



JNM Technologies, Inc. *ADVANCED CLEANING TECHNOLOGY* (ACT)

ACT RHTS (Rainwater Harvest and Treatment Systems)

Custom Rainwater Harvesting and Processing Designs

Unique Combination of Patented and Specialty Filtration Products

Primary Focus is Efficient Reuse of Rainwater

- **Building Utilities**
- **Potable Water**
- **Green Roof Irrigation**
- **Green Wall Irrigation**
- **Landscape Irrigation**
- **Building and Site Maintenance**

**Leader in Development and Manufacture of Water Reuse Systems
For Treated Effluent, Gray Water and Rainwater**

Contact JNM Technologies, Inc:

- **(979) 779-6500**
- **(979) 779-6505 fax**
- **jnm@jnmtechnologies.com**

thermostatically controlled and only aligned for heat exchange during periods of extended cold weather.

During water treatment or tank recirculation raw water is taken into one of two alternating duplex centrifugal pumps (**Item 3.**). The two pumps will be Berkeley BVM4 2 hp, 3Ø, vertical multi-stage pumps. Flow will then be directed to the first of three automatically flushed scanner disc filters (**Item 4. and 5.**) (*2" ACT-SDF Filter System 20 and 5 micron as manufactured by JNM Technologies Inc., and Ein-Tal, Israel*). The first filter will be independent and will remove water born particles between 20 micron and 10 micron. The final selection will be based on water quality samples taken once the tanks and system are in place and in use. The filters are modular and easily exchanged. From the first stage filter (**Item 4.**) water will be discharged into two, parallel five micron filters (**Item 5.**). The units will be flushed automatically. These two groups of filters represent the first and second stages of filtration. They are flushed internally through the action of a series of valve openings and closings in addition to the physical turning of the filter bodies by gear motors (*Dayton 115 VAC Split Phase Parallel Shaft, 92:1 gear ration with 600 in-lb torque*). Filters such as these are unique and help reduce or eliminate the cost of disposable filter elements typically used to reduce suspended solids and clarify the water.

Following the mechanical disc filters will be two single-element cartridge filters (**Item 6.**). The units are WATTS HSFS-150 Water Filtration Systems. This is the final filtration stage. Each filter contains a single cartridge that consists of a 1-micron pleated filter element combined with activated carbon. The will provide the final polishing as well as add a level of assurance against odors and off colors that might occur as a result of organic decomposition in the rainwater catch system.

It is prudent to reduce any possible biological contamination within the gray water piping network, urinals and toilets. This can be effectively accomplished using ultra-violet light disinfection. The water quality following the three stages of filtration will be very high suitable for UV disinfection. The WATTS HSFS-150 also contains a UV system that sanitizes the post filtrate within the HSFS-150. The units will require replacement of the bulb on a yearly basis depending on usage. This unit is easily maintained and the bulbs are easily removed and replaced. It is recommended that a spare bulb be kept onsite verses the addition of a second, alternating disinfection unit.

From the UV disinfection unit the water will pass through a Master Valve and Flow Meter (*Bermad 1.5" Hydro-meter and Master Valve, Item 7.*). Here water discharge will be controlled by the system controller as well as provide water discharge measurements which will be recorded by the controller. The Hydro-Meter provides a compact solution to flow control and measurement and removes the need for up stream and down stream straight pipe lengths typically needed for proper flow meter installation. At this point the water is ready to be sent into the grey water piping network. A future provision for chemical addition (**Item 8**) will be provided in the piping just down stream of the pump and filter skid. At this time there is not a need for the addition of any chemical such as a colored dye to warn people that the water is not potable or additional disinfectants that would produce a residual in the discharged water.

A single bladder type ASME rated reserve water storage tank (**Item 9**) will be located in the mechanical room and will receive water form the pump and filter skid (*Manufactured by Roy E. Hanson Jr. MFG., Model BB264L*). The purpose of the bladder tank will be to provide storage for clean, pressurized water, provide instantaneous response to demands created by flushing of the urinals and toilets as well as provide adequate drawdown time for the pumps to rest. A check valve

Regenerative Rotary Disc Filter DF-2

PRODUCT DESCRIPTION



Physical Dimensions:

Container Diameter: 15 Cm. (6")

Container Length : 45 Cm. (18")

Total Length Incl. PVC Tube: 65Cm (25")

Total Weight: 4.1 Kg. (9 Lbs.)

Connections:

Main Inlet-Outlet 2", Threaded with 2" BSP.

Backflushing Drain Valve: ½" threaded exit.

Operating range:

Pressure:

From small increment over the Headloss pressure up to 8 Bars (115 psi).

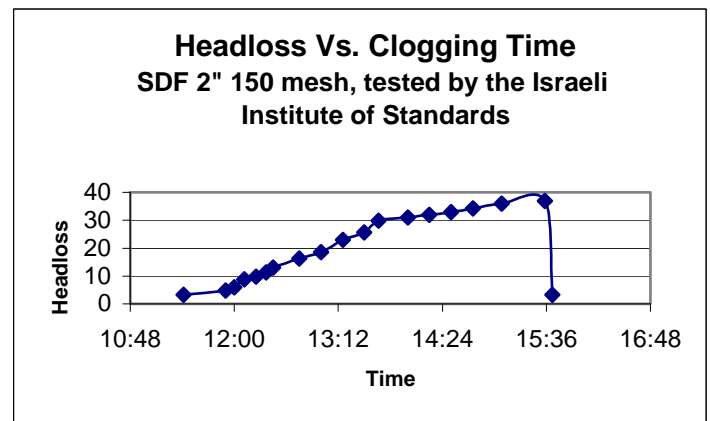
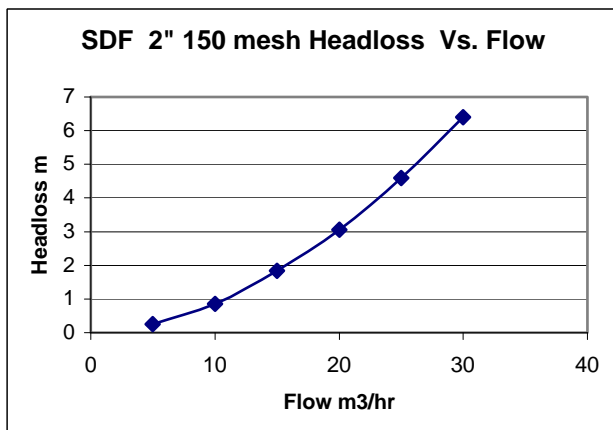
Flow Rate:

All the 2" filters, of any mesh, will operate at flow rates up to 25 m³/h (100 GPM)

Mesh: Selection from 12 **color coded disk types (311)**, Coarse 500 to fine 5 microns.

