Mirelta®

Hűtőtechnika
Holding Kft.

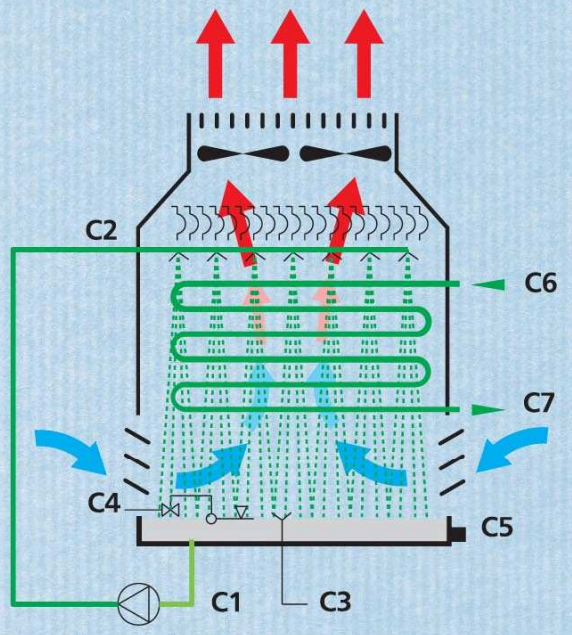
TEG

CLOSED-SYSTEM EVAPORATIVE COOLERS

CLOSED-SYSTEM EVAPORATIVE COOLERS

H-2890 Tata, Szomódi út 4., Pf.: 301
Tel.: (36-34) 487-122, 487-806
Fax: (36-34) 487-218, 487-855
E-mail: mirelta@mirelta.hu
Web: www.mirelta.hu

08. 2004.



Principle of operation

The fluid to be cooled is cooled down in the pipe system of smooth pipes. The heat exchange taking place in the pipe system is of evaporative character, i.e. the fluid to be cooled transmits its heat through the pipe wall to the water sprayed on the external surface of the pipe and partially being evaporated there. The heat exchange between the evaporating water and the air takes place by evaporation and in a convective way. The "evacuation" of the drops taken away by the air from the sprayed water is prevented by a plastic drop separator.

The water running down from the pipe system is collected in the drop tray, it is to be returned from here to the spraying system.

Loss of water caused by the evaporation is replaced automatically by the water replacement float valve. The possible excess water is drained down by the overflow stud of the reservoir.

In case of danger of frost the equipment must be operated with antifreeze cooling fluid.

Standard type

The TEG type closed system evaporative cooling tower family was developed for fluid recooling tasks of industrial scale. The equipment is also suitable for liquefaction of steam.

The bottom part of the fluid cooler is a painted ***drop tray*** made of steel plate, on which the air intake grids and some elements of the cooling water circulating system (water refilling, overflow, water suction stud, cleaning 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 part is mounted including the ***heat exchangers 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 equipment.

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

The TEG type evaporative cooling tower is subjected to a 25 bar test pressure examination carried out by the manufacturer.

Options (with additional charge)

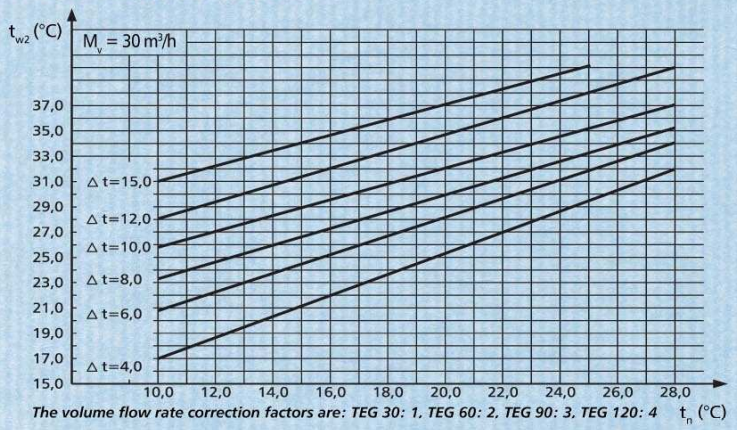
- Zinc plate pipe system
- Silent fan
- Noise insulation
- Axiliary water circuit pump
- Fan rim heating
- Drop tray heating
- Water treating equipment.

