NTB
INTERSTAATLICHE HOCHSCHULE
FÜR TECHNIK BUCHS

WPZ
Wärmepumpen-Testzentrum

Heat pump test center WPZ

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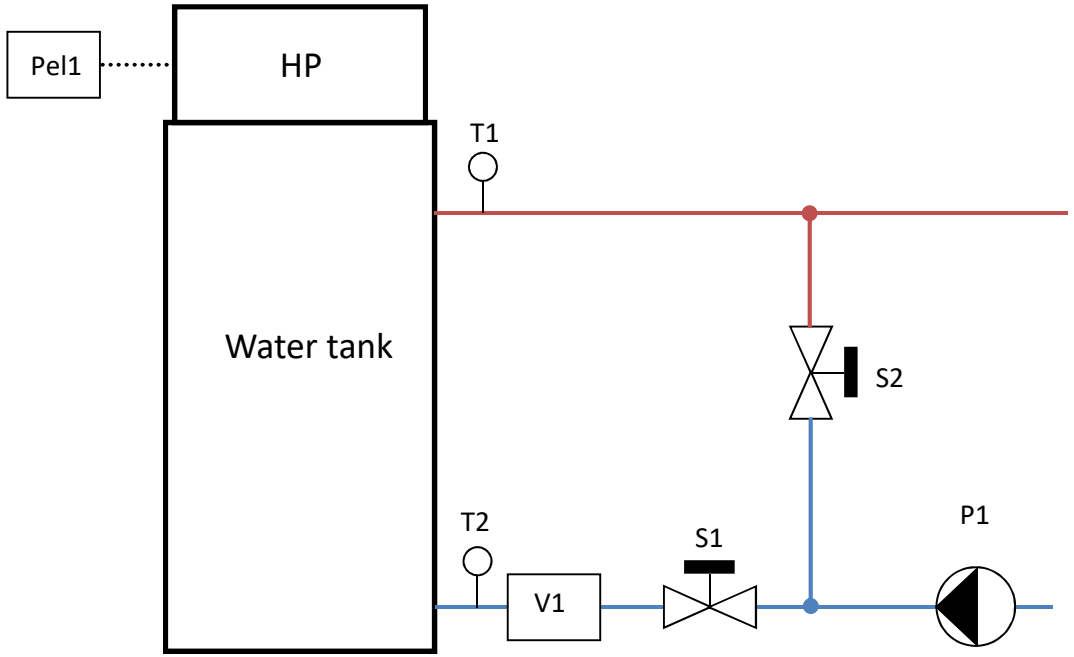
- Measurment of domestic hot water heat pumps according to EN 16147

