D	200
150	6	400
200	8	750
250	10	1150
300	12	1700
350	14	1700

Nominal diameter only, for full dimensions please refer to engineering bulletin.

Spring Selection [bar]

Pilot P-181

Green Default	Blue	Red	Yellow
2-10	0.5-4	0.5-6	2-16

RAF 70

Flow Rate Control Valve
2-W Metal Pilot

Pressure rating PN-16

Nominal Diameter 1"-14"

The **RAF 70** flow rate control valve is line pressure hydraulically actuated, 2-W pilot. Normally the valve is partly open to allow a constant flow rate. The head loss across the orifice is proportional to the flow rate.
The **RAF 70** maintains a constant preset flow rate, as set on the 2-W flow rate pilot, regardless of pressure changes.
The 2-W pilot configuration together with Raphael's patented diaphragm enable smooth and precise flow rate control.

Typical Applications

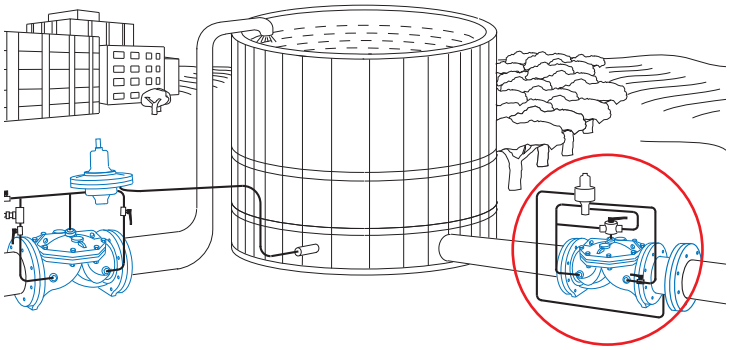
Use **RAF 70** for water supply systems with medium pressure rating.
Use **RAF 70** to eliminate excessive pumping or to limit the water demand.
Use **RAF 70** for irrigation water distribution and field control.

Standard Controls

RAF 70 flow rate valve controls with Raphael's 2-W P-100 pilot, reinforced plastic tubing and brass fittings.

Adjustments

Flow rate adjustment + 20% flow rate.

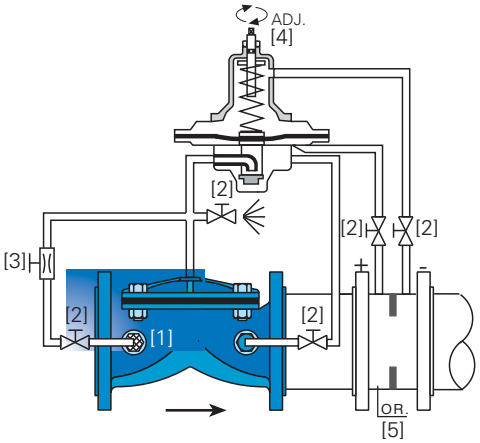


Features

- Basic RAF valve Rilsan coated
- Self-cleaning screen filter
- 2-W pilot P-100
- Needle valve
- Reinforced plastic tubing
- Orifice plate

Optional Features

- Enamel internal coating
- Large capacity external filter
- 3-W pilot P-103
- Copper and stainless steel tubing



RAF 70 2-W Flow Rate Control Valve

part list

[1] Self-cleaning screen filter
[2] Cock valve
[3] Needle valve
[4] 2-W pilot P-100
[5] Orifice plate

Recommended Flow

Nominal Diameter		Flow Rate [m³/h]
[mm]	[Inch]	Max
25	1	10
40	1.5	16
50	2	25
65	2.5	43
80-50-80	3-2-3	25
80D	3D	43
80	3	61
100D	4D	61
100	4	97
125D	5D	97
150D	6D	97
150	6	180
200	8	360
250	10	612
300	12	721
350	14	721

Nominal diameter only, for full dimensions please refer to engineering bulletin.

* When ordering, please refer to Raphael for orifice selection according to flow requirements and operating conditions.
Please note that the calibrated orifice plate will be specifically manufactured per operating condition and according to the data given by the customer.

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Pilots and Accessories

Plastic – PC

3-W Pressure Pilot Control

RAF valves 1"-6D"

Applications

The Plastic **PC**, 3-W pressure pilot, is used in pressure reducing and pressure sustaining/relief applications.
Two pilot valves can combined together on single valve to form bi functional valve operation.
Combining pressure reducing and pressure sustaining functions is used to prevent excess water flow during pipeline filling.
The pressure regulating model is available in normal pressure or low pressure configurations.
The pilot valve body is made of high quality reinforced plastic.
Calibration may be performed by means of an adjusting screw located on the top of the valve.

Adjusting

Turn the adjusting screw clockwise or counter clockwise to regulate the set point.
Turning adjusting screw clockwise will decrease upstream set pressure and counter clockwise will incrase it.
Pay attention, the valve takes a while to reach its new set point after changing the set pressure.
Turn adjusting screw 1/2 turn at a time and wait until the valve reaches stability. If necessary, turn again until reaching the desired set point.

General Information

- **Pressure Rating:** PN-10
- **Senstivity:** 0.3 [bar]
- **Max Temperature:** 07[¡C]
- **Weight:** 0.322[kg]

Spring Selection [bar]

Plastic pilot PC

Grey Default	Green	Blue
2.5-7	1-2.5	0.5-1.5

Plastic - FC

3-W Differential Flow Pilot Control

RAF valves 1"-6D"

Applications

The Plastic **FC**, 3-W Differential flow pilot, is a flow regulating pilot valve.
The pilot can be used for flow regulating applications or together with model PC pilot in combined flow and pressure regulating applications.
The pilot valve body is made of high quality reinforced plastic.
Calibration may be performed by means of an adjusting screw located on the top of the valve.

Adjusting

Turn the adjusting screw clockwise or counter clockwise to regulate the set point.
Turning adjusting screw clockwise will decrease set flow limit and Turning adjusting screw counter clockwise will increase it.
Pay attention, the valve takes a while to reach its new set point after changing the set flow.
Turn adjusting screw 1/2 turn at a time and wait until the valve reaches stability.
If necessary, turn again until reaching the desired set point.

General Information

- **Pressure Rating:** PN-10
- **Senstivity:** 0.3 - 0.6 [bar]
- **Max Temperature:** 07[¡C]
- **Regulation Accuracy:** 8% of flow rate
- **Weight:** 0.3 [kg]

Galit

3-W Plastic Solenoid

RAF valves 1"-6D"

The **Galit** is Equipped with 4 hidraulic connections and a manual operator.
It converts an external hydraulic command that controls the valve. It also enables manual control of the valve.
The **Galit** is suitable for remote opening and closing of hydraulic valves and can be configured as (N.O) or (N.C).

