Raffreddatori Evaporativi Centrifughi
Centrifugal Evaporative Cooler

Catalogo Tecnico
Technical Catalogue
Avvertenza: Il contenuto del presente foglio informativo è stato redatto con le informazioni disponibili al momento della stampa. I dati sono forniti per un uso di selezione e di informazione preventiva. I dati riportati sono forniti in buona fede e sono soggetti a variazione senza preavviso. W-Tech non è responsabile per eventuali errori e omissioni eventualmente presenti nei dati riportati.

Disclaimer: The content of this technical bulletin is given with the information available at the date of the print. Data are supplied for reference selection and information beforehand. All the data are supplied in bona fide and are subject to variation without notice. W-Tech is not liable for any mistakes eventually present in the following pages.
Descrizione generale

Le torri di raffreddamento a circuito chiuso, dette anche refrigeratori, rappresentano la soluzione ottimale che permette di dissipare le grandi potenze termiche d’impianti industriali, tramite un bassissimo consumo di acqua, costantemente ricircolata. Si stima che il consumo di acqua con l’utilizzo di tali apparati è ridotto di circa il 95% rispetto a un normale processo con acqua a perdere, aumentando considerevolmente il risparmio economico e l’impatto ambientale. A differenza di una torre di tipo aperto, i fluidi del circuito primario (provenienti dall’impianto) e quelli del circuito secondario (acqua del circuito di raffreddamento) non vengono mai in contatto tra loro, preservando gli elementi presenti negli impianti da possibili fenomeni d’intasamento.

L’utilizzo di questi apparati è molto comune in processi di raffreddamento industriale quali: siderurgia, chimica, farmaceutica, tessile, vetro, alimentare, etc. e sempre più spesso anche in sistemi per il condizionamento.

La torre di raffreddamento a circuito chiuso di tipo con ventilatori centrifughi - RC - è un’unità premontata in fabbrica, funzionante in contro corrente.

I refrigeratori a circuito chiuso di produzione W-TECH sono interamente costruite con pannelli in lamiera Magnelis (acciaio, zinco, alluminio, magnesio) ZM310 per garantire la massima protezione superficiale paragonabile empiricamente ad una lamiera zincata con oltre 1000 g/m² di zinco. Realizzazioni in acciaio inox AISI 304 o 316 (totale o in parte) sono disponibili su richiesta.

I singoli pannelli, successivamente alla fase di taglio e piega vengono assemblati con minuteria in acciaio inossidabile AISI 304 (316 a richiesta) e guarnizione in mastic buificulo altamente adesivo rinforzato con rete in poliestere all’interno a garanzia di una grande stabilità di forma e resistenza alle variazione di temperatura e un’ulteriore protezione con idoneo silicone garantisce l’assenza delle piccole fuoriuscite di acqua.

Il refrigeratore evaporativo è essenzialmente composto da due sezioni principali: sezione inferiore e sezione superiore.

Nella sezione inferiore è raccolta l’acqua di processo al termine del passaggio attraverso la torre. Questa sezione è costruita con lamiera Magnelis di adeguato spessore atta a sopportare il peso della torre. Nella parte di raccolta è presente un filtro in acciaio inossidabile AISI 304, di tipo anticavitazionale a protezione della pompa di alimentazione alle utenze dell’impianto e sono presenti tutti gli attacchi idrici necessari (minimo livello, spurgo, reintegro, ecc) oltre alle apparecchiature meccaniche di controllo del livello dell’acqua nella torre. La sezione bacino si completa con la sezione ventilante che alloggia il motore e le ventole di tipo centrifugo. A seconda del tipo di macchina e della potenza dissipata si possono avere più motori e più ventole. I motori, con protezione meccanica IP56, isolamento in classe F, servizio continuo S1, forma B3, sono montati su robuste slitte regolabili in acciaio zincato e collocati in posizione protetta dagli agenti atmosferici. La trasmissione del moto è a mezzo di cinghie trapezoidali, calcolate al 150% della potenza nominale. Il cablaggio è realizzato direttamente in fabbrica e i cavi sono portati all’esterno della torre, in apposita scatola di derivazione, se richiesto.

I ventilatori centrifughi sono in acciaio zincato del tipo a pale avanti e sono staticamente e dinamicamente bilanciati. I ventilatori saranno montati su un albero in acciaio verniciato supportato da cuscinetti a sfere auto-allineanti posti alle estremità, con supporti in ghisa. Le reti di protezione del ventilatore sono in acciaio zincato posizionate in accordo alla più recente normativa sulla sicurezza.

Gli attenuatori di rumore (silenziatori) in ingresso, se previsti sono realizzati in acciaio zincato e rifiniti come la torre stessa.

Nella sezione superiore avviene lo scambio termico dove l’acqua proveniente dal bacino sottostante per mezzo di una pompa di ricircolo, allaga esternamente la batteria di scambio (serpentina) tramite un adeguato sistema di ugelli spruzzatori di grande diametro, realizzati in speciale PVC e intercambiabili in caso di manutenzione. All’interno della serpentina circola il gas refrigerante caldo proveniente dalle utenze. Il calore viene ceduto attraverso le pareti della serpentina e poi veicolato in atmosfera tramite il flusso d’aria generato dal ventilatore. La batteria di scambio è realizzata con tubi di acciaio al carbonio di opportuno spessore seguendo la nostra geometria proprietaria e in seguito zincata a caldo (HDG). Durante la lavorazione della serpentina, per ogni singola spira, viene eseguito un test in pressione per verificare possibili perdite. Alla fine del ciclo produttivo, viene effettuato un ulteriore test con azoto in pressione secondo normativa PED attualmente in vigore. A richiesta è possibile fornire la batteria di scambio realizzata in acciaio inossidabile (AISI 304 o 316).

