

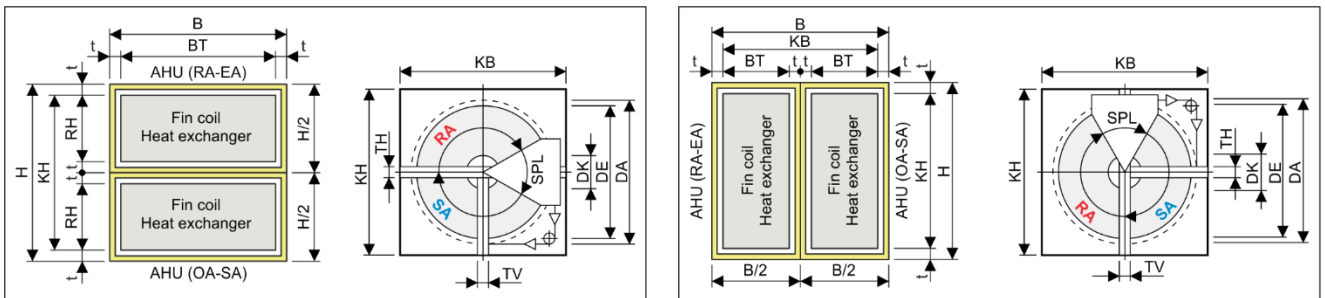


Desiccant systems with diverse adsorbents

The Excel-based application has been developed since 1995 and has since been continuously adapted to the ongoing requirements with upgrades. There are 2 applications in the foreground:

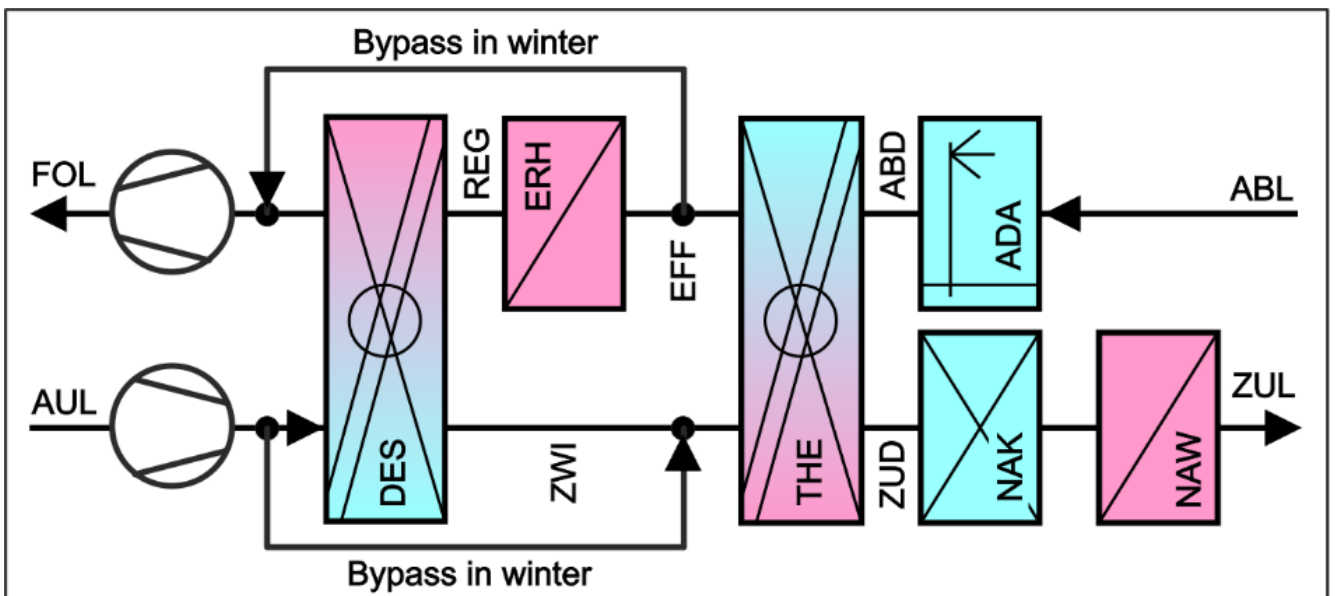
1. **Air conditioning:** For cooling and moderate dehumidification of the outside air in summer and heating in winter. Adsorbents such as silica gel or zeolites are used, which can be operated with regeneration temperatures up to 120°C.
2. **Drying technology:** For extremely high and effective dehumidification, such as in pharmacy, where dew points down to -80°C are required. Only the adsorbent molecular sieve type A4 is used, which however requires higher regeneration temperatures.

In both cases, the application supports air conditioning units, where the supply air unit and the exhaust air unit can be arranged on top of each other or next to each other. The height (H) and width (B) of the two air conditioning units together form a square with identical dimensions ($H = W$). It was deliberately omitted to assign the supply air $\frac{3}{4}$ and the exhaust air $\frac{1}{4}$ of a full circle, which would only have led to difficulties with regard to the uniform air distribution and air flow within uniformly sized air conditioning units.



Because the desiccant rotor is much more expensive than the thermic rotor, it is strongly recommended to bridge it with a bypass in winter, for example in the event of heating. In this way, it is protected against freezing damage. Furthermore, its service life is limited, because the sorbent must be replaced by the constant sprouting of moisture. These two measures can extend its term of operation.

The two fans must be arranged in such a way, that the pressure in the supply air in the area of the two rotors is higher than in the exhaust air, otherwise exhaust air can enter the supply air.



