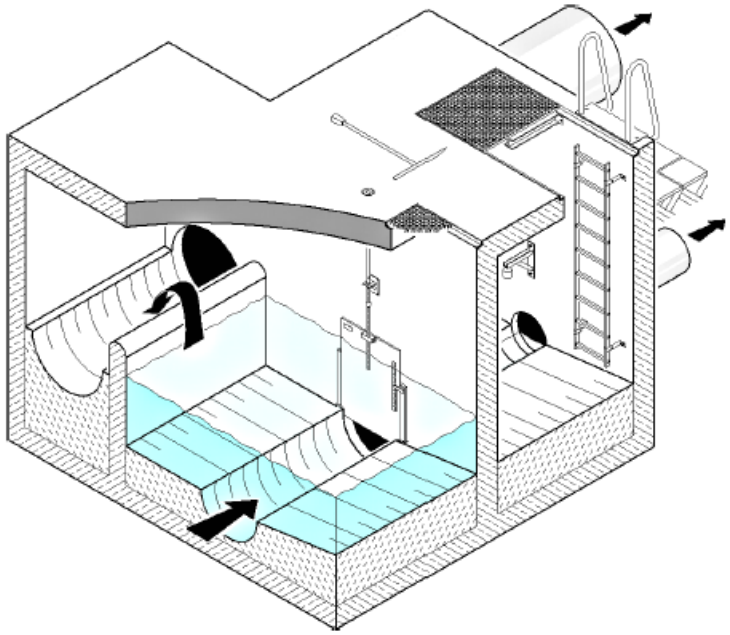
FLUIDGATE CONTROL VALVE INSTALLATION, OPERATION AND MAINTENANCE MANUAL



HYDROVEX®

FLUIDGATE CONTROL VALVE
INSTALLATION, OPERATION, AND MAINTENANCE MANUAL

PROJECT	:	
EQUIPMENT LOCATION	:	
DESCRIPTION	:	**FLUIDGATE CONTROL VALVE**
TYPE	:	**HYDROVEX®**
REFERENCE N° OF THE SUPPLIER	:	
MODEL N°	:	
SERIAL N°	:	
UNIT WEIGHT	:	
DATE OF FABRICATION	:	
DATE OF DELIVERY	:	
SUPPLIER	:	**Veolia Water Technologies Canada Inc.** *4105 Sartelon* *Montreal, Quebec* *H4S 2B3* *Tel.: (514) 334-7230* *Fax: (514) 334-5070* *E-Mail: cso@veolia.com* ***ISO 9001:2000***

WARRANTY

CLIENT NAME	**:**
OUR REFERENCE N°	**:**
PROJECT NAME	**:**
PROJECT LOCATION	**:**
REGULATOR MODEL	**:**
SERIAL NUMBER	**:**
DELIVERY DATE	**:**

The manufacturer, **Veolia Water Technologies Canada Inc.** warrants for a period of 5 years, starting from the delivery date, its' "FluidGate Control Valve" against workmanship defects and failure to perform, once installed and used in conditions for which it had been originally designed and sold.

Veolia Water Technologies Canada Inc. warrants that the actual flow as measured under the original installation conditions will not exceed plus or minus 5% of the flow shown on the certified curve provided with the regulating valve.

HYDROVEX® FluidGate Control Valves shall be installed in accordance with **Veolia Water Technologies Canada Inc.** recommendations.

This warranty shall be void if repairs and/or alterations are made without **Veolia Water Technologies Canada Inc.** authorization.

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Section 1.0 GENERAL INFORMATION

The **HYDROVEX®** FluidGate Control Valve is a static device, which controls discharge without the aid of moving parts. The control is accomplished based on the orifice principle and depends solely on the upstream water level.

THE **HYDROVEX®** FLUIDGATE CONTROL VALVE CAN ONLY WORK EFFECTIVELY IF THE INSTALLATION IS PROPERLY CARRIED OUT.

Prior to installation, it is recommended that the installation procedure be followed carefully and that:

- The contractor or subcontractor is familiar with the installation procedures of the **HYDROVEX®** FluidGate Control Valve.
- The various elevations, as shown on the approval drawings, have been verified and respected.
- The access hatch to the regulator chamber has a sufficiently large opening for allowing the passage of the **HYDROVEX**.
- That you acquire all the necessary components of the **HYDROVEX®** valve required for installation.

If you have any problems or questions concerning the installation procedure, **DO NOT HESITATE** to contact the **HYDROVEX®** division at:

Veolia Water Technologies Canada Inc.
4105 Sartelon
Montreal, Quebec
H4S 2B3
Tel.: (514) 334-7230
Fax: (514) 334-5070
E-Mail: cso@veolia.com

Section 2.0 APPROVED SHOP DRAWINGS AND DISCHARGE CURVES

The approved drawings and discharge curves included hereafter have been approved by the consultant. This information was used for fabrication and to evaluate the performances of the equipment.