I separatori di gobbe, montati alla sommità della struttura, garantiscono la separazione di possibili gobbe d’acqua portate dal flusso di aria. Gli attenuatori di rumore (silenziatori) in uscita, se previsti sono realizzati in acciaio zincato e rifiniti come la macchina.

I nostri prodotti sono realizzati in maniera standardizzata e ottimizzata. E’ possibile però, dietro richiesta e per specifiche esigenze del cliente, modificare particolari costruttivi, materiali, e componenti.
General description
The evaporative closed circuit cooler, also known as coolers, are the ideal solution that allows to reject high quantity of thermal load by using a minimum quantity of water. The water usage is reduced, in most cases, of 95% when compared to a one-through system increasing significantly the cost savings and environmental impact. In opposition to an open cooling tower, the water to be cooled from the system does not get in contact with the air preventing any impurity to foul the system. The use of evaporative closed circuit coolers is very common in industrial cooling such as iron metallurgy, chemical plants, Pharmaceutical, textile, glass, food, etc. and more often than in the past, in HVAC.

The centrifugal closed circuit evaporative cooler - RC - is a pre-assembled unit manufactured in our factory. W-TECH RC are induced draft and counter-flow evaporative coolers.

Evaporative coolers manufactured by W-TECH are entirely constructed with panels of Magnelis (steel, zinc, aluminum, magnesium) ZM310 for an excellent superficial protection, empirically comparable to a galvanized zinc steel plate of 1000 g/m². AISI 304 or 316 stainless steel (total or only parts) realizations are available upon request.

Individual panels, after the cutting and folding phase, are assembled with stainless steel AISI 304 fixing elements (316 on request) and high adhesive butyl sealer reinforced with polyester mesh inside to guarantee a great stability of shape and strength at temperature variations. Further protection is given by adding suitable silicone sealer on the joints.

The evaporative cooler is essentially composed of two main sections: lower section and upper section.

At the end of the heat transfer process, water is collected in the lower section. This section is manufactured of Magnelis sheets of adequate thickness able to stand the tower weight. In the lower part there is an anti cavitations AISI 304 stainless steel filter to protect the water pump that feeds the users of the system. Also all the required water connections (drain, make-up, overflow, etc) are placed in this section together with the make-up float and valve. Basin section is completed with ventilation section which hosts motor and centrifugal fans. Depending on the machine type and power dissipated, there can be more motors and more fans. Motors, with mechanical protection IP56, F insulation class, continue service S1, B3 form, are assembled on strong adjustable mechanical slides made in galvanized steel and placed in a position protected from atmospheric agents. Motion transmission is realized by “V” belts, calculated at 150% of nominal power. Harness is realized directly in the factory and cables are led outside the tower, in a specific connector block, if requested.

Centrifugal fans, forward blades type, are made in galvanized steel statically and dynamically balanced. Fans are assembled on a painted steel shaft supported at both ends by self-aligning ball bearings, supports in cast iron. Protection fans grids in galvanized steel, are placed as for the most recent safety rule.

If provided, inlet silencers are made in galvanized steel and with same finishing as for the tower.

In the upper section the thermal exchange occurs where water from the water basin is sent, by using a recirculation pump, onto the outside of the coil. The water is evenly distributed thanks to a water distribution system with wide diameter PVC nozzles fitted over the coil. The nozzles are easy to remove, clean or replace for maintenance. Inside the exchange coil there is the refrigerant to be condensed. The heat of the refrigerant is transferred to the steel walls of the coil and then removed, by evaporation thanks to the airflow given by the fan. The exchange coil is manufactured with carbon steel pipes of proper thickness, following our proprietary design and then galvanized (HDG). During manufacturing each pipe is individually tested under pressure in order to verify if there are defects. At the end of the manufacturing process a second pressure test is taken following the latest PED certification and directives. Upon request it is possible to manufacture the exchange coil in stainless steel (AISI 304 or 316).

The drop eliminators, fitted on the top of the structure, guarantee the separation of eventual water drops brought by air flow. If provided, outlet silencers are made in galvanized steel and with same finishing as for the unit.

The range of our products is standardized and optimized for manufacturing. It is possible anyway, upon request and for specific customer needs, to modify some manufacturing details, materials and components.
### Technical Data RC 20 - 45

<table>
<thead>
<tr>
<th>Model</th>
<th>Fans</th>
<th>Air</th>
<th>Coils</th>
<th>Pump</th>
<th>Flow</th>
<th>A vuoto</th>
<th>In Esercizio</th>
<th>Weight</th>
<th>Dimensions (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>RC</td>
<td>n. / kW</td>
<td>m³/s</td>
<td>Dm³</td>
<td>n. / kW</td>
<td>l/s</td>
<td>Shipping</td>
<td>Operating</td>
<td>n / kW</td>
<td>L</td>
</tr>
<tr>
<td>20-8</td>
<td>1 / 4</td>
<td>5.5</td>
<td>109</td>
<td>1 / 0.55</td>
<td>3.8</td>
<td>990</td>
<td>1.454</td>
<td>1 x 2</td>
<td>1.830</td>
</tr>
<tr>
<td>20-12</td>
<td>1 / 4</td>
<td>5.1</td>
<td>160</td>
<td>1 / 0.55</td>
<td>3.8</td>
<td>1.190</td>
<td>1.714</td>
<td>1 x 2</td>
<td>1.830</td>
</tr>
<tr>
<td>20-16</td>
<td>1 / 4</td>
<td>5.0</td>
<td>211</td>
<td>1 / 0.55</td>
<td>3.8</td>
<td>1.430</td>
<td>2.017</td>
<td>1 x 2</td>
<td>1.830</td>
</tr>
<tr>
<td>20-20</td>
<td>1 / 5.5</td>
<td>5.5</td>
<td>261</td>
<td>1 / 0.55</td>
<td>3.8</td>
<td>1.640</td>
<td>2.288</td>
<td>1 x 2</td>
<td>1.830</td>
</tr>
<tr>
<td>30-12</td>
<td>1 / 5.5</td>
<td>8.1</td>
<td>258</td>
<td>1 / 0.75</td>
<td>5.8</td>
<td>2.140</td>
<td>2.960</td>
<td>1 x 3</td>
<td>1.830</td>
</tr>
<tr>
<td>30-16</td>
<td>1 / 5.5</td>
<td>8.0</td>
<td>340</td>
<td>1 / 0.75</td>
<td>5.8</td>
<td>2.410</td>
<td>3.326</td>
<td>1 x 3</td>
<td>1.830</td>
</tr>
<tr>
<td>30-20</td>
<td>1 / 7.5</td>
<td>7.8</td>
<td>422</td>
<td>1 / 0.75</td>
<td>5.8</td>
<td>2.640</td>
<td>3.649</td>
<td>1 x 3</td>
<td>1.830</td>
</tr>
<tr>
<td>45-12</td>
<td>1 / 7.5</td>
<td>12.2</td>
<td>388</td>
<td>1 / 1.1</td>
<td>8</td>
<td>3.100</td>
<td>4.233</td>
<td>1 x 3</td>
<td>2.730</td>
</tr>
<tr>
<td>45-16</td>
<td>1 / 11</td>
<td>13.1</td>
<td>513</td>
<td>1 / 1.1</td>
<td>8</td>
<td>3.470</td>
<td>4.747</td>
<td>1 x 3</td>
<td>2.730</td>
</tr>
<tr>
<td>45-20</td>
<td>1 / 11</td>
<td>12.7</td>
<td>638</td>
<td>1 / 1.1</td>
<td>8</td>
<td>3.830</td>
<td>5.250</td>
<td>1 x 3</td>
<td>2.730</td>
</tr>
</tbody>
</table>

