

## Application for Controlled Quality Declaration NTA8800 Heat Pumps (Version 2024.6)

If you are drawing up a Quality Declaration NTA8800 for your heat pumps for the first time, BCRG recommends doing this under the guidance of Kiwa or a consultancy firm specialized in heat pumps.

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### Performance determination of heat pumps:

The performance must be measured in accordance with the most recent designated standards from NTA8800:2023.

#### a) According to measured and calculated values:

Measured values:

- On/off WP In accordance with NTA8800:2023 appendix Q (EN 14511 -2:2022);
- Modulating WP In accordance with NTA8800:2023 appendix Q (EN 14511-2:2022 and EN 14825 :2022);
- Cooling According to EU standard (EN 14511-2:2022 and EN 14825:2022);
- Tap water According to NTA8800:2023 H13 (EN 16147 :2017 or ESPR Ecodesign);
- Auxiliary energy In accordance with NTA8800:2023.

Calculated values:

- SCOP heating In accordance with VWP calculation tool (taking into account NEN 5060);
- Annual EER cooling In accordance with EU cooling calculation tool;
- SCOP tap water In accordance with NTA8800:2023 H13 (taking into account NEN 1006).

#### b) In accordance with standard values NTA 8800:2023:

- Heating Table 9.27 Residential;  
Table 9.29 Utility;
- Cooling Table 10.29;
- Tap water Table 13.25;
- Auxiliary heating energy H9.6.8.1.1;
- Auxiliary energy tap water H13.8.4.7.5;
- Auxiliary energy cooling H10.5.7.1.

#### c) **Combination** of measured heating/DHW values and fixed auxiliary energy values

Allowed. This must be stated in the explanation .

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### Acceptance test conditions:

- By an independent body (Notified body).
- By the manufacturer itself with its own certified laboratory. The laboratory has been assessed by an accredited body in the field of the relevant standard. Manufacturer must submit the certificate.
- By the manufacturer/supplier himself, whereby the manufacturer has a certification scheme (HP-Keymark or Eurovent). If the manufacturer has opted for periodic inspection, a type of a specific series of heat pumps is audited every year by a control institute.
- The measurement condition (A-7 ° W35) in accordance with NTA8800 Appendix Q and H13 (input VWP calculation tool) that has not been measured may be tested and measured by both an independent body and the manufacturer/supplier itself.
- Apply for a quality declaration for a heat pump that is marketed under its own name. The devices must be technically 100% identical. This must be declared by the manufacturer and customer by means of a signed declaration of conformity.

The College GE only accepts measurement results that have actually been measured. With HP- Keymark / Eurovent, a manufacturer may “claim” a value without measurements. This is not permitted for a controlled quality declaration. It is also not permitted to increase the measured values by 8% because this fits within the bandwidth of the inspection institute. Shopping is not allowed by taking the highest value one time from the measurements of the inspection institute and the next from measurements of the manufacturer. The College GE prefers the most robust measured values.

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## Performance Test Requirements and Guidelines:

### Heating:

- SCOP heating must be calculated with the most recent version of the VWP calculation tool.
- SCOP product/package label based on climate zone mild in accordance with ErP-label (Ecodesign) is not accepted by the College GE;
- EN 14511 at full load (90Hz);
- EN 14825 at 35°C max supply and 55 °C max supply temperature (45°C or 65°C is permitted). The statement may only state the temperature range that was actually measured. So if the maximum measured temperature is 55°C, then the maximum temperature on the statement is also 55°C;
- For modulating heat pumps, a test A-7° W35° must have been carried out in accordance with NTA8800 Appendix Q. This measurement condition is not measured during EN14511 and EN14825. It is permitted to use the measuring condition A-10°W35° from EN14825 instead of A-7° W35°. This conservative approach should be mentioned in the explanatory notes;
- For A/W heat pumps, at least two defrost cycles must be taken into account for the A2°/W35°;
- Include in the quality declaration that other values of the gross heat requirement must be interpolated linearly.

### Cooling:

EER cooling function to be converted using the most recent version of the EU cooling calculation tool. After the EER has been calculated, it must still be converted into annual EER. For VRF/VRV cooling machines, state the minimum value of the cooling limit at which the statement is applicable. The choice of the cooling limit has a significant effect on the annual EER of cooling machines.