Spring Options for Topographic Compensation [mm]

Galit (N.C)

Yellow	Green	White	Red
5-10	10-14	14-17	17-22

Spring Options for Topographic Compensation [mm]

Galit (N.O)

Yellow	Green	White	Red
5-10	10-15	15-20	20-25

General Information

- **Pressure Rating:** PN-10
- **Senstivity:** 0.3 [bar]
- **Max Temperature:** 90[°C]
- **Weight:** 0.64[kg]

Plastic Solenoid

3-W wp-8

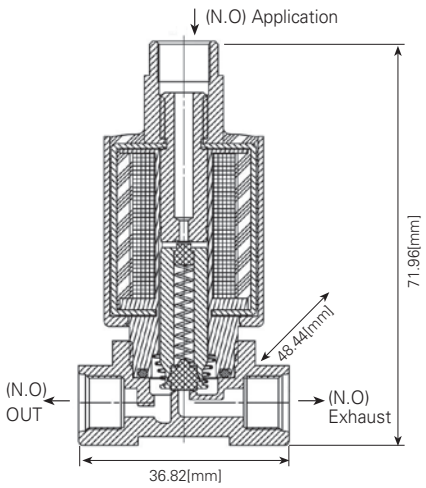
RAF valves 1"-6D"

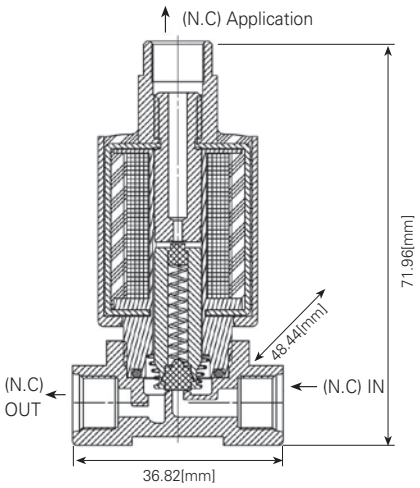
Raphael **plastic solenoid** valves are mounted on PN-10 valves.
The Raphael **plastic solenoid** valve has an electric coil responding to different currents and includes manual override.
Plastic solenoid valve bases are available with or without flange conection.

Applications

Raphael **plastic solenoid** is specially designed for irrigation control valves.

Function	Pressure [bar]	
	AC	DC
3-W - N.C	6	6
3-W - N.O	8	8





General Information

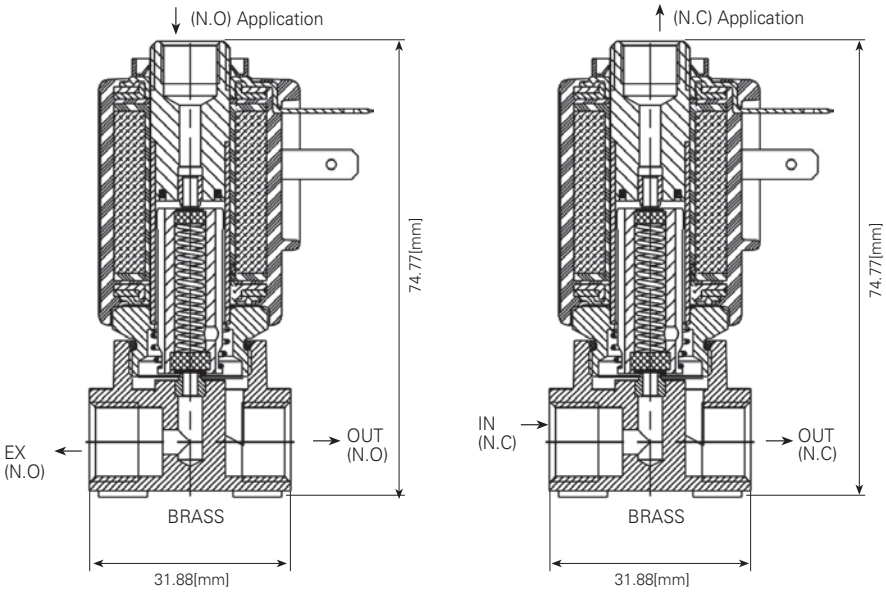
- **Pressure Rating:** PN-8
- **Max Pressure:** 10 [Kg/cm2]
- **Max Temperature:** 80[°C]
- **Weight:** 0.103 [Kg]
- **Power Source**: 110V, 220V (AC) & 9V, 12V, 24V (DC)

Metal Solenoid

3-W WP-16

RAF valves 1''-14''

The 3-W **metal solenoid** (N.C) or (N.O) is recommended for heavy duty applications where high performance is required.
The 3-W **metal solenoid** (N.C) or (N.O) can be used for industrial, irrigation control and automation systems.



General Information

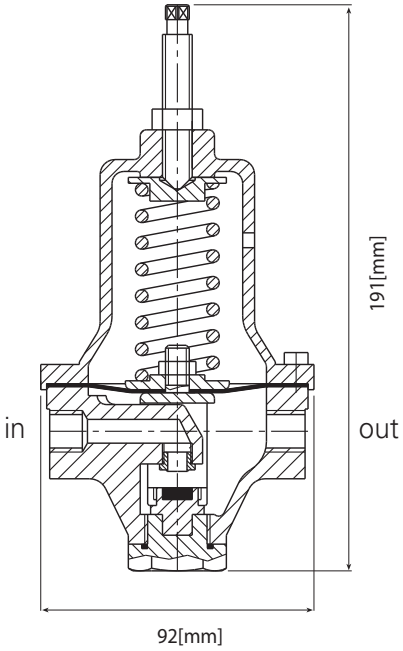
- **Pressure Rating:** PN-16
- **Max Temperature:** 80[°C]
- **Weight:** 0.267[kg]
- **Power Source**: 110V, 220V (AC) & 9V, 12V, 24V (DC)

P-161

2-W Pressure Reducing Pilot

RAF valves 1''-14''

The **P-161**, 2-W pilot, operates when hydraulic pressure is applied below the spring loaded membrane wich is connected to the pilot's seal trim.
The **P-161** is a Normally Open (N.O) pilot.
Once pipeline pressure is built downstream of the main valve, it will be conveyed to the pilot's membrane through the sensor port. When the pressure surpasses the set point (pre adjusted through the pilot's adjusting screw) the membrane moves upwards and water passage closes, closing the main valve. When the downstream pressure reduces below the pilot's set point, the membrane moves downwards and opening the water passage.



Adjusting

To verify the spring's pressure range, check the label specifications and compare to the spring range table. Verify that the needle valve is only 1/2 turn open. Turning adjusting screw clockwise will increase the set point and turning the counter clockwise will decrease it.
Pay attention, the valve takes a while to reach its new set point after changing the preset pressure. Turn adjusting screw 1/2 turn at a time and wait until the valve reaches stability. If necessary, turn again until reaching the desired set point.
After reaching the desired set point, lock the adjusting screw by tightening the locking nut firmly to the cover.

General Information

- **Pressure Rating:** PN-16
- **Regulation Ratio:** 5:1
- **Kv Rate:** 0.25 [l/sec]
- **Senstivity:** 0.1 [bar]
- **Max Temperature:** 90[°C]
- **Ports:** 1/4"
- **Weight:** 2.0[kg]

Spring Selection [bar]

Pilot P-161

Green Default	Blue	Red	Yellow
2-10	0.5-4	0.5-6	2-16

P-162

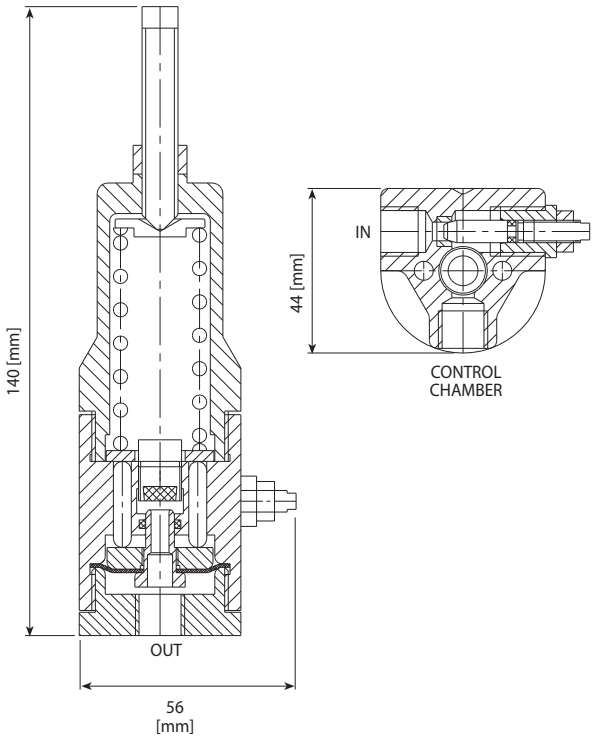
2-W Pressure Reducing Pilot

RAF valves 1''-14''

