TOTO®

EcoPower® Toilet Flush Valve

TET1LN - Exposed Valve 1.28gpf
TET2LN - Concealed Valve 1.28gpf

Planet-friendly, superior flushing performance is easy to achieve with the EcoPower High Efficiency Toilet Flushometer Valve. Engineered to require no electricity or routine battery replacement, the EcoPower Flushometer Valve saves energy and water while providing maximum performance in even the most demanding commercial spaces. Available as an exposed unit or choose the concealed option for a more sleek look.

Performance Dashboard

Features & functionality

1.28gpf EcoPower® High-Efficiency Toilet (HET) electronic flushometer valve

Hydropower self-generating system

Automatic sensor activated

24 hour automatic flush for trap seal protection

Piston valve technology

Manual override button

ADA compliant

Visit TOTO for more product specifications for:

TET1LN

TET2LN

CSI MasterFormat® #22 42 43

Environmental performance

Improved by:

Powered by the sheer force of running water

Saves 20% more water than standard 1.6gpf valve

Metal parts and electric components are recyclable at the end of service

Certifications & rating systems:

CALGreen® compliant

Contributes to earning credits in LEED®

See LCA results & interpretation

SMART FACT

ECO-POWER® VALVES

- Powered by water to create an electrical current that is stored in rechargeable cells to power the Smart Sensor System of the faucet or valve.
- Reduces electricity use, lower maintenance costs and hands-free, automatic-shut-off functionality.

SM Transparency Report™

VERIFICATION	Report
Certified	✓ NSF
Self-declared	
	LCA
3rd party verified	✓ NSF
Self-declared	

Validity: 10/30/15 – 10/30/18
TOT – 10/30/15 – 012

LCA SCOPE

- ✓ **Cradle to grave**
- ○ Cradle to gate with options
- ○ Cradle to gate

The LCA and Report are independently verified and certified to the SM Transparency Report Framework and ISO 14025.

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LCA results & interpretation

TET1LN & TET2LN

Scope

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Functional unit

One average flush valve for toilets in an average U.S. commercial environment for 10 years.

One flush valve for toilets in an average U.S. commercial environment. The period of 10 years is modeled as the period of application based on the average technical lifespan for commercial applications. The economical lifespan of commercial applications can be longer or lower due to aesthetic replacements or more intense use. The implication is that the LCA model assumes that the application ends at year 10 and that the materials will be treated in an end-of-life scenario.

Reference service life

The RSL is 10 years.

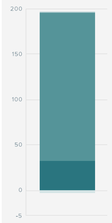
Default use phase scenario

10 years of service in an average U.S. commercial environment in combination with a toilet with 1.28 gallon/use, 133 uses/day, and 365 days/year resulting in 621,376 gallons of water.

Material composition greater than 1% by weight

PART	MATERIAL	AVG. % WT.
Valve body	Bronze (C836000)	25.5%
Packaging	Cardboard	15.2%
Bottom cover	Zinc die cast	14.9%
Top cover	Zinc die cast	13.2%
Valve cap	Bronze (C836000)	8.0%
Valve tailpiece	Bronze (C836000)	3.5%
Manuals	Paper	3.1%
Cover plate	Stainless steel	2.0%
Tailpiece nut	Brass	1.3%
Solenoid coil	Copper	1.1%
	Other	12.2%

Total impacts by life cycle stages [mPts/func unit]



LIFECYCLE STAGE	AVG. MPTS/FUNC UNIT
Production	32.25
Construction	0.06
Use	163.93
End of life	0.06
Recovery	-2.89

Total impacts = 193.40 mPts
per 10 years of service

What's causing the greatest impacts

All lifecycle stages

The use and production stages are both important and dominate the results for all impact categories.

The impact of the use stage is mostly due to the embedded energy arising from acquisition, treatment and distribution of the water used during the use of the product (i.e. a toilet or a urinal) to which the valves are installed. The production stage itself has a significant contribution to eutrophication (mostly from emissions from copper mining), non-carcinogens (emissions from the production of coal, copper and zinc) and ecotoxicity (mostly from the disposal of steel slags and bottom ashes, as well as from barium emissions to water due to the extraction processes of natural gas).

The recovery stage includes recycling processes and benefits by preventing the need to produce primary materials. Recycling is a relevant factor for some of the impact categories, offsetting a portion of the impacts caused by production. Additionally, the delivery of the product to the construction/installation site, the construction/installation processes, the processes for dismantling the product and final waste treatment during the end of life stage do not have a significant impact.

