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|------------|------------|----------------|-------------|
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Verklaring **Opwekkingsrendement verwarming en hulpenergie**

VERKLARING VAN KIWA

Deze verklaring is gebaseerd op een éénmalige beoordeling van een product, zoals op deze verklaring vermeld, van

Duco Ventilation & Sun Control NV

Hiermee geeft deze verklaring geen oordeel over andere door de leverancier te leveren producten.

Het product is beoordeeld conform NEN 7120+C2:2012/A1:2017.

De op de bijlage vermelde waarden voor opwekkingsrendementen verwarming mogen worden gebruikt in plaats van de waarde zoals die in tabel 14.13 van de NEN 7120 worden gegeven.

PRODUCTNAAM

DucoBox WTW



Harm Schiphouwer
Projectleider
Kiwa Nederland B.V.



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Productmanager
Kiwa Nederland B.V.

DucoBox WTW

OPWEKKINGSRENDEMENT $\eta_{H;gen;si;hp}$, ENERGIEFRACTIE $F_{H;gen;si,gpref}$, HULPENERGIE $W_{H;aux}$ en $f_{t;hp-on}$ TIJDFRACTIE RUIMTEVERWARMING

De DucoBox WTW is een lucht/water warmtepomp die functioneert op uitsluitend afvoerlucht van de woning als bronmedium.

In de tabellen op de volgende pagina's staat voor de lucht/water-warmtepomp DucoBox WTW het opwekkingsrendement $\eta_{H;gen;si;hp}$, uitgedrukt als COP-waarde, de energiefractie $F_{H;gen;si,gpref}$, de hulpenergie $W_{H;aux}$ en de tijdfractie $f_{t;hp-on}$ voor de functie ruimteverwarming van het warmtepompsysteem, afhankelijk van:

- Woning met een laag energiegebruik ($Q_{H;nd} / A_{g,tot} \leq 150 \text{ MJ/m}^2$) of met een hoog energiegebruik ($Q_{H;nd} / A_{g,tot} > 150 \text{ MJ/m}^2$);
- De warmtebehoefte $Q_{H;dis;nren}$ van de woning;
- De ontwerp aanvoertemperatuur θ_{sup} van het verwarmingssysteem.
- De ventilatiehoeveelheid

De hier vermelde waarden voor opwekkingsrendementen voor verwarming mogen worden gebruikt in plaats van de waarden zoals die in tabel 14.13 van de NEN 7120 worden gegeven.

De waarden voor opwekkingsrendement, energiefractie en hulpenergie zijn opgegeven voor de ventilatiehoeveelheden welke binnen het werkingsgebied van het toestel liggen.

Opwekkingsrendement en energiefractie:

De in de volgende tabellen van de hoofdstukken 1 en 2 gegeven waarden voor het opwekkingsrendement en de energiefractie voor de functie ruimteverwarming van de warmtepomp mogen worden gebruikt in NEN 7120. De tabelwaarden mogen voor tussenliggende waarden voor de warmtebehoefte $Q_{H;dis;nren}$ lineair worden geïnterpoleerd.

De berekeningen zijn uitgevoerd met de rekentool versie 3.4, conform bijlage E van de NEN 7120+C2:2012/A1:2017, door de DHPA geleverd 30 juni 2017.

Uitgangspunten:

Lucht/water-warmtepomp, werkend uitsluitend met afvoerlucht (ventilatielucht) van de woning als bronmedium.

Als uitgangspunt bij de berekeningen is er vanuit gegaan dat de warmtepomp bij alle afgiftetemperaturen in bedrijf blijft en de bijverwarming alleen in bedrijf komt wanneer de warmtepomp de warmtebehoefte niet kan dekken.

Hulpenergie:

De in de volgende tabellen van hoofdstukken 1 en 2 gegeven waarden voor hulpenergie $W_{H;aux}$ mogen worden gebruikt in NEN 7120. De hier vermelde waarden voor hulpenergie mogen worden gebruikt in plaats van de waarden welke kunnen worden berekend volgens 14.7.2.3 (cv-circulatiepomp) en 14.7.3 (stand-by elektronica) van de NEN7120.

Het hulpenergiegebruik is opgebouwd uit:

- Het stand-by verbruik van de warmtepomp;
- Het totale verbruik van de cv-pomp, inclusief voor-en nadraaitijd.

Pagina 3

Nummer 80842/04

Het hulpenergiegebruik genoemd in deze verklaring betreft alleen het verbruik van de warmtepomp voor het gedeelte van de warmtevraag wat door de warmtepomp wordt gedekt. Het hulpenergiegebruik van een eventuele bijstook dient apart te worden bepaald en valt buiten deze verklaring.

In de tabellen worden de volgende symbolen en termen gebruikt:

| | |
|----------------------|---|
| $\eta_{H;gen;si;hp}$ | is het dimensieloze opwekkingsrendement voor ruimteverwarming, van de elektrische warmtepomp in systeem si ; |
| $F_{H;gen;si,gpref}$ | is de dimensieloze energiefraction voor ruimteverwarming die de warmtepomp levert aan het systeem si ; |
| θ_{sup} | is de ontwerp aanvoertemperatuur van het warmte opwekkingsysteem ten behoeve van ruimteverwarming, in °C; |
| $Q_{H;dis;nren}$ | is de hoeveelheid energie ten behoeve van de energiefunctie verwarming, in MJ per jaar; |
| $W_{H;aux}$ | is de hoeveelheid hulpenergie (stand-by verbruik elektronica en verbruik cv-pomp) ten behoeve van de energiefunctie verwarming, in MJ per jaar; |
| $f_{t;hp-on}$ | is de dimensieloze tijdfractie voor ruimteverwarming die de warmtepomp levert aan het systeem. |

Het nominale verwarmingsvermogen van de DucoBox WTW bedraagt 1,460 kW (bij EN 14511-conditie L20/W35 en ventilatiehoeveelheid van 50 l/s)

Het vermogen $P_{H;hp;pr;\theta_i}$ voor de functie ruimteverwarming staat in hoofdstuk 1 en 2 in separate tabellen weergegeven achter de tabellen voor opwekkingsrendement, energiefraction en hulpenergie.

In hoofdstuk 3 zijn de door de afzuigventilator opgenomen elektrische vermogens weergegeven.

Hoofdstuk 1: Woningen met een laag energiegebruik (WLE)

| | | $\theta_{sup} = < 30 \text{ }^\circ\text{C}$ QH;dis / Ag;tot = < 150 MJ/m ² (WLE) | | | | | | | |
|---|---|---|----------------------|----------------------|----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Ventilatiedebit [dm ³ /s] | | Bruto warmtebehoefte [GJ] | | | | | | | |
| | | 2,5 | 5 | 10 | 20 | 40 | 60 | 80 | 100 |
| 0 | $\eta_{H;gen;hp;si}$ [-] $FH;gen;si;gpref$ [-] $WH;aux$ [MJ-elek] | | | | | | | | |
| 10 | $\eta_{H;gen;hp;si}$ [-] $FH;gen;si;gpref$ [-] $WH;aux$ [MJ-elek] | | | | | | | | |
| 20 | $\eta_{H;gen;hp;si}$ [-] $FH;gen;si;gpref$ [-] $WH;aux$ [MJ-elek] | | | | | | | | |
| 30 | $\eta_{H;gen;hp;si}$ [-] $FH;gen;si;gpref$ [-] $WH;aux$ [MJ-elek] | 4,930 1,000 41 | 4,930 1,000 51 | 4,933 0,990 70 | 4,953 0,837 96 | 4,974 0,534 113 | 4,981 0,381 119 | 4,985 0,295 122 | 4,987 0,239 123 |
| 40 | $\eta_{H;gen;hp;si}$ [-] $FH;gen;si;gpref$ [-] $WH;aux$ [MJ-elek] | 5,318 1,000 40 | 5,318 1,000 49 | 5,320 0,995 67 | 5,341 0,864 93 | 5,366 0,564 112 | 5,376 0,406 118 | 5,380 0,314 120 | 5,383 0,256 122 |
| 50 | $\eta_{H;gen;hp;si}$ [-] $FH;gen;si;gpref$ [-] $WH;aux$ [MJ-elek] | 5,571 1,000 40 | 5,571 1,000 49 | 5,573 0,997 66 | 5,594 0,881 92 | 5,622 0,587 111 | 5,632 0,423 117 | 5,637 0,328 120 | 5,641 0,269 122 |
| 70 | $\eta_{H;gen;hp;si}$ [-] $FH;gen;si;gpref$ [-] $WH;aux$ [MJ-elek] | 6,020 1,000 39 | 6,020 1,000 47 | 6,021 0,999 63 | 6,043 0,901 88 | 6,075 0,616 109 | 6,087 0,446 115 | 6,094 0,347 118 | 6,098 0,285 121 |
| 80 | $\eta_{H;gen;hp;si}$ [-] $FH;gen;si;gpref$ [-] $WH;aux$ [MJ-elek] | 6,155 1,000 39 | 6,155 1,000 47 | 6,156 0,999 62 | 6,178 0,906 87 | 6,211 0,623 108 | 6,224 0,453 115 | 6,230 0,353 118 | 6,235 0,289 120 |
| 100 | $\eta_{H;gen;hp;si}$ [-] $FH;gen;si;gpref$ [-] $WH;aux$ [MJ-elek] | | | | | | | | |