Cleaning: Effective **regeneration mechanism (312)** of a simple twist to the filter's body that back flushes clogged contaminants. The back-flush uses clean filtered water.

Typical Characteristics



Regenerative Filter

The 2" Semiautomatic Rotary Filter DF2 Specification and Technical Data

Product Description:

Physical Dimension:

***Container Diameter: 15 Cm. (6")
Container Length : 45 Cm. (18")
Total Length Incl. PVC Tube: 65Cm (25")
Total Weight: 4.1 Kg. (9 Lbs.)***

Connections:

***Main Inlet-Outlet 2", Threaded with 2" BSP.
Backflushing Drain Valve: ½" threaded exit.***

File Element:

***A stack of 135 SDF disks pressed together.
(For the fine mesh filters, 5 to 10 microns, the
disks are thinner and there are more disks packed
in each element.)***

Mesh:

***Can be chosen from a selection of 12 different
color coded disk types. See table below for disk
options.***

Operating range:

***Pressure: From a little increment over the
Headloss pressure up to 5 Bars (72 psi) working
pressure.***

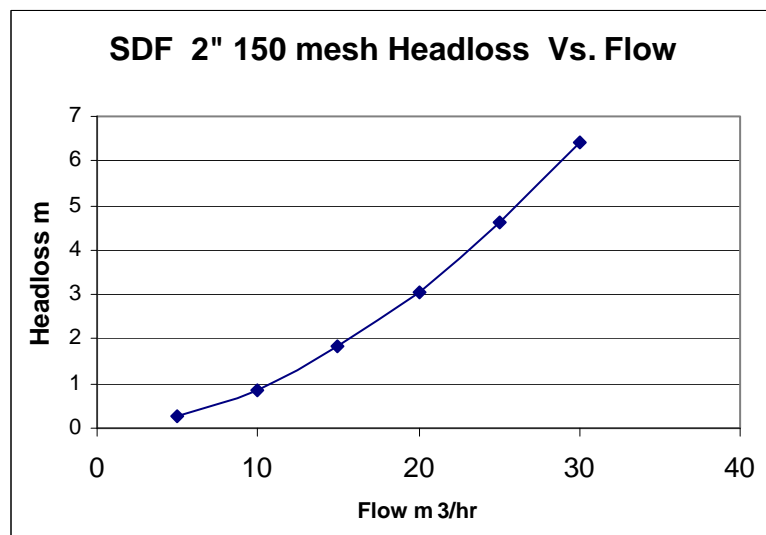
***Flow Rate: All our filters, of any mesh, will
operate at flow rates up to 25 m³/h (100 GPM)***

Cleaning:

***The Semiautomatic Rotary Cleaning design creates
a quick and easy way to clean the filter without the
need to open it. The backflush uses clean water,
i.e. water that has already passed through the
filter. The cleaning process takes less than 60
seconds!***

The cleaning Procedure:

- 1. Open the drain Valve.***
- 2. Close the regulating valve.***
- 3. Rotate the filter few times until no more
dirt drains out.***
- 4. Open the regulating valve and close the
drain.***



Hydro-Safe®
filtration systems
from Watts®

With 3-in-1 technologies for superior performance.

Step 1

Water is filtered through our 0.2 micron filter media, which is pleated and efficient enough to remove cyst sized particles.



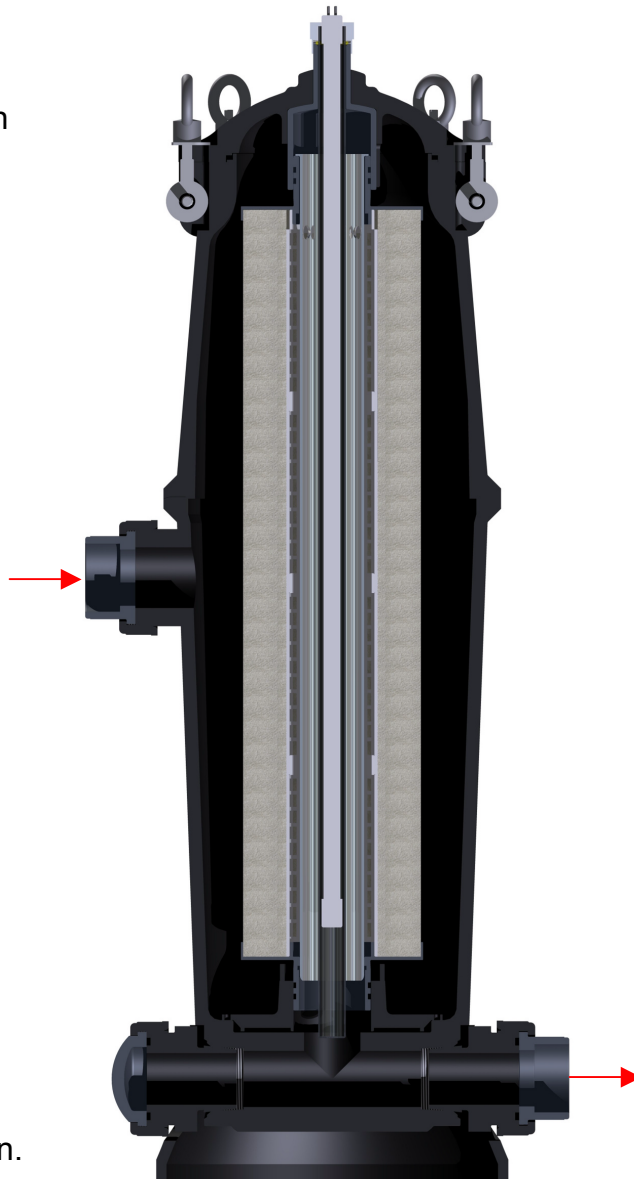
Micro Filter
(With Activated Carbon)

Step 2

At the same time, the water is treated by powdered activated carbon, which is part of the media for chlorine, taste and odor reduction.

