



Flow Stop Toilet Leak Prevention System

Saves money, water, and provides peace of mind

Stop Wasting Water



- Nearly **1 trillion gallons** of water is wasted in the USA every year
 - The majority of that flows directly down the drain
- A minor toilet leak can consume over 6,000 gallons per month
 - This translates to over **\$1,000 per year** in water and sewage costs
- The opportunity for saving is massive
 - Approximately 2.8 billion toilets in the world
 - Over 320 million toilets in the USA

Market Need - Conservation



- Over one trillion gallons of water flows down the drain every year at an estimated utility cost of \$17B annually
- This is on average greater than \$50 per toilet
 - An open flapper can cost close to **\$1,000** per month per toilet

Number of Toilets	320,000,000	Units
Fill Valve Flow	1.50	Gallons Per Minute

Minutes Per Day	1,440	Minutes
Days Per Month	30	Days
Months Per Year	12	Months

Water Rate	\$0.00566
Sewage Rate	\$0.00895

Flow Coefficient	Failure Modes	Occurrence	Units	Leak Rate Per Month (gal)	Total Leak Per Month (gal)	Annual Waste (gal)	Cost Per Month
100.00%	Flapper Open	0.30%	960,000	65,700	63,072,000,000	756,864,000,000	\$959.87700
0.10%	Flapper Seal	3.00%	9,600,000	66	630,720,000	7,568,640,000	\$0.95988
0.30%	Fill Valve Leak	1.00%	3,200,000	197	630,720,000	7,568,640,000	\$2.87963
80.00%	Fill Valve Fail	0.20%	640,000	52,560	33,638,400,000	403,660,800,000	\$767.90160
	TOTALS	4.50%	14,400,000		97,971,840,000	1,175,662,080,000	

Annual Water Loss	\$1,175,662,080,000	Gallons
Utility Cost	\$17,176,422,989	Per Year

Cost Per Toilet	\$53.67632	Per Year
	\$4.47303	Per Month

Market Need – Reduce Water Damage



- The majority of home and building insurance claims are related to water damage.
- This costs the US insurance industry **\$2.5B per year**. In the US approximately **14,000 homes each day experience a water emergency**.¹
- Toilet failures are the ***second leading source of residential water losses***, after plumbing supply line failures. A detailed review² revealed:
 - **78%** of all toilet failures were caused by faulty supply lines, toilet flanges, fill valve assemblies or toilets that have backed up and overflowed.
 - Toilet failures cost an average of **\$5,584** per incident, after the deductible was paid.
 - Approximately **14%** of all toilet failures occurred in unoccupied homes.