| | | $30 \text{ }^\circ\text{C} < \theta_{sup} = < 35 \text{ }^\circ\text{C}$ QH;dis / Ag;tot = < 150 MJ/m ² (WLE) | | | | | | | |
|---|---|---|----------------------|----------------------|----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Ventilatiedebit [dm ³ /s] | | Bruto warmtebehoefte [GJ] | | | | | | | |
| | | 2,5 | 5 | 10 | 20 | 40 | 60 | 80 | 100 |
| 0 | $\eta_{H;gen;hp;si}$ [-] $FH;gen;si;gpref$ [-] $WH;aux$ [MJ-elek] | | | | | | | | |
| 10 | $\eta_{H;gen;hp;si}$ [-] $FH;gen;si;gpref$ [-] $WH;aux$ [MJ-elek] | | | | | | | | |
| 20 | $\eta_{H;gen;hp;si}$ [-] $FH;gen;si;gpref$ [-] $WH;aux$ [MJ-elek] | | | | | | | | |
| 30 | $\eta_{H;gen;hp;si}$ [-] $FH;gen;si;gpref$ [-] $WH;aux$ [MJ-elek] | 4,814 1,000 41 | 4,814 1,000 51 | 4,818 0,990 71 | 4,847 0,835 97 | 4,877 0,533 115 | 4,887 0,380 120 | 4,893 0,294 123 | 4,895 0,238 124 |
| 40 | $\eta_{H;gen;hp;si}$ [-] $FH;gen;si;gpref$ [-] $WH;aux$ [MJ-elek] | 5,182 1,000 41 | 5,182 1,000 50 | 5,185 0,994 68 | 5,216 0,862 95 | 5,252 0,563 113 | 5,265 0,404 119 | 5,271 0,313 122 | 5,275 0,255 124 |
| 50 | $\eta_{H;gen;hp;si}$ [-] $FH;gen;si;gpref$ [-] $WH;aux$ [MJ-elek] | 5,423 1,000 40 | 5,423 1,000 49 | 5,425 0,996 67 | 5,456 0,878 93 | 5,495 0,585 113 | 5,510 0,422 119 | 5,517 0,327 122 | 5,522 0,268 124 |
| 70 | $\eta_{H;gen;hp;si}$ [-] $FH;gen;si;gpref$ [-] $WH;aux$ [MJ-elek] | 5,847 1,000 40 | 5,847 1,000 48 | 5,848 0,998 64 | 5,881 0,899 90 | 5,927 0,614 110 | 5,944 0,445 117 | 5,953 0,346 120 | 5,959 0,284 122 |
| 80 | $\eta_{H;gen;hp;si}$ [-] $FH;gen;si;gpref$ [-] $WH;aux$ [MJ-elek] | 5,978 1,000 40 | 5,978 1,000 47 | 5,979 0,999 63 | 6,010 0,904 89 | 6,058 0,621 110 | 6,076 0,451 116 | 6,085 0,352 120 | 6,092 0,288 122 |
| 100 | $\eta_{H;gen;hp;si}$ [-] $FH;gen;si;gpref$ [-] $WH;aux$ [MJ-elek] | | | | | | | | |

| 35 °C < θ_{sup} =< 40 °C | | | | | | | | | |
|--|---|---------------------------|----------------------|----------------------|----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| QH;dis / Ag;tot =< 150 MJ/m ² (WLE) | | | | | | | | | |
| Ventilatiedebit [dm ³ /s] | | Bruto warmtebehoefte [GJ] | | | | | | | |
| | | 2,5 | 5 | 10 | 20 | 40 | 60 | 80 | 100 |
| 0 | $\eta_{H;gen;hp;si}$ [-] $FH;gen;si;gpref$ [-] $WH;aux$ [MJ-elek] | | | | | | | | |
| 10 | $\eta_{H;gen;hp;si}$ [-] $FH;gen;si;gpref$ [-] $WH;aux$ [MJ-elek] | | | | | | | | |
| 20 | $\eta_{H;gen;hp;si}$ [-] $FH;gen;si;gpref$ [-] $WH;aux$ [MJ-elek] | | | | | | | | |
| 30 | $\eta_{H;gen;hp;si}$ [-] $FH;gen;si;gpref$ [-] $WH;aux$ [MJ-elek] | 4,670 1,000 42 | 4,670 1,000 52 | 4,677 0,988 72 | 4,722 0,831 99 | 4,766 0,530 116 | 4,782 0,378 122 | 4,790 0,292 125 | 4,794 0,237 126 |
| 40 | $\eta_{H;gen;hp;si}$ [-] $FH;gen;si;gpref$ [-] $WH;aux$ [MJ-elek] | 5,017 1,000 41 | 5,017 1,000 51 | 5,022 0,993 69 | 5,070 0,858 96 | 5,123 0,559 115 | 5,143 0,402 121 | 5,152 0,311 124 | 5,158 0,254 125 |
| 50 | $\eta_{H;gen;hp;si}$ [-] $FH;gen;si;gpref$ [-] $WH;aux$ [MJ-elek] | 5,244 1,000 41 | 5,244 1,000 50 | 5,248 0,995 68 | 5,297 0,874 94 | 5,356 0,581 114 | 5,378 0,419 121 | 5,388 0,325 124 | 5,396 0,266 126 |
| 70 | $\eta_{H;gen;hp;si}$ [-] $FH;gen;si;gpref$ [-] $WH;aux$ [MJ-elek] | 5,644 1,000 40 | 5,644 1,000 48 | 5,646 0,998 65 | 5,697 0,896 91 | 5,766 0,610 112 | 5,792 0,442 119 | 5,805 0,344 122 | 5,815 0,282 124 |
| 80 | $\eta_{H;gen;hp;si}$ [-] $FH;gen;si;gpref$ [-] $WH;aux$ [MJ-elek] | 5,769 1,000 40 | 5,769 1,000 48 | 5,771 0,998 65 | 5,822 0,901 91 | 5,893 0,618 111 | 5,920 0,449 118 | 5,934 0,350 121 | 5,943 0,287 124 |
| 100 | $\eta_{H;gen;hp;si}$ [-] $FH;gen;si;gpref$ [-] $WH;aux$ [MJ-elek] | | | | | | | | |

| 40 °C < θ_{sup} =< 45 °C | | | | | | | | | |
|--|---|---------------------------|----------------------|----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| QH;dis / Ag;tot =< 150 MJ/m ² (WLE) | | | | | | | | | |
| Ventilatiedebit [dm ³ /s] | | Bruto warmtebehoefte [GJ] | | | | | | | |
| | | 2,5 | 5 | 10 | 20 | 40 | 60 | 80 | 100 |
| 0 | $\eta_{H;gen;hp;si}$ [-] $FH;gen;si;gpref$ [-] $WH;aux$ [MJ-elek] | | | | | | | | |
| 10 | $\eta_{H;gen;hp;si}$ [-] $FH;gen;si;gpref$ [-] $WH;aux$ [MJ-elek] | | | | | | | | |
| 20 | $\eta_{H;gen;hp;si}$ [-] $FH;gen;si;gpref$ [-] $WH;aux$ [MJ-elek] | | | | | | | | |
| 30 | $\eta_{H;gen;hp;si}$ [-] $FH;gen;si;gpref$ [-] $WH;aux$ [MJ-elek] | 4,524 1,000 42 | 4,524 1,000 53 | 4,534 0,987 73 | 4,595 0,827 100 | 4,654 0,527 118 | 4,675 0,375 123 | 4,685 0,290 126 | 4,691 0,236 127 |
| 40 | $\eta_{H;gen;hp;si}$ [-] $FH;gen;si;gpref$ [-] $WH;aux$ [MJ-elek] | 4,849 1,000 41 | 4,849 1,000 51 | 4,857 0,992 70 | 4,922 0,854 98 | 4,993 0,556 116 | 5,019 0,400 123 | 5,031 0,309 125 | 5,039 0,252 127 |
| 50 | $\eta_{H;gen;hp;si}$ [-] $FH;gen;si;gpref$ [-] $WH;aux$ [MJ-elek] | 5,062 1,000 41 | 5,062 1,000 50 | 5,068 0,994 69 | 5,136 0,870 96 | 5,214 0,578 116 | 5,243 0,416 122 | 5,257 0,323 125 | 5,267 0,265 127 |
| 70 | $\eta_{H;gen;hp;si}$ [-] $FH;gen;si;gpref$ [-] $WH;aux$ [MJ-elek] | 5,435 1,000 40 | 5,435 1,000 49 | 5,440 0,997 66 | 5,510 0,892 93 | 5,603 0,606 114 | 5,637 0,439 121 | 5,654 0,342 124 | 5,667 0,281 126 |
| 80 | $\eta_{H;gen;hp;si}$ [-] $FH;gen;si;gpref$ [-] $WH;aux$ [MJ-elek] | 5,556 1,000 40 | 5,556 1,000 49 | 5,560 0,998 66 | 5,630 0,898 92 | 5,725 0,614 113 | 5,761 0,446 120 | 5,779 0,348 123 | 5,791 0,285 125 |
| 100 | $\eta_{H;gen;hp;si}$ [-] $FH;gen;si;gpref$ [-] $WH;aux$ [MJ-elek] | | | | | | | | |

| | | 45 °C < θ _{sup} =< 50 °C | | | | | | | |
|---|---|--|----------------------|----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| | | QH:dis / Ag:tot =< 150 MJ/m ² (WLE) | | | | | | | |
| Ventilatie-debiet [dm ³ /s] | | Bruto warmtebehoefte [GJ] | | | | | | | |
| | | 2,5 | 5 | 10 | 20 | 40 | 60 | 80 | 100 |
| 0 | η _{H;gen;hp;si} [-] FH;gen;si,gpref [-] WH;aux [MJ-elek] | | | | | | | | |
| 10 | η _{H;gen;hp;si} [-] FH;gen;si,gpref [-] WH;aux [MJ-elek] | | | | | | | | |
| 20 | η _{H;gen;hp;si} [-] FH;gen;si,gpref [-] WH;aux [MJ-elek] | | | | | | | | |
| 30 | η _{H;gen;hp;si} [-] FH;gen;si,gpref [-] WH;aux [MJ-elek] | 4,418 1,000 42 | 4,418 1,000 53 | 4,430 0,986 74 | 4,498 0,826 102 | 4,562 0,526 119 | 4,585 0,375 125 | 4,597 0,290 128 | 4,602 0,235 129 |
| 40 | η _{H;gen;hp;si} [-] FH;gen;si,gpref [-] WH;aux [MJ-elek] | 4,723 1,000 42 | 4,723 1,000 52 | 4,733 0,992 71 | 4,806 0,852 99 | 4,883 0,555 118 | 4,912 0,399 124 | 4,925 0,308 127 | 4,934 0,252 129 |
| 50 | η _{H;gen;hp;si} [-] FH;gen;si,gpref [-] WH;aux [MJ-elek] | 4,924 1,000 41 | 4,924 1,000 51 | 4,932 0,994 70 | 5,007 0,868 98 | 5,092 0,576 118 | 5,124 0,415 124 | 5,139 0,322 127 | 5,150 0,264 129 |
| 70 | η _{H;gen;hp;si} [-] FH;gen;si,gpref [-] WH;aux [MJ-elek] | 5,273 1,000 41 | 5,273 1,000 50 | 5,278 0,997 68 | 5,357 0,890 95 | 5,458 0,605 116 | 5,496 0,438 123 | 5,515 0,341 126 | 5,528 0,280 128 |
| 80 | η _{H;gen;hp;si} [-] FH;gen;si,gpref [-] WH;aux [MJ-elek] | 5,388 1,000 40 | 5,388 1,000 49 | 5,392 0,997 67 | 5,471 0,897 94 | 5,575 0,613 115 | 5,614 0,445 122 | 5,634 0,347 125 | 5,647 0,285 128 |
| 100 | η _{H;gen;hp;si} [-] FH;gen;si,gpref [-] WH;aux [MJ-elek] | | | | | | | | |