**Connections – Connections**

<table>
<thead>
<tr>
<th>Entrata gas / Gas Inlet</th>
<th>Uscita gas / Gas Outlet</th>
<th>Troppo pieno / Overflow</th>
<th>Scarico / Drain</th>
<th>Reintegro / Make-up</th>
</tr>
</thead>
<tbody>
<tr>
<td>4”</td>
<td>4”</td>
<td>2”</td>
<td>2”</td>
<td>¾”</td>
</tr>
</tbody>
</table>

**Optional – Options**

Per le personalizzazioni disponibili riferirsi all’allegato Optional  
For the available option please refer to the Options sheet attached

---

1. La potenzialità nominale è calcolata con temperatura ambiente -18°C
2. Nominal capacity is calculating with external temperature -18°C
Dati tecnici RC 60 - 90

Technical data RC 60 - 90

<table>
<thead>
<tr>
<th>Modello</th>
<th>Ventilatori</th>
<th>Aria</th>
<th>Batteria</th>
<th>Pompa</th>
<th>Portata</th>
<th>Peso / Weight</th>
<th>Riscaldatore</th>
<th>Dimensioni (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>RC</td>
<td>n. / kW</td>
<td>m³/s</td>
<td>Dm³</td>
<td>n. / kW</td>
<td>l/s</td>
<td>A vuoto</td>
<td>In Esercizio</td>
<td>Heather¹</td>
</tr>
<tr>
<td>60-12</td>
<td>1 / 7,5</td>
<td>15,0</td>
<td>521</td>
<td>1 / 1,1</td>
<td>11,6</td>
<td>3.890</td>
<td>5.454</td>
<td>1 x 3</td>
</tr>
<tr>
<td>60-16</td>
<td>1 / 11</td>
<td>16,0</td>
<td>690</td>
<td>1 / 1,1</td>
<td>11,6</td>
<td>4.340</td>
<td>6.137</td>
<td>1 x 3</td>
</tr>
<tr>
<td>60-20</td>
<td>1 / 11</td>
<td>15,5</td>
<td>859</td>
<td>1 / 1,1</td>
<td>11,6</td>
<td>4.850</td>
<td>6.842</td>
<td>1 x 3</td>
</tr>
<tr>
<td>90-12</td>
<td>2 / 7,5</td>
<td>23,5</td>
<td>777</td>
<td>1 / 1,5</td>
<td>16,4</td>
<td>5.800</td>
<td>8.022</td>
<td>2 x 2</td>
</tr>
<tr>
<td>90-16</td>
<td>2 / 11</td>
<td>24,9</td>
<td>1032</td>
<td>1 / 1,5</td>
<td>16,4</td>
<td>6.540</td>
<td>9.054</td>
<td>2 x 2</td>
</tr>
<tr>
<td>90-20</td>
<td>2 / 11</td>
<td>24,1</td>
<td>1287</td>
<td>1 / 1,5</td>
<td>16,4</td>
<td>7.150</td>
<td>9.949</td>
<td>2 x 2</td>
</tr>
</tbody>
</table>

Attacchi idrici - Connections

<table>
<thead>
<tr>
<th>Entrata / Inlet</th>
<th>Uscita / Outlet</th>
<th>Troppo pieno / Overflow</th>
<th>Scarico / Drain</th>
<th>Reintegro / Make-up</th>
</tr>
</thead>
<tbody>
<tr>
<td>4&quot;</td>
<td>4&quot;</td>
<td>2&quot;</td>
<td>2&quot;</td>
<td>1&quot;</td>
</tr>
</tbody>
</table>

Optional – Options

Per le personalizzazioni disponibili riferirsi all’allegato Optional
For the specials please refer to the Options sheet attached

¹ La potenzialità nominale è calcolata con temperatura ambiente -18°C
2 Nominal capacity is calculating with external temperature -18°C
Dati tecnici RC 83 - 166
Technical data RC 83 - 166