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 volume flow rate correction factors are: TEG 30: 1, TEG 60: 2, TEG 90: 3, TEG 120: 4

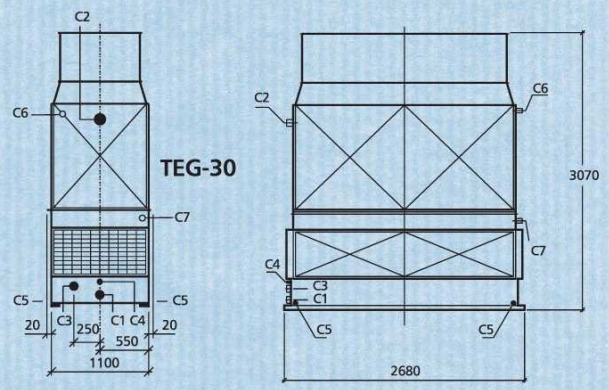
The main data required for the selection are:

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 the diagram.

When making use of the diagrams the volume flow rate correction factors must be considered. In case of different operational conditions, please, consult our company.

The TEG closed system evaporative coolers are of modular construction, i.e. they are assembled from the combination of the standard type TEG 30.

Connecting studs:
C1 Pump
C2 Water spray
C3 Overflow stud
C4 Auxiliary water supply connection
C5 Drain stud
C6 Cooled medium in
C7 Cooled medium out



1. TÁBLÁZAT

TYPE				TEG-30	TEG-60	TEG-90	TEG-120
Air stream			m³/h	26000	52000	78000	104000
Fan	standard type		kW	2x1,5	4x1,5	6x1,5	8x1,5
	noise insulated		kW	2x1,1 kW	4x1,1 kW	6x1,1 kW	8x1,1 kW
Water sprayer resistance			Pa	30000	30000	30000	30000
Quantity of cooled water	nominal		m³/h	20	40	60	80
	maximum		m³/h	30	60	90	120
	minimum		m³/h	5	10	15	20
Quantity of auxiliary water supply			m³/h	30	60	90	120
Cooled water stud			mm	1xø76x2,9	2xø76x2,9	3xø76x2,9	4xø76x2,9
Cooled water stud			mm	1xø76x2,9	2xø76x2,9	3xø76x2,9	4xø76x2,9
Pump connection			mm	1xø89x3	2xø89x3	3xø89x3	4xø89x3
Water sprayer stud			mm	1xø76x2,9	2xø76x2,9	3xø76x2,9	4xø76x2,9
Net weight			kg	1650	3200	4900	6500
Noise level	standard type	1440 1/min	dB (A)	58,7	61,7	64,9	67,7
	noise insulated	1370 l/min	dB (A)	44,9	47,2	48,8	50,9
	noise insulated at night	1020 1/min	dB (A)	35,8	38,8	40,5	41,8

IN TABLE 1. the noise level of the TEG type evaporative 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	TEG-30		TEG-60		TEG-90		TEG-120	
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


ÖQS

CERTIFICATE

ÖQS TANÚSÍTVÁNY

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

ezennel tanúsítja, hogy a

Mirelta Kft.

A hűtőtök, evaporatív kondenzátorok, vízvisszahűtő tornyok, gravitációs berendezések és ipari vízkezelő gyártása területén.
H-2890 Tata, Szomódi út 4

MINŐSÉGÜGYI RENDSZERT
vezetett be és alkalmaz.

Az ÖQS tanúsítási audítja alapján bebizonyosodott, hogy fent minőségügyi rendszer megfelel a következő szabvány feltételeinek:

ÖNORM EN ISO 9002:1994

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

Kelt: 3.12.1997 | Ikt.szám: 11685/0 | Érvényes: 4.11.2000

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

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 488/1993 of 22.7.1993.
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.

H-2890 Tata, Szomódi út 4., Pf.: 301
Tel.: (36-34) 487-122, 487-806
Fax: (36-34) 487-218, 487-855
E-mail: mirelta@mirelta.hu
Web: www.mirelta.hu