| | | 50 °C < θ _{sup} =< 55 °C | | | | | | | |
|---|---|--|----------------------|----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| | | QH:dis / Ag:tot =< 150 MJ/m ² (WLE) | | | | | | | |
| Ventilatie-debiet [dm ³ /s] | | Bruto warmtebehoefte [GJ] | | | | | | | |
| | | 2,5 | 5 | 10 | 20 | 40 | 60 | 80 | 100 |
| 0 | η _{H;gen;hp;si} [-] FH;gen;si,gpref [-] WH;aux [MJ-elek] | | | | | | | | |
| 10 | η _{H;gen;hp;si} [-] FH;gen;si,gpref [-] WH;aux [MJ-elek] | | | | | | | | |
| 20 | η _{H;gen;hp;si} [-] FH;gen;si,gpref [-] WH;aux [MJ-elek] | | | | | | | | |
| 30 | η _{H;gen;hp;si} [-] FH;gen;si,gpref [-] WH;aux [MJ-elek] | 4,267 1,000 43 | 4,267 1,000 54 | 4,283 0,985 75 | 4,368 0,822 103 | 4,447 0,523 121 | 4,475 0,372 127 | 4,489 0,288 129 | 4,496 0,234 131 |
| 40 | η _{H;gen;hp;si} [-] FH;gen;si,gpref [-] WH;aux [MJ-elek] | 4,549 1,000 42 | 4,549 1,000 52 | 4,562 0,990 73 | 4,655 0,848 101 | 4,749 0,551 120 | 4,784 0,397 126 | 4,800 0,307 129 | 4,811 0,250 131 |
| 50 | η _{H;gen;hp;si} [-] FH;gen;si,gpref [-] WH;aux [MJ-elek] | 4,735 1,000 42 | 4,735 1,000 52 | 4,746 0,993 71 | 4,842 0,864 100 | 4,947 0,572 120 | 4,986 0,413 126 | 5,004 0,320 129 | 5,017 0,262 131 |
| 70 | η _{H;gen;hp;si} [-] FH;gen;si,gpref [-] WH;aux [MJ-elek] | 5,056 1,000 41 | 5,056 1,000 50 | 5,064 0,996 69 | 5,166 0,886 97 | 5,290 0,601 118 | 5,336 0,435 125 | 5,358 0,339 128 | 5,375 0,278 130 |
| 80 | η _{H;gen;hp;si} [-] FH;gen;si,gpref [-] WH;aux [MJ-elek] | 5,166 1,000 41 | 5,166 1,000 50 | 5,173 0,997 68 | 5,273 0,894 96 | 5,402 0,610 118 | 5,449 0,443 124 | 5,473 0,345 128 | 5,490 0,283 130 |
| 100 | η _{H;gen;hp;si} [-] FH;gen;si,gpref [-] WH;aux [MJ-elek] | | | | | | | | |

| θsup ≤ 30 °C QH;dis / Ag;tot ≤ 150 MJ/m ² (WLE) | | | | | | | | | |
|---|--------------------------------------|----|----|------|------|------|------|------|-----|
| | Ventilatiedebit [dm ³ /s] | | | | | | | | |
| | 0 | 10 | 20 | 30 | 40 | 50 | 70 | 80 | 100 |
| θbuiten [°C] | PH;hp;pr;θi [kW] | | | | | | | | |
| 16 | | | | 1,35 | 1,45 | 1,53 | 1,63 | 1,65 | |
| 15 | | | | 1,35 | 1,45 | 1,53 | 1,63 | 1,65 | |
| 14 | | | | 1,35 | 1,45 | 1,53 | 1,63 | 1,65 | |
| 13 | | | | 1,35 | 1,45 | 1,53 | 1,63 | 1,65 | |
| 12 | | | | 1,35 | 1,45 | 1,53 | 1,63 | 1,65 | |
| 11 | | | | 1,35 | 1,45 | 1,53 | 1,63 | 1,65 | |
| 10 | | | | 1,35 | 1,45 | 1,52 | 1,62 | 1,65 | |
| 9 | | | | 1,35 | 1,45 | 1,52 | 1,62 | 1,65 | |
| 8 | | | | 1,34 | 1,44 | 1,52 | 1,62 | 1,65 | |
| 7 | | | | 1,34 | 1,44 | 1,52 | 1,62 | 1,64 | |
| 6 | | | | 1,34 | 1,44 | 1,52 | 1,62 | 1,64 | |
| 5 | | | | 1,34 | 1,44 | 1,51 | 1,61 | 1,64 | |
| 4 | | | | 1,34 | 1,44 | 1,51 | 1,61 | 1,64 | |
| 3 | | | | 1,34 | 1,43 | 1,51 | 1,61 | 1,64 | |
| 2 | | | | 1,33 | 1,43 | 1,51 | 1,61 | 1,63 | |
| 1 | | | | 1,33 | 1,43 | 1,51 | 1,60 | 1,63 | |
| 0 | | | | 1,33 | 1,43 | 1,50 | 1,60 | 1,63 | |
| -1 | | | | 1,33 | 1,43 | 1,50 | 1,60 | 1,63 | |
| -2 | | | | 1,33 | 1,43 | 1,50 | 1,60 | 1,63 | |
| -3 | | | | 1,33 | 1,42 | 1,50 | 1,59 | 1,62 | |
| -4 | | | | 1,32 | 1,42 | 1,49 | 1,59 | 1,62 | |
| -5 | | | | 1,32 | 1,42 | 1,49 | 1,59 | 1,62 | |
| -6 | | | | 1,32 | 1,42 | 1,49 | 1,59 | 1,62 | |
| -7 | | | | 1,32 | 1,42 | 1,49 | 1,59 | 1,62 | |
| -8 | | | | 1,32 | 1,41 | 1,49 | 1,58 | 1,61 | |
| -9 | | | | 1,32 | 1,41 | 1,48 | 1,58 | 1,61 | |
| -10 | | | | 1,31 | 1,41 | 1,48 | 1,58 | 1,61 | |

| 30 °C < θsup ≤ 35 °C QH;dis / Ag;tot ≤ 150 MJ/m ² (WLE) | | | | | | | | | |
|---|--------------------------------------|----|----|------|------|------|------|------|-----|
| | Ventilatiedebit [dm ³ /s] | | | | | | | | |
| | 0 | 10 | 20 | 30 | 40 | 50 | 70 | 80 | 100 |
| θbuiten [°C] | PH;hp;pr;θi [kW] | | | | | | | | |
| 16 | | | | 1,35 | 1,45 | 1,53 | 1,63 | 1,65 | |
| 15 | | | | 1,35 | 1,45 | 1,53 | 1,63 | 1,65 | |
| 14 | | | | 1,35 | 1,45 | 1,53 | 1,63 | 1,65 | |
| 13 | | | | 1,35 | 1,45 | 1,53 | 1,63 | 1,65 | |
| 12 | | | | 1,35 | 1,45 | 1,53 | 1,63 | 1,65 | |
| 11 | | | | 1,35 | 1,45 | 1,53 | 1,63 | 1,65 | |
| 10 | | | | 1,35 | 1,45 | 1,52 | 1,62 | 1,65 | |
| 9 | | | | 1,34 | 1,44 | 1,52 | 1,62 | 1,65 | |
| 8 | | | | 1,34 | 1,44 | 1,52 | 1,62 | 1,64 | |
| 7 | | | | 1,34 | 1,44 | 1,51 | 1,61 | 1,64 | |
| 6 | | | | 1,34 | 1,44 | 1,51 | 1,61 | 1,64 | |
| 5 | | | | 1,33 | 1,43 | 1,51 | 1,61 | 1,63 | |
| 4 | | | | 1,33 | 1,43 | 1,50 | 1,60 | 1,63 | |
| 3 | | | | 1,33 | 1,43 | 1,50 | 1,60 | 1,63 | |
| 2 | | | | 1,33 | 1,42 | 1,50 | 1,60 | 1,63 | |
| 1 | | | | 1,32 | 1,42 | 1,49 | 1,59 | 1,62 | |
| 0 | | | | 1,32 | 1,42 | 1,49 | 1,59 | 1,62 | |
| -1 | | | | 1,32 | 1,42 | 1,49 | 1,59 | 1,62 | |
| -2 | | | | 1,32 | 1,41 | 1,49 | 1,58 | 1,61 | |
| -3 | | | | 1,32 | 1,41 | 1,48 | 1,58 | 1,61 | |
| -4 | | | | 1,31 | 1,41 | 1,48 | 1,58 | 1,61 | |
| -5 | | | | 1,31 | 1,41 | 1,48 | 1,57 | 1,61 | |
| -6 | | | | 1,31 | 1,40 | 1,47 | 1,57 | 1,60 | |
| -7 | | | | 1,31 | 1,40 | 1,47 | 1,57 | 1,60 | |
| -8 | | | | 1,30 | 1,40 | 1,47 | 1,56 | 1,60 | |
| -9 | | | | 1,30 | 1,40 | 1,46 | 1,56 | 1,59 | |
| -10 | | | | 1,30 | 1,39 | 1,46 | 1,56 | 1,59 | |