Section 3.0 INSTALLATION PROCEDURES

3.1 UNIT DESCRIPTION

The model number provides important details required for installation of the **HYDROVEX®** control valve, for example: **FG-250 ST.**

Number **250** indicates the **HYDROVEX®** flow regulator outlet pipe diameter in millimeters. To obtain the exact outlet pipe diameter of the flow regulator, you divide by 25.4 (100mm = 3 15/16 inches).

Letter **S** indicates the presence of an extended threaded rod that can be used to vary the opening.

Letters **ST** indicate the presence of a handle and pullcord and a stopper.

3.2 PREPARATION FOR INSTALLATION

The regulator outlet pipe should be cleared and properly cleaned prior to installation. In order to carry out the installation, it may be necessary to have lifting equipment available.

The **HYDROVEX®** regulator is delivered complete. It is lowered into position either by hand (using ropes or cables attached to the main orifice).

3.3 INSTALLING THE HYDROVEX® REGULATOR

Alignment of the **HYDROVEX®** regulator is made by placing the back plate orifice in the center of the outlet chamber pipe and making sure that the back plate is leveled and that the track can be pulled upward.

The back plate bolts are installed and hand tightened, but not locked in place. Install the rubber-packing rings to seal the joint between the concrete and the back plate.

NOTE: Proper operation of the **HYDROVEX®** FluidGate Control Valve is ensured only if the correct mounting leveling of the device is respected

ANCHOR INSTALLATION PROCEDURE

1. Using a proper diameter bit, drill a hole into the base material to a depth of at least 1/2" or one anchor diameter deeper than the embedment required.
2. Blow the hole clean of dust and other material.
3. Position the washer on the anchor and thread on the nut.
4. Drive the anchor through the fixture into the anchor hole until the nut and washer are firmly seated against the fixture. Be sure the anchor is driven to the required embedment depth.
5. Tighten the anchor by turning the nut 3 to 4 turns.

Size	Drill Bit Diam.	Minimum Embedment	Thread Length
3/8" x 5"	3/8"	1 5/8"	3 5/8"
½" x 5 ½"	½"	2 ¼"	3 3/4"

Section 4.0 OPERATION

The basic operating principle governing the **HYDROVEX®** regulator is the use of orifice principle. The gate is fixed to a pre-calculated « s » height, which gives a relatively large flow area based on a circular shape. In low flow conditions, the flow is not controlled by the valve and simply passes under the gate. As the water level rises above the crest of the gate opening, the flow is throttled by the horizontal section of the gate, strongly accelerated and « pushed » downwards. From this is created, behind the regulated opening, a hydraulic jump that makes the flow dependant on backflow.

In normal conditions, the **HYDROVEX® *Fluid*Gate** control valve is partially open. It can also be closed to create retention, or open for inspection and debris removal. This valve is by no means watertight, but rather of the « drop by drop » type or leaking type.

The **HYDROVEX®** flow regulator controls the discharge without moving parts. It does not require any external signals or electricity. The discharge curve for a given **HYDROVEX®** FluidGate depends entirely on the opening of the valve itself, the water level and the installation parameters.

The **HYDROVEX®** control gate does not allow for flow modulation; however certain parameters may be changed, such as the gate opening, to obtain a new discharge curve.

Section 5 MAINTENANCE

5.1 INSPECTION

The **HYDROVEX®** FluidGate is a passive device that does not require manual operation. It is recommended that a regular visual inspection be carried out, particularly during start-up period or after construction works are completed upstream from the chamber. The attached "Maintenance Schedule" provides information on the recommended maintenance intervals. Please refer to the Table below.

MAINTENANCE INTERVAL	MAINTENANCE PROCEDURE
Three (3) months after start of operation and after first heavy rainfall	- Visual check - Inspect valve inlet and outlet; open gate, remove coarse debris (if any)
Then every six (6) months	As above

The **HYDROVEX®** FluidGate is not a waste grinder unit. Debris that is larger than orifice may become lodged in the inlet. Such debris must be manually removed when detected. This debris may also cause unit to malfunction.

Once every year, a full inspection of the unit is recommended, including removal of the sliding gate, cleaning of the area, visual inspection for abnormalities like leaks and cracks in the unit.

5.2 EQUIPMENT TESTING

Trial runs of a newly installed valve are recommended. The testing is the responsibility of the owner; however **Veolia Water Technologies Canada Inc.** will be pleased to give any advice concerning the tests. The recommended procedure is to allow the water level to rise in the chamber to its maximum level by blocking the outlet pipe with a blocking balloon, then quickly deflating the balloon. At that point, the **HYDROVEX®** FluidGate control valve should be operating in full orifice flow. If the unit does not operate in orifice mode even at the maximum head in the chamber, ensure that water is flowing out of the unit. If the unit is not obstructed, the flow should be significant and fast. If you still feel that the unit is blocked, check the inlet for any obstructions. If any obstruction is found, remove it and repeat the procedure.