

Capacity	kW	145.279	----- sensible:	125.465
Surface reserve	%	5.480	latent:	17.118
Present surface	m2	391.228	frost:	2.696
Required surface	m2	370.904	0.5 % Oil ISO VG32	
k-coeff.	W/m2K	19.927		
Average temp. diff. ( 100.00 % )	K	19.656		



Company  
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City, 9.4.2021

With the compliments of

Representative

Direct dialing

xxxxxxxxxx

Plant

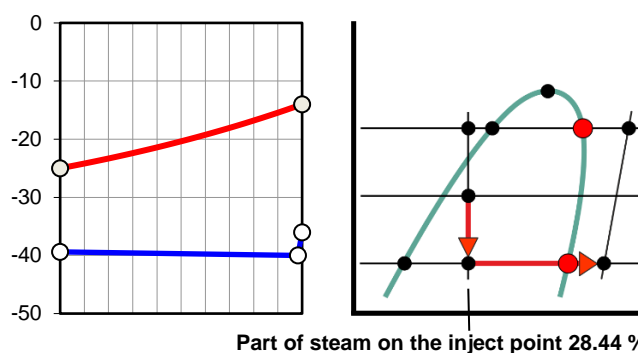
Object

Position

Air humid (ff=0.00005 m2K/W)		Inlet	Outlet	Definition
Height over sea level	m			0.000
Pressure	hPa			1013.250
Temp.	°C	-14.000	-25.000	-14.000
Rel. humidity	%	90.000	100.000	90.000
Abs. humidity	g/kg	0.993	0.383	0.993
Density humid	kg/m3	1.361	1.422	1.361
Enthalpy humid	kJ/kg	-11.627	-24.211	-11.627
Volume flow humid	m3/h	30000.000	28698.517	30000.000
Mass flow dry	kg/h	40789.121	40789.121	40789.121
Condensate flow	kg/h		24.901	
Surface temperature	°C	-18.531	-27.510	
Velocity	m/s	1.447	1.384	
Pressure drop ( Frost )	Pa		387.642	

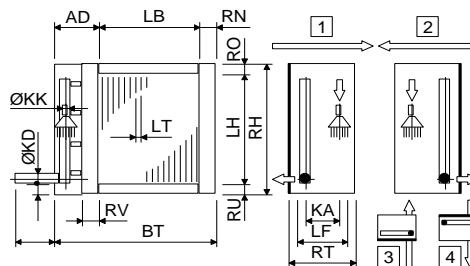
## R744 (CO2) Evaporation 10.045 bar (ff=0.00005 m2K/W)

Condensate"	°C	5.000
Condensate'	°C	5.000
Subcooling	°C	2.000
Evaporation"	°C	-40.000
Superheating	°C	-36.000
Mass flow	kg/h	2238.781
Volume flow	m3/h	85.779
Velocity	m/s	5.930
Pressure drop Evaporation	K	0.634
Pressure drop Capillary	bar	4.234



## Technical data Frost thickness 1.82 mm - Defr. cycle 12.00 h - Defr. time 4.14 h - Availability 65.50 %

Tubes total	Piece	384	Tubes:	smooth	Cu
Tubes blank	Piece	0		in line	
Tube rows on the depth	Piece	8	Collectors:		Cu
Tube rows on the height	Piece	48	Connections:		Cu
Tube coupling in series	Piece	16	Fins:	smooth	Al
Number of circuits (NC)	Piece	24	Frame:	2.0 mm	AISI 304
Volume	l	171	Circulations:	1	Default
Weight	kg	680	Capillary:	6.00 x 1.00 x 2600.00 mm	
Cond. connection	KK	mm	Air flow direction:	horizontal	
Steam connection	KD	mm			
Frame height	RH	mm			
Frame width	BT	mm			
Frame depth	RT	mm			
Finned height	LH	mm			
Finned width	LB	mm			
Finned depth	LF	mm			
Frame on top	RO	mm			
Frame on bottom	RU	mm			
Frame in front	RV	mm			
Frame on back (-65mm)	RN	mm			
Collector covering	AD	mm			
Collector distance	KA	mm			
Fin spacing	LT	mm			
Fin thickness	LD	mm			
Tube diameter	DA	mm			
Tube thickness	S	mm			
Tube interval on the height	S1	mm			
Tube interval on the depth	S2	mm			



Delivery:	5-6 weeks
Validity:	12 weeks
Condit.:	net, prepaid address
Payment:	30 days net
Price net:	EUR 5565.00

Efficiency: Tubes-Fins	---	0.980
Heat transfer: Tubes-Fins	---	0.996
Bypass: Air-Tubes-Fins	---	0.940
<b>Efficiency: Heat exchanger total</b>	---	<b>0.918</b>
<b>Radiated power</b>	<b>kW</b>	<b>7.815</b>
Inside surface	m2	30.382