| 35 °C < θ_{sup} =< 40 °C | | | | | | | | | |
|--|---------------------------------------|----|----|------|------|------|------|------|-----|
| QH;dis / Ag;tot =< 150 MJ/m ² (WLE) | | | | | | | | | |
| | Ventilatiedebit [dm ³ /s] | | | | | | | | |
| | 0 | 10 | 20 | 30 | 40 | 50 | 70 | 80 | 100 |
| θ_{buiten} | <i>PH;hp;pr;θ_i</i> | | | | | | | | |
| [°C] | <i>[kW]</i> | | | | | | | | |
| 16 | | | | 1,35 | 1,45 | 1,53 | 1,63 | 1,65 | |
| 15 | | | | 1,35 | 1,45 | 1,53 | 1,63 | 1,65 | |
| 14 | | | | 1,35 | 1,45 | 1,53 | 1,63 | 1,65 | |
| 13 | | | | 1,35 | 1,45 | 1,53 | 1,63 | 1,65 | |
| 12 | | | | 1,35 | 1,45 | 1,53 | 1,63 | 1,65 | |
| 11 | | | | 1,35 | 1,45 | 1,52 | 1,62 | 1,65 | |
| 10 | | | | 1,34 | 1,44 | 1,52 | 1,62 | 1,65 | |
| 9 | | | | 1,34 | 1,44 | 1,51 | 1,61 | 1,64 | |
| 8 | | | | 1,34 | 1,44 | 1,51 | 1,61 | 1,64 | |
| 7 | | | | 1,33 | 1,43 | 1,51 | 1,60 | 1,63 | |
| 6 | | | | 1,33 | 1,43 | 1,50 | 1,60 | 1,63 | |
| 5 | | | | 1,33 | 1,42 | 1,50 | 1,59 | 1,62 | |
| 4 | | | | 1,32 | 1,42 | 1,49 | 1,59 | 1,62 | |
| 3 | | | | 1,32 | 1,42 | 1,49 | 1,59 | 1,62 | |
| 2 | | | | 1,32 | 1,41 | 1,48 | 1,58 | 1,61 | |
| 1 | | | | 1,31 | 1,41 | 1,48 | 1,58 | 1,61 | |
| 0 | | | | 1,31 | 1,40 | 1,47 | 1,57 | 1,60 | |
| -1 | | | | 1,30 | 1,40 | 1,47 | 1,57 | 1,60 | |
| -2 | | | | 1,30 | 1,40 | 1,46 | 1,56 | 1,59 | |
| -3 | | | | 1,30 | 1,39 | 1,46 | 1,56 | 1,59 | |
| -4 | | | | 1,29 | 1,39 | 1,46 | 1,55 | 1,58 | |
| -5 | | | | 1,29 | 1,38 | 1,45 | 1,55 | 1,58 | |
| -6 | | | | 1,29 | 1,38 | 1,45 | 1,54 | 1,58 | |
| -7 | | | | 1,28 | 1,38 | 1,44 | 1,54 | 1,57 | |
| -8 | | | | 1,28 | 1,37 | 1,44 | 1,53 | 1,57 | |
| -9 | | | | 1,28 | 1,37 | 1,43 | 1,53 | 1,56 | |
| -10 | | | | 1,27 | 1,36 | 1,43 | 1,52 | 1,56 | |

| 40 °C < θ_{sup} =< 45 °C | | | | | | | | | |
|--|---------------------------------------|----|----|------|------|------|------|------|-----|
| QH;dis / Ag;tot =< 150 MJ/m ² (WLE) | | | | | | | | | |
| | Ventilatiedebit [dm ³ /s] | | | | | | | | |
| | 0 | 10 | 20 | 30 | 40 | 50 | 70 | 80 | 100 |
| θ_{buiten} | <i>PH;hp;pr;θ_i</i> | | | | | | | | |
| [°C] | <i>[kW]</i> | | | | | | | | |
| 16 | | | | 1,35 | 1,45 | 1,53 | 1,63 | 1,65 | |
| 15 | | | | 1,35 | 1,45 | 1,53 | 1,63 | 1,65 | |
| 14 | | | | 1,35 | 1,45 | 1,53 | 1,63 | 1,65 | |
| 13 | | | | 1,35 | 1,45 | 1,53 | 1,63 | 1,65 | |
| 12 | | | | 1,35 | 1,45 | 1,53 | 1,63 | 1,65 | |
| 11 | | | | 1,35 | 1,45 | 1,52 | 1,62 | 1,65 | |
| 10 | | | | 1,34 | 1,44 | 1,52 | 1,62 | 1,64 | |
| 9 | | | | 1,34 | 1,44 | 1,51 | 1,61 | 1,64 | |
| 8 | | | | 1,33 | 1,43 | 1,50 | 1,60 | 1,63 | |
| 7 | | | | 1,33 | 1,42 | 1,50 | 1,60 | 1,63 | |
| 6 | | | | 1,32 | 1,42 | 1,49 | 1,59 | 1,62 | |
| 5 | | | | 1,32 | 1,41 | 1,49 | 1,58 | 1,61 | |
| 4 | | | | 1,31 | 1,41 | 1,48 | 1,58 | 1,61 | |
| 3 | | | | 1,31 | 1,40 | 1,47 | 1,57 | 1,60 | |
| 2 | | | | 1,30 | 1,40 | 1,47 | 1,56 | 1,60 | |
| 1 | | | | 1,30 | 1,39 | 1,46 | 1,56 | 1,59 | |
| 0 | | | | 1,29 | 1,39 | 1,46 | 1,55 | 1,58 | |
| -1 | | | | 1,29 | 1,38 | 1,45 | 1,55 | 1,58 | |
| -2 | | | | 1,28 | 1,38 | 1,44 | 1,54 | 1,57 | |
| -3 | | | | 1,28 | 1,37 | 1,44 | 1,53 | 1,57 | |
| -4 | | | | 1,27 | 1,37 | 1,43 | 1,53 | 1,56 | |
| -5 | | | | 1,27 | 1,36 | 1,42 | 1,52 | 1,56 | |
| -6 | | | | 1,26 | 1,36 | 1,42 | 1,51 | 1,55 | |
| -7 | | | | 1,26 | 1,35 | 1,41 | 1,51 | 1,54 | |
| -8 | | | | 1,26 | 1,35 | 1,41 | 1,50 | 1,54 | |
| -9 | | | | 1,25 | 1,34 | 1,40 | 1,49 | 1,53 | |
| -10 | | | | 1,25 | 1,33 | 1,39 | 1,49 | 1,53 | |

| 45 °C < θ_{sup} =< 50 °C | | | | | | | | | |
|--|---------------------------------------|----|----|------|------|------|------|------|-----|
| QH;dis / Ag;tot =< 150 MJ/m ² (WLE) | | | | | | | | | |
| | Ventilatiedebit [dm ³ /s] | | | | | | | | |
| | 0 | 10 | 20 | 30 | 40 | 50 | 70 | 80 | 100 |
| θ_{buiten} | <i>PH;hp;pr;θ_i</i> | | | | | | | | |
| [°C] | <i>[kW]</i> | | | | | | | | |
| 16 | | | | 1,35 | 1,45 | 1,53 | 1,63 | 1,65 | |
| 15 | | | | 1,35 | 1,45 | 1,53 | 1,63 | 1,65 | |
| 14 | | | | 1,35 | 1,45 | 1,53 | 1,63 | 1,65 | |
| 13 | | | | 1,35 | 1,45 | 1,53 | 1,63 | 1,65 | |
| 12 | | | | 1,35 | 1,45 | 1,53 | 1,63 | 1,65 | |
| 11 | | | | 1,35 | 1,45 | 1,52 | 1,62 | 1,65 | |
| 10 | | | | 1,34 | 1,44 | 1,52 | 1,61 | 1,64 | |
| 9 | | | | 1,34 | 1,43 | 1,51 | 1,61 | 1,64 | |
| 8 | | | | 1,33 | 1,43 | 1,50 | 1,60 | 1,63 | |
| 7 | | | | 1,32 | 1,42 | 1,49 | 1,59 | 1,62 | |
| 6 | | | | 1,32 | 1,42 | 1,49 | 1,59 | 1,62 | |
| 5 | | | | 1,31 | 1,41 | 1,48 | 1,58 | 1,61 | |
| 4 | | | | 1,31 | 1,40 | 1,47 | 1,57 | 1,60 | |
| 3 | | | | 1,30 | 1,40 | 1,47 | 1,57 | 1,60 | |
| 2 | | | | 1,30 | 1,39 | 1,46 | 1,56 | 1,59 | |
| 1 | | | | 1,29 | 1,39 | 1,45 | 1,55 | 1,58 | |
| 0 | | | | 1,29 | 1,38 | 1,45 | 1,54 | 1,58 | |
| -1 | | | | 1,28 | 1,38 | 1,44 | 1,54 | 1,57 | |
| -2 | | | | 1,28 | 1,37 | 1,43 | 1,53 | 1,56 | |
| -3 | | | | 1,27 | 1,36 | 1,43 | 1,52 | 1,56 | |
| -4 | | | | 1,27 | 1,36 | 1,42 | 1,52 | 1,55 | |
| -5 | | | | 1,26 | 1,35 | 1,41 | 1,51 | 1,55 | |
| -6 | | | | 1,26 | 1,35 | 1,41 | 1,50 | 1,54 | |
| -7 | | | | 1,25 | 1,34 | 1,40 | 1,49 | 1,53 | |
| -8 | | | | 1,25 | 1,33 | 1,39 | 1,49 | 1,53 | |
| -9 | | | | 1,24 | 1,33 | 1,39 | 1,48 | 1,52 | |
| -10 | | | | 1,24 | 1,32 | 1,38 | 1,47 | 1,51 | |