The **P-162**, 2-W pilot, operates when hydraulic pressure is applied below the spring loaded membrane wich is connected to the pilot's seal trim.
The **P-162** is a Normally Open (N.O) pilot.
Once pipeline pressure is built downstream of the main valve, it will be conveyed to the pilot's membrane through the sensor port. When the pressure surpasses the set point (pre adjusted through the pilot's adjusting screw) the membrane moves upwards and water passage closes, closing the main valve. When the downstream pressure reduces below the pilot's set point the membrane moves downwards, opening the water passage and allowing the main valve to open.

Adjusting

To verify the spring's pressure range, check the label specifications and compare to the spring range table.
Verify that the needle valve is 1/2 turn open.
Turning adjusting screw clockwise will increase the set point and turning the counter clockwise will decrease it.
Pay attention, the valve takes a while to reach its new set point after changing the preset pressure.
Turn adjusting screw 1/2 turn at a time and wait until the valve reaches stability. If necessary, turn again until reaching the desired set point.
After reaching the desired set point, lock the adjusting screw by tightening the locking nut firmly to the cover.



General Information

- **Pressure Rating:** PN-16
- **Regulation Ratio:** 4:1
- **Kv Rate:** 0.25 [l/sec]
- **Senstivity:** 0.1 [bar]
- **Max Temperature:** 90[°C]
- **Ports:** 1/4"
- **Weight:** 0.75[kg]

Spring Selection [bar]

Pilot P-162

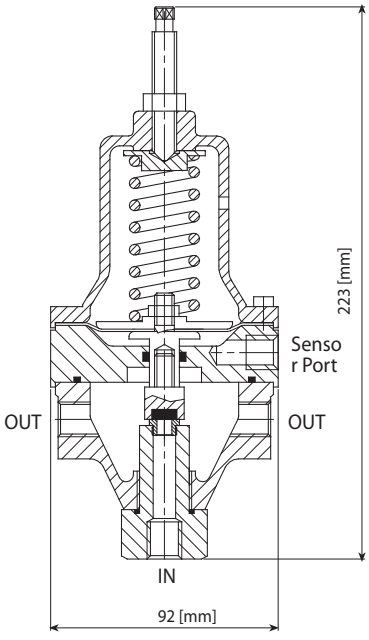
Green Default	Red
2-12	0.5-8

P-181

2-W Pressure Sustaining/Relief Pilot

RAF valves 1''-14''

The **P-181**, 2-W pilot, operates when hydraulic pressure is applied below the spring loaded membrane, wich is connected to the pilot's seal trim.
The **P-181** is a Normally Close (N.C) pilot.
When no pressure is applied below the spring loaded membrane, the pilot commands the main valve to close. When the pressure surpasses the set point, the membrane moves upwards and water passage opens, allowing the main valve to open.
When the downstream pressure reduces below the pilot's set point, the membrane moves downwards, closing the water passage.
During the pilot's operation water circulates constantly through the pilot, it provides an immediate response to any changes in pipeline pressure.



Adjusting

To verify the spring's pressure range, check the label specifications and compare to the spring range table.
Verify that the needle valve is 1/2 turn open:
Turning adjusting screw clockwise will increase the set point and turning the counter clockwise will decrease it.
The valve takes a while to reach its new set point after changing the preset pressure. Turn adjusting screw 1/2 turn at a time and wait until the valve reaches stability.
If necessary, turn again until reaching the desired set point.
After reaching the desired set point, lock the adjusting screw by tightening the locking nut firmly to the cover.

General Information

- **Pressure Rating:** PN-16
- **Regulation Ratio:** 5:1
- **Kv Rate:** 0.25 [l/sec]
- **Senstivity:** 0.1 [bar]
- **Max Temperature:** 90[°C]
- **Ports:** 1/4"
- **Weight:** 2.0[kg]

Spring Selection [bar]

Pilot P-181

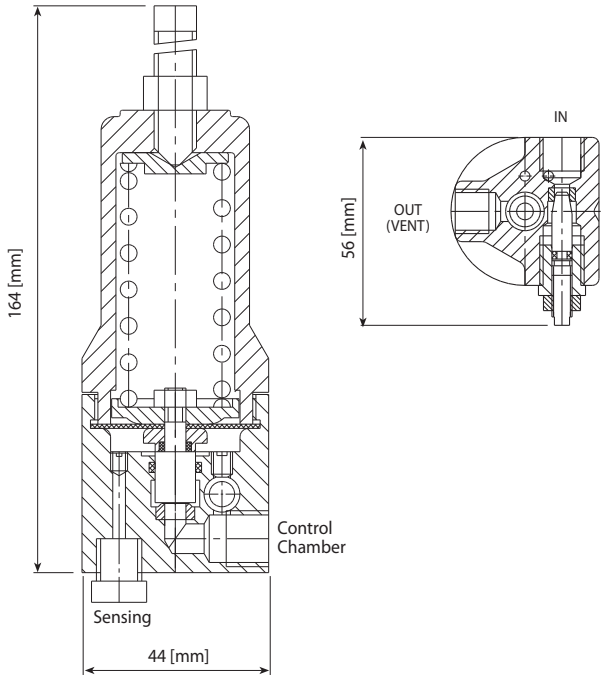
Green Default	Blue	Red	Yellow
2-10	0.5-4	0.5-6	2-16

P-182

2-W Pressure Sustaining/Relief Pilot

RAF valves 1''-14''

The **P-182**, 2-W pilot, operates when hydraulic pressure is applied below the spring loaded membrane wich is connected to the pilot's seal trim.
The **P-182** is a Normally Close (N.C) pilot. When no pressure is applied below the spring loaded membrane, the pilot commands the main valve to close.
When the pressure surpasses the set poin, the membrane moves upwards and water passage opens, allowing the main valve to open. When the downstream pressure reduces below the pilot's set point, the membrane moves downwards, closing the water passage.
During the pilot's operation water circulates constantly through the pilot, it provides an immediate response to any changes in pipeline pressure.



Adjusting

To verify the spring's pressure range, check the label specifications and compare to the spring range table.
Verify that the pilot's built-in needle valve is 1/2 turn open. Turning adjusting screw clockwise will increase the set point and turning the counter clockwise will decrease it. The valve takes a while to reach its new set point after changing the preset pressure.
Turn adjusting screw 1/2 turn at a time and wait until the valve reaches stability. If necessary, turn again until reaching the desired set point.
After reaching the desired set point, lock the adjusting screw by tightening the locking nut firmly to the cover.