Step 3

Finally, water is exposed to a 254 nm UV lamp, inside a stainless steel chamber for disinfection without chemicals.



UV Light For Disinfection

**And it doesn't cost
an arm and a leg!**

Unlike other units on the market, Hydro-Safe® Water Filtration Systems are affordable for average consumers. For pricing call our distributor or dealer today!

Applications

- Whole house filtration
- Drinking water systems
- Beverages
- Food service
- Office buildings
- Campgrounds
- Mobile home parks
- Community systems
- Yachts & ship building
- Mistlers
- And more!

HydroSafe®
Filtration System



Water Filtration Systems From Watts®

Rugged construction

Hydro-Safe® filter vessels are made from rugged, glass-reinforced polypropylene so they will not chip, rust or dent.

The lid closure is safe and secure, using stainless steel swing bolts for optimum safety.

Filter vessels are rated for pressures to 125 psi.



Components include filter housing, proprietary cartridge, stainless steel chamber, UV light, ballast, lid with swing bolt closure.

Performance

- 0.2 micron depth filtration, capable of trapping sediment and cyst sized particles.
- Activated carbon to reduce taste, odors, and chlorine.
- 254 nm ultra violet light to sterilize bacteria & virus.
- Lamps rated for 12 months of continuous service. (30 mj/cm² at 10 GPM service flow.)



254 nm UV lamps are installed in stainless steel chambers for optimum performance.



Lamps are easily replaced by disconnecting electrical power.



Cartridges have double o-rings for superior sealing and performance.

Specifications

Part Number	Description	Height	Diameter	Maximum Flow Rate (GPM)	Maximum Pressure
HSFS-150	Housing	40"	12"	10	125 PSI
HSFC-150	Cartridge	26"	6-1/4" OD	10	20 PSID

Note: Cartridge change out is recommended at 20 PSID. Electrical: UV systems are 110 volts.



E-Mail wqp@watts.com
Web www.watts.com

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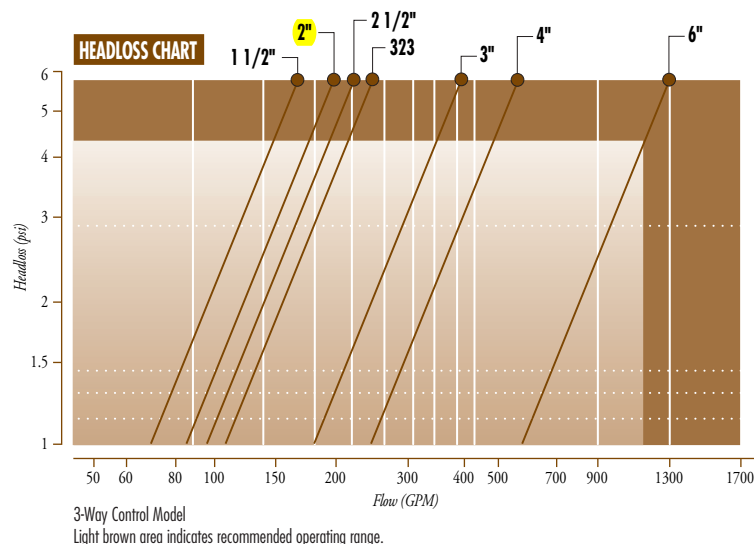
**For more information please call the
Watts distribution center nearest you:**

Florida	800-461-4406
Tampa	800-659-8400 Ext. 7 (Will call only.)
Texas	800-659-8400
Houston	713-784-1808
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California	800-840-1688



Nylon and PVC Valves

High Resistance to Fertilizers and Chemicals



Product Advantages

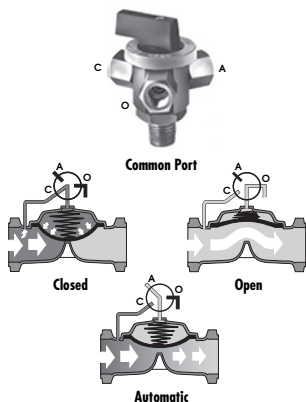
- Manufactured with threaded and socket (slip) connections.
- Requires one diaphragm type with low operating pressure.
- Superb hydraulic performance.
- High resistance to corrosive water containing fertilizers and chemicals.
- Pipes can be cemented into PVC valves.
- Simple to install with slip or threaded PVC connections.
- Simple design - diaphragm is the only moving component, no shaft, seals or bearings are located within the water passage way.

Netafim USA's Basic Valve can be operated manually through the use of a 3-way selector. Selector options are:

Closed (C): Upstream pressure or pressure from an external source is applied to the control chamber. Initiated by the spring, the diaphragm is pressed down to close the valve drip-tight.

Open (O): Relieving the water or air pressure to the atmosphere from the control chamber causes the valve to open.

Automatic (A): The automatic port of the 3-way selector is connected to a solenoid, hydraulic relay or pilot, which controls the valve. The common port of the 3-way selector connects the control chamber to either A, O or C, depending on the direction the selector is pointed.



$$C_v H \text{ (psi)} = \left(\frac{Q \text{ (GPM)}}{C_v} \right)^2$$

SIZES	1"	1 1/2"	2"	323	3"	4"	6"
	18	66	83	103	175	250	554



Nylon Valve



PVC Valve



6" PVC Valve

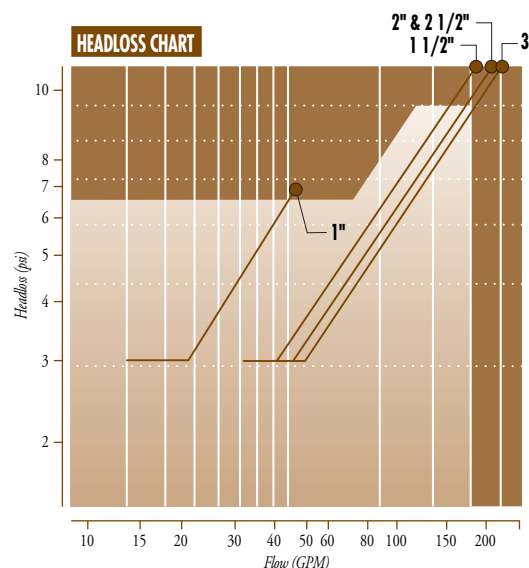
Applications

- Ideal for water control in PVC networks.
- For use in Agricultural and Greenhouse & Nursery applications.
- Surface or Sub-surface installations.
- **Functions:** Pressure Reducing, Pressure Sustaining, Pressure Relief, Electric, Remote Control.