### Tap water:

Domestic water parameters in accordance with NTA8800:2023:

#### Input values for software calculation in the context of NTA8800:

##### Specify the following parameters per tap pattern (S,M,L,XL):

1.  $Q_{W, test, i} (x)$  > Heat requirement for tap patterns;
2.  $E_{W, gen; in; test, i} (x)$  > Measured (and corrected) input energy;
3.  $P_{nom, gi}$  > Nominal power (nameplate);
4.  $F_{prac, gi}$  > Dimensionless practical factor that explains the legionella cycle:

$F_{prac, gi} = 0.95$  if the temperature is 55°C or higher.

$F_{prac, gi} = 0.9$  if the temperature of 55°C has not been reached.

If tapping 55 °C is not achieved, correct the input energy with formula 13.153c from NTA8800. Calculation must be transparent to College GE, please provide an Excel file for this. The calculated correction must be based on the standardized consumption.

#### Values used to determine corrections for temperature settings and use smart control:

5.  $SCF_{gi}$  > Dimensionless Smart Control Factor for generator  $gi$  according to EN 16147;
6. Smart > Smart=0 if  $SCF < 0.7$  or if smart control is not applicable, otherwise smart=1;
7.  $T_{set; test, i}$  > Average of the measured maximum hot water temperatures at the 55°C tapping in °C.  $T_{Peak}$  must not have been below 40 °C otherwise the test is invalid. It is not permitted to use the reference water temperature;
8.  $T_{- set design}$  > Device design temperature setting and the design of the installation in °C.

#### Informational values:

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|----------------------------------|--|
| 9. $P_{rated}$                   | > Average power of the generator $g_i$ during tapping pattern $i(x)$ in kW according to EN 16147;  |
| 10. Thermostat setting           | > in °C/K or standard factory setting (out of box);  |
| 11. $\eta_{W,gen;prac;sj;gj;mi}$ | > Efficiency under practical conditions for hot tap water for tap pattern $i(x)$ including corrections for $T_{Set,test;i}$ , based on the temperature setting of the thermostat, and legionella prevention. |
- If only one measuring point for hot water is available, in the context of Ecodesign, the efficiency can be determined according to that measurement data for one specific application class (maximum XL), whereby an appropriate correction factor ensures the flat-rate conversion to the value that fits the hot water demand ( $CW,EU;_{gen}$  according to table 13.18);
  - Include in the quality declaration that interpolation must be made for other hot water demands and that extrapolation may (sometimes) be made downwards or upwards .
  - Heat pump in combination with an external boiler must be tested per combination or in accordance with the method 'assessment and calculation method for combinations of heat pumps and boilers'.
  - Booster heat pump in accordance with NTA8800 H9, H13 and Appendix W.
  - No distinction is made for residential or Utility tap classes.

#### Auxiliary energy:

The NTA8800 describes for each type of heat pump how the auxiliary energy should be measured and calculated. This is calculated in the VWP calculation tool for heating. Indicate in the substantiation the source of the parameters used for the components (Electrical power, Stand-by power, power before and after running time , circulation pumps, average on time and modulation.

#### Specials:

- For heat pumps with ventilation return/exhaust air as a source, the fan energy must be corrected.
- The NTA8800 only has a heating curve. Heat pumps with a constant supply temperature cannot be calculated in the NTA8800 software > see Declaration of Equivalence.
- Magnified source is allowed. This can be demonstrated by means of an EED declaration. This must be stated on the statement. To prevent diversity, only 9°C is accepted.
- With heat pumps connected to a source with glycol, the energy performance will be much lower than with a source filled with water. This application must be measured separately. Statement based on measurements with glycol may also be used for water (conservative). The other way around is not allowed.
- New innovative heat pump systems > see equivalence declaration.

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#### Measurement reporting requirements:

- Which type(s) or series of heat pump has/have been tested;
- Photos of the heat pump in the test room and the type plate;
- Which standards including version number have been applied;
- Test date of the measurements;
- Which flow was measured: fixed or variable;
- All measurement results for the NTA 8800 Appendix Q required measurement conditions;
- All test parameters (complete data): electronics consumption, pump(s) consumption,  $dP$  ,  $dP$  external to pump must be reported;
- Which measuring equipment (brand and type) was used for the measurements;
- The calibration certificates of this measuring equipment must be included in the Appendix;
- The results are shown accurately to 2 decimal places;
- The measurement report with test report number must be signed by an authorized signatory of the agency or company. Notwithstanding this, a separate signed statement stating that the

measurements have been carried out and that the results have been included in the attached test report may also suffice.

