

Waterless Urinal Comparison

ERDC/CERL - updated 5/10/06

Criteria	Falcon Waterfree	Sloan Waterfree	Waterless	Duravit AG Dry	ZeroFlush	Regular Flush Urinal - American Standard Inc.	Automatic Flush Urinal - American Standard Inc.
Website	www.falconwaterfree.com	www.sloanvalve.com/waterfreeindex.htm	www.waterless.com	www.duravit.com	www.zeroflush.com	www.us.amstd.com	www.us.amstd.com
Urinal Specs	Vitreous China - 5 urinal models	Vitreous China - 2 urinal models	Fiberglass Reinforced Polyester - 3 urinal models Vitreous China - 2 urinal models	Ceramic with a highly vitreous, pore-free surface	Vitreous China - 2 urinal models Stainless steel - 1 model	Vitreous China, American Std 6541.132.021 Fallbrook 1.0 Gal	Vitreous China, American Std 6601.012.020 Lynbrook VC
Complies with	ADA, ANSI/ASME A112.19.2M-1998 and A117.1 (Section 605.2) for Vitreous China fixtures and with IAPMO IGC 161-2000 and CSA.	ANSI Z124.9, and its corresponding DOD Standard Z124.9-D2D4X2X1. It meets ANSI/ASME A112.19.2.M-1998 for Vitreous China fixtures and complies with ADA and IAPMO IGC 161-2000 requirements.	American National Standards Institute (ANSI) Z124.9, and it's corresponding DOD Standard Z124.9-D2D4X2X1, ASME A112.9.2, CSA®, ICC ES, IAPMO IGC 161-2004, ADA	IAPMO IGC 161-2004	ANSI/ASME A112.19.2.M-1998 and A117.1 (Section 605.2) for Vitreous china fixtures. IAPMO IGC 161-2000 and ANSIZ124.9-94	N/A	N/A
Cost - Urinal	\$240/urinal	\$240/urinal	\$393-408/urinal	\$626.50/urinal (retail on web)	\$399/urinal	\$206.38/urinal	\$204.10
Cost - Trap/Cartridge	\$35/cartridge	\$35/cartridge	\$4.95/trap	N/A	\$28.50/drain insert	\$83.56 ea Flush Valve: Sloan Valve 180-1 Royal Urinal Flushometer	\$278.37 ea Sloan Auto Flush Valve: Sloan Valve 8186 G2 Optima 1.5 gal
Cost - Screen Mesh for Traps	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Cost - Sealant Liquid	no charge – comes with cartridge	no charge – comes with cartridge	\$14.40/qt/15000-20000 uses	\$2 per 100 ml	no charge – comes with drain insert	not needed	not needed
Trap replacement	1 cartridge/ 6000-7000 uses	1 cartridge/ 6000-7000 uses	1 cartridge/7000-10,000 uses	N/A (permanent, fully ceramic siphon that is cast into the urinal)	Drain insert/15,000 uses	not needed	not needed
Trap Design - Models)	Liquid waste enters the cartridge, the sealant liquid creates a barrier between the waste and open air. The cartridge filters uric sediment and allows the remaining waste to be freely disposed of down the drain.	Liquid waste enters the cartridge, the sealant liquid creates a barrier between the waste and open air. The cartridge filters uric sediment and allows the remaining waste to be freely disposed of down the drain.	Urine flows down into the EcoTrap® drain and passes through a floating layer of BlueSeal® liquid, which forms a barrier that prevents sewer vapors from escaping to the rest room atmosphere. The EcoTrap® retains urine sediments.	N/A	Liquid waste enters the drain insert and flows down the drain. The sealant liquid creates a barrier between the waste and open air.	Regular urinal trap	Regular urinal trap