General Information

- **Pressure Rating:** PN-16
- **Regulation Ratio (Sustaining):** 4:1
- **Regulation Ratio (Relief):** 7:1
- **Kv Rate:** 0.25 [l/sec]
- **Max Temperature:** 90[°C]
- **Ports:** 1/4"
- **Weight:** 0.75[kg]

Spring Selection [bar]

Pilot P-182

Green Default	Red	Yellow
2-10	0.5-6	2-16

P-683

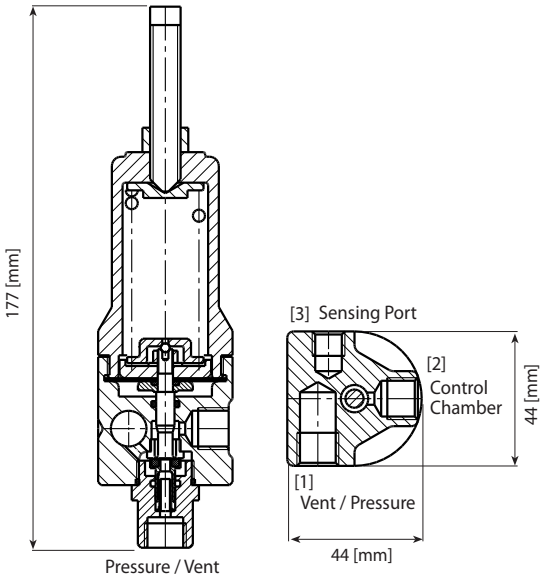
3-W Pressure Sustaining\Reducing Pilot

''RAF valves 1''-14

The **P-683**, 3-W pilot, operates only if pipeline conditions changes, when hydraulic pressure is applied below the spring loaded membrane, wich is connected to the pilot's seal trim, alternating the pilot's water passage.
When the pilot reaches the desired set point, the seal trim locks all water passages, there is no water flow in the pilot and the pilot remains in this position until a change in the downstream pressure.
The **P-683** can be used either as a Normally Open(N.0) or as a Normally Close (N.C) pilot.

(N.O) Configuration

When the pressure head in the pilot's sensor port is lower than the set point, the membrane moves downwards, closing pressure supply to the control chamber and opening a water passage.
Once pressure head is built, the membrane moves upwards opening the pressure supply to the control chamber and closing the pilot's vent, allowing the main valve to close.



Adjusting

To verify the spring's pressure range, check the label specifications and compare to the spring range table. The valve takes a while to reach its new set point after changing the preset pressure.
Turn adjusting screw 1/2 turn at a time and wait until the valve reaches stability.
If necessary, turn again until reaching the set point and lock the adjusting screw.
Try to avoid draining the water from the pilot on the valve's body, or near electric sources.

General Information

- **Pressure Rating:** PN-16
- **Regulation Ratio:** 3:1
- **Kv Rate:** 0.25 [l/sec]
- **Max Temperature:** 90[°C]
- **Ports:** 1/4"
- **Weight:** 0.9[kg]

Spring Selection [bar]

Pilot P-683

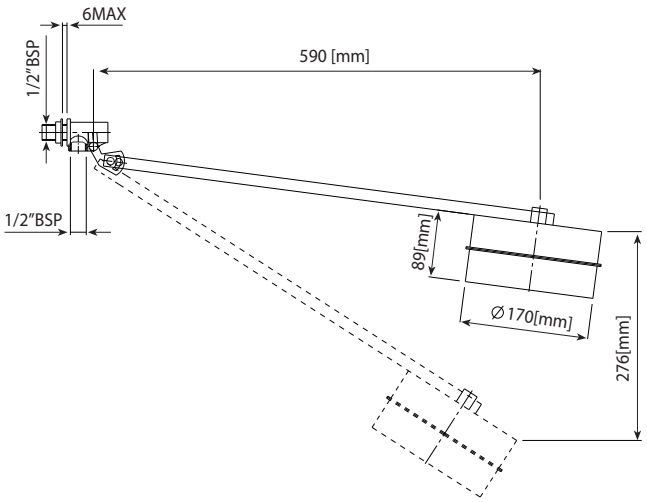
Green Default	Red	Yellow
2-12	0.5-8	3-16

P-10

2-W Float level Pilot

RAF valves 1''-6D''

The **P-10**, 2-W,is a float pilot that interconnected by a lever arm. When water level reaches its maximum level, the float rises, closing the water passage of the pilot and commands the main valve to close.
When water level drops, the float opens the water passage and main valve will open.
Every change in water level is conveyed to the pilot directly through the lever arm.
The pilot's water passage will open proportionally to the water level.
The **P-10** is usually used to command level control valves in small and medium water reservoirs.
There is no need for energy other than line pressure, it offers an economic level control solution.



Adjusting

The pilot should be installed in a location with no turbulent or wave. Verify that the pilot is installed in the reservoir at the maximum water level. Verify that the needle valve is 3/4 turn open.
Verify that the float is free to travel up and down without interference inside the reservoir.
It is recommended to wait at least one regulating cycle (closing of the valve at maximum water level) before determining that the pilot is set, to ensure water are not spilling from the reservoir.

General Information

- **Pressure Rating:** PN-10
- **Range:** 10[cm]
- **Kv Rate:** 0.45 [l/sec]
- **Senstivity:** 0.02 [bar]
- **Max Temperature:** 90[°C]
- **Ports:** 1/2"
- **Weight:** 1.2[kg]

P-100

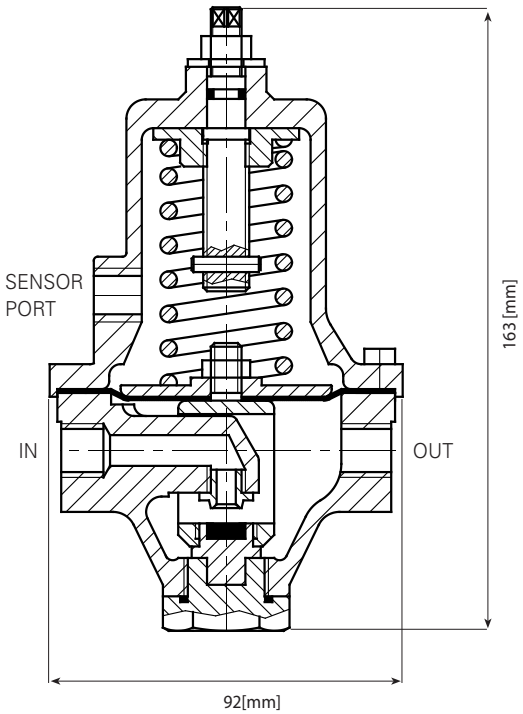
2-W Differential Pilot

RAF valves 1''-14''

The **P-100**, 2-W, is a Normally Open (N.O) and a differential pilot. The P-100 operates when hydraulic pressure is applied below and above the spring loaded membrane wich is connected to the pilot's seal trim. Upper and lower chambers of the pilot are connected to upstream and downstream sides of a calibrated orifice plate, used as a flow sensor.
Differential pressure across the orifice changes with flow, and conveyed to the pilot through its sensing ports. When low pressure difference is presented across the orifice plate, the valve opens. When pressure difference increases, the valve tends to close, maintaining the requested flow.

Adjusting

The Orifice plate installed should be appropriate and calculated according to the desired flow.
Verify that the needle valve is only 3/4 turn open.
Check orifice plate installation.
Check flow according to the desired set point.
Pilot is delivered with adjusting screw fully loose. Possible set flow ranges from this condition to +20%. Turning adjusting screw clockwise will increase the flow and counter clockwise will decrease it. The valve takes a while to reach its new set point after changing the preset pressure. Turn adjusting screw 1 turn at a time and wait until stability. If necessary, turn again until reaching the desired set point. After reaching the desired set point, lock the adjusting screw by tightening the locking nut firmly to the cover.