Specifications

Maximum water temperature: 140° at maximum pressure.

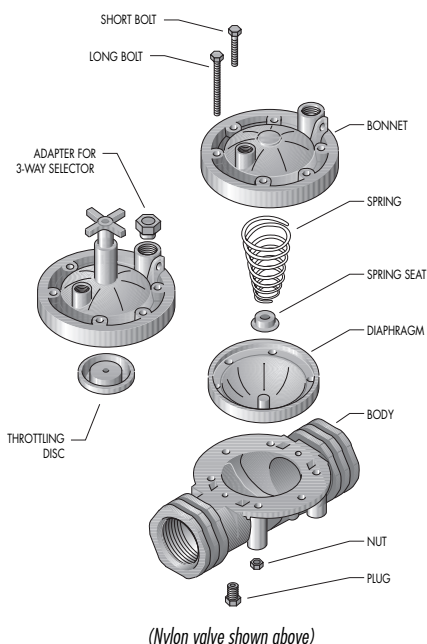
- **Operating Pressure (psi):**
Nylon - 12 minimum, 145 maximum
PVC - 12 minimum, 115 maximum



NETAFIM USA

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www.netafimusa.com

Nylon and PVC Valves Specifications



VALVE DATA

	Nylon				PVC			
	Threaded				Threaded	Slip		
Size	1"	1 1/2"	2"	323	3"	3"	4"	6"
Length (in.)	4 7/8	7 3/8	7 7/8	9 1/4	10 1/8	10 1/8	11	14
Height (in.)	2 7/8	4 3/8	4 3/8	4 3/4	7 5/8	7 5/8	8	15
Weight (lbs.)	0.4	2	2.2	3.1	9.3	9.3	9.5	20
Max. Pressure (psi)	115	140	140	140	115	115	115	150

OPTIONS

REMOTE CONTROL	Electric Hydraulic	Specify normally open or closed for main valve pressure rating and voltage. Order Catalog #61GALIT
BONNET	Standard	Nylon Valves are available with a throttling feature.
HOOK-UP	Standard	1/4" Nylon Tubing

Materials

Nuts, bolts and washers: Zinc coated steel/BS 5216
Nylon Valves only: Body, Bonnet and Seat: 30% Glass Reinforced Polyamide (GRP)
PVC: Body - uPVC
Spring: Stainless steel AISI 302
Connections: Threaded - ANSI (NPT Female)
 Socket - IPS, PVC Standard
Diaphragm Materials: Standard - Natural Rubber
 Special - EPDM (Ethylene Propylene Polymer)
 Special - Nitril (Butadiene Acrylonitrile)

MODELS AVAILABLE

CONNECTION		Nylon	PVC	
MATERIAL		Threaded	Threaded	Slip
SIZES	1"	●		
	1 1/2"	●		
	2"	●		
	323	●		
	3"		●	●
	4"			●
	6"			●

Valve Installation Tips

Threaded Valves

Use a few layers of Teflon tape or Teflon sealer compound on the adapter and tighten by hand. Use a wrench to tighten the adapter another half revolution.

Socket or "Slip" Valve with PVC Pipe

Use the same procedure as when cementing PVC pipes. Mark the pipe first, then apply glue to the socket of the valve and the PVC pipe. Insert the pipe until reaching the mark and rotate a quarter turn. Hold the joint in place until the cement hardens.

Installation Above Ground

When installing a manifold above ground the length of the manifold should be kept as short as possible, (this eliminates the need for additional support). For longer lengths a firm support under the horizontal pipes is recommended. Always install the valve with the bonnet exposed to the sun.

Diaphragm Replacement

Loosen bolts, remove old diaphragm and install new diaphragm. Tighten the bolts, applying even pressure in a diagonal pattern, until the diaphragm is firmly pressed between the body and the bonnet. Do not over tighten. If leakage occurs between the bonnet and valve, tighten until leakage stops.

Underground

For underground installations use thrust blocks where needed, allow sufficient space and keep the area around the valve free from rough objects and stones. Cover the valve with clean soil — up to 24" is recommended for protection against heavy equipment. The controls for the valve, like the pilot, 3-way valve, should be positioned above ground. Be sure to mark the control tubing by color or number and put a protective poly or PVC tubing around the control tubing.

Netafim USA - Delivering Total System Solutions for Agriculture

• Dripperlines • Sprinklers • Filters • Valves • Air Vents • Flow Meters • Crop Management Technologies