1. AIG, *Report on water damage claims*, 2016

2. Insurance Institute for Business & Home Safety, *Water damage study*, 2018

Four Primary Failure Modes of the Toilet



1. **Toilet is clogged**

- *Fill valve never closes and water spills over the bowl*

2. **Flapper valve remains open**

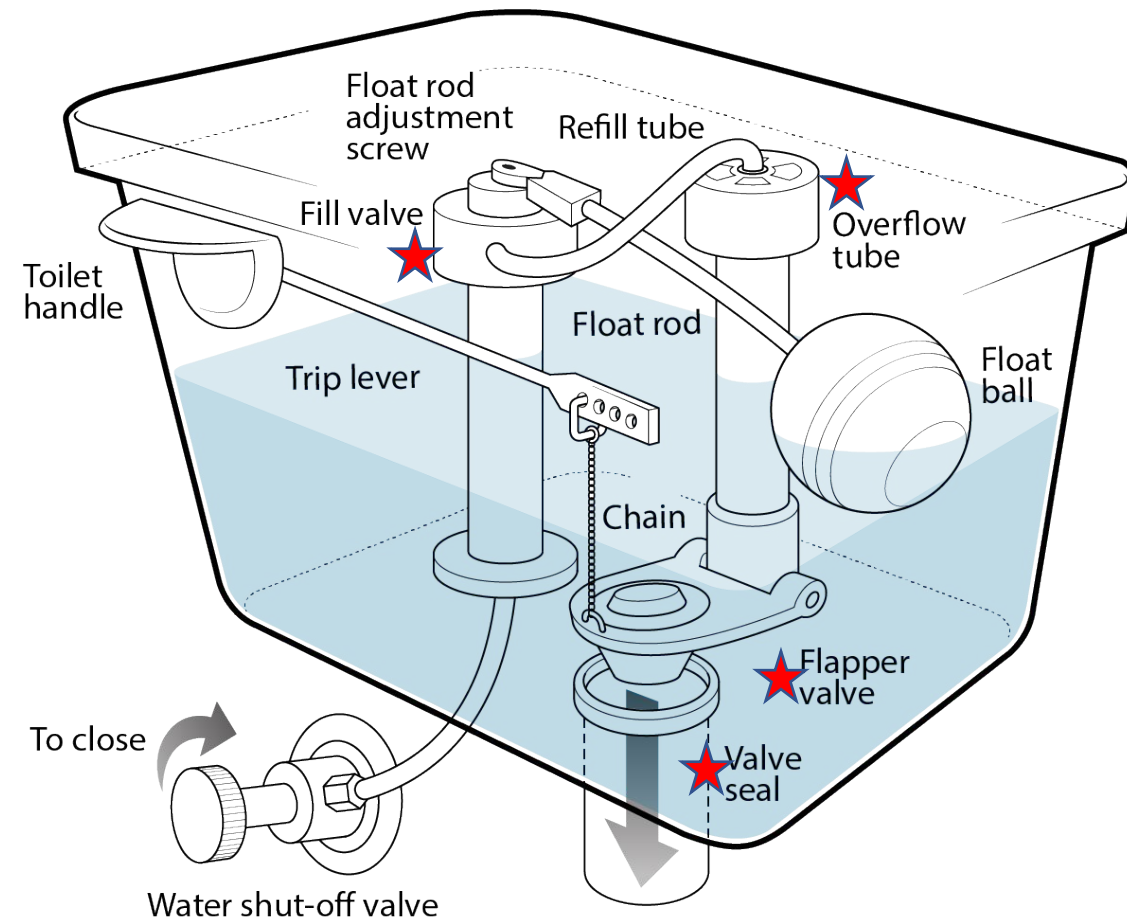
- Filler valve remains continuously open since the tank is never filled

3. **Flapper valve seal is compromised**

- Filler valve is actuated intermittently in order to “top off” the tank

4. **Fill valve is compromised**

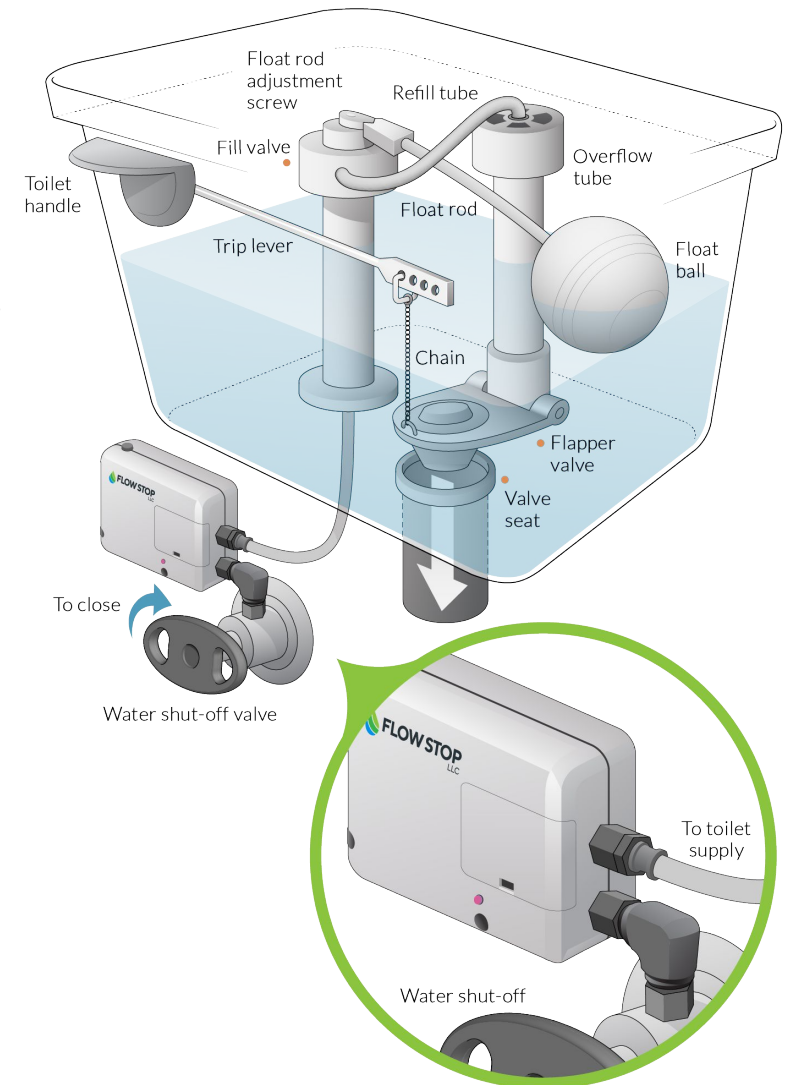
- Tank is overfilled with excess removed through overflow tube



How Does it Work?