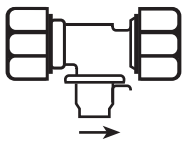


General Information

- Pressure Rating: PN-16
- Regulation Ratio: 3:1
- Kv Rate: 0.25 [l/sec]
- Range: 10[cm]
- Senstivity: 0.02 [bar]
- Max Temperature: 90[°C]
- Ports: 1/4"
- Weight: 2.0[kg]

Accessories

S.V - Shuttle Valve



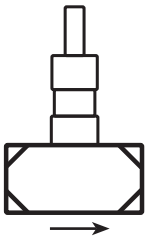
General Description

The **shuttle valve** is a 3-W hydraulic device, used to alternatively forward hydraulic command to the valve's control chamber, from two different pressure supply devices. When the higher pressure is conveyed into the central connection from one end, the other end will be shut.
The shuttle valves are available in metal and plastic versions to fit PN-10 and PN-16 control applications.

Applications

The **shuttle valves** are specifically designed for operating where 2 different hydraulic commands are present in a 3-W control system. Either remote operating and/or pilots control will alternatively operate by using the **shuttle valves**.

BM - Needle Valve



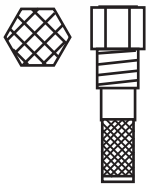
General Description

The **needle valve** is used in control system to enable the pilot control of modulating applications and provide an opening and closing regulated speed. The **needle valve** is used when valve operating speed and sensitivity are essential for the control system. Raphael's needle valve has a heavy duty stainless steel seat and needle construction, enabling high sensitivity and maintenance free operation.

Applications

Use the **needle valve** in 2-W control systems for modulation purposes. Also use the **needle valve** in 2-W and 3-W control systems to regulate the valve's opening and closing speed. The needle valves are specially designed for both PN-10 and PN -16 irrigation systems.

FI –Finger Filter



General Description

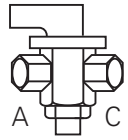
The **finger filter** is a self flushing screen filter installed in the water inlet of the valve's control system. It is used to prevent impurities from infiltrating into the control system and disturbing its operation by restricting, or even clogging, water passages. Raphael's finger filters are designed to be maintenance free, screwed into the valve's body sampling water from the main pipe. The **finger filter** will provide a safe water source into the control loop.

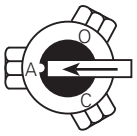
Applications

The **finger filter** is ideally designed for operation with RAF hydraulic control valve for irrigation applications as a main filter for the control system, for both PN-10 and PN-16 applications. Use the FI **Finger filter** in any control system to prevent eventual malfunction due to impurities, installing it in the water intake to the control loop.

SY – 3-W Cock Valve

General Description





The **SY 3-W cock valve** is a 3 port spherical valve, mounted on the valve's control chamber and used to change water passage between control chamber and 3 other optional ports. The **SY** valve is equipped with 4 connections:

1. Common port (Unmarked) - always connected to the valve's control chamber.

2. "O"- Connects the valve's control chamber to the open air and used to override the control system, manually opening the valve.

3. "C"- Connects the valve's control chamber to the pressure supply and used to override the control system, manually closing the valve.

4. "A"- Connects the valve's control chamber to the control system and used as the default operating position to be able to use the automatic control function of the application.

Applications

Use the **SY 3-W cock valve** with every RAF valve application where override option is necessary, enabling local opening and closing of the valve, regardless of the automatic control function command. The **SY** is designed for both PN-10 and PN-16 control systems.

Important Notes

When the **SY 3W cock valve** is used to manually open and close the main valve, the automatic function is eliminated. When the automatic function of the valve is eliminated, the valve will not function as a modulating valve, but as an On/Off valve.

BK - 2W Ball Valve

General Description

The **BK 2-W ball valve** is a spherical valve used as isolating device in the valve's control loop.
The **BK 2-W control valve** is designed not to interfere in the routine operation of the control system, with minimum head-loss and maximized reliability.

Applications

Use the **BK 2-W ball valve** as an isolation valve when the control system needs to be manipulated.
The **BK 2-W ball valve** will eliminate water passage from the main pipe line and enable manipulation and maintenance without the need to shut down the water in the main pipeline.

Important Notes

When the **BK 2-W ball valve** is used to isolate the control system, the automatic function is eliminated.
When the automatic function of the valve is eliminated, the valve will not function as a modulating valve, but as an On/Off valve.

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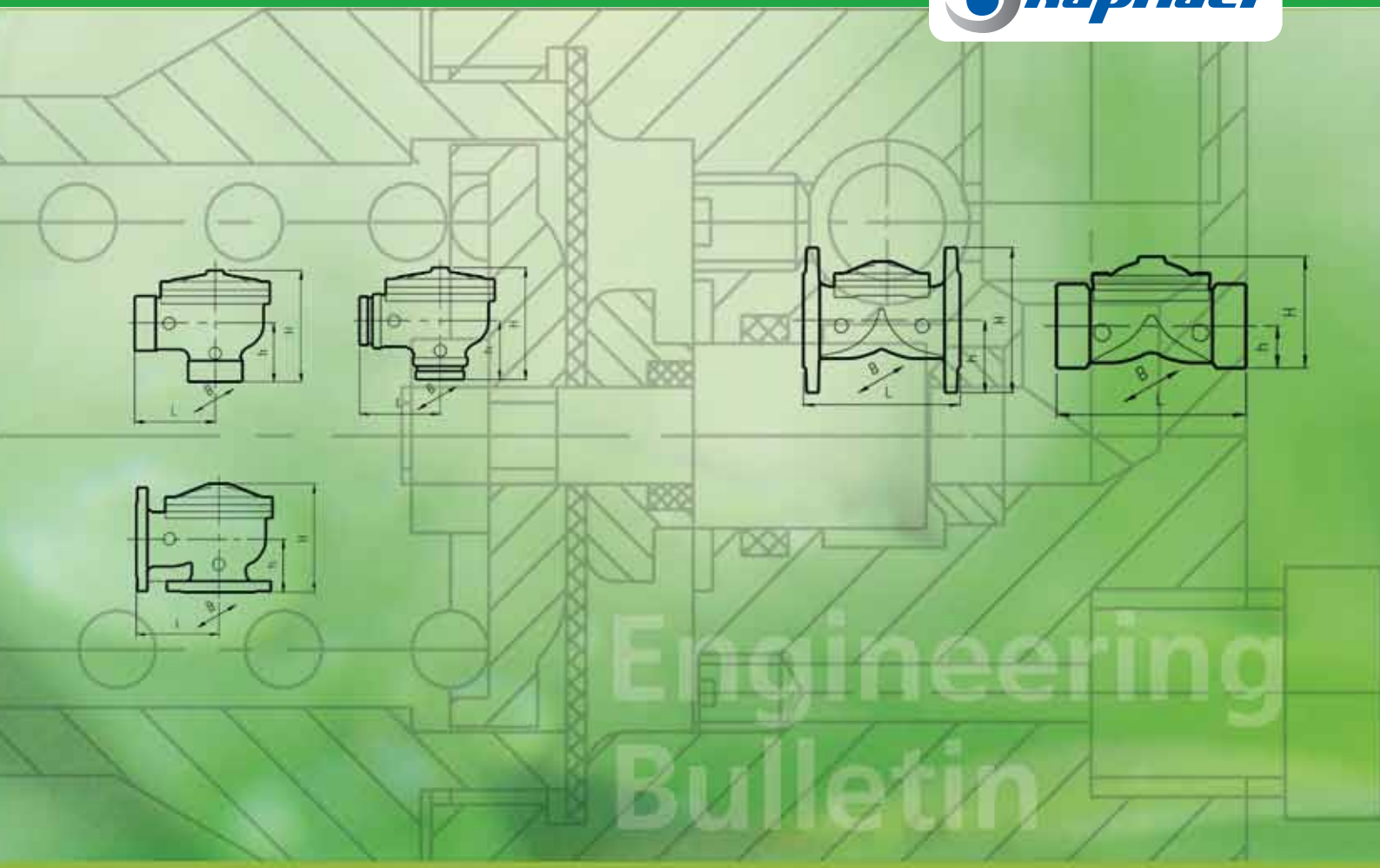
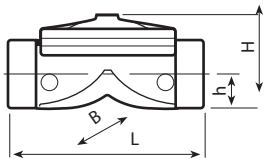


