Mirelta®

Hűtőtechnika
Holding Kft.

THT
COOLING TOWERS

COOLING TOWERS

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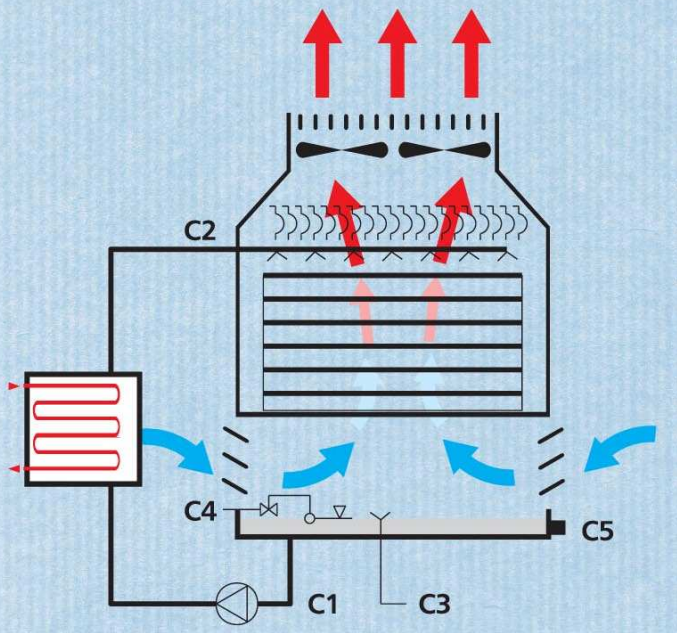
08. 2004.

Principle of operation



In the cooling process the water is sprayed onto specially shaped plastic water film cartridges with large surface.

The water running down on the cartridge surface meets the air circulated in counter-stream by the fans. As a result of the heat exchange taking place the water cools down, while a part of it evaporates. When getting in contact with the air the water washes out the dust and the contaminants from the air, at the same time the concentration of foreign materials in the water rises continuously due to evaporation. If this increase of the amount of contaminants gives rise to troubles during operation, a closed-circuit refrigerating plant should be used.

Standard type

The bottom part of the cooling tower is a painted ***drop tray*** made of steel plate, on which the air intake grids and some elements of the water circulating system (water refilling, overflow, water suction stud) are arranged. At the bottom of the drop tray a ***steel framework*** is placed for fixing and supporting.

On the drop tray the middle is mounted part including the ***plastic cooling cartridge and the water sprayer system,*** coated with painted and zinc plate.

The air is directed by the ***fans*** from the bottom to the top. The fan housing is the highest element of the THT cooling tower.

The members of this type family differ only in the number of built-in cartridges and fans, when designing them the principle of box of bricks was used.

The ***drop separating unit*** is a special plastic cartridge, ensuring the satisfactory separation with a little air resistance.

The replacement of the small water quantity, casued by the evaporation and removed by the air stream is carried out automatically, by means of the water replacing ***float valve.*** The possibly occuring water excess is drained off by the overflow stud of the reservoir.

Options (with additional charge)

- silent fan
- noise insulation
- auxiliary water circuit pump
- fan rim heating
- electrical drop tray heating
- water treating equipment.

