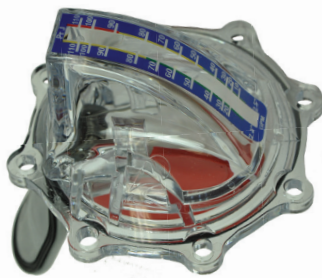




2.5", 3", and 4" FlowVis® models



FlowVis® retrofit model

### DESCRIPTION

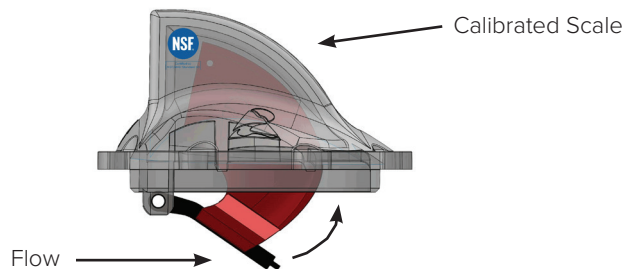
FlowVis® is a revolutionary, patented solution for accurate and reliable flow rate measurement in fresh water applications such as swimming pools, spas, fountains, water features, and solar systems.

Using a design that is based on 'mass flow' principles, the FlowVis® provides many benefits that include:

- Ease of installation without the need to have 15x of straight pipe
- Installation flexibility that allows orientation in any position, e.g., horizontal, vertical or even upside-down
- Long life without sticking floats or paddle wheels
- Combined Flow Meter and Check Valve in all models except FV-C-S, FV-3 and FV-4

### CONCEPT

As flow increases, the check valve or safety flapper moves forward toward its fully open position. The flapper's angular position is directly related to flow rate through the valve body / Tee. A calibrated scale on the valve's lid provides a highly accurate reading of the flow rate.



## RESOURCES

Thank you for purchasing the H2flow FlowVis® flow meter. If you would like to find additional product resources, including tech tip sheets, brochures, videos, and materials in other languages, please visit our website at [www.h2flow.net](http://www.h2flow.net) or scan the QR Code below.



## SERVICE REPAIR KIT

A service repair kit is available using the Part Number FV-SK. The kit comprises:

- 1 x o-ring
- 1 x spring
- 1 x flapper and indicator arm (for all models except FV-C-S, FV-3 and FV-4)
- 1 x pivot pin

For all other parts, please contact H2flow at (888) 635-0296 (toll-free)

## TABLE OF CONTENTS

Description .....	front cover
Concept.....	front cover
 <b>General Info</b>	
Resources.....	2
Service Repair Kit.....	2
 <b>Models &amp; Compatibility</b>	
Models .....	3
Compatibility .....	3
NSF 50.....	3
 <b>Safety Information</b>	
Chlorine Feeders .....	4
Warnings & Safety.....	4
 <b>Installation</b>	
Installation.....	5
 <b>Lid Assembly &amp; Operation</b>	
Tightening Lid Screws .....	6
Operation.....	6
 <b>Operation &amp; Maintenance</b>	
Operation - reading velocity.....	7
Maintenance .....	7
 <b>Specifications</b>	
Materials Used .....	8
Operation.....	8
 <b>Warranty</b>	
Warranty .....	9
Notes.....	back cover
Contact Info.....	back cover

## MODELS

FlowVis® comprises several models; it is important that you check that the model you are about to install is the correct one for your application.

MODEL	PIPE DIAM.	PIPE SCHED.	SCALE	DESCRIPTION
FV-C	2" or 2.5"	40	GPM	FlowVis® including valve body
FV-C-15	1.5"	40	GPM	FlowVis® including valve body
FV-C-L	2" or 2.5"	40	LPM	FlowVis® including valve body
FV-C-15-L	1.5"	40	LPM	FlowVis® including valve body
FV-C-S	2" or 2.5"	40	GPM	FlowVis® including valve body, no check valve
FVJ-R	2" or 2.5"	40	GPM	Retrofit for existing <b>Jandy</b> ® check valve body
FVJ-R-15	1.5"	40	GPM	Retrofit for existing <b>Jandy</b> ® check valve body
FVH-R	2" or 2.5"	40	GPM	Retrofit for existing <b>Hayward</b> ® check valve body
FVH-R-15	1.5"	40	GPM	Retrofit for existing <b>Hayward</b> ® check valve body
FV-3	3"	80	GPM	Complete FlowVis® including Tee
FV-4	4"	80	GPM	Complete FlowVis® including Tee

