

NS COOLING TOWER

# UF

系列 SERIES



## 角型横流式冷却塔



大連斯频德冷却塔有限公司  
DALIAN SPINDLE COOLING TOWERS CO., LTD.



由日本斯频德制造株式会社、大连冰山集团公司、日本三洋电机株式会社及日本日商岩井株式会社之四家公司联合设立的大连斯频德冷却塔有限公司(投资总额为7.6亿日元)从日本斯频德制造株式会社引进世界一流水平的角型横流式冷却塔制造技术,开始进行本机的制造和销售。

本角型横流式冷却塔可广泛的用于超级大厦、饭店、商店、工厂及民用建筑的制冷空调工程中。

Established jointly by four companies, which are Nihon Spindle Mfg. Co. Ltd., Dalian Bingshan Group, Sanyo Electric Co., Ltd., And Nissho Iwai Corp. (investment totaling JPY 760 million), Dalian Spindle Cooling Towers Co., Ltd. will market the world's first-class cross-flow type cooling towers in a technical tie-up with Nihon Spindle Mfg. Co., Ltd.

These cross-flow type cooling towers are designed for use with air-conditioning equipment in a wide range of establishments, including large-scale buildings, hotels, department stores, factories, etc.

## 目录 INDEX

|   |    |
|---|----|
| 特长  | 1  |
| Features                                    |    |
| 型号表示  | 2  |
| Anatomy of model No.                        |    |
| 构造  | 2  |
| Construction                                |    |
| 标准规格  | 3  |
| Standard specifications                     |    |
| 冷却塔的机种选定一览表                                 | 6  |
| Selection table                             |    |
| 运转声音  | 8  |
| Operating noise level                       |    |
| 外形图和地基图                                     | 10 |
| Outline and foundation drawings             |    |
| 运送  | 16 |
| Delivery                                    |    |
| 管道配置台架参考图                                   | 17 |
| Pipe support installation reference drawing |    |
| 管道配置图例                                      | 17 |
| Example of pipe layout                      |    |
| 使用说明  | 18 |
| Handing instructions                        |    |
| 使用实例  | 24 |
| Project references                          |    |



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**质量管理体系认证证书**  
CERTIFICATE OF REGISTRATION

我公司认定下列组织的质量管理体系  
VTI Certifies herewith that

**大连斯频德冷却塔有限公司**  
**Dalian Spindle Cooling Towers Co., Ltd.**

注册地址: 大连经济技术开发区; 生产地址: 大连市甘井子区辛塔街9号  
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Produce Address: No. 9 Xinta Street, Ganjingzi, Dalian, P.R. China  
邮政编码 (ZIP): 116033

符合以下标准的要求。特发此证  
demonstrated a Quality Management System  
that complies with the requirements of

**GB/T19001-2000 idt ISO9001:2000**

质量管理体系覆盖产品:  
Scope:

冷却塔的设计、制造、销售和服务

**Design, manufacture, sale and service of Cooling towers**

注册号: 0404Q1028R2M 颁发日期: 2004-12-31 有效终止日期: 2007-12-31  
Registration No. Issue Date Expiration Date



册号 CNAB004-O  
Certificate No.

签名 (Sign)

Accredited by Member of the IAF & PAC MLA for QMS





# UF

## 角型横流式冷却塔

## NS COOLING TOWER SERIES

### ■ 特长

#### ① 省空间的小型轻量化

因使用了为横流形冷却塔而设计的高效热交换充填材料，与原来的形状相比，其设置面积大幅度下降，运转重量也大大降低。

#### ② 省电力

因采用了压力损失较小的充填材料并将风机通风管做成漏斗形，从而减少了风机的所需动力。

与低噪音形相比，噪音极低形的风机动力变得更小。

省电力极低噪音形因采用了低速高效率风机，所以为风机动力小而省电力的型式。

#### ③ 防震设计

设计用地震输入为水平震度1.0垂直震度0.5，符合建设部颁布的第1101号新标准。另外，对于重要的建筑设备，可根据特殊设计用震度进行设计。

#### ④ 运转声音轻微

因采用特为冷却塔所设计开发的FRP制低噪音的轴流风机，从而降低了运转声音。并且符合日本冷却塔工业会的噪音标准值。与极低型噪音相比，省电力极低噪音形的运转声音更为低弱，更为安静。

#### ⑤ 良好的耐腐蚀性

塔体和水槽的材料采用了具有良好的耐腐蚀性合成树脂。另外，在充分考虑了防锈问题后，对骨架等钢材部分采取了热浸镀锌处理。

#### ⑥ 组合方式的组装

塔体由工厂内进行装配后，并将之分成单组件运入安装现场，用组装的方式进行安装。由此保证了良好的品质，并能简单迅速地进行运送和安装，大大缩短了工程时间。

#### ⑦ 成品为直接交货形式(小型机种)

60-130UFW, 60-110UFWS, 60-90UFWL为成品直接交货形式，免去了现场安装工程。

#### ⑧ 材料的名称为冷却塔用玻璃纤维聚酯板(FRP板)

对于安装于地上11层(不包括地下层)以上屋顶的产品可根据建筑标准法执行令第129条2-3所定的防火材料进行制造。

建设部防火材料认定编号 标准难燃烧(个)第4017号

材料的一般名称为冷却塔用玻璃纤维聚酯板(FRP板)

### ■ FEATURES

#### Space-saving, compact and lightweight design

Use of the highly heat-exchange-efficient filling, designed specifically for cross-flow type cooling towers, ensures dramatically smaller installation area lighter operating weight than are required for conventional cooling towers.

#### ② Power-saving construction

Use of the filling with very little pressure loss and the bell-mouth-shaped fan stack has reduced the air-blow force required.

The ultra-low noise type requires even less air-blow force than the low noise type.

The power-saving, ultra-low noise type, incorporating a low-speed, high-efficiency fan, requires even less air-blow force, thereby saving power.

#### ③ Earthquake-proof design

The horizontal and vertical seismic intensities used for product design are 1.0 and 0.5, respectively, to comply with the new earthquake proofing standard set on the basis of the Notification No.1101 from the Ministry of Construction Japan. For critically important buildings, custom-order products are available that are designed based on special seismic intensities for product design.

#### ④ Low operating noise

Incorporating an FRP low-operating-noise, axial-flow type air blower developed specifically for use with cooling towers to reduce the operating noise, each model satisfies the operating noise level set forth by the Japan Cooling Tower Institute. The power-saving, ultra-low operating noise type generates by far lower noise than the ultra-low operating noise type.

#### ⑤ Superb corrosion resistance

The tower body and water basin use synthetic resin that has excellent corrosion resistance, whereas steel components, such as the frame, are hot-dip galvanized for thorough rust prevention.

#### ⑥ Knockdown delivery and assembly

The tower body, assembled in the factory, is knocked down into several units and delivered to the site, where the knocked-down units are put together back into the tower. This ensures stable product quality, easy, quick delivery and installation, and dramatically reduced construction period.

#### ⑦ Ex-vehicle delivery (compact models)

The UFW model Nos. 60 thru 130, UFWS model Nos. 60 thru 110 and the UFWL model Nos. 60 thru 90 are delivered on an ex-vehicle basis, thereby eliminating the need to assemble these models on-site.

#### ⑧ Special models are available that are manufactured using the fire-resistant

materials approved by the Ministry of Construction.

Cooling towers for installation on the rooftop of the buildings with 11 or more floors above the ground level are required to use the fire resistant material as specified in 2-3, Article 129 of the Building Construction Standard Act. We offer these types of special models

· Ministry of Construction's approval number for the fire-resistant material: 4017, semi-fire-retardant

· General designation of the material: Glass fiber reinforced polyester plate for cooling towers (FRP plate)



# 小型省电设计，噪音极低

## Power-saving, compact design plus low operating noise

### 型号表示 Anatomy of model No.

**CTA-0000 UF W O**

冷却吨

(入口37.5摄氏度 - 出口32摄氏度 - 外部环境湿球温度27摄氏度1.02立方米/小时/冷却吨时)

Cooling tonnage

(37.5°C for inlet, 32°C for outlet, and 27°C for ambient wet-bulb, at 1.02m<sup>3</sup>/HR/cooling tonnage)

无：低噪音

S：极低噪音

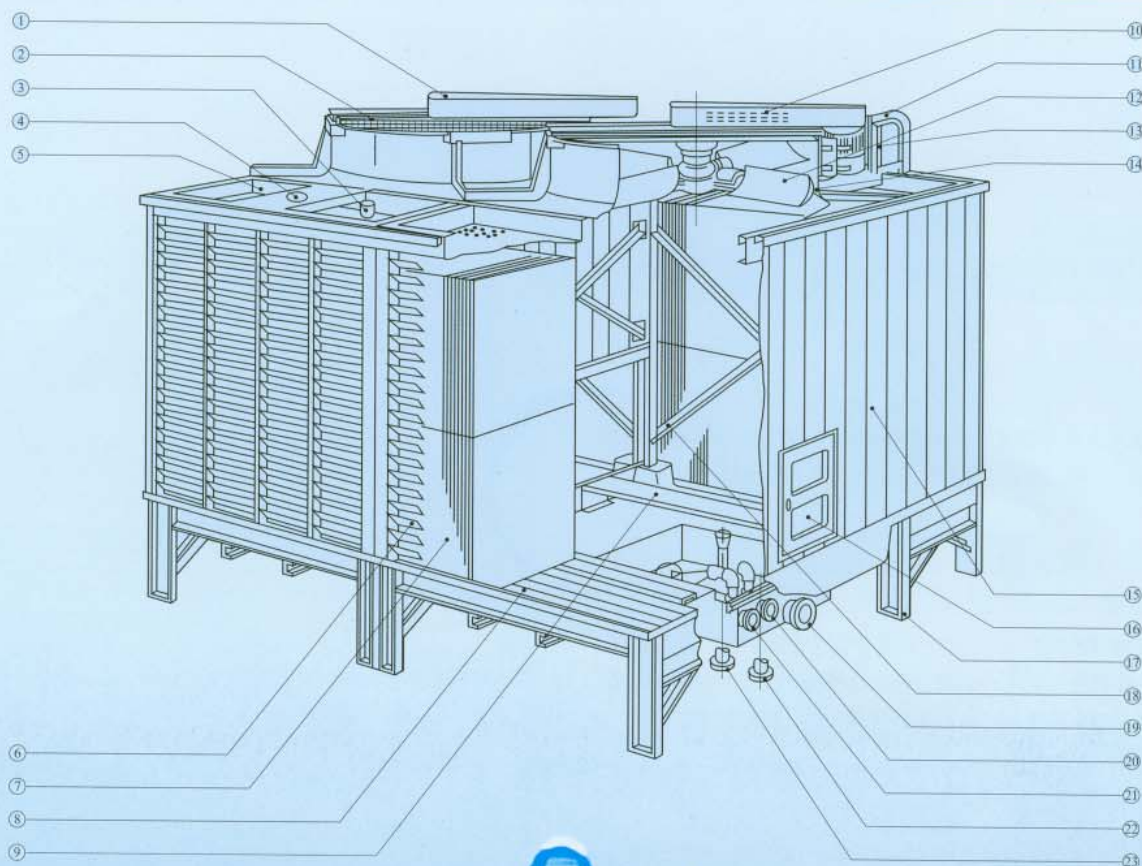
L：省电力，极低噪音

None: Low operating noise type

S: Ultra-low noise operating noise type

L: Power-saving, ultra-low operating noise type

### 构造 Construction



① 皮带防护盖 (玻璃纤维增强聚酯树脂)

② 风机保护网 (钢材, 热浸镀锌)

③ 溢流管 (硬质聚乙烯树脂)

④ 循环水输入口

⑤ 散水槽 (钢材, 热浸镀锌)

⑥ 通风窗 (硬质聚乙烯树脂)

⑦ 填充材料 (硬质聚乙烯树脂)

⑧ 水槽 (玻璃纤维增强聚酯树脂)

⑨ 内部踏板 (钢材, 热浸镀锌)

⑩ V型皮带

⑪ 钢梯 (钢材, 热浸镀锌)

⑫ 风机叶片 (玻璃纤维增强聚酯树脂)

⑬ 电机 (全封闭外扇屋外形)

⑭ 风机外壳 (玻璃纤维增强聚酯树脂)

⑮ 外板 (硬质聚乙烯树脂)

⑯ 检查口 (玻璃纤维增强聚酯树脂)

⑰ 台架 (钢材, 热浸镀锌)

⑱ 塔体骨架 (钢材, 热浸镀锌)

⑲ 循环水输出口 (钢材, 热浸镀锌)

⑳ 手动供水管 (钢材, 热浸镀锌)

㉑ 自动供水管 (钢材, 热浸镀锌)

㉒ 排水管 (钢材, 热浸镀锌)

㉓ 溢流管 (钢材, 热浸镀锌)



① Belt protection cover (FRP)

② Fan guard (hot-dip galvanized steel)

③ Overflow pipe (hard PVC resin)

④ Hot water inlet hole

⑤ Distribution basin (hot-dip galvanized steel)

⑥ Louvers (hard PVC resin)

⑦ Filling (hard PVC resin)

⑧ Cold water basin (FRP)

⑨ Internal walkway (hot-dip galvanized steel)

⑩ V belt

⑪ Gangway ladder (hot-dip galvanized steel)

⑫ Fan assembly (blade: FRP)

⑬ Motor (totally enclosed sector, outdoor type)

⑭ Fan casing (FRP)

⑮ Casing (hard PVC resin)

⑯ Access door (FRP)

⑰ Base frame (hot-dip galvanized steel)

⑱ Tower frame (hot-dip galvanized steel)

⑲ Cold water outlet pipe (hot-dip galvanized steel)

⑳ Manual make-up water inlet pipe (hot-dip galvanized steel)

㉑ Automatic make-up water inlet pipe (hot-dip galvanized steel)

㉒ Drain pipe (hot-dip galvanized steel)

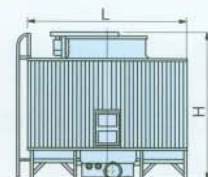
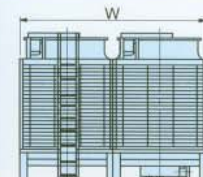
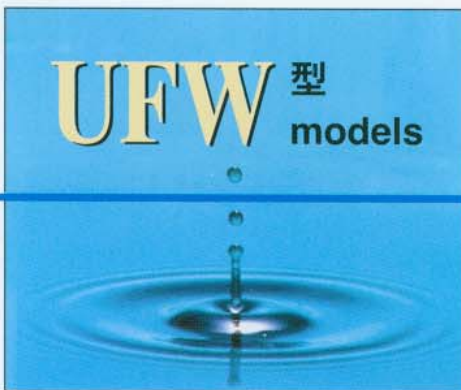
㉓ Overflow pipe (hot-dip galvanized steel)



