



Part B: Product group definition | Commercial flushometer valves

Initiators	TOTO USA Visit an SM Transparency Report for commercial flushometer valves: http://www.sustainableminds.com/showroom/toto/
Other company(s) and organization(s) involved	TOTO USA, Sloan Valve Company, Zurn Industries

Product group

Name	Commercial Flushometer Valves	CSI MasterFormat® #(s)	22 42 43
Description Define the types of products included under this Part B	Flushometer valves intended for use with a toilet or urinal fixture as the dispensing unit for the water supplied		
New Part B request? Yes / No	No	Is this an update to an existing Part B? Yes / No	Yes
Validity date	07/03/2018 – 07/03/2023		
Existing PCRs, EPDs, SM TRs or LCAs This information will be used to identify additional rules for comparability and to substantiate the rationale for creating a Part B.	<p>This Part B is an update to: http://www.sustainableminds.com/files/transparency/pgds/Part_B_Commercial_Flushometer_Valves_12.13.2016.pdf</p> <p>Institut Bauen und Umwelt e.V.: PCR Guidance-Texts for Building-Related Products and Service From the range of Environmental Product Declarations of Institute Construction and Environment e.V. (IBU), Part B: Requirements on the EPD for Bathroom fittings and showers. October 2013 www.bau-umwelt.de</p> <p>This European guidance document applies to bathroom fittings and showers. It does not contain any relevant additional rules specific to this product group.</p>		
Any relevant literature and/or published material	Updated according to new product cleaning assumptions and use phase data provided in the new PMI Product Category Rule (PCR) Guidance for Kitchen and Bath Fixture Fittings [1].		

Functional performance

Standard/certification	URL
Water consumption – EPAAct 1992	http://www.ferc.gov/legal/maj-ord-reg/epa.pdf
Water consumption - WaterSense – urinal	http://www.epa.gov/WaterSense/docs/urinal_finalspec508.pdf
Functional performance – ASSE 1037	http://stores.assewebstore.com/asse-standard-1037-1990/

Functional / declared unit

Unit	10 years of use of a flushometer valve for toilets (single flush and dual flush) and urinals in an average US commercial environment
Rationale	<ul style="list-style-type: none"> Product available and used in US market 10 years is an industry accepted average lifespan that is based on the economic lifespan of a product; this is more limited due to changes in consumer preferences and innovations in water usage than the technical lifespan of the product. The valve lifespan is much greater with proper maintenance. Electrical and other hardware components, especially related to rubbers for water tight connections and moving parts, will require replacement beyond this timeframe. Flushometer valves are intended for use with a toilet or urinal fixture as the dispensing unit for the water supplied