Desiccant air conditioning system



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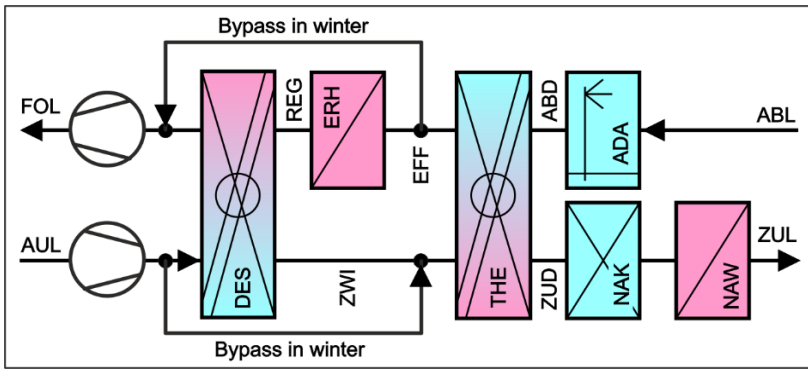
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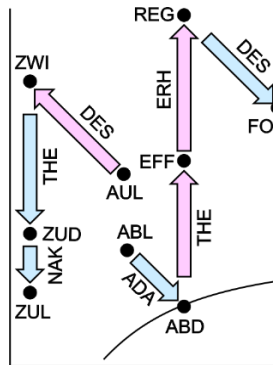
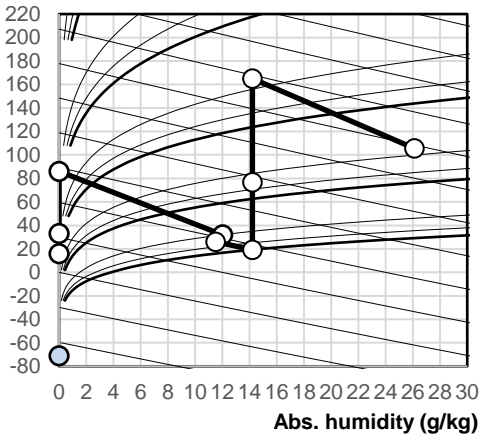


Summer		Inlet	Outlet	Definition
Volume flow humid	m3/h	31534.040	29314.756	30000.000
Temp.	°C	32.000	16.000	20.000
Rel. humidity	%	40.000	0.014	40.000
Abs. humidity	g/kg	12.014	0.002	
Volume flow humid	m3/h	27800.072	36005.542	27000.000
Temp.	°C	26.000	105.564	20.000
Rel. humidity	%	54.174	3.278	40.000
Abs. humidity	g/kg	11.500	26.117	

OA - SA
AUL - ZUL

RA - EA
ABL - FOL

Temp. (°C) Dew point temperature -70.939 °C (Molecular sieve)



Height over sea level (m)
106.000

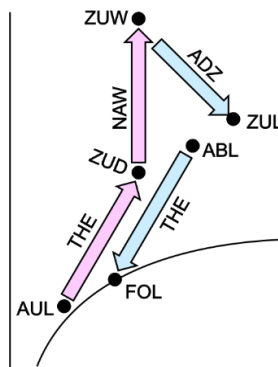
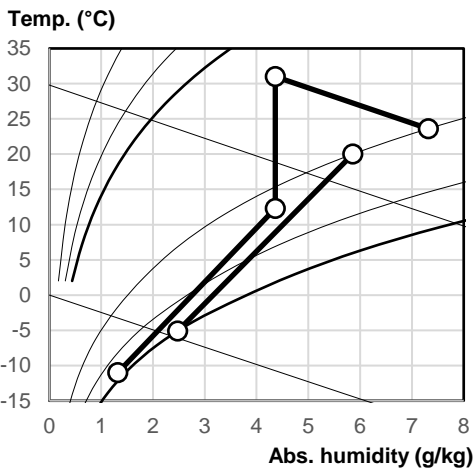
Pressure (hPa)
1000.564

Because the desiccant rotor is much more expensive than the thermal rotor, it is strongly recommended to bypass it in winter, i.e. when heating. In this way it is protected from freezing damage. Furthermore, its service life is limited because the sorbent has to be replaced due to the constant expulsion of moisture. These two measures can extend its service life. The two fans are to be arranged in such a way that the pressure in the supply air in the area of the two rotors is higher than in the exhaust air, otherwise exhaust air can get into the supply air.

Winter		Inlet	Outlet	Definition
Volume flow humid	m3/h			30000.000
Temp.	°C	-11.00	23.61	20.000
Rel. humidity	%	90.00	40.00	40.000
Abs. humidity	g/kg	1.32	7.31	
Volume flow humid	m3/h			27000.000
Temp.	°C	20.00	-5.10	20.000
Rel. humidity	%	40.00	100.00	40.000
Abs. humidity	g/kg	5.86	2.48	

OA - SA
AUL - ZUL

RA - EA
ABL - FOL



Delivery: 7-8 weeks
Validity: 12 weeks
Condit.: net, prepaid address
Payment: 30 days net

DES: EUR 40390.00
ERH: EUR 4900.00
THE: EUR 15730.00
NAK: EUR 3130.00
NAW: EUR 2520.00

Price net: EUR 66670.00

Desiccant air conditioning system



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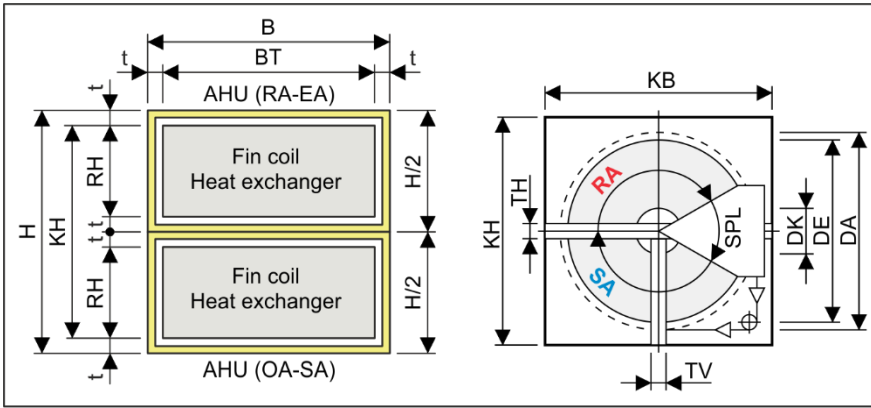
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Unit width	B	mm	3800.000
Unit height	H	mm	3800.000
Thickness	t	mm	50.000