Engineering Bulletin

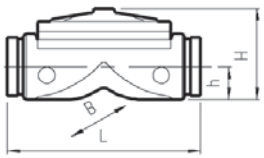
RAF High Flow Inline
Dimentions & Weights

Threaded



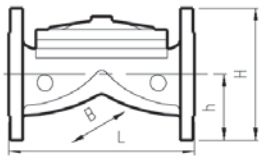
Nominal Diameter		L	H	B	h	Weight
[inch]	[mm]	[mm]	[mm]	[mm]	[mm]	[Kg]
1	25	156	70	94	21	1.5
1.5	40	159	80	96	29	2
2	50	190	100	521	38	3.5
2.5	65	216	110	125	46	5
3-2-3	80-50-80	230	125	521	50	5
3	80	290	138	200	50	11
4	100	346	220	230	60	16.5

Grooved



Nominal Diameter		L	H	B	h	Weight
[inch]	[mm]	[mm]	[mm]	[mm]	[mm]	[Kg]
1	25	156	70	94	21	1.4
1.5	40	159	80	96	29	1.5
2	50	190	100	521	38	3
2.5	65	216	110	125	46	4.7
3-2-3	80-50-80	230	125	521	50	4.8
3	80	290	138	200	50	10.8
4	100	346	220	230	60	18
6	150	412	241	300	88	33
8	200	470	350	354	125	51

Flanged



Nominal Diameter		L	H	B	h	Weight
[inch]	[mm]	[mm]	[mm]	[mm]	[mm]	[Kg]
2	50	190	159	165	76	7.9
2.5	65	216	173	185	80	9.3
3-2-3	80-50-80	230	175	200	100	11
3	80	283	200	200	100	17.5
4	100	305	220	230	99	26
6	150	406	295	300	142	46
8	200	470	383	354	160	67.5
10	250	635	430	464	197	111
12	300	749	474	480	234	151
14	350	749	520	520	260	177

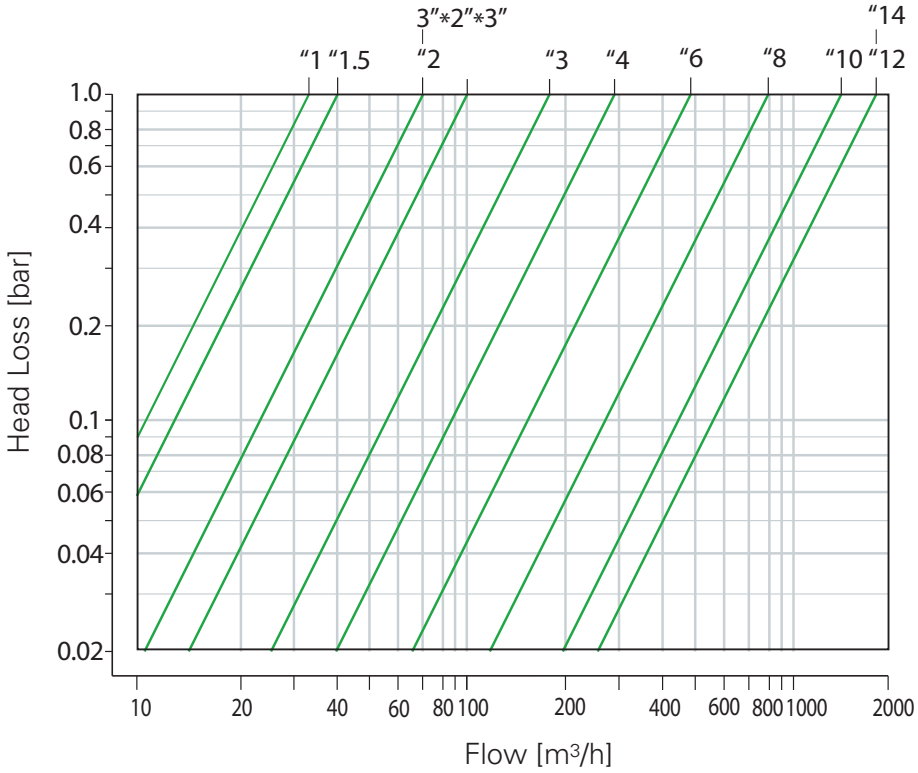
Kv - Coefficient

Nominal Diameter		Kv
[inch]	[mm]	
1	25	32
1.5	40	40
2.0	50	70
2.5	65	100
3-2-3	80-50-80	72
3	80	170
4	100	290
6	150	490
8	200	790
10	250	1400
12	300	1800
14	350	1800

Control Chamber Displacement Volume

Nominal Diameter		Control Chamber Volume
[inch]	[mm]	[liter]
1	25	0.065
1.5	40	0.065
2	50	0.08
2.5	65	0.16
3-2-3	80-50-80	0.08
3	80	0.3
4	100	0.78
6	150	1.56
8	200	3.5
10	250	7.6
12	300	7.6
14	350	7.6

Flow Chart

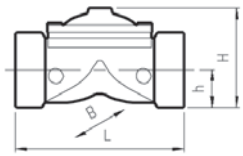


Kv = Valve flow coefficient [m³/h]; [bar]
Cv = Valve flow coefficient [gpm]; [psi]
Q = Flow rate [m³/h]; [gpm]
Δ P = Head loss across the valve [bar]; [psi]
Cv = 1.16 Kv

$$Q = Kv\sqrt{\Delta P}$$

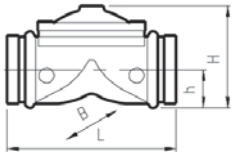
RAF D Inline

Dimentions & Weights



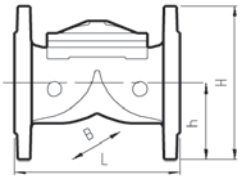
Threaded

Nominal Diameter		L	H	B	h	Weight
[inch]	[mm]	[mm]	[mm]	[mm]	[mm]	[Kg]
3D	80-65-80	244	127	138	50	5.5



Grooved

Nominal Diameter		L	H	B	h	Weight
[inch]	[mm]	[mm]	[mm]	[mm]	[mm]	[Kg]
3D	80-65-80	244	127	138	50	5.2
4D	100-80-100	285	180	200	74	17.5
6D	150-100-150	330	260	230	96	19.8