**Dowtherm J**

Fouling inside	m2K/W	5.000E-05
Temp. in	°C	125.000
Temp. out	°C	121.696
Density	kg/m3	781.711
Spec. heat	kJ/kgK	2.178
Heat cond.	W/mK	0.107
Viscosity	Pas	3.380E-04
Volume flow	m3/h	5.000
Mass flow	kg/h	3908.556
Velocity	m/s	0.461
Pressure drop	kPa	12.791

<b>Efficiency: Heat exchanger total</b>	$\eta = 0.918$ (---)
<b>Emissivity</b>	$\varepsilon = 0.200$ (---)

**Stefan Boltzmann constant**  $\sigma = 5.67 \cdot 10^{-8} \text{ (W/m}^2\text{K}^4\text{)}$

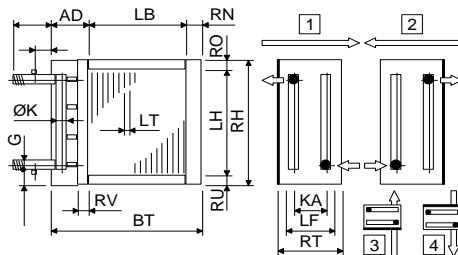
**Inside surface**  $A = 30.382 \text{ (m}^2\text{)}$

**Medium radiated temperature**  $t \sim (t_{in} + t_{out})/2 \text{ (K)}$

**Absolute temperature**  $T = t + 273.16 \text{ (K)}$

**Radiated power**  $\dot{Q} = \eta \varepsilon \sigma A T^4 \text{ (W)}$

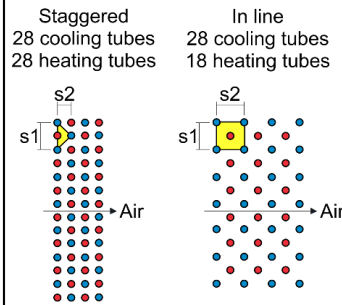
**Medium radiated temperature**  $t = \sqrt[4]{\frac{\dot{Q}}{\eta \varepsilon \sigma A}} - 273.16 \text{ (}^\circ\text{C)}$



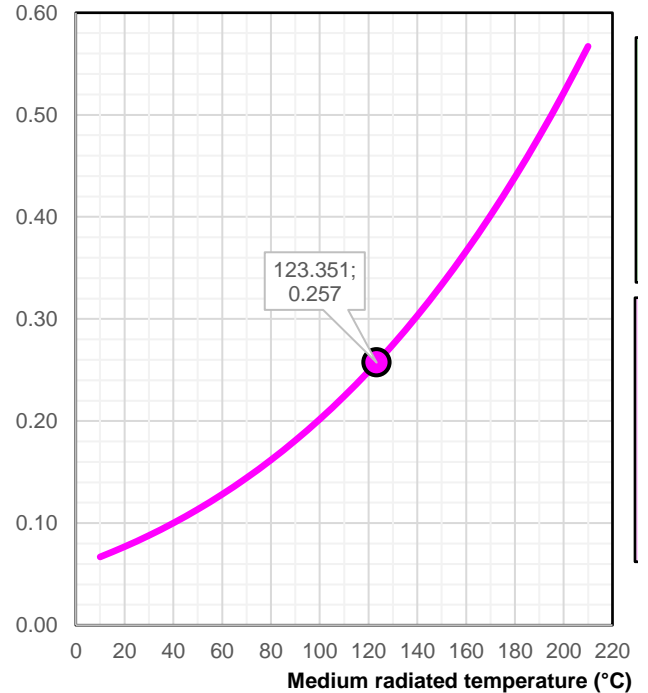
**Volume flow**  
**from the air humid**  
**= 0.000 m3/h !!!**

**Radiated power**

Example for 4 rows in air direction  
and 7 rows on the height



**Radiated power (kW/m2)**

**Technical data**

**Frost thickness 1.82 mm - Defr. cycle 12.00 h - Defr. time 4.14 h - Availability 65.50 %**

Tubes total	Piece	329	Tubes:	smooth	Cu
Tubes blank	Piece	5		in line	
Tube rows on the depth	Piece	7	Collectors:	1.16 m/s	Cu
Tube rows on the height	Piece	47	Connections:	1.16 m/s	Cu
Tube coupling in series	Piece	18	Fins:	smooth	Al
Number of circuits (NC)	Piece	18	Frame:	2.00 mm	AISI 304
Volume	l	146	Circulations:	1	Default
Weight	kg	150	Air flow direction:		horizontal
Collector-Diameter	K	mm			
Connections	G	---			
Finned width	LB	mm			
Fin spacing	LT	mm			
Fin thickness	LD	mm			
Tube diameter	DA	mm			
Tube thickness	S	mm			
Tube interval on the height	S1	mm			
Tube interval on the depth	S2	mm			

Delivery:	5-6 weeks
Validity:	12 weeks
Condit.:	net, prepaid address
Payment:	30 days net
<b>Price net:</b>	<b>EUR 3320.00</b>



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Country / ZIP / City

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City, 9.4.2021  
With the compliments of

Representative  
Direct dialing  
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Plant  
Object  
Position