AHU return air / AHU supply air

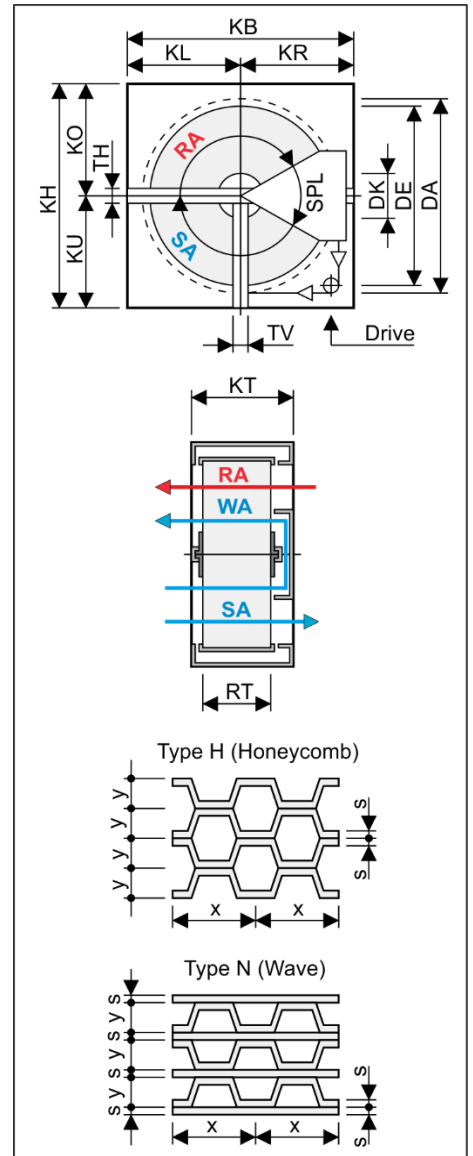
Frame width	BT	mm	3700.000
Frame height	RH	mm	1800.000

Heat exchanger / Filter

Rotor cassette width	KB	mm	3700.000
Rotor cassette height	KH	mm	3700.000

Rotor size

Rotor		Thermic	Desiccant
Rotor type		N	N
Rotor material		Al	Al
Sorbent	---		Molecular sieve
Fouling cold air	m2K/W	5.00E-05	5.00E-05
Fouling hot air	m2K/W	5.00E-05	5.00E-05
Rotor outside diameter	DA mm	3520.000	3520.000
Rotor diameter effective	DE mm	3440.000	3440.000
Rotor core diameter	DK mm	330.000	330.000
Rotor depth	RT mm	200.000	200.000
Structure wave-length	x mm	4.200	4.200
Structure wave-height	y mm	1.895	1.895
Struc. wave-thickness	s mm	0.205	0.205
Rotor angle for supply air	ZUL °	168.000	168.000
Rotor angle for return air	ABL °	168.000	168.000
Rotor angle for wash air	SPL °	24.000	24.000
Density	kg/m3	2660.000	2660.000
Spec. heat	J/kgK	900.000	900.000
Heat cond.	W/mK	236.000	236.000
Roughness	mm	0.040	0.040
Price: Rotor material	EUR/kg	4.000	4.000



Box		Thermic	Desiccant
Box		Fe/Ep	Fe/Ep
Rotor cassette height	KH mm	3700.000	3700.000
Rotor cassette width	KB mm	3700.000	3700.000
Rotor cassette depth	KT mm	520.000	520.000
Density	kg/m3	7850.000	7850.000
Price	EUR/kg	1.000	1.000

Rotor + Box		Thermic	Desiccant
Weight empty total	kg	1665.000	1665.000
Adsorbent load	kg		135.000
Weight empty total	kg	1665.000	1800.000
Price	EUR	15730.000	40390.000

Desiccant air conditioning system - Summer

Height over sea level	m	106.000
Pressure	hPa	1000.564
Outside air for washing zone	DES	% 6.000
Outside air for washing zone	DES	m3/h 1800.000
Speed	DES	rpm 0.338
Rel. dehum.-Efficiency	DES	% 99.999
Abs. dehum.-Efficiency	DES	% 99.987
Gradient	DES	K/gH2O 4.993
Dew point temperature	DES	°C -70.939
ABL Pressure drop	DES	Pa 157.152
ZUL Pressure drop	DES	Pa 131.484

Capacity	THE	kW 523.657
Outside air for washing zone	THE	% 6.000
Outside air for washing zone	THE	m3/h 1800.000
Speed	THE	rpm 20.000
ABL Pressure drop	THE	Pa 162.642
ZUL Pressure drop	THE	Pa 193.247

Capacity	NAK	kW 169.823
Humidification	ADA	kg/h 86.317
Capacity	ERH	kW 813.435



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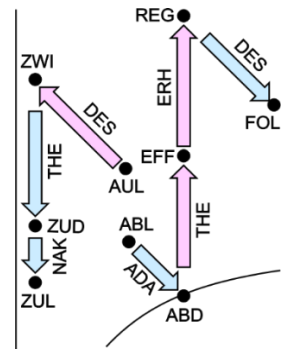
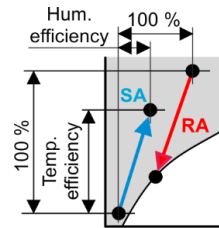
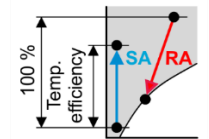
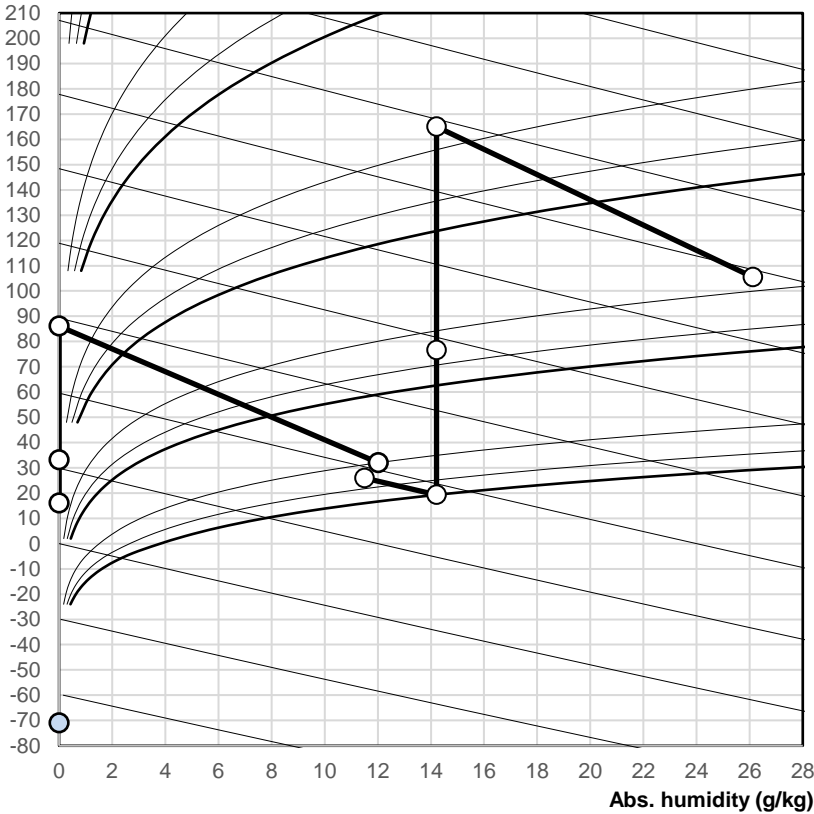
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Temp. (°C)