| 50 °C < θ_{sup} =< 55 °C | | | | | | | | | |
|--|---------------------------------------|----|----|------|------|------|------|------|-----|
| QH;dis / Ag;tot =< 150 MJ/m ² (WLE) | | | | | | | | | |
| | Ventilatiedebit [dm ³ /s] | | | | | | | | |
| | 0 | 10 | 20 | 30 | 40 | 50 | 70 | 80 | 100 |
| θ_{buiten} | <i>PH;hp;pr;θ_i</i> | | | | | | | | |
| [°C] | <i>[kW]</i> | | | | | | | | |
| 16 | | | | 1,35 | 1,45 | 1,53 | 1,63 | 1,65 | |
| 15 | | | | 1,35 | 1,45 | 1,53 | 1,63 | 1,65 | |
| 14 | | | | 1,35 | 1,45 | 1,53 | 1,63 | 1,65 | |
| 13 | | | | 1,35 | 1,45 | 1,53 | 1,63 | 1,65 | |
| 12 | | | | 1,35 | 1,45 | 1,53 | 1,63 | 1,65 | |
| 11 | | | | 1,34 | 1,44 | 1,52 | 1,62 | 1,65 | |
| 10 | | | | 1,34 | 1,44 | 1,51 | 1,61 | 1,64 | |
| 9 | | | | 1,33 | 1,43 | 1,50 | 1,60 | 1,63 | |
| 8 | | | | 1,33 | 1,42 | 1,50 | 1,59 | 1,62 | |
| 7 | | | | 1,32 | 1,42 | 1,49 | 1,59 | 1,62 | |
| 6 | | | | 1,31 | 1,41 | 1,48 | 1,58 | 1,61 | |
| 5 | | | | 1,31 | 1,40 | 1,47 | 1,57 | 1,60 | |
| 4 | | | | 1,30 | 1,39 | 1,46 | 1,56 | 1,59 | |
| 3 | | | | 1,29 | 1,39 | 1,45 | 1,55 | 1,58 | |
| 2 | | | | 1,29 | 1,38 | 1,45 | 1,54 | 1,58 | |
| 1 | | | | 1,28 | 1,37 | 1,44 | 1,53 | 1,57 | |
| 0 | | | | 1,27 | 1,37 | 1,43 | 1,52 | 1,56 | |
| -1 | | | | 1,27 | 1,36 | 1,42 | 1,52 | 1,55 | |
| -2 | | | | 1,26 | 1,35 | 1,41 | 1,51 | 1,54 | |
| -3 | | | | 1,25 | 1,34 | 1,40 | 1,50 | 1,54 | |
| -4 | | | | 1,25 | 1,34 | 1,40 | 1,49 | 1,53 | |
| -5 | | | | 1,24 | 1,33 | 1,39 | 1,48 | 1,52 | |
| -6 | | | | 1,23 | 1,32 | 1,38 | 1,47 | 1,51 | |
| -7 | | | | 1,23 | 1,32 | 1,37 | 1,46 | 1,51 | |
| -8 | | | | 1,22 | 1,31 | 1,36 | 1,46 | 1,50 | |
| -9 | | | | 1,22 | 1,30 | 1,35 | 1,45 | 1,49 | |
| -10 | | | | 1,21 | 1,29 | 1,35 | 1,44 | 1,48 | |

Hoofdstuk 2: Woningen met een hoog energiegebruik (WHE)

| | | $\theta_{sup} = < 30 \text{ }^\circ\text{C}$ QH;dis / Ag:tot > 150 MJ/m ² (WHE) | | | | | | | |
|---|--------------------------|---|-------|-------|-------|-------|-------|-------|-------|
| Ventilatiedebit [dm ³ /s] | | Bruto warmtebehoefte [GJ] | | | | | | | |
| | | 2,5 | 5 | 10 | 20 | 40 | 60 | 80 | 100 |
| 0 | $\eta_{H;gen;hp;si}$ [-] | | | | | | | | |
| | $FH;gen;si;gpref$ [-] | | | | | | | | |
| | $WH;aux$ [MJ-elek] | | | | | | | | |
| 10 | $\eta_{H;gen;hp;si}$ [-] | | | | | | | | |
| | $FH;gen;si;gpref$ [-] | | | | | | | | |
| | $WH;aux$ [MJ-elek] | | | | | | | | |
| 20 | $\eta_{H;gen;hp;si}$ [-] | | | | | | | | |
| | $FH;gen;si;gpref$ [-] | | | | | | | | |
| | $WH;aux$ [MJ-elek] | | | | | | | | |
| 30 | $\eta_{H;gen;hp;si}$ [-] | 4,954 | 4,954 | 4,954 | 4,968 | 4,992 | 5,000 | 5,004 | 5,005 |
| | $FH;gen;si;gpref$ [-] | 1,000 | 1,000 | 1,000 | 0,919 | 0,619 | 0,443 | 0,341 | 0,277 |
| | $WH;aux$ [MJ-elek] | 41 | 51 | 70 | 102 | 126 | 133 | 136 | 137 |
| 40 | $\eta_{H;gen;hp;si}$ [-] | 5,345 | 5,345 | 5,345 | 5,359 | 5,387 | 5,397 | 5,401 | 5,404 |
| | $FH;gen;si;gpref$ [-] | 1,000 | 1,000 | 1,000 | 0,939 | 0,653 | 0,471 | 0,364 | 0,296 |
| | $WH;aux$ [MJ-elek] | 40 | 49 | 67 | 98 | 124 | 131 | 134 | 136 |
| 50 | $\eta_{H;gen;hp;si}$ [-] | 5,601 | 5,601 | 5,601 | 5,613 | 5,644 | 5,656 | 5,661 | 5,663 |
| | $FH;gen;si;gpref$ [-] | 1,000 | 1,000 | 1,000 | 0,951 | 0,678 | 0,492 | 0,382 | 0,311 |
| | $WH;aux$ [MJ-elek] | 40 | 49 | 66 | 96 | 123 | 131 | 134 | 136 |
| 70 | $\eta_{H;gen;hp;si}$ [-] | 6,053 | 6,053 | 6,053 | 6,064 | 6,100 | 6,114 | 6,121 | 6,124 |
| | $FH;gen;si;gpref$ [-] | 1,000 | 1,000 | 1,000 | 0,964 | 0,708 | 0,520 | 0,405 | 0,330 |
| | $WH;aux$ [MJ-elek] | 39 | 47 | 63 | 92 | 120 | 129 | 132 | 134 |
| 80 | $\eta_{H;gen;hp;si}$ [-] | 6,189 | 6,189 | 6,189 | 6,200 | 6,236 | 6,251 | 6,258 | 6,261 |
| | $FH;gen;si;gpref$ [-] | 1,000 | 1,000 | 1,000 | 0,967 | 0,717 | 0,527 | 0,411 | 0,335 |
| | $WH;aux$ [MJ-elek] | 39 | 47 | 62 | 91 | 119 | 128 | 132 | 134 |
| 100 | $\eta_{H;gen;hp;si}$ [-] | | | | | | | | |
| | $FH;gen;si;gpref$ [-] | | | | | | | | |
| | $WH;aux$ [MJ-elek] | | | | | | | | |

| | | $30 \text{ }^\circ\text{C} < \theta_{sup} = < 35 \text{ }^\circ\text{C}$ QH;dis / Ag:tot > 150 MJ/m ² (WHE) | | | | | | | |
|---|--------------------------|---|-------|-------|-------|-------|-------|-------|-------|
| Ventilatiedebit [dm ³ /s] | | Bruto warmtebehoefte [GJ] | | | | | | | |
| | | 2,5 | 5 | 10 | 20 | 40 | 60 | 80 | 100 |
| 0 | $\eta_{H;gen;hp;si}$ [-] | | | | | | | | |
| | $FH;gen;si;gpref$ [-] | | | | | | | | |
| | $WH;aux$ [MJ-elek] | | | | | | | | |
| 10 | $\eta_{H;gen;hp;si}$ [-] | | | | | | | | |
| | $FH;gen;si;gpref$ [-] | | | | | | | | |
| | $WH;aux$ [MJ-elek] | | | | | | | | |
| 20 | $\eta_{H;gen;hp;si}$ [-] | | | | | | | | |
| | $FH;gen;si;gpref$ [-] | | | | | | | | |
| | $WH;aux$ [MJ-elek] | | | | | | | | |
| 30 | $\eta_{H;gen;hp;si}$ [-] | 4,848 | 4,848 | 4,848 | 4,868 | 4,903 | 4,914 | 4,919 | 4,922 |
| | $FH;gen;si;gpref$ [-] | 1,000 | 1,000 | 1,000 | 0,918 | 0,617 | 0,441 | 0,340 | 0,276 |
| | $WH;aux$ [MJ-elek] | 41 | 51 | 71 | 103 | 128 | 134 | 137 | 139 |
| 40 | $\eta_{H;gen;hp;si}$ [-] | 5,221 | 5,221 | 5,221 | 5,241 | 5,281 | 5,296 | 5,302 | 5,305 |
| | $FH;gen;si;gpref$ [-] | 1,000 | 1,000 | 1,000 | 0,937 | 0,651 | 0,469 | 0,363 | 0,295 |
| | $WH;aux$ [MJ-elek] | 41 | 50 | 68 | 100 | 126 | 133 | 136 | 138 |
| 50 | $\eta_{H;gen;hp;si}$ [-] | 5,464 | 5,464 | 5,464 | 5,482 | 5,527 | 5,543 | 5,551 | 5,554 |
| | $FH;gen;si;gpref$ [-] | 1,000 | 1,000 | 1,000 | 0,949 | 0,676 | 0,491 | 0,380 | 0,310 |
| | $WH;aux$ [MJ-elek] | 40 | 49 | 66 | 98 | 125 | 133 | 136 | 138 |
| 70 | $\eta_{H;gen;hp;si}$ [-] | 5,895 | 5,895 | 5,895 | 5,911 | 5,962 | 5,983 | 5,992 | 5,996 |
| | $FH;gen;si;gpref$ [-] | 1,000 | 1,000 | 1,000 | 0,963 | 0,706 | 0,518 | 0,403 | 0,329 |
| | $WH;aux$ [MJ-elek] | 40 | 48 | 64 | 94 | 122 | 131 | 134 | 136 |
| 80 | $\eta_{H;gen;hp;si}$ [-] | 6,026 | 6,026 | 6,026 | 6,042 | 6,093 | 6,115 | 6,125 | 6,130 |
| | $FH;gen;si;gpref$ [-] | 1,000 | 1,000 | 1,000 | 0,966 | 0,715 | 0,525 | 0,410 | 0,334 |
| | $WH;aux$ [MJ-elek] | 39 | 47 | 63 | 92 | 121 | 130 | 134 | 135 |
| 100 | $\eta_{H;gen;hp;si}$ [-] | | | | | | | | |
| | $FH;gen;si;gpref$ [-] | | | | | | | | |
| | $WH;aux$ [MJ-elek] | | | | | | | | |