<table>
<thead>
<tr>
<th>Model</th>
<th>Fans</th>
<th>Air</th>
<th>Coils</th>
<th>Pump</th>
<th>Portata</th>
<th>Peso / Weight</th>
<th>Riscaldatore</th>
<th>Dimensioni (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>RC</td>
<td>n / kW</td>
<td>m³/s</td>
<td>Dm³</td>
<td>n / kW</td>
<td>l/s</td>
<td>Shipping</td>
<td>Operating</td>
<td>L</td>
</tr>
<tr>
<td>83-12</td>
<td>1 / 15</td>
<td>22.1</td>
<td>806</td>
<td>1 / 2,2</td>
<td>24</td>
<td>4.74</td>
<td>7.103</td>
<td>3.660</td>
</tr>
<tr>
<td>83-16</td>
<td>1 / 18,5</td>
<td>22.9</td>
<td>1068</td>
<td>1 / 2,2</td>
<td>24</td>
<td>5.450</td>
<td>8.111</td>
<td>3.660</td>
</tr>
<tr>
<td>83-20</td>
<td>1 / 18,5</td>
<td>22.6</td>
<td>1330</td>
<td>1 / 2,2</td>
<td>24</td>
<td>6.150</td>
<td>9.108</td>
<td>3.660</td>
</tr>
<tr>
<td>122-12</td>
<td>1 / 22</td>
<td>33.4</td>
<td>1202</td>
<td>1 / 4</td>
<td>34</td>
<td>6.670</td>
<td>10.106</td>
<td>5.500</td>
</tr>
<tr>
<td>122-16</td>
<td>1 / 22</td>
<td>32.3</td>
<td>1596</td>
<td>1 / 4</td>
<td>34</td>
<td>7.600</td>
<td>11.476</td>
<td>5.500</td>
</tr>
<tr>
<td>122-20</td>
<td>1 / 30</td>
<td>35.1</td>
<td>1992</td>
<td>1 / 4</td>
<td>34</td>
<td>8.690</td>
<td>13.017</td>
<td>5.500</td>
</tr>
<tr>
<td>166-12</td>
<td>2 / 15</td>
<td>44.2</td>
<td>1612</td>
<td>2 / 2,2</td>
<td>48</td>
<td>9.540</td>
<td>14.289</td>
<td>7.360</td>
</tr>
<tr>
<td>166-16</td>
<td>2 / 18,5</td>
<td>45.8</td>
<td>2136</td>
<td>2 / 2,2</td>
<td>48</td>
<td>10.870</td>
<td>16.210</td>
<td>7.360</td>
</tr>
<tr>
<td>166-20</td>
<td>2 / 18,5</td>
<td>45.2</td>
<td>2660</td>
<td>2 / 2,2</td>
<td>48</td>
<td>12.280</td>
<td>18.214</td>
<td>7.360</td>
</tr>
</tbody>
</table>

Optional – Options

Per le personalizzazioni disponibili riferirsi all’allegato Optional

Nominal capacity is calculating with external temperature -18°C

La potenzialità nominale è calcolata con temperatura ambiente -18°C
**Dati tecnici RC 244 - 488**

**Technical data RC 244 - 488**

<table>
<thead>
<tr>
<th>Modello</th>
<th>Ventilatori</th>
<th>Aria</th>
<th>Batteria</th>
<th>Pompa</th>
<th>Portata</th>
<th>Peso / Weight</th>
<th>Riscaldatore¹</th>
<th>Dimensioni (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model</td>
<td>Fans</td>
<td>Air</td>
<td>Coils</td>
<td>Pump</td>
<td>Flow</td>
<td>A vuoto</td>
<td>In Esercizio</td>
<td>Shipping</td>
</tr>
<tr>
<td>RC</td>
<td>n. / kW</td>
<td>m³/s</td>
<td>n. / kW</td>
<td>l/s</td>
<td></td>
<td></td>
<td></td>
<td>L</td>
</tr>
<tr>
<td>244-12</td>
<td>2 / 22</td>
<td>66.8</td>
<td>2404</td>
<td>2 / 4</td>
<td>68</td>
<td>13.450</td>
<td>4 x 5</td>
<td>11.050</td>
</tr>
<tr>
<td>244-16</td>
<td>2 / 22</td>
<td>64.6</td>
<td>3192</td>
<td>2 / 4</td>
<td>68</td>
<td>15.250</td>
<td>4 x 5</td>
<td>11.050</td>
</tr>
<tr>
<td>244-20</td>
<td>2 / 30</td>
<td>70.1</td>
<td>3984</td>
<td>2 / 4</td>
<td>68</td>
<td>17.430</td>
<td>4 x 5</td>
<td>11.050</td>
</tr>
<tr>
<td>332-12</td>
<td>4 / 15</td>
<td>88.4</td>
<td>3224</td>
<td>4 / 2,2</td>
<td>96</td>
<td>19.080</td>
<td>8 x 4</td>
<td>7.360</td>
</tr>
<tr>
<td>332-16</td>
<td>4 / 18,5</td>
<td>91.6</td>
<td>4272</td>
<td>4 / 2,2</td>
<td>96</td>
<td>21.740</td>
<td>8 x 4</td>
<td>7.360</td>
</tr>
<tr>
<td>332-20</td>
<td>4 / 18,5</td>
<td>90.4</td>
<td>5320</td>
<td>4 / 2,2</td>
<td>96</td>
<td>24.560</td>
<td>8 x 4</td>
<td>7.360</td>
</tr>
<tr>
<td>488-12</td>
<td>4 / 22</td>
<td>133,6</td>
<td>4808</td>
<td>4 / 4</td>
<td>136</td>
<td>26.900</td>
<td>8 x 5</td>
<td>11.050</td>
</tr>
<tr>
<td>488-16</td>
<td>4 / 22</td>
<td>129,2</td>
<td>6384</td>
<td>4 / 4</td>
<td>136</td>
<td>30.500</td>
<td>8 x 5</td>
<td>11.050</td>
</tr>
<tr>
<td>488-20</td>
<td>4 / 30</td>
<td>140,2</td>
<td>7968</td>
<td>4 / 4</td>
<td>136</td>
<td>34.860</td>
<td>8 x 5</td>
<td>11.050</td>
</tr>
</tbody>
</table>