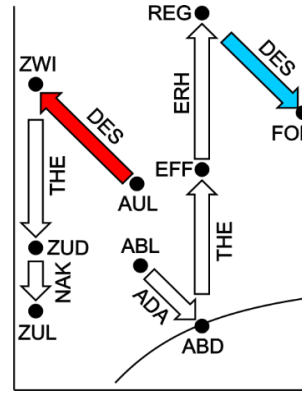


Outside air, supply air		AUL	ZWI	ZUD	ZUL
Temp.	°C	32.000	86.061	33.184	16.000
Rel. humidity	%	40.000	0.000	0.005	0.014
Abs. humidity	g/kg	12.014	0.002	0.002	0.002
Volume flow humid	m3/h	31534.040	36417.490	31056.856	29314.756
Mass flow dry	kg/h	35331.241	35331.241	35331.241	35331.241

Return air, exhaust air		ABL	ABD	EFF	REG	FOL
Temp.	°C	26.000	19.304	76.600	165.000	105.564
Rel. humidity	%	54.174	100.000	5.446	0.317	3.278
Abs. humidity	g/kg	11.500	14.214	14.214	14.214	26.117
Volume flow humid	m3/h	27800.072	27294.248	32641.372	40891.345	36005.542
Mass flow dry	kg/h	31798.117	31798.117	31798.117	31798.117	31798.117

Desiccant rotor: N-3440-200

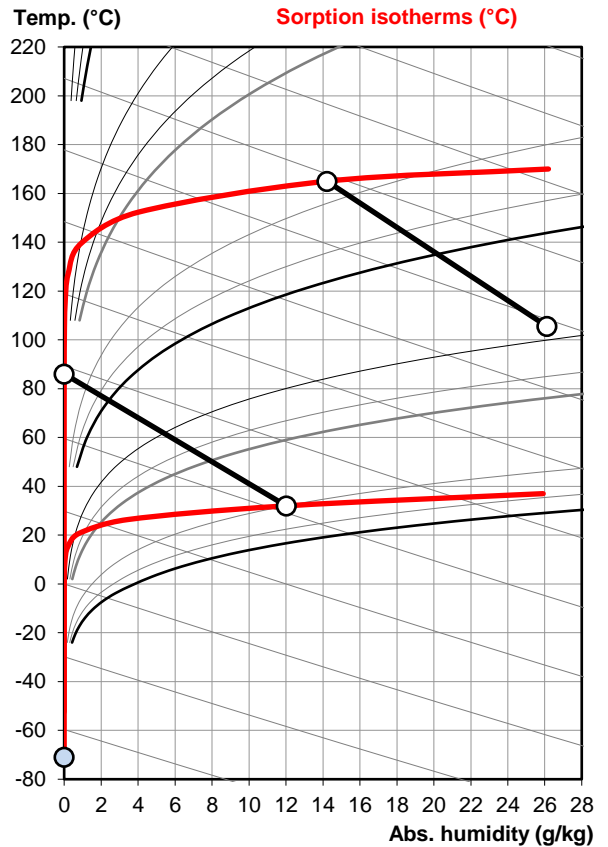
Height over sea level	m	106.000
Pressure	hPa	1000.564
Present surface	m2	3167.457
Outside air for washing zone	%	6.000
Outside air for washing zone	m3/h	1800.000
Speed	rpm	0.338
Rel. dehum.-Efficiency	%	99.999
Abs. dehum.-Efficiency	%	99.987
Dew point temperature	°C	-70.939



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Cold air	Inlet	Outlet	Definition
Adsorption gradient	K/gH2O		4.501
Fouling	m2K/W		5.000E-05
Temp.	°C	32.000	86.061
Rel. humidity	%	40.000	0.000
Abs. humidity	g/kg	12.014	0.002
Density	kg/m3	1.134	0.970
Enthalpy humid	kJ/kg	62.962	60.032
Volume flow humid	m3/h	31534.040	36417.490
Mass flow dry	kg/h	35331.241	35331.241
Velocity	m/s	1.986	2.293
Pressure drop dry	Pa		130.450
Pressure drop wet	Pa		131.484

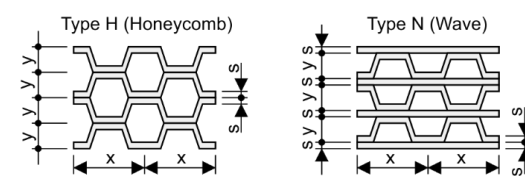
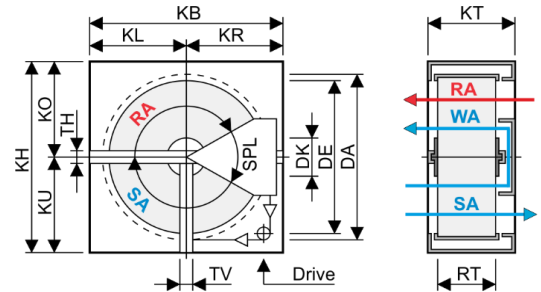
Hot air	Inlet	Outlet	Definition
Gradient	K/gH2O		4.993
Fouling	m2K/W		5.000E-05
Temp.	°C	165.000	105.564
Rel. humidity	%	0.317	3.278
Abs. humidity	g/kg	14.214	26.117
Density	kg/m3	0.789	0.906
Enthalpy humid	kJ/kg	206.853	114.245
Volume flow humid	m3/h	40891.345	36005.542
Mass flow dry	kg/h	31798.117	31798.117
Velocity	m/s	2.531	2.531
Pressure drop dry	Pa		155.863
Pressure drop wet	Pa		157.152



Technical data

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Rotor		AI	
Sorbent		Molecular sieve	
Type		Wave structure	
Material density	kg/m3	2660.000	
Material specific heat	J/kgK	900.000	
Material thermal conductivity	W/mK	236.000	
Structure wave-length	x	mm	4.200
Structure wave-height	y	mm	1.895
Struc. wave-thickness	s	mm	0.205
Rotor outside diameter	DA	mm	3520.000
Rotor diameter effective	DE	mm	3440.000
Rotor core diameter	DK	mm	330.000
Rotor depth	RT	mm	200.000
Rotor angle for supply air		°	177.000
Rotor angle for return air		°	177.000
Rotor angle for wash air	SPL	°	6.000