| 35 °C < θsup =< 40 °C | | | | | | | | | |
|-----------------------------------|---------------------|---------------------------|-------|-------|-------|-------|-------|-------|-------|
| QH:dis / Ag:tot > 150 MJ/m² (WHE) | | | | | | | | | |
| Ventilatiegebied [dm³/s] | | Bruto warmtebehoefte [GJ] | | | | | | | |
| | | 2,5 | 5 | 10 | 20 | 40 | 60 | 80 | 100 |
| 0 | ηH;gen;hp;si [-] | | | | | | | | |
| | FH;gen;si,gpref [-] | | | | | | | | |
| | WH;aux [MJ-elek] | | | | | | | | |
| 10 | ηH;gen;hp;si [-] | | | | | | | | |
| | FH;gen;si,gpref [-] | | | | | | | | |
| | WH;aux [MJ-elek] | | | | | | | | |
| 20 | ηH;gen;hp;si [-] | | | | | | | | |
| | FH;gen;si,gpref [-] | | | | | | | | |
| | WH;aux [MJ-elek] | | | | | | | | |
| 30 | ηH;gen;hp;si [-] | 4,721 | 4,721 | 4,721 | 4,754 | 4,805 | 4,822 | 4,830 | 4,833 |
| | FH;gen;si,gpref [-] | 1,000 | 1,000 | 0,999 | 0,914 | 0,614 | 0,439 | 0,339 | 0,275 |
| | WH;aux [MJ-elek] | 42 | 52 | 72 | 105 | 129 | 136 | 139 | 140 |
| 40 | ηH;gen;hp;si [-] | 5,075 | 5,075 | 5,075 | 5,106 | 5,167 | 5,189 | 5,198 | 5,203 |
| | FH;gen;si,gpref [-] | 1,000 | 1,000 | 1,000 | 0,934 | 0,648 | 0,467 | 0,361 | 0,294 |
| | WH;aux [MJ-elek] | 41 | 50 | 69 | 101 | 127 | 134 | 138 | 139 |
| 50 | ηH;gen;hp;si [-] | 5,307 | 5,307 | 5,307 | 5,336 | 5,402 | 5,428 | 5,438 | 5,444 |
| | FH;gen;si,gpref [-] | 1,000 | 1,000 | 1,000 | 0,946 | 0,672 | 0,488 | 0,378 | 0,308 |
| | WH;aux [MJ-elek] | 41 | 49 | 67 | 99 | 126 | 134 | 138 | 140 |
| 70 | ηH;gen;hp;si [-] | 5,715 | 5,715 | 5,715 | 5,742 | 5,818 | 5,849 | 5,863 | 5,870 |
| | FH;gen;si,gpref [-] | 1,000 | 1,000 | 1,000 | 0,960 | 0,702 | 0,515 | 0,401 | 0,327 |
| | WH;aux [MJ-elek] | 40 | 48 | 65 | 95 | 124 | 132 | 136 | 138 |
| 80 | ηH;gen;hp;si [-] | 5,842 | 5,842 | 5,842 | 5,868 | 5,945 | 5,978 | 5,992 | 5,999 |
| | FH;gen;si,gpref [-] | 1,000 | 1,000 | 1,000 | 0,964 | 0,711 | 0,523 | 0,408 | 0,333 |
| | WH;aux [MJ-elek] | 40 | 48 | 64 | 94 | 123 | 132 | 135 | 137 |
| 100 | ηH;gen;hp;si [-] | | | | | | | | |
| | FH;gen;si,gpref [-] | | | | | | | | |
| | WH;aux [MJ-elek] | | | | | | | | |

| 40 °C < θsup =< 45 °C | | | | | | | | | |
|-----------------------------------|---------------------|---------------------------|-------|-------|-------|-------|-------|-------|-------|
| QH:dis / Ag:tot > 150 MJ/m² (WHE) | | | | | | | | | |
| Ventilatiegebied [dm³/s] | | Bruto warmtebehoefte [GJ] | | | | | | | |
| | | 2,5 | 5 | 10 | 20 | 40 | 60 | 80 | 100 |
| 0 | ηH;gen;hp;si [-] | | | | | | | | |
| | FH;gen;si,gpref [-] | | | | | | | | |
| | WH;aux [MJ-elek] | | | | | | | | |
| 10 | ηH;gen;hp;si [-] | | | | | | | | |
| | FH;gen;si,gpref [-] | | | | | | | | |
| | WH;aux [MJ-elek] | | | | | | | | |
| 20 | ηH;gen;hp;si [-] | | | | | | | | |
| | FH;gen;si,gpref [-] | | | | | | | | |
| | WH;aux [MJ-elek] | | | | | | | | |
| 30 | ηH;gen;hp;si [-] | 4,590 | 4,590 | 4,591 | 4,637 | 4,705 | 4,728 | 4,738 | 4,743 |
| | FH;gen;si,gpref [-] | 1,000 | 1,000 | 0,999 | 0,911 | 0,611 | 0,437 | 0,337 | 0,274 |
| | WH;aux [MJ-elek] | 42 | 52 | 73 | 106 | 131 | 137 | 140 | 142 |
| 40 | ηH;gen;hp;si [-] | 4,925 | 4,925 | 4,925 | 4,970 | 5,051 | 5,080 | 5,092 | 5,098 |
| | FH;gen;si,gpref [-] | 1,000 | 1,000 | 1,000 | 0,931 | 0,644 | 0,465 | 0,360 | 0,293 |
| | WH;aux [MJ-elek] | 41 | 51 | 70 | 103 | 129 | 136 | 139 | 141 |
| 50 | ηH;gen;hp;si [-] | 5,144 | 5,144 | 5,144 | 5,187 | 5,276 | 5,309 | 5,323 | 5,331 |
| | FH;gen;si,gpref [-] | 1,000 | 1,000 | 1,000 | 0,943 | 0,668 | 0,485 | 0,376 | 0,307 |
| | WH;aux [MJ-elek] | 41 | 50 | 69 | 101 | 128 | 136 | 139 | 141 |
| 70 | ηH;gen;hp;si [-] | 5,529 | 5,529 | 5,529 | 5,569 | 5,671 | 5,712 | 5,730 | 5,739 |
| | FH;gen;si,gpref [-] | 1,000 | 1,000 | 1,000 | 0,957 | 0,698 | 0,512 | 0,399 | 0,326 |
| | WH;aux [MJ-elek] | 40 | 49 | 66 | 97 | 125 | 134 | 138 | 140 |
| 80 | ηH;gen;hp;si [-] | 5,652 | 5,652 | 5,652 | 5,690 | 5,794 | 5,837 | 5,856 | 5,866 |
| | FH;gen;si,gpref [-] | 1,000 | 1,000 | 1,000 | 0,961 | 0,707 | 0,520 | 0,406 | 0,331 |
| | WH;aux [MJ-elek] | 40 | 48 | 65 | 96 | 125 | 133 | 137 | 139 |
| 100 | ηH;gen;hp;si [-] | | | | | | | | |
| | FH;gen;si,gpref [-] | | | | | | | | |
| | WH;aux [MJ-elek] | | | | | | | | |

| 45 °C < θsup = < 50 °C | | | | | | | | | |
|-----------------------------------|---|---------------------------|----------------------|----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| QH;dis / Ag;tot > 150 MJ/m² (WHE) | | | | | | | | | |
| Ventilatie-debiet [dm³/s] | | Bruto warmtebehoefte [GJ] | | | | | | | |
| | | 2,5 | 5 | 10 | 20 | 40 | 60 | 80 | 100 |
| 0 | ηH;gen;hp;si [-] FH;gen;si,gpref [-] WH;aux [MJ-elek] | | | | | | | | |
| 10 | ηH;gen;hp;si [-] FH;gen;si,gpref [-] WH;aux [MJ-elek] | | | | | | | | |
| 20 | ηH;gen;hp;si [-] FH;gen;si,gpref [-] WH;aux [MJ-elek] | | | | | | | | |
| 30 | ηH;gen;hp;si [-] FH;gen;si,gpref [-] WH;aux [MJ-elek] | 4,491 1,000 42 | 4,491 1,000 53 | 4,492 0,999 74 | 4,543 0,910 108 | 4,618 0,610 132 | 4,644 0,436 139 | 4,654 0,337 142 | 4,659 0,273 143 |
| 40 | ηH;gen;hp;si [-] FH;gen;si,gpref [-] WH;aux [MJ-elek] | 4,807 1,000 41 | 4,807 1,000 51 | 4,807 1,000 71 | 4,858 0,930 105 | 4,946 0,643 131 | 4,978 0,464 138 | 4,991 0,359 141 | 4,998 0,292 143 |
| 50 | ηH;gen;hp;si [-] FH;gen;si,gpref [-] WH;aux [MJ-elek] | 5,014 1,000 41 | 5,014 1,000 51 | 5,014 1,000 70 | 5,062 0,941 102 | 5,160 0,667 130 | 5,196 0,484 138 | 5,211 0,375 141 | 5,220 0,306 143 |
| 70 | ηH;gen;hp;si [-] FH;gen;si,gpref [-] WH;aux [MJ-elek] | 5,375 1,000 40 | 5,375 1,000 49 | 5,375 1,000 67 | 5,420 0,955 99 | 5,532 0,696 128 | 5,578 0,511 136 | 5,597 0,398 140 | 5,608 0,325 142 |
| 80 | ηH;gen;hp;si [-] FH;gen;si,gpref [-] WH;aux [MJ-elek] | 5,493 1,000 40 | 5,493 1,000 49 | 5,493 1,000 66 | 5,536 0,960 98 | 5,651 0,706 127 | 5,698 0,519 136 | 5,719 0,405 140 | 5,729 0,330 141 |
| 100 | ηH;gen;hp;si [-] FH;gen;si,gpref [-] WH;aux [MJ-elek] | | | | | | | | |

| 50 °C < θsup = < 55 °C | | | | | | | | | |
|-----------------------------------|---|---------------------------|----------------------|----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| QH;dis / Ag;tot > 150 MJ/m² (WHE) | | | | | | | | | |
| Ventilatie-debiet [dm³/s] | | Bruto warmtebehoefte [GJ] | | | | | | | |
| | | 2,5 | 5 | 10 | 20 | 40 | 60 | 80 | 100 |
| 0 | ηH;gen;hp;si [-] FH;gen;si,gpref [-] WH;aux [MJ-elek] | | | | | | | | |
| 10 | ηH;gen;hp;si [-] FH;gen;si,gpref [-] WH;aux [MJ-elek] | | | | | | | | |
| 20 | ηH;gen;hp;si [-] FH;gen;si,gpref [-] WH;aux [MJ-elek] | | | | | | | | |
| 30 | ηH;gen;hp;si [-] FH;gen;si,gpref [-] WH;aux [MJ-elek] | 4,356 1,000 42 | 4,356 1,000 53 | 4,358 0,999 75 | 4,423 0,907 110 | 4,515 0,607 134 | 4,546 0,434 141 | 4,559 0,335 144 | 4,565 0,272 145 |
| 40 | ηH;gen;hp;si [-] FH;gen;si,gpref [-] WH;aux [MJ-elek] | 4,651 1,000 42 | 4,651 1,000 52 | 4,651 1,000 72 | 4,717 0,927 106 | 4,826 0,640 133 | 4,865 0,461 140 | 4,881 0,357 143 | 4,890 0,291 145 |
| 50 | ηH;gen;hp;si [-] FH;gen;si,gpref [-] WH;aux [MJ-elek] | 4,845 1,000 41 | 4,845 1,000 51 | 4,845 1,000 71 | 4,909 0,938 104 | 5,029 0,663 132 | 5,073 0,481 140 | 5,092 0,373 143 | 5,102 0,304 145 |
| 70 | ηH;gen;hp;si [-] FH;gen;si,gpref [-] WH;aux [MJ-elek] | 5,181 1,000 41 | 5,181 1,000 50 | 5,181 1,000 68 | 5,242 0,953 101 | 5,380 0,692 130 | 5,435 0,508 138 | 5,459 0,396 142 | 5,472 0,323 144 |
| 80 | ηH;gen;hp;si [-] FH;gen;si,gpref [-] WH;aux [MJ-elek] | 5,294 1,000 41 | 5,294 1,000 50 | 5,294 1,000 68 | 5,352 0,958 100 | 5,494 0,702 129 | 5,551 0,516 138 | 5,576 0,403 142 | 5,589 0,329 144 |
| 100 | ηH;gen;hp;si [-] FH;gen;si,gpref [-] WH;aux [MJ-elek] | | | | | | | | |