Production stage

Bronze and zinc parts, together with the printed wiring board, have significant contributions to the impact categories. The stainless steel material is relevant to the carcinogenics category. The electroplating process is a major contributor to the ozone depletion category while the die casting process is relevant to the ecotoxicity and non-carcinogenics categories. Additionally, polishing and potting have somewhat significant processing contribution to the results. Transport via oceanic freighter appears as a relevant contributor to the fossil fuel depletion and smog categories. The remaining parts and processes contribute between 3% and 15% to the overall impacts in the rest of the categories.

Sensitivity analysis

The TET1LN and TET2LN versions are equal in the use phase; therefore, variations in the life cycle are driven by materials and processes that are used in one version of the product but not in the other. Examples are electroplating and zinc die casting, which are only used in the TET1LN version. The TET2LN version does not use zinc, and therefore no zinc die casting and electroplating of the zinc alloy are required.

Multi-product weighted average

Results represent the weighted average using production volumes for the products covered. Variations of specific products for dierences of 10-20% against the average are indicated in purple ; dierences greater than 20% are indicated in red. A dierence greater than 10% is considered significant.

TOTO PeoplePlanetWater. programs improving environmental performance

- TOTO's EcoPower® products are powered by the force of running water.
- The electronic and mechanical components are programmed and designed to allow water flow and accurate flush volume only when needed.
- Water consumption is reduced in the use phase due to superior flushing performance.

LCA results

LIFECYCLE STAGE	PRODUCTION	CONSTRUCTION	USE	END OF LIFE	RECOVERY
Information modules: Included | Excluded*	**A1 Raw Materials**	**A4 Transportation/ Delivery**	**B1 Use**	**C1 Deconstruction/ Demolition**	**D1 Recycling**
*Installation and deconstruction/demolition are mostly manual. The sanitary fittings should not need repair, maintenance or replacement during the modeled life time.	**A2 Transportation**	**A5 Construction/ Installation**	**B2 Maintenance**	**C2 Transportation**	D2 Recovery
Reuse and energy recovery are not modeled for sanitary fittings.	**A3 Manufacturing**		**B3 Repair**	**C3 Waste processing**	D3 Reuse
			B4 Replacement	**C4 Disposal**	
			B5 Refurbishment		
			B6 Operational energy use		
			B7 Operational water use		
					

SM 2013 Learn about SM Single Score results

Impacts per 10 years of service	32.25 mPts	0.06 mPts	163.93 mPts	0.06 mPts	-2.89 mPts
Materials or processes contributing >20% to total impacts in each lifecycle stage	Brass and zinc parts together to the printed wiring board together with manufacturing processes such as polishing and electroplating.	Transportation of the product to installation site or consumer and disposal of packaging.	Volume of water use during the operation of the product and the embedded energy use (such as electricity) in the water used.	Transport to waste processing, waste processing and disposal of material flows transported to a landfill.	Plastic and metal components' recycling processes.

TRACI v2.1

A variation of 10 to 20% | A variation greater than 20%

LIFECYCLE STAGE		PRODUCTION	CONSTRUCTION	USE	END OF LIFE	RECOVERY
Ecological damage						
Impact Category	Unit					
Acidification	**SO_2eq**	1.59E+00	3.93E-03	1.42E+01	4.07E-03	-9.82E-02
Ecotoxicity	**CTU_e**	4.82E+02	1.59E+00	1.31E+03	6.14E-01	-4.11E+01
Eutrophication	**N eq**	9.47E-01	6.42E-04	1.20E+00	4.88E-04	-3.00E-02
Global warming	**CO_2 eq**	9.28E+01	9.01E-01	2.13E+03	5.13E-01	-6.54E+00
Ozone depletion	**CFC-11 eq**	6.38E-06	1.14E-09	8.91E-05	6.23E-08	-4.13E-07
Human health damage						
Impact Category	Unit					
Carcinogenics	**CTU_h**	2.66E-06	8.65E-09	4.47E-05	7.42E-09	-2.46E-07
Non-carcinogenics	**CTU_h**	2.94E-04	8.31E-08	1.98E-04	2.77E-07	-3.06E-05
Respiratory effects	**kg $PM_{2.5}$ eq**	2.05E-01	7.47E-05	9.43E-01	4.74E-04	-1.20E-02
Smog	**kg O_3 eq**	1.08E+01	1.07E-01	9.84E+01	9.57E-02	-1.19E+00
Resources depletion						
Impact Category	Unit					
Fossil fuel depletion	**MJ surplus**	5.26E+01	1.13E+00	1.43E+03	7.88E-01	-5.29E+00