- Flow Stop is an “active water leak device” that monitors the **flow signature** of the toilet
 - Any water flow that is inconsistent with proper operation is identified and stopped by shutting off the water supply to the toilet
- Flow Stop protects from **both** water on the floor **and** water down the drain:
 1. Protects from flapper and fill valve failures
 2. Protects from overflow due to drain clogs
 3. Protects from burst supply hoses



Flow Stop Features



Mechanical reset switch restores flow

Optional wireless connectivity for alerts and notifications



Standard fittings for easy installation

Sealed enclosure protects electronic components

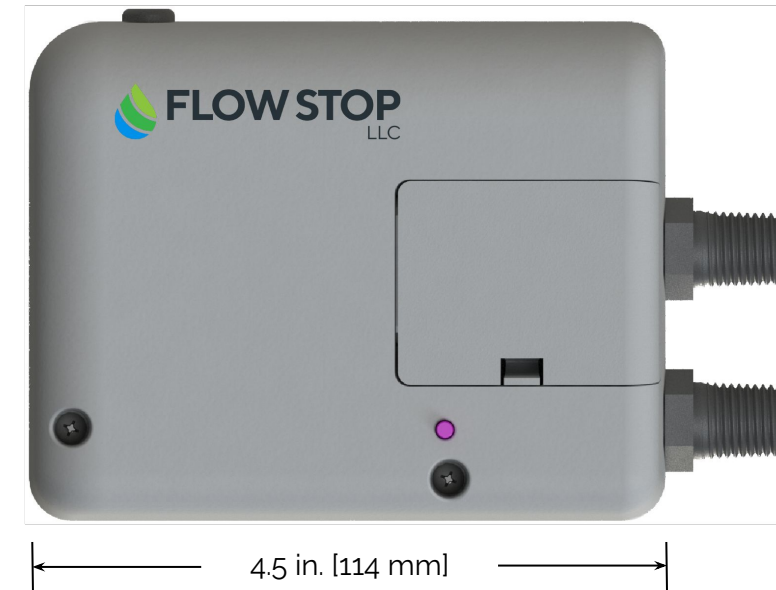
Valve shut-off test switch

Replaceable nine volt alkaline battery lasts over three years

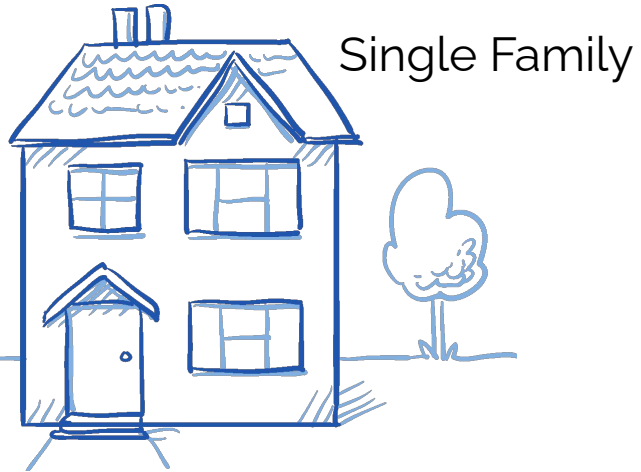
Product Specifications



Feature	Description
Valve Shut-Off	Integrated custom valve body with manual reset
Working pressure	Up to 120 psi
Battery	9V alkaline; primary
Battery life	3 years
Notifications	Audible low battery alert
Fittings	1/4" NPT



Flow Stop Applications



- **PEACE OF MIND**

- Address *all* toilet leak conditions: ***on the floor and down the drain***

- **SAVES MONEY**

- Eliminates excess water and sewage costs

- **ENVIRONMENTALLY RESPONSIBLE**

- Eliminates wasting our most valuable resource



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