# UFW 型 models

## 低噪音型

## Low operating noise type



### 标准规格 Standard specifications

| 机种<br>Model | 外形尺寸<br>Outside dimensions (mm) |       |       | 风机<br>Fan assembly          | 电机<br>Motor                 | 管道直径A×个数<br>Pipe diameters (A×No. of units) |                                      |                                   |   | 重量<br>Weight (kg)    |                                 | 图纸<br>编号<br>Drawing<br>No. |
|-------------|---------------------------------|-------|-------|-----------------------------|-----------------------------|---|--------------------------------------|-----------------------------------|---|----------------------|---------------------------------|----------------------------|
|             | W                               | L     | H     | φD×台数<br>φD×No.<br>of units | kW×台数<br>kW×No.<br>of units | 注)循环水<br>输入管<br>Hot water<br>inlet          | ⑥循环水<br>输出管<br>⑥Cold water<br>outlet | ⑦排水<br>⑦溢流<br>⑦Drain<br>⑦Overflow | ⑧自动供水<br>⑧手动供水<br>⑧Automatic make-<br>up water ⑧Manual<br>make-up water | 自重<br>Dead<br>weight | 运转<br>重量<br>Operating<br>weight |                            |
| CTA-60UFW   | 1,450                           | 3,060 | 2,795 | φ1,300×1                    | 1.5×1                       | 100×2                                       | 125×1                                | 50/50×1                           | 25/25×1   | 800                  | 1,770                           | ①                          |
| CTA-70UFW   | 1,450                           | 3,060 | 2,795 | φ1,300×1                    | 2.2×1                       | 100×2                                       | 125×1                                | 50/50×1                           | 25/25×1   | 810                  | 1,780                           |                            |
| CTA-80UFW   | 1,750                           | 3,260 | 2,795 | φ1,500×1                    | 2.2×1                       | 100×2                                       | 125×1                                | 50/50×1                           | 25/25×1   | 920                  | 2,190                           |                            |
| CTA-90UFW   | 1,750                           | 3,260 | 2,795 | φ1,500×1                    | 4.0×1                       | 100×2                                       | 125×1                                | 50/50×1                           | 25/25×1   | 930                  | 2,200                           |                            |
| CTA-100UFW  | 1,850                           | 3,360 | 2,795 | φ1,500×1                    | 4.0×1                       | 100×2                                       | 150×1                                | 65/65×1                           | 32/32×1   | 960                  | 2,330                           |                            |
| CTA-110UFW  | 1,850                           | 3,360 | 2,795 | φ1,600×1                    | 4.0×1                       | 100×2                                       | 150×1                                | 65/65×1                           | 32/32×1   | 1,000                | 2,370                           |                            |
| CTA-120UFW  | 2,050                           | 3,460 | 2,795 | φ1,600×1                    | 5.5×1                       | 100×2                                       | 150×1                                | 65/65×1                           | 32/32×1   | 1,030                | 2,560                           |                            |
| CTA-130UFW  | 2,050                           | 3,460 | 2,795 | φ1,700×1                    | 5.5×1                       | 100×2                                       | 150×1                                | 65/65×1                           | 32/32×1   | 1,050                | 2,580                           |                            |
| CTA-140UFW  | 2,050                           | 3,460 | 3,295 | φ1,700×1                    | 5.5×1                       | 125×2                                       | 150×1                                | 65/65×1                           | 32/32×1   | 1,130                | 2,660                           | ②                          |
| CTA-150UFW  | 2,250                           | 3,660 | 3,295 | φ1,700×1                    | 5.5×1                       | 125×2                                       | 200×1                                | 65/65×1                           | 32/32×1   | 1,210                | 2,970                           |                            |
| CTA-160UFW  | 2,250                           | 3,660 | 3,295 | φ1,850×1                    | 5.5×1                       | 125×2                                       | 200×1                                | 65/65×1                           | 32/32×1   | 1,250                | 3,010                           |                            |
| CTA-170UFW  | 2,400                           | 3,760 | 3,295 | φ1,850×1                    | 5.5×1                       | 125×2                                       | 200×1                                | 65/65×1                           | 32/32×1   | 1,310                | 3,240                           |                            |
| CTA-180UFW  | 2,400                           | 3,760 | 3,295 | φ2,000×1                    | 7.5×1                       | 125×2                                       | 200×1                                | 65/65×1                           | 32/32×1   | 1,340                | 3,270                           |                            |
| CTA-200UFW  | 3,500                           | 3,260 | 3,295 | φ1,300×2                    | 4.0×2                       | 100×4                                       | 200×1                                | 65/65×1                           | 32/32×1   | 1,910                | 4,150                           |                            |
| CTA-225UFW  | 3,500                           | 3,260 | 3,295 | φ1,500×2                    | 4.0×2                       | 100×4                                       | 200×1                                | 65/65×1                           | 32/32×1   | 1,920                | 4,160                           |                            |
| CTA-250UFW  | 3,500                           | 3,260 | 3,295 | φ1,500×2                    | 5.5×2                       | 100×4                                       | 200×1                                | 65/65×1                           | 32/32×1   | 1,970                | 4,210                           |                            |
| CTA-265UFW  | 3,700                           | 3,360 | 3,295 | φ1,600×2                    | 5.5×2                       | 100×4                                       | 200×1                                | 65/65×1                           | 32/32×1   | 2,100                | 4,540                           |                            |
| CTA-280UFW  | 4,100                           | 3,460 | 3,295 | φ1,700×2                    | 5.5×2                       | 125×4                                       | 250×1                                | 80/80×1                           | 40/40×1   | 2,190                | 4,960                           | ③                          |
| CTA-300UFW  | 4,500                           | 3,660 | 3,295 | φ1,700×2                    | 5.5×2                       | 125×4                                       | 250×1                                | 80/80×1                           | 40/40×1   | 2,320                | 5,510                           |                            |
| CTA-320UFW  | 4,500                           | 3,660 | 3,295 | φ1,850×2                    | 5.5×2                       | 125×4                                       | 250×1                                | 80/80×1                           | 40/40×1   | 2,400                | 5,590                           |                            |
| CTA-340UFW  | 4,800                           | 3,760 | 3,295 | φ1,850×2                    | 5.5×2                       | 125×4                                       | 250×1                                | 80/80×1                           | 40/40×1   | 2,530                | 6,060                           |                            |
| CTA-360UFW  | 4,800                           | 3,760 | 3,295 | φ2,000×2                    | 7.5×2                       | 125×4                                       | 250×1                                | 80/80×1                           | 40/40×1   | 2,590                | 6,120                           |                            |
| CTA-375UFW  | 5,250                           | 3,260 | 3,295 | φ1,500×3                    | 5.5×3                       | 100×6                                       | 150×2                                | 65/65×2                           | 32/32×2   | 2,960                | 6,290                           | ④                          |
| CTA-405UFW  | 5,550                           | 3,360 | 3,295 | φ1,600×3                    | 5.5×3                       | 100×6                                       | 150×2                                | 65/65×2                           | 32/32×2   | 3,160                | 6,950                           |                            |
| CTA-420UFW  | 6,150                           | 3,460 | 3,295 | φ1,700×3                    | 5.5×3                       | 125×6                                       | 200×2                                | 65/65×2                           | 32/32×2   | 3,310                | 7,580                           |                            |
| CTA-450UFW  | 6,750                           | 3,660 | 3,295 | φ1,700×3                    | 5.5×3                       | 125×6                                       | 200×2                                | 65/65×2                           | 32/32×2   | 3,510                | 8,450                           |                            |
| CTA-480UFW  | 6,750                           | 3,660 | 3,295 | φ1,850×3                    | 5.5×3                       | 125×6                                       | 200×2                                | 65/65×2                           | 32/32×2   | 3,630                | 8,570                           |                            |
| CTA-510UFW  | 7,200                           | 3,760 | 3,295 | φ1,850×3                    | 5.5×3                       | 125×6                                       | 250×2                                | 80/80×2                           | 40/40×2   | 3,820                | 9,290                           |                            |
| CTA-540UFW  | 7,200                           | 3,760 | 3,295 | φ2,000×3                    | 7.5×3                       | 125×6                                       | 250×2                                | 80/80×2                           | 40/40×2   | 3,910                | 9,380                           |                            |
| CTA-560UFW  | 8,200                           | 3,460 | 3,295 | φ1,700×4                    | 5.5×4                       | 125×8                                       | 250×2                                | 80/80×2                           | 40/40×2   | 4,360                | 9,900                           | ⑤                          |
| CTA-600UFW  | 9,000                           | 3,660 | 3,295 | φ1,700×4                    | 5.5×4                       | 125×8                                       | 250×2                                | 80/80×2                           | 40/40×2   | 4,620                | 11,000                          |                            |
| CTA-640UFW  | 9,000                           | 3,660 | 3,295 | φ1,850×4                    | 5.5×4                       | 125×8                                       | 250×2                                | 80/80×2                           | 40/40×2   | 4,780                | 11,160                          |                            |
| CTA-680UFW  | 9,600                           | 3,760 | 3,295 | φ1,850×4                    | 5.5×4                       | 125×8                                       | 250×2                                | 80/80×2                           | 40/40×2   | 5,040                | 12,100                          |                            |
| CTA-720UFW  | 9,600                           | 3,760 | 3,295 | φ2,000×4                    | 7.5×4                       | 125×8                                       | 250×2                                | 80/80×2                           | 40/40×2   | 5,160                | 12,220                          |                            |

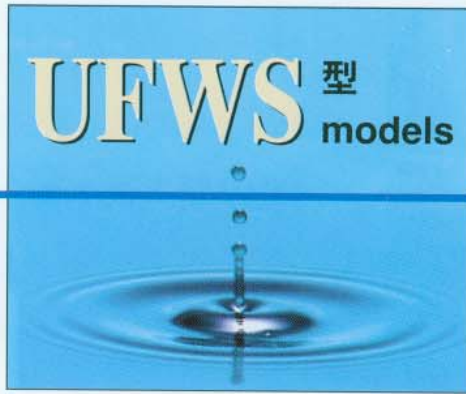
注) 输入口⑥为φ145(100A)和φ165(125A) Note: Inlet hole diameter in φ145(100A) and φ165(125A)



# UFWS 型 models

## 极低噪音型

## Ultra-low operating noise type



### 标准规格 Standard specifications

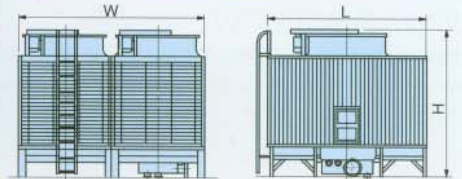
| 机种<br>Model | 外形尺寸<br>Outside dimensions (mm) |       |       | 风机<br>Fan assembly | 电机<br>Motor | 管道直径A×个数<br>Pipe diameters (A×No. of units) |                                     |                                   |  | 重量<br>Weight (kg)    |                                 | 图纸<br>编号<br>Drawing<br>No. |
|-------------|---------------------------------|-------|-------|--------------------|-------------|---|-------------------------------------|-----------------------------------|--|----------------------|---------------------------------|----------------------------|
|             | W                               | L     | H     |                    |             | ④循环水<br>输入管<br>Hot water<br>inlet           | ⑤循环水<br>输出管<br>Cold water<br>outlet | ⑥排水<br>⑥溢流<br>⑥Drain<br>⑥Overflow | ⑦自动供水<br>⑦手动供水<br>⑦Automatic make-<br>up water(⑧)Manual<br>make-up water | 自重<br>Dead<br>weight | 运转<br>重量<br>Operating<br>weight |                            |
| CTA-60UFWS  | 1,750                           | 3,260 | 2,795 | φ1,300×1           | 1.5×1       | 100×2                                       | 125×1                               | 50/50×1                           | 25/25×1  | 910                  | 2,180                           | ①                          |
| CTA-70UFWS  | 1,750                           | 3,260 | 2,795 | φ1,500×1           | 1.5×1       | 100×2                                       | 125×1                               | 50/50×1                           | 25/25×1  | 920                  | 2,190                           |                            |
| CTA-80UFWS  | 1,850                           | 3,360 | 2,795 | φ1,600×1           | 2.2×1       | 100×2                                       | 150×1                               | 65/65×1                           | 32/32×1  | 1,000                | 2,370                           |                            |
| CTA-90UFWS  | 1,850                           | 3,360 | 2,795 | φ1,600×1           | 4.0×1       | 100×2                                       | 150×1                               | 65/65×1                           | 32/32×1  | 1,010                | 2,380                           |                            |
| CTA-100UFWS | 2,050                           | 3,460 | 2,795 | φ1,700×1           | 4.0×1       | 100×2                                       | 150×1                               | 65/65×1                           | 32/32×1  | 1,040                | 2,570                           |                            |
| CTA-110UFWS | 2,050                           | 3,460 | 2,795 | φ1,700×1           | 4.0×1       | 100×2                                       | 150×1                               | 65/65×1                           | 32/32×1  | 1,040                | 2,570                           |                            |
| CTA-120UFWS | 2,050                           | 3,460 | 3,295 | φ1,700×1           | 4.0×1       | 125×2                                       | 150×1                               | 65/65×1                           | 32/32×1  | 1,120                | 2,650                           | ②                          |
| CTA-130UFWS | 2,050                           | 3,460 | 3,295 | φ1,700×1           | 5.5×1       | 125×2                                       | 150×1                               | 65/65×1                           | 32/32×1  | 1,140                | 2,670                           |                            |
| CTA-140UFWS | 2,250                           | 3,660 | 3,295 | φ1,850×1           | 5.5×1       | 125×2                                       | 200×1                               | 65/65×1                           | 32/32×1  | 1,260                | 3,020                           |                            |
| CTA-150UFWS | 2,400                           | 3,760 | 3,295 | φ2,000×1           | 5.5×1       | 125×2                                       | 200×1                               | 65/65×1                           | 32/32×1  | 1,330                | 3,260                           |                            |
| CTA-160UFWS | 2,400                           | 3,760 | 3,295 | φ2,000×1           | 5.5×1       | 125×2                                       | 200×1                               | 65/65×1                           | 32/32×1  | 1,330                | 3,260                           | ③                          |
| CTA-170UFWS | 3,500                           | 3,260 | 3,295 | φ1,500×2           | 2.2×2       | 100×4                                       | 200×1                               | 65/65×1                           | 32/32×1  | 1,920                | 4,160                           |                            |
| CTA-180UFWS | 3,500                           | 3,260 | 3,295 | φ1,500×2           | 2.2×2       | 100×4                                       | 200×1                               | 65/65×1                           | 32/32×1  | 1,920                | 4,160                           |                            |
| CTA-200UFWS | 3,700                           | 3,360 | 3,295 | φ1,600×2           | 4.0×2       | 100×4                                       | 200×1                               | 65/65×1                           | 32/32×1  | 2,100                | 4,540                           |                            |
| CTA-225UFWS | 3,700                           | 3,360 | 3,295 | φ1,600×2           | 4.0×2       | 100×4                                       | 200×1                               | 65/65×1                           | 32/32×1  | 2,100                | 4,540                           |                            |
| CTA-250UFWS | 4,100                           | 3,460 | 3,295 | φ1,700×2           | 4.0×2       | 125×4                                       | 250×1                               | 80/80×1                           | 40/40×1  | 2,190                | 4,960                           |                            |
| CTA-265UFWS | 4,100                           | 3,460 | 3,295 | φ1,700×2           | 5.5×2       | 125×4                                       | 250×1                               | 80/80×1                           | 40/40×1  | 2,210                | 4,980                           | ④                          |
| CTA-280UFWS | 4,500                           | 3,660 | 3,295 | φ1,850×2           | 5.5×2       | 125×4                                       | 250×1                               | 80/80×1                           | 40/40×1  | 2,420                | 5,610                           |                            |
| CTA-300UFWS | 4,800                           | 3,760 | 3,295 | φ2,000×2           | 5.5×2       | 125×4                                       | 250×1                               | 80/80×1                           | 40/40×1  | 2,570                | 6,100                           |                            |
| CTA-320UFWS | 4,800                           | 3,760 | 3,295 | φ2,000×2           | 5.5×2       | 125×4                                       | 250×1                               | 80/80×1                           | 40/40×1  | 2,570                | 6,100                           |                            |
| CTA-340UFWS | 5,550                           | 3,360 | 3,295 | φ1,600×3           | 4.0×3       | 100×6                                       | 150×2                               | 65/65×2                           | 32/32×2  | 3,170                | 6,960                           |                            |
| CTA-360UFWS | 6,150                           | 3,460 | 3,295 | φ1,700×3           | 4.0×3       | 125×6                                       | 200×2                               | 65/65×2                           | 32/32×2  | 3,320                | 7,590                           |                            |
| CTA-375UFWS | 6,150                           | 3,460 | 3,295 | φ1,700×3           | 4.0×3       | 125×6                                       | 200×2                               | 65/65×2                           | 32/32×2  | 3,320                | 7,590                           | ⑤                          |
| CTA-405UFWS | 6,750                           | 3,660 | 3,295 | φ1,850×3           | 4.0×3       | 125×6                                       | 200×2                               | 65/65×2                           | 32/32×2  | 3,630                | 8,570                           |                            |
| CTA-420UFWS | 6,750                           | 3,660 | 3,295 | φ1,850×3           | 5.5×3       | 125×6                                       | 200×2                               | 65/65×2                           | 32/32×2  | 3,670                | 8,610                           |                            |
| CTA-450UFWS | 7,200                           | 3,760 | 3,295 | φ2,000×3           | 5.5×3       | 125×6                                       | 250×2                               | 80/80×2                           | 40/40×2  | 3,950                | 9,420                           |                            |
| CTA-480UFWS | 7,200                           | 3,760 | 3,295 | φ2,000×3           | 5.5×3       | 125×6                                       | 250×2                               | 80/80×2                           | 40/40×2  | 3,950                | 9,420                           |                            |
| CTA-510UFWS | 8,200                           | 3,460 | 3,295 | φ1,700×4           | 4.0×4       | 125×8                                       | 250×2                               | 80/80×2                           | 40/40×2  | 4,360                | 9,900                           |                            |
| CTA-540UFWS | 9,000                           | 3,660 | 3,295 | φ1,850×4           | 4.0×4       | 125×8                                       | 250×2                               | 80/80×2                           | 40/40×2  | 4,780                | 11,160                          | ⑥                          |
| CTA-560UFWS | 9,000                           | 3,660 | 3,295 | φ1,850×4           | 5.5×4       | 125×8                                       | 250×2                               | 80/80×2                           | 40/40×2  | 4,830                | 11,210                          |                            |
| CTA-600UFWS | 9,600                           | 3,760 | 3,295 | φ2,000×4           | 5.5×4       | 125×8                                       | 250×2                               | 80/80×2                           | 40/40×2  | 5,200                | 12,260                          |                            |
| CTA-640UFWS | 9,600                           | 3,760 | 3,295 | φ2,000×4           | 5.5×4       | 125×8                                       | 250×2                               | 80/80×2                           | 40/40×2  | 5,200                | 12,260                          |                            |
| CTA-680UFWS | 11,250                          | 3,660 | 3,295 | φ1,850×5           | 4.0×5       | 125×10                                      | 250×3                               | 80/80×3                           | 40/40×3  | 6,020                | 14,170                          | ⑥                          |
| CTA-720UFWS | 11,250                          | 3,660 | 3,295 | φ1,850×5           | 5.5×5       | 125×10                                      | 250×3                               | 80/80×3                           | 40/40×3  | 6,070                | 14,220                          |                            |

注) 输入口④为φ145(100A)和φ165(125A) Note: Inlet hole diameter in φ145(100A) and φ165(125A)