¹ La potenzialità nominale è calcolata con temperatura ambiente -18°C
² Nominal capacity is calculating with external temperature -18°C

**Optional – Options**

Per le personalizzazioni disponibili riferirsi all'allegato Optional
For the specials please refer to the Options sheet attached
Modulo Richiesta Offerta
Enquiry Form

Dati richiedente / Company Info

<table>
<thead>
<tr>
<th>Società Company</th>
<th>Nazione Country</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nominativo Name</td>
<td>Info Progetto Project info</td>
</tr>
<tr>
<td>Telefono Telephone</td>
<td>e-mail</td>
</tr>
</tbody>
</table>

Dati progetto / Project Data

<table>
<thead>
<tr>
<th>Tipologia Offerta Project Type</th>
<th>Luogo di install. Job site</th>
</tr>
</thead>
<tbody>
<tr>
<td>☐ Nuovo / New</td>
<td></td>
</tr>
<tr>
<td>☐ Sostituzione / Replacement</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Tipo Prodotto Product Type</th>
<th>Utenza Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>☐ Torre Evaporativa / Open type cooling tower</td>
<td></td>
</tr>
<tr>
<td>☐ Raffreddatore a circuito chiuso / Closed type cooling tower</td>
<td></td>
</tr>
<tr>
<td>☐ Condensatore evaporativo / Evaporative condenser</td>
<td></td>
</tr>
</tbody>
</table>

Versione Version

<table>
<thead>
<tr>
<th>Assiale / Axial</th>
<th>Centrifuga / Centrifugal</th>
</tr>
</thead>
</table>

Dati tecnici / Technical Data

<table>
<thead>
<tr>
<th>Resa Capacity kW</th>
<th>Portata acqua Water flow</th>
<th>Refrigerante Refrigerant</th>
<th>Temp. bulbo umido / Wet Bulb temp. °C</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Temp. ingresso / Inlet temp. °C</th>
<th>Temp. uscita / Outlet temp. °C</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Fluido Medium</th>
<th>Dati elettrici Electrical data</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acqua / Water</td>
<td></td>
</tr>
<tr>
<td>☐ Ethylene Glycol %</td>
<td></td>
</tr>
<tr>
<td>☐ Propylene Glycol %</td>
<td></td>
</tr>
<tr>
<td>☐ Altro / Other</td>
<td></td>
</tr>
</tbody>
</table>

Trattamento acqua / Water Treatment

<table>
<thead>
<tr>
<th>Tipo skid Skid type</th>
<th>Sistema di dosaggio mono prodotto bivalente [bicida e anticalcare], tank singolo, pompa integrata, conta litri lancia impuls.</th>
</tr>
</thead>
<tbody>
<tr>
<td>☐ Basic</td>
<td>Prima carica di additivo. Combined chemical product system [bicida e antiscudo], single storage tank, integrated dosing pump and water meter with pulse output. First supply of chemical product.</td>
</tr>
<tr>
<td>☐ Advanced</td>
<td>Double chemical product system, bicide dosing pump with timer, anti scale dosing pump, water meter with pulse output, conductivity meter and thermo regulated probe for automatic drain system. First supply of chemical product.</td>
</tr>
</tbody>
</table>

Altro / Other

<table>
<thead>
<tr>
<th>Opzioni Options</th>
<th>Note Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>☐ Restrizioni sonore / Sound restriction : _________ dbA @ _______ m.</td>
<td>Prego specificare qualsiasi informazione aggiuntiva che si ritiene importante ai fini della richiesta di offerta.</td>
</tr>
<tr>
<td>☐ Restrizioni dimensional / dimensional restriction : ______________________</td>
<td>Please specify any other useful important information for this enquiry.</td>
</tr>
<tr>
<td>☐ Altro / Other : ______________________</td>
<td>Prego inviare la presente RDO via fax (+39 051 6784941) o via e-mail <a href="mailto:info@w-tech.it">info@w-tech.it</a></td>
</tr>
</tbody>
</table>