Box		Fe/Ep	
Rotor cassette height	KH	mm	3790.000
Rotor cassette width	KB	mm	3790.000
Rotor cassette depth	KT	mm	520.000
Weight empty total		kg	1800.000

Delivery: 7-8 weeks
Validity: 12 weeks
Condit.: net, prepaid address
Payment: 30 days net
Price net: EUR 40390.00

Heater: 40/35/16-6R-44T-3464A-3.0PA-65C-Cu/Al

Capacity	kW	813.435		
Surface reserve	%	2.490		
Present surface	m ²	759.965		
Required surface	m ²	741.504		
k-coeff.	W/m ² K	34.438	----- ffi:	5.000E-05
Average temp. diff.	K	31.854	ffa:	5.000E-05



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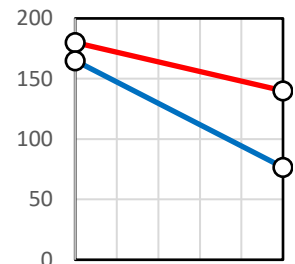
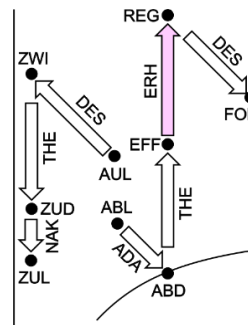
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Air humid		Inlet	Outlet	Definition
Height over sea level	m			106.000
Pressure	hPa			1000.564
Temp.	°C	76.600	165.000	20.000
Rel. humidity	%	5.446	0.317	40.000
Abs. humidity	g/kg	14.214	14.214	
Density humid	kg/m ³	0.988	0.789	
Enthalpy humid	kJ/kg	114.761	206.853	
Volume flow humid	m ³ /h	32641.372	40891.345	27000.000
Mass flow dry	kg/h	31798.117	31798.117	
Velocity	m/s	1.487	1.863	
Pressure drop	Pa		32.277	

Water

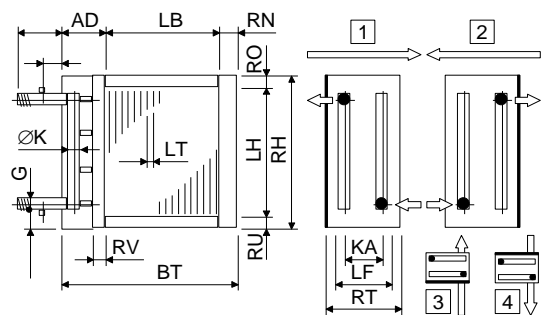
Temp.	in	°C	180.000
Temp.	out	°C	140.000
Density		kg/m ³	907.271
Spec. heat		kJ/kgK	4.338
Heat cond.		W/mK	0.684
Viscosity		Pas	1.690E-04
Volume flow		m ³ /h	18.601
Velocity		m/s	0.411
Pressure drop		kPa	6.768



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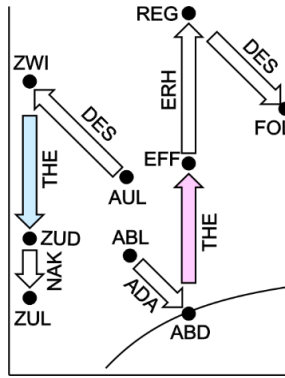
Technical data

Tubes total	Piece	264	Tubes:	smooth	Cu
Tubes blank	Piece	4		staggered	
Internal venting	Piece	0	Collectors:	1.27 m/s	Cu
Internal drains	Piece	0	Connections:	1.27 m/s	Rg7
Tube rows on the depth	Piece	6	Fins:	smooth	Al
Tube rows on the height	Piece	44	Frame:	2.0 mm	AISI 316
Tube coupling in series	Piece	4	Protection:		without
Number of circuits (NC)	Piece	65			---
Volume	l	200	Air flow direction:		horizontal
Weight	kg	429			
Connections	G	---			
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 (~69mm)	RN	mm			
Collector	K	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:					7-8 weeks
Validity:					12 weeks
Condit.:					net, prepaid address
Payment:					30 days net
Price net:					EUR 4900.00



Thermic rotor: N-3440-200

Height over sea level	m	106.000
Pressure	hPa	1000.564
Capacity total	kW	523.657
Present surface	m ²	3167.457
Hot air for washing zone	%	6.000
Hot air for washing zone	m ³ /h	1800.000
Speed	rpm	20.000
Temp. efficiency	%	79.208
Efficiency humid	%	0.000



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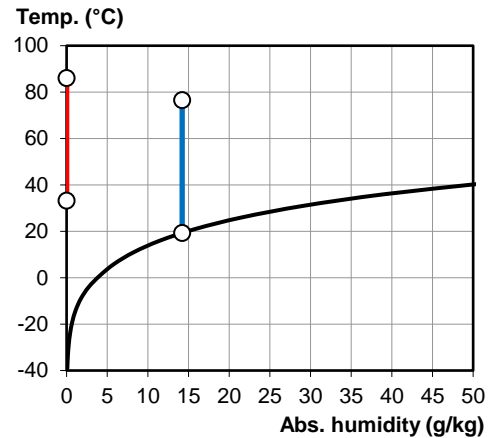
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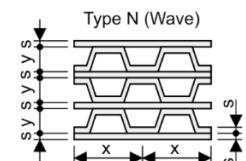
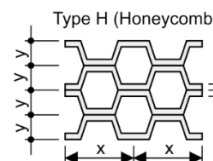
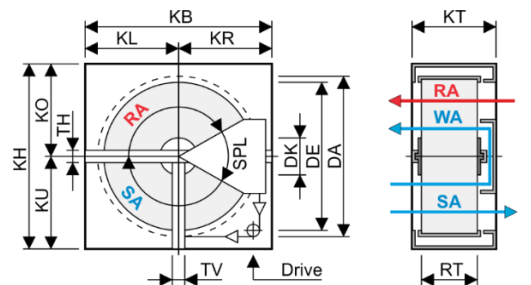
Cold air	Inlet	Outlet	Definition
Fouling	m ² K/W		5.000E-05
Temp.	°C	19.304	76.600
Rel. humidity	%	100.000	5.446
Abs. humidity	g/kg	14.214	14.214
Density	kg/m ³	1.182	0.988
Enthalpy humid	kJ/kg	55.475	114.761
Volume flow humid	m ³ /h	27294.248	32641.372
Mass flow dry	kg/h	31798.117	31798.117
Velocity	m/s	1.719	2.056
Pressure drop dry	Pa		162.555
Pressure drop wet	Pa		162.642