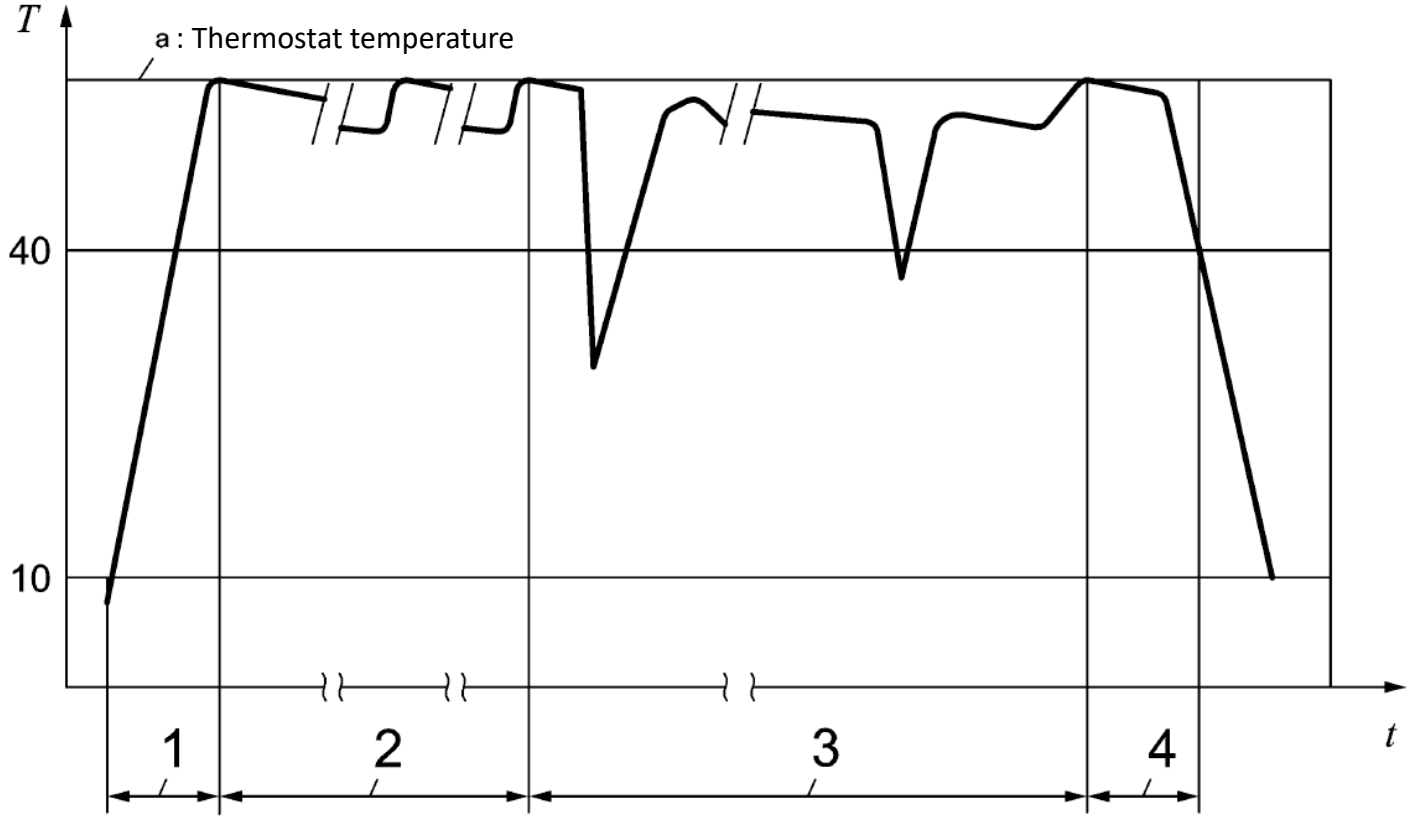
Standard

Design of test bench:



Standard

Measurement for DHW carries out according to EN 16147:



1: heating up period 2: standby period 3: determination of COP_{DHW}

4: determination of reference hot water temperature

Standard

1: heating up period

- Water will heat up from 10 °C until the first time compressor is switched off by the thermostat (around 55 °C)

2: standby period (P_{sb})

- The standby power input is determined by measuring the electrical power input over an integral number of on-off cycles of the compressor. The test shall be performed over a period of minimum 48 h.

3: determination of COP (draw-offs)

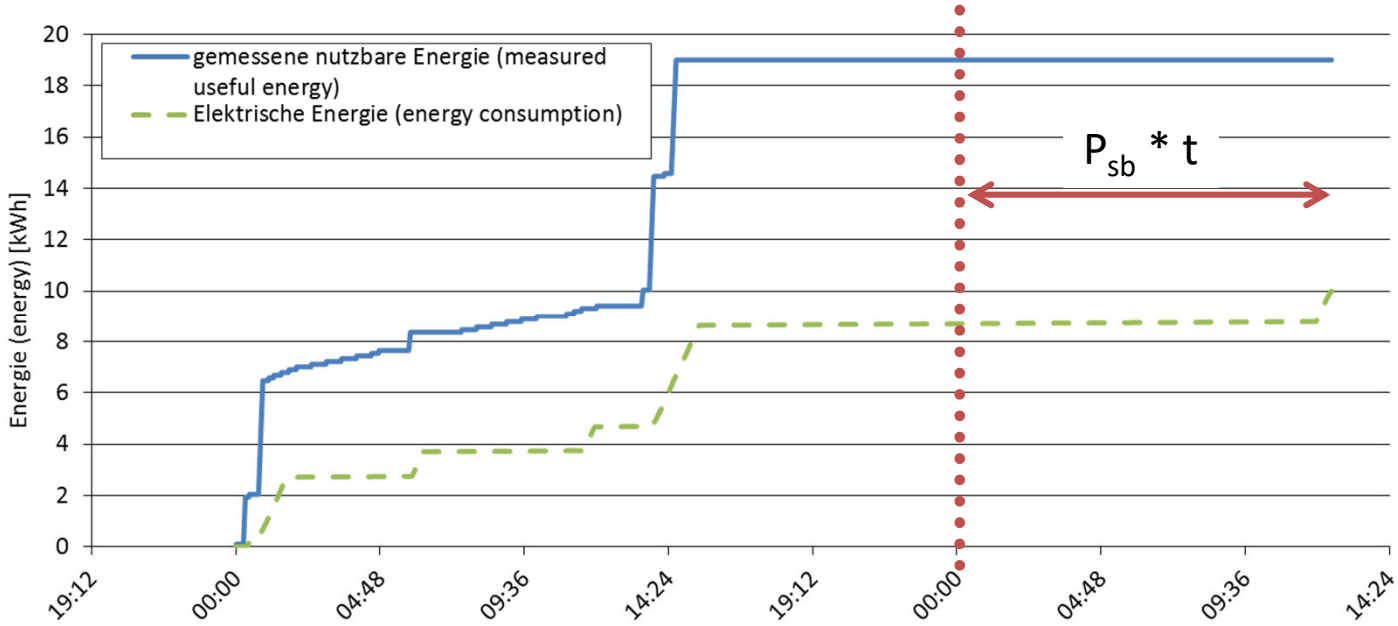
Profile	S	M	L	XL	XXL
Individual draw-off per day [kWh]	2.10	5.85	11.66	19.07	24.53