# UFWL 型 models

省电力，极低噪音型  
Power-saving, ultra-low operating noise type



## 标准规格 Standard specifications

| 机种<br>Model | 外形尺寸<br>Outside dimensions (mm) |       |       | 风机<br>Fan assembly<br>φD × 台数<br>φD × No. of units | 电机<br>Motor<br>kW × 台数<br>kW × No. of units | 管道直径A × 个数<br>Pipe diameters (A × No. of units) |                                      |                                 |   | 重量<br>Weight (kg)    |                                 | 图纸<br>编号<br>Drawing No. |
|-------------|---------------------------------|-------|-------|--|---|---|--------------------------------------|---------------------------------|---|----------------------|---------------------------------|-------------------------|
|             | W                               | L     | H     |  |   | 注) 循环水<br>输入管<br>Hot water<br>inlet             | ⑧ 循环水<br>输出管<br>Cold water<br>outlet | ⑨ 排水<br>溢流<br>Drain<br>Overflow | ⑩ 自动供水<br>手动供水<br>Automatic make-<br>up water / Manual<br>make-up water | 自重<br>Dead<br>weight | 运转<br>重量<br>Operating<br>weight |                         |
| CTA-60UFWL  | 1,750                           | 3,260 | 2,795 | φ1,500 × 1   | 1.5 × 1                                     | 100 × 2   | 125 × 1                              | 50/50 × 1                       | 25/25 × 1   | 920                  | 2,190                           | ①                       |
| CTA-70UFWL  | 1,850                           | 3,360 | 2,795 | φ1,600 × 1   | 1.5 × 1                                     | 100 × 2   | 150 × 1                              | 65/65 × 1                       | 32/32 × 1   | 990                  | 2,360                           |                         |
| CTA-80UFWL  | 2,050                           | 3,460 | 2,795 | φ1,700 × 1   | 1.5 × 1                                     | 100 × 2   | 150 × 1                              | 65/65 × 1                       | 32/32 × 1   | 1,030                | 2,560                           |                         |
| CTA-90UFWL  | 2,050                           | 3,460 | 2,795 | φ1,700 × 1   | 2.2 × 1                                     | 100 × 2   | 150 × 1                              | 65/65 × 1                       | 32/32 × 1   | 1,040                | 2,570                           |                         |
| CTA-100UFWL | 2,050                           | 3,460 | 3,295 | φ1,700 × 1   | 2.2 × 1                                     | 125 × 2   | 150 × 1                              | 65/65 × 1                       | 32/32 × 1   | 1,120                | 2,650                           | ②                       |
| CTA-110UFWL | 2,050                           | 3,460 | 3,295 | φ1,700 × 1   | 4.0 × 1                                     | 125 × 2   | 150 × 1                              | 65/65 × 1                       | 32/32 × 1   | 1,140                | 2,670                           |                         |
| CTA-120UFWL | 2,250                           | 3,660 | 3,295 | φ1,850 × 1   | 4.0 × 1                                     | 125 × 2   | 200 × 1                              | 65/65 × 1                       | 32/32 × 1   | 1,250                | 3,010                           |                         |
| CTA-130UFWL | 2,250                           | 3,660 | 3,295 | φ1,850 × 1   | 4.0 × 1                                     | 125 × 2   | 200 × 1                              | 65/65 × 1                       | 32/32 × 1   | 1,250                | 3,010                           |                         |
| CTA-140UFWL | 2,400                           | 3,760 | 3,295 | φ2,000 × 1   | 4.0 × 1                                     | 125 × 2   | 200 × 1                              | 65/65 × 1                       | 32/32 × 1   | 1,330                | 3,260                           | ③                       |
| CTA-150UFWL | 3,500                           | 3,260 | 3,295 | φ1,500 × 2   | 1.5 × 2                                     | 100 × 4   | 200 × 1                              | 65/65 × 1                       | 32/32 × 1   | 1,920                | 4,160                           |                         |
| CTA-160UFWL | 3,500                           | 3,260 | 3,295 | φ1,500 × 2   | 1.5 × 2                                     | 100 × 4   | 200 × 1                              | 65/65 × 1                       | 32/32 × 1   | 1,920                | 4,160                           |                         |
| CTA-170UFWL | 3,700                           | 3,360 | 3,295 | φ1,600 × 2   | 1.5 × 2                                     | 100 × 4   | 200 × 1                              | 65/65 × 1                       | 32/32 × 1   | 2,060                | 4,500                           |                         |
| CTA-180UFWL | 3,700                           | 3,360 | 3,295 | φ1,600 × 2   | 2.2 × 2                                     | 100 × 4   | 200 × 1                              | 65/65 × 1                       | 32/32 × 1   | 2,080                | 4,520                           | ④                       |
| CTA-200UFWL | 4,100                           | 3,460 | 3,295 | φ1,700 × 2   | 2.2 × 2                                     | 125 × 4   | 250 × 1                              | 80/80 × 1                       | 40/40 × 1   | 2,160                | 4,930                           |                         |
| CTA-225UFWL | 4,100                           | 3,460 | 3,295 | φ1,700 × 2   | 4.0 × 2                                     | 125 × 4   | 250 × 1                              | 80/80 × 1                       | 40/40 × 1   | 2,190                | 4,960                           |                         |
| CTA-250UFWL | 4,500                           | 3,660 | 3,295 | φ1,850 × 2   | 4.0 × 2                                     | 125 × 4   | 250 × 1                              | 80/80 × 1                       | 40/40 × 1   | 2,400                | 5,590                           |                         |
| CTA-265UFWL | 4,500                           | 3,660 | 3,295 | φ1,850 × 2   | 4.0 × 2                                     | 125 × 4   | 250 × 1                              | 80/80 × 1                       | 40/40 × 1   | 2,400                | 5,590                           | ⑤                       |
| CTA-280UFWL | 4,800                           | 3,760 | 3,295 | φ2,000 × 2   | 4.0 × 2                                     | 125 × 4   | 250 × 1                              | 80/80 × 1                       | 40/40 × 1   | 2,570                | 6,100                           |                         |
| CTA-300UFWL | 6,150                           | 3,460 | 3,295 | φ1,700 × 3   | 2.2 × 3                                     | 125 × 6   | 200 × 2                              | 65/65 × 2                       | 32/32 × 2   | 3,240                | 7,510                           |                         |
| CTA-320UFWL | 6,150                           | 3,460 | 3,295 | φ1,700 × 3   | 4.0 × 3                                     | 125 × 6   | 200 × 2                              | 65/65 × 2                       | 32/32 × 2   | 3,280                | 7,550                           |                         |
| CTA-340UFWL | 6,750                           | 3,660 | 3,295 | φ1,850 × 3   | 2.2 × 3                                     | 125 × 6   | 200 × 2                              | 65/65 × 2                       | 32/32 × 2   | 3,590                | 8,530                           | ⑥                       |
| CTA-360UFWL | 6,750                           | 3,660 | 3,295 | φ1,850 × 3   | 4.0 × 3                                     | 125 × 6   | 200 × 2                              | 65/65 × 2                       | 32/32 × 2   | 3,630                | 8,570                           |                         |
| CTA-375UFWL | 6,750                           | 3,660 | 3,295 | φ1,850 × 3   | 4.0 × 3                                     | 125 × 6   | 200 × 2                              | 65/65 × 2                       | 32/32 × 2   | 3,630                | 8,570                           |                         |
| CTA-405UFWL | 7,200                           | 3,760 | 3,295 | φ2,000 × 3   | 4.0 × 3                                     | 125 × 6   | 250 × 2                              | 80/80 × 2                       | 40/40 × 2   | 3,880                | 9,350                           |                         |
| CTA-420UFWL | 7,200                           | 3,760 | 3,295 | φ2,000 × 3   | 4.0 × 3                                     | 125 × 6   | 250 × 2                              | 80/80 × 2                       | 40/40 × 2   | 3,880                | 9,350                           | ⑦                       |
| CTA-450UFWL | 8,200                           | 3,460 | 3,295 | φ1,700 × 4   | 4.0 × 4                                     | 125 × 8   | 250 × 2                              | 80/80 × 2                       | 40/40 × 2   | 4,310                | 9,850                           |                         |
| CTA-480UFWL | 9,000                           | 3,660 | 3,295 | φ1,850 × 4   | 4.0 × 4                                     | 125 × 8   | 250 × 2                              | 80/80 × 2                       | 40/40 × 2   | 4,780                | 11,160                          |                         |
| CTA-510UFWL | 9,000                           | 3,660 | 3,295 | φ1,850 × 4   | 4.0 × 4                                     | 125 × 8   | 250 × 2                              | 80/80 × 2                       | 40/40 × 2   | 4,780                | 11,160                          |                         |
| CTA-540UFWL | 9,600                           | 3,760 | 3,295 | φ2,000 × 4   | 4.0 × 4                                     | 125 × 8   | 250 × 2                              | 80/80 × 2                       | 40/40 × 2   | 5,120                | 12,180                          | ⑧                       |
| CTA-560UFWL | 9,600                           | 3,760 | 3,295 | φ2,000 × 4   | 4.0 × 4                                     | 125 × 8   | 250 × 2                              | 80/80 × 2                       | 40/40 × 2   | 5,120                | 12,180                          |                         |
| CTA-600UFWL | 11,250                          | 3,660 | 3,295 | φ1,850 × 5   | 4.0 × 5                                     | 125 × 10  | 250 × 3                              | 80/80 × 3                       | 40/40 × 3   | 6,020                | 14,170                          |                         |
| CTA-640UFWL | 11,250                          | 3,660 | 3,295 | φ1,850 × 5   | 4.0 × 5                                     | 125 × 10  | 250 × 3                              | 80/80 × 3                       | 40/40 × 3   | 6,020                | 14,170                          |                         |
| CTA-680UFWL | 12,000                          | 3,760 | 3,295 | φ2,000 × 5   | 4.0 × 5                                     | 125 × 10  | 250 × 3                              | 80/80 × 3                       | 40/40 × 3   | 6,430                | 15,430                          | ⑨                       |
| CTA-720UFWL | 12,000                          | 3,760 | 3,295 | φ2,000 × 5   | 4.0 × 5                                     | 125 × 10  | 250 × 3                              | 80/80 × 3                       | 40/40 × 3   | 6,430                | 15,430                          |                         |

注) 输入口⑩为φ145(100A)和φ165(125A) Note: Inlet hole diameter in φ145(100A) and φ165(125A)



# 冷却塔的机种选定一览表

## Selection chart of cooling tower models

### UFW/UFWS/UFWL型

### UFW/UFWS/UFWL models

注意) 如果温度条件大于或小于下表所示的要求时, 请立刻与敝公司联系。

Note: If your temperature ranges is other than those given in the table below, contact us.

单位: 立方米/小时 Unit: m<sup>3</sup>/HR

| 外部环境湿球温度 ①  | 26  |     |      |      |      |     |     |     |     |     |
|-------------|-----|-----|------|------|------|-----|-----|-----|-----|-----|
| 进口水温度 摄氏度 ② | 35  | 37  | 37.5 | 37.6 | 37.7 | 38  | 39  | 40  | 42  | 45  |
| 出口水温度 摄氏度 ③ | 30  | 32  | 32   | 32   | 32   | 32  | 32  | 32  | 32  | 32  |
| 温度差 摄氏度 ④   | 5   | 5   | 5.5  | 5.6  | 5.7  | 6   | 7   | 8   | 10  | 13  |
| CTA- 60     | 51  | 72  | 68   | 67   | 66   | 64  | 58  | 54  | 47  | 41  |
| CTA- 70     | 59  | 84  | 79   | 78   | 78   | 75  | 68  | 63  | 55  | 47  |
| CTA- 80     | 68  | 97  | 91   | 90   | 89   | 86  | 78  | 72  | 63  | 54  |
| CTA- 90     | 77  | 109 | 102  | 101  | 100  | 97  | 88  | 81  | 71  | 61  |
| CTA-100     | 85  | 121 | 114  | 112  | 111  | 107 | 97  | 90  | 79  | 68  |
| CTA-110     | 94  | 133 | 125  | 124  | 122  | 118 | 107 | 99  | 87  | 75  |
| CTA-120     | 102 | 145 | 136  | 135  | 133  | 129 | 117 | 108 | 94  | 82  |
| CTA-130     | 111 | 157 | 148  | 146  | 144  | 140 | 127 | 117 | 102 | 89  |
| CTA-140     | 119 | 169 | 159  | 157  | 156  | 151 | 137 | 126 | 110 | 95  |
| CTA-150     | 128 | 181 | 171  | 169  | 167  | 161 | 146 | 135 | 118 | 102 |
| CTA-160     | 137 | 188 | 182  | 180  | 178  | 172 | 156 | 144 | 126 | 109 |
| CTA-170     | 145 | 201 | 193  | 191  | 189  | 183 | 166 | 153 | 134 | 116 |
| CTA-180     | 154 | 201 | 201  | 201  | 200  | 194 | 176 | 162 | 142 | 123 |
| CTA-200     | 171 | 242 | 228  | 225  | 222  | 215 | 195 | 180 | 158 | 137 |
| CTA-225     | 192 | 272 | 256  | 253  | 250  | 242 | 220 | 203 | 177 | 154 |
| CTA-250     | 214 | 292 | 285  | 281  | 278  | 269 | 244 | 225 | 197 | 171 |
| CTA-265     | 227 | 308 | 302  | 298  | 295  | 285 | 259 | 239 | 209 | 181 |
| CTA-280     | 239 | 339 | 319  | 315  | 312  | 302 | 274 | 252 | 221 | 191 |
| CTA-300     | 257 | 363 | 342  | 338  | 334  | 323 | 293 | 270 | 237 | 205 |
| CTA-320     | 274 | 376 | 364  | 360  | 356  | 345 | 313 | 288 | 253 | 219 |
| CTA-340     | 291 | 402 | 387  | 383  | 379  | 366 | 333 | 306 | 268 | 233 |
| CTA-360     | 308 | 402 | 402  | 402  | 401  | 388 | 352 | 324 | 284 | 246 |
| CTA-375     | 321 | 438 | 427  | 422  | 418  | 404 | 367 | 338 | 296 | 257 |
| CTA-405     | 347 | 462 | 461  | 456  | 451  | 437 | 396 | 365 | 320 | 277 |
| CTA-420     | 359 | 509 | 479  | 473  | 468  | 453 | 411 | 378 | 332 | 287 |
| CTA-450     | 385 | 545 | 513  | 507  | 501  | 485 | 440 | 406 | 355 | 308 |
| CTA-480     | 411 | 564 | 547  | 541  | 535  | 517 | 470 | 433 | 379 | 328 |
| CTA-510     | 437 | 603 | 581  | 575  | 568  | 550 | 499 | 460 | 403 | 349 |
| CTA-540     | 462 | 603 | 603  | 603  | 601  | 582 | 528 | 487 | 427 | 370 |
| CTA-560     | 479 | 679 | 638  | 631  | 624  | 604 | 548 | 505 | 442 | 383 |
| CTA-600     | 514 | 727 | 684  | 676  | 668  | 647 | 587 | 541 | 474 | 411 |
| CTA-640     | 548 | 752 | 729  | 721  | 713  | 690 | 626 | 577 | 506 | 438 |
| CTA-680     | 582 | 804 | 775  | 766  | 758  | 733 | 666 | 613 | 537 | 466 |
| CTA-720     | 616 | 804 | 804  | 804  | 802  | 766 | 705 | 649 | 569 | 493 |

单位: 立方米/小时 Unit: m<sup>3</sup>/HR

| 外部环境湿球温度 ①  | 27  |     |      |      |      |     |     |     |     |     |
|-------------|-----|-----|------|------|------|-----|-----|-----|-----|-----|
| 进口水温度 摄氏度 ② | 35  | 37  | 37.5 | 37.6 | 37.7 | 38  | 39  | 40  | 42  | 45  |
| 出口水温度 摄氏度 ③ | 30  | 32  | 32   | 32   | 32   | 32  | 32  | 32  | 32  | 32  |
| 温度差 摄氏度 ④   | 5   | 5   | 5.5  | 5.6  | 5.7  | 6   | 7   | 8   | 10  | 13  |
| CTA- 60     | 42  | 65  | 61   | 60   | 60   | 58  | 52  | 48  | 42  | 36  |
| CTA- 70     | 49  | 76  | 71   | 70   | 70   | 67  | 61  | 56  | 49  | 43  |
| CTA- 80     | 56  | 87  | 81   | 80   | 80   | 77  | 70  | 64  | 56  | 49  |
| CTA- 90     | 63  | 97  | 91   | 91   | 90   | 87  | 79  | 72  | 64  | 55  |
| CTA-100     | 70  | 108 | 102  | 101  | 100  | 96  | 87  | 81  | 71  | 61  |
| CTA-110     | 77  | 119 | 112  | 111  | 110  | 106 | 96  | 89  | 78  | 67  |
| CTA-120     | 85  | 130 | 122  | 121  | 120  | 116 | 105 | 97  | 85  | 73  |
| CTA-130     | 92  | 141 | 132  | 131  | 130  | 125 | 114 | 105 | 92  | 80  |
| CTA-140     | 99  | 152 | 142  | 141  | 140  | 135 | 123 | 113 | 99  | 86  |
| CTA-150     | 106 | 163 | 153  | 151  | 150  | 145 | 131 | 121 | 106 | 92  |
| CTA-160     | 113 | 174 | 163  | 161  | 160  | 154 | 140 | 129 | 113 | 98  |
| CTA-170     | 120 | 184 | 173  | 171  | 170  | 164 | 149 | 137 | 121 | 104 |
| CTA-180     | 127 | 195 | 183  | 182  | 180  | 174 | 158 | 145 | 128 | 111 |
| CTA-200     | 141 | 217 | 204  | 202  | 200  | 193 | 175 | 162 | 142 | 123 |
| CTA-225     | 159 | 244 | 229  | 227  | 225  | 217 | 197 | 182 | 160 | 138 |
| CTA-250     | 177 | 271 | 255  | 252  | 250  | 241 | 219 | 202 | 178 | 154 |
| CTA-265     | 187 | 288 | 270  | 267  | 265  | 256 | 232 | 214 | 188 | 163 |
| CTA-280     | 198 | 304 | 285  | 283  | 280  | 271 | 246 | 226 | 199 | 172 |
| CTA-300     | 212 | 326 | 306  | 303  | 300  | 290 | 263 | 243 | 213 | 184 |
| CTA-320     | 226 | 348 | 326  | 323  | 320  | 309 | 281 | 259 | 227 | 197 |
| CTA-340     | 240 | 369 | 346  | 343  | 340  | 329 | 298 | 275 | 242 | 209 |
| CTA-360     | 255 | 391 | 367  | 364  | 360  | 348 | 316 | 291 | 256 | 221 |
| CTA-375     | 265 | 407 | 382  | 379  | 375  | 362 | 329 | 303 | 267 | 231 |
| CTA-405     | 286 | 440 | 413  | 409  | 405  | 391 | 355 | 328 | 288 | 249 |
| CTA-420     | 297 | 456 | 428  | 424  | 420  | 406 | 369 | 340 | 299 | 258 |
| CTA-450     | 318 | 489 | 459  | 455  | 450  | 435 | 395 | 364 | 320 | 277 |
| CTA-480     | 340 | 522 | 489  | 485  | 480  | 464 | 421 | 388 | 341 | 295 |
| CTA-510     | 361 | 554 | 520  | 515  | 510  | 493 | 448 | 413 | 363 | 314 |
| CTA-540     | 382 | 587 | 550  | 546  | 540  | 522 | 474 | 437 | 384 | 332 |
| CTA-560     | 396 | 609 | 571  | 566  | 560  | 542 | 492 | 453 | 398 | 345 |
| CTA-600     | 425 | 652 | 612  | 606  | 600  | 580 | 527 | 486 | 427 | 369 |
| CTA-640     | 453 | 696 | 652  | 646  | 640  | 619 | 562 | 518 | 455 | 394 |
| CTA-680     | 481 | 739 | 693  | 687  | 680  | 658 | 597 | 550 | 484 | 419 |
| CTA-720     | 510 | 783 | 734  | 728  | 720  | 696 | 632 | 583 | 512 | 443 |

①: Ambient wet-bulb temperature (°C) ②: Inlet water temperature (°C) ③: Outlet water temperature (°C) ④: Range (°C)



# 冷却塔的机种选定一览表

## Selection chart of cooling tower models

### UFW/UFWS/UFWL型

### UFW/UFWS/UFWL models

注意) 如果温度条件大于或小于下表所示的要求时, 请立刻与敝公司联系。

Note: If your temperature ranges is other than those given in the table below, contact us.

