TECHNICAL DOCUMENTATION

A general description of the refrigerating model, sufficient for it to be unequivocally and easily identified:

Brand Name:	CYLINDA
Model Identifier:	KF7485NEHD

Product specifications:

General product specifications:

Parameter	Value	Parameter	Value
Annual energy consumption (kWh/a)	200	Auxiliary energy (kWh/a)	0
Standard annual energy consumption	250,61	EEI (%)	80
Temperature rise time (h)	18,00	Combi parameter	1,52
Door heat loss factor	1,000	Load factor	1,0
Anti-condensation heater type	None		

Additional product specifications for refrigerating appliances, except for low noise refrigerating appliances:

Parameter	Value	Parameter	Value
Daily energy consumption at 16 °C (kWh/24h)	0,356	Daily energy consumption at 32 °C (kWh/24h)	0,739
Incremental defrost and recovery energy consumption at 16 °C (Wh)	83,0	Incremental defrost and recovery energy consumption at 32 °C (Wh)	85,0
Defrost interval at 16 °C (h)	40,0	Defrost interval at 32 °C (h)	40,0

Additional product specifications for low noise refrigerating appliances:

Parameter	Value	Parameter	Value
Daily energy consumption at 25 °C (kWh/24h)	-	Defrost interval at 25 °C (h)	-

Compartment specifications:

Compartment type	Compartment parameters and values					
	Target temperature (°C)	Thermodynamic parameter (rc)	Nc	Mc	Defrost factor (Ac)	Built-in factor (Bc)
Pantry	-	-	-	-	-	-
Wine storage	-	-	-	-	-	-
Cellar	-	-	-	-	-	-
Fresh food	4	1,00	75	0,12	1,0	1,00
Chill	-	-	-	-	-	-
0-star or ice making	-	-	-	-	-	-
1-star	-	-	-	-	-	-
2-star	-	-	-	-	-	-
3-star	-	-	-	-	-	-
4-star	-18	2,10	138	0,15	1,1	1,00
2-star section	-	-	-	-	-	-
Variable temperature compartment	-	-	-	-	-	-

Additional information:

The references of the harmonised standards or other reliable accurate and reproducible methods applied:
EN 62552-1:2020 , EN 62552-2:2020 , EN 62552-3:2020 , EN60704-2-14:2019

Calculations

Annual energy consumption (kWh/a) , T average (°C) :

$$E_{\text{daily}} = P \times 24 + \frac{\Delta E_{df} \times 24}{\Delta t_{df}} \qquad (2)$$

Where

E_{daily} is the energy in Wh over a period of 24 h

24 is h/d

P is the **steady state** power in watt for the selected **temperature control setting** as per Annex B.

ΔE_{df} is the representative incremental energy for **defrost and recovery** in Wh in accordance with Annex C (see C.5).

Δt_{df} is the estimated **defrost interval** in hours in accordance with Annex D.

Where there are additional defrost systems (each with its own **defrost control cycle**), the value of term based on ΔE_{df} and Δt_{df} is also added in Formula (2) for each additional defrost system.

$$T_{\text{average}} = T_{ss} + \frac{\Delta Th_{df}}{\Delta t_{df}} \qquad (3)$$

Note : EN 60552-3:2020 , 6.8.2 clause, Equation 2-3 ,

Annual Energy , Daily energy consumption at 16 °C/ 32°C (kWh/24h) :

$$AE = 365 \times E_{daily}/L + E_{aux} \qquad E_{daily} = 0{,}5 \times (E_{16} + E_{32})$$

Note : EN 60552-3:2020 , 6.8.2 clause, Equation 4,(EU) 2019/2019 Ecodesign Requirements Directive

Standard annual energy consumption (kWh/a)

SAE, expressed in kWh/a and rounded to two decimal places, is calculated as follows:

$$SAE = C \times D \times \sum_{c=1}^{n} A_c \times B_c \times [V_c/V] \times (N_c + V \times r_c \times M_c)$$

The modelling parameters are set out in Table 4.

Table 4

The values of the modelling parameters per compartment type

Compartment type	r_c (a)	N_c	M_c	C
Pantry	0,35	75	0,12	between 1,15 and 1,56 for combi appliances with 3- or 4-star compartments (b), 1,15 for other combi appliances, 1,00 for other refrigerating appliances
Wine storage	0,60			
Cellar	0,60			
Fresh food	1,00			
Chill	1,10	138	0,12	
0-star & ice-making	1,20	138	0,15	
1-star	1,50			
2-star	1,80			
3-star	2,10			
Freezer (4-star)	2,10			

(a) $r_c = (T_a - T_c)/20$; with $T_a = 24$ °C and T_c with values as set out in Table 3.

(b) C for combi appliances with 3- or 4-star compartments is determined as follows:
where *frzf* is the 3- or 4-star compartment volume V_{fr} as a fraction of V with $frzf = V_{fr}/V$:

— if $frzf \leq 0{,}3$ then $C = 1{,}3 + 0{,}87 \times frzf$;

— else if $0{,}3 < frzf < 0{,}7$ then $C = 1{,}87 - 1{,}0275 \times frzf$;

— else $C = 1{,}15$.