Hot air	Inlet	Outlet	Definition
Fouling	m ² K/W		5.000E-05
Temp.	°C	86.061	33.184
Rel. humidity	%	0.000	0.005
Abs. humidity	g/kg	0.002	0.002
Density	kg/m ³	0.970	1.138
Enthalpy humid	kJ/kg	86.766	33.409
Volume flow humid	m ³ /h	36417.490	31056.856
Mass flow dry	kg/h	35331.241	35331.241
Condensate flow	kg/h		0.000
Surface temperature	°C	80.327	28.050
Velocity	m/s	2.254	1.922
Pressure drop dry	Pa		193.162
Pressure drop wet	Pa		193.247



Technical data

Rotor		Al	
Type		Wave structure	
Material density	kg/m ³	2660.000	
Material specific heat	J/kgK	900.000	
Material thermal conductivity	W/mK	236.000	
Structure wave-length	x	mm	4.200
Structure wave-height	y	mm	1.895
Struc. wave-thickness	s	mm	0.205
Rotor outside diameter	DA	mm	3520.000
Rotor diameter effective	DE	mm	3440.000
Rotor core diameter	DK	mm	330.000
Rotor depth	RT	mm	200.000
Rotor angle for supply air		°	177.000
Rotor angle for return air		°	177.000
Rotor angle for wash air	SPL	°	6.000



Box		Fe/Ep	
Rotor cassette height	KH	mm	3790.000
Rotor cassette width	KB	mm	3790.000
Rotor cassette depth	KT	mm	520.000
Weight empty total		kg	1665.000

Delivery:	7-8 weeks
Validity:	12 weeks
Condit.:	net, prepaid address
Payment:	30 days net
Price net:	EUR 15730.00

Cooler: 40/35/16-4R-44T-3451A-4.6PA-43C-Cu/Al

Capacity	kW	169.823	----- sensible:	169.823
Surface reserve	%	0.263	latent:	0.000
Present surface	m2	340.064	frost:	0.000
Required surface	m2	339.171		
k-coeff.	W/m2K	33.928	----- ffi:	5.000E-05
Average temp. diff. (99.05 %)	K	14.758	ffa:	5.000E-05



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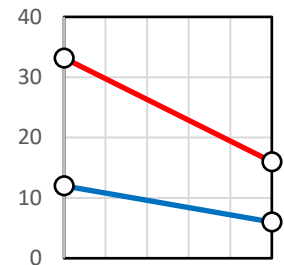
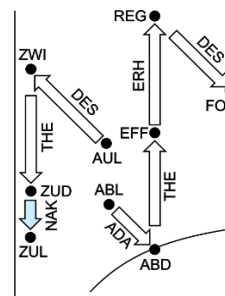
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Air humid		Inlet	Outlet	Definition
Height over sea level	m			106.000
Pressure	hPa			1000.564
Temp.	°C	33.184	16.000	20.000
Rel. humidity	%	0.005	0.014	40.000
Abs. humidity	g/kg	0.002	0.002	
Density humid	kg/m3	1.138	1.205	
Enthalpy humid	kJ/kg	33.409	16.106	
Volume flow humid	m3/h	31056.856	29314.756	30000.000
Mass flow dry	kg/h	35331.241	35331.241	
Condensate flow	kg/h		0.000	
Surface temperature	°C	16.632	8.187	
Velocity	m/s	1.420	1.341	
Pressure drop (dry 13 Pa)	Pa		13.386	

Water			
Temp.	in	°C	6.000
Temp.	out	°C	12.000
Density		kg/m3	999.816
Spec. heat		kJ/kgK	4.196
Heat cond.		W/mK	0.585
Viscosity		Pas	1.337E-03
Volume flow		m3/h	24.285
Velocity		m/s	0.810
Pressure drop		kPa	14.893



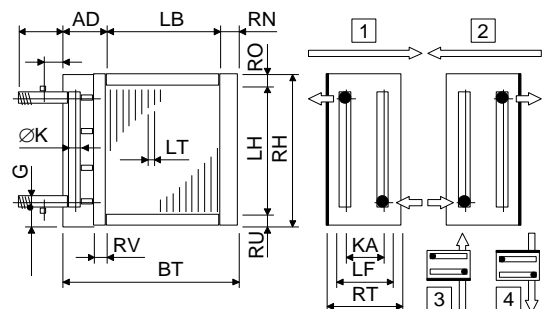
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Technical data

Tubes total	Piece	176
Tubes blank	Piece	4
Internal venting	Piece	0
Internal drains	Piece	0
Tube rows on the depth	Piece	4
Tube rows on the height	Piece	44
Tube coupling in series	Piece	4
Number of circuits (NC)	Piece	43
Volume	l	144
Weight	kg	265
Connections	G	3"
Frame height	RH	mm 1850
Frame width	BT	mm 3700
Frame depth	RT	mm 230
Finned height	LH	mm 1760
Finned width	LB	mm 3451
Finned depth	LF	mm 139
Frame on top	RO	mm 45
Frame on bottom	RU	mm 45
Frame in front	RV	mm 30
Frame on back (~69mm)	RN	mm 69
Collector	K	mm 89
Collector covering	AD	mm 180
Collector distance	KA	mm 109
Fin spacing	LT	mm 4.600
Fin thickness	LD	mm 0.200
Tube diameter	DA	mm 16.400
Tube thickness	S	mm 0.350
Tube interval on the height	S1	mm 40.000
Tube interval on the depth	S2	mm 34.641

Tubes:	smooth	Cu
	staggered	
Collectors:	1.19 m/s	Cu
Connections:	1.19 m/s	Rg7
Fins:	smooth	Al
Frame:	2.0 mm	AISI 316
Protection:		without

Air flow direction: horizontal



Delivery:	7-8 weeks
Validity:	12 weeks
Condit.:	net, prepaid address
Payment:	30 days net
Price net:	EUR 3130.00

Desiccant air conditioning system - Winter

Height over sea level	m	106.000	
Pressure	hPa	1000.564	
Capacity	THE	kW	305.972
Outside air for washing zone	THE	%	6.000
Outside air for washing zone	THE	m3/h	1800.000
Speed	THE	rpm	20.000
Temp. efficiency	THE	%	80.956
Hum. efficiency	THE	%	74.512
ABL Pressure drop	THE	Pa	147.046
ZUL Pressure drop	THE	Pa	183.225
Capacity	NAW	kW	186.243
Humidification	ADZ	kg/h	104.234