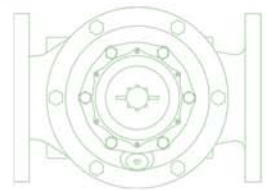
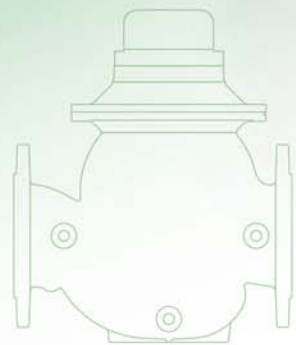
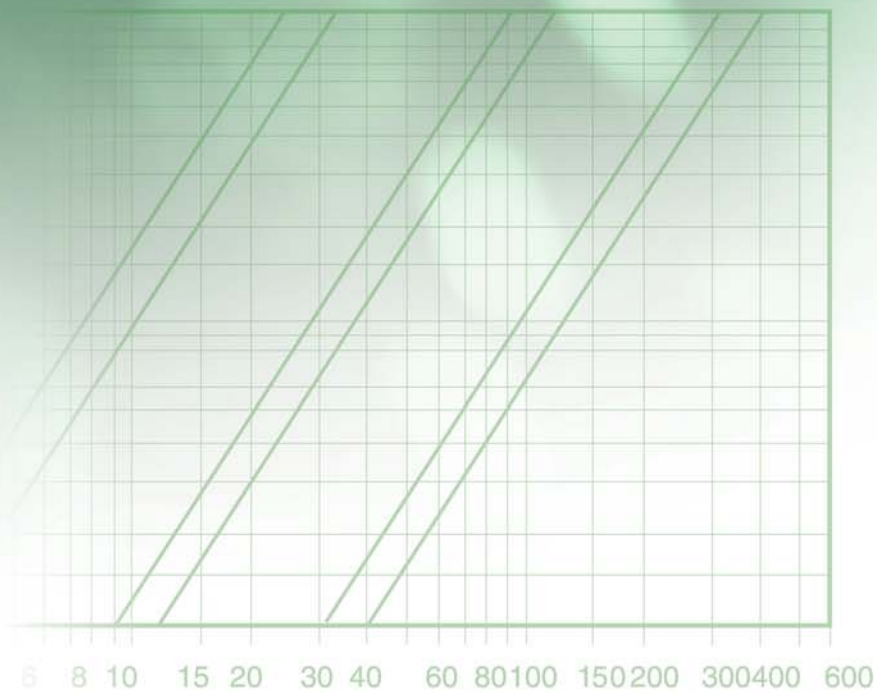


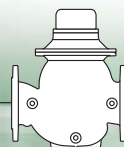
For more information call Netafim USA
 Customer Service at (888) 638-2346.

Irrigation for Agriculture

Engineering Data

IR-900-M Series



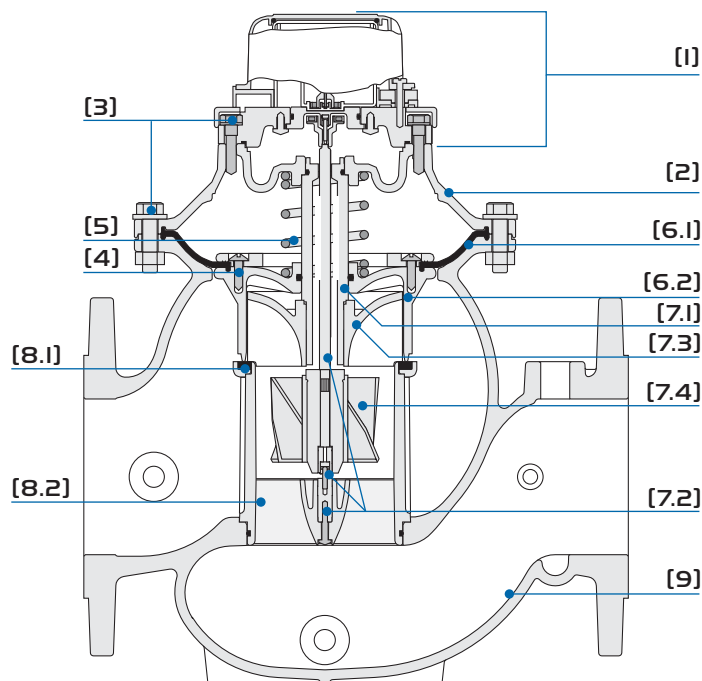


Technical Data

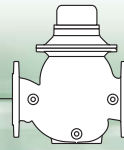


English

Construction Materials



- [1] **Control Head:** Plastic, Stainless Steel and Brass
 - [2] **Cover:** Polyester Coated Ductile Iron to ASTM A536
 - [3] **External Bolts / Nuts:** Zinc-Cobalt Plated Steel
 - [4] **Internal Bolts, Nuts and Washers:** Stainless Steel 304 and 316
 - [5] **Spring:** Stainless Steel 302
 - [6] **Closure Assembly:**
 - [6.1] **Diaphragm:** Reinforced Natural Rubber (NR)
 - [6.2] **Closure:** Glass Fiber Reinforced Nylon
 - [7] **Impeller Assembly:**
 - [7.1] **Guide:** Stainless Steel 303
 - [7.2] **Pivots, Bearings, and Thrust Bearings:** Tungsten Carbide
 - [7.3] **Upper Flow Straightener:** Glass Fiber Reinforced Nylon
 - [7.4] **Impeller:** Polypropylene
 - [8] **Impeller Housing Assembly:**
 - [8.1] **Seal Seat:** NBR (Buna-N) Vulcanized Brass
 - [8.2] **Impeller Housing and Lower Flow Straightener:** Glass Fiber Reinforced Nylon
 - [9] **Valve Body:** Polyester Coated Ductile Iron to ASTM A-536 or Cast Iron to ASTM A-126 Class B
- O-Rings:** NBR (Buna-N)
Coating: Electrostatic Powder Polyester Green RAL 6017, 150 mμ



Technical Data



Technical Specifications

Available Patterns, Sizes & End Connections:

Connections	1 1/2"	2"	2 1/2"	3"R	3"	4"	6"	8"	10"
Threaded	G	G & A		G					
Threaded (Male)	G	G							
Flanged			H*	G	G & A	G, A & H	G & A	G & A	G
Flange Inlet \ Thread Outlet		A	H*	G		H			

G = Globe, A = Angle 90°, H = Hydrant (Angle 120°) * Triangle Flange Inlet

Connections Standard:

Flanged: ANSI B16.41 (Cast Iron)
 ANSI B16.42 (Ductile Iron)
 Triangle Flange (2 1/2" inlet only)

Threaded: NPT or Rp ISO 7/1 (BSP.P)

Pressure Rating Classes: Cast Iron - #125; Ductile Iron - #150

Operating Pressure Ranges:

Class #125: 10-150 psi; Class #150: 10-250 psi

For lower pressure requirements, consult factory

Temperature: Water up to 122°F

Pulse Options:

Register Type	Reed Switch - Single				Reed Switch - Combined	
Pulse Per Size Range	1 gallon	10 gallon	100 gallon	1000 gallon	1 gallon + 10 gallon	10 gallon + 100 gallon
1 1/2"-4"	■	■	■		■	■
6"-10"		■	■	■		

Register Type	Opto-Electric		Opto-Electric + Reed Switch - Combined			
Pulse Per Size Range	0.1 gallon	1 gallon	0.1 gallon (Opto) + 1 gallon (Reed)	0.1 gallon (Opto) + 10 gallon (Reed)	1 gallon (Opto) + 100 (Reed)	1 gallon (Opto) + 1000 (Reed)
1 1/2"-4"	■		■	■		
6"-10"		■			■	■

Pulse Electric Data:

Reed-Switch: Switching voltage: 48 VAC/DC max

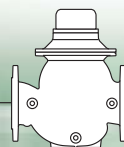
Switching current: 0.2A max

Switching power: 4W max

Opto-Electric: Supply voltage: 5-12 VDC

Output type: complementary

Output current: 200 mA

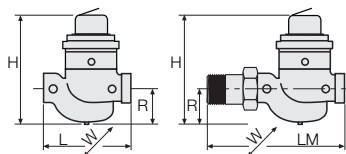


Dimensions & Weights



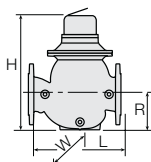
English

Globe Pattern



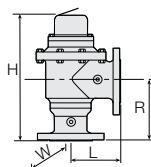
Connection Type	Threaded		
Size	1 1/2"	2"	3"R
L (inch)	9 ¹³ / ₁₆	9 ¹³ / ₁₆	9 ¹³ / ₁₆
LM (inch)	12 ¹⁷ / ₁₆	12 ¹³ / ₁₆	N/A
W (inch)	5 ³ / ₈	5 ³ / ₈	5 ³ / ₈
H (inch)	10 ⁵ / ₈	10 ¹⁵ / ₁₆	10 ¹⁵ / ₁₆
R (inch)	3.	3 ³ / ₄	3 ¹ / ₈
Weight (lb)	15.9	16.1	16.1

Globe Pattern



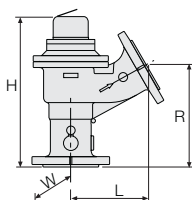
Connection Type	Flanged					
Size	3"R	3"	4"	6"	8"	10"
L (inch)	12 ³ / ₁₆	11 ¹³ / ₁₆	13 ³ / ₄	19 ¹¹ / ₁₆	23 ⁵ / ₈	23 ⁵ / ₈
W (inch)	7 ⁷ / ₈	8 ¹ / ₄	9 ¹³ / ₁₆	14 ¹⁵ / ₁₆	14 ¹⁵ / ₁₆	15 ¹⁵ / ₁₆
H (inch)	11 ³ / ₄	15 ¹ / ₁₆	17 ⁵ / ₈	23 ¹¹ / ₁₆	24 ⁵ / ₁₆	24 ⁵ / ₁₆
R (inch)	3 ¹⁵ / ₁₆	4 ¹³ / ₁₆	5 ³ / ₈	8 ¹ / ₂	9	9
Weight (lb)	35.3	50.7	66.1	154.3	202.8	309.1

90° Angle Pattern

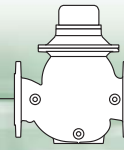


Connection Type	Threaded	Flanged			
Size	2"	3"	4"	6"	8"
L (inch)	4 ³ / ₄	5 ¹⁵ / ₁₆	7 ¹ / ₁₆	9 ¹³ / ₁₆	9 ¹³ / ₁₆
W (inch)	5 ³ / ₈	8 ¹ / ₄	9 ¹³ / ₁₆	14 ¹⁵ / ₁₆	14 ¹⁵ / ₁₆
H (inch)	11 ¹³ / ₁₆	15 ¹³ / ₁₆	18 ¹⁵ / ₁₆	23	23
R (inch)	4 ¹⁵ / ₁₆	7 ³ / ₄	8 ⁷ / ₈	12 ¹ / ₁₆	11
Weight (lb)	17.4	56.2	78.9	168.4	181.2

120° Angle Pattern



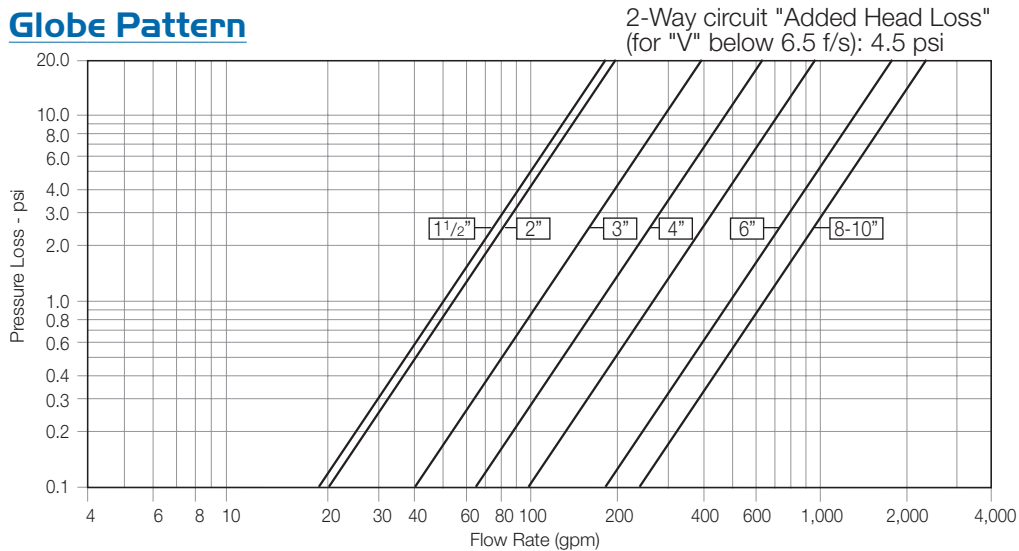
Connection Type	Flanged Inlet / Threaded Outlet		Flanged Inlet and Outlet	
Size	2 1/2"	4"	2 1/2"	4"
L (inch)	5 ⁵ / ₈	8 ³ / ₁₆	5 ⁵ / ₈	8 ³ / ₁₆
W (inch)	5 ³ / ₈	8 ⁹ / ₁₆	7 ⁷ / ₈	8 ³ / ₄
H (inch)	16 ¹ / ₈	17 ¹¹ / ₁₆	16 ¹ / ₈	17 ¹¹ / ₁₆
R (inch)	10 ³ / ₄	11 ¹ / ₈	10 ³ / ₄	11 ¹ / ₈
Weight (lb)	22.7	54.0	28.0	60.8