The compensation factors are set out in Table 5.

Table 5

The values of the compensation factors per compartment type

<table>
<tr><th>Compartment type</th><th colspan="2">A_c</th><th colspan="2">B_c</th><th colspan="4">D</th></tr>
<tr><td></td><td>Manual defrost</td><td>Auto-defrost</td><td>Freestanding appliance</td><td>Built-in appliance</td><td>≤ 2 (*)</td><td>3 (*)</td><td>4 (*)</td><td>> 4 (*)</td></tr>
<tr><td>Pantry</td><td colspan="2" rowspan="5">1,00</td><td rowspan="10">1,00</td><td rowspan="4">1,02</td><td rowspan="10">1,00</td><td rowspan="10">1,02</td><td rowspan="10">1,035</td><td rowspan="10">1,05</td></tr>
<tr><td>Wine storage</td></tr>
<tr><td>Cellar</td></tr>
<tr><td>Fresh food</td></tr>
<tr><td>Chill</td><td>1,03</td></tr>
<tr><td>0-star & ice-making</td><td rowspan="5">1,00</td><td rowspan="5">1,10</td><td rowspan="5">1,05</td></tr>
<tr><td>1-star</td></tr>
<tr><td>2-star</td></tr>
<tr><td>3-star</td></tr>
<tr><td>Freezer (4-star)</td></tr>
</table>

(*) number of external doors or compartments, whichever is lowest.

Note : (EU) 2019/2019 Ecodesign Requirements Directive, Clause 5, Table 4-5

5. Determination of the EEI:

EEI, expressed in % and rounded to the first decimal place, calculated as:

$$EEI = AE/SAE.$$

Note : (EU) 2019/2019 Ecodesign Requirements Directive, Clause 5

Auxiliary energy (kWh/a)

$$W_{heaters} = \left[\sum_{i=1}^{k} (R_i \times P_{H\,i}) \right] \times 1{,}3 \qquad (40)$$

Table F.1 — Format for temperature and humidity data – Ambient controlled anti-condensation heaters

Relative Humidity	RH band mid-point	Probability R_i at 16 °C	Probability R_i at 22 °C	Probability R_i at 32 °C	Heater W at 16 °C	Heater W at 22 °C	Heater W at 32 °C
0 to 10 %	5 %	0,00 %	0,00 %	0,34 %	P_{H1}	P_{H11}	P_{H21}
10 to 20 %	15 %	0,61 %	6,86 %	2,01 %	P_{H2}	P_{H12}	P_{H22}
20 to 30 %	25 %	3,11 %	14,57 %	1,61 %	P_{H3}	P_{H13}	P_{H23}
30 to 40 %	35 %	5,03 %	14,83 %	0,86 %	P_{H4}	P_{H14}	P_{H24}
40 to 50 %	45 %	5,09 %	11,67 %	0,18 %	P_{H5}	P_{H15}	P_{H25}
50 to 60 %	55 %	4,67 %	8,31 %	0,01 %	P_{H6}	P_{H16}	P_{H26}
60 to 70 %	65 %	3,39 %	5,54 %	0,00 %	P_{H7}	P_{H17}	P_{H27}
70 to 80 %	75 %	3,17 %	2,51 %	0,00 %	P_{H8}	P_{H18}	P_{H28}
80 to 90 %	85 %	2,85 %	0,66 %	0,00 %	P_{H9}	P_{H19}	P_{H29}
90 to 100 %	95 %	2,05 %	0,07 %	0,00 %	P_{H10}	P_{H20}	P_{H30}

Note : EN 62552-3:2020, Annex F 2.5, Equation 40, Table F.1

Incremental defrost and recovery energy consumption at 16 /32 °C (Wh)
$$\Delta E_{dfj} = (E_{end-F} - E_{start-D}) - \frac{(P_{SS-D} + P_{SS-F})}{2} \times (t_{end-F} - t_{start-D}) \quad (19)$$ $$\Delta E_{df} = \frac{\sum_{j=1}^{m} \Delta E_{dfj}}{m} \quad (22)$$
Note : EN 62552-3:2020 Annex C,Clause C.3.3, Equation 19-22
Defrost interval at 16 /32 °C (h)
for Compressor Run Time Defrost Controller $$\Delta t_{df} = \frac{\Delta t_{rt} - \Delta t_{dr} - \Delta t_{dh}}{CRt_{SS}} + \Delta t_{dxy} \quad (26)$$ for Variable Defrost Controller $$\Delta t_{df32} = \frac{\Delta t_{d-max} \times \Delta t_{d-min}}{[0,2 \times (\Delta t_{d-max} - \Delta t_{d-min}) + \Delta t_{d-min}]} \quad (27)$$ $$\Delta t_{df16} = 2 \times \Delta t_{df16}$$