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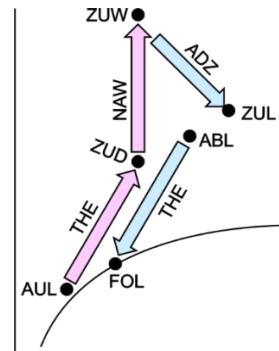
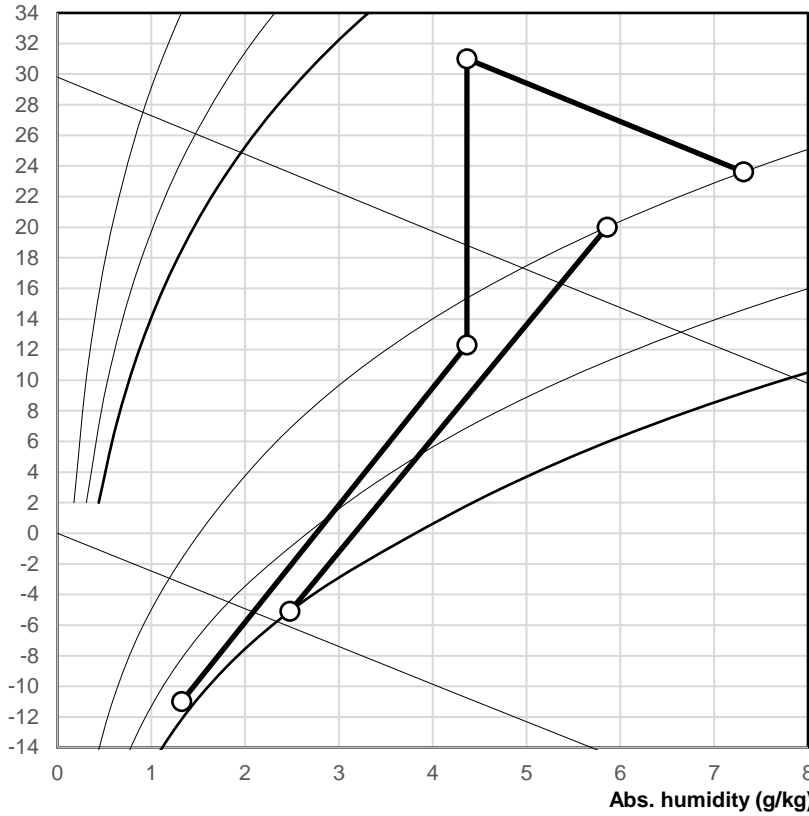
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Plant
 Object
 Position

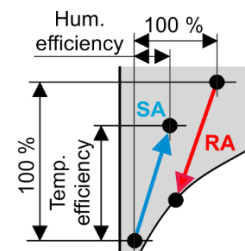
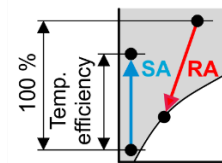
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Temp. (°C)



Outside air, supply air		AUL	ZUD	ZUW	ZUL
Temp.	°C	-11.000	12.302	31.000	23.607
Rel. humidity	%	90.000	48.752	15.566	40.000
Abs. humidity	g/kg	1.323	4.364	4.364	7.314
Volume flow humid	m3/h	26633.963	29142.735	31051.638	30439.506
Mass flow dry	kg/h	35331.241	35331.241	35331.241	35331.241

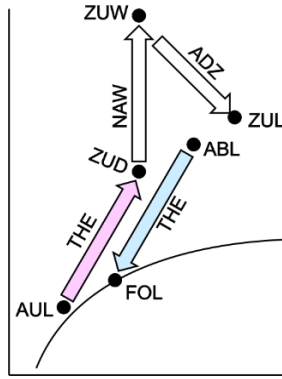
Return air, exhaust air		ABL	FOL
Temp.	°C	20.000	-5.096
Rel. humidity	%	40.000	100.000
Abs. humidity	g/kg	5.858	2.479
Volume flow humid	m3/h	27000.000	24555.794
Mass flow dry	kg/h	31798.117	31798.117



Because the desiccant rotor is much more expensive than the thermal rotor, it is strongly recommended to bypass it in winter, i.e. when heating. In this way it is protected from freezing damage. Furthermore, its service life is limited because the sorbent has to be replaced due to the constant expulsion of moisture. These two measures can extend its service life. The two fans are to be arranged in such a way that the pressure in the supply air in the area of the two rotors is higher than in the exhaust air, otherwise exhaust air can get into the supply air.

Thermic rotor: N-3440-200

Height over sea level	m	106.000
Pressure	hPa	1000.564
Capacity total	kW	305.972
Present surface	m2	3167.457
Hot air for washing zone	%	6.000
Hot air for washing zone	m3/h	1620.000
Speed	rpm	20.000
Temp. efficiency	%	80.956
Efficiency humid	%	74.512



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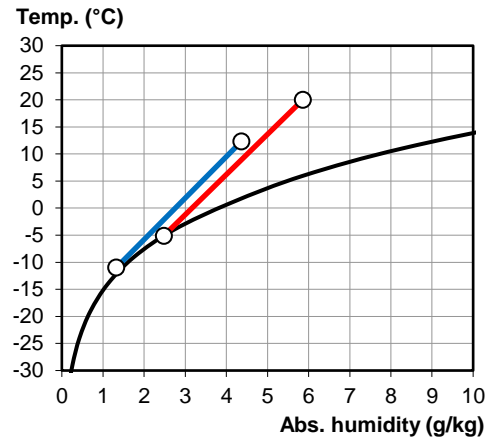
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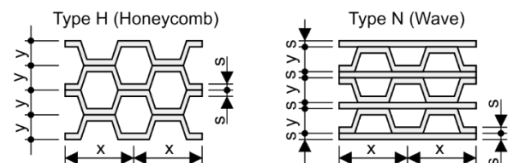
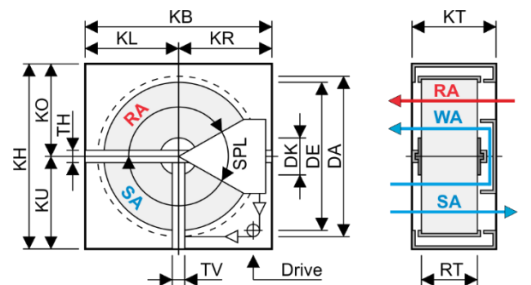
Cold air	Inlet	Outlet	Definition
Fouling	m2K/W		5.000E-05
Temp.	°C	-11.000	12.302
Rel. humidity	%	90.000	48.752
Abs. humidity	g/kg	1.323	4.364
Density	kg/m3	1.328	1.218
Enthalpy humid	kJ/kg	-7.785	23.391
Volume flow humid	m3/h	26633.963	29142.735
Mass flow dry	kg/h	35331.241	35331.241
Velocity	m/s	1.677	1.835
Pressure drop dry	Pa		165.665
Pressure drop wet	Pa		183.225