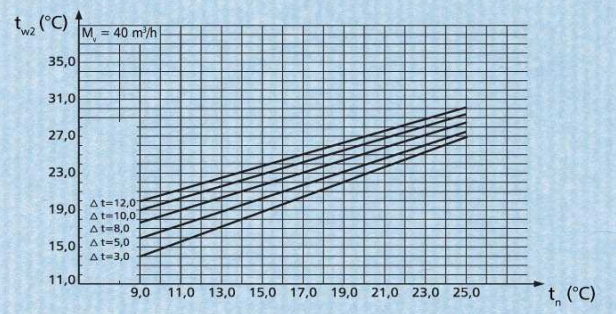
Transport and installation

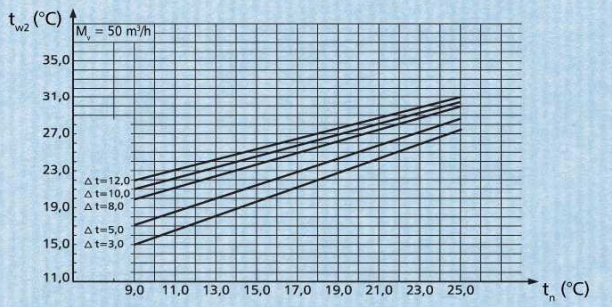
In transport lifting can be carried out – after removing the air box – by means of the lifting rings on the top side of the modules using a rope (the minimum rope angle is 45°).

On the installation site the equipment must be lifted on the suitably prepared groundwork, or framework.

During installation it must be considered, that the air supply and the access for cleaning must be ensured. When connenting the water and voltage supply the effective standards must be considered. After completing the electrical installation the proper direction of fan rotation must be checked.

Selection reference





The main data required for the selection are:

Quantity of water to be cooled: Mv [m³/h]

Humid temperature of the environmental air: tn [°C]

Cooling zone: Dt_w [°C]

Dt_w:=tw_1–tw_2, where

tw_1 is the temperature of the water to be cooled [°C]

tw_2 is the temperature of the cooled water [°C]

Dt_w=cooling zone=t_{w1}–t_{w2} [°C]

On the basis of t_n and the cooling zone the temperature of the cooled water belonging to the given water quantity can be established by means of the diagram. The diagrams concern the modules THT-40 and THT-50. For selecting other units, or in case of different operational conditions, please, consult our company.

The THT cooling tower family is of modular construction, i.e. the different types are assembled from different combinations of both standard types THT-40 and THT-50.

Connecting studs:

C1 Pump
C2 Water sprayer
C3 Overflow stud
C4 Auxiliary water supply connection
C5 Drain stud

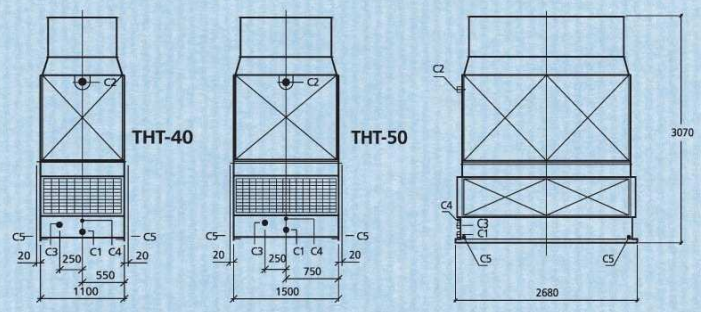


TABLE 1.

Type				THT-40/M	THT-50/M	THT-80/M	THT-100/M	THT-130/M	THT-150/M	THT-180/M	THT-200/M
Max. water temperature			°C	64	64	64	64	64	64	64	64
Cooling zone			°C	4-15	4-15	4-15	4-15	4-15	4-15	4-15	4-15
Air stream			m³/h	26000	29000	52000	58000	81000	87000	110000	116000
Fan		standard type	kW	2x1,5	2x1,5	4x1,5	4x1,5	6x1,5	6x1,5	8x1,5	8x1,5
		noise insulated	kW	2x1,1	2x1,1	4x1,1	4x1,1	6x1,1	6x1,1	8x1,1	8x1,1
Water sprayer resistance			Pa	30000	30000	30000	30000	30000	30000	30000	30000
Water quantity to be circulated		nominal	m³/h	40	50	80	100	130	150	180	200
		maximum	m³/h	60	90	120	180	210	270	300	360
		minimum	m³/h	10	15	20	30	35	45	50	60
Pump connection			mm	1xø89x3	1xø89x3	2xø89x3	2xø89x3	3xø89x3	3xø89x3	4xø89x3	4xø89x3
Water sprayer stud			mm	1xø76x3	1xø76x3	2xø76x3	2xø76x3	3xø76x3	3xø76x3	4xø76x3	4xø76x3
Net weight			kg	1100	1400	2100	2700	3400	4200	4800	5400
Noise level	standard type	1440 l/min	dB (A)	58,7	58,7	61,7	61,7	64,9	64,7	67,7	67,7
	noise insulated	1370 l/min	dB (A)	44,9	44,9	47,2	47,2	48,8	48,8	50,9	50,9
	noise insulated at night	1020 l/min	dB (A)	35,8	35,8	38,8	38,8	40,5	40,5	41,8	41,8