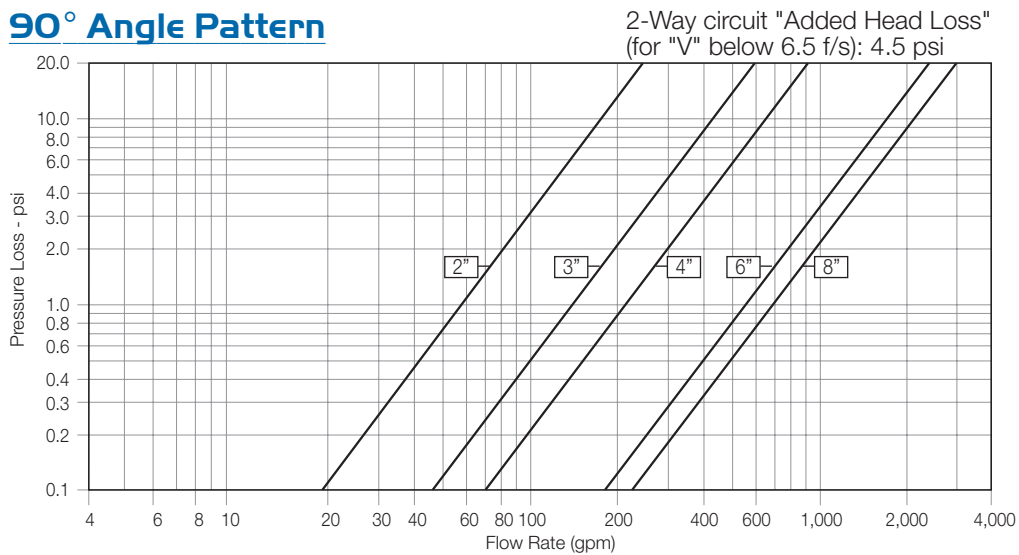
Flow Charts

US English

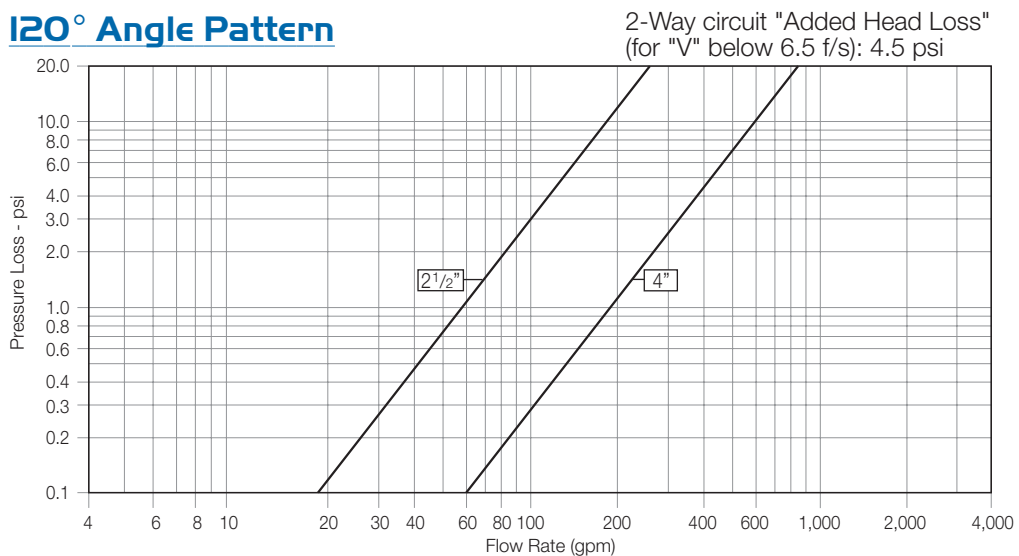
Globe Pattern

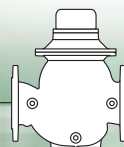


90° Angle Pattern






120° Angle Pattern





Flow Properties



		Size	1 1/2"	2"	2 1/2"	3"R	3"	4"	6"	8"	10"
Globe Pattern 	Cv		47	53	N/A	58	133	170	497	636	636
	K		2.4	4.6	N/A	24.7	4.9	7.3	4.3	8.3	20.2
	Leq - f		15.7	42.2	N/A	359.8	70.8	139.9	140.8	362.5	1106.4
90° Angle Pattern 	Cv		N/A	59	N/A	N/A	146	208	547	699	N/A
	K		N/A	3.8	N/A	N/A	4.0	4.8	3.5	6.8	N/A
	Leq - f		N/A	34.3	N/A	N/A	58.9	93.3	116.3	299.6	N/A
120° Angle Pattern 	Cv		N/A	N/A	59	N/A	N/A	170	N/A	N/A	N/A
	K		N/A	N/A	3.8	N/A	N/A	7.3	N/A	N/A	N/A
	Leq - f		N/A	N/A	34.3	N/A	N/A	139.9	N/A	N/A	N/A

Valve flow coefficient, Cv or Kv

$$Cv(Kv) = Q \sqrt{\frac{Gf}{\Delta P}}$$

Where:

Kv = Valve flow coefficient (flow in m³/h at 1bar Diff. Press.)