| θsup =< 30 °C QH;dis / Ag;tot > 150 MJ/m ² (WHE) | | | | | | | | | |
|--|--------------------------------------|----|----|------|------|------|------|------|-----|
| | Ventilatiedebit [dm ³ /s] | | | | | | | | |
| | 0 | 10 | 20 | 30 | 40 | 50 | 70 | 80 | 100 |
| θbuiten [°C] | PH;hp;pr;θi [kW] | | | | | | | | |
| 16 | | | | 1,35 | 1,45 | 1,53 | 1,63 | 1,65 | |
| 15 | | | | 1,35 | 1,45 | 1,53 | 1,63 | 1,65 | |
| 14 | | | | 1,35 | 1,45 | 1,53 | 1,63 | 1,65 | |
| 13 | | | | 1,35 | 1,45 | 1,53 | 1,63 | 1,65 | |
| 12 | | | | 1,35 | 1,45 | 1,53 | 1,63 | 1,65 | |
| 11 | | | | 1,35 | 1,45 | 1,53 | 1,63 | 1,65 | |
| 10 | | | | 1,35 | 1,45 | 1,52 | 1,62 | 1,65 | |
| 9 | | | | 1,35 | 1,45 | 1,52 | 1,62 | 1,65 | |
| 8 | | | | 1,34 | 1,44 | 1,52 | 1,62 | 1,65 | |
| 7 | | | | 1,34 | 1,44 | 1,52 | 1,62 | 1,64 | |
| 6 | | | | 1,34 | 1,44 | 1,52 | 1,62 | 1,64 | |
| 5 | | | | 1,34 | 1,44 | 1,51 | 1,61 | 1,64 | |
| 4 | | | | 1,34 | 1,44 | 1,51 | 1,61 | 1,64 | |
| 3 | | | | 1,34 | 1,43 | 1,51 | 1,61 | 1,64 | |
| 2 | | | | 1,33 | 1,43 | 1,51 | 1,61 | 1,63 | |
| 1 | | | | 1,33 | 1,43 | 1,51 | 1,60 | 1,63 | |
| 0 | | | | 1,33 | 1,43 | 1,50 | 1,60 | 1,63 | |
| -1 | | | | 1,33 | 1,43 | 1,50 | 1,60 | 1,63 | |
| -2 | | | | 1,33 | 1,43 | 1,50 | 1,60 | 1,63 | |
| -3 | | | | 1,33 | 1,42 | 1,50 | 1,59 | 1,62 | |
| -4 | | | | 1,32 | 1,42 | 1,49 | 1,59 | 1,62 | |
| -5 | | | | 1,32 | 1,42 | 1,49 | 1,59 | 1,62 | |
| -6 | | | | 1,32 | 1,42 | 1,49 | 1,59 | 1,62 | |
| -7 | | | | 1,32 | 1,42 | 1,49 | 1,59 | 1,62 | |
| -8 | | | | 1,32 | 1,41 | 1,49 | 1,58 | 1,61 | |
| -9 | | | | 1,32 | 1,41 | 1,48 | 1,58 | 1,61 | |
| -10 | | | | 1,31 | 1,41 | 1,48 | 1,58 | 1,61 | |

| 30 °C < θsup =< 35 °C QH;dis / Ag;tot > 150 MJ/m ² (WHE) | | | | | | | | | |
|--|--------------------------------------|----|----|------|------|------|------|------|-----|
| | Ventilatiedebit [dm ³ /s] | | | | | | | | |
| | 0 | 10 | 20 | 30 | 40 | 50 | 70 | 80 | 100 |
| θbuiten [°C] | PH;hp;pr;θi [kW] | | | | | | | | |
| 16 | | | | 1,35 | 1,45 | 1,53 | 1,63 | 1,65 | |
| 15 | | | | 1,35 | 1,45 | 1,53 | 1,63 | 1,65 | |
| 14 | | | | 1,35 | 1,45 | 1,53 | 1,63 | 1,65 | |
| 13 | | | | 1,35 | 1,45 | 1,53 | 1,63 | 1,65 | |
| 12 | | | | 1,35 | 1,45 | 1,53 | 1,63 | 1,65 | |
| 11 | | | | 1,35 | 1,45 | 1,53 | 1,63 | 1,65 | |
| 10 | | | | 1,35 | 1,45 | 1,52 | 1,62 | 1,65 | |
| 9 | | | | 1,34 | 1,44 | 1,52 | 1,62 | 1,65 | |
| 8 | | | | 1,34 | 1,44 | 1,52 | 1,62 | 1,64 | |
| 7 | | | | 1,34 | 1,44 | 1,51 | 1,61 | 1,64 | |
| 6 | | | | 1,34 | 1,44 | 1,51 | 1,61 | 1,64 | |
| 5 | | | | 1,33 | 1,43 | 1,51 | 1,61 | 1,63 | |
| 4 | | | | 1,33 | 1,43 | 1,50 | 1,60 | 1,63 | |
| 3 | | | | 1,33 | 1,43 | 1,50 | 1,60 | 1,63 | |
| 2 | | | | 1,33 | 1,42 | 1,50 | 1,60 | 1,63 | |
| 1 | | | | 1,32 | 1,42 | 1,49 | 1,59 | 1,62 | |
| 0 | | | | 1,32 | 1,42 | 1,49 | 1,59 | 1,62 | |
| -1 | | | | 1,32 | 1,42 | 1,49 | 1,59 | 1,62 | |
| -2 | | | | 1,32 | 1,41 | 1,49 | 1,58 | 1,61 | |
| -3 | | | | 1,32 | 1,41 | 1,48 | 1,58 | 1,61 | |
| -4 | | | | 1,31 | 1,41 | 1,48 | 1,58 | 1,61 | |
| -5 | | | | 1,31 | 1,41 | 1,48 | 1,57 | 1,61 | |
| -6 | | | | 1,31 | 1,40 | 1,47 | 1,57 | 1,60 | |
| -7 | | | | 1,31 | 1,40 | 1,47 | 1,57 | 1,60 | |
| -8 | | | | 1,30 | 1,40 | 1,47 | 1,56 | 1,60 | |
| -9 | | | | 1,30 | 1,40 | 1,46 | 1,56 | 1,59 | |
| -10 | | | | 1,30 | 1,39 | 1,46 | 1,56 | 1,59 | |

| 35 °C < θ_{sup} =< 40 °C | | | | | | | | | |
|---|---------------------------------------|----|----|------|------|------|------|------|-----|
| QH;dis / Ag;tot > 150 MJ/m ² (WHE) | | | | | | | | | |
| | Ventilatiedebit [dm ³ /s] | | | | | | | | |
| | 0 | 10 | 20 | 30 | 40 | 50 | 70 | 80 | 100 |
| θ_{buiten} | <i>PH;hp;pr;θ_i</i> | | | | | | | | |
| [°C] | <i>[kW]</i> | | | | | | | | |
| 16 | | | | 1,35 | 1,45 | 1,53 | 1,63 | 1,65 | |
| 15 | | | | 1,35 | 1,45 | 1,53 | 1,63 | 1,65 | |
| 14 | | | | 1,35 | 1,45 | 1,53 | 1,63 | 1,65 | |
| 13 | | | | 1,35 | 1,45 | 1,53 | 1,63 | 1,65 | |
| 12 | | | | 1,35 | 1,45 | 1,53 | 1,63 | 1,65 | |
| 11 | | | | 1,35 | 1,45 | 1,52 | 1,62 | 1,65 | |
| 10 | | | | 1,34 | 1,44 | 1,52 | 1,62 | 1,65 | |
| 9 | | | | 1,34 | 1,44 | 1,51 | 1,61 | 1,64 | |
| 8 | | | | 1,34 | 1,44 | 1,51 | 1,61 | 1,64 | |
| 7 | | | | 1,33 | 1,43 | 1,51 | 1,60 | 1,63 | |
| 6 | | | | 1,33 | 1,43 | 1,50 | 1,60 | 1,63 | |
| 5 | | | | 1,33 | 1,42 | 1,50 | 1,59 | 1,62 | |
| 4 | | | | 1,32 | 1,42 | 1,49 | 1,59 | 1,62 | |
| 3 | | | | 1,32 | 1,42 | 1,49 | 1,59 | 1,62 | |
| 2 | | | | 1,32 | 1,41 | 1,48 | 1,58 | 1,61 | |
| 1 | | | | 1,31 | 1,41 | 1,48 | 1,58 | 1,61 | |
| 0 | | | | 1,31 | 1,40 | 1,47 | 1,57 | 1,60 | |
| -1 | | | | 1,30 | 1,40 | 1,47 | 1,57 | 1,60 | |
| -2 | | | | 1,30 | 1,40 | 1,46 | 1,56 | 1,59 | |
| -3 | | | | 1,30 | 1,39 | 1,46 | 1,56 | 1,59 | |
| -4 | | | | 1,29 | 1,39 | 1,46 | 1,55 | 1,58 | |
| -5 | | | | 1,29 | 1,38 | 1,45 | 1,55 | 1,58 | |
| -6 | | | | 1,29 | 1,38 | 1,45 | 1,54 | 1,58 | |
| -7 | | | | 1,28 | 1,38 | 1,44 | 1,54 | 1,57 | |
| -8 | | | | 1,28 | 1,37 | 1,44 | 1,53 | 1,57 | |
| -9 | | | | 1,28 | 1,37 | 1,43 | 1,53 | 1,56 | |
| -10 | | | | 1,27 | 1,36 | 1,43 | 1,52 | 1,56 | |

