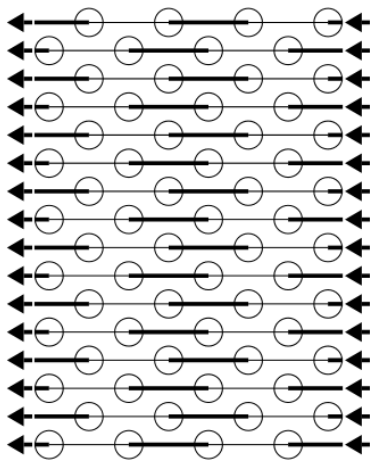




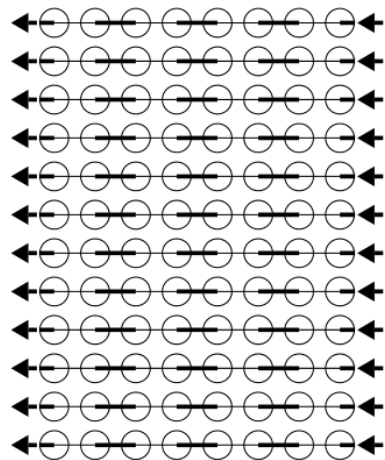
Maximal number of circuits (NC)

We have been calculating finned heat exchangers since 1970. It is now 2022. We have been calculating finned heat exchangers for 52 years. In this very long time, it has never happened, that we had to choose the maximum number of strands (NC) larger than the number of tubes in height (RU). Of course, this also has to do with the fact, that we had several geometries with different tube diameters at our disposal, see the two sketches above. However, if you only have very few different geometries with very few different tube diameters available, you apparently have to make the craziest circuits, for example to get the maximum permissible pressure drop in the tubes under control, see the two lower sketches that were sent to us.

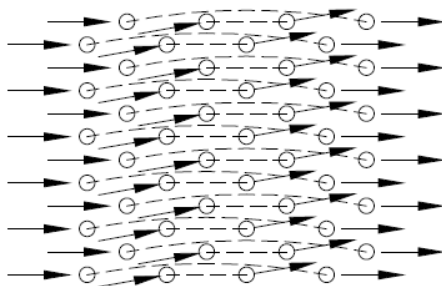
Staggered tubes
 $NC_{max} = 2 \times RU$



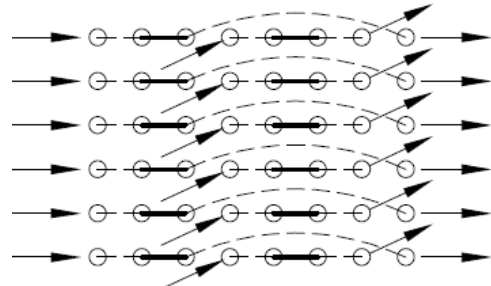
Tubes in line
 $NC_{max} = RU$



Staggered tubes
 $NC_{max} > 2 \times RU$

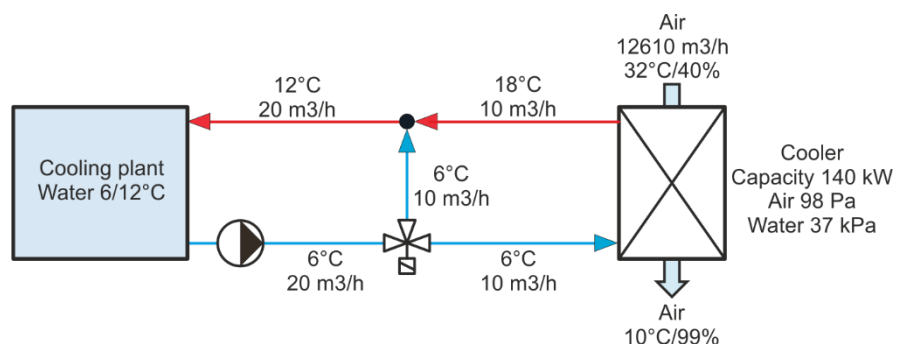


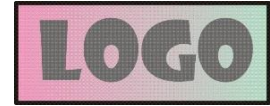
Tubes in line
 $NC_{max} > RU$



It is well known, that water at 6/12°C is just a **stupid mass transport and not an intelligent energy transport**, but unfortunately it has always been standard.

However, this can be remedied with a bypass, see picture on the right and next page.





