

A close-up photograph of a bicycle's front wheel and fork. The wheel features a black tire with a prominent tread pattern, a white rim, and silver spokes. A silver disc brake rotor is mounted on the hub. The white fork is accented with a gold-colored upper section. A white fender is visible above the tire. Text is printed on the tire: "trail savers" in gold on the upper left and "rim 07F" in white on the lower right. The word "SOFT" is also visible on the tire's sidewall.

Smart Design

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Fig. 1 Petra Wadström (b. 1952), *Water Purifier "Solvatten"*. Produced by Solvatten, 2011. Plastic, 49 x 36 x 13 cm (h x l x w), opened 49 x 36 x 47 cm (h x l x w). Gift of the Friends of the Nationalmuseum, the Design Fund. Nationalmuseum, NMK 3/2018.



Fig. 2 Propeller Design, Kristoffer Rahr (b. 1981), *Fire Extinguisher "Firemill"*, 2018. Produced by Inventi Vidi. Aluminium, leather, polyethene, 38.5 x 7.5 cm (h x diam), with the handle upright 43.5 cm (h). Gift of Inventi Vidi through the Friends of the Nationalmuseum, the Design Fund. Nationalmuseum, NMK 180/2018.



Fig. 3 Cake Design Team, *Motorcycle "Kalk"*, 2018. Produced by Cake. Aluminium, carbon fiber, 122 x 190 x 52 (h x l x d). Gift of Cake through the Friends of the Nationalmuseum, the Design Fund. Nationalmuseum, NMK 31/2019.



Fig. 4 Adam Wais (b. 1968) and Anders Annerstedt (b. 1955), *Bicycle "Rolo"*, 2014. Produced by Rolo, 2018. Carbon fiber, cast monococque, 103 x 160 x 47 cm (h x l x w). Gift of Rolo through the Friends of the Nationalmuseum, the Design Fund. Nationalmuseum, NMK 49/2018.

Design is about solving complex problems. One of humanity's greatest challenges is to change Western lifestyles so that, in our everyday lives, we contribute to sustainable development. At the same time, design is about using new technology, new materials and new behaviours to help improve people's quality of life. In the last few years, a significant number of objects have been added to the Nationalmuseum's collection of contemporary design, most of them thanks to the hard work and commitment of the Design Fund of the Friends of the Nationalmuseum. Some of those objects are presented here.

Solvatten (Fig. 1) is a Swedish design solution, developed by the inventor and entrepreneur Petra Wadström, which uses solar energy to purify contaminated water. Across large parts of the world, access to clean water cannot be taken for granted. Harmful bacteria can be eliminated from water by boiling it, but the process requires electricity or fuel, adding to carbon dioxide emissions. With *Solvatten*, the water is heated and purified by the sun. The container is filled with dirty water and opened up like a book, with its pages turned to the sun. An indicator shows when the water is fit to drink, which takes from three to six hours for 10 litres of water.

Even in areas of the world where we now have access to clean water, there is reason for a rethink. With the *Nozzle Dual Flow Pro*, which is attached to an existing tap, water consumption can be reduced by 85–98 per cent. The nozzle divides the flow of water into tiny droplets that are sufficient to rinse a pair of soapy hands.

Often, the manufacture of a product accounts for a significant share of the environmental impact it exerts over its life cycle. One way of reducing this is to make use of components that already exist. The *Firemill* fire extinguisher (Fig. 2) is designed to use the carbon dioxide cylinders that are available in many shops as an accessory for devices



Fig. 5 Fredrik Hallander (b. 1970) and Claes Nel-
lestam (b. 1980), *Bicycle Helmet “Corpora Aid”*.
Produced by POC, 2016. Molded plastics, ABS in
the cover (acrylonitrile butadiene styrene), shock
absorbing, 17 x 26 x 21 cm (h x l x w). Gift of POC.
Nationalmuseum, NMK 157/2017.



Fig. 6 Inuheat and Seger Europe, *Socks “Seger Heat
System”*. Produced by Seger Europe, 2015. Merino
wool, conductive materials, polyamide, heating
elements, 50 x 17 cm (l x w). Gift of Seger Europe.
Nationalmuseum, NMK 108A–F/2017.



Fig. 7 Fredrik Aidehag (b. 1978) and Nicolas Trudel
(b. 1984), *Spirometer “Air Smart Spirometer”*.
Produced by Nuvoair, 2016. Plastic (a mix of PC
and ABS), 2 x 8 x 6,5 cm (h x l x w). Gift of Nuvoair
through the Friends of the Nationalmuseum, the
Design fund. Nationalmuseum, NMK 201/2018.

that carbonate water. The product consists of a housing for a CO₂ cylinder, and the design is intended to fit into the kitchen, among objects such as peppermills and olive oil bottles. In the event of a fire, you simply twist the housing and spray carbon dioxide onto the flames.

The Swedish company Cake has developed the electrically powered motocross bike *Kalk* (Fig. 3), demonstrating that a sustainable lifestyle doesn't have to stop you enjoying life. Thanks to new technology, light materials and a battery-powered motor, this bike can be ridden for 2–3 hours at up to 75 km/h, with a range of 80 km, before the battery needs recharging.

Advances in technology have also brought about changes in design processes. Traditionally, product development involved a designer making sketches and building models and prototypes, before the final result was mass-produced industrially. With the *Rolo* bicycle (Fig. 4), the process worked the other way round. All the design work was done digitally, including testing the bike's aerodynamics in a

digital wind tunnel, whereas the finished product is handcrafted. The light carbon-fibre frame can be tailored to the buyer's wishes.

The Internet of Things is a relatively new field, but one that is evolving very rapidly. Examples in the Nationalmuseum's collections include the cycle helmet *Corpora Aid* (Fig. 5). Using a voice-controlled app, cyclists can show they are turning or braking in the same way as a car does with its indicators and brake lights. Thanks to the heating coils woven into *Seger Heat System* socks (Fig. 6), downhill skiers can use an app to regulate the temperature of their feet. The *Air Smart Spirometer* (Fig. 7) is also linked to an app, giving users direct feedback on their lung capacity.

Tangled leads are a source of irritation to many users. The Swedish company Earin launched wireless earbuds (Fig. 8) before Apple started selling theirs. When not in use, the buds are stored in a capsule, which is also used to charge the batteries. This product was crowdfunded.

Thanks to digital technology, a person who has never learnt to play an instrument can also make music. The *portable synthesiser OP-1* (Fig. 9) is both a synth and a mixer that can be connected to a computer. The colours serve as a guide to the different functions available.



Fig. 8 Zenit Design and Earin, *Wireless Headphones "Earin M-1"*. Produced by Earin, 2015. Plastic, electronics, aluminum, rubber, headphones: 2 x 1 cm (h x diam), charging capsule: 2 x 9.5 x 2 cm (h x w x diam). Gift of Earin at the request of the Nationalmuseum, NMK 215–216/2017.



Fig. 9 Teenage Engineering, Jesper Christian Kouthoofd (b. 1970), *Portable Synthesizer "Teenage Engineering OP-1"*. Produced by Teenage Engineering, 2011. Lacquered metal, plastic, electronics, 3 x 28.5 x 10.2 cm (h x l x d). Gift of Teenage Engineering through the Friends of the Nationalmuseum, the Design fund. Nationalmuseum, NMK 22/2018.