Cv = Valve flow coefficient (flow in gpm at Diff. Press. 1psi)

Q = Flow rate (gpm ; m³/h)

ΔP = Differential pressure (psi ; bar)

Gf = Liquid specific gravity (Water = 1.0)

$$Cv = 1.155 Kv$$

Flow resistance or Head loss coefficient,

$$K = \Delta H \frac{2g}{V^2}$$

Where:

K = Flow resistance or Head loss coefficient (dimensionless)

ΔH = Head loss (feet ; m)

V = Nominal size flow velocity (feet/sec ; m/sec.)

g = Acceleration of gravity (32.18 feet/sec² ; 9.81 m/sec²)

Equivalent Pipe Length, Leq

$$Leq = Lk \cdot D$$

Where:

Leq = Equivalent nominal pipe length (feet ; m)

Lk = Equivalent length coefficient for turbulent flow in clean commercial steel pipe (SCH 40)

D = Nominal pipe diameter (feet ; m)

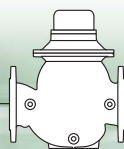
Note:

The Leq values given are for general consideration only.

Actual Leq may vary somewhat with each of the valve sizes.

Accuracy Table

	Accuracy	1 1/2"	2"	2 1/2"	3"	4"	6"	8"	10"
Q1 Minimum Flow	±5%	3.5	3.5	5.3	5.3	7.9	17.6	27.7	27.7
Q2 Transitional Flow	±2%	5.7	5.7	8.4	13.2	19.8	44	69.6	69.6
Nominal Flow ISO 4064-1-1993	±2%	66	66	110	176	264	660	1100	1761
Q3 Permanent Flow	±2%	110	176	176	440	704	1100	1761	1761
Q4 Flow Maximum (Short Time)	±2%	136	220	220	550	880	1378	2201	2201
Q2/Q1	-	1.6	1.6	1.6	2.5	2.5	2.5	2.5	2.5
Q3/Q1	-	31	50	33	83	89	63	63	63
Class ISO 4064-1-1993	-	A	A	A	B	B	B	B	B



Product Parts Features

[1] **Control Head**

Includes: Vacuum-sealed meter register, magnetically coupled to the impeller drive. Hermetically sealed control head and its register(s). High sensitivity, providing superior accuracy that exceeds all water meter standards. Range of Reed Switch and Opto-Electric 4-20 mA transmitter options provide greater flexibility in electrical pulse generation.

[2] **Valve Cover**

Locates, centralizes and fastens diaphragm, spring, and impeller assembly ensuring smooth and accurate performance. Simple and light construction enables quick in-line inspection and service.

[3] **Auxiliary Closing Spring**

One single spring fully meets valve requirements for operating pressure range, ensuring low opening pressure and secured closing.

[4] **Closure Assembly**

Combining a rugged radial disk harnessed to a flexible fiber reinforced diaphragm. The fully guided closure assembly and the carefully balanced and peripherally supported diaphragm prevent distortion and protect the elastomer, resulting in long-life and controlled actuation even under harsh conditions. One diaphragm and spring fully meet the valve's operating pressure range requirements.

[5] **Impeller Assembly**

- [5.1] Guide – Carries the transmission shaft, guides the closure assembly, and centralizes and tightens all internal parts.
- [5.2] Upper Flow Straightener – Tightens the seal seat in place, straightens outlet flow, and creates mushroom-shaped flow.
- [5.3] Impeller – Woltman-type impeller with tungsten carbide shaft tips and bearings for high, long-term accuracy and negligible wear.

[6] **Impeller Housing**

- [6.1] Lower Flow Straightener – Straightens inlet flow, eliminating the need for straight upstream pipe required in standard water meters.
- [6.2] Seal Seat – Metal ring vulcanized with elastomeric seal, raised and remote from valve body to prevent cavitation damage.

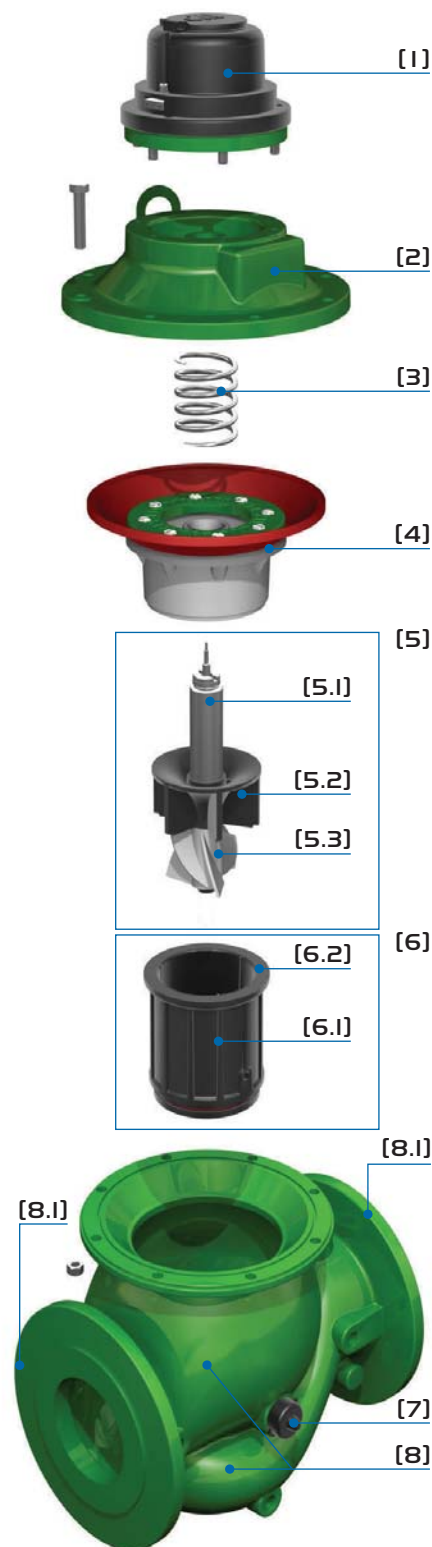
[7] **Integrated Calibration Device**

Enables recalibration instead of renovation when the recommended standard accuracy period has elapsed (The Calibration Device is stamped closed with a metal seal).

[8] **Wide Body**

Hydro-dynamically designed for efficient flow with minimal pressure loss and excellent resistance to cavitation.

- [8.1] End Connections conform to pressure ratings and standards: ISO, ANSI, JIS, BS, and others.



For spare parts ordering, Please use BERMAD “Spare Parts Ordering Guide”