单位: 立方米/小时 Unit: m<sup>3</sup>/HR

| 外部环境湿球温度 ①  | 28  |     |      |      |      |     |     |     |     |     |
|-------------|-----|-----|------|------|------|-----|-----|-----|-----|-----|
| 进口水温度 摄氏度 ② | 36  | 37  | 37.5 | 37.6 | 37.7 | 38  | 39  | 40  | 42  | 45  |
| 出口水温度 摄氏度 ③ | 31  | 32  | 32   | 32   | 32   | 32  | 32  | 32  | 32  | 32  |
| 温度差 摄氏度 ④   | 5   | 5   | 5.5  | 5.6  | 5.7  | 6   | 7   | 8   | 10  | 13  |
| CTA- 60     | 44  | 56  | 53   | 52   | 52   | 50  | 46  | 42  | 37  | 32  |
| CTA- 70     | 52  | 66  | 62   | 61   | 61   | 59  | 53  | 49  | 43  | 37  |
| CTA- 80     | 59  | 75  | 71   | 70   | 69   | 67  | 61  | 56  | 49  | 43  |
| CTA- 90     | 67  | 85  | 80   | 79   | 78   | 75  | 69  | 63  | 55  | 48  |
| CTA-100     | 74  | 94  | 89   | 88   | 87   | 84  | 76  | 70  | 62  | 53  |
| CTA-110     | 82  | 104 | 98   | 97   | 95   | 92  | 84  | 77  | 68  | 59  |
| CTA-120     | 89  | 113 | 107  | 105  | 104  | 101 | 92  | 84  | 74  | 64  |
| CTA-130     | 97  | 123 | 115  | 114  | 113  | 109 | 99  | 91  | 80  | 70  |
| CTA-140     | 104 | 132 | 124  | 123  | 122  | 118 | 107 | 99  | 86  | 75  |
| CTA-150     | 112 | 142 | 133  | 132  | 130  | 126 | 115 | 106 | 93  | 80  |
| CTA-160     | 119 | 151 | 142  | 141  | 139  | 135 | 122 | 113 | 99  | 86  |
| CTA-170     | 127 | 161 | 151  | 149  | 148  | 143 | 130 | 120 | 105 | 91  |
| CTA-180     | 134 | 170 | 160  | 158  | 156  | 151 | 138 | 127 | 111 | 97  |
| CTA-200     | 149 | 189 | 178  | 176  | 174  | 168 | 153 | 141 | 124 | 107 |
| CTA-225     | 168 | 213 | 220  | 198  | 196  | 189 | 172 | 159 | 139 | 121 |
| CTA-250     | 187 | 237 | 223  | 220  | 218  | 211 | 191 | 176 | 155 | 134 |
| CTA-265     | 198 | 251 | 236  | 233  | 231  | 223 | 203 | 187 | 164 | 143 |
| CTA-280     | 209 | 265 | 249  | 246  | 244  | 236 | 214 | 198 | 173 | 150 |
| CTA-300     | 224 | 284 | 267  | 264  | 261  | 253 | 230 | 212 | 186 | 161 |
| CTA-320     | 239 | 303 | 285  | 282  | 279  | 270 | 245 | 226 | 198 | 172 |
| CTA-340     | 254 | 322 | 303  | 299  | 296  | 287 | 260 | 240 | 211 | 183 |
| CTA-360     | 269 | 341 | 321  | 317  | 313  | 303 | 276 | 254 | 223 | 194 |
| CTA-375     | 280 | 355 | 334  | 330  | 327  | 316 | 287 | 265 | 232 | 202 |
| CTA-405     | 303 | 384 | 361  | 357  | 353  | 341 | 310 | 286 | 251 | 218 |
| CTA-420     | 314 | 398 | 374  | 370  | 366  | 354 | 322 | 297 | 260 | 226 |
| CTA-450     | 336 | 426 | 401  | 396  | 392  | 374 | 345 | 318 | 279 | 242 |
| CTA-480     | 359 | 455 | 428  | 423  | 418  | 405 | 368 | 339 | 298 | 258 |
| CTA-510     | 381 | 483 | 455  | 449  | 444  | 430 | 391 | 360 | 316 | 274 |
| CTA-540     | 404 | 512 | 481  | 476  | 470  | 455 | 414 | 381 | 335 | 291 |
| CTA-560     | 419 | 531 | 499  | 493  | 488  | 472 | 429 | 396 | 347 | 301 |
| CTA-600     | 449 | 569 | 535  | 529  | 523  | 506 | 460 | 424 | 372 | 323 |
| CTA-640     | 479 | 607 | 571  | 564  | 558  | 540 | 490 | 452 | 397 | 344 |
| CTA-680     | 509 | 644 | 606  | 599  | 593  | 574 | 521 | 480 | 422 | 366 |
| CTA-720     | 539 | 682 | 642  | 635  | 627  | 607 | 552 | 509 | 447 | 388 |

单位: 立方米/小时 Unit: m<sup>3</sup>/HR

| 外部环境湿球温度 ①  | 29  |     |      |      |      |     |     |     |     |     |
|-------------|-----|-----|------|------|------|-----|-----|-----|-----|-----|
| 进口水温度 摄氏度 ② | 37  | 39  | 37.5 | 37.6 | 37.7 | 38  | 39  | 40  | 42  | 45  |
| 出口水温度 摄氏度 ③ | 32  | 34  | 32   | 32   | 32   | 32  | 32  | 32  | 32  | 32  |
| 温度差 摄氏度 ④   | 5   | 5   | 5.5  | 5.6  | 5.7  | 6   | 7   | 8   | 10  | 13  |
| CTA- 60     | 47  | 71  | 44   | 44   | 43   | 42  | 38  | 35  | 31  | 26  |
| CTA- 70     | 55  | 83  | 52   | 51   | 50   | 49  | 44  | 41  | 36  | 31  |
| CTA- 80     | 63  | 95  | 59   | 58   | 58   | 56  | 51  | 47  | 41  | 35  |
| CTA- 90     | 71  | 107 | 66   | 66   | 65   | 63  | 57  | 53  | 46  | 40  |
| CTA-100     | 79  | 119 | 74   | 73   | 72   | 70  | 64  | 59  | 51  | 44  |
| CTA-110     | 87  | 131 | 81   | 80   | 80   | 77  | 70  | 64  | 57  | 49  |
| CTA-120     | 94  | 143 | 89   | 88   | 87   | 84  | 76  | 70  | 62  | 53  |
| CTA-130     | 102 | 155 | 96   | 95   | 94   | 91  | 83  | 76  | 67  | 58  |
| CTA-140     | 110 | 167 | 104  | 103  | 101  | 98  | 89  | 82  | 72  | 62  |
| CTA-150     | 118 | 179 | 111  | 110  | 109  | 105 | 96  | 88  | 77  | 67  |
| CTA-160     | 126 | 188 | 119  | 117  | 116  | 112 | 102 | 94  | 82  | 71  |
| CTA-170     | 134 | 201 | 126  | 125  | 123  | 119 | 108 | 100 | 88  | 76  |
| CTA-180     | 142 | 201 | 133  | 132  | 130  | 126 | 115 | 106 | 93  | 80  |
| CTA-200     | 158 | 238 | 148  | 147  | 145  | 140 | 128 | 118 | 103 | 89  |
| CTA-225     | 177 | 268 | 167  | 165  | 163  | 158 | 144 | 132 | 116 | 101 |
| CTA-250     | 197 | 292 | 186  | 183  | 181  | 176 | 160 | 147 | 129 | 112 |
| CTA-265     | 209 | 308 | 197  | 194  | 192  | 186 | 169 | 156 | 137 | 119 |
| CTA-280     | 221 | 334 | 208  | 206  | 203  | 197 | 179 | 165 | 145 | 125 |
| CTA-300     | 237 | 358 | 223  | 220  | 218  | 211 | 192 | 177 | 155 | 134 |
| CTA-320     | 253 | 376 | 238  | 235  | 232  | 225 | 204 | 188 | 165 | 143 |
| CTA-340     | 268 | 402 | 253  | 250  | 247  | 239 | 217 | 200 | 176 | 152 |
| CTA-360     | 284 | 402 | 267  | 264  | 261  | 253 | 230 | 212 | 186 | 161 |
| CTA-375     | 296 | 438 | 279  | 275  | 272  | 264 | 240 | 221 | 194 | 168 |
| CTA-405     | 320 | 462 | 301  | 298  | 294  | 285 | 259 | 239 | 209 | 182 |
| CTA-420     | 332 | 501 | 312  | 309  | 305  | 295 | 268 | 247 | 217 | 188 |
| CTA-450     | 355 | 537 | 334  | 331  | 327  | 317 | 288 | 265 | 233 | 202 |
| CTA-480     | 379 | 564 | 357  | 353  | 349  | 338 | 307 | 283 | 248 | 215 |
| CTA-510     | 403 | 603 | 379  | 375  | 371  | 359 | 326 | 301 | 264 | 229 |
| CTA-540     | 427 | 603 | 401  | 397  | 392  | 380 | 345 | 318 | 279 | 242 |
| CTA-560     | 442 | 668 | 416  | 412  | 407  | 394 | 358 | 330 | 290 | 251 |
| CTA-600     | 474 | 716 | 446  | 441  | 436  | 422 | 384 | 354 | 311 | 269 |
| CTA-640     | 506 | 752 | 476  | 470  | 465  | 450 | 409 | 377 | 331 | 287 |
| CTA-680     | 537 | 804 | 506  | 500  | 494  | 479 | 435 | 401 | 352 | 305 |
| CTA-720     | 569 | 804 | 535  | 529  | 523  | 507 | 460 | 425 | 373 | 323 |



# 运转声音

## Operating noise level

W/L 方向 单位: 分贝(安倍)

Width/Longitudinal directions (Unit: dB (A))

### UFW 型 (低噪音型)

#### UFW models (low operating noise type)

| 机种<br>Models | 测定点<br>Measuring point     | ①         | ②         | ③         | ④         | ⑤   |
|--------------|----------------------------|-----------|-----------|-----------|-----------|---|
|              | 测定距离<br>Measuring distance | 2m        | 5m        | 10m       | 20m       | 出风口斜上<br>Diagonally above the fan<br>45° 1.5m |
| CTA- 60UFW   |                            | 59.0/59.0 | 55.5/51.5 | 51.5/46.5 | 45.0/39.5 | 65.0/65.0                                     |
| CTA- 70UFW   |                            | 61.0/57.0 | 57.5/53.5 | 53.5/48.5 | 47.0/41.5 | 66.0/66.0                                     |
| CTA- 80UFW   |                            | 59.0/55.5 | 56.5/52.0 | 52.0/47.0 | 45.5/40.0 | 65.5/65.5                                     |
| CTA- 90UFW   |                            | 62.0/58.0 | 59.0/54.5 | 54.5/49.5 | 48.0/42.5 | 68.0/68.0                                     |
| CTA-100UFW   |                            | 63.0/59.0 | 60.0/55.5 | 55.5/50.5 | 49.5/44.0 | 69.0/69.0                                     |
| CTA-110UFW   |                            | 63.0/59.0 | 60.0/55.5 | 55.5/50.5 | 49.5/44.0 | 69.0/69.0                                     |
| CTA-120UFW   |                            | 64.0/60.0 | 61.0/56.5 | 56.5/52.0 | 50.5/45.0 | 70.0/70.0                                     |
| CTA-130UFW   |                            | 65.0/61.0 | 62.0/57.5 | 57.5/53.0 | 51.5/46.0 | 71.0/71.0                                     |
| CTA-140UFW   |                            | 65.0/61.0 | 62.0/57.5 | 57.5/53.0 | 51.5/46.0 | 71.0/71.0                                     |
| CTA-150UFW   |                            | 65.0/61.0 | 62.0/57.5 | 58.0/53.0 | 51.5/46.5 | 71.0/71.0                                     |
| CTA-160UFW   |                            | 65.0/61.0 | 62.0/57.5 | 58.0/53.0 | 51.5/46.5 | 71.0/71.0                                     |
| CTA-170UFW   |                            | 65.0/61.0 | 62.0/58.0 | 58.0/53.0 | 51.5/46.5 | 71.0/71.0                                     |
| CTA-180UFW   |                            | 66.0/62.0 | 63.0/59.0 | 59.0/54.0 | 52.5/47.5 | 72.0/72.0                                     |
| CTA-200UFW   |                            | 64.0/58.0 | 61.0/54.5 | 56.5/50.0 | 50.0/43.5 | 70.0/68.0                                     |
| CTA-225UFW   |                            | 65.0/60.0 | 62.0/56.5 | 57.5/52.0 | 51.5/45.5 | 71.0/69.0                                     |
| CTA-250UFW   |                            | 66.0/61.0 | 63.0/57.5 | 58.5/53.0 | 52.5/46.5 | 72.0/70.0                                     |
| CTA-265UFW   |                            | 66.0/61.0 | 63.0/57.5 | 58.5/53.0 | 52.5/46.5 | 72.0/70.0                                     |
| CTA-280UFW   |                            | 68.0/63.0 | 65.0/59.5 | 60.5/55.0 | 54.5/48.5 | 74.0/72.0                                     |
| CTA-300UFW   |                            | 68.0/63.0 | 65.0/59.5 | 61.5/55.0 | 54.5/49.0 | 74.0/72.0                                     |
| CTA-320UFW   |                            | 68.0/63.0 | 65.0/59.5 | 61.0/55.0 | 54.5/49.0 | 74.0/72.0                                     |
| CTA-340UFW   |                            | 68.0/63.0 | 65.0/59.5 | 61.0/55.0 | 54.5/49.0 | 74.0/72.0                                     |
| CTA-360UFW   |                            | 69.0/64.0 | 66.0/60.5 | 62.0/56.0 | 55.5/50.0 | 75.0/73.0                                     |
| CTA-375UFW   |                            | 67.5/62.0 | 64.5/58.5 | 60.5/54.5 | 54.0/48.0 | 73.5/71.5                                     |
| CTA-405UFW   |                            | 67.5/62.0 | 64.5/58.5 | 60.5/54.5 | 54.0/48.0 | 73.5/71.5                                     |
| CTA-420UFW   |                            | 69.5/64.0 | 66.5/60.5 | 62.5/56.0 | 56.0/49.5 | 75.5/73.5                                     |
| CTA-450UFW   |                            | 69.5/64.0 | 66.5/60.5 | 62.5/56.5 | 56.5/49.5 | 75.5/73.5                                     |
| CTA-480UFW   |                            | 69.5/64.0 | 66.5/60.5 | 62.5/56.5 | 56.5/49.5 | 75.5/73.5                                     |
| CTA-510UFW   |                            | 69.5/64.0 | 66.5/60.5 | 62.5/56.0 | 56.5/50.0 | 75.5/73.5                                     |
| CTA-540UFW   |                            | 70.5/64.5 | 67.5/61.5 | 63.5/57.0 | 57.5/51.0 | 76.5/74.5                                     |
| CTA-560UFW   |                            | 70.5/64.5 | 67.5/61.0 | 63.5/57.0 | 57.5/50.0 | 76.5/74.5                                     |
| CTA-600UFW   |                            | 70.5/64.5 | 67.5/61.0 | 63.5/57.0 | 57.5/50.5 | 76.5/74.5                                     |
| CTA-640UFW   |                            | 70.5/64.5 | 67.5/61.0 | 63.5/57.0 | 57.5/50.5 | 76.5/74.5                                     |
| CTA-680UFW   |                            | 70.5/64.0 | 67.5/61.0 | 64.0/57.0 | 57.5/50.5 | 76.5/74.5                                     |
| CTA-720UFW   |                            | 71.5/65.0 | 68.5/62.0 | 65.0/58.0 | 58.5/51.5 | 77.5/75.5                                     |