| 40 °C < θ_{sup} =< 45 °C | | | | | | | | | |
|---|---------------------------------------|----|----|------|------|------|------|------|-----|
| QH;dis / Ag;tot > 150 MJ/m ² (WHE) | | | | | | | | | |
| | Ventilatiedebit [dm ³ /s] | | | | | | | | |
| | 0 | 10 | 20 | 30 | 40 | 50 | 70 | 80 | 100 |
| θ_{buiten} | <i>PH;hp;pr;θ_i</i> | | | | | | | | |
| [°C] | <i>[kW]</i> | | | | | | | | |
| 16 | | | | 1,35 | 1,45 | 1,53 | 1,63 | 1,65 | |
| 15 | | | | 1,35 | 1,45 | 1,53 | 1,63 | 1,65 | |
| 14 | | | | 1,35 | 1,45 | 1,53 | 1,63 | 1,65 | |
| 13 | | | | 1,35 | 1,45 | 1,53 | 1,63 | 1,65 | |
| 12 | | | | 1,35 | 1,45 | 1,53 | 1,63 | 1,65 | |
| 11 | | | | 1,35 | 1,45 | 1,52 | 1,62 | 1,65 | |
| 10 | | | | 1,34 | 1,44 | 1,52 | 1,62 | 1,64 | |
| 9 | | | | 1,34 | 1,44 | 1,51 | 1,61 | 1,64 | |
| 8 | | | | 1,33 | 1,43 | 1,50 | 1,60 | 1,63 | |
| 7 | | | | 1,33 | 1,42 | 1,50 | 1,60 | 1,63 | |
| 6 | | | | 1,32 | 1,42 | 1,49 | 1,59 | 1,62 | |
| 5 | | | | 1,32 | 1,41 | 1,49 | 1,58 | 1,61 | |
| 4 | | | | 1,31 | 1,41 | 1,48 | 1,58 | 1,61 | |
| 3 | | | | 1,31 | 1,40 | 1,47 | 1,57 | 1,60 | |
| 2 | | | | 1,30 | 1,40 | 1,47 | 1,56 | 1,60 | |
| 1 | | | | 1,30 | 1,39 | 1,46 | 1,56 | 1,59 | |
| 0 | | | | 1,29 | 1,39 | 1,46 | 1,55 | 1,58 | |
| -1 | | | | 1,29 | 1,38 | 1,45 | 1,55 | 1,58 | |
| -2 | | | | 1,28 | 1,38 | 1,44 | 1,54 | 1,57 | |
| -3 | | | | 1,28 | 1,37 | 1,44 | 1,53 | 1,57 | |
| -4 | | | | 1,27 | 1,37 | 1,43 | 1,53 | 1,56 | |
| -5 | | | | 1,27 | 1,36 | 1,42 | 1,52 | 1,56 | |
| -6 | | | | 1,26 | 1,36 | 1,42 | 1,51 | 1,55 | |
| -7 | | | | 1,26 | 1,35 | 1,41 | 1,51 | 1,54 | |
| -8 | | | | 1,26 | 1,35 | 1,41 | 1,50 | 1,54 | |
| -9 | | | | 1,25 | 1,34 | 1,40 | 1,49 | 1,53 | |
| -10 | | | | 1,25 | 1,33 | 1,39 | 1,49 | 1,53 | |

| 45 °C < θ_{sup} =< 50 °C | | | | | | | | | |
|---|---------------------------------------|----|----|------|------|------|------|------|-----|
| QH;dis / Ag;tot > 150 MJ/m ² (WHE) | | | | | | | | | |
| | Ventilatiedebit [dm ³ /s] | | | | | | | | |
| | 0 | 10 | 20 | 30 | 40 | 50 | 70 | 80 | 100 |
| θ_{buiten} | <i>PH;hp;pr;θ_i</i> | | | | | | | | |
| [°C] | <i>[kW]</i> | | | | | | | | |
| 16 | | | | 1,35 | 1,45 | 1,53 | 1,63 | 1,65 | |
| 15 | | | | 1,35 | 1,45 | 1,53 | 1,63 | 1,65 | |
| 14 | | | | 1,35 | 1,45 | 1,53 | 1,63 | 1,65 | |
| 13 | | | | 1,35 | 1,45 | 1,53 | 1,63 | 1,65 | |
| 12 | | | | 1,35 | 1,45 | 1,53 | 1,63 | 1,65 | |
| 11 | | | | 1,35 | 1,45 | 1,52 | 1,62 | 1,65 | |
| 10 | | | | 1,34 | 1,44 | 1,52 | 1,61 | 1,64 | |
| 9 | | | | 1,34 | 1,43 | 1,51 | 1,61 | 1,64 | |
| 8 | | | | 1,33 | 1,43 | 1,50 | 1,60 | 1,63 | |
| 7 | | | | 1,32 | 1,42 | 1,49 | 1,59 | 1,62 | |
| 6 | | | | 1,32 | 1,42 | 1,49 | 1,59 | 1,62 | |
| 5 | | | | 1,31 | 1,41 | 1,48 | 1,58 | 1,61 | |
| 4 | | | | 1,31 | 1,40 | 1,47 | 1,57 | 1,60 | |
| 3 | | | | 1,30 | 1,40 | 1,47 | 1,57 | 1,60 | |
| 2 | | | | 1,30 | 1,39 | 1,46 | 1,56 | 1,59 | |
| 1 | | | | 1,29 | 1,39 | 1,45 | 1,55 | 1,58 | |
| 0 | | | | 1,29 | 1,38 | 1,45 | 1,54 | 1,58 | |
| -1 | | | | 1,28 | 1,38 | 1,44 | 1,54 | 1,57 | |
| -2 | | | | 1,28 | 1,37 | 1,43 | 1,53 | 1,56 | |
| -3 | | | | 1,27 | 1,36 | 1,43 | 1,52 | 1,56 | |
| -4 | | | | 1,27 | 1,36 | 1,42 | 1,52 | 1,55 | |
| -5 | | | | 1,26 | 1,35 | 1,41 | 1,51 | 1,55 | |
| -6 | | | | 1,26 | 1,35 | 1,41 | 1,50 | 1,54 | |
| -7 | | | | 1,25 | 1,34 | 1,40 | 1,49 | 1,53 | |
| -8 | | | | 1,25 | 1,33 | 1,39 | 1,49 | 1,53 | |
| -9 | | | | 1,24 | 1,33 | 1,39 | 1,48 | 1,52 | |
| -10 | | | | 1,24 | 1,32 | 1,38 | 1,47 | 1,51 | |

| 50 °C < θ_{sup} =< 55 °C | | | | | | | | | |
|---|---------------------------------------|----|----|------|------|------|------|------|-----|
| QH;dis / Ag;tot > 150 MJ/m ² (WHE) | | | | | | | | | |
| | Ventilatiedebit [dm ³ /s] | | | | | | | | |
| | 0 | 10 | 20 | 30 | 40 | 50 | 70 | 80 | 100 |
| θ_{buiten} | <i>PH;hp;pr;θ_i</i> | | | | | | | | |
| [°C] | <i>[kW]</i> | | | | | | | | |
| 16 | | | | 1,35 | 1,45 | 1,53 | 1,63 | 1,65 | |
| 15 | | | | 1,35 | 1,45 | 1,53 | 1,63 | 1,65 | |
| 14 | | | | 1,35 | 1,45 | 1,53 | 1,63 | 1,65 | |
| 13 | | | | 1,35 | 1,45 | 1,53 | 1,63 | 1,65 | |
| 12 | | | | 1,35 | 1,45 | 1,53 | 1,63 | 1,65 | |
| 11 | | | | 1,34 | 1,44 | 1,52 | 1,62 | 1,65 | |
| 10 | | | | 1,34 | 1,44 | 1,51 | 1,61 | 1,64 | |
| 9 | | | | 1,33 | 1,43 | 1,50 | 1,60 | 1,63 | |
| 8 | | | | 1,33 | 1,42 | 1,50 | 1,59 | 1,62 | |
| 7 | | | | 1,32 | 1,42 | 1,49 | 1,59 | 1,62 | |
| 6 | | | | 1,31 | 1,41 | 1,48 | 1,58 | 1,61 | |
| 5 | | | | 1,31 | 1,40 | 1,47 | 1,57 | 1,60 | |
| 4 | | | | 1,30 | 1,39 | 1,46 | 1,56 | 1,59 | |
| 3 | | | | 1,29 | 1,39 | 1,45 | 1,55 | 1,58 | |
| 2 | | | | 1,29 | 1,38 | 1,45 | 1,54 | 1,58 | |
| 1 | | | | 1,28 | 1,37 | 1,44 | 1,53 | 1,57 | |
| 0 | | | | 1,27 | 1,37 | 1,43 | 1,52 | 1,56 | |
| -1 | | | | 1,27 | 1,36 | 1,42 | 1,52 | 1,55 | |
| -2 | | | | 1,26 | 1,35 | 1,41 | 1,51 | 1,54 | |
| -3 | | | | 1,25 | 1,34 | 1,40 | 1,50 | 1,54 | |
| -4 | | | | 1,25 | 1,34 | 1,40 | 1,49 | 1,53 | |
| -5 | | | | 1,24 | 1,33 | 1,39 | 1,48 | 1,52 | |
| -6 | | | | 1,23 | 1,32 | 1,38 | 1,47 | 1,51 | |
| -7 | | | | 1,23 | 1,32 | 1,37 | 1,46 | 1,51 | |
| -8 | | | | 1,22 | 1,31 | 1,36 | 1,46 | 1,50 | |
| -9 | | | | 1,22 | 1,30 | 1,35 | 1,45 | 1,49 | |
| -10 | | | | 1,21 | 1,29 | 1,35 | 1,44 | 1,48 | |

Pagina 16

Nummer 80842/04

Hoofdstuk 3: Hulpenergie ventilatie

Tabel 3.1 $P_{\text{nom;el}}$ (hulpenergie ventilator)

| Ventilatiedebit [l/s] | $P_{\text{nom;el}}$ [Watt] |
|--------------------------|-------------------------------|
| 30 | 8,7 |
| 40 | 10,7 |
| 50 | 13,1 |
| 70 | 19,4 |
| 80 | 23,3 |