Hot air	Inlet	Outlet	Definition
Fouling	m2K/W		5.000E-05
Temp.	°C	20.000	-5.096
Rel. humidity	%	40.000	100.000
Abs. humidity	g/kg	5.858	2.479
Density	kg/m3	1.185	1.298
Enthalpy humid	kJ/kg	34.992	1.048
Volume flow humid	m3/h	27000.000	24555.794
Mass flow dry	kg/h	31798.117	31798.117
Condensate flow	kg/h		107.454
Surface temperature	°C	15.247	-7.230
Velocity	m/s	1.671	1.520
Pressure drop dry	Pa		133.370
Pressure drop wet	Pa		147.046



Technical data

Rotor		Al	
Type		Wave structure	
Material density	kg/m3	2660.000	
Material specific heat	J/kgK	900.000	
Material thermal conductivity	W/mK	236.000	
Structure wave-length	x	mm	4.200
Structure wave-height	y	mm	1.895
Struc. wave-thickness	s	mm	0.205
Rotor outside diameter	DA	mm	3520.000
Rotor diameter effective	DE	mm	3440.000
Rotor core diameter	DK	mm	330.000
Rotor depth	RT	mm	200.000
Rotor angle for supply air		°	177.000
Rotor angle for return air		°	177.000
Rotor angle for wash air	SPL	°	6.000



Box		Fe/Ep	
Rotor cassette height	KH	mm	3790.000
Rotor cassette width	KB	mm	3790.000
Rotor cassette depth	KT	mm	520.000
Weight empty total		kg	1665.000

Delivery:	7-8 weeks
Validity:	12 weeks
Condit.:	net, prepaid address
Payment:	30 days net
Price net:	EUR 15730.00

Heater: 35/35/12-6R-51T-1672A-4.9PA-75C-Cu/Al

Capacity	kW	186.243		
Surface reserve	%	0.824		
Present surface	m ²	249.715		
Required surface	m ²	247.674		
k-coeff.	W/m ² K	36.755	----- ffi:	5.000E-05
Average temp. diff.	K	20.459	ffa:	5.000E-05



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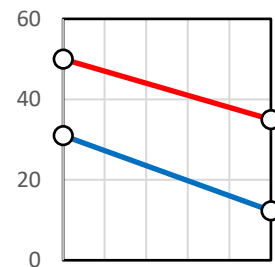
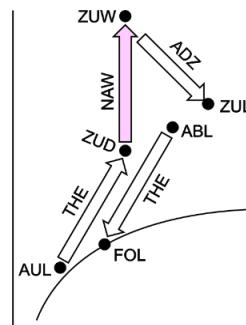
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Plant
Object
Position

Air humid		Inlet	Outlet	Definition
Height over sea level	m			106.000
Pressure	hPa			1000.564
Temp.	°C	12.302	31.000	20.000
Rel. humidity	%	48.752	15.566	40.000
Abs. humidity	g/kg	4.364	4.364	
Density humid	kg/m ³	1.218	1.143	
Enthalpy humid	kJ/kg	23.391	42.368	
Volume flow humid	m ³ /h	29142.735	31051.638	30000.000
Mass flow dry	kg/h	35331.241	35331.241	
Velocity	m/s	2.712	2.890	
Pressure drop	Pa		45.187	

Water

Temp.	in	°C	50.000
Temp.	out	°C	35.000
Density		kg/m ³	991.386
Spec. heat		kJ/kgK	4.177
Heat cond.		W/mK	0.635
Viscosity		Pas	6.208E-04
Volume flow		m ³ /h	10.793
Velocity		m/s	0.372
Pressure drop		kPa	9.498



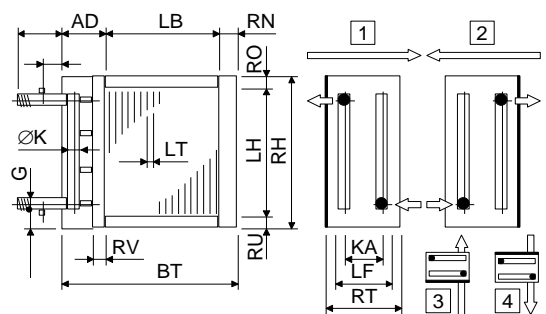
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Technical data

Tubes total	Piece	306
Tubes blank	Piece	6
Internal venting	Piece	0
Internal drains	Piece	0
Tube rows on the depth	Piece	6
Tube rows on the height	Piece	51
Tube coupling in series	Piece	4
Number of circuits (NC)	Piece	75
Volume	l	67
Weight	kg	178
Connections	G	2"
Frame height	RH	mm 1850
Frame width	BT	mm 3700
Frame depth	RT	mm 260
Finned height	LH	mm 1785
Finned width	LB	mm 1672
Finned depth	LF	mm 210
Frame on top	RO	mm 33
Frame on bottom	RU	mm 32
Frame in front	RV	mm 30
Frame on back (~53mm)	RN	mm 53
Collector	K	mm 54
Collector covering	AD	mm 125
Collector distance	KA	mm 175
Fin spacing	LT	mm 4.900
Fin thickness	LD	mm 0.200
Tube diameter	DA	mm 12.400
Tube thickness	S	mm 0.350
Tube interval on the height	S1	mm 35.000
Tube interval on the depth	S2	mm 35.000

Tubes:	smooth	Cu
	in line	
Collectors:	1.47 m/s	Cu
Connections:	1.47 m/s	Rg7
Fins:	smooth	Al
Frame:	2.0 mm	AISI 316
Protection:		without

Air flow direction: horizontal



Delivery:	7-8 weeks
Validity:	12 weeks
Condit.:	net, prepaid address
Payment:	30 days net
Price net:	EUR 2520.00