Flanged

Nominal Diameter		L	H	B	h	Weight
[inch]	[mm]	[mm]	[mm]	[mm]	[mm]	[Kg]
3D	80-65-80	216	192	200	92	11.4
4D	100-80-100	283	222	222	111	20
5D	125-100-125	305	243	250	120	29.5
6D	150-100-150	325	285	285	143	34.5

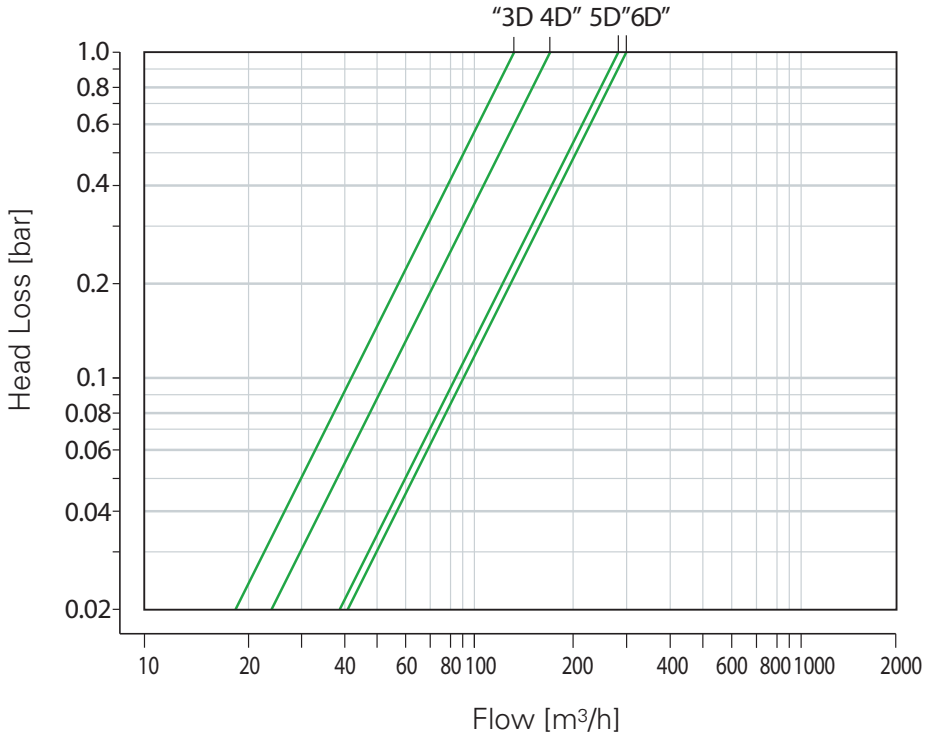
Kv - Coefficient

Nominal Diameter		Kv
[inch]	[mm]	
3D	80-65-80	130
4D	100-80-100	170
5D	125-100-125	290
6D	150-100-150	300

Control Chamber Displacement Volume

Nominal Diameter		Control Chamber Volume
[inch]	[mm]	[liter]
3D	80-65-80	0.16
4D	100-80-100	0.3
5D	125-100-125	0.7
6D	150-100-150	0.7

Flow Chart



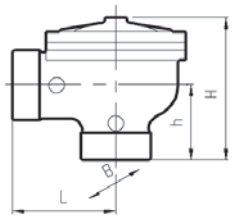
Kv = Valve flow coefficient [m³/h]; [bar]
Cv = Valve flow coefficient [gpm]; [psi]
Q = Flow rate [m³/h]; [gpm]
Δ P = Head loss across the valve [bar]; [psi]
Cv = 1.16 Kv

$$Q = Kv\sqrt{\Delta P}$$

RAF High Flow Angle

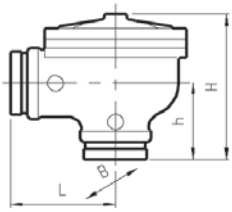
Dimentions & Weights

Threaded



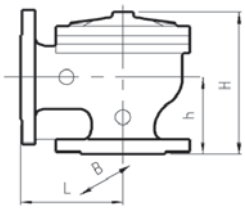
Nominal Diameter		L	H	B	h	Weight
[inch]	[mm]	[mm]	[mm]	[mm]	[mm]	[Kg]
2	50	90	150	521	81	4.2
2.5	65	117	160	125	83	7
3-2-3	80-50-80	110	146	521	72	4.9
3	80	148	205	200	107	12
4	100	150	227	230	118	15.9

Grooved



Nominal Diameter		L	H	B	h	Weight
[inch]	[mm]	[mm]	[mm]	[mm]	[mm]	[Kg]
2	50	90	150	521	81	4
2.5	65	117	160	125	83	5
3-2-3	80-50-80	110	146	521	72	4.7
3	80	148	205	200	107	11
4	100	150	227	230	118	15.6
6	150	206	317	300	150	32
8	200	225	400	354	170	45.5

Flanged



Nominal Diameter		L	H	B	h	Weight
[inch]	[mm]	[mm]	[mm]	[mm]	[mm]	[Kg]
2	50	112	159	561	77	8.1
2.5	65	122	160	185	83	11
3-2-3	80-50-80	140	200	200	100	12
3	80	154	210	200	115	19
4	100	177	230	230	113	26.5
6	150	218	315	300	148	48.7
8	200	225	400	354	170	62.5

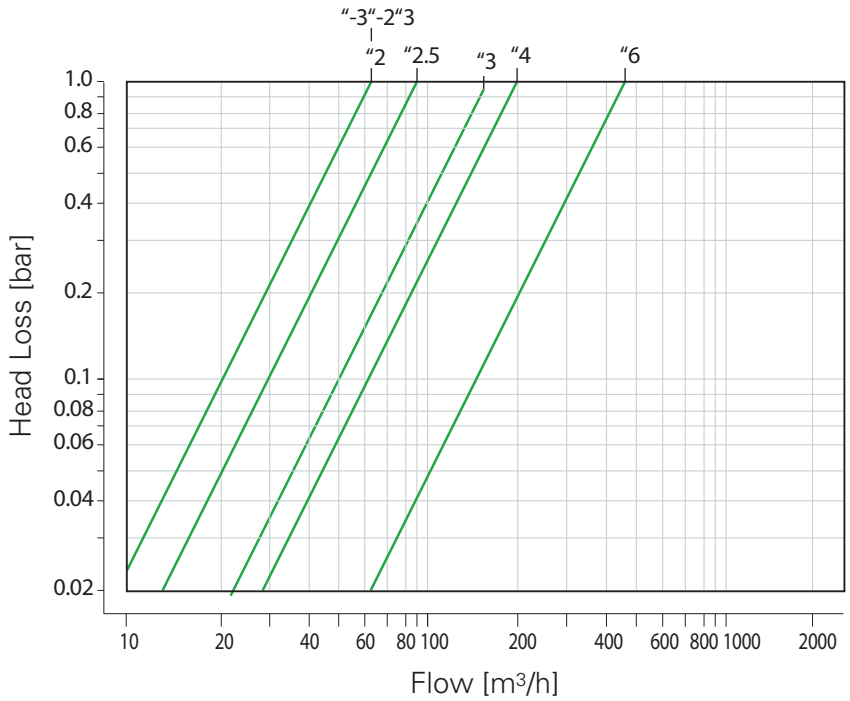
Kv - Coefficient

Nominal Diameter		Kv
[inch]	[mm]	
2	50	62
2.5	65	90
3-2-3	80-50-80	62
3	80	155
4	100	200
6	150	470

Control Chamber Displacement Volume

Nominal Diameter		Control Chamber Volume
[inch]	[mm]	[liter]
2	50	0.08
2.5	65	0.16
3-2-3	80-50-80	0.08
3	80	0.3
4	100	0.78
6	150	1.56

