

save!

SMART
SANITATION
FOR A
SUSTAINABLE
FUTURE

BY EOOS

LAUFEN

A N



PARA

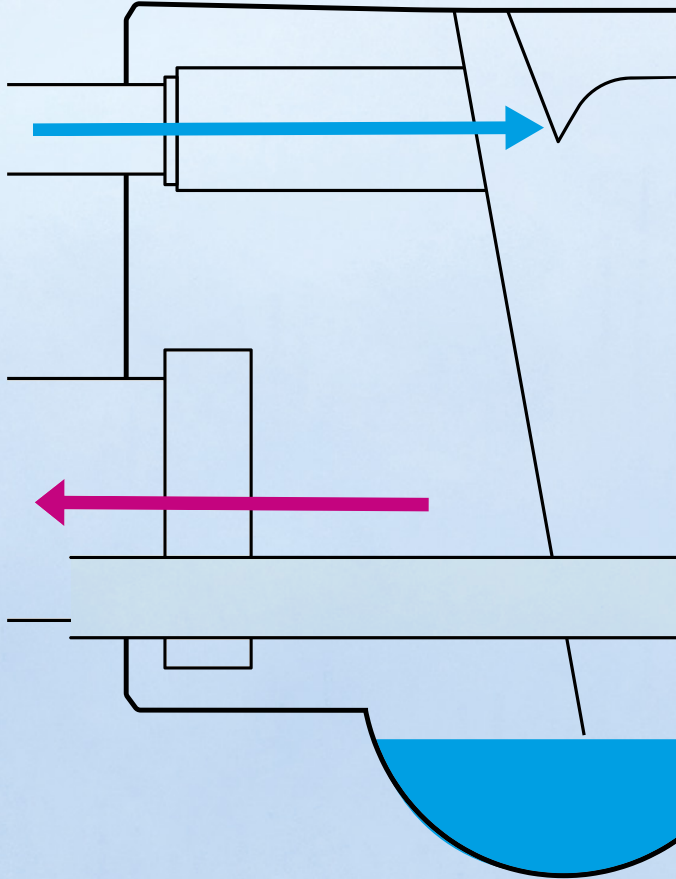


EW

DIGM

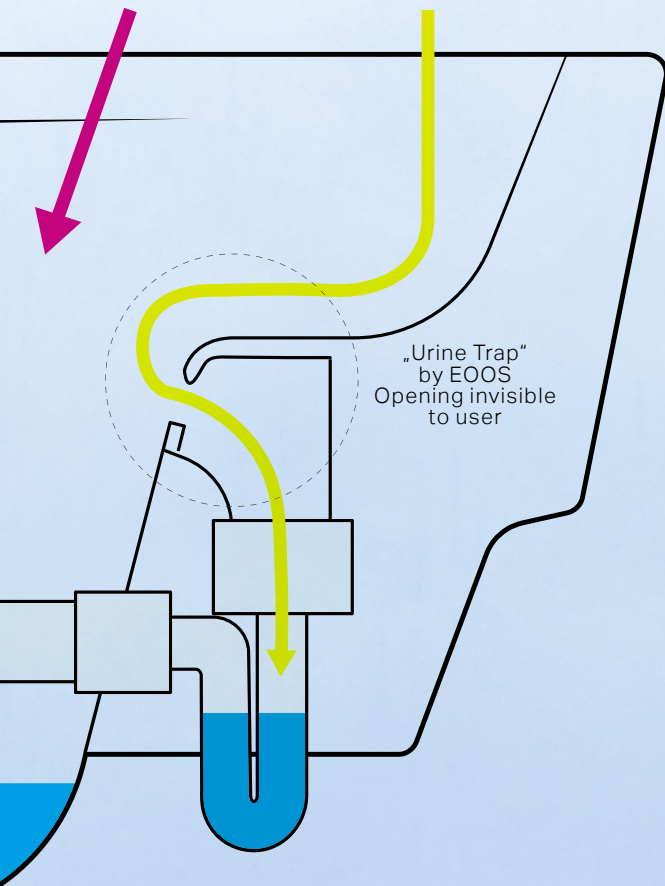
TRANSFO

Wall-hung WC, washdown



DES

FORMATIVE



SIGN

INVIS

INNOV

SIBLE

VATION

save!



CONFRONTING A HIDDEN DANGER

The way we dispose of human waste has changed very little in centuries, and is now a major contributing factor to one of the most urgent environmental issues facing the planet. A series of studies by leading scientists show that excessive amounts of nitrogen and phosphorus end up discharged in the sea, threatening marine and aquatic systems beyond their ecological thresholds.