Please send this enquiry sheet by fax (+39 051 6784941) or by e-mail info@w-tech.it
<table>
<thead>
<tr>
<th>N.Ordine</th>
<th>Cod.</th>
<th>Descrizione</th>
<th>Description</th>
<th>Torri evaporative Cooling Towers</th>
<th>Refrigeratori Closed Circuit Coolers</th>
<th>Condensatori Evaporativi EvaporativeCondensers</th>
</tr>
</thead>
<tbody>
<tr>
<td>01</td>
<td>EH</td>
<td>Resistenze Elettriche</td>
<td>Electric Heaters</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>02</td>
<td>LWH</td>
<td>Minimo Livello Resistenze</td>
<td>Low Water Alarm for Heaters</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>03</td>
<td>LWP</td>
<td>Minimo Livello Pompa</td>
<td>Low Water Alarm for Pump</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>04</td>
<td>EWC</td>
<td>Controllo Elettrico di livello + elettrovalvola</td>
<td>Electric Level Control + solenoid valve</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>05</td>
<td>V5</td>
<td>Elettrovalvola di spurgo</td>
<td>Blow down solenoid valve</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>06</td>
<td>PS</td>
<td>Stazione di Pompaggio su Skid</td>
<td>Pump Station on Skid</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>07</td>
<td>NP</td>
<td>Unità senza Pompa</td>
<td>No Pump</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>08</td>
<td>OO</td>
<td>Scarico maggiorato sul fondo</td>
<td>Oversized Outlet in the bottom</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>09</td>
<td>EC</td>
<td>Connessioni extra in vasca</td>
<td>Extra Connections in the basin</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>10</td>
<td>VCD</td>
<td>Connessione Victaulic (in+out)</td>
<td>Victaulic Connection (in+out)</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>11</td>
<td>FL</td>
<td>Flange e contro flange ingresso e uscita acqua</td>
<td>Water In &amp; Out Flanges and counterflanges</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>12</td>
<td>WP</td>
<td>Winter Pack</td>
<td>Winter Pack</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>13</td>
<td>LS</td>
<td>Ventola Bassa Rumorosità – standard</td>
<td>Low Sound Fan – standard</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>14</td>
<td>SLS</td>
<td>Ventola Bassa Rumorosità – speciale</td>
<td>Low Sound Fan – special</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>15</td>
<td>SW</td>
<td>Pannello Antisciacquio</td>
<td>Splash Water sound reducer</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>16</td>
<td>SIN</td>
<td>Silenziatore in Ingresso + pannello di fondo</td>
<td>Inlet Sound Attenuator + fan bottom panel</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>17</td>
<td>SOU</td>
<td>Silenziatore in Uscita</td>
<td>Outlet Sound Attenuator</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>18</td>
<td>AOH</td>
<td>Cuffia Espulsione</td>
<td>Air Outlet Hood</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>19</td>
<td>DOH</td>
<td>Serrande per cuffia</td>
<td>Dampers for outlet Hood</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>20</td>
<td>DAH</td>
<td>Attuatore per Serrande Cuffia</td>
<td>Damper Actuator for outlet hood</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>21</td>
<td>AFC</td>
<td>Batteria Antinebbia</td>
<td>Anti fog Coils</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>22</td>
<td>ASP</td>
<td>Pressione Statica (canalizzazione) max 120 Pa</td>
<td>Additional Static Pressure (ductwork) max 120 Pa</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>23</td>
<td>DSM</td>
<td>Motore Ventilatore a 2 velocità</td>
<td>2 Speed Fan Motor</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>24</td>
<td>OM</td>
<td>Motore maggiorato</td>
<td>Oversized motor</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>25</td>
<td>MEH</td>
<td>Elemento riscaldante per motore elettrico</td>
<td>Electric heater for motor</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>26</td>
<td>PTC</td>
<td>Termistore PTC</td>
<td>PTC Thermistor</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>27</td>
<td>SW</td>
<td>Voltaggio / Hz Speciali</td>
<td>Special Voltage / Hz</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>28</td>
<td>EEX</td>
<td>Antideflagrante (EEX)</td>
<td>Explosion Proof (EEX)</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
</tbody>
</table>