### UFW S 型 (极低噪音型)

#### UFW S models (ultra-low operating noise type)

| 机种<br>Models | 测定点<br>Measuring point     | ①         | ②         | ③         | ④         | ⑤   |
|--------------|----------------------------|-----------|-----------|-----------|-----------|---|
|              | 测定距离<br>Measuring distance | 2m        | 5m        | 10m       | 20m       | 出风口斜上<br>Diagonally above the fan<br>45° 1.5m |
| CTA- 60UFW S |                            | 56.0/52.0 | 53.0/48.5 | 48.5/43.5 | 42.0/36.5 | 62.0/62.0                                     |
| CTA- 70UFW S |                            | 57.5/52.5 | 54.5/49.0 | 50.0/44.0 | 43.5/37.0 | 63.5/63.5                                     |
| CTA- 80UFW S |                            | 56.5/52.5 | 53.5/49.0 | 49.0/44.0 | 43.0/37.5 | 62.5/62.5                                     |
| CTA- 90UFW S |                            | 59.0/55.0 | 56.0/51.5 | 51.5/46.5 | 45.5/40.0 | 65.0/65.0                                     |
| CTA-100UFW S |                            | 60.0/56.0 | 57.0/52.5 | 52.5/48.0 | 46.5/41.0 | 66.0/66.0                                     |
| CTA-110UFW S |                            | 61.5/57.5 | 58.5/54.0 | 54.0/49.5 | 48.0/42.5 | 67.5/67.5                                     |
| CTA-120UFW S |                            | 61.5/57.5 | 58.5/54.0 | 54.0/49.5 | 48.0/42.5 | 67.5/67.5                                     |
| CTA-130UFW S |                            | 62.0/58.0 | 59.0/54.5 | 54.5/50.0 | 48.5/43.0 | 68.0/68.0                                     |
| CTA-140UFW S |                            | 62.5/58.5 | 59.5/55.0 | 55.5/50.5 | 49.0/44.0 | 68.5/68.5                                     |
| CTA-150UFW S |                            | 62.0/58.0 | 59.5/55.0 | 55.0/50.0 | 48.5/43.5 | 68.0/68.0                                     |
| CTA-160UFW S |                            | 63.0/59.0 | 60.0/56.0 | 56.0/51.0 | 49.5/44.5 | 69.0/69.0                                     |
| CTA-170UFW S |                            | 60.0/55.0 | 57.0/51.5 | 52.5/47.0 | 46.5/40.5 | 66.0/64.0                                     |
| CTA-180UFW S |                            | 61.5/56.5 | 58.0/53.0 | 54.0/48.5 | 48.0/42.0 | 67.5/65.5                                     |
| CTA-200UFW S |                            | 62.5/57.5 | 59.5/54.0 | 55.0/49.5 | 49.0/43.0 | 68.5/66.5                                     |
| CTA-225UFW S |                            | 64.5/59.5 | 61.5/56.0 | 57.0/51.5 | 51.0/45.0 | 70.5/68.5                                     |
| CTA-250UFW S |                            | 64.5/59.5 | 61.5/56.0 | 57.0/51.5 | 51.0/45.0 | 70.5/68.5                                     |
| CTA-265UFW S |                            | 65.5/60.5 | 62.5/57.0 | 58.0/52.5 | 52.0/46.0 | 71.5/69.5                                     |
| CTA-280UFW S |                            | 65.5/60.5 | 62.5/57.0 | 58.5/52.5 | 52.0/46.5 | 71.5/69.5                                     |
| CTA-300UFW S |                            | 65.0/60.0 | 62.0/56.5 | 58.0/52.0 | 51.5/46.0 | 71.0/69.0                                     |
| CTA-320UFW S |                            | 66.0/61.0 | 63.0/57.5 | 59.0/53.0 | 52.5/47.0 | 72.0/70.0                                     |
| CTA-340UFW S |                            | 66.0/60.5 | 63.0/57.0 | 59.0/52.5 | 52.5/46.5 | 72.0/70.0                                     |
| CTA-360UFW S |                            | 66.0/60.5 | 63.0/57.0 | 59.0/52.5 | 52.5/46.0 | 72.0/70.0                                     |
| CTA-375UFW S |                            | 67.0/61.5 | 64.0/58.0 | 60.0/53.5 | 53.5/47.0 | 73.0/71.0                                     |
| CTA-405UFW S |                            | 66.5/61.0 | 63.5/57.5 | 59.5/53.5 | 53.5/46.5 | 72.5/70.5                                     |
| CTA-420UFW S |                            | 67.0/61.5 | 64.8/58.0 | 60.0/54.0 | 54.0/47.0 | 73.0/71.0                                     |
| CTA-450UFW S |                            | 66.5/60.5 | 63.5/57.5 | 59.5/53.0 | 53.5/47.0 | 72.5/70.5                                     |
| CTA-480UFW S |                            | 67.5/61.5 | 64.5/58.5 | 60.5/54.0 | 54.5/48.0 | 73.5/71.5                                     |
| CTA-510UFW S |                            | 68.0/62.0 | 65.0/58.5 | 61.0/54.5 | 55.0/47.5 | 74.0/72.0                                     |
| CTA-540UFW S |                            | 67.5/61.5 | 64.5/58.0 | 60.5/54.0 | 54.5/47.5 | 73.5/71.5                                     |
| CTA-560UFW S |                            | 68.0/62.0 | 65.0/58.5 | 61.0/54.5 | 55.0/48.0 | 74.0/72.0                                     |
| CTA-600UFW S |                            | 67.5/61.0 | 64.5/58.0 | 61.0/54.0 | 54.5/47.5 | 73.5/71.5                                     |
| CTA-640UFW S |                            | 68.5/62.0 | 65.5/59.0 | 62.0/55.0 | 55.5/48.5 | 74.5/72.5                                     |
| CTA-680UFW S |                            | 68.0/61.5 | 65.5/58.5 | 61.5/54.5 | 55.5/47.5 | 74.0/72.0                                     |
| CTA-720UFW S |                            | 68.5/62.0 | 66.0/59.0 | 62.0/55.0 | 56.0/48.0 | 74.5/72.5                                     |



# 运转声音

## Operating noise level

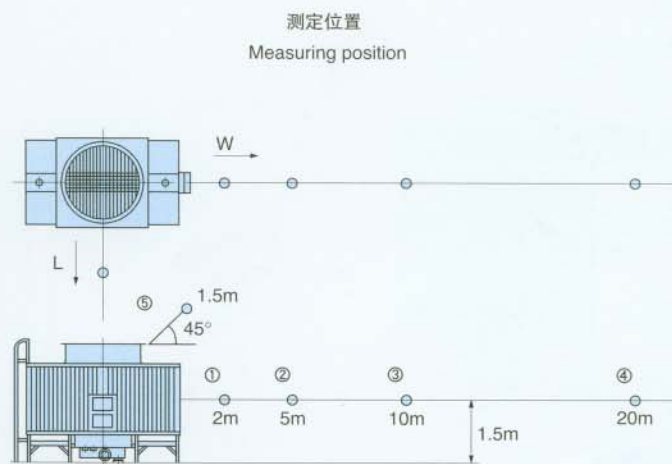
W/L 方向 单位: 分贝(安倍)

Width/Longitudinal directions (Unit: dB (A))

### UFWL 型 (省电力极低噪音型)

UFWL models (power-saving, ultra-low operating noise type)

| 机种<br>Models | 测定点<br>Measuring point |           | ③<br>10m  | ④<br>20m  | ⑤<br>出风口斜上<br>Diagonally<br>above the fan<br>45° 1.5m |
|--------------|------------------------|-----------|-----------|-----------|---|
|              | ①<br>2m                | ②<br>5m   |           |           |   |
| CTA-60UFWL   | 54.0/51.0              | 51.0/47.5 | 46.5/42.0 | 40.0/35.5 | 60.0/60.0   |
| CTA-70UFWL   | 55.5/51.5              | 52.5/48.0 | 48.0/43.0 | 42.0/36.5 | 61.5/61.5   |
| CTA-80UFWL   | 56.5/52.5              | 53.5/49.0 | 49.0/44.0 | 43.0/37.5 | 62.5/62.5   |
| CTA-90UFWL   | 58.0/54.0              | 55.0/50.5 | 50.5/46.5 | 44.5/39.5 | 64.0/64.0   |
| CTA-100UFWL  | 56.5/52.5              | 53.5/49.0 | 49.0/44.5 | 43.0/37.5 | 62.5/62.5   |
| CTA-110UFWL  | 57.0/53.0              | 54.0/49.5 | 49.5/45.0 | 43.5/38.0 | 63.0/63.0   |
| CTA-120UFWL  | 58.5/54.5              | 55.5/51.0 | 51.5/46.5 | 45.0/40.0 | 64.5/64.5   |
| CTA-130UFWL  | 59.0/55.0              | 56.0/51.5 | 52.0/47.0 | 45.5/40.5 | 65.0/65.0   |
| CTA-140UFWL  | 59.0/55.0              | 56.0/52.0 | 52.0/47.0 | 45.5/40.5 | 65.0/65.0   |
| CTA-150UFWL  | 56.0/51.0              | 53.0/47.5 | 48.5/43.0 | 42.5/36.5 | 62.0/60.0   |
| CTA-160UFWL  | 57.0/53.0              | 54.0/49.0 | 49.5/45.0 | 43.5/38.5 | 63.0/61.0   |
| CTA-170UFWL  | 58.0/53.0              | 55.0/49.5 | 50.5/45.0 | 44.5/38.5 | 64.0/62.0   |
| CTA-180UFWL  | 58.5/53.5              | 55.5/50.0 | 51.0/45.5 | 45.0/39.0 | 64.5/62.5   |
| CTA-200UFWL  | 59.5/54.5              | 56.5/51.0 | 52.0/46.5 | 46.0/40.0 | 65.5/63.5   |
| CTA-225UFWL  | 60.0/55.0              | 57.0/51.5 | 52.5/47.0 | 46.5/40.5 | 66.0/64.0   |
| CTA-250UFWL  | 61.5/56.5              | 58.5/53.0 | 54.5/48.5 | 48.0/42.5 | 67.5/65.5   |
| CTA-265UFWL  | 62.0/57.0              | 59.0/53.5 | 55.0/49.0 | 48.5/43.0 | 68.0/66.0   |
| CTA-280UFWL  | 62.0/57.0              | 59.0/53.5 | 55.0/49.0 | 48.5/43.0 | 68.0/66.0   |
| CTA-300UFWL  | 61.0/55.5              | 58.0/52.0 | 54.0/47.5 | 47.5/41.0 | 67.0/65.0   |
| CTA-320UFWL  | 61.5/56.0              | 58.5/52.5 | 54.5/48.0 | 48.0/41.5 | 67.5/65.5   |
| CTA-340UFWL  | 62.5/58.0              | 59.5/54.5 | 55.5/50.5 | 49.5/43.5 | 68.5/66.5   |
| CTA-360UFWL  | 63.0/57.5              | 60.0/54.0 | 56.0/50.0 | 50.0/43.0 | 69.0/67.0   |
| CTA-375UFWL  | 63.5/58.0              | 60.5/54.5 | 56.5/50.5 | 50.5/43.5 | 69.5/67.5   |
| CTA-405UFWL  | 63.5/57.5              | 60.5/54.5 | 56.5/50.0 | 50.5/44.0 | 69.5/67.5   |
| CTA-420UFWL  | 63.5/57.5              | 60.5/54.5 | 56.5/50.0 | 50.5/44.0 | 69.5/67.5   |
| CTA-450UFWL  | 62.5/56.5              | 59.5/53.0 | 55.5/49.0 | 49.5/42.0 | 68.5/66.5   |
| CTA-480UFWL  | 64.0/58.0              | 61.0/54.5 | 57.0/50.5 | 51.0/44.0 | 70.0/68.0   |
| CTA-510UFWL  | 64.5/58.5              | 61.5/55.0 | 57.5/51.0 | 51.5/44.5 | 70.5/68.5   |
| CTA-540UFWL  | 64.5/58.0              | 61.5/55.0 | 58.0/51.0 | 51.5/44.5 | 70.5/68.5   |
| CTA-560UFWL  | 64.5/58.0              | 61.5/55.0 | 58.0/51.0 | 51.5/44.5 | 70.5/68.5   |
| CTA-600UFWL  | 64.5/58.0              | 62.0/55.0 | 58.0/51.0 | 52.0/44.0 | 70.5/68.5   |
| CTA-640UFWL  | 65.0/58.5              | 62.5/55.5 | 58.5/51.5 | 52.5/44.5 | 71.0/69.0   |
| CTA-680UFWL  | 65.0/58.5              | 62.5/55.5 | 58.5/51.0 | 52.5/45.0 | 71.0/69.0   |
| CTA-720UFWL  | 65.0/58.5              | 62.5/55.5 | 58.5/51.0 | 52.5/45.0 | 71.0/69.0   |

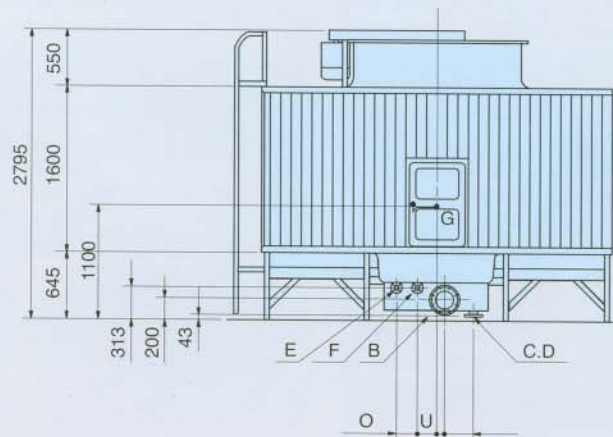
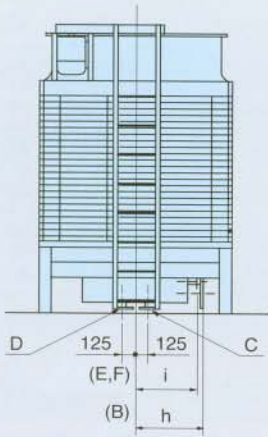
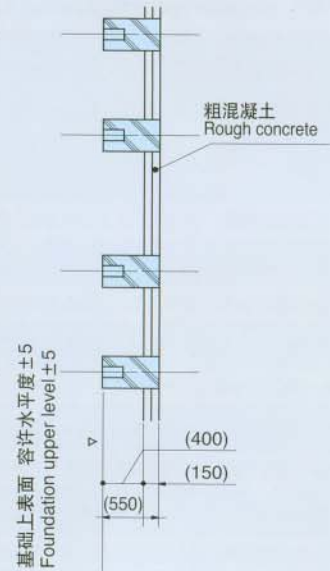
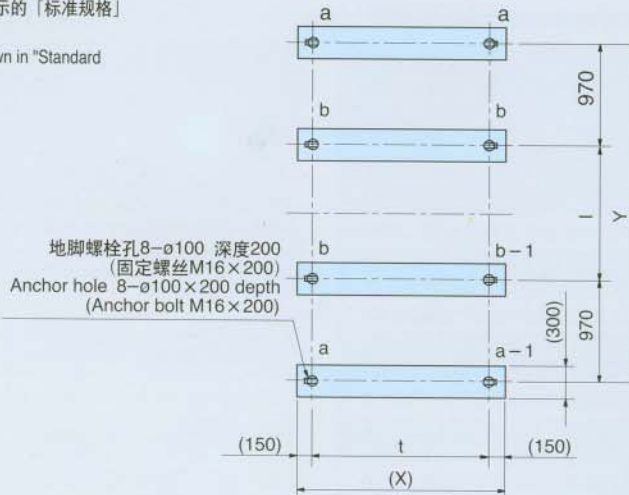
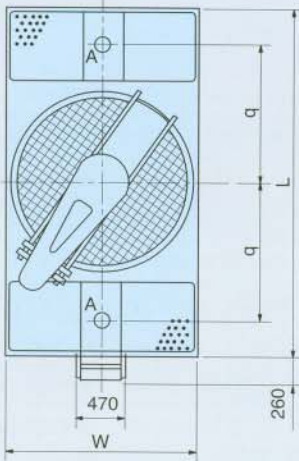




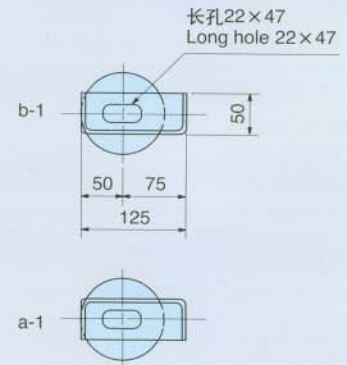
| 标记 Symbol | 配管名称 Name of pipe            |
|-----------|------------------------------|
| A         | 循环水输入口 Hot water inlet hole  |
| B         | 循环水输出管 Cold water outlet     |
| C         | 排水 Drain                     |
| D         | 溢流 Overflow                  |
| E         | 自动供水 Automatic make-up water |
| F         | 手动供水 Manual make-up water    |

注) 关于各配管的孔径与数量, 请参见前面所示的「标准规格」之项。

Note) Pipe diameters and No. of units are as shown in "Standard specifications" in preceding page.