- The College GE wants to receive an annual report from the manufacturer indicating what the independent inspection institute has observed and whether deviations have been noted. This also includes the measurement report from the independent inspection institute.
- The certification institute's sample must include sufficient measuring points in accordance with EN14511 or/and EN14825, which the manufacturer has also determined. All measurement points carried out by the manufacturer may appear in the sample. The certification institute must also determine which points will be included in the sample. Measuring points must be as close as possible to the measuring points of the standards with a maximum deviation of 8%.

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## File requirements:

The documents in the file must be neatly classified per statement as below. Incomplete files will not be processed:

1. **Application form** completed and signed;
2. **Quality declaration** (does not have to be signed);
3. **Explanatory document** clearly indicates what type of heat pump system it concerns and where the required measuring points (table/page) can be found in the report. These source references must be marked. Indicate if any corrections were made before the measured values were entered into the VWP calculation tool and why. The red messages from the VWP calculation tool must also be explained (e.g. defrost function). Enter the password of the VWP calculation tool to check the calculations. Also indicate clearly if results can be taken from another heat pump. Indicate for tap water which tap patterns apply and how corrections have been made;
4. **VWP calculation tool** XLS (most recent version 7.3. Nov 2023);
5. **VWP input file** XLS;
6. **VWP Export Files WLE** XLS;
7. **VWP Export Files WHE** XLS;
8. **Calculation tool cooling** XLS;
9. **Tap water correction calculation** XLS;
10. **Measurement report(s)** :
  - EN 14511-2:2022 Space heating (on/off);
  - EN 14511-2:2022 + EN 14825:2022 Space heating (modulating);
  - EN 14511-2:2022 + EN 14825:2022 Space cooling;
  - EN 16147:2017 or Ecodesign Tapwater;
  - NTA8800:2023 Space heating and tap water;
  - NTA8800:2023 Aid and standby losses.
11. **Product selection manufacturer's data sheet** for shutdown criteria (Q4.4.) and ventilation air flow rate (Q5.3);

If applicable:

12. **Declaration of Conformity**;
13. **Certificate** :
  - Accredited Lab;
  - HP Keymark ;
  - Eurovent.
14. **The annual audit and measurement report from the control institute** of the series in question. Manufacturer/supplier is obliged to inform BCRG when the inspection institute is changed, extended, withdrawn, suspended or otherwise no longer valid.

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## Links:

- College GE meeting dates <https://bcrg.nl/nl/energieproductie/vergaderdata-college/>

- NTA8800:2023 <https://www.nen.nl/nta-8800-2023-nl-304951>
- Independent bodies [notified body](#)
- VWP calculation tool and input file <https://warmte-pompen.nl/leden/rekentool/>
- VWP method assessment and calculation method combinations of heat pumps and boilers' <https://warmte-pompen.nl/rekenmethodiek-combinations-warmtepompen-en-tapwatervaten/>
- Cooling calculation tool <https://epb.center/support/documents/demo-en16798-13-method-a/>
- HP keymark <https://keymark.eu/en>
- Eurovent <https://www.eurovent-certification.com/en/>

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## College meetings:

The College GE checks all data and checks whether the test procedures and SCOP calculation results are correct. Complete files are assessed every two months during the College-meeting. The complete files must be submitted at least 14 days in advance. The assessment result will be announced no later than two weeks afterwards. If the assessment is positive, the quality declaration will be included in the public BCRG database and can be used in the Dutch NTA 8800 Energy Performance (EPBD) calculation.

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## Quality declaration assessment costs: (2024)

A statement can be made per heat pump or series. Checking a quality declaration drawn up by a certifying institution costs €430 per declaration. Checking a quality declaration not covered by certification costs €1275 per declaration. Graduated discounts are possible if multiple heat pumps or series are offered simultaneously. Additional costs will be settled if the application has to be reassessed several times. An urgent application costs €2,650 per statement. Refunds are not possible. In addition to the one-off inspection costs, an annual contribution is requested for the BCRG database of €235 per statement. If it is indicated that a heat pump (series) is no longer available, the annual contribution will expire. The statement will still be visible in the BCRG database. The costs are indexed annually.

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## Verified Declaration of Equivalence for heat pumps:

If the performance of a heat pump cannot be tested in accordance with applicable standards (for example, composite installations or the heat pump cannot be measured in the lab), a Declaration of Equivalence is possible. BCRG recommends submitting an action plan to the College GE before measurements are carried out.