There is a need to readdress the infrastructure around wastewater treatment, which together with agricultural use of fertilizers, currently represents a major pathway for the introduction of nutrients (nitrogen and phosphorus) and micropollutants (hormones and medical residues) to surface water. Efforts to remove these pollutants have so far caused wastewater management infrastructure to become even more expensive, cumbersome and increasingly energy intensive.

A HIGH-PERFORMANCE SOLUTION

The Austrian design studio EOOS, Swiss Federal Institute of Aquatic Science and Technology (Eawag) and LAUFEN have developed a pioneering urine-diverting toilet that revolutionises the user interface for sustainable urban water management.

save! is the first gravity flushed urine-diverting toilet to meet the latest industry standards of conventional toilets. Rimless and wall-mounted, save! means having to compromise neither on comfort, nor on hygiene.

The product's key innovation is a "Urine Trap" invented by EOOS Design, which passively separates urine from solid waste and flush water.

The "Urine Trap" directs urine towards a concealed outlet using only surface tension.

LAUFEN applied this concept to a new toilet design, featuring a ceramic bowl that is optimally shaped to guide the water flow.

The interface's easy maintenance, low-tech, hidden innovation ensures it is indistinguishable from any other high-end WC. save! represents a new format for a familiar product that is business ready and could play a key role in the future of wastewater management.

SOURCE SEPARATION TECHNOLOGY

Since the mid-1990s, Eawag, one of the world's leading water research organisations, has been examining alternative ways to reduce pollution from wastewater. One particularly interesting direction identified by Eawag is source separation technology, which involves separating sanitation wastewater at the source into urine, faeces and greywater.

If the different types of wastewater are kept separate rather than mixed, these different streams can be sustainably processed and valuable resources can be extracted. Eawag's research into resource recovery has focused on urine as it contains most of the nutrients that cause harmful effects such as excessive nutrient load (eutrophication) on ecosystems.

The scientists have developed a process for recovering nutrients from urine while removing micropollutants hormones and medical residues using small, highly efficient decentralised reactors. As a result, around 80 percent of the nitrogen found in sewage can be removed from the wastewater stream, which will in turn reduce the resources required to operate treatment plants.

A CIRCULAR CONCEPT

The use of decentralised reactors to enable more flexible wastewater management has been pioneered by Vuna – a spinoff of Eawag in Zurich. The treatment process uses biological stabilisation, activated carbon filtration and distillation to transform source-separated urine into a fertiliser called Aurin, which has been officially licensed by the Swiss Federal Office for Agriculture for use on all plants, including food.

SMARTER SANITATION FOR SMARTER CITIES

According to Professor Tove Larsen from Eawag's Department for Urban Water Management: "Wastewater management is vital if we are to prevent catastrophic damage to the world's rivers and oceans. save! represents a breakthrough in the quest for effective, hygienic wastewater separation that is invisible to the end user. Finally, there is a sanitation solution that is fit for the 21st century".

GLOBAL ACCESS

In late 2018, Bill Gates appeared on stage at the Reinvented Toilet Expo in Beijing holding a jar filled with human excrement. Gates wanted to highlight the dangers facing around 2.3 billion people who don't have access to basic sanitation facilities. The Bill & Melinda Gates Foundation invests in the research and development of ecological sanitation for those most at risk.

LAUFEN is fully committed to supporting the evolution of innovative solutions to this urgent problem. To safeguard 21st century sanitation for those who currently do not have access to it, LAUFEN will develop a source separating squat toilet for local production. The design will be made available for anyone to produce and distribute in developing countries, helping to save lives and improve sanitation conditions.

PRODUCT DETAILS

save! is the first urine-diverting toilet to meet the latest industry standards. The rimless, wall-mounted, patent-pending device was developed for Europe and is approved according to WC EN 997 and cistern EN 14055.

Compliance with existing functional and connection standards is also assured. An odour trap in the urine siphon with a filling quantity of 75 ml (LGA tested) guarantees the water exchange with every flush and can be serviced without removing save! from the wall.

Installation in conjunction with a LAUFEN Installation System is required for the yellow and black water drains. This also allows for standardised flushing conditions and mounting safety through the integration of a pre-assembled mounting cuff.

The source separation works without mechanical parts, using only surface tension, intelligent direction of the water flow and the ceramic shape. Computational fluid dynamics simulations developed by ETH Zurich were used to optimise the inner geometries. No change in user behaviour is required, although men have to sit while urinating. save! is the latest example of LAUFEN's continued dedication to a subtle and intelligent combination of technology and design.

GAME-CHANGING TECHNOLOGY

WWW.LAUFEN.COM