References

LCA Background Report

TOTO Sanitary Fittings Products LCA Background Report (public version), August 2015

SM Transparency Report Framework

Part A: LCA Calculation Rules and Background Report Requirements | Version 2015 (Based on EN15804+A1; in compliance with ISO 14040-44, 14025)

Part B: Product Group Definition – Commercial Flush Valves

SM Transparency Reports enable purchasers and users to compare the environmental performance of products on a life cycle basis. They are designed to present information transparently to make the limitations of comparability more understandable. SM Transparency Reports of products that comply with the same Product Group Definition (PGD) and include the same life cycle stages, but are made by different manufacturers, may not sufficiently align to support direct comparisons. They therefore, cannot be used as comparative assertions unless the conditions defined in ISO 14025 Section 6.7.2. 'Requirements for Comparability' are satisfied.

Rating systems

The intent is to reward project teams for selecting products from manufacturers who have verified improved lifecycle environmental performance.

LEED BD+C: New Construction | v4 - LEED v4

MR Building product disclosure and optimization

Environmental product declarations

SM Transparency Report product credit values:

○ LCA self-declared, Report self-declared	0 product
○ LCA verified, Report self-declared	1/4 product
☑ LCA verified, Report certified	1 product

Green Globes for New Construction and Sustainable Interiors

NC 3.5.1.2 Path B: Prescriptive Path for Building Core and Shell
C 3.5.2.2 and **SI** 4.1.2 Path B: Prescriptive Path for Interior Fit-outs

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How we make it greener

TET1LN & TET2LN

Collapse all

See LCA results by lifecycle stage

CONSTRUCTION

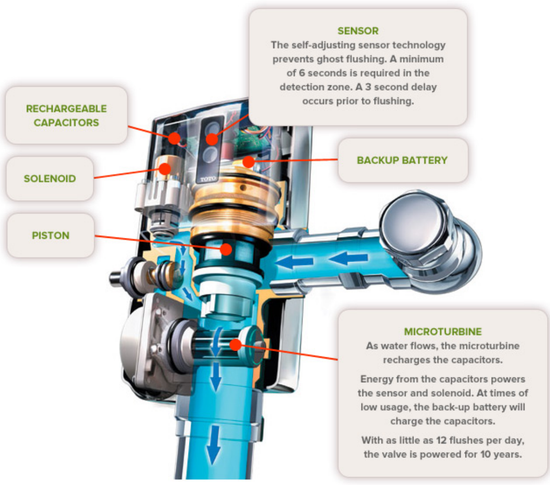
CARBON NEUTRAL SHIPMENT* UPS

SmartWay™ Transport Partner
Getting There With Cleaner Air

TOTO participates in the UPS Carbon Neutral program. TOTO is a certified SmartWay partner.

USE

TOTO's EcoPower® Toilet Flush Valves feature the highly regarded EcoPower technology. Engineered to reduce environmental impacts, TOTO's EcoPower products offer water and energy savings without sacrificing performance. Below are some of the features of TOTO's EcoPower technology.

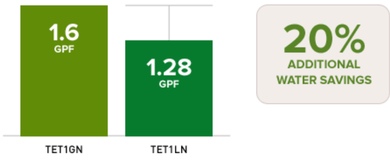


SENSOR:
Ensuring that water flows only when needed, the self-adjusting EcoPower sensor eliminates "ghost" flushing that wastes water. A minimum of six seconds in front of the sensor is required to get its acknowledgement, and a three second flush delay after stepping away from the sensing zone prevents excessive flushing.

MICROTURBINE:
TOTO's EcoPower technology enables the product to operate 100% off grid. As water flows, the microturbine recharges capacitors for the sensor and solenoid. Less reliance on the back-up battery results in much less battery waste.

COURTESY FLUSH:
A 24-hr courtesy flush maintains trap seal during periods of low use, preventing the need for unnecessary cleaning.

PISTON AND SOLENOID:
The piston and solenoid mechanism, a marked improvement over traditional rubber diaphragm type valves, maintains consistent flush volume under a range of supply pressures.



Using the same proven engineering as our legendary EcoPower TET1GN, the TET1LN high-efficiency toilet flush valve reinforces TOTO's performance reputation while offering an additional water savings.

Metal and electronic parts can be recycled at the end of life.

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