n/a = non applicabile - not applicable
<table>
<thead>
<tr>
<th></th>
<th>Cod.</th>
<th>Descrizione</th>
<th>Description</th>
<th>Torri evaporative Cooling Towers</th>
<th>Refrigeratori Closed Circuit Coolers</th>
<th>Condensatori Evaporativi Evaporative Condensers</th>
</tr>
</thead>
<tbody>
<tr>
<td>29</td>
<td>MGB</td>
<td>Motoriduttore</td>
<td>Gearbox</td>
<td>☐ ☐ ☐ ☐</td>
<td>☐ ☐ ☐ n/a ☐ ☐ ☐ ☐</td>
<td>☐ ☐ n/a n/a n/a</td>
</tr>
<tr>
<td>30</td>
<td>PP</td>
<td>Quadro elettrico di Potenza (IP 55)</td>
<td>Power panel (IP 55)</td>
<td>☐ ☐ ☐ ☐</td>
<td>☐ ☐ ☐ n/a ☐ ☐ ☐ ☐</td>
<td>☐ ☐ n/a n/a n/a</td>
</tr>
<tr>
<td>31</td>
<td>ECI</td>
<td>PP + Controllo (IP 55) + Inverter (IP20)</td>
<td>PP + control panel (IP 55) + inverter (IP20)</td>
<td>☐ ☐ ☐ ☐</td>
<td>☐ ☐ ☐ n/a ☐ ☐ ☐ ☐</td>
<td>☐ ☐ n/a n/a n/a</td>
</tr>
<tr>
<td>32</td>
<td>ECP</td>
<td>Inverter (IP 55) fornito libero</td>
<td>Inverter (IP 55) supplied loose</td>
<td>☐ ☐ ☐ ☐</td>
<td>☐ ☐ ☐ n/a ☐ ☐ ☐ ☐</td>
<td>☐ ☐ n/a n/a n/a</td>
</tr>
<tr>
<td>33</td>
<td>MSS</td>
<td>Sezionatore Motore Ventilatore</td>
<td>Fan Motor Safety Switch</td>
<td>☐ ☐ ☐ ☐</td>
<td>☐ ☐ ☐ n/a ☐ ☐ ☐ ☐</td>
<td>☐ ☐ n/a n/a n/a</td>
</tr>
<tr>
<td>34</td>
<td>PSS</td>
<td>Sezionatore Motore Pompa</td>
<td>Pump Motor Safety Switch</td>
<td>n/a n/a n/a n/a</td>
<td>☐ ☐ ☐ n/a ☐ ☐ ☐ ☐</td>
<td>☐ ☐ n/a n/a n/a</td>
</tr>
<tr>
<td>35</td>
<td>MWB</td>
<td>Morsettiera Motore Ventilatore</td>
<td>Fan Motor Wiring Box</td>
<td>☐ ☐ ☐ ☐</td>
<td>☐ ☐ ☐ n/a ☐ ☐ ☐ ☐</td>
<td>☐ ☐ n/a n/a n/a</td>
</tr>
<tr>
<td>36</td>
<td>PWB</td>
<td>Morsettiera Motore Pompa</td>
<td>Pump Motor Wiring Box</td>
<td>n/a n/a n/a n/a</td>
<td>☐ ☐ ☐ n/a ☐ ☐ ☐ ☐</td>
<td>☐ ☐ n/a n/a n/a</td>
</tr>
<tr>
<td>37</td>
<td>VA</td>
<td>Allarme Vibrazioni</td>
<td>Vibration Alarm</td>
<td>☐ ☐ ☐ ☐</td>
<td>☐ ☐ ☐ n/a ☐ ☐ ☐ ☐</td>
<td>☐ ☐ n/a n/a n/a</td>
</tr>
<tr>
<td>38</td>
<td>ECC</td>
<td>Circuito extra nel serpentino</td>
<td>Additional circuit in the coil</td>
<td>n/a n/a n/a n/a</td>
<td>☐ ☐ ☐ n/a ☐ ☐ ☐ ☐</td>
<td>☐ ☐ n/a n/a n/a</td>
</tr>
<tr>
<td>39</td>
<td>AV</td>
<td>Antivibranti</td>
<td>Anti vibration supports</td>
<td>☐ ☐ ☐ ☐</td>
<td>☐ ☐ ☐ n/a ☐ ☐ ☐ ☐</td>
<td>☐ ☐ n/a n/a n/a</td>
</tr>
<tr>
<td>40</td>
<td>AVL</td>
<td>Tappeto antivibrante</td>
<td>Anti vibration layer</td>
<td>☐ ☐ ☐ ☐</td>
<td>☐ ☐ ☐ n/a ☐ ☐ ☐ ☐</td>
<td>☐ ☐ n/a n/a n/a</td>
</tr>
<tr>
<td>41</td>
<td>EG</td>
<td>Ingrassaggio esterno</td>
<td>External grease lines</td>
<td>n/a n/a ☐ ☐</td>
<td>☐ ☐ ☐ n/a ☐ ☐ ☐ ☐</td>
<td>☐ ☐ n/a n/a n/a</td>
</tr>
<tr>
<td>42</td>
<td>HTF</td>
<td>Riempimento alta temperatura</td>
<td>High Temp. Deck Fill</td>
<td>☐ ☐ ☐ ☐</td>
<td>☐ ☐ ☐ n/a ☐ ☐ ☐ ☐</td>
<td>☐ ☐ n/a n/a n/a</td>
</tr>
<tr>
<td>43</td>
<td>SF</td>
<td>Riempimenti speciali</td>
<td>Special fill</td>
<td>☐ ☐ ☐ ☐</td>
<td>☐ ☐ ☐ n/a ☐ ☐ ☐ ☐</td>
<td>☐ ☐ n/a n/a n/a</td>
</tr>
<tr>
<td>44</td>
<td>LTF</td>
<td>Riempimento per BT(&lt;-15°C)</td>
<td>Low temperature fill deck (&lt;-15°C)</td>
<td>☐ ☐ ☐ ☐</td>
<td>☐ ☐ ☐ n/a ☐ ☐ ☐ ☐</td>
<td>☐ ☐ n/a n/a n/a</td>
</tr>
<tr>
<td>45</td>
<td>LTS</td>
<td>Griglie e separatori per BT (&lt;-15°C)</td>
<td>Drift eliminator and louvers for LT (&lt;-15°C)</td>
<td>☐ ☐ ☐ ☐</td>
<td>☐ ☐ ☐ n/a ☐ ☐ ☐ ☐</td>
<td>☐ ☐ n/a n/a n/a</td>
</tr>
<tr>
<td>46</td>
<td>RAL</td>
<td>Verniciatura RAL Speciale</td>
<td>Special RAL Color</td>
<td>☐ ☐ ☐ ☐</td>
<td>☐ ☐ ☐ n/a ☐ ☐ ☐ ☐</td>
<td>☐ ☐ n/a n/a n/a</td>
</tr>
<tr>
<td>47</td>
<td>DSX</td>
<td>Desurriscaldatore</td>
<td>Desuperheater</td>
<td>☐ ☐ ☐ ☐</td>
<td>☐ ☐ ☐ n/a ☐ ☐ ☐ ☐</td>
<td>☐ ☐ n/a n/a n/a</td>
</tr>
<tr>
<td>48</td>
<td>FC</td>
<td>Batteria Aletatta</td>
<td>Finned Coil</td>
<td>n/a n/a n/a n/a</td>
<td>☐ ☐ ☐ n/a ☐ ☐ ☐ ☐</td>
<td>☐ ☐ n/a n/a n/a</td>
</tr>
<tr>
<td>49</td>
<td>SER</td>
<td>Batterie in serie</td>
<td>Coil in series</td>
<td>n/a n/a n/a n/a</td>
<td>☐ ☐ ☐ n/a ☐ ☐ ☐ ☐</td>
<td>☐ ☐ n/a n/a n/a</td>
</tr>
<tr>
<td>50</td>
<td>IC4</td>
<td>Batteria AISI 304</td>
<td>Stainless Steel AISI 304 Coil</td>
<td>n/a n/a n/a n/a</td>
<td>☐ ☐ ☐ n/a ☐ ☐ ☐ ☐</td>
<td>☐ ☐ n/a n/a n/a</td>
</tr>
<tr>
<td>51</td>
<td>IC6</td>
<td>Batteria AISI 316</td>
<td>Stainless Steel AISI 316 Coil</td>
<td>n/a n/a n/a n/a</td>
<td>☐ ☐ ☐ n/a ☐ ☐ ☐ ☐</td>
<td>☐ ☐ n/a n/a n/a</td>
</tr>
<tr>
<td>52</td>
<td>IB4</td>
<td>Bacino AISI 304</td>
<td>Stainless Steel AISI 304 Basin</td>
<td>n/a n/a n/a n/a</td>
<td>☐ ☐ ☐ n/a ☐ ☐ ☐ ☐</td>
<td>☐ ☐ n/a n/a n/a</td>
</tr>
<tr>
<td>53</td>
<td>IB6</td>
<td>Bacino AISI 316</td>
<td>Stainless Steel AISI 316 Basin</td>
<td>n/a n/a n/a n/a</td>
<td>☐ ☐ ☐ n/a ☐ ☐ ☐ ☐</td>
<td>☐ ☐ n/a n/a n/a</td>
</tr>
<tr>
<td>54</td>
<td>JT4</td>
<td>Corpo Torre AISI 304</td>
<td>Stainless Steel AISI 304 Unit Body</td>
<td>☐ ☐ ☐ ☐</td>
<td>☐ ☐ ☐ n/a ☐ ☐ ☐ ☐</td>
<td>☐ ☐ n/a n/a n/a</td>
</tr>
<tr>
<td>55</td>
<td>JT6</td>
<td>Corpo Torre AISI 316</td>
<td>Stainless Steel AISI 316 Unit Body</td>
<td>☐ ☐ ☐ ☐</td>
<td>☐ ☐ ☐ n/a ☐ ☐ ☐ ☐</td>
<td>☐ ☐ n/a n/a n/a</td>
</tr>
<tr>
<td>56</td>
<td>OB</td>
<td>Vasca maggiorata</td>
<td>Oversized basin</td>
<td>☐ ☐ ☐ ☐</td>
<td>☐ ☐ ☐ n/a ☐ ☐ ☐ ☐</td>
<td>☐ ☐ n/a n/a n/a</td>
</tr>
<tr>
<td>57</td>
<td>SC</td>
<td>Certificazioni Speciali</td>
<td>Special certifications</td>
<td>☐ ☐ ☐ ☐</td>
<td>☐ ☐ ☐ n/a ☐ ☐ ☐ ☐</td>
<td>☐ ☐ n/a n/a n/a</td>
</tr>
</tbody>
</table>

