

SAVINGS – WATER AND ENERGY

Swiss Eco Tap[®]
the acqua saver

INSTALLATION – TECHNICAL REQUIREMENTS

The pressure ratios in domestic water installations are about the same in most developed countries today. They are usually between 2.5 and about 4.5 bar. The following comparison is therefore calculated at 3.5 bar static pressure = 3.0 bar flow pressure.

ASSUMPTIONS OBJECT

Semi-public drinking water supply, as available in restaurants, railway stations, hospitals, airports, etc. A daily visitor frequency of 1,000 taps for hand washing is assumed. Higher and lower frequencies are therefore very easy to convert.

DATA

Water flow

Effectively adjusted flow rate for hand washing

Duration of washing hands with soap

VERSION

Water jet
Nominal volume flow
Water consumption 30 s
Water saving

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Water consumption 30 s
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Water jet
Nominal volume flow
Water consumption 30 s
Water saving

SWISS ECO TAP

According to EN 200 mod.
(Cold water tap)

Only cold-water CW 15° – 20 °C
Is perceived warmer

Fully open

25 – 30 seconds

EcoJet

Spray jet
3 bars: 0.65 l/min
0.325 l/min
93 %

EcoTwist

Spiral jet
3 bars: 1.30 l/min
0.65 l/min
86 %

EcoPearl

Air mixing nozzle
3 bars: 1.80 l/min
0.90 l/min
80 %

EcoRegular

Air mixing nozzle
3 bars: 4.90 l/min
2.45 l/min
60 %

STANDARD MIXER TAP

According to EN 817
(Hot water tap)

cold CW 15 °C – warm HW 62 °C
mixed water temperature 38 °C

Half open (with air mixing nozzle IA)

25 – 30 seconds

Standard air mixing nozzle

Air mixing nozzle
3 bars: 12 l/min
6 l/min

Standard air mixing nozzle

Air mixing nozzle
3 bars: 12 l/min
6 l/min

Standard air mixing nozzle

Air mixing nozzle
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Air mixing nozzle
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POTENTIAL SAVINGS ON WATER AND ENERGY COSTS PER YEAR
CHF 10,000 – 15,000.–

WATER CONSUMPTION

Version	Tap	Day x 1,000	Year x 365	Tap	Day x 1,000	Year x 365
EcoJet	0.325 l	325 l	11.625 m ³	6.00 l	6,000 l	2,190,000 m ³
EcoTwist	0.650 l	650 l	237.250 m ³	6.00 l	6,000 l	2,190,000 m ³
EcoPearl	0.900 l	900 l	328.500 m ³	6.00 l	6,000 l	2,190,000 m ³
EcoRegular	2.450 l	2,450 l	894.615 m ³	6.00 l	6,000 l	2,190,000 m ³

COSTS DRINKING AND WASTE WATER

The m³ price for drinking water including wastewater fee varies greatly in the agglomerations. In the example calculation, a price of CHF 4.00/m³ is assumed.

REMARK

The user of a standard tap has to wait until the hot water is available at the tap. With an average waiting time of 30 sec, the water consumption with a hot water tap doubles. This effect is generously neglected in the present calculation in favour of the hot water supply with a standard hot water tap!

SAVINGS IN WATER RATES PER YEAR CHF 5,000 – 8,000.–

ENERGY CONSUMPTION

Energy demand for hot water production	Tap	Day x 1,000	Year x 365	Tap	Day x 1,000	Year x 365
EcoJet – EcoTwist – EcoPearl – EcoRegular	0 % Warm water consumption			1.50 l	1.5 m ³	548 m ³

Assumptions water temperature

Cold water temperature (CW) 15 °C
Warm water temperature (HW) 62 °C
Mixed water temperature (MW) 38 °C

Energy demand for mixed water production

To heat 1 l of water (= 1kg) by 1 °C, 1.16 Wh are needed. Converted to 1 m³ of water, this is 1.16 kWh. Possible insulation losses are not considered in this rough calculation.

Need for mixed water for hand washing with soap

The volume flow of a commercially available standard hot water fitting at 3 bar flow pressure is 12 l/min – fully opened with the standard air mix nozzle class IA. Despite the soft air mixing jet, the mixed water fitting is usually only opened about halfway when washing hands with soap. There is a flow of 6.0 l/min of mixed water at 38 °C during a hand-washing session with soap lasting only 30 sec on average.

Energy consumption of a standard fitting

548 m³ per year CW heated by 47 °C
= 548 m³ x 47 °C x 1.16 kWh
= 29,877 kWh per year

Published average tariff Zurich region 2023

The price for 1 kWh is CHF 0.2151

This means that 3.0 l of mixed water at 38 °C are needed → 1.5 l HW at 62 °C and 1.5 l CW at 15 °C. The 1.5 l HW must be heated by 47 °C (from 15 °C to 62 °C). The 1.5 l CW are not heated.

SAVINGS IN ENERGY COSTS PER YEAR CHF 6,427.–