冷却塔支脚形状  
Details of fixing point



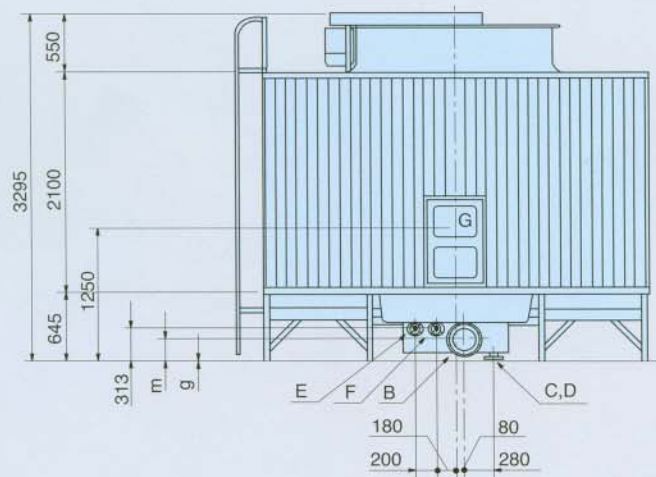
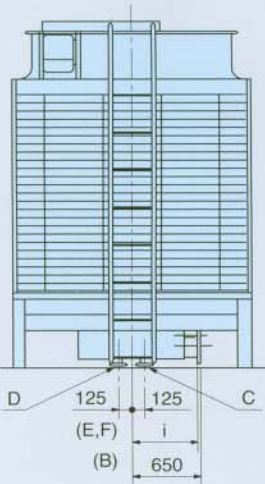
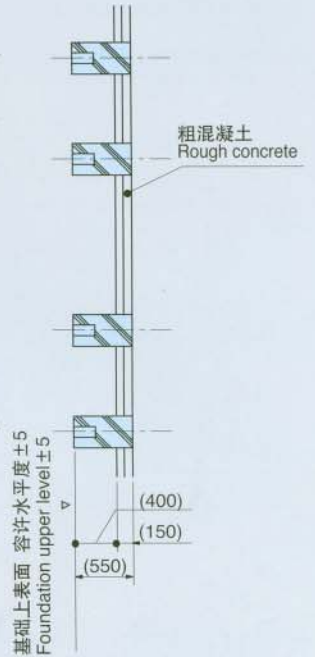
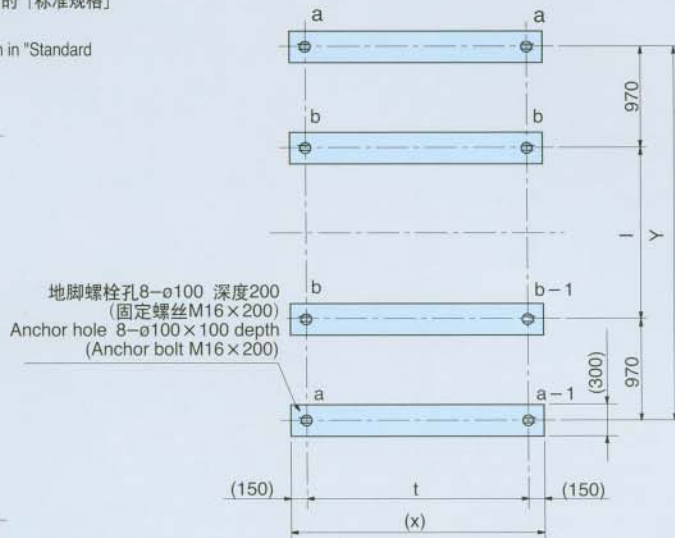
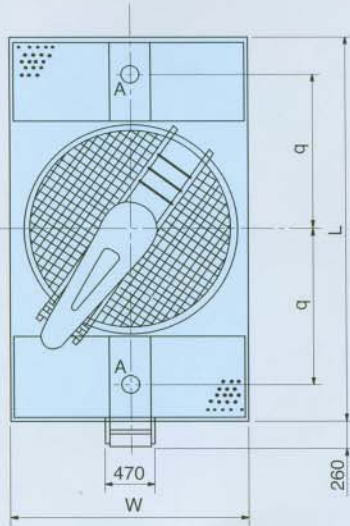
| 机种<br>Model |      |      | 尺寸<br>Dimensions (mm) |      |      |     |     |     |     |    |     | 基础尺寸<br>Foundation dimensions (mm) |      |      |      | 承载数据<br>(长期承载重量: 吨)<br>Loading data<br>(sustained loading: ton) |      |
|-------------|------|------|-----------------------|------|------|-----|-----|-----|-----|----|-----|------------------------------------|------|------|------|---|------|
| UFW         | UFWS | UFWL | W                     | L    | q    | h   | i   | o   | u   | v  | w   | X                                  | Y    | t    | l    | a   | b    |
| 60          |      |      | 1450                  | 3060 | 1185 | 590 | 540 | 150 | 150 | 60 | 240 | 1600                               | 2970 | 1300 | 1030 | 0.18  | 0.35 |
| 80          | 60   | 60   | 1750                  | 3260 | 1285 | 590 | 540 | 150 | 150 | 60 | 240 | 1900                               | 3170 | 1600 | 1230 | 0.22  | 0.42 |
| 100         | 80   | 70   | 1850                  | 3360 | 1335 | 650 | 600 | 200 | 180 | 80 | 280 | 2000                               | 3270 | 1700 | 1330 | 0.24  | 0.45 |
| 120         | 100  | 80   | 2050                  | 3460 | 1385 | 650 | 600 | 200 | 180 | 80 | 280 | 2200                               | 3370 | 1900 | 1430 | 0.28  | 0.50 |
| 130         | 110  | 90   |                       |      |      |     |     |     |     |    |     |                                    |      |      |      |   |      |



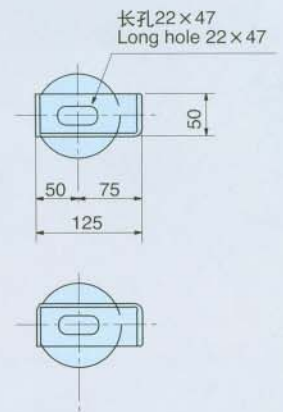
| 标记 Symbol | 配管名称 Name of pipe            |
|-----------|------------------------------|
| A         | 循环水输入口 Hot water inlet hole  |
| B         | 循环水输出管 Cold water outlet     |
| C         | 排水 Drain                     |
| D         | 溢流 Overflow                  |
| E         | 自动供水 Automatic make-up water |
| F         | 手动供水 Manual make-up water    |

注) 关于各配管的孔径与数量, 请参见前面所示的「标准规格」之项。

Note) Pipe diameters and No. of units are as shown in "Standard specifications" in preceding page.



冷却塔支脚形状  
Details of fixing point

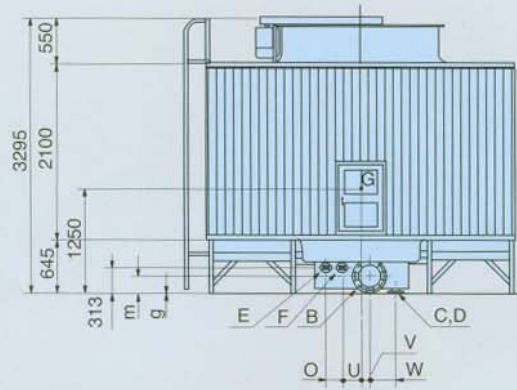
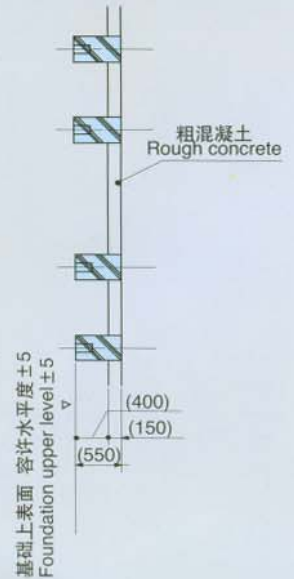
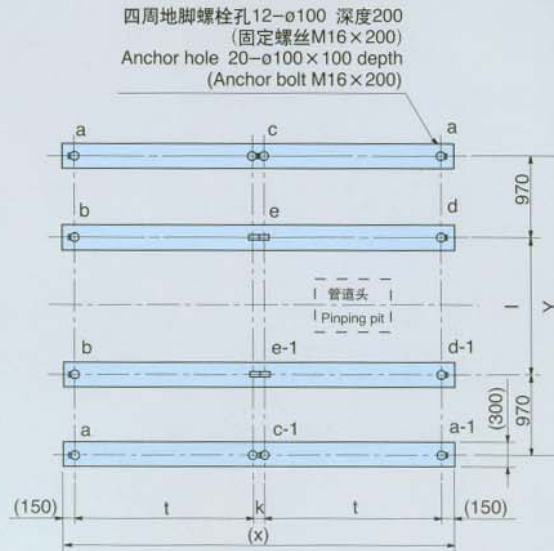
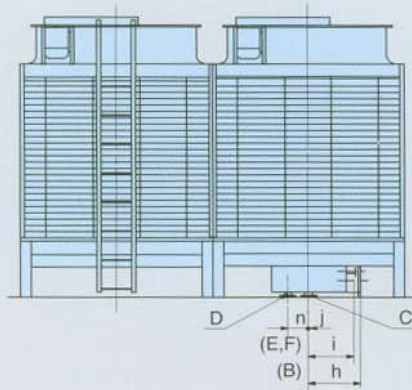
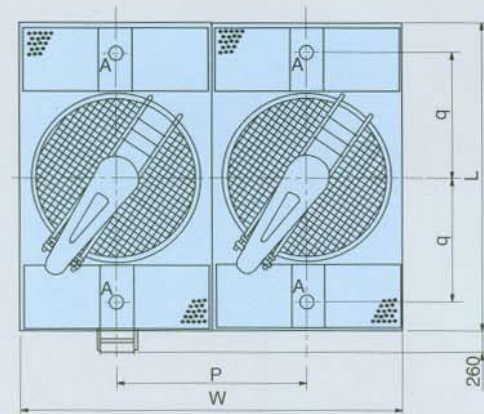


| 机种<br>Model |            |            | 尺寸<br>Dimensions (mm) |      |      |     |    |     | 基础尺寸<br>Foundation dimensions (mm) |      |      |      | 承载数据<br>(长期承载重量: 吨)<br>Loading data<br>(sustained loading: ton) |      |
|-------------|------------|------------|-----------------------|------|------|-----|----|-----|------------------------------------|------|------|------|---|------|
| UFW         | UFWS       | UFWL       | W                     | L    | q    | m   | g  | i   | X                                  | Y    | t    | l    | a   | b    |
| 140         | 120<br>130 | 100<br>110 | 2050                  | 3460 | 1385 | 200 | 43 | 600 | 2200                               | 3370 | 1900 | 1430 | 0.28  | 0.50 |
| 150<br>160  | 140<br>130 | 120<br>130 | 2250                  | 3660 | 1485 | 210 | 23 | 620 | 2400                               | 3570 | 2100 | 1630 | 0.32  | 0.57 |
| 170<br>180  | 150<br>160 | 140        | 2400                  | 3760 | 1535 | 210 | 23 | 620 | 2500                               | 3670 | 2200 | 1730 | 0.35  | 0.61 |

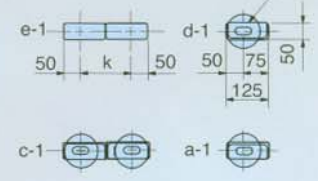


| 标记 Symbol | 配管名称 Name of pipe            |
|-----------|------------------------------|
| A         | 循环水输入口 Hot water inlet hole  |
| B         | 循环水输出管 Cold water outlet     |
| C         | 排水 Drain                     |
| D         | 溢流 Overflow                  |
| E         | 自动供水 Automatic make-up water |
| F         | 手动供水 Manual make-up water    |

注) 关于各配管的孔径与数量, 请参见前面所示的「标准规格」之项。  
Note) Pipe diameters and No. of units are as shown in "Standard specifications" in preceding page.



冷却塔支脚形状  
Details of fixing point  
长孔 22×47  
Long hole 22×47



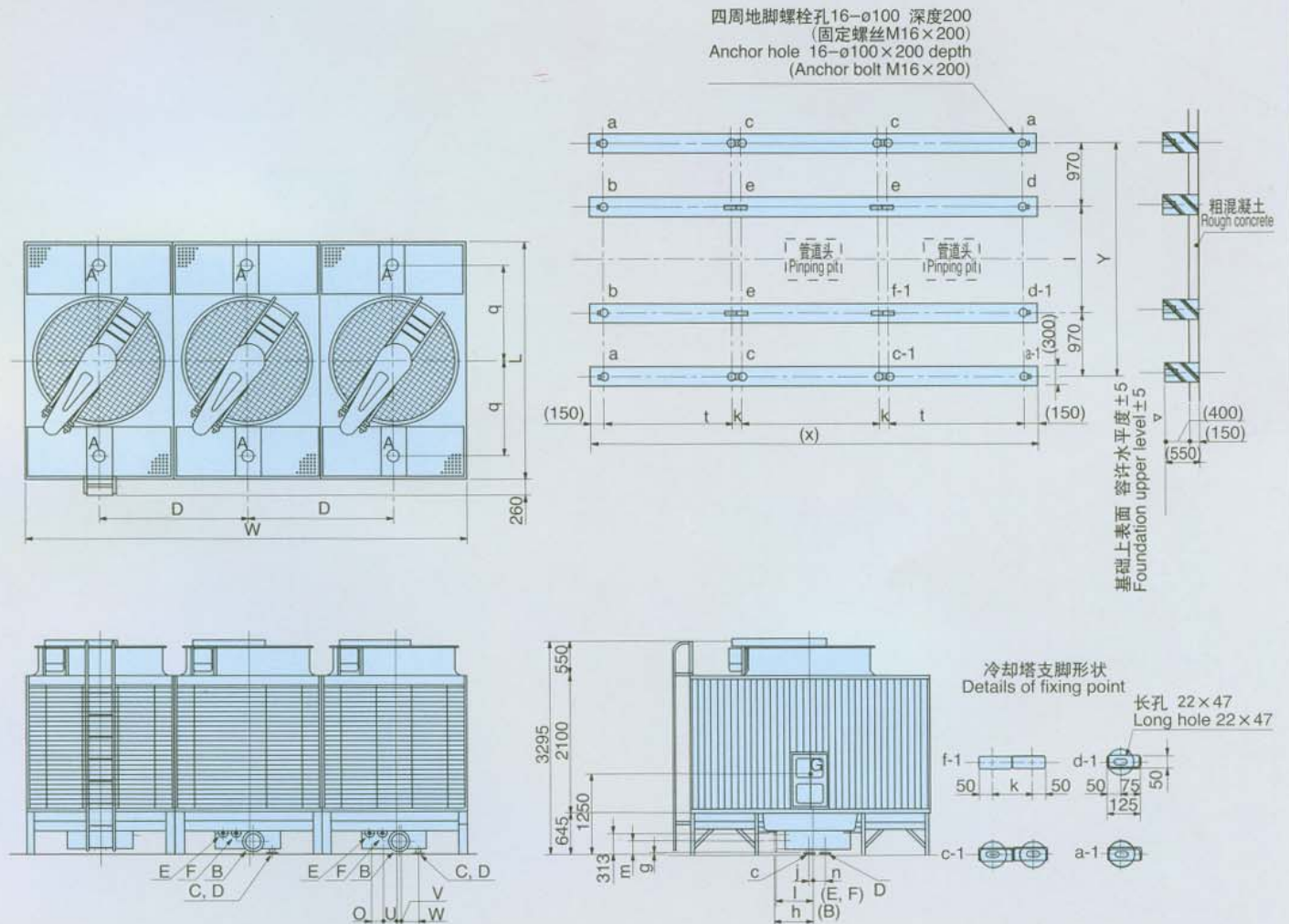
| 机种<br>Model |      |      | 尺寸<br>Dimensions (mm) |      |      |      |     |    |     |     |     |     |     |     |     | 基础尺寸<br>Foundation dimensions (mm) |      |      |      |     | 承载数据(长期承载重量: 吨)<br>Loading data(sustained loading: ton) |      |      |      |      |      |
|-------------|------|------|-----------------------|------|------|------|-----|----|-----|-----|-----|-----|-----|-----|-----|------------------------------------|------|------|------|-----|---|------|------|------|------|------|
| UFW         | UFWS | UFWL | W                     | L    | p    | q    | m   | g  | h   | i   | j   | n   | o   | u   | v   | w                                  | X    | Y    | t    | k   | l   | a    | b    | c    | d    | e    |
| 200         | 170  | 150  | 3500                  | 3260 | 1750 | 1285 | 200 | 23 | 590 | 540 | 125 | 125 | 150 | 150 | 60  | 240                                | 3650 | 3170 | 1600 | 150 | 1230  | 0.22 | 0.32 | 0.44 | 0.43 | 0.75 |
| 225         | 180  | 160  |                       |      |      |      |     |    |     |     |     |     |     |     |     |                                    |      |      |      |     |   |      |      |      |      |      |
| 250         |      |      |                       |      |      |      |     |    |     |     |     |     |     |     |     |                                    |      |      |      |     |   |      |      |      |      |      |
| 265         | 200  | 170  | 3700                  | 3360 | 1850 | 1335 | 210 | 23 | 650 | 620 | 125 | 125 | 200 | 180 | 80  | 280                                | 3850 | 3270 | 1700 | 150 | 1330  | 0.24 | 0.35 | 0.48 | 0.46 | 0.81 |
| 280         | 225  | 180  |                       |      |      |      |     |    |     |     |     |     |     |     |     |                                    |      |      |      |     |   |      |      |      |      |      |
| 280         | 250  | 200  | 4100                  | 3460 | 2050 | 1385 | 205 | 3  | 610 | 560 | 5   | 245 | 200 | 230 | 100 | 310                                | 4250 | 3370 | 1900 | 150 | 1430  | 0.28 | 0.40 | 0.56 | 0.51 | 0.91 |
| 300         | 265  | 225  |                       |      |      |      |     |    |     |     |     |     |     |     |     |                                    |      |      |      |     |   |      |      |      |      |      |
| 300         | 280  | 250  | 4500                  | 3660 | 2250 | 1485 | 205 | 3  | 610 | 560 | 5   | 245 | 200 | 230 | 100 | 310                                | 4650 | 3570 | 2100 | 150 | 1630  | 0.32 | 0.46 | 0.64 | 0.57 | 1.03 |
| 320         | 265  | 265  |                       |      |      |      |     |    |     |     |     |     |     |     |     |                                    |      |      |      |     |   |      |      |      |      |      |
| 340         | 300  | 280  | 4800                  | 3760 | 2400 | 1535 | 205 | 3  | 610 | 560 | 5   | 245 | 200 | 230 | 100 | 310                                | 4900 | 3670 | 2200 | 200 | 1730  | 0.35 | 0.50 | 0.70 | 0.61 | 1.11 |
| 360         | 320  | 320  |                       |      |      |      |     |    |     |     |     |     |     |     |     |                                    |      |      |      |     |   |      |      |      |      |      |



| 标记 Symbol | 配管名称 Name of pipe            |
|-----------|------------------------------|
| A         | 循环水输入口 Hot water inlet hole  |
| B         | 循环水输出管 Cold water outlet     |
| C         | 排水 Drain                     |
| D         | 溢流 Overflow                  |
| E         | 自动供水 Automatic make-up water |
| F         | 手动供水 Manual make-up water    |

注) 关于各配管的孔径与数量, 请参见前面所示的「标准规格」之项。

Note) Pipe diameters and No. of units are as shown in "Standard specifications" in preceding page.