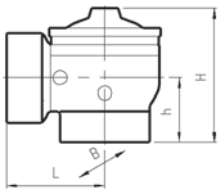
Flow Chart



Kv = Valve flow coefficient [m³/h]; [bar]
Cv = Valve flow coefficient [gpm]; [psi]
Q = Flow rate [m³/h]; [gpm]
Δ P = Head loss across the valve [bar]; [psi]
Cv = 1.16 Kv

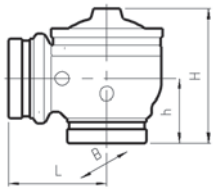
$$Q = Kv\sqrt{\Delta P}$$

RAF D Angle
Dimentions & Weights



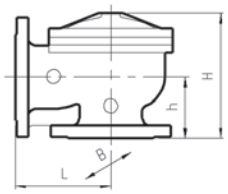
Threaded

Nominal Diameter		L	H	B	h	Weight
[inch]	[mm]	[mm]	[mm]	[mm]	[mm]	[Kg]
3D	80-65-80	130	170	140	86	46



Grooved

Nominal Diameter		L	H	B	h	Weight
[inch]	[mm]	[mm]	[mm]	[mm]	[mm]	[Kg]
3D	80-65-80	130	170	140	86	5.5
4D	100-80-100	157	220	200	114	11
6D	150-100-150	206	315	300	150	28.3



Flanged

Nominal Diameter		L	H	B	h	Weight
[inch]	[mm]	[mm]	[mm]	[mm]	[mm]	[Kg]
3D	80-65-80	130	215	200	115	11.65
4D	100-80-100	155	225	220	110	19.5

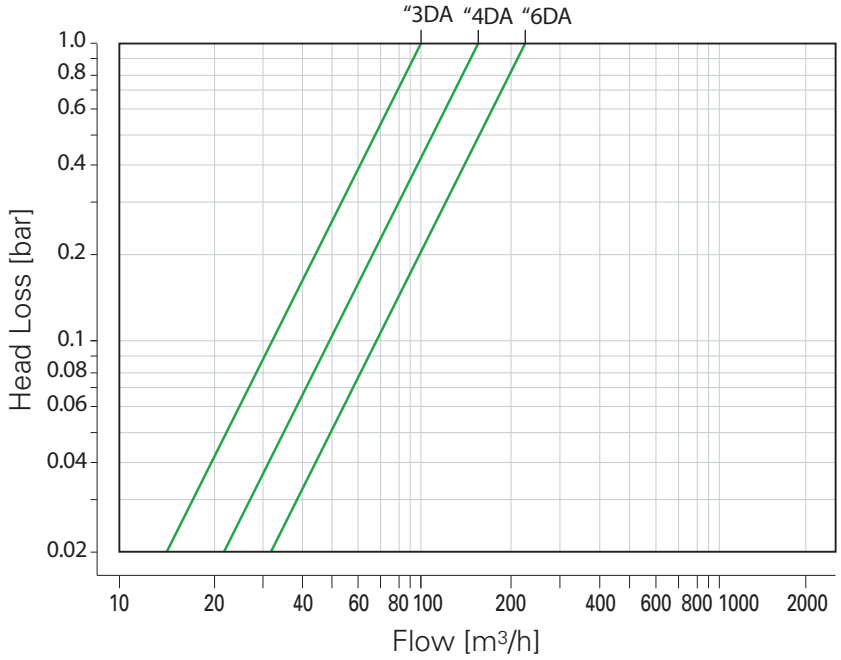
KV - Coefficient

Nominal Diameter		Kv
[inch]	[mm]	
3D	80-65-80	100
4D	100-80-100	155
6D	150-100-150	220

Control Chamber Displacement Volume

Nominal Diameter		Control Chamber Volume
[inch]	[mm]	[liter]
3D	80-65-80	0.16
4D	100-80-100	0.3
5D	125-100-125	0.7
6D	150-100-150	0.7

Flow Chart



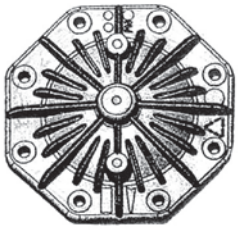
Kv = Valve flow coefficient [m³/h]; [bar]
Cv = Valve flow coefficient [gpm]; [psi]
Q = Flow rate [m³/h]; [gpm]
Δ P = Head loss across the valve [bar]; [psi]
Cv = 1.16 Kv

$$Q = Kv\sqrt{\Delta P}$$

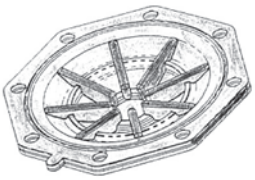
RAPHAEL - THE NEW GENERATION OF IRRIGATION SYSTEMS

RAF-P Perfect Regulation Control Valve

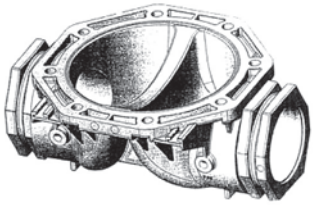
- For Agriculture, Turf, Aquaculture and Reclaimed Water service
- Available in size 2", 2 1/2", 3", 4"
- Threaded, Grooved, Flanged and Solvent Welded end connections



cover



diaphragm



body

RAF - P

Plastic High Flow Diaphragm Hydraulic Control Valve

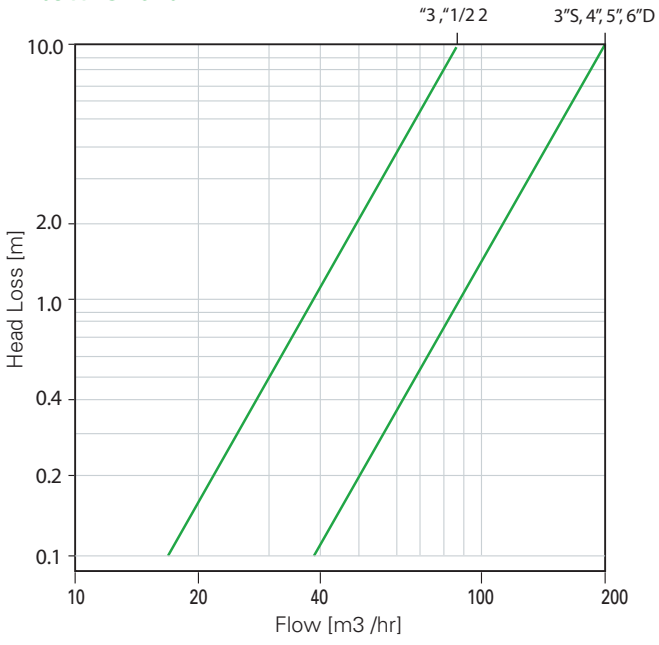
RAF-P Main Features and Benefits

- Glass reinforced Nylon valve
- No metal spring required for operation
- Patented RAF diaphragm design
- Smooth opening/closing (no water hammer)
- Maintenance free
- Versatile end connections

Technical Specifications

	DN50 "2	2.5" DN65	DN80 "3	S DN80S"3	4" DN100	5" DN125
Connections	Threaded	Threaded Grooved	Threaded Grooved Flanged	Threaded	Threaded Flanged	Grooved
Kv Flow Coefficient	90	90	90	200	200	200
Minimum Working Pressure (m)	3	3	3	3	3	3

Flow Chart



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