4: determination of reference hot water temperature

- This test is started when the compressor switches off at the end of the last measurement period for the load profile. A continuous hot water draw-off is started and continues until the hot water temperature falls below 40 °C.

Standard

Determination of COP

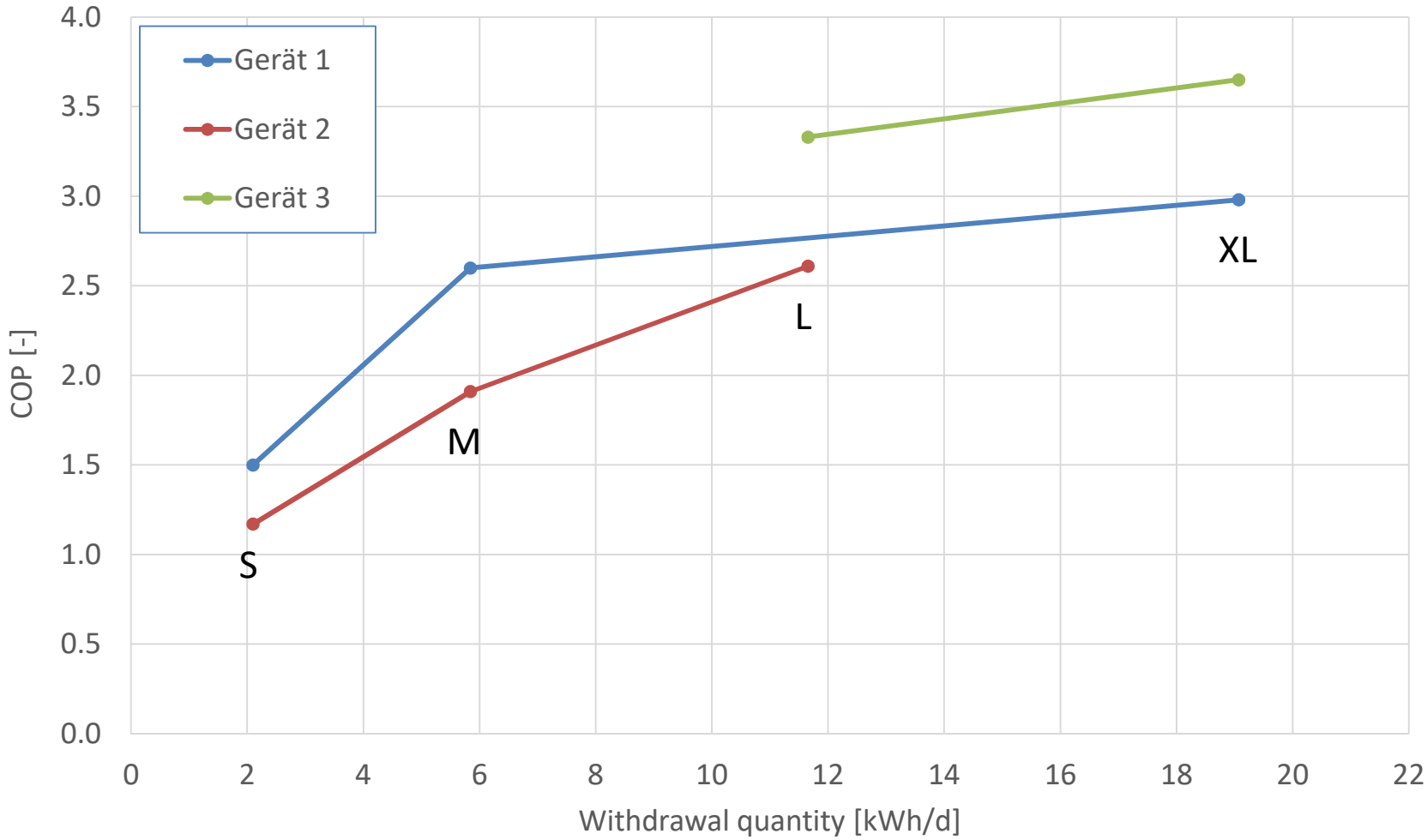


COP values (measured by WPZ)