IN TABLE 1. the noise level of the THT type cooling towers is given for outdoor installation, at a distance of 30 m and a height of 1,5 m. In case of other distances the noise level can be determined by means of the correction factors of TABLE 2.

TABLE 2.

TYPE	THT-40 THT-50		THT-80 THT-100		THT-120 THT-150		THT-160 THT-200	
Távolság	Standard type 1440 1/min	Low noise design 960 1/min	Standard type 1440 1/min	Low noise design 960 1/min	Standard type 1440 1/min	Low noise design 960 1/min	Standard type 1440 1/min	Low noise design 960 1/min
2 m	1,40	1,51	1,38	1,47	1,36	1,45	1,35	1,42
5 m	1,27	1,33	1,25	1,31	1,24	1,30	1,23	1,28
10 m	1,16	1,21	1,16	1,19	1,15	1,18	1,14	1,17
20 m	1,06	1,08	1,06	1,07	1,06	1,07	1,05	1,06
30 m	1,00	1,00	1,00	1,00	1,00	1,00	1,00	1,00
40 m	0,96	0,95	0,96	0,95	0,96	0,95	0,96	0,96
50 m	0,93	0,91	0,93	0,91	0,93	0,92	0,94	0,92

MIRELTA makes efforts
to provide the honoured customers
and purchasers with the **best** services in every respect,
in compliance with their demands.

To meet this requirement our company has introduced in the year 1997 the

QUALITY ASSURANCE SYSTEM
ÖNORM EN ISO 9002

CERTIFICATE

ÖQS TANÚSÍTVÁNY

ÖSTERREICHISCHE VEREINIGUNG ZUR ZERTIFIZIERUNG VON QUALITÄTS- UND MANAGEMENTSYSTEMEN
(Osztrák Egyesület Minőségügyi és Irányítási Rendszerek Tanúsítására)

ezennel tanúsítja, hogy a

Mirelta H&F

A léghűtők, evaporatív kondenzátorok, vízvisszahűtő tornyok, gyorsfagyasztó berendezések és jegesvízkádak gyártása területén.
H-2890 Tata, Szomódi út 4

MINŐSÉGÜGYI RENDSZERT
vezetett be és alkalmaz.

Az ÖQS tanúsítási auditja alapján bebizonyosodott, hogy fenti minőségügyi rendszer megfelel a következő szabvány feltételeinek:

ÖNORM EN ISO 9002:1994

Minőségügyi rendszerek.
A gyártás, a telepítés és a vevőszolgálat minőségbiztosítási modellje

Bécs, dátum 3.12.1997 — Ikt.szám: 1168/0 — Érvényes: 4.11.2000

ÖSTERREICHISCHE VEREINIGUNG ZUR ZERTIFIZIERUNG VON QUALITÄTS- UND MANAGEMENTSYSTEMEN
(Osztrák Egyesület Minőségügyi és Irányítási Rendszerek Tanúsítására)
ügyvezetősége:

Ing. Viktor Seitschek — Konrad Scheiber

The ÖQS has been accredited according to the Federal Law on Accreditation, Law Gazette Nº 468/1992 and the Decree, Law Gazette Nº 498/1993 of 23.7.1993.
The ÖQS is member of IQNet (The International Certification Network).

which *is used* in the field of
- ***production***
- ***installation***
- ***customers' service***

complying with the prescribed requirements.

Our specialist are available for our kind customers for further informations at any time.

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