| 机种<br>Model | 尺寸<br>Dimensions (mm) |     |      |      |      |      |      |     |    |     |     |     |     |     |     | 基础尺寸<br>Foundation dimensions (mm) |     |      |      |      | 承载数据(长期承载重量: 吨)<br>Loading data(sustained loading:ton) |      |      |      |      |      |      |      |
|-------------|-----------------------|-----|------|------|------|------|------|-----|----|-----|-----|-----|-----|-----|-----|------------------------------------|-----|------|------|------|--|------|------|------|------|------|------|------|
|             | UFW                   | UFW | SUFW | L    | p    | q    | m    | g   | h  | i   | j   | n   | o   | u   | v   | w                                  | X   | Y    | t    | k    | l  | a    | b    | c    | d    | e    | f    |      |
| 375         |                       |     |      | 5250 | 3260 | 1750 | 1285 | 200 | 23 | 590 | 540 | 125 | 125 | 150 | 150 | 60                                 | 240 | 5400 | 3170 | 1600 | 150  | 1230 | 0.22 | 0.32 | 0.44 | 0.40 | 0.72 | 0.80 |
| 405         | 340                   |     |      | 5550 | 3360 | 1850 | 1335 | 200 | 23 | 590 | 540 | 125 | 125 | 150 | 150 | 60                                 | 240 | 5700 | 3270 | 1700 | 150  | 1330 | 0.24 | 0.35 | 0.48 | 0.45 | 0.81 | 0.90 |
| 420         | 360                   | 300 |      | 6150 | 3460 | 2050 | 1385 | 210 | 23 | 570 | 540 | 45  | 205 | 200 | 180 | 80                                 | 280 | 6300 | 3370 | 1900 | 150  | 1430 | 0.28 | 0.40 | 0.56 | 0.50 | 0.91 | 1.00 |
| 450         | 405                   | 340 |      |      |      |      |      |     |    |     |     |     |     |     |     |                                    |     |      |      |      |  |      |      |      |      |      |      |      |
| 480         | 420                   | 360 |      | 6750 | 3660 | 2250 | 1485 | 210 | 23 | 570 | 540 | 45  | 205 | 200 | 180 | 80                                 | 280 | 6900 | 3570 | 2100 | 150  | 1630 | 0.32 | 0.46 | 0.64 | 0.57 | 1.03 | 1.14 |
| 510         | 450                   | 405 |      |      |      |      |      |     |    |     |     |     |     |     |     |                                    |     |      |      |      |  |      |      |      |      |      |      |      |
| 540         | 480                   | 420 |      | 7200 | 3760 | 2400 | 1535 | 205 | 3  | 530 | 480 | 75  | 250 | 200 | 230 | 100                                | 310 | 7300 | 3670 | 2200 | 200  | 1730 | 0.35 | 0.50 | 0.70 | 0.61 | 1.11 | 1.22 |

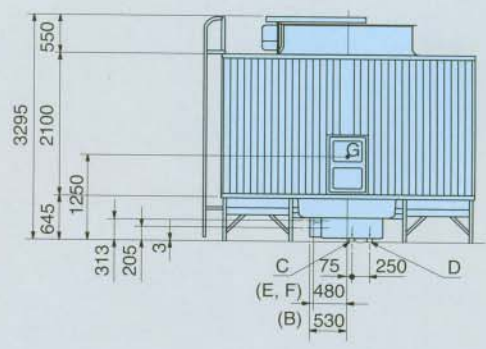
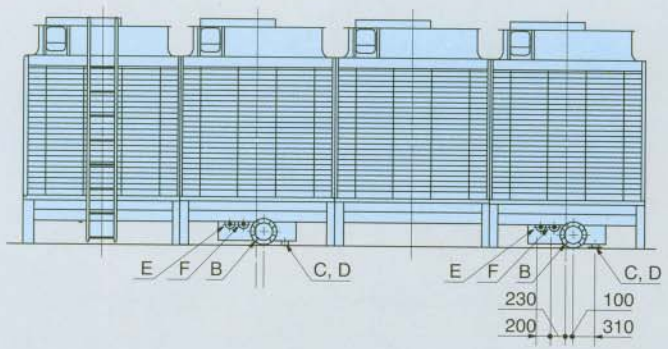
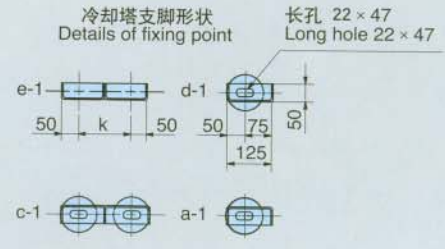
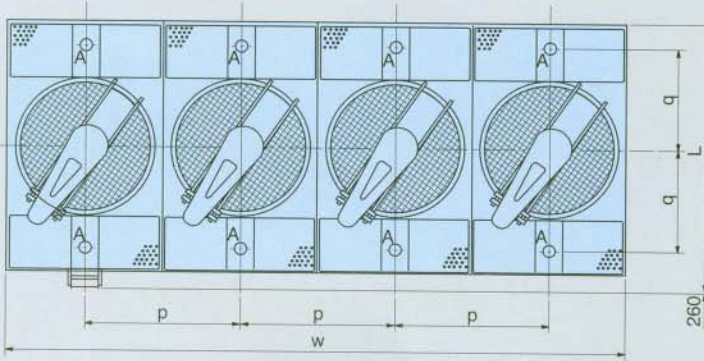
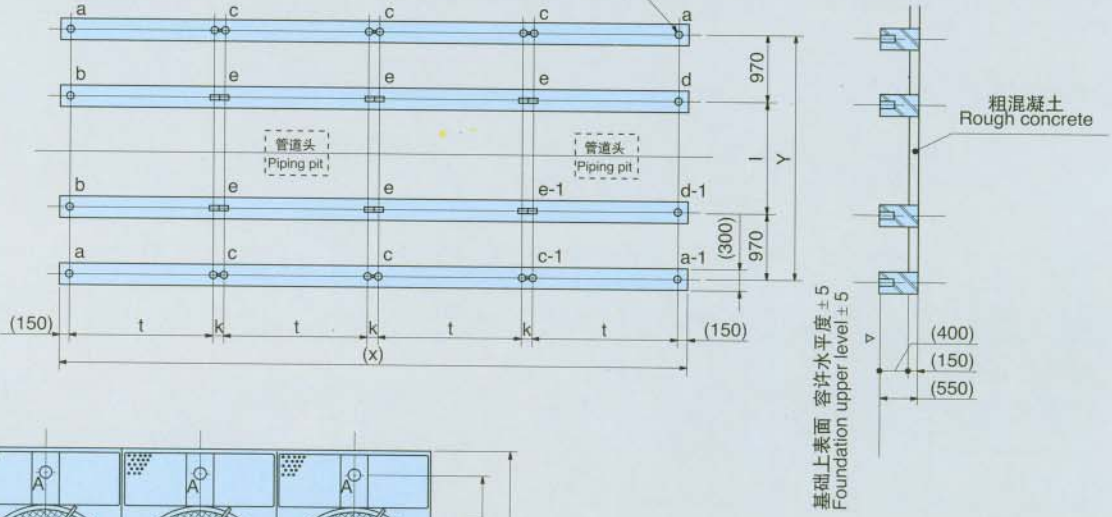


| 标记 Symbol | 配管名称 Name of pipe            |
|-----------|------------------------------|
| A         | 循环水输入口 Hot water inlet hole  |
| B         | 循环水输出管 Cold water outlet     |
| C         | 排水 Drain                     |
| D         | 溢流 Overflow                  |
| E         | 自动供水 Automatic make-up water |
| F         | 手动供水 Manual make-up water    |

注) 关于各配管的孔径与数量, 请参见前面所示的「标准规格」之项。

Note) Pipe diameters and No. of units are as shown in "Standard specifications" in preceding page.

四周地脚螺栓孔  $20-\phi 100$  深度200  
(固定螺丝 M16  $\times$  200)  
Anchor hole 8- $\phi 100 \times 200$  depth  
(Anchor bolt M16  $\times$  200)



| 机种<br>Model |      |      | 尺寸<br>Dimensions (mm) |      |      |      | 基础尺寸<br>Foundation dimensions (mm) |      |      |     |      | 承载数据(长期承载重量: 吨)<br>Loading data(sustained loading:ton) |      |      |      |      |
|-------------|------|------|-----------------------|------|------|------|------------------------------------|------|------|-----|------|--|------|------|------|------|
| UFW         | UFWS | UFWL | W                     | L    | p    | q    | X                                  | Y    | t    | k   | l    | a  | b    | c    | d    | e    |
| 560         | 510  | 450  | 8200                  | 3460 | 2050 | 1385 | 8350                               | 3370 | 1900 | 150 | 1430 | 0.28   | 0.40 | 0.56 | 0.51 | 0.91 |
| 600         | 540  | 480  | 9000                  | 3660 | 2250 | 1485 | 9150                               | 3570 | 2100 | 150 | 1630 | 0.32   | 0.46 | 0.64 | 0.57 | 1.03 |
| 680         | 600  | 540  | 9600                  | 3760 | 2400 | 1535 | 9700                               | 3670 | 2200 | 200 | 1730 | 0.35   | 0.50 | 0.70 | 0.61 | 1.11 |

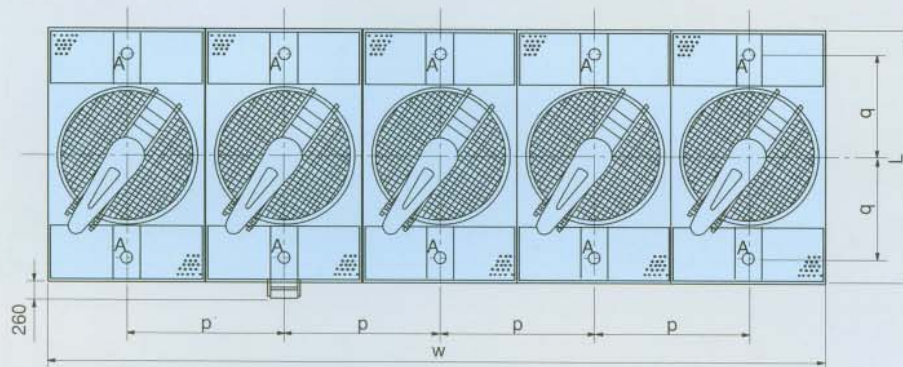
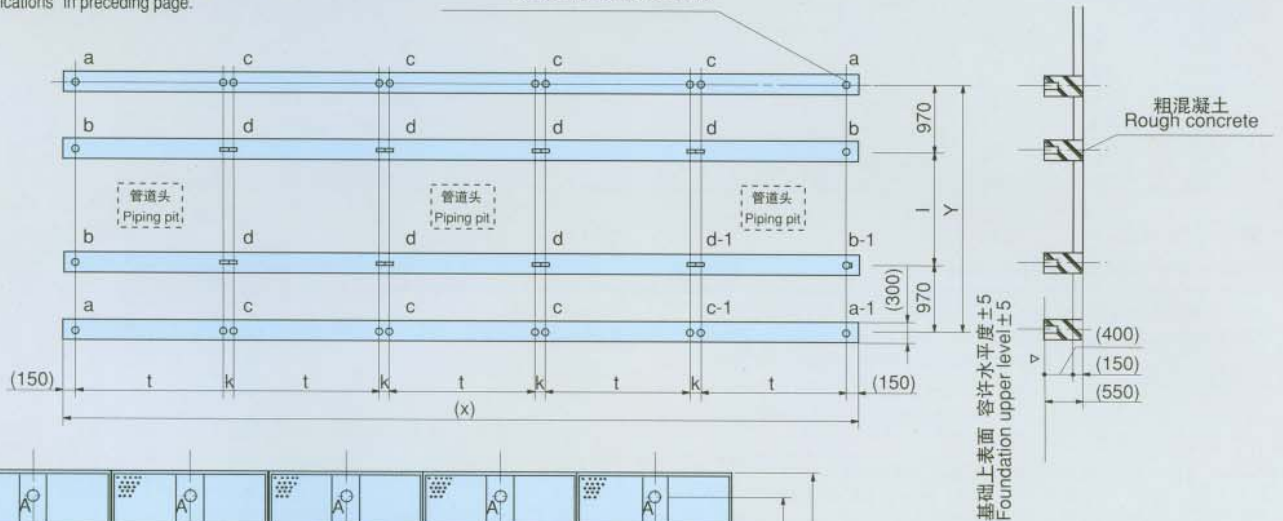


| 标记 Symbol | 配管名称 Name of pipe            |
|-----------|------------------------------|
| A         | 循环水输入口 Hot water inlet hole  |
| B         | 循环水输出管 Cold water outlet     |
| C         | 排水 Drain                     |
| D         | 溢流 Overflow                  |
| E         | 自动供水 Automatic make-up water |
| F         | 手动供水 Manual make-up water    |

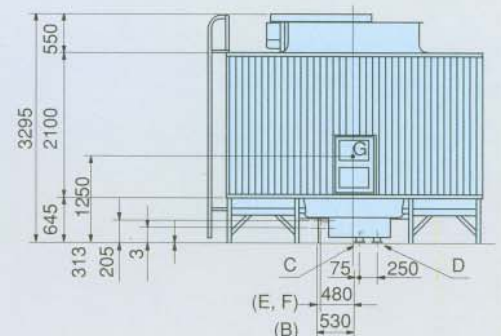
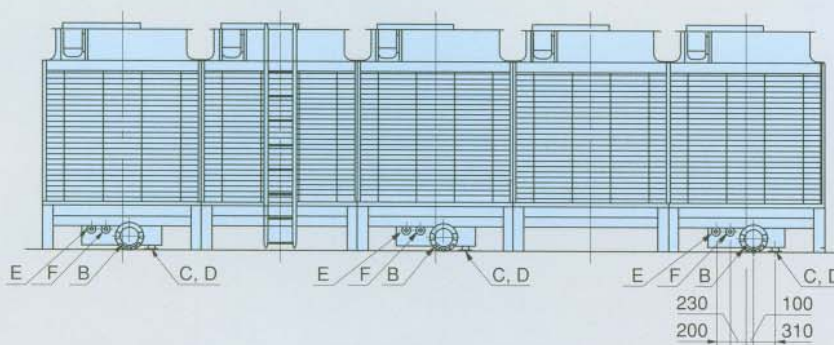
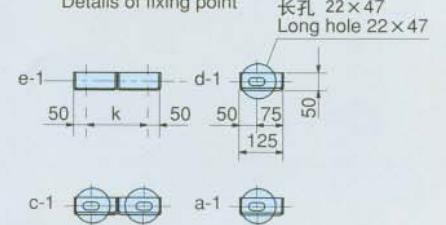
注) 关于各配管的孔径与数量, 请参见前面所示的「标准规格」之项。

Note) Pipe diameters and No. of units are as shown in "Standard specifications" in preceding page.

四周地脚螺栓孔 24-φ100 深度200  
(固定螺丝M16×200)  
Anchor hole 24-φ100×200 depth  
(Anchor bolt M16×200)



冷却塔支脚形状  
Details of fixing point



| 机种<br>Model |            |            | 尺寸<br>Dimensions (mm) |      |      |      | 基础尺寸<br>Foundation dimensions (mm) |      |       |     |      | 承载数据(长期承载重量: 吨)<br>Loading data(sustained loading:ton) |      |      |      |
|-------------|------------|------------|-----------------------|------|------|------|------------------------------------|------|-------|-----|------|--|------|------|------|
| UFW         | UFS        | UFWL       | W                     | L    | p    | q    | X                                  | Y    | t     | k   | l    | a  | b    | c    | d    |
|             | 680<br>720 | 600<br>640 | 11250                 | 3660 | 2250 | 1485 | 11400                              | 3570 | 2.100 | 150 | 1630 | 0.32   | 0.57 | 0.64 | 1.03 |
|             |            | 680<br>720 | 12000                 | 3760 | 2400 | 1535 | 12100                              | 3670 | 2.200 | 200 | 1730 | 0.35   | 0.61 | 0.70 | 1.11 |



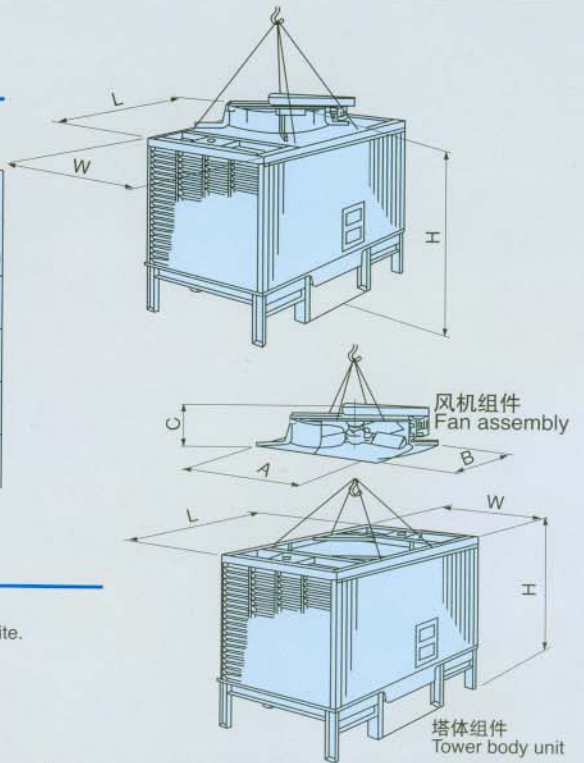
## ■成品直接交货方式

### Ex-vehicle delivery type

以下机种为直接交货型，不需现场安装工程。

The following models are delivered on a ex-vehicle basis; no on-site installation is required.

| 机种 Models  |            |          | W     | L     | H     | 标准形<br>最大重量(公斤)<br>Max. weight for<br>standard type (kg) |
|------------|------------|----------|-------|-------|-------|--|
| UFW        | UFWS       | UFWL     |       |       |       |  |
| 60<br>70   |            |          | 1.450 | 3.060 | 2.800 | 810  |
| 80<br>90   | 60<br>70   | 60       | 1.750 | 3.260 | 2.800 | 930  |
| 100<br>110 | 80<br>90   | 70       | 1.850 | 3.360 | 2.800 | 1.010  |
| 120<br>130 | 100<br>110 | 80<br>90 | 2.050 | 3.460 | 2.800 | 1.050  |