Additional rules for comparability

1. Clarification More product group specificity as needed	None																
2. Add rules to Part A	Water and wastewater infrastructure are excluded.																
3. Default life cycle stage scenario(s)	<p><u>Default use phase scenario in flushometer valves – single flush toilet combination:</u></p> <p>The single flush flushometer valve with a toilet is assumed to be used in an average US commercial environment over a 10-year time period with an average of 60 flushes per day, 260 days per year [1]. The flushometer valve is assumed to be cleaned daily, 7 days a week, 52 weeks per year with 10mL of a 1% sodium lauryl sulfate solution [1]. Any electricity used in flushometer valve operation is included. The volume of water per flush varies and depends on the specific product to which this Part B applies.</p> <p><u>Default use phase scenario in flushometer valves – dual flush toilet combination:</u></p> <p>The dual flush flushometer valve with a toilet is assumed to be used in an average US commercial environment over a 10-year time period with an average of 90 flushes per day, 260 days per year [1]. The flushometer valve is assumed to be cleaned daily, 7 days a week, 52 weeks per year with 10mL of a 1% sodium lauryl sulfate solution [1]. Any electricity used in flushometer valve operation is included. The volume of water per flush varies and depends on the specific product to which this Part B applies.</p> <p><u>Default use phase scenario in flushometer valves – urinal combination:</u></p> <p>The flushometer valve with a urinal is assumed to be used in an average US commercial environment over a 10-year time period with an average of 60 flushes per day, 260 days per year [1]. The flushometer valve is assumed to be cleaned daily, 7 days a week, 52 weeks per year with 10mL of a 1% sodium lauryl sulfate solution [1]. Any electricity used in flushometer valve operation is included. The volume of water per flush varies and depends on the specific product to which this Part B applies.</p> <p><u>Transportation assumptions:</u></p> <p>Primary data should be used for the transportation distances between the manufacturer and the distributor. Unless otherwise known, assume transportation distances of 500km from the distributor to the installation site and 100km from the installation site to waste processing, via diesel-powered truck/trailer [1].</p> <p><u>Electricity consumption for water supply and treatment:</u></p> <p>Water usage in a commercial facility would also include electricity usage for acquisition, treatment and distribution of water to facilities and collection, conveyance and wastewater treatment of domestic wastewater. The Electric Power Research Institute (EPRI) published this type of data in a study on water and sustainability. EPA's data were used to establish weighted average composite factors, to obtain an electricity usage per gallon of water consumed. Use this table to calculate the electricity used for water supply and treatment:</p> <p>Table: Average National Electricity Usage Factors</p> <table border="1" data-bbox="483 1514 1430 1957"> <thead> <tr> <th data-bbox="483 1514 976 1612">Activity</th> <th data-bbox="976 1514 1190 1612">EPRI factors: kWh / MMgal^{Note 1}</th> <th data-bbox="1190 1514 1430 1612">Weighted avg composite factors: kWh / MMgal</th> </tr> </thead> <tbody> <tr> <td data-bbox="483 1612 976 1682">Acquisition, treatment and distribution of surface water by a Public Water System (PWS)</td> <td data-bbox="976 1612 1190 1682">1,406</td> <td data-bbox="1190 1612 1430 1749" rowspan="2">1,540^{Note 2}</td> </tr> <tr> <td data-bbox="483 1682 976 1749">Acquisition, treatment and distribution of ground water by a PWS</td> <td data-bbox="976 1682 1190 1749">1,824</td> </tr> <tr> <td data-bbox="483 1749 976 1829">Self-supply of drinking water (typically pumping from private wells)</td> <td data-bbox="976 1749 1190 1829">700</td> <td data-bbox="1190 1749 1430 1829">700</td> </tr> <tr> <td data-bbox="483 1829 976 1898">Collection, conveyance and < secondary treatment of domestic wastewater</td> <td data-bbox="976 1829 1190 1898">661</td> <td data-bbox="1190 1829 1430 1957" rowspan="2"></td> </tr> <tr> <td data-bbox="483 1898 976 1957">Collection, conveyance and secondary treatment of domestic wastewater</td> <td data-bbox="976 1898 1190 1957">1,212</td> </tr> </tbody> </table>	Activity	EPRI factors: kWh / MMgal ^{Note 1}	Weighted avg composite factors: kWh / MMgal	Acquisition, treatment and distribution of surface water by a Public Water System (PWS)	1,406	1,540 ^{Note 2}	Acquisition, treatment and distribution of ground water by a PWS	1,824	Self-supply of drinking water (typically pumping from private wells)	700	700	Collection, conveyance and < secondary treatment of domestic wastewater	661		Collection, conveyance and secondary treatment of domestic wastewater	1,212
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	Collection, conveyance and advanced treatment of domestic wastewater	1,726	1,399 ^{Note 3}
	Collection, conveyance and zero discharge/other treatment of domestic wastewater	400	
	Total electricity per million gallons →		3,639
	Total kWh electricity per 1 gallon →		0.0036
<p>Note 1: Source: EPRI, Water & Sustainability (Volume 4): U.S. Electricity Consumption for Water Supply & Treatment -- The Next Half Century, March 2002.</p> <p>Note 2: Source: U.S. Environmental Protection Agency (EPA), Office of Water (4606) Drinking Water Treatment, June 2004 http://water.epa.gov/lawsregs/guidance/sdwa/upload/2009_08_28_sdwa_fs_30ann_treatment_w eb.pdf. This document cites 68% of population served by PWSs relies on surface water while 32% relies on ground water.</p> <p>Note 3: Source: U.S. Environmental Protection Agency (EPA), Clean Watersheds Needs Survey 2008 Report to Congress http://water.epa.gov/scitech/datait/databases/cwns/upload/cwns2008rtc.pdf. This report cites 1.7% of POTW-served population receives < secondary treatment, 40.9% receives secondary treatment, 49.9% receives advanced treatment, and 7.5% receives zero discharge or other treatment.</p> <p>[1] Plumbing Manufacturers International (PMI), Product Category Rule (PCR) Guidance for Kitchen and Bath Fixture Fittings https://www.safeplumbing.org/files/safeplumbing.org/documents/resources/PMI-Kitchen-and-Bath-Fixture-Fitting-PCR-Guidance-Document.pdf.</p>			

Additional LCA calculation rules

N/A	Optional	Required	Indicate whether compliance is the manufacturer's choice or required for SM TRs/EPDs. Refer to Part A: Compatibility appendices for content requirements.
	X		ISO 21930