n/a = non applicabile - not applicable
**Basic**

Il sistema di trattamento “BASIC” è la soluzione ideale per piccoli impianti ove è comunque necessario garantire una protezione antincrostante e Biocida. Il sistema è studiato per essere utilizzato con un prodotto polifunzionale per acque a elevata durezza e con azione biocida. Il dosaggio avviene tramite una pompa dosatrice (3) montata direttamente sul fusto porta prodotto (6) collegata a un contalitri lanciaimpulsi (1) che dovrà essere inserito sulla linea di reintegro acqua. La mancanza di prodotto sarà segnalata nel display della pompa dosatrice. Il sistema è IP 65 e quindi idonea ad installazione all’aperto.

1 - E’ prevista una prima fornitura di prodotti chimici insieme al sistema (25 l BASIC e 25+25 l per Advanced)

**Advanced**

Il sistema “ADVANCED” è una soluzione completa in grado di dosare, tramite temporizzatore programmabile, il prodotto biocida (7) e di dosare proporzionalmente al consumo dell’acqua, tramite un contalitri ad impulsi (1), il prodotto antincrostante (6). In aggiunta comprende un conduttivimetro (9) con sonda termocompensata (10) in grado di gestire lo scarico automatico (11) e quindi la deconcentrazione dell’acqua presente nel sistema evaporativo. Ne risulta una gestione completa e accurata che garantirà un ridotto consumo sia di acqua che di prodotti chimici. La mancanza di prodotto, l’assenza di acqua e/o di flusso all’interno della sonda di conducibilità saranno segnalati nei display delle Pompe e del conduttivimetro. Tutte gli elementi sono rigorosamente IP 65, è quindi possibile collocare lo skid all’esterno.

1 - A first supply of chemical products is foreseen together with the system (25 l BASIC & 25+25 l for Advanced)

**Basic**

The “BASIC” system is ideal for small plants where, anyway, it’s necessary to ensure scale and biocide protection. The system is designed to be used together with a multifunctional product for high hardness and with a biocide action. A dosing pump (3) directly fitted on top of the product tank (6) and connected to a water meter with pulse output (1), that will need to be fitted on the water make-up line, will dose the correct quantity of chemical product. The lack of product will be indicated, as an alarm, on the display of the dosing pump. The System is IP 65, suitable for outdoor installation.

**Advanced**

The “ADVANCED” system is a complete solution able to dose, by means of a programmable timer, the biocide product (7) and to dose proportionally to the water usage, by means of the signal of a water meter with pulse (1), the antiscale product (6). There is also a conductivity controller (9), connected to a temperature compensated probe (10) able to manage the automatic purge (11) deconcentrating the water inside the evaporative system. The result is a complete and accurate conduct that will ensure a reduce water and chemical product consumption. The lack of product, the absence of water and/or flow to the probe will be indicated, as an alarm, on the display of the dosing pump and of the conductivity controller. All components are strictly IP65 and for this reason it will be possible to locate the skid outdoor.
### Recommended water characteristics

<table>
<thead>
<tr>
<th>Property</th>
<th>300 gr/m² Galvanized steel</th>
<th>AISI 304 Stainless Steel</th>
<th>AISI 316 Stainless steel</th>
</tr>
</thead>
<tbody>
<tr>
<td>pH</td>
<td>7.0 – 9</td>
<td>6.0 – 9.5</td>
<td>6.0 – 9.5</td>
</tr>
<tr>
<td>Total suspended solids (ppm)</td>
<td>&lt; 25</td>
<td>&lt; 25</td>
<td>&lt; 25</td>
</tr>
<tr>
<td>Alkalinity CaCO³ (ppm)</td>
<td>75 – 600</td>
<td>&lt; 600</td>
<td>&lt; 600</td>
</tr>
<tr>
<td>Hardness CaCO³ (ppm)</td>
<td>50 – 750</td>
<td>&lt; 600</td>
<td>&lt; 600</td>
</tr>
<tr>
<td>Chlorides Cl⁻ (ppm)</td>
<td>&lt; 400</td>
<td>&lt; 400</td>
<td>&lt; 2.000</td>
</tr>
<tr>
<td>Bacterial (cfu/ml)</td>
<td>&lt; 10.000</td>
<td>&lt; 10.000</td>
<td>&lt; 10.000</td>
</tr>
</tbody>
</table>

---

Caratteristiche raccomandate acqua
Recommended water characteristics
Caractéristiques de l’eau recommandées
Minimale Wassereigenschaften