## ■现场组装型

### On-site combination type

以下机种为塔体组件和风机组件分开型，在现场进行组装操作。

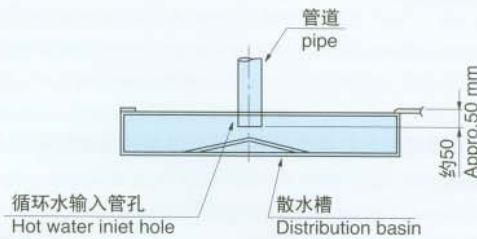
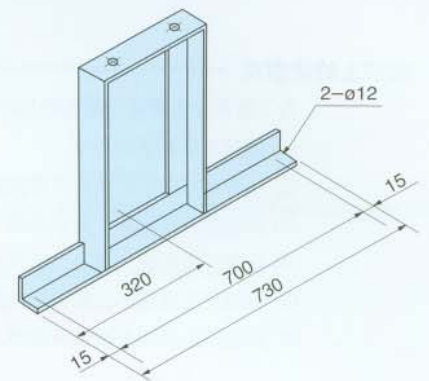
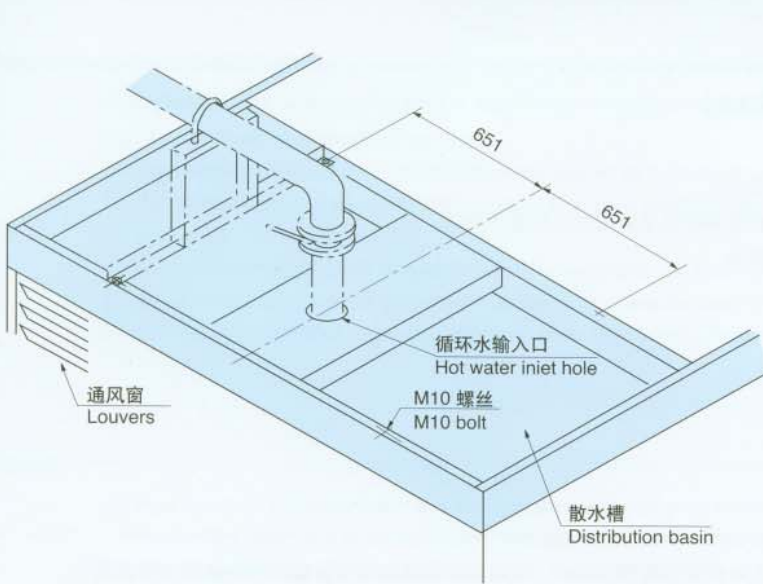
The following types consist of a tower body unit and a fan assembly, which are combined on-site.

| 机种 Models |      |      | 塔体组件 Tower body unit |       |       |  |            | 风机组件 Fan assembly |       |     |                                 |            |
|-----------|------|------|----------------------|-------|-------|--|------------|-------------------|-------|-----|---------------------------------|------------|
| UFW       | UFWS | UFWL | W                    | L     | H     | 标准形<br>最大重量(公斤)<br>Max. weight for<br>standard type (kg) | 个数<br>Q'ty | A                 | B     | C   | 最大重量(公斤)<br>Max. weight<br>(kg) | 个数<br>Q'ty |
| 200       | 170  | 150  | 1.750                | 3.260 | 2.750 | 790  | 2          | 1.720             | 1.820 | 550 | 240                             | 2          |
| 225       | 180  | 160  |                      |       |       |  | 3          |                   |       |     |                                 | 3          |
| 250       |      |      |                      |       |       |  |            |                   |       |     |                                 |            |
| 265       | 200  | 170  | 1.850                | 3.360 | 2.750 | 810  | 2          | 1.820             | 1.920 | 550 | 270                             | 2          |
| 375       | 225  | 180  |                      |       |       |  | 3          |                   |       |     |                                 | 3          |
| 405       | 340  |      |                      |       |       |  |            |                   |       |     |                                 |            |
| 140       | 120  | 100  | 2.050                | 3.460 | 2.750 | 830  | 1          | 2.020             | 2.020 | 550 | 290                             | 1          |
| 280       | 130  | 110  |                      |       |       |  | 2          |                   |       |     |                                 | 2          |
| 250       | 200  | 225  |                      |       |       |  | 3          |                   |       |     |                                 | 3          |
| 360       | 300  | 320  |                      |       |       |  | 4          |                   |       |     |                                 | 4          |
| 560       | 510  | 450  |                      |       |       |  |            |                   |       |     |                                 |            |
| 150       | 140  | 120  | 2.250                | 3.660 | 2.750 | 900  | 1          | 2.220             | 2.220 | 550 | 330                             | 1          |
| 160       |      | 130  |                      |       |       |  | 2          |                   |       |     |                                 | 2          |
| 300       | 280  | 250  |                      |       |       |  | 3          |                   |       |     |                                 | 3          |
| 320       | 280  | 265  |                      |       |       |  | 4          |                   |       |     |                                 | 4          |
| 450       | 405  | 340  |                      |       |       |  | 5          |                   |       |     |                                 | 5          |
| 480       | 420  | 360  |                      |       |       |  |            |                   |       |     |                                 |            |
| 600       | 540  | 480  |                      |       |       |  |            |                   |       |     |                                 |            |
| 640       | 560  | 510  |                      |       |       |  |            |                   |       |     |                                 |            |
|           | 680  | 600  | 2.400                | 3.760 | 2.750 | 970  | 1          | 2.370             | 2.320 | 550 | 360                             | 1          |
|           | 720  | 640  |                      |       |       |  | 2          |                   |       |     |                                 | 2          |
| 170       | 150  | 140  |                      |       |       |  | 3          |                   |       |     |                                 | 3          |
| 340       | 300  | 280  |                      |       |       |  | 4          |                   |       |     |                                 | 4          |
| 360       | 320  |      |                      |       |       |  | 5          |                   |       |     |                                 | 5          |



## 管道配置台架参考图

## Pipe support installation reference drawing

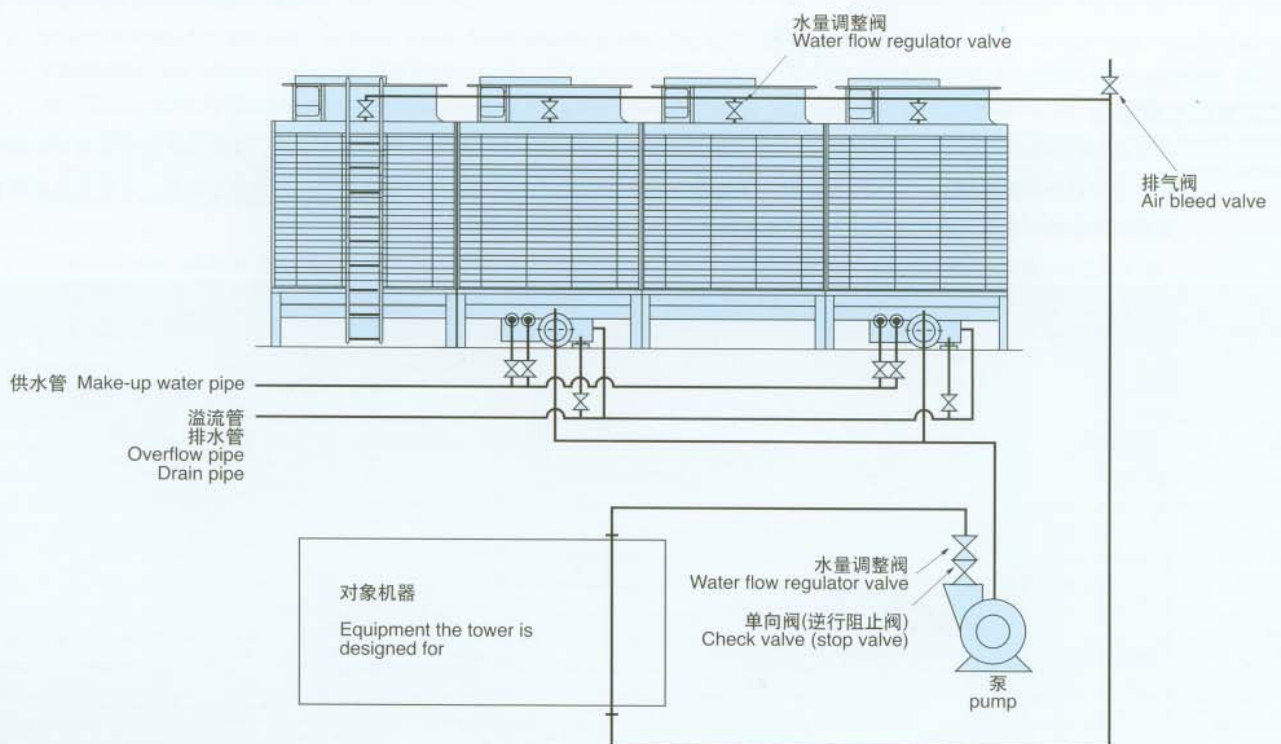


- 1) 用M10将管道配置台架安装在图示散水槽孔上。
- 2) 在各循环水输入管上装上水量调整阀。
- 3) 将输入管插入冷却塔盖板下50毫米处(左下图)。

- 1) As shown in the sketch, install the pipe support to the distribution basin hole with the M10 bolt.
- 2) Install the water flow regulator valve to each circulation water inlet.
- 3) Insert the circulation water inlet approximately 50 mm below the cooling tower's ceiling plate (see lower left sketch).

## 管道配置图例

## Example of pipe layout





# 使用说明

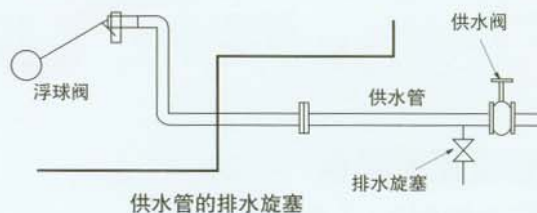
## 1. 安装上的注意点

为了能充分发挥冷却塔的功能，应选择良好的安装场所。

- (1) 通风良好的干净场所。
- (2) 由冷却塔排出的气体不会因循环而被再吸入的场所。
- (3) 应避免在多灰层，多亚硫酸气体场所使用，否则会导致热交换器以及配管的损伤。
- (4) 应避免在厨房，厕所，氨气复印机排气口附近使用。
- (5) 应避免在烟窗以及能受到热源热辐射处使用。
- (6) 应在不会因回音而使声音放大的开放处使用。

## 2. 管道配置

- (1) 对制冷设备和冷却塔之间的管道配置一般按照上一页的配置图例进行。同时也应参照制冷设备和其他机器的使用说明书。
- (2) 除了循环水输入部分，应使用JB81-59型法兰进行管道的连接。
- (3) 循环水泵吸入部分应设置在低于冷却塔水槽水面的位置。
- (4) 应设置管道台架使冷却塔不直接承受管道的重量。
- (5) 为减少返回水量，应在泵排水口设置单向阀。
- (6) 高于冷却塔水槽水面位置的管道，尤其是冷却塔上的横向设置管道应尽量做得短，并应尽量减少冷却塔停止时的返回水量。
- (7) 散水槽有好几个。应在各散水槽的输入口部设置水量调整阀。
- (8) 在冷却塔的附近应对供水管设置支撑台架。没有支撑台架的话，在用浮球阀进行补给时会导致管道振动。
- (9) 为防止供水管冻结，在供水连接口和供水阀间的最下部应设置排水旋塞。



## 3. 循环水的水质管理

任何良好的供给水中也稍微存在腐蚀性物质以及碳酸钙等难溶物质，并且会随时间变化而浓缩。这种不纯物质受大气污染的影响，水锈以及腐蚀性将逐渐增大，以至引起故障。下表是日本冷冻空调工业会所制订的冷冻空调机用冷却水标准。应参考此水质标准值来决定循环水的排污量以及是否需要投入水质处理药剂等，以进行适当的处理。

表 冷冻空调机器用冷却水水质标准

|       | 项目  | 冷却水标准值     | 补给水标准值     | 倾向 |    |
|-------|---|------------|------------|----|----|
|       |   |            |            | 腐蚀 | 水锈 |
| 标准项目  | ph(25℃)                                   | 6.5~8.2    | 6.0~8.0    | ○  | ○  |
|       | 电导率 (mS/m)(25℃) [μS/cm] (25℃)             | 80以下 800以下 | 30以下 300以下 | ○  | ○  |
|       | 氯离子 (mgCl/l)                              | 200 以下     | 50 以下      | ○  |    |
|       | 硫酸离子 (mgSO <sub>4</sub> <sup>2-</sup> /l) | 200 以下     | 50 以下      | ○  |    |
|       | 酸消耗量 (pH4.8)(mgCaCO <sub>3</sub> /l)      | 100 以下     | 50 以下      |    | ○  |
|       | 全硬度 (mgCaCO <sub>3</sub> /l)              | 200 以下     | 70 以下      |    | ○  |
|       | 钙硬度 (mgCaCO <sub>3</sub> /l)              | 150 以下     | 50 以下      |    | ○  |
| 参考项目  | 离子状硅 (mgSiO <sub>2</sub> /l)              | 50 以下      | 30 以下      |    | ○  |
|       | 铁 (mgFe/l)                                | 1.0 以下     | 0.3 以下     | ○  | ○  |
|       | 铜 (mgCu/l)                                | 0.3 以下     | 0.1 以下     | ○  |    |
|       | 硫化物离子 (mgS <sup>2-</sup> /l)              | 不应检出       | 不应检出       | ○  |    |
|       | 氨离子 (mgNH <sub>4</sub> <sup>+</sup> /l)   | 0.1 以下     | 0.1 以下     | ○  |    |
|       | 残余氯 (mgCl/l)                              | 0.3 以下     | 0.3 以下     | ○  |    |
|       | 单体碳 (mgCO <sub>2</sub> /l)                | 4.0 以下     | 4.0 以下     | ○  |    |
| 稳定性指数 | 6.0~7.0                                   | —          | ○          | ○  |    |

日本冷冻空调工业会 JRA GL-02-1994



# Handling instructions

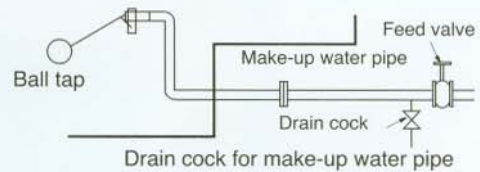
## 1. Precautions for installation

To get the best out of the cooling towers, install them in locations with good installation condition.

- (1) Choose clean, well-ventilated locations.
- (2) Locate the cooling towers in places where exhausted air from the towers do not circulate and reenter them.
- (3) Do not install the towers in locations exposed to a great amount of dust or sulfur dioxide; otherwise, damage to the heat exchanger or pipes may result.
- (4) Avoid installing the towers in locations close to a kitchen, rest room, and/or exhaust port of ammonium type copiers.
- (5) Avoid installation locations close to smokestacks or where the towers would be exposed to exhaust heat.
- (6) Choose open locations to prevent operating noise from being echoed and amplified.

## 2. Piping

- (1) Pipe layout for a cooling tower and the equipment it is designed for is as shown in "Example of pipe layout" in the preceding page. In laying these pipes, refer also to the instruction manuals accompanying the relevant equipment.
- (2) Pipe joints other than those for the circulation water inlets use the JB81-59 flange.
- (3) Install the circulation water suction port in such a way that it is located lower than the water surface level in the cooling tower water basin.
- (4) Install pipe supports to the pipes to prevent the load of the pipes from being applied directly to the cooling tower.
- (5) To reduce return water, install a check valve to the exhaust port of the pump.
- (6) Make as short as possible the pipes located higher than the surface level of the water contained in the cooling tower water basin particularly the crosswise pipes on top of the tower - to reduce return water when the cooling tower stops operation.
- (7) Each cooling tower is equipped with multiple distribution basins. Install the water flow regulator valve to each basin.
- (8) In installing the support to the make-up water pipe, locate the support as close to the cooling tower as possible. Absence of the support may cause the pipe to vibrate while refill water is being supplied using the ball tap.
- (9) To prevent the make-up water pipe from freezing, install a drain cock to the lowermost position between the water supply connection port and feed valve.



## 3. Quality control of circulation water

Even the highest-quality water contains a very small amount of refractory substances that become concentrated over time, including corrosive substances and calcium carbonate. The concentration of these impurities are accelerated all the more by the effects of air pollution, etc., resulting in scale build-up or corrosion. The following table lists the water quality standards for cooling water for use with refrigeration air-conditioning equipment, as set forth by the Japan Refrigeration Air-Conditioning Industry Association. By referring to these water quality standards, take necessary measures, including the determination of the amount of blow for the circulation water and whether or not water treatment agents should be injected.

Table Water quality standards set forth by the Japan Refrigeration Air-Conditioning Industry Association

|                        | Item   | Recirculating water     | Make-up water           | Tendency  |               |
|------------------------|--|-------------------------|-------------------------|-----------|---------------|
|                        |  |                         |                         | Corrosive | Scale-forming |
| Standard items         | ph(25℃)  | 6.5-8.2                 | 6.0-8.0                 | ○         | ○             |
|                        | Electric conductivity (mS/m)(25℃)μS/cm(25℃)      | 80 or less(800 or less) | 30 or less(300 or less) | ○         | ○             |
|                        | Chloride ion (mgCl/l)                            | 200 or less             | 50 or less              | ○         |               |
|                        | Sulfate ion (mgSO <sub>4</sub> /l)               | 200 or less             | 50 or less              | ○         |               |
|                        | Acid consumption (pH4.8)(mgCaCO <sub>3</sub> /l) | 100 or less             | 50 or less              |           | ○             |
|                        | Total hardness (mgCaCO <sub>3</sub> /l)          | 200 or less             | 70 or less              |           | ○             |
|                        | Calcium hardness (mgCaCO <sub>3</sub> /l)        | 150 or less             | 50 or less              |           | ○             |
| Reference items        | Ionic silica (mgSiO <sub>2</sub> /l)             | 50 or less              | 30 or less              |           | ○             |
|                        | Iron (mgFe/l)                                    | 1.0 or less             | 0.3 or less             | ○         | ○             |
|                        | Copper (mgCu/l)                                  | 0.3 or less             | 0.1 or less             | ○         |               |
|                        | Sulfide ion (mgS <sup>2-</sup> /l)               | not to be detected      | not to be detected      | ○         |               |
|                        | Ammonium ion (mgNH <sub>4</sub> /l)              | 0.1 or less             | 0.1 or less             | ○         |               |
|                        | Residual chlorine (mgCl/l)                       | 0.3 or less             | 0.3 or less             | ○         |               |
|                        | Free carbon dioxide (mgCO <sub>2</sub> /l)       | 4.0 or less             | 4.0 or less             | ○         |               |
| Ryzner stability index | 6.0-7.0  | —                       | ○                       | ○         |               |



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