Capacity	kW	139.681	----- sensible:	93.829
Surface reserve	%	2.121	latent:	45.852
Present surface	m ²	632.846	frost:	0.000
Required surface	m ²	619.702		
k-coeff.	W/m ² K	36.235		
Average temp. diff. (77.93 %)	K	6.221		

Company
Branch
Street
Country / ZIP / City

Air humid (ff = 0.00005 m ² K/W)		Inlet	Outlet	Definition
Height over sea level	m			0.000
Pressure	hPa			1013.250
Temp.	°C	32.000	10.000	20.000
Rel. humidity	%	40.000	99.246	40.000
Abs. humidity	g/kg	11.860	7.573	5.784
Density humid	kg/m ³	1.148	1.241	1.200
Enthalpy humid	kJ/kg	62.569	29.137	34.805
Volume flow humid	m ³ /h	13253.167	12214.545	12610.000
Mass flow dry	kg/h	15040.966	15040.966	15040.966
Condensate flow	kg/h		64.492	
Surface temperature	°C	21.821	7.092	
Velocity	m/s	2.054	1.893	1.955
Pressure drop (dry 86 Pa)	Pa		98.188	

Phone: xxxxxxxxxx
Fax: xxxxxxxxxx
E-Mail
Homepage

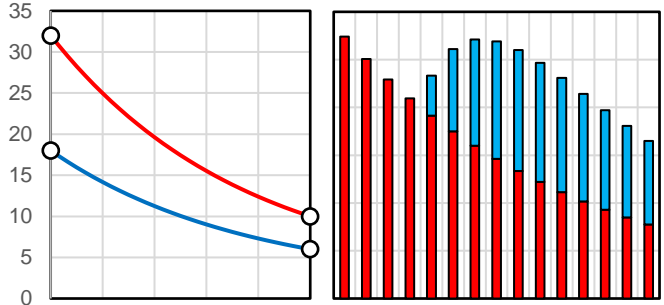
City, 3.11.2022
With the compliments of

Representative
Direct dialing
xxxxxxxxxx

Plant
Object
Position

Water (ff = 0.00005 m ² K/W)		
Temp. Inlet	°C	6.000
Temp. Outlet	°C	18.000
Temp. Selection	°C	10.380
Density	kg/m ³	999.677
Spec. heat	kJ/kgK	4.192
Heat cond.	W/mK	0.581
Viscosity	Pas	1.292E-03
Volume flow	m ³ /h	10.000
Velocity	m/s	0.821
Reynolds	---	7369.366
Pressure drop (T/C = 5.223)	kPa	36.706

Temp. (°C)

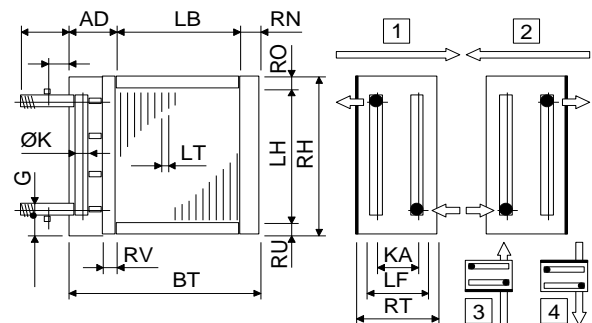


Technical data

Tubes total	Piece	512
Tubes blank	Piece	0
Int. vent./drains	Piece	0
Tube rows on the depth	Piece	16
Tube rows on the height	Piece	32
Tube coupling in series	Piece	16
Number of circuits (NC)	Piece	32
Volume	l	98
Weight	kg	348
Connections	G	2"
Frame height	RH	mm 1200
Frame width	BT	mm 1778
Frame depth	RT	mm 610
Finned height	LH	mm 1120
Finned width	LB	mm 1600
Finned depth	LF	mm 560
Frame on top	RO	mm 40
Frame on bottom	RU	mm 40
Frame in front	RV	mm 30
Frame on back (~53mm)	RN	mm 53
Collector-Diameter	K	mm 54
Collector covering	AD	mm 125
Collector distance	KA	mm 525
Fin spacing	LT	mm 3.000
Fin thickness	LD	mm 0.200
Tube diameter	DA	mm 12.400
Tube diameter	da	mm 12.400
Tube thickness	S	mm 0.400
Tube interval on the height	S1	mm 35.000
Tube interval on the depth	S2	mm 35.000



Tubes:	Cu
Tubes:	smooth
Tubes:	in line
Tubes:	circular
Collectors:	1.36 m/s Cu
Connections:	1.36 m/s Rg7
Fins:	Al
Fins:	smooth
Circulations:	1 Default
Frame:	2.0 mm AISI 304
Protection:	without
Protection:	---
Air flow direction:	horizontal



Delivery:	5-6 weeks
Validity:	12 weeks
Condit.:	net, prepaid address
Payment:	30 days net
Price net:	EUR 5081.00