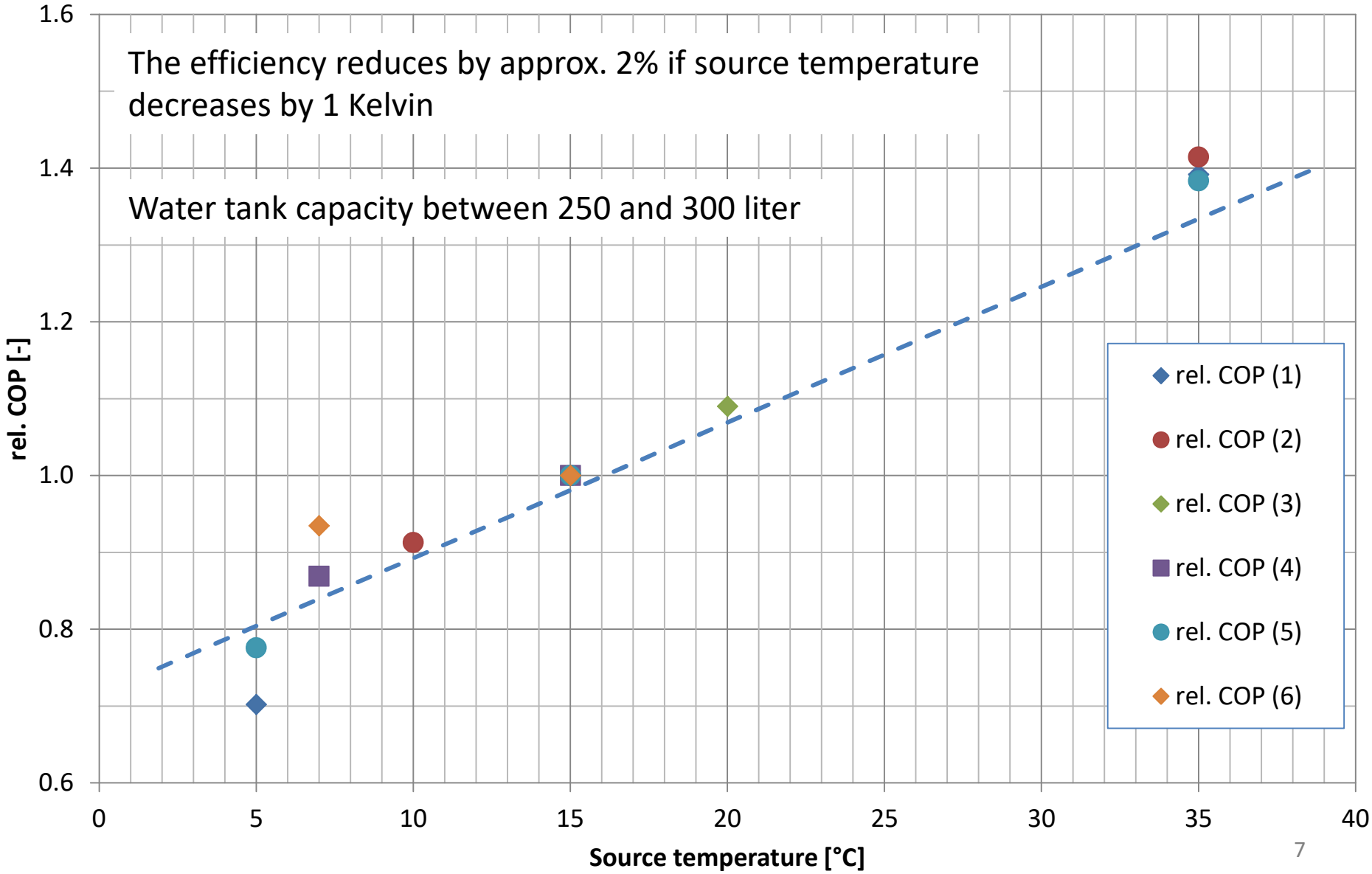
Source temperature	+7 °C	+20 °C
COP: DHW-HP	1.82 to 3.18	2.68 to 4.20
COP: HP with separated DHW tank	1.78 to 3.17	-
Results are only considered between 2015 and 2018		

Standard

COP as a function of load profile:



Standard


The efficiency reduces by approx. 2% if source temperature decreases by 1 Kelvin
Water tank capacity between 250 and 300 liter
rel. COP [-]
Source temperature [°C]
1.6
1.4
1.2
1.0
0.8
0.6
0
5
10
15
20
25
30
35
40
rel. COP (1)
rel. COP (2)
rel. COP (3)
rel. COP (4)
rel. COP (5)
rel. COP (6)

Many thanks for attention

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