Trap materials	Recyclable ABS (acrylonitrile butadiene styrene)	Recyclable ABS (acrylonitrile butadiene styrene)	Polyethylene	N/A	N/A	N/A	N/A
Trap Disposal	Recyclable, but can be disposed of with ordinary trash refuse (comes with disposal bag)	Recyclable, but can be disposed of with ordinary trash refuse (comes with disposal bag)	Can be disposed of with ordinary trash refuse	N/A	Can be disposed of with ordinary trash refuse	not necessary	not necessary
Biodegradable sealant liquid	Yes	Yes	Yes	Yes	Yes	none needed	none needed
Water Supply Piping	Not needed	Not needed	Not needed	Not needed	Not needed	Cost varies with installation.	Cost varies with installation.
Cost - Annual maintenance	Less than \$100	Less than \$100	Less than \$100	Less than \$100	Less than \$100	Possible flush valve repair	Possible flush valve repair
Necessary Maintenance	Daily debris removal and wipe down with non-abrasive cleaner. Change cartridge about every 7000 uses.	Daily debris removal and wipe down with non-abrasive cleaner. Change cartridge about every 7000 uses.	Daily debris removal and wipe down with non-abrasive cleaner. Periodic replacement of BlueSeal liquid (1-2 times/month). Change cartridge about every 7000 uses.	Daily debris removal and wipe down with non-abrasive cleaner. Monthly flushing (or after 5,000 uses, whichever comes first) with water to clear any deposits. After flushing, about a quart of water is added along with 3.4 oz. of McDry Blue, which consists of the oil hexyldecanol and a small amount of perfume.	Daily debris removal and wipe down with non-abrasive cleaner. After approximately 15,000, remove the drain insert and rinse the waste line with some water and cleaner. Replace the drain insert and pour in 1 quart of water followed by one 10oz. container of ZeroFlush® Odor barrier fluid through the drain insert.	Daily debris removal and wipe down with non-abrasive cleaner.	Daily debris removal and wipe down with non-abrasive cleaner.
MSDS for liquid	Haz. Ingrid: 4-Chloro-3,5-dimethylphenol-.003% wt, CAS # 88-04-0 Eyes: direct contact may cause irritation Skin: repeated contact may cause irritation Inhalation: breathing dust may irritate nose Ingestion: swallowing large quantities may cause nausea, vomiting, diarrhea, abd. pain	Haz. Ingrid: 4-Chloro-3,5-dimethylphenol-.003% wt, CAS # 88-04-0 Eyes: direct contact may cause irritation Skin: repeated contact may cause irritation Inhalation: breathing dust may irritate nose Ingestion: swallowing large quantities may cause nausea, vomiting, diarrhea, abd. pain	Haz. Ingrid: aliphatic alcohol and surfactants - 50 ppm (CAS # mixture); "No" for suspected cancer agent, OSHA regulated, NTP, IARC, Prop 65; concentrate: Eyes: irritating Skin: repeated contact may cause irritation Inhalation: negligible hazard at ambient temp. Ingestion: may result in vomiting	No MSDS was found: Hexyldecanol is a natural oil product derived from palm, coconut, and vegetable oils	100% Natural Biodegradable. Rapeseed Oil, Fully refined, Solventblue 36/ Solventblue 59.n MSDS at http://www.zeroflush.com/MSDS.pdf	none needed	none needed
ISO 9000 & 14000	Meets standards	Meets standards	Meets standards	Meets standards	Meets standards	Meets Standards	Meets Standards

***Annual Water savings vs. low flush (1-1.6gal)	42,400 Gallons @ 1.6 gal	42,400 Gallons @ 1.6 gal	42,400 Gallons @ 1.6 gal	42,400 Gallons @ 1.6 gal	42,400 Gallons @ 1.6 gal	15,840 gallons @ 1 gal flush instead of 1.6 gallon	Negligible
*Annual Water savings vs. older versions (3 gal)	79,200 gallons @ 3 gal	79,200 gallons @ 3 gal	79,200 gallons @ 3 gal	79,200 gallons @ 3 gal	79,200 gallons @ 3 gal	52,800 Gallons @ 1 gal/ flush instead of 3	39,600 @ 1.5 gal/ flush instead of 3
Purchase/Lease options	Can do leasing/service contract	Can do leasing/service contract	Leasing plan	N/A	N/A	N/A	N/A
Presently in Use	Safeco Field, Seattle, Boeing, Pro Player Stadium, Rose Bowl in Pasadena, U.S. Navy only federal facility listed	San Diego Zoo, London's Heathrow Airport, University of North Carolina, Miami's Pro Player stadium, UCLA Football Stadium	Depts. of Defense, Interior, Post Office, GSA, NASA	University of Washington	N/A	Many places - this is a popular model	Many places - this is a popular model
Independent testing	UCLA, SGS Report No. 152768-R, IAPMO File No. C-4099	SGS Report No. 152678-R, IAPMO File No. C-4107	SGS Report No. TS97-0229R,	IAPMO File No. C-4250	N/A	N/A	N/A

*NOTE: Water savings based on typical rest room with 1 urinal, 40 men, 3 visits by user per day & 3 GPF, and 220 working days = 79,200 gallons per year.
***NOTE: Water savings based on typical rest room with 1 urinal, 40 men, 3 visits by user per day & 1.6 GPF, and 220 working days = 42,400 gallons per year.
Please see http://www.eere.energy.gov/femp/technologies/water_basics.cfm for combined water and sewer rates.

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