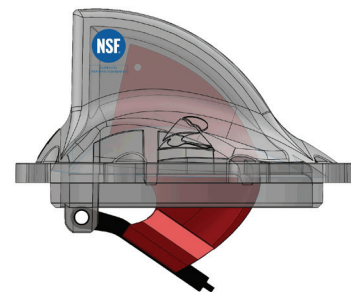
**TABLE 1**

## COMPATIBILITY

When using the 'retrofit' models listed in **Table 1**, it is important to note that each manufacturer's valve body design has a unique hydraulic characteristic that will result in a specific FlowVis® calibration scale being required. It is therefore important that you select the correct FlowVis® model for the particular valve body that is installed in your system.

## NSF 50

Models certified to NSF 50 will display the mark as shown below:



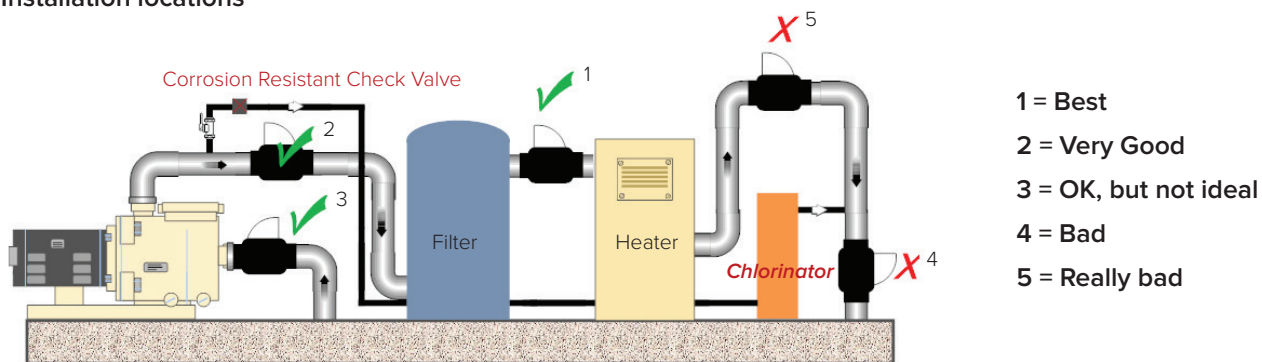
## CHLORINE FEEDERS

### IMPORTANT DISCLAIMER

Material selections such as Viton, Hastelloy C-276 and glass filled plastic ensure that FlowVis® will provide many years of trouble-free operation in normally treated, sanitized pool water conditions. However, certain brands and designs of inexpensive chlorine feeders are known to fail and release high concentrations of chlorine or even chlorine gas into the surrounding filtration system. When this occurs, any equipment that comes into contact with these abnormal levels of chemicals, will experience rapid and catastrophic damage. Inspection of any failed components will quickly and conclusively confirm the cause of the damage, and under these circumstances, the product's **warranty will be void**.

Under no circumstances should FlowVis® be used as a 'check valve' to prevent the effects of these Chlorine Feeders damaging other equipment such as Heaters.

### Installation locations

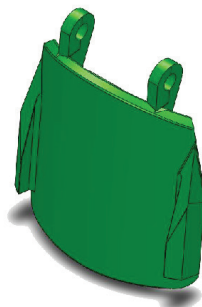


## WARNINGS & SAFETY

Check Valves should always be installed in accordance with the original manufacturer's instructions. When purchased as a complete Check Valve & Flow Meter combination, a copy of these instructions will be included with the FlowVis® packaging. If a FlowVis® retrofit kit has been purchased, it is the installer's responsibility to ensure that the Check Valve has been installed correctly and does not violate any local or federal codes relating to Check Valves.



The Virginia Graeme Baker Pool & Spa Act requires that all public swimming pools & spas having a single main drain or multiple drains that are 3 feet or less (center to center) from each other be fitted with a backup anti-entrapment system. Such systems include, but are not limited to, SVRS and Automatic Pump Shut Off systems. Special consideration must be made when installing a FlowVis® to such applications. Several of these systems do not allow the use of Check Valves. It is the responsibility of the installer to make sure that the requirements



of the specific backup system in use are maintained.

**An optional non-sealing flapper is available for these installations. See Table 1 on page 3.**

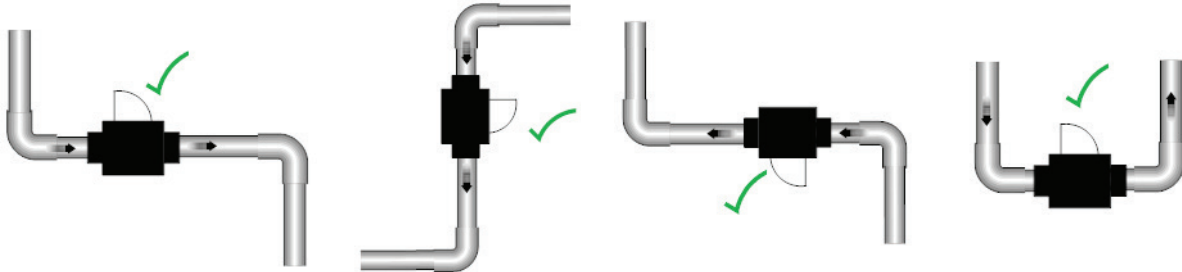
## INSTALLATION

**IMPORTANT NOTE:** Before installing the FlowVis<sup>®</sup>, please refer to the preceding section regarding chlorine feeders.

Installation of FlowVis<sup>®</sup> should be in accordance with the following instructions.

Normal plumbing procedures such as cleaning, priming and gluing of fixtures should be followed in order to avoid leaks. If you are not familiar with plumbing procedures, it is recommended that you employ the skills of a qualified plumber.

Unlike other flow meters, FlowVis<sup>®</sup> is not affected by flow stream disturbances caused by its proximity to pumps, elbows, tees, valves, etc. FlowVis<sup>®</sup> does not require specific straight pipe lengths before or after its point of installation, and can be installed close to, or even adjacent to other plumbing fittings. FlowVis<sup>®</sup> can be installed either horizontally or vertically.



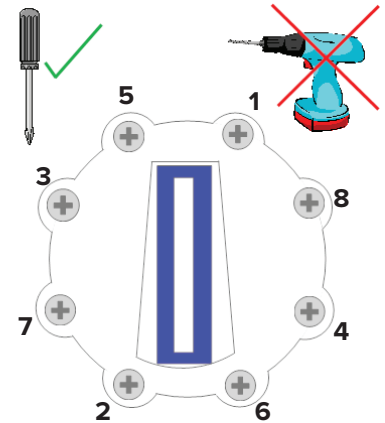
**NOTE:** When selecting a physical location to install FlowVis<sup>®</sup>, be sure to allow accessibility to read the scale on the lid.

Pay particular attention to the system's direction of flow and make sure that the arrow on the lid of the FlowVis<sup>®</sup> is pointing in the correct direction. For the 3" and 4" versions, the Tee will have an additional arrow on one of its bosses. In the event that the FlowVis<sup>®</sup> is inadvertently glued into the plumbing in the wrong direction, simply remove the (8) screws holding the lid in place and rotate the entire lid assembly by 180°.

## TIGHTENING LID SCREWS

When installing the Retrofit versions of FlowVis® or when removing and re-installing the FlowVis® lid assembly, it is important to adhere to the following procedure:

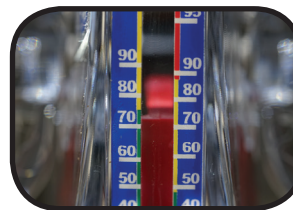
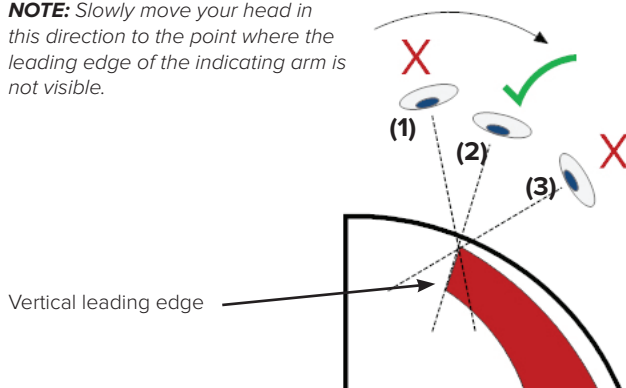
1. Make sure that the o-ring on the underside of the lid is undamaged, lubricated with silicone (such as Boss 820) and is in-place without twists.
2. Carefully lower the lid onto its valve body (or Tee in the case of the 3" and 4" models), making sure that the o-ring stays in place.
3. Insert by hand the (8) stainless steel screws but do not tighten at this stage.
4. Using a hand Phillips-head screwdriver, slowly tighten the screws in a diagonal pattern, per the sequence to the right. Do not fully tighten one screw before proceeding to the next, i.e., pull them down slowly multiple times to avoid stressing and cracking the lid. Screws should be tightened to a final torque of 25 inch / pounds.



## OPERATION

The FlowVis® is factory-calibrated to be extremely accurate across its full operating range. Any perceived 'inaccuracy' is related to the viewing angle at which the scale is being read. To avoid so-called 'parallax error', it is important to position your eye so that you are looking squarely at the tip of the indicator arm. To achieve this, simply move your head so that you just lose sight of the vertical leading edge of the red arm.

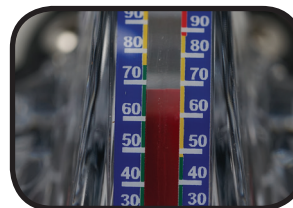
**NOTE:** Slowly move your head in this direction to the point where the leading edge of the indicating arm is not visible.



**(1)** Indicator arm is being viewed too far forward / near the rear of the lid.

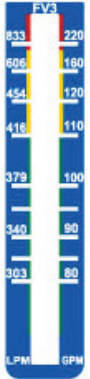


**(2)** Indicator arm is being viewed correctly.



**(3)** Indicator arm is being viewed too far back / front of the lid.

**OPERATION - READING VELOCITY**



The FlowVis® scale not only shows flow rate, but also an indication of velocity.

Alongside the flow rate values are green, yellow, and red bands; these relate to velocity rates of:

Color	Velocity (Feet Per Second)	Velocity (Meters Per Second)
Green	5	1.52
Yellow	7	2.13
Red	9	2.74

**MAINTENANCE**

Although FlowVis® is designed to be maintenance-free, periodic checks should be made to the following:

Condition	Check for	Remedy
Leak around lid seal	O-Ring Failure	Replace O-Ring
Leak from lid	Cracks in lid	Order new lid from supplier
Higher flow reading than normal	Broken or weak spring	Replace spring
Lower flow reading than normal	Indicator arm stuck due to debris	Remove lid and clear debris
Flow indicator stuck at one position	Debris between indicator arm and lid	Remove lid and clear debris
Indicator always at max flow when pump running	Broken spring	Replace spring
Flapper seal crinkled	Chlorinator check valve failure	Repair chlorinator, order FlowVis® Service Repair Kit. Consider moving FlowVis® to a different location (see 'Chlorine Feeders' section on pg. 4).

## SPECIFICATIONS

### Materials used:

Item	Material / Comments
Lid	Polycarbonate
Valve Body (1.5", 2", and 2.5")	CPVC
Lid Screws	316 Stainless Steel
O-ring	Silicone Lubricated Elastomer
Scale label, Product label, NSF label	Polycarbonate
Pivot Pin	Glass Filled Plastic
Spring	316 Stainless Steel. Hastelloy C-276 post Nov. 2015
3" and 4" Tee and reducing bushings	PVC
Indicator Arm	ABS
Flapper (1.5", 2", and 2.5")	PPEPS
Flapper Seal (1.5", 2", and 2.5")	Viton
Flapper Model FV-C-S only	ABS
Lower Flapper (3" and 4" only)	ABS
Interconnecting link (3" and 4" only)	Stainless Steel
Lower Retaining Pins (3" and 4" only)	Stainless Steel

### Operation:

Function	Models	Comments
Max working pressure	All models	50 psi
Head Loss on 2" pipe	FV-C	0.77 psi at 20 gpm 2.23 at 110 gpm
Head Loss on 2.5" pipe	FV-C	0.71 psi at 21.3 gpm 2.37 psi at 112.6 gpm
Accuracy	FV-C	Average: 97.9%
Min / Max operating ambient temp	All models	32°F (0°C) / 140°F (60°C)
Periodic calibration	All models	None required
Design life	All models	Greater than 5 years



## WARRANTY

**IMPORTANT, please read and keep this document on record.**

### 1. Definition

H2flow Controls Inc. warrants that the products that it manufactures and sells will be free from defects in material and workmanship for a period of 12 months from the date of shipment.

Should the product prove defective during the warranty period, H2flow Controls Inc, at its discretion, either will repair the defective product or replace it with an equivalent product in exchange for the defective unit without charge for parts, labor, carriage and insurance.

### 2. Eligibility

This warranty extends to the original purchaser only or to the end-user client of an H2flow Controls Inc authorized affiliate.

### 3. How to obtain service

To obtain service under the terms of this warranty, the customer is required to notify H2flow Controls Inc. before the expiration of the warranty period and to return the item in accordance with H2flow Controls Inc's product return policy. Any product returned for warranty repair must be accompanied by a full fault report specifying the symptoms and the conditions under which the fault occurs. Should H2flow Controls Inc incur additional cost as a result of a failure to complete the appropriate paperwork, an administrative charge may be levied.

### 4. Exclusions

This warranty shall not apply to any defect, failure or damage caused by improper use or improper or inadequate care. H2flow Controls Inc. shall not be obligated to provide service under this warranty if:

- a) damage has been caused by a failure to make a full and proper inspection of the product (as described by the documentation enclosed with the product at the time of shipment) on initial receipt of the product following shipment;
- b) damage has been caused by the attempts of individuals, other than H2flow Controls Inc staff to repair or service the product;
- c) damage has been caused by the improper use of the product, including but not limited to, the installation of a FlowVis® unit using a chlorination system as described on page 2 of this manual.

### 5. Charges

Under cover of this warranty, H2flow Controls Inc will pay the carriage and insurance charges for the shipment of defective product back to H2flow Controls Inc and for its return to the client's original site of dispatch except when:

- a) H2flow Controls Inc's product return policy has not been followed.
- b) product failure is caused by any of the exclusions described at paragraph 4 above, when the customer will be liable for the full cost of the repair (parts and labor) plus all carriage and insurance costs to and from H2flow Controls Inc's premises.
- c) the product is damaged in transit and a contributory cause is inadequate packaging. It is the customer's responsibility to ensure that the packaging used to return equipment to H2flow Controls Inc is the same, or has equivalent protective qualities, to that used to ship the product to the customer in the first instance. Any damage resulting from the use of inadequate packaging will nullify H2flow Controls Inc's obligations under this warranty.

Should the customer's product be damaged in transit following a repair at H2flow Controls Inc's site, a full photographic record of the damage must be obtained (packaging and the product) to support any claim for recompense. Failure to present this evidence may limit H2flow Controls Inc's obligations under this warranty.

**THIS WARRANTY IS GIVEN BY H2FLOW CONTROLS INC IN LIEU OF ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING BUT NOT LIMITED TO ANY IMPLIED WARRANTY OF MERCHANTABILITY, NON INFRINGEMENT OR FITNESS FOR A PARTICULAR PURPOSE. H2FLOW CONTROLS INC SHALL NOT BE LIABLE FOR ANY SPECIAL, INDIRECT, INCIDENTAL OR CONSEQUENTIAL DAMAGES OR LOSSES. WE SPECIFICALLY DISCLAIM ANY AND ALL WARRANTIES TO CUSTOMERS OF THE CUSTOMER. THE CUSTOMER'S SOLE REMEDY FOR ANY BREACH OF WARRANTY IS THE REPAIR OR REPLACEMENT, AT H2FLOW CONTROLS INC'S DISCRETION, OF THE FAILED PRODUCT.**

---

**NOTES**



---

**H2flow Controls, Inc., 3545 Silica Road, Unit F, Sylvania, OH 43560 U.S.A.**  
**Tel: 888-635-0296 • Fax: 419-517-9900**  
**For international sales and service, please visit our website: [www.h2flow.net](http://www.h